



## **Geotechnical Investigation and Report Proposed Subdivision Development**

Mayfield Tullamore TACC Development Lands, Bramalea Road  
and Old School Road, Caledon, Ontario

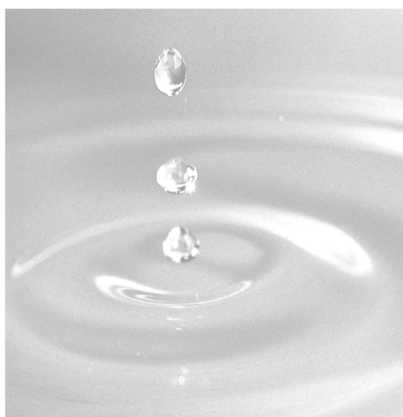
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## Certification

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## Record of Revisions

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| Identification | Date           | Description of Issued and/or Revision                                                                               |
|----------------|----------------|---------------------------------------------------------------------------------------------------------------------|
| Revision 0     | May 23, 2025   | Original report                                                                                                     |
| Revision 1     | March 25, 2026 | Updates to reflect the latest development concept plan and preliminary servicing details from the civil engineer    |
| Revision 2     | May 28, 2026   | Updates to reflect the latest development concept plan and preliminary grading concept plan from the civil engineer |
|                |                |                                                                                                                     |
|                |                |                                                                                                                     |
|                |                |                                                                                                                     |

## 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            |
| ASTM           | American Society for Testing and Materials          |
| 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                                    |
| ERIS           | EcoLog Environmental Risk Information Services Ltd. |
| Elev.          | Elevation                                           |
| 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             | Kilometres                                          |
| kPa            | Kilopascal                                          |
| L              | Litres                                              |
| LID            | Low Impact Development                              |
| m              | Metres                                              |
| m <sup>3</sup> | Cubic Meters                                        |
| MECP           | Ministry of Environment, Conservation and Parks     |
| min            | minute                                              |
| mm             | Millimetres                                         |
| MMAH           | Ministry of Municipal Affairs and Housing           |

|          |                                            |
|----------|--------------------------------------------|
| MW       | Monitoring Well                            |
| NHS      | Natural Heritage System                    |
| N values | “N” Values                                 |
| OBC      | Ontario Building Code                      |
| OHSA     | Occupational Health and Safety Act         |
| OPSS     | Ontario Provincial Standard Specifications |
| OPSD     | Ontario Provincial Standard Drawing        |
| O.Reg.   | Ontario Regulation                         |
| OD       | Outside Diameter                           |
| P        | Precipitation                              |
| PHC      | Petroleum Hydrocarbon                      |
| PTTW     | Permit to Take Water                       |
| PWQO     | Provincial Water Quality Objective         |
| PVC      | Polyvinyl Chloride                         |
| R        | Runoff                                     |
| ROI/ROIs | Radius/Radii of Influence                  |
| ROW      | Right of Way                               |
| s        | Seconds                                    |
| SLS      | Serviceability Limit State                 |
| S        | Storage                                    |
| SCS      | Site Condition Standards                   |
| SGRA     | Significant Groundwater Recharge Area      |
| SPT      | Standard Penetration Test                  |
| SPmdd    | Standard Proctor maximum dry density       |
| SS       | Split Spoon                                |
| SWM      | Storm Water Management                     |
| ULS      | Ultimate Limit State                       |
| USCS     | Unified Soil Classification System         |
| VOC      | Volatile Organic Compound                  |
| WHPA     | Wellhead Protection Area                   |

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.

# 1. Introduction

---

GEI Consultants Canada Ltd. (GEI) was retained by TACC Developments (the Client) to complete a subsurface investigation and geotechnical report to support a draft plan of subdivision for the proposed development located at Bramalea Road and Old School Road, in Caledon, Ontario. The site is within the Mayfield Tullamore Secondary Plan area. A site location plan is enclosed as Figure 1 and a site context plan is enclosed as Figure 2.

The property is located southeast of the intersection of Bramalea Road and Old School Road, and is about 69.85 ha in size. The site has an irregular shape and is approximately 1,230 m (north to south) by 1,050 m (east to west). The site is bounded by Old School Road to the north; farmland, NHS land, and a golf course to the east; farmland and NHS land to the south; and Bramalea Road to the west. The site consists mostly of farmland, with silos, barns, and other structures near Bramalea Road. NHS lands run generally north-to-south along the eastern and western areas of the site. The site is relatively flat with a gentle slope downwards from west to east. An aerial image of the site is provided in Figure 3A.

GEI was provided with the following drawings for reference:

- *“Draft Plan of Subdivision, TACC Developments (Armstrong) Inc.,”* dated April 17, 2026, by Glen Schnarr & Associates Inc.
- *“Preliminary Grading Concept,”* Project No. 22-725, dated April 20, 2026, by Urbantech Consulting.
- *“Preliminary Sanitary Trunk Sewer Concept,”* Project No. 22-725, dated April 2023, by Urbantech Consulting.

Based on the April 17, 2026, Draft Plan (shown on Figure 3B for reference), preliminary grading concept, and correspondence with the Client and design team, the proposed development will generally consist of the following:

- Primarily single detached lots, with rear lane, back-to-back, and street townhouses.
- A public elementary school near the middle of the site.
- Mixed use / retail in the northwest corner of the site.
- Park blocks in the middle and eastern part of the site, which could contain LID measures.
- A SWM pond in the western part of the site. The grading concept shows the bottom of the forebay will be near Elev. 263.7 m, and the bottom of the wet cell near Elev. 261.7 m (approximately 4 to 6 m below grade based on existing contours shown on the grading plan).
- The grading concept shows proposed elevations and existing site contours. It is estimated that as much as 2.5 m of cut, and 3.3 m of fill, will occur across the site.
- A deep trunk sanitary sewer will run generally west to east and north to south through the site. Markups from the civil engineer show the inverts to range from Elev. 258.5 m in the northwestern area, down to Elev. 249.0 m in the southeastern area (about 6 to 10 m below existing grade, on average around 9 m, based on nearby borehole ground elevations). Other typical services were indicated to be about 5 or 6 m below existing grade or shallower.
- Various roadways with access from Old School Road and Bramalea Road.

- A corridor along the NHS Lands will remain undeveloped except for a proposed roadway crossing which connects the west community with the east. The trunk sanitary sewer will extend below this crossing location.

GEI is currently working on the Mayfield Tullamore Local Subwatershed Study for Mayfield Tullamore Landowner Group Inc. c/o Development Collective, which includes the TACC Development lands owned by the Client. The Phase 1 and 2 LSS Reports are in progress. Boreholes 19 to 26, 28, 29, 32, 35, 36, 101 and 102 were drilled on the TACC lands as part of LSS investigation, and the data from those boreholes, geotechnical lab testing, along with the new Boreholes 201 to 215 were used in the preparation of this report.

The purpose of this combined geotechnical investigation was to assess the subsurface soil conditions at the site, and based on this information, provide geotechnical engineering recommendations in support of the proposed development for draft plan of subdivision. This report summarizes the borehole findings from both investigations, provides geotechnical engineering design recommendations for site earthworks and engineered fill, foundations, earth pressures, drainage for basements, site servicing installation, SWM ponds, pavements, and infiltration. Considerations for constructability such as soil excavation, compaction, on-site backfill suitability and temporary groundwater control are provided. Key geotechnical considerations are discussed to help guide preliminary design.

It is noted that the recommendations provided in this report must be considered preliminary in nature due to the current uncertainty of the design for the project. As the design progresses, further geotechnical review and input will likely be required which would necessitate the need for additional investigation and analysis. The site concept plan changed since the original 2024 supplemental investigation, including new locations for the SWM pond (s), deep trunk sewer, and school block. It should be expected that additional subsurface investigation will be required to support future development phases.

As part of the scope of work a hydrogeological study was also carried out by GEI for the project. The results of the hydrogeological study are provided under separate cover.

## 2. Procedures and Methodology

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Prior to the commencement of drilling activities, the borehole locations were staked in the field by GEI. Ground surface elevations of the boreholes and horizontal coordinates (referencing NAD 83 geodetic datum) were surveyed by GEI with a Topcon FC – 5000 GPS Survey unit. Underground utilities including natural gas, electrical, telephone, water, etc. were marked out by public and private utility locating companies, prior to drilling.

The fieldwork for the drilling program was carried out on April 29 to May 8, 2024, for the boreholes advanced as part of the Mayfield Tullamore Phase 1 LSS. Boreholes 201 to 215 were drilled November 26<sup>th</sup> to December 4<sup>th</sup>, 2024, to depths ranging from 6.6 to 23.3 m below grade. These borehole locations and depths were selected based on a site plan dated September 2024, which was the most recent plan available at that time. It is noted that the most recent site plan has made changes to the residential layout, roadways, SWM ponds locations, school location, creek crossing, parks, and deeper sewer location and as a result borehole locations may not be in synch with the latest features.

Borehole logs are provided in Appendix A and the borehole locations are shown on Figure 3A (aerial image) and Figure 3B (draft plan). The detailed breakdown is listed below.

- Ten (10) of the boreholes extended to 6 m below grade. Five (5) of these boreholes have been instrumented with a monitoring well.
- Two (2) of the boreholes (Boreholes 208 and 209) extended to 10 m below grade in the former southern SWM pond location and were instrumented with nested deep (10 m) and shallower (5 m) monitoring wells. From the latest site plan, this area now consists of residential lots and roadways.
- One (1) borehole in the former northwestern SWM pond location (Borehole 204) extended to 15 m below grade and was instrumented with nested deep (15 m) and shallower (6 m) monitoring wells. This SWM pond has been shifted south on the latest site plan.
- One (1) of the boreholes (Borehole 211) in the former school block was located near the deep sewer alignment and was drilled 20 m below grade. The borehole was instrumented with a nested deep (20 m) and a shallower (6 m) monitoring well. The school block is shifted south on the latest site plan.
- One (1) borehole in the northern part of the site (Borehole 212) was also near the previous deep sewer alignment. It was extended to 23 m below grade and was instrumented with nested deep (23 m) and shallower (6 m) monitoring wells. The deeper sewer alignment now does not appear to extend through the northernmost part of the site, based on the latest information provided from the civil engineer.

The boreholes were advanced by a drilling subcontractor retained and supervised by GEI using a track-mounted drill rig, solid stem augers, and standard soil sampling equipment. Sampling was conducted using a 51 mm OD 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. In each borehole soil sampling was conducted at 0.75 m intervals to 3.0 m depth then at 1.5 m intervals thereafter.

Monitoring wells were installed in Boreholes 20, 21, 23, 24D/S, 26, 28, 29, 35, 101, 102, 201, 202, 204D/S, 205, 206, 208D/S, 209D/S, 211D/S, 212D/S, and 215 by GEI to facilitate long-term groundwater monitoring, each consisting of 50 mm diameter PVC pipe with a 1.5 or 3.0 m long screen and protective casing. Monitoring well construction is shown on the borehole logs in Appendix A. Boreholes without wells were backfilled in accordance with O.Reg. 903.

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 construction, and processed the recovered samples. All recovered soil samples were logged in the field, carefully packaged, and transported to GEI's laboratory for more detailed examination and classification.

In GEI's laboratory, the samples were classified as to their visual and textural characteristics. All samples were submitted for moisture content determination in accordance with ASTM D2216. A combined total of nineteen (19) representative samples of the soils from the Phase 1 LSS and current investigation were selected and submitted to our laboratory for grain size analysis. Grain size results are provided in Appendix B.

## **3. Subsurface Conditions**

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### **3.1. General Overview**

The detailed soil profiles encountered in the boreholes are indicated in the attached borehole logs in Appendix A. The geotechnical laboratory results are included in Appendix B. The borehole locations are shown on Figure 3A (aerial image) and Figure 3B (draft plan). Geological Cross-Sections A-A' and B-B' are included as Figures 4A and 4B, showing subsurface soil and groundwater conditions.

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. It should be noted that the soil boundaries indicated on the borehole logs are inferred from non-continuous sampling and observations during drilling. The 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 to exist at locations where sampling was conducted.

### **3.2. Stratigraphy**

#### **3.2.1. Topsoil and Earth Fill**

The boreholes encountered approximately 50 to 280 mm of topsoil at grade. Topsoil thickness may vary between boreholes and in other areas of the site. Due to the widely spaced boreholes, reliance on only the borehole locations may not provide representative topsoil volumes. A shallow test pit grid program is recommended to augment the borehole locations and provide a more accurate topsoil volume.

Borehole 20 was advanced near a residential dwelling on Old School Road, encountering earth fill beneath the topsoil. The earth fill consisted of clayey silt with some sand, trace gravel, trace organics and rootlets, extending to a depth of 0.8 m below grade. The fill was dark brown and moist with a firm consistency.

#### **3.2.2. Upper Cohesive Glacial Till**

The site was predominantly underlain by glacial till deposits with a cohesive matrix comprising clayey silt, some sand to sandy, with trace gravel. Some zones of the glacial till graded to some clay or some sand. Cobbles and boulders are inferred to be embedded within the deposits. The cohesive glacial till was encountered in Boreholes 19 to 26, 28, 29, 32, 35, 36, 102, and 201 to 215, extending to depths of 2.3 to 13.7 m below grade (Elev. 270.3 to 249.6 m), or beyond the depth of drilling at 6.6 m below grade in some locations. The upper 0.5 to 0.8 m of the glacial till was weathered (potentially from frost action) or disturbed (possibly from historic farming practices). The weathered / disturbed zone locally contained trace organics or trace rootlets.

The clayey silt glacial till was typically brown and moist, turning grey with depth. The SPT N values measured in the undisturbed glacial till ranged from 6 to greater than 50, indicated a firm to hard (but typically very stiff to hard) consistency. Moisture contents typically ranged from 8 to 22%. Grain size analysis was carried out on samples from Boreholes 205, 208, 210, and 211, and from the five Guelph Permeameter testing locations (GP1 to GP5), measuring 0 to 7% gravel, 18 to 31% sand, 38 to 53% silt, and 16 to 41% clay. The results are in Appendix B.

This upper cohesive glacial till is interpreted as the regional soil unit known as Halton Till.

### ***3.2.3. Layered Clay and Silt***

Layered clay and silt, to clayey silt, to silty clay was encountered underlying the upper glacial till in Boreholes 211, 212, 214, and 215, at depths of 4.6 to 13.7 m below grade (Elev. 254.4 to 256.0 m). The deposits extended to depths of 15.2 to 16.8 m below grade (Elev. 247.4 to 251.4 m) in Boreholes 211 and 212, and extended beyond the 6.6 m depth of drilling in Boreholes 214 and 215.

The deposits were grey and moist, wet at depth in Borehole 211, with moisture contents ranging from 12 to 25%. The SPT N values ranged from 21 to greater than 100, indicating a very stiff to hard (but typically hard) consistency.

### ***3.2.4. Cohesionless Sands, Silts, and Gravels***

Various cohesionless deposits of sands, silts, and gravels were encountered underlying the upper glacial till in Boreholes 19, 21, 23, 25, 26, 29, 102, 201 to 204, and 206 to 209, or underlying the layered clay and silt in Boreholes 211 and 212. The cohesionless deposits were encountered directly below the topsoil and weathered / disturbed soil in Borehole 101 at 1.2 m below grade (Elev. 265.9 m) and at depths of 2.3 to 16.8 m below grade (Elev. 270.3 to 247.2 m) in the other borehole locations. The deposits typically extended beyond the depth of drilling at 6.6 to 23.3 m below grade but extended to depths of 12.2 to 13.7 m (Elev. 251.7 to 246.6 m) specifically in Boreholes 29 and 102.

The composition of the deposits had a wide spectrum, grading from sand, to silt, to silty sand, to sandy silt, to sandy gravel, to gravelly sand, with distinct layering noted in some locations. The sandy gravel to gravelly sand layers were encountered in Boreholes 23 and 101 at depths of 9.1 to 10.7 m, extending beyond the depth of drilling in Borehole 23 at 12.6 m and extending to 16.8 m in Borehole 101.

The cohesionless deposits were brown to grey and moist, becoming wet with depth. Moisture contents typically ranged from 2 to 25%. SPT N values measured a loose to very dense relative density, typically compact to very dense.

Grain size analysis was carried out on samples from Boreholes 23, 29, 101, 102, 201, 203, 209, and 211 as shown in Appendix B. The silt deposits in Boreholes 102, 201, and 209 measured 0 to 1% gravel, 2 to 18% sand, 70 to 93% silt, and 5 to 11% clay. The gravel / gravelly deposits in Boreholes 23 and 101 measured 26 to 35% gravel, 52 to 66% sand, 8 to 10% silt, and 0 to 3% clay. The sand deposits in Boreholes 29, 203, and 211 measured 0 to 1% gravel, 78 to 82% sand, 14 to 19% silt, and 3 to 4% clay.

The cohesionless deposits of sands, silts, and gravels encountered between the upper Halton Till and lower Newmarket Till units are interpreted to be part of the regional soil unit known as the Oak Ridges Aquifer Complex (ORAC).

### 3.2.5. Lower Cohesionless Glacial Till

A deeper cohesionless glacial till deposit was encountered underlying the cohesive glacial till in Boreholes 35 and 213 at 3.0 to 4.6 m below grade (Elev. 262.2 to 255.4 m) and underlying the sands, silts, and gravels in Boreholes 29 and 102 at 12.2 to 13.7 m (Elev. 246.6 to 251.7 m). The deposit extended beyond the depth of drilling in Boreholes 29, 35, and 213 at 6.6 to 15.7 m, and extended to 18.3 m (Elev. 247.1 m) in Borehole 102.

The glacial till had a cohesionless matrix consisting of sand and silt to sandy silt, with trace to some clay and trace gravel, locally silt with some sand. Cobbles and boulders are inferred to be embedded within the glacial till. The measured SPT N values indicated dense to very dense conditions. The deposit was grey and moist to wet with moisture contents ranging from 9 to 15%.

Grain size analyses were carried out on samples from Boreholes 29 and 102, both measuring 9% gravel, 44% sand, 43% silt, and about 5% clay. The results are in Appendix B.

This lower cohesionless till is interpreted as the regional soil unit known as Newmarket Till.

## 3.3. Groundwater

Unstabilized groundwater level measurements and cave measurements were taken upon the completion of drilling of each borehole as shown on the borehole logs in Appendix A. These measurements were taken to provide a rough estimate of the possible excavation and temporary groundwater control constructability considerations that may arise. Depth of cave typically ranged from staying open or 4.6 to 18.4 m below grade, and unstabilized groundwater ranged from dry or 3.0 to 18.2 m below grade.

Fourteen (14) boreholes were outfitted with a monitoring well with 50 mm diameter pipe and 1.5 to 3.0 m long screen. Six (6) Boreholes were instrumented with a nested deeper and shallower monitoring well. Monitoring well configuration and groundwater observations are noted on the borehole logs in Appendix A and summarized in the table below.

**Table 3-1. Groundwater Levels in the Monitoring Wells**

| Monitoring Well Location | Depth / Elev. (m) of Well Screen | Strata Screened          | Depth / Elev. (m) of Groundwater |                |              |
|--------------------------|----------------------------------|--------------------------|----------------------------------|----------------|--------------|
|                          |                                  |                          | March 6, 2025                    | April 23, 2025 | May 29, 2025 |
| BH/MW 201                | 4.6 to 6.1 / 268.0 to 266.5      | Silt, Some Sand          | 5.7 / 266.9                      | 5.7 / 266.9    | 5.7 / 266.9  |
| BH/MW 202                | 4.6 to 6.1 / 266.5 to 265.0      | Silt, Some Sand          | Dry                              | Dry            | 3.5 / 267.6  |
| NW 204 D                 | 13.7 to 15.2 / 255.8 to 254.3    | Sand, Some Silt          | 12.4 / 257.2                     | 12.1 / 257.4   | 12.4 / 257.1 |
| NW 204 S                 | 4.5 to 6.0 / 265.0 to 263.5      | Silt, Some Sand          | 5.8 / 263.7                      | 5.8 / 263.7    | 5.8 / 263.7  |
| BH/MW 205                | 4.6 to 6.1 / 265.6 to 264.1      | Clayey Silt Glacial Till | 3.8 / 266.4                      | 1.8 / 268.4    | 2.4 / 267.8  |

| Monitoring Well Location | Depth / Elev. (m) of Well Screen | Strata Screened                    | Depth / Elev. (m) of Groundwater |                |              |
|--------------------------|----------------------------------|------------------------------------|----------------------------------|----------------|--------------|
|                          |                                  |                                    | March 6, 2025                    | April 23, 2025 | May 29, 2025 |
| BH/MW 206                | 4.6 to 6.1 / 264.5 to 263.0      | Silt, Some Sand                    | Dry                              | Dry            | Dry          |
| NW 208 D                 | 7.6 to 9.1 / 251.2 to 249.7      | Clayey Silt Glacial Till to Sand   | -0.7 / 259.4                     | -0.7 / 259.4   | -0.7 / 259.4 |
| NW 208 S                 | 4.5 to 6.0 / 255.7 to 254.2      | Clayey Silt Glacial Till           | 0.7 / 258.1                      | 0 / 258.8      | 0.2 / 258.6  |
| NW 209 D                 | 7.6 to 9.1 / 251.0 to 249.5      | Clayey Silt Glacial Till to Silt   | -0.4 / 259.0                     | -1.0 / 259.6   | -1.0 / 259.6 |
| NW 209 S                 | 4.6 to 6.1 / 254.0 to 252.5      | Clayey Silt Glacial Till           | 0.4 / 258.2                      | 0 / 258.6      | -0.1 / 258.7 |
| NW 211 D                 | 16.8 to 19.8 / 245.8 to 242.8    | Sand to Silt                       | 2.7 / 259.9                      | 2.1 / 260.5    | 2.3 / 260.4  |
| NW 211 S                 | 4.6 to 6.1 / 258.0 to 256.5      | Clayey Silt Glacial Till           | 2.3 / 260.3                      | 1.3 / 261.3    | 1.5 / 261.1  |
| NW 212 D                 | 19.9 to 22.9 / 248.2 to 245.2    | Sand                               | 4.7 / 263.4                      | 4.1 / 264.1    | 4.2 / 263.9  |
| NW 212 S                 | 4.6 to 6.1 / 263.5 to 262.0      | Clayey Silt Glacial Till           | 1.6 / 266.5                      | 0.8 / 267.3    | 1.6 / 266.5  |
| BH/MW 215                | 4.6 to 6.1 / 256.0 to 254.5      | Clay and Silt                      | 2.4 / 258.2                      | 2.2 / 258.5    | 2.8 / 257.8  |
| BH/MW 20                 | 4.5 to 6.0 / 264.1 to 262.6      | Clayey Silt Glacial Till           | 1.5 / 267.1                      | 1.1 / 267.5    | 1.2 / 267.3  |
| BH/MW 21                 | 4.5 to 6.0 / 261.9 to 260.4      | Sand                               | 5.8 / 260.6                      | 4.7 / 261.7    | 5.0 / 261.4  |
| BH/MW 23                 | 10.6 to 12.1 / 257.5 to 256.0    | Sand and Gravel                    | 11.5 / 256.7                     | 11.3 / 256.8   | 11.4 / 256.7 |
| NW 24 D                  | 4.5 to 6.0 / 259.4 to 257.9      | Clayey Silt Glacial Till           | 2.8 / 261.1                      | 2.3 / 261.6    | 2.4 / 261.5  |
| NW 24 S                  | 0.8 to 2.3 / 263.0 to 261.5      | Clayey Silt Glacial Till           | 0.6 / 263.2                      | 0.2 / 263.5    | 0.4 / 263.4  |
| BH/MW 26                 | 4.5 to 6.0 / 256.3 to 254.8      | Sand Layered with Silt             | 1.5 / 259.3                      | 1.1 / 259.7    | 1.2 / 259.6  |
| BH/MW 28                 | 4.5 to 6.0 / 259.4 to 257.9      | Clayey Silt Glacial Till           | 2.5 / 261.3                      | 2.0 / 261.9    | 2.1 / 261.8  |
| BH/MW 29                 | 12.2 to 15.2 / 246.7 to 243.7    | Sand and Silt Glacial Till         | -0.9 / 259.8                     | -0.9 / 259.8   | -0.9 / 259.8 |
| BH/MW 35                 | 4.6 to 6.1 / 255.4 to 253.9      | Sandy Silt Glacial Till            | 4.0 / 256.0                      | 2.3 / 257.7    | 1.5 / 258.4  |
| BH/MW 101                | 16.8 to 19.8 / 250.3 to 247.3    | Gravelly Sand to Sand and Silt     | 10.9 / 256.3                     | 10.8 / 256.3   | 10.7 / 256.4 |
| BH/MW 102                | 16.8 to 19.8 / 248.6 to 245.6    | Sand and Silt Glacial Till to Silt | 5.2 / 260.2                      | 4.5 / 260.9    | 3.7 / 261.7  |

Note: A negative groundwater depth indicates groundwater was measured to be above grade.

The stabilized groundwater levels measured in the spring of 2025 varied across the site. In general, the groundwater levels within the upper clayey silt glacial till ranged from ground surface to 2.3 m below grade. The groundwater levels in the shallower sands and silts typically ranged from 2.3 to 5.8 m below grade, with some locations being dry at 6 m below grade. Groundwater levels in the deeper sands, sand and gravel, to gravelly sand in the eastern side of the site typically ranged from 12.1 to 10.7 m below grade.

The deep well in Borehole 102 measured groundwater at 3.7 m below grade within the deeper sand and silt glacial till / silt deposit.

Flowing artesian groundwater conditions were measured in BH/MW 208D and 209D, which were screened across the clayey silt glacial till interface with the underlying sand and silt deposits. Groundwater was measured at 0.7 to 1.0 m above existing grade, indicating the underlying sands and silts in those locations are confined and pressurized. BH/MW 208S and 209S screened in the upper glacial till measured groundwater levels deeper than the deep wells, indicating an upward gradient. Flowing artesian groundwater conditions were also encountered in BH/MW 29, which was screened in the deep sand and silt glacial till but also partially captured a confined silt deposit. Groundwater was measured at 0.9 m above existing grade in that location.

Sub-artesian conditions were also encountered in deep Boreholes 211 and 212. The monitoring wells were screened in the deep sands, confined below the layered clay and silt and clayey silt glacial till deposits. Measurements indicate the piezometric surface is about 13 m above the top of the confined sand aquifer. In Borehole 26, the well was screened in sand and silt confined by the clayey silt glacial till, measuring the piezometric surface at 3.5 m above the top of the sand and silt.

The sands, silts, and gravels are interpreted to be the ORAC, which was revealed as a confined aquifer below large areas of the site. The artesian groundwater conditions encountered in the ORAC across the central, southern, and western parts of the site are a significant consideration for deep services, deep foundations, deep SMW ponds, or other excavations that could extend into or near the ORAC deposits.

The sands, silty sands, sand and gravels, and gravelly sands are permeable and will allow for the free flow of groundwater. Sandy silt, silt and cohesionless glacial till are somewhat permeable and still typically allow for some free flow of groundwater when wet. The clayey silt glacial till and layered clay and silt have low permeability, typically precluding the free flow of water.

Groundwater levels are expected to show seasonal fluctuations and vary in response to prevailing climate conditions. Please refer to GEI's hydrogeological investigation under separate cover for more information on groundwater levels, permeability, and seasonal fluctuations.

## **4. Engineering Design Parameters & Analysis**

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Based on the April 17, 2026 Draft Plan (shown on Figure 3B for reference), preliminary grading concept, and correspondence with the Client and design team, the proposed development will generally consist of the following:

- Primarily single detached lots, with rear lane, back-to-back, and street townhouses.
- A public elementary school near the middle of the site.
- Mixed use / retail in the northwest corner of the site.
- Park blocks in the middle and eastern part of the site, which could contain LID measures.
- A SWM pond in the western part of the site. The grading concept shows the bottom of the forebay will be near Elev. 263.7 m, and the bottom of the wet cell near Elev. 261.7 m (approximately 4 to 6 m below grade based on existing contours shown on the grading plan).
- The grading concept shows proposed elevations and existing site contours. It is estimated that as much as 2.5 m of cut, and 3.3 m of fill, could occur across the site.
- A deep trunk sanitary sewer will run generally west to east and north to south through the site. Markups from the civil engineer show the inverts to range from Elev. 258.5 m in the northwestern area, down to Elev. 249.0 m in the southeastern area (about 6 to 10 m below existing grade, on average around 9 m, based on nearby borehole ground elevations). Other typical services were indicated to be about 5 or 6 m below existing grade or shallower.
- Various roadways with access from Old School Road and Bramalea Road.
- A corridor along the NHS Lands will remain undeveloped except for a proposed roadway crossing which connects the west community with the east. The trunk sanitary sewer will extend below this crossing location.

Confined aquifers with artesian and sub-artesian conditions were encountered in various boreholes in the central, eastern, and southern parts of the site. In the western part of the site, artesian pressures were not measured in the confined aquifer. Although the confined aquifers with pressurized groundwater conditions were typically well below expected depths for footings, basements, or standard servicing excavations, the pressurized aquifers had water levels within 4.6 and 7.6 m of existing grade in Boreholes 26 and 209, respectively. There is risk of the foundation, slab, or pipe subgrade heaving and becoming disturbed in these locations, if the excavation extends close to the confined layer. If the confining cohesive soil layers are penetrated, significant disturbance to the cohesionless soil subgrade will occur and dewatering may not be possible or require significant efforts for depressurization that may be impractical. Options may need to be considered in these areas such as grade raises, slab-on-grade construction without basement levels, etc.

Based on the current grading concept, fill is proposed near Borehole 26 and similar existing / final grades are proposed near Borehole 209. Assuming the residential units will have 3 m deep basements, there would be sufficient native soil below the slabs to resist hydrostatic uplift. Additional geotechnical investigation and analysis is considered essential as the design progresses to further delineate these conditions.

It is essential to consider the preliminary nature of the recommendations in this geotechnical engineering report, particularly in light of the uncertainty surrounding the project's design, as well as the presence of confined aquifers with fluctuating artesian conditions that may impact excavation and foundation stability, necessitating further geotechnical investigation and additional analysis and reporting.

## **4.1. Site Grading**

The latest grading concept shows proposed grades and existing site contours. It is estimated that as much as 2.5 m of cut, and 3.3 m of fill, could occur across the site. Engineered fill will be required in grade raise areas that will support structures to mitigate settlement issues. Section 4.1.1 below contains detailed information on engineered fill construction.

Topsoil, earth fill, and weak or weathered/disturbed soil directly below the fill/topsoil are unsuitable to support foundations, slabs, or other structures. In this regard, in building areas, it is recommended to strip the topsoil and other organic soil and stockpile separately then sub-excavate the existing inorganic earth fill and/or upper weak or weathered/disturbed soil. The upper weathered/disturbed soils are about 0.8 m thick on average. The exposed undisturbed native soil subgrade must be proof-rolled, compacted, and inspected by the geotechnical engineer prior to engineered fill placement up to the desired grade.

The inorganic earth fill and weathered/disturbed soils can potentially remain in place as subgrades for pavements, but must be proof-rolled, compacted, inspected and approved by the geotechnical engineer on site. Any unsuitable areas would be sub-excavated down to competent soil or undisturbed native soil.

On large sites such as this with proposed low-rise residential buildings, removing all disturbed soils and uniformly raising grades with engineered fill is recommended. It is envisioned that all earthworks be carried out first, then building and servicing construction would take place.

Topsoil thicknesses measured in the boreholes only represent limited data points over a widely spaced area and therefore should only be relied upon for preliminary volume or cost estimates. Depending on site activities, locations with thicker topsoil may exist and/or thicker organic deposits may also exist at the site (e.g. marsh or wetland areas) that were inaccessible or were not specifically encountered in the boreholes. For more accurate volume estimates/costing of topsoil or organics at the site, additional shallow test pits on a grid-based program are strongly encouraged. The program would also provide more information on the extent of organics in the soil immediately below the topsoil. For preliminary planning purposes organics are assumed to be within the soil 200 mm below the base of the topsoil.

### **4.1.1. Engineered Fill**

GEI defines “engineered fill” as material that will support foundations, slabs, or other structures, and which is placed and compacted in a specified and controlled manner under full-time supervision of geotechnical engineering staff.

Engineered fill will be placed to raise grades in building areas and is recommended for pavement areas. The full depth of topsoil, weathered/disturbed soil or existing earth fill must be fully removed down to competent native soil. The exposed subgrade soil must be proof-rolled and inspected by the geotechnical engineer to ensure all unsuitable material (e.g., organics, weak or soft soil, weathered / disturbed soil,

deleterious materials and existing fill) is removed from the engineered fill footprint. Any unsuitable areas must be further sub-excavated to an approved subgrade.

Once the subgrade is approved, engineered fill can be placed. Engineered fill must be placed under the full-time supervision of a geotechnical engineer as required in the Ontario Building Code. The engineered fill may consist of excavated on-site inorganic soils provided they have been moisture conditioned to a moisture content within 2% of optimum moisture content and do not contain organics, topsoil or deleterious material. The maximum cobble or boulder size should not exceed half of the loose lift thickness (i.e., all particles with a diameter greater than 100 mm should be removed). It is recommended that imported soil consist of OPSS.MUNI 1010 Granular B or Select Subgrade Material (SSM) and first be utilized in building areas with suitable site soil used in non-building areas. Engineered fill must be placed in loose lifts of 200 mm or less and compacted to a targeted 100% SPMDD in building areas (minimum 98% SPMDD) and 98% SPMDD in servicing or pavement areas. A minimum of 98% SPMDD is recommended for all fill placed at the site, based on the large scale of the site. That way, if site plans change in the future, the compaction specifications are already met, and additional engineered fill placement would not be required.

Localized wet subgrade areas may occur in low lying areas, uneven areas that allow ponded rain or other water to accumulate, in areas near watercourses or where perched groundwater is encountered. Where wet areas are present and cannot be remediated through sub-excavation or allowed to dry, the first lift of engineered fill shall consist of 400 mm of Granular B Type II (OPSS.MUNI 1010). This will help to bridge the weaker subgrade and improve the ability to achieve the compaction specifications for subsequent engineered fill lifts. Additional lifts of Granular B Type II about 200 mm to 400 mm thick may be required for stability. Geogrid and/or geotextile may also be an alternative prior to engineered fill placement, to be determined on site during construction.

The engineered fill must extend a minimum of 1 m out from all sides of the foundations and extend at a 1 horizontal to 1 vertical slope (1H:1V) down to the exposed subgrade. A typical detail for engineered fill pad dimensioning is included in Appendix D.

## **4.2. Foundation Design**

### **4.2.1. Foundations on Native Soil**

Grading was not finalized at the time of this report and footing levels were not known. For preliminary purposes, foundations at this site may be constructed as conventional shallow spread and strip footing foundations set on native, undisturbed soil, typically encountered at 0.8 m below grade (locally 1.2 m below grade).

The native soils are generally competent, and foundations set on the undisturbed native soils can be designed using a serviceability geotechnical resistance pressure of 150 kPa at SLS for 25 mm or less of total settlement, and a factored ultimate geotechnical resistance pressure of 225 kPa at ULS.

Higher bearing resistances are available and can be provided upon request, once additional site development details are available (for example, in the proposed school or commercial blocks). Additional field investigation during future design stages may also be required to confirm higher bearing resistances.

Final footing elevations must be reviewed by geotechnical personnel from GEI to confirm geotechnical resistance values. The values provided above are for vertical, concentric loading, and must be re-assessed for other loading conditions. The final site configuration must also be reviewed by GEI to assess the potential for footings to be set on different soil subgrades, and to assess the potential for differential settlement. It is recommended that all foundations be set on the same soil subgrade wherever possible, to reduce the potential for differential settlement.

#### ***4.2.2. Foundations on Engineered Fill***

If the foundations are supported on an engineered fill pad, constructed as discussed in Section 4.1.1, the spread or strip footings can be designed using the same serviceability geotechnical resistance pressures at SLS and factored ultimate geotechnical resistance pressures at ULS as the underlying native soil to a maximum of 150 kPa at SLS (for 25 mm or less of total settlement) and 225 kPa at ULS.

It is recommended that nominal reinforcing steel for stiffening of the foundation walls made on engineered fill be provided to help mitigate minor cracking due to minor differential settlement. The reinforcing steel in the poured concrete foundation walls may consist of 2-15M bars continuous at the top of the foundation wall, and 2-15M bars continuous at the bottom of the foundation walls. Typically, these bars are placed 100 to 200 mm from the top or bottom of the foundation wall, respectively. The reinforcing steel should extend a minimum of 3 m past any transition zones between engineered fill and native soil. A typical reinforcing steel detail for foundation walls placed on engineered fill is provided within Appendix D. The recommended nominal reinforcing steel should not be considered a structural design. The need for different or additional reinforcement should be reviewed by a structural engineer to ensure the original structural design intent of the structure is maintained.

#### ***4.2.3. General Foundation Considerations***

All footings exposed to ambient air temperature throughout the year must be provided with a minimum of 1.2 m of earth cover or equivalent insulation for frost protection (25 mm of polystyrene insulation is equivalent to 300 mm of soil cover). The minimum strip and spread footing widths to be used shall be dictated as per the Ontario Building Code, regardless of loading considerations. Footings stepped from one level to another must be at a slope not exceeding 7V:10H.

The foundation design parameters provided above are predicated on the assumption that the foundation subgrade surface is undisturbed, and that all existing fill, deleterious, softened, disturbed, organic, and caved material is removed. The foundation excavation must be done in such a way that groundwater is controlled to prevent any disturbance to the foundation base. Temporary groundwater control during construction is discussed in Section 5.2.

The foundation subgrade must be reviewed by the geotechnical engineer prior to concrete placement to ensure the foundation design parameters described above are applicable, and to provide remedial recommendations if necessary. If the foundation excavation will be open for a prolonged period of time, the foundation subgrade should be protected with a skim coat of lean mix concrete (applied immediately after inspection by the geotechnical engineer), to ensure that no deterioration will occur due to weather effects.

### 4.3. Seismic Site Classification

The 2024 Ontario Building Code came into effect on January 1, 2025, and notable amendments to the 2012 Building Code pertaining to the seismic site classification are listed below:

- As per section 4.1.8.4, Site Properties, OBC 2024, the site designation shall be determined from Table 4.1.8.4.-A using the average shear wave velocity,  $V_{s30}$ , calculated from in situ measurements of shear wave velocity.
- Where  $V_{s30}$  calculated from in situ measurements is not available, the site designation shall be  $X_s$ , where  $S$  is the Site Class determined using the energy-corrected average standard penetration resistance,  $N_{60}$ , or the average undrained shear strength,  $S_u$ , in accordance with Table 4.1.8.4.-B,  $N_{60}$  and  $S_u$  being calculated based on rational analysis.

There have been no shear wave velocity measurements carried out at the site and therefore, SPT 'N' values are used to determine the site classification. Table 4.1.8.4.-B Site Classes,  $S$ , for Site Designation  $X_s$  in OBC 2024 indicates that site class "S" should be determined from the average ground profile characteristics in the top 30 m. The native soils encountered below the site that will support foundations generally consist of stiff to hard clayey silt glacial till, or compact to very dense cohesionless soils, with average SPT "N" Values of greater than 15 but less than 50. Based on the known soil conditions, the Site Designation for the Site is " $X_D$ " corresponding to Site Class D as per Table 4.1.8.4.-B. Shear wave velocity measurements can be considered to potentially improve upon the Site Designation if requested.

### 4.4. Infiltration Testing

#### 4.4.1. Field Methodology

The infiltration testing was conducted to support future preliminary LID design at this site. Locations and elevations of potential LIDs were unknown at the time of the field investigation and reporting. The method used on site is summarized below:

- GEI conducted infiltration testing using a Guelph Permeameter (GP) apparatus (Model 2800K1) on November 5 and 6, 2024, to determine the field-saturated hydraulic conductivity ( $K_{fs}$ ) of the near-surface soils in the vertical direction. The tests were completed in park and parkette areas shown on the previous September 2024 concept plan. Some of the parkland has shifted or been removed on the latest site plan.
- The temperature was about 10 degrees Celsius, the weather was clear to cloudy, and a significant rainfall event did not occur within 24 hours nor during the tests.
- The GP testing was conducted in hand-augered boreholes at depths of 0.5 m below grade (Elev. 267.4 to 259.7 m).
- The soils encountered in the hand-augered boreholes consisted of clayey silt to silt and clay glacial till, with some sand to sandy and trace gravel. Grain size analyses were completed on the soil samples from each GP location, with the results in Appendix B.

- The field-saturated hydraulic conductivity was converted to infiltration rates using the approximate relationships provided within Table C2 of Appendix C2 of “*Stormwater Management Criteria*,” (Version 1.0, dated August 2012, by Toronto and Region Conservation Authority). A factor of safety was applied based on Table C3 in Appendix C2 of the TRCA design guide.

#### 4.4.2. Analysis Methods

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

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

Where:  $C_1$  = shape factor  
 $Q_1$  = flow rate (cm<sup>3</sup>/s)  
 $H_1$  = water column height (cm)  
 $a$  = well radius (cm)  
 $\alpha^*$  = alpha factor (0.01 to 0.36 cm<sup>-1</sup>)

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 TRCA 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, 1997*”, which is summarized below. This table is also shown as Table C2 in Appendix C2 of TRCA’s guideline.

**Table 4-1. Approximate Relationships between  $K_{fs}$ , T, and I**

| 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 C11 of the TRCA 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. The factor of safety is taken from Table C3 of the TRCA guideline. 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

factor of safety is established by calculating the ratio of infiltration rate between the upper and lower soil units.

### 4.4.3. Infiltration Testing Results

The field-saturated hydraulic conductivity and infiltration rates of the soil was calculated using the one-head method with the results summarized below and included in Appendix C.

**Table 4-2. Summary of Infiltration Testing Results**

| Test Pit | GP Test Depth / Elev. (m) | Tested Soil Type <sup>1</sup>                                               | Field-Saturated Hydraulic Conductivity (cm/sec) | Unfactored Infiltration Rate (mm/hr) | Factor of Safety | Factored Infiltration Rate for Design (mm/hr) |
|----------|---------------------------|-----------------------------------------------------------------------------|-------------------------------------------------|--------------------------------------|------------------|-----------------------------------------------|
| GP1      | 0.5 / 267.4               | Clayey Silt to Clay and Silt Glacial Till, Some Sand to Sandy, Trace Gravel | $1.17 \times 10^{-4}$                           | 48.25                                | 2.5              | 19.30                                         |
| GP2      | 0.5 / 264.7               |                                                                             | $7.02 \times 10^{-6}$                           | 22.72                                | 2.5              | 9.09                                          |
| GP3      | 0.5 / 263.5               |                                                                             | $3.04 \times 10^{-5}$                           | 33.65                                | 2.5              | 13.46                                         |
| GP4      | 0.5 / 260.8               |                                                                             | $3.14 \times 10^{-5}$                           | 33.94                                | 2.5              | 13.58                                         |
| GP5      | 0.5 / 259.7               |                                                                             | n/a <sup>2</sup>                                | n/a <sup>2</sup>                     | -                | n/a <sup>2</sup>                              |

Notes:

1. See Appendix B for laboratory grain size analysis.
2. Steady-state rate of fall did not occur in this test location, indicating low permeability and limited potential for infiltration.

The test results indicate factored infiltration rates ranging from about 9 to 19 mm/hr within the upper glacial till, with one location not achieving a steady-state rate of fall and no infiltration. It is noted that a factored infiltration value less than 15 mm/hr is typically found to be impractical for LID use based on industry experience.

Once LID plans or details are available, they should be provided to GEI for review. Additional in-situ infiltration testing at the LID footprints and elevations should be expected as the design progresses. In the westernmost part of the site, sands and silts were typically encountered at shallower depths below the upper clayey silt till, along with a deeper groundwater table. There may be an opportunity for higher infiltration rates for LIDs sent into the sands and silts, but this would need to be confirmed by additional in-situ testing.

It is not recommended to design LIDs to infiltrate into the surficial topsoil layer and/or into the earth fill due to the possibility for variable soil consistency and trace organic content observed in the earth fill. It is typical for the base of infiltration features to be kept at least 1 m above the seasonally high groundwater level. Please refer to GEI's hydrogeological report under a separate cover for more details on seasonal groundwater levels.

## 4.5. Earth Pressure Design Parameters

Underground basement walls or underground structures must be designed to resist unbalanced lateral earth pressures imparted from the weight of adjacent soils. Lateral earth pressures are calculated using the following equation:

$$P = K[\gamma h + q]$$

where, **P** = the horizontal pressure (in kPa) at depth, **h** (m)  
**K** = the earth pressure coefficient (dimensionless)  
**h** = depth below ground surface (m)  
**γ** = the bulk unit weight of soil, (kN/m<sup>3</sup>)  
**q** = surcharge loading (kPa)

The above equation assumes that a drainage system is present which prevents the buildup of any hydrostatic pressure behind the structure subjected to the unbalanced lateral earth pressures. If this is not the case, the equation must be modified to also incorporate the submerged unit weight of the soil multiplied by the earth pressure coefficient, in addition to the water pressure itself.

The values for use in the design of structures subjected to unbalanced lateral earth pressures at this site are as follows.

**Table 4-3. Earth Pressure Design Parameters**

| Soil Type                                  | γ - Bulk Unit Weight (kN/m <sup>3</sup> ) | φ - Friction Angle (degrees) | Earth Pressure Coefficient (dimensionless) |                          |                          |
|--------------------------------------------|-------------------------------------------|------------------------------|--------------------------------------------|--------------------------|--------------------------|
|                                            |                                           |                              | K <sub>a</sub> - Active                    | K <sub>o</sub> - At-Rest | K <sub>p</sub> - Passive |
| Granular 'B' (OPSS.MUNI 1010)              | 21.0                                      | 32                           | 0.31                                       | 0.47                     | 3.25                     |
| Existing Earth Fill                        | 19.0                                      | 29                           | 0.35                                       | 0.52                     | 2.88                     |
| Loose Cohesionless Native Soils            | 19.0                                      | 29                           | 0.35                                       | 0.52                     | 2.88                     |
| Compact to Dense Cohesionless Native Soils | 20.0                                      | 32                           | 0.31                                       | 0.47                     | 3.25                     |
| Very Dense Cohesionless Native Soils       | 21.0                                      | 34                           | 0.28                                       | 0.44                     | 3.54                     |
| Stiff Cohesive Native Soils                | 20.0                                      | 30                           | 0.33                                       | 0.50                     | 3.00                     |
| Very Stiff to Hard Cohesive Native Soils   | 21.0                                      | 32                           | 0.31                                       | 0.47                     | 3.25                     |

The calculation of the earth pressure coefficients is based on Rankine theory, which provides a conservative estimate as no friction between the soil and the structure is accounted for. The earth pressure

coefficients provided above are applicable for flat ground surfaces beyond the structure and must be revised for sloping ground surfaces.

The earth pressure coefficients referenced within the above table are a function of the friction angle of the adjacent soil, and both the degree and direction of movement of the structure subjected to unbalanced lateral earth pressures. For structures that are restrained at the top (such as basement walls), the at-rest earth pressure coefficient will apply. For structures that allow for 0.1 to 1% of movement away from the soil (such as unrestrained retaining walls), the full active earth pressure coefficient will apply. For structures that allow for 1 to 10% of movement into the soil, the full passive earth pressure coefficient will apply. The percentage movement is based on the height of the structure.

Other types of structures such as shoring walls with multiple rows of tiebacks and soil nail walls are subject to different loading conditions and must be analyzed separately.

#### **4.6. Floor Slabs**

The native soils or engineered fill are suitable to support lightly loaded floor slabs for residential, commercial, or institutional buildings. Topsoil, vegetation, organics, in-situ earth fill, weathered/disturbed soil and other soil containing organics, excessive moisture, or deleterious materials are not suitable to support floor slabs.

The exposed top of the engineered fill or native cohesionless soil must be proof-rolled and inspected by the geotechnical engineer, prior to the placement of an aggregate base. A subgrade consisting of cohesive glacial till should be cut neatly to facilitate the inspection; proof rolling or compaction can disturb the otherwise competent subgrade. If any soft or weak subgrade areas are identified, or if there are areas containing excessive amounts of deleterious/organic material, they must be locally sub-excavated and backfilled with approved soil from the site or imported granular material and compacted to a minimum of 98% SPMDD within 2% optimum moisture content.

It is necessary that the floor slabs must be provided with a capillary moisture barrier and drainage layer. This is made by placing the concrete slab on a minimum 200 mm layer of 19 mm clear stone (OPSS.MUNI 1004) compacted by vibration to a dense state. The upper 50 mm of clear stone can be replaced with 19 mm crusher run limestone for a working surface. The clear stone and a cohesionless subgrade must be separated by a geotextile such as Terrafix 270R (or approved equivalent) to prevent the migration of fines into the clear stone layer which could result in loss of support for the slab. Alternatively, 200 mm of Granular A (OPSS.MUNI 1010) compacted to 100% SPMDD can be utilized without geotextile filter fabric.

#### **4.7. Basement Drainage**

Where basements are constructed, all basement foundation walls must be provided with damp-proofing provisions in conformance to the Ontario Building Code. Backfill along the foundation wall must consist of Granular 'B' Type I (OPSS.MUNI 1010) for a minimum lateral distance of 600 mm out from the foundation wall. Alternatively, if a filtered cellular drainage media is provided adjacent to the foundation wall, the backfill may consist of common earth fill.

The Town of Caledon engineering standards do not specify a minimum clearance between basement slabs and the seasonal high groundwater table. Although the Town does not have a minimum clearance requirement for basements above the high groundwater level, GEI still recommends maintaining a 0.5 m separation from the seasonal high groundwater table to the basement slabs to reduce long-term risk of basements flooding, based on our experience with other municipalities and general industry standards.

For buildings with basements, a perimeter drainage system must be installed that will remove any water that infiltrates into the building backfill, to ensure that any water does not infiltrate into the basement. The perimeter drains must consist of minimum 100 mm diameter perforated pipes wrapped in filter socks, sufficiently covered on all sides by 19 mm clear stone. Perimeter drains should be directed to the sump underneath the basement floor in solid pipes so as not to surcharge the underfloor drainage layer with water, or alternatively could drain to the storm sewer or a third pipe system. Where basements are still above but less than 0.5 m from the seasonal high groundwater level, perforated subfloor drainage pipe is recommended for each building along the short axis. Spacing and trenching details can be determined when building details are established. All sump pumps should be on emergency power for redundancy in case of a power outage. A typical basement drainage detail is included in Appendix D.

If basement levels are set into the prevailing groundwater table, it is possible that house drainage issues may occur in the future (e.g., sump pump failure, blockage of drainage pipes, etc.), which would lead to potential foundation cracking and basement flooding. Basements can potentially be set below the groundwater table provided these risks are fully acknowledged by the builder / owner. In this case, potential impacts to the environment, nearby groundwater users, or to proposed stormwater infrastructure would need to be assessed in a hydrogeological report. Full waterproofing can also be considered for basement levels below the groundwater table.

Confined aquifers with artesian and sub-artesian conditions were encountered in various boreholes in the central, eastern, and southern parts of the site. In the western part of the site, artesian pressures were not measured in the confined aquifer. Although the confined aquifers with pressurized groundwater conditions were typically well below expected depths for footings or basements, the pressurized aquifers were within 4.6 and 7.6 m of existing grade in Boreholes 26 and 209, respectively. It is not recommended to set basements with drainage into or near the confined and pressurized aquifer unit. There is risk of the subgrade heaving and becoming disturbed in these locations, if the excavation extends close to the confined layer. If the confining cohesive soil layers are penetrated, there is a significant risk that basement drains cannot convey the continuous groundwater flow volumes. Options may need to be considered in these areas such as grade raises or slab-on-grade construction without basement levels.

Based on the current grading concept, about 1.1 m of fill is proposed near Borehole 26. Assuming the residential units will have 3 m deep basements, there would be sufficient native soil below the slabs to resist hydrostatic uplift. At Borehole 209, it appears grades will remain about the same as existing conditions. Assuming 3 m deep basements, there would also be sufficient native soil below the slabs to resist hydrostatic uplift. Additional geotechnical investigation and analysis are considered essential as the design progresses to further delineate these conditions.

For new structures that will be slab-on-grade with no basement levels, perimeter and under-slab drainage at the foundation level is not required, provided that the underside of the concrete slab is at least 200 mm above the prevailing grade of the site and the surrounding surfaces slope away from the building at a

gradient of at least 2% to promote surface water run-off and to reduce groundwater infiltration adjacent to foundations. To minimize infiltration of surface water, the upper 150 mm of backfill should comprise relatively impervious/cohesive compacted soil material.

## **4.8. Site Servicing**

It is understood that the proposed development will be serviced with municipal water, sanitary and storm sewers. On a preliminary level, the civil engineer indicated that typical service inverts could be as deep as about 5 to 6 m below grade. A deep trunk sanitary sewer will run generally west to east and north to south through the site. Markups from the civil engineer show the inverts to range from Elev. 258.5 m in the northwestern area, down to Elev. 249.0 m in the southeastern area (about 6 to 10 m below existing grade, on average around 9 m, based on nearby borehole ground elevations).

It is expected that open cut excavations will be used for service installations wherever possible. Additional considerations for trenchless installation methods at the deep sewer creek crossing are in Section 4.8.3.

### **4.8.1. Bedding**

The type of material and depth of granular bedding below the pipe will, to some extent, depend on the method of construction used by the contractor. Pipe bedding for flexible pipes should follow the requirements in OPSD 802.010 or applicable municipal standards. Pipe bedding for rigid pipes should follow the requirements in OPSD 802.030 to 802.032 or applicable municipal standards.

A subgrade consisting of the native soils or engineered fill at the site will provide adequate support for pipes with the bedding requirements as laid out in the above-referenced OPSDs. Where disturbance of the trench base has occurred from groundwater seepage, construction traffic, etc., or if in-situ fill is present at the invert level, the material should be sub-excavated and replaced with suitably compacted granular bedding. If weak zones are encountered, additional bedding materials and differing construction practices may be required and should be determined during construction. Any zones of peat or organic soil should be fully sub-excavated and replaced with approved earth fill or imported granular material compacted to 95% SPMDD.

At the expected typical service inverts, the trenches will extend into the groundwater table in the glacial till or cohesionless sands and silts. Some zones are expected to encounter artesian groundwater conditions where the confined sands and silts are pressurized. For the deep trunk sewer, the civil engineer indicated the invert could be approximately Elev. 250.0 m (8.8 m below grade) near Borehole 29. The soil conditions at that elevation consist of wet silts and sands with artesian groundwater conditions, confined between glacial till deposits. Additional dewatering efforts should be expected in these locations to maintain a dry trench and to prevent disturbance to the subgrade from groundwater ingress. Details on temporary groundwater control are provided in Section 5.2.

Regardless of whether flexible or rigid pipes are implemented, granular bedding and cover material should consist of a well graded, free draining material, such as Granular “A” (OPSS.MUNI 1010). All granular bedding must be compacted to a minimum of 95% SPMDD.

#### **4.8.2. Backfill**

Excavated earth fill (free from organics or deleterious materials) and native soils may be re-used as backfill in trenches, provided the soil is moisture conditioned so that the moisture content is within 2% of optimum. Additional soil compaction details are provided in Section 5.3. The backfill should be compacted to a minimum of 95% SPMDD. Backfill within 1 m of final subgrades below roadways must be compacted to 98% SPMDD, per Town specifications. In confined areas, the layer thickness will have to be reduced to utilize smaller compaction equipment efficiently or by using granular material instead of locally sourced fill. Any backfill that is frozen, contains a high percentage of organic material (topsoil, peat, etc.) or moisture, or has otherwise unsuitable deleterious inclusion should not be used as backfill. The maximum cobble or boulder size should not exceed half of the loose lift thickness (i.e., all particles with a diameter greater than 100 mm should be removed). Where cohesive soils are utilized as backfill, a sheepsfoot compactor will be required.

Where trenches are within the traveled portions of a roadway, backfill within the frost penetration depth of 1.2 m should consist of native, non-organic, excavated material consistent with the soils surrounding the trench in the upper 1.2 m. If this technique is not undertaken, then frequently problems arise with yearly differential frost heave movements between the trench backfill and the adjacent native soil. This would occur, for example, if imported granular material is used to backfill trenches which is less susceptible to frost effects compared to the native soils on site with a higher silt content (silt is highly frost-susceptible). Alternatively, if different soil is used as the backfill due to issues with achieving compaction, a frost taper of 10H:1V can be implemented to help mitigate the potential for differential settlement and frost heave.

#### **4.8.3. Trenchless Methods for Deep Sanitary Sewer Creek Crossing**

The latest site plans show the proposed creek crossing for Street C has shifted north compared to the September 2024 site plan. Deeper Boreholes 23, 102, and 204, and shallower Borehole 24, are near this crossing location. Trenchless methods may be required to install the deeper trunk sanitary sewer below the creek at this location.

Once final site plans are available with the final alignment and inverts, it is strongly recommended to advance additional deep boreholes at the crossing location to confirm the subsurface conditions. Given the deep deposits of wet sands and gravels, embedded cobbles and boulders within the glacial till, artesian groundwater conditions encountered in various locations beneath the site, and changing alignment for the proposed crossing, additional geotechnical investigation is considered critical for the success of trenchless sewer installations.

Launch and reception shafts may be needed depending on the trenchless method selected. Additional geotechnical and hydrogeological design considerations will be required for the shafts.

The typical responsibilities of the tunneling contractor in relation to trenchless technology include obtaining additional comprehensive site information to assess soil and groundwater conditions, identifying underground utilities, and detecting potential obstacles like embedded boulders. The contractor should establish effective utility coordination and implement necessary protective measures to safeguard existing infrastructure during the installation process. It is essential to select the appropriate

trenchless methods based on geotechnical data, considering factors such as groundwater presence (including artesian conditions) and soil types that widely vary across the site. Skilled operators must be engaged to effectively manage the specialized equipment, ensuring accurate directional control and minimizing operational risks. Additionally, the contractor is responsible for maintaining open communication with stakeholders and adhering to safety protocols for both personnel and the environment. Developing contingency plans to address unexpected challenges, such as fluid loss due to high groundwater pressures or boring collapses in difficult soil conditions, is also a key aspect of their duties. The contractor plays a pivotal role in ensuring the successful execution of trenchless projects while prioritizing safety and efficiency. Lastly, the contractor is also responsible for any monitoring of structures, ground surface or other elements during the process to ensure no impact is caused by the trenchless installation.

The deep boreholes advanced near the potential crossing are summarized below for general discussion and information. The table and discussion below must be updated after additional investigation is completed. The table includes Tunnelman's Ground Classification for Soils, by Terzaghi (1950) and later modified by Heuer (1974), which helps to identify potential ground behaviour and performance applicable to underground construction projects.

**Table 4-4. Borehole Results near Potential Deep Sanitary Sewer Creek Crossing**

| Borehole             | Estimated Sewer Invert Depth Below Grade / Elev. (m) <sup>2</sup> | Soil Strata Encountered near Potential Invert                                                                                                      | Groundwater Conditions                                                                                        | Anticipated Tunnelman's Ground Classification <sup>1</sup> |
|----------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 23                   | 9.6 / 258.5                                                       | <u>Elev. 260.5 to 259.0 m</u> : Layered Sand and Silt (Dense, Moist)<br><u>Elev. 259.0 to 255.6 m</u> : Sand and Gravel (Very Dense, Moist to Wet) | Groundwater at Elev. 256.8 m in Sand and Gravel. Perched Water could be present in the layered sand and silt. | Running (above GWT)<br>Flowing (below GWT)                 |
| 24 (In creek valley) | 5.3 / 258.5                                                       | Clayey and Sandy Silt Glacial Till (Very Stiff, Moist). Borehole terminated at Elev. 257.3 m.                                                      | Groundwater at Elev. 261.5 m on April 23, 2025.                                                               | Fast Raveling                                              |
| 204                  | 11 / 258.5                                                        | Silt with some sand, to Sand with some silt (Dense to Very Dense, Moist)                                                                           | Groundwater at Elev. 257.4 m on April 23, 2025.                                                               | Running (above GWT)<br>Flowing (below GWT)                 |
| 102                  | 6.9 / 258.5                                                       | Sandy Silt to Silty Sand, Trace Clay (Dense to Very Dense, Moist to Wet)                                                                           | Groundwater at Elev. 259.3 m, well screened in deeper till / silt units.                                      | Running (above GWT)<br>Flowing (below GWT)                 |

Notes:

1. Based on Terzaghi (1950), later modified by Heuer (1974).
2. Preliminary invert elevation at creek crossing provided by civil engineer.
3. GWT = groundwater table.
4. Fast Raveling – Chunks or flakes of material begin to drop out of the arch or walls sometime after the ground has been exposed. This is caused by loosening or overstress and "brittle" fracture (ground separates or breaks along distinct surfaces, as opposed to squeezing ground). In fast raveling ground, the process starts within a few minutes.
5. Running – Granular materials without cohesion are unstable at a slope greater than their angle of repose (from ±30 to 35 degrees). When exposed at steeper slopes they run like granulated sugar or dune sand until the slope flattens to the angle of repose.

6. Cohesive-running – Apparent cohesion in moist sand or weak cementation in any granular soil may allow the material to stand for a brief period of raveling before it breaks down and runs as described above.
7. Flowing – A mixture of soil and water flows into the tunnel like a viscous fluid. The material can enter the tunnel from the invert as well as from the face, crown, and walls and can flow for great distances, completely filling the tunnel in some cases.

Groundwater levels are expected to show seasonal fluctuations and vary in response to prevailing climate conditions.

The glacial till deposits contain embedded cobbles and boulders that may be encountered during construction. The gravel deposits could also contain cobbles or other larger particles. The trenchless methodology used on site must account for these conditions and be able to remove or penetrate the obstructions. The glacial till deposits can also contain interbedded layers or seams of wet sands and gravels. This could locally change the Ground Classification from fast-raveling to cohesive-running or flowing.

#### **4.8.3.1. Available Technology**

Three available trenchless methods are summarized below, including Horizontal Directional Drilling (HDD), jack and bore, and microtunneling. Ultimately, the methodology to be selected is at the discretion of the tunneling contractor based on the subsurface conditions and their means and methods. Other options may also be feasible or preferred by the contractor that are not listed below.

##### **Horizontal Directional Drilling (HDD)**

HDD has advanced significantly, allowing its application beyond just pressurized systems to gravity-driven pipes. The process consists of boring a pilot hole along the desired alignment, followed by enlarging the bore to accommodate the pipe diameter. Equipped with advanced monitoring technology, the HDD method enables precise control over the bore's direction and depth, contributing to minimal surface disruption during installation.

Primarily suitable for cohesive materials such as clay, HDD may face challenges in granular soils, where risks of borehole collapse increase. Despite these challenges, modern HDD technology is capable of operating in formations with up to 50% gravel. The method can accommodate a wide range of applications, including pipe diameters from 50 to 1200 mm and lengths up to 1500 m, with installation depths reaching 61 m.

HDD is particularly beneficial for laying infrastructure under sensitive environments, like roadways and waterways, with a typical installation rate of around 100 m per day. Conducting thorough Subsurface Utility Engineering (SUE) studies before the operation is critical to identify existing utilities and mitigate any associated risks, ensuring safe and efficient project execution. HDD is completed from the ground surface, so it may not require a launch shaft, but large laydown areas may be needed.

OPSS.MUNI 450 can also be referenced for details on HDD.

A general summary of potential risks is below:

- Surface Settlement: Substantial overcutting can result in significant surface settlement.

- **Ground Heave and Instability:** There is potential for ground heave, soil ravelling, or cave-ins, especially when drilling occurs below the groundwater table.
- **Steering Limitations:** Limited steering precision with an accuracy margin of plus or minus 1 metre.
- **Proximity Risks:** Not advisable near buried utilities or underground structures due to precision limits and potential for disruption.
- **Obstruction Challenges:** Difficulty in advancing may occur when encountering cobbles, boulders, or other obstructions, potentially necessitating tunnel filling and re-drilling along a different alignment. Gravel size particles may require a special cutter head.

### **Jack and Bore**

Traditionally associated with larger diameters, jack and bore involves using a jacking frame to thrust the pipe into position while simultaneously excavating the surrounding soil. This can be accomplished through manual labor or with mechanical means such as a backacter or rotating cutter head. Both launch and reception pits are necessary for the operation, allowing for the continuous, controlled advancement of the pipe during installation.

Jack and bore is particularly effective in sandy clay conditions but can accommodate a wide range of soil types with the appropriate precautions. Given the project's site-specific groundwater conditions, employing lubrication techniques, like bentonite slurry, is likely essential as it not only reduces jacking forces but also minimizes the risk of pipe failure by facilitating smoother movement through the ground. Maintaining the pipe's constant advancement is critical to avoid soil "gripping," which can hinder progress.

Overall, jack and bore can achieve efficient installation rates and is suitable for precise alignment and depth control. Careful assessment of subsurface conditions, along with effective management of groundwater, is crucial to the successful implementation for the sanitary sewer installation. Typical diameters can range from 100 to 1800 mm, and a drive length of up to 250 m is possible.

OPSS.MUNI 416 can also be referenced for details on jack and bore.

A general summary of potential risks is below:

- **Obstruction Risk:** Boring operations may be obstructed by cobbles or boulders; a contingency plan is essential to address potential interruptions.
- **Settlement Risk:** There is a low to moderate risk of settlement, influenced by the size of the overcut and prevailing ground conditions.
- **Dewatering Requirement:** Dewatering is necessary if shafts or tunnels are located below the water table, which may lead to additional settlement concerns.

### **Microtunneling**

Microtunneling (MT) is a trenchless method that utilizes guided and remote-controlled Micro-Tunnel Boring Machines (MTBMs) to install concrete or steel pipelines with high precision. As the MTBM advances, pipe sections are jacked behind the machine, providing continuous support to the excavation and preventing water infiltration. The annular space between the excavation and the installed pipe is temporarily filled with bentonite lubricant until the drive is completed, at which point grout can be injected

to secure the installation. Typical diameters range from 900 to 3500 mm and drive lengths can exceed 1,000 m.

The selection of the appropriate type of MTBM is critical and depends on ground conditions. Various systems exist, such as slurry MTBMs that use drilling fluid at the cutting face to balance earth and groundwater pressures while also facilitating spoil removal. Alternatively, Earth Pressure Balance (EPB) systems mechanically remove spoil using an auger as the machine progresses. The advancement of the MTBM is typically achieved through hydraulic pressure applied to either a reaction point or the pipe casing, which allows for effective operation across a broad range of soil types.

Despite typically being a more costly option, microtunneling offers numerous advantages, including diminished risks of surface settlement and ground heave, as well as the implementation of sealed construction techniques that eliminate the need for dewatering. The guidance systems of MTBMs ensure a high degree of precision, maintaining alignment within a tolerance of just 25 mm. These benefits can make microtunneling an ideal solution for projects near or below sensitive infrastructure or ecosystems.

OPSS.MUNI 415 can also be referenced for details on tunneling.

A generic summary of potential risks is below:

- **MTBM Selection:** The appropriate type and size of the MTBM and jacking pipe must be chosen based on the specific ground conditions encountered.
- **Obstruction Risks:** Potential obstructions such as large cobbles, boulders, and buried infrastructure can impede MTBM advancement, necessitating the use of an emergency shaft.
- **Enhanced Capability Recommendation:** It is advisable for the contractor to select an MTBM designed to effectively bore through cobbles and boulders, particularly when tunneling beneath sensitive infrastructure, and also a machine that can accommodate the in-situ groundwater conditions.

#### 4.8.3.2. Preliminary Assessment of Methods

It is re-iterated that the tunneling contractor is responsible for selecting the trenchless method. The following summary references Appendix A – Preliminary Assessment Table from “*Metrolinx Trenchless Utility Works Design and Construction Guidelines on Metrolinx Right-of-Way*,” (RC-0506-04STR-03, Revised April 2023, by Metrolinx, and Agency of the Government of Ontario) to help provide preliminary guidance for selection of the trenchless method based on the subsurface conditions.

**Table 4-5. Preliminary Assessment of Trenchless Methods based on Subsurface Conditions**

| Subsurface Conditions                | Settlement Risk | Microtunneling                                                                                                                                                              | HDD                                                 | Jack and Bore                                                   |
|--------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------|
| Cohesive Soil – Clay and Silt (Hard) | Low             | Generally suitable when installed by an experienced contractor. High plasticity clays can present a challenge due to clogging of the cutterhead or swelling after drilling. |                                                     | Generally suitable when installed by an experienced contractor. |
| Cohesionless Soil – Above GWT        | Low             | Generally suitable when installed by an experienced contractor.                                                                                                             | Generally suitable when installed by an experienced | Generally suitable when installed by an experienced contractor. |

| Subsurface Conditions                                 | Settlement Risk | Microtunneling                                                                             | HDD                                                                                                                      | Jack and Bore                                                                                               |
|-------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| (Compact to Very Dense)                               |                 |                                                                                            | contractor. Soils with higher gravel content can present challenges.                                                     |                                                                                                             |
| Cohesionless Soil – Below GWT (Compact to Very Dense) | Low             | Generally suitable when installed by an experienced contractor.                            | Generally suitable when installed by an experienced contractor. Soils with higher gravel content can present challenges. | Substantial problems are likely to occur. Method generally unsuitable or not intended for these conditions. |
| Coarse Gravel and Cobbles (<100mm)                    | Low             | Generally suitable when installed by an experienced contractor.                            | Difficulties may occur, and some modifications may be required to procedures or equipment.                               | Generally suitable when installed by an experienced contractor.                                             |
| Glacial Till (Hard to Very Dense)                     | Low             | Difficulties may occur, and some modifications may be required to procedures or equipment. |                                                                                                                          |                                                                                                             |
| Mixed Face Conditions                                 | Medium          | Difficulties may occur, and some modifications may be required to procedures or equipment. |                                                                                                                          | Substantial problems are likely to occur. Method generally unsuitable or not intended for these conditions. |

## 4.9. Pavement Design

The residential development will include a network of local/residential roads, as shown on the draft plan Figure 3B. It is expected that the subdivision will be accessed by higher-volume roads connected with Old School Road and Bramalea Road. Traffic details were not available at the time of reporting.

### 4.9.1. Subgrade Preparation

It is assumed that the pavement subgrade will likely consist of engineered fill, native sand and silt, or clayey silt glacial till, based on the potential cut and fill shown on the preliminary grading plan.

The pavement subgrade must be inspected and approved by the geotechnical engineer at the time of construction. An exposed pavement subgrade consisting of engineered fill or cohesionless soils should be proof-rolled and compacted to a minimum of 98% SPMDD. A subgrade consisting of cohesive glacial till should be cut neatly to facilitate the inspection; proof rolling or compaction can disturb the otherwise competent subgrade. If any soft or weak subgrade areas are identified, or if there are areas containing excessive amounts of moisture or deleterious/organic material, they must be locally sub-excavated and backfilled with approved clean earth fill or imported granular material and compacted to a minimum of 98% SPMDD.

The long-term performance of the pavement structure is highly dependent upon the subgrade support conditions. Stringent construction control procedures must be maintained to ensure that uniform

subgrade moisture and density conditions are achieved as much as possible when fill is placed, and the subgrade is not disturbed or weakened after it is exposed.

#### **4.9.2. Frost Susceptibility of Subgrade**

Fine-grained soils with higher capillarity and low cohesion are more frost susceptible and subject to frost heaving. Frost susceptibility is related to the percentage of silt and very fine sand in a soil, as summarized below from “*Pavement Design and Rehabilitation Manual*” (Second Edition, 2013, by MTO):

**Table 4-6. Susceptibility of Soil to Frost Heaving**

| Grain Size (5 to 75 µm) | Susceptibility to Frost Heave |
|-------------------------|-------------------------------|
| 0 to 44%                | Low                           |
| 40 to 55%               | Moderate                      |
| 55 to 100%              | High                          |

There are other factors that can also affect the degree of frost susceptibility such as temperature gradient, depth of groundwater table, permeability, and density, texture or structure of the soil.

The grain size analysis for the near-surface soils, which predominantly consist of clayey silt glacial till based on the boreholes across the site, show about 30% or less of particles are within 5 to 75 µm, indicating a low susceptibility to frost. The grain sizes are included in Appendix B.

#### **4.9.3. Drainage**

Control of surface water is an important factor in achieving a good pavement life. The need for adequate subgrade drainage cannot be over-emphasized. The subgrade must be free of depressions and sloped (at a minimum grade of 3 percent) to provide effective drainage toward subgrade drains. Grading adjacent to pavement areas should be designed to ensure that water is not allowed to pond adjacent to the outside edges of the pavement.

Continuous pavement subdrains should be provided along both sides of the roadways and drained into respective catchbasins to facilitate drainage of the subgrade and the granular materials. The subdrain invert should be maintained at least 0.3 m below subgrade level. To minimize the problems of differential movement between the pavement and catchbasins/manhole due to frost action, the backfill around the structures should consist of free-draining OPSS.MUNI 1010 Granular B. Typical pavement drainage details are provided in Appendix D.

#### **4.9.4. Pavement Structure**

The traffic volumes for the roads and types of roadways are not known. It is expected that traffic will consist mainly of cars, vans, pickup trucks, etc., with some less frequent heavier traffic (e.g. tractor trailers, garbage trucks, school buses, fire trucks). Based on the subgrade conditions discussed above, the minimum pavement designs per Town of Caledon “*Development Standards Manual*” (Version 5.0, 2019)

were assessed and considered mostly suitable, with the subbase course increased by 50 mm at this stage in the development.

**Table 4-7. Recommended Pavement Structures**

| Pavement Layer                                                                                                                                  | Compaction Requirement     | Min. Component Thickness (mm) |                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------------------|----------------------------------------------|
|                                                                                                                                                 |                            | Local Urban Road              | Neighbourhood Collector or Local Throughfare |
| <u>Surface Course Asphaltic Concrete:</u><br>HL3 for Local, HL3 HS for Collector (OPSS.MUNI 1150) with PG 58-28 Asphalt Cement (OPSS.MUNI 1101) | 92% MRD (OPSS.MUNI 310)    | 40                            | 40                                           |
| <u>Binder Course Asphaltic Concrete:</u><br>HL8 for Local, HL8 HS for Collector (OPSS.MUNI 1150) with PG 58-28 Asphalt Cement (OPSS.MUNI 1101)  |                            | 65                            | 90                                           |
| <u>Base Course:</u><br>Granular A (OPSS.MUNI 1010)                                                                                              | 100% SPMDD (OPSS.MUNI 501) | 150                           | 150                                          |
| <u>Subbase Course:</u><br>Granular B Type I or II (OPSS.MUNI 1010)                                                                              |                            | 350                           | 500                                          |

The pavement structures should be reviewed by GEI once detailed design information is available for the site.

The granular materials should be placed in lifts 200 mm thick or less and be compacted to a minimum of 100% SPMDD for both granular base and subbase. The granular and asphalt pavement materials and their placement should conform to OPSS.MUNI 310, 501, 1010 and 1150.

If the pavement construction occurs in wet, winter, or inclement weather, it may be necessary to provide additional subgrade support for heavy construction traffic by increasing the thickness of the granular subbase, base or both subject to review by GEI. Further, traffic areas for construction equipment may experience unstable subgrade conditions. These areas may be stabilized utilizing additional thickness of granular materials or geogrid materials.

It should be noted that in addition to adherence of the above pavement design recommendations, a close control on the pavement construction process will also be required in order to obtain the desired pavement life. Therefore, it is recommended that regular inspection and testing should be conducted during the pavement construction to confirm material quality, thickness, and to ensure adequate compaction.

Frost tapers of 10H:1V should be implemented between areas of differing pavement thickness and tie-in areas to existing pavement.

Smooth transitions are required in all areas where the new pavement meets the existing asphalt surface. All longitudinal and transverse joints should meet the requirements of OPSS.MUNI 310. All longitudinal

joints should be staggered between the asphalt lifts. The staggering of the longitudinal joints should be accomplished by offsetting the paving edge in the upper asphalt course by a minimum of 150 mm.

## **4.10. Stormwater Management Ponds**

The latest site plans show one SWM pond 1.39 ha in size is proposed on the western side of the site, near Bramalea Road. The grading concept shows the bottom of the forebay near Elev. 263.7 m, and the bottom of the wet cell near Elev. 261.7 m (approximately 4 to 6 m below grade based on existing contours shown on the grading plan). Additional subsurface investigation in the SWM pond footprint should be expected as the design progresses.

### ***4.10.1. Subsurface Conditions***

Boreholes 23 and 101 were advanced in or near the proposed SWM pond.

Borehole 23 encountered clayey silt glacial till to 2.3 m (Elev. 265.8 m), then very dense sand to 7.6 m (Elev. 260.5 m), then dense layered sand and silt to 9.1 m (Elev. 259.0 m), then dense to very dense sand and gravel to 12.6 m (Elev. 255.5 m). A monitoring well was installed in the sand and gravel, measuring groundwater at 11.3 m (Elev. 256.8 m) both on May 22, 2024, and on April 23, 2025. There may be some perched water within the layered sand and silt.

Borehole 101 encountered dense sand and silt to 4.6 m (Elev. 262.5 m), then very dense sand with trace to some silt to 10.7 m (Elev. 256.4 m), then very dense sandy gravel to gravelly sand to 16.8 m (Elev. 250.3 m), then compact to dense sands and silts to 20.3 m (Elev. 246.8 m). A deeper monitoring well was installed in the gravelly sand / sand and silt deposits, measuring groundwater at 10.6 m (Elev. 256.5 m) on May 22, 2024, and at 10.7 m (Elev. 256.4 m) on May 29, 2025.

### ***4.10.2. General Construction Considerations***

General excavation and temporary groundwater control considerations are provided with Section 5.0 of this report and generally would apply to the construction of the SWM ponds.

The steepest recommended pond slope inclination is 4H:1V and should follow the design guidelines of the local municipality. Slope stability analysis should be conducted to support steeper side slopes.

It is recommended that any piping or trenching in the area of the pond should be provided with seepage cut-off collars (clay plugs, concrete plugs, or other barriers) to protect against water seepage through the pipe bedding and backfill.

Pond berms above grade should be constructed using engineered fill compacted to minimum 98% SPMDD, constructed as described earlier in the report. The material for the berm may vary depending on liner requirements and if the berm will be used as an embankment dam.

### ***4.10.3. Pond Slope Surface Treatment***

The final slope surface and all bare or exposed areas (where applicable) should be provided with suitable vegetation cover or erosion protection. The sloped surface should be provided with a layer of topsoil (minimum 100 mm thick) and should be hydro-seeded with a grass mixture and mulch. If seeded, during the first 2 to 3 years, the surface cover of topsoil and seeding may require periodic maintenance until the vegetation becomes well established. It is recommended that erosion netting/erosion control blankets be staked on the slope surface for erosion protection (including the inside slope above the water level).

Periodic fluctuations in the pond water level will make inside slopes susceptible to minor sheet and rill erosion over extended periods of exposure if these slopes remain bare and without vegetation, even with 4H:1V side slopes. Occasional maintenance and repair of the inside bare pond slopes (and removal of accumulated sediment in the base) will be required. The inside slopes of the pond could be covered with an erosion control product to reduce the amount of maintenance. The covering may consist of a vegetated geo-web system, inclusion of erosion control blankets/turf reinforcement mats, rip-rap or local field stones.

### ***4.10.4. Liner Considerations***

Depending on the type, location, and depth of SWM pond that is planned, a liner may be required. The liner should be placed along the entire pond bottom and extend a minimum of 0.5 m above the permanent pool elevation or high-water level. Depending on the elevation of the groundwater table, the liner may also need to extend sufficiently above the seasonal high groundwater table to prevent groundwater seepage into the pond. The liner may consist of a natural soil material (such as clay), a synthetic membrane liner (such as a High-Density Polyethylene, Geo-synthetic Clay Liner, or PVC), a concrete liner, or a combination thereof. A compacted clay liner must be at least 1.0 m thick per Town of Caledon “*Development Standards Manual*” (Version 5.0, 2019). Additional details can be provided when the design has progressed.

A layer of rip-rap or crusher run limestone at least 0.3 m thick is usually recommended above the liner in a wet pond to “warn” future SWM pond clearing contractors of the bottom of the forebay or main cells / top of the liner to prevent damage. This is consistent with Town standards.

### ***4.10.5. Hydrostatic Uplift***

The two deep monitoring wells installed in the proposed SWM pond footprint measured spring groundwater levels at Elev. 256.8 to 256.5 m. The bottom of the wet cell at Elev. 261.7 m is 4.9 to 5.2 m above the groundwater levels. At this preliminary stage, it is not expected that the pond will extend below the groundwater table, so hydrostatic uplift of the liner system is not a design consideration at this time. Additional boreholes with shallower monitoring wells should also be installed at the bottom of pond elevation in the pond footprint as the design progresses to confirm groundwater levels. The conditions must be re-assessed once the final pond design is available.

#### **4.10.6. SWM Pond Outfalls**

The SWM strategy and grading plans should prevent uncontrolled and concentrated runoff down any of the valley slopes on site. SWM pond outfalls should be designed to prevent long-term erosion within the valleys. General sheet drainage down the slopes from parkland or open space is typically acceptable and poses a low risk for surficial erosion leading to slope instability, but this should be confirmed during future design phases. Alternatively, concentrated flows can be allowed provided appropriate engineering controls are incorporated, such as level spreaders, rip-rap channels/splash pads to mitigate erosive energy, etc.

### **4.11. Commentary on Slope Stability and Erosion Hazards**

As part of the Phase 1 LSS report, a slope stability study and erosion hazard assessment was completed to determine the Long-Term Stable Top of Slope (LTSTOS) position for the confined valley system at the site for development planning purposes. The study followed TRCA's *The Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority* (2014) and included the 10 m erosion access allowance to determine the overall Erosion Hazard Limit from which all development is to be set beyond. Based on the current concept plan, the proposed development (residential lots, roadways, SWM pond, commercial and urban corridor blocks, etc.) appear to be outside of the Erosion Hazard Limit for the slope stability hazards. This complies with TRCA's policy for slope hazards, and impacts are generally not expected for typical site development provided the development locations do not change. These details must be reviewed and confirmed as more detailed site plans become available.

Passive parkland consisting of Minor Recreational Use (per TRCA's *The Living Cities Policies*; 2014) or recreational trails may be permitted by TRCA within the Erosion Hazard Limit, but additional reporting to the satisfaction of TRCA may be required to justify that there is no increased risk to the hazard and active erosion zones are avoided.

Street C on the latest site plan is shown to cross the existing creek and NHS block. Crossing details are unknown but it could consist of a bridge, or some type of culvert set into an embankment. Once more details are known, additional specific boreholes may be required and recommendations should be provided for: removal of organics / unsuitable soils; foundations and subgrade details for the bridge, culvert or embankment; engineered fill materials and compaction for the embankment; stability analysis for the embankment; settlement considerations; integration into the surrounding confined valley (which has long-term setbacks) for the embankment approaches; etc.

Coordination with others, such as a civil engineer and fluvial geomorphologist, should be carried out to determine expected creek flows, scour and erosion protection of potential bridge or culvert footings and potential embankments. The recommendations should follow any requirements from the Canadian Highway Bridge Design Code and/or TRCA policies, as applicable.

## 5. Constructability Considerations

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### 5.1. Excavations

At this time, excavations for the project site are anticipated to be about 3.0 to 6.0 m below existing grade to account for most foundations and services. The deeper trunk sewer is expected to be about 6 to 10 m below existing grade, on average around 9 m, based on nearby borehole ground elevations. Below the surficial topsoil, excavations will encounter hard clayey silt glacial till, then dense to very dense sands and silts, with gravel deposits. Harder digging will be experienced in the dense to very dense soil. Cobbles and boulders should be expected in the glacial till deposits.

Excavations must be carried out in accordance with the Occupational Health and Safety Act, Ontario Regulation 213/91 (as amended), Construction Projects, Part III - Excavations, Section 222 through 242. Where workers must enter a trench or excavation the soil must be suitably sloped and/or braced in accordance with the OHSA. These regulations designate four (4) broad classifications of soils to stipulate appropriate measures for excavation safety. General excavation requirements are below and any specific areas can be reviewed upon request:

- Type 2 Soils – Clayey Silt Glacial Till, Hard Clay and Silt: Trench sidewalls can be vertical from the base to a height of 1.2 m above the base of excavation, after which the sidewalls must be sloped back no steeper than 1 horizontal to 1 vertical.
- Type 3 Soils – Any Earth Fill or Cohesionless Soils Above Groundwater Table: Trench sidewalls to be constructed no steeper than 1 horizontal to 1 vertical from the base of the excavation.
- Type 4 Soils – Any Earth Fill or Cohesionless Soils Below Groundwater Table: Trench sidewalls to be constructed no steeper than 3 horizontal to 1 vertical from the base of the excavation.

If more than one soil type is encountered in an excavation, the most conservative soil type must be followed for sloping the sidewalls of the excavation.

Excavation sidewalls will need to be continuously reviewed for evidence of instability and groundwater seepage, particularly following periods of heavy rain or thawing. When required, remedial action must be taken to ensure the continued stability of excavation slopes and the safety of the workers.

It is again noted that confined aquifers with artesian groundwater conditions are present beneath the site. Additional geotechnical investigation is considered essential as the design progresses to further delineate the depths and locations of these conditions and what impacts they could have on excavations for foundations, basements, or services.

Minimum support system requirements for steeper excavations are stipulated in Sections 235 through 238 and 241 of the OHSA and include provisions for timbering, shoring and moveable trench boxes. To reduce the potential for instability of the trench excavations, materials excavated from the service trenches and/or other fill materials, or heavy equipment should not be placed near the crest of the trench excavations.

It is important to note that soils encountered in the construction excavations may vary significantly across the site. Our soil classifications are based solely on the materials encountered in the boreholes advanced

on site. The contractor should verify that similar conditions exist throughout the proposed area of excavation. If different subsurface conditions are encountered at the time of construction, we recommend that GEI be contacted immediately to evaluate the conditions encountered.

## **5.2. Temporary Construction Groundwater Control**

Potential excavation depths are noted in Section 5.1 above.

The stabilized groundwater levels measured in the spring of 2025 varied across the site. In general, the groundwater levels within the upper clayey silt glacial till ranged from ground surface to 2.3 m below grade. The groundwater levels in the shallower sands and silts typically ranged from 2.3 to 5.8 m below grade, with some locations being dry at 6 m below grade. Groundwater levels in the deeper sands, sand and gravel, to gravelly sand in the eastern side of the site typically ranged from 12.1 to 10.7 m below grade. The deep well in Borehole 102 measured groundwater at 3.7 m below grade within the deeper sand and silt glacial till / silt deposit.

Flowing artesian groundwater conditions were measured in BH/MW 208D and 209D, which were screened across the clayey silt glacial till interface with the underlying sand and silt deposits. Groundwater was measured at 0.7 to 1.0 m above existing grade, indicating the underlying sands and silts in those locations are confined and pressurized. BH/MW 208S and 209S screened in the upper glacial till measured groundwater levels deeper than the deep wells, indicating an upward gradient. Flowing artesian groundwater conditions were also encountered in BH/MW 29, which was screened in the deep sand and silt glacial till but also partially captured a confined silt deposit. Groundwater was measured at 0.9 m above existing grade in that location.

Sub-artesian conditions were also encountered in deep Boreholes 211 and 212. The monitoring wells were screened in the deep sands, confined below the layered clay and silt and clayey silt glacial till deposits. Measurements indicate the piezometric surface is about 13 m above the top of the confined sand aquifer. In Borehole 26, the well was screened in sand and silt confined by the clayey silt glacial till, measuring the piezometric surface at 3.5 m above the top of the sand and silt.

Conventional sump pumping should typically suffice to control groundwater seepage for excavations made entirely within the clayey silt glacial till or layered clay and silt deposits.

Where excavations extend below the groundwater table in the wet sands and silts (in areas that are not pressurized with artesian conditions), multiple pumps or sumps created with a corrugated steel pipe filled with gravel, or other positive dewatering methods, may be required.

Positive dewatering to depressurize the confined sands, silts, and gravels with artesian conditions is considered essential prior to excavating into areas with artesian or flowing artesian conditions. It may be very difficult/impractical or near impossible to depressurize and dewater those units.

The exact scenario where certain groundwater control techniques will work are directly correlated to how coarse/fine the native soils are in an excavation, both the lateral and vertical extent of the wet cohesionless deposits, and the presence of confined aquifers with pressurized groundwater. The contractor is responsible for selecting their means and methods for groundwater control. If the groundwater table is

not controlled during construction, the base of the excavations will be unstable, leading to difficulties in excavating and placement of pipes, footings or engineered fill, and providing safety for the workers. This is especially true for artesian conditions.

It is recommended to carry out the work during the dry time of the year when the groundwater table is lowest, to mitigate groundwater control measures. Also reducing the size of the excavation that is open at any one time will aid in reducing groundwater control requirements.

GEI's hydrogeological study under a separate cover provides further details regarding water taking analysis, regulatory requirements, impact assessments, monitoring plans, etc. for the site and must be referenced for groundwater control considerations.

### **5.3.    Compaction Specifications**

SPMDD is the specification to indicate the degree to which soil or aggregate is compacted. To achieve the specified SPMDD as indicated in this report, all soils or aggregates must be placed in lift thicknesses no greater than 200 mm. If this is not the case, only the upper portion of the lift will be adequately compacted, and the lower portion of the lift has a high probability of not meeting compaction specifications. In addition, industry standard equipment used to determine the degree of compaction consists of nuclear densometers. These devices have an inherent limitation in that they cannot test beyond 300 mm in depth, and so the degree of compaction beyond this depth cannot be quantitatively determined.

Along with lift thickness, ensuring that the soil or aggregate is within 2% of its optimum moisture content ensures that the specified compaction can be reached. If the soil or aggregate is too dry/wet, it is either very difficult or impossible to reach the specified compaction. This is especially true when higher compaction specifications such as 98% and 100% SPMDD are required.

Moisture can be increased by adding water and mixing the soil prior to re-use, blending the soil with wetter material, or by importing soil to the site that is at optimum and can be readily compacted.

Moisture can be reduced by tilling or spreading out the soil to dry or blending it with drier material. In-situ moisture contents can change based on the season and local groundwater levels and can also change for stockpiled material due to precipitation. Zones of the fine-grained soil with very high moisture contents may find moisture conditioning to be difficult to accomplish.

Based on the moisture contents of the recovered soil samples, it appears that the glacial till deposits could generally be near optimum moisture content, but may still require moisture conditioning. The cohesionless deposits of sands and silts appear to be above or below optimum on average, and are expected to typically require moisture conditioning.

In addition to the above compaction specifications, in any areas where compacted fill will be placed over the exposed native soil subgrade, any loose, soft, wet, organic or unstable areas should be sub-excavated, and backfilled with clean earth fill or Granular 'B' (OPSS.MUNI 1010) compacted to a minimum of 98% SPMDD. This recommendation applies to site servicing and pavement subgrades. Where structures/buildings require upfilling beneath the structure the fill should be compacted to 100% SPMDD.

## 5.4. Quality Verification Services

On-site quality verification services are an integral part of the geotechnical design function, and for foundations, engineered fill and retaining walls, are required under the Ontario Building Code. Quality verification services are used to confirm that construction is being conducted in general conformance with the requirements as outlined in the drawings, reports and specifications prepared for the proposed development.

GEI can provide all the on-site quality verification services outlined below:

- Full-time monitoring, testing and inspection of engineered fill placement is required by the geotechnical engineer per the OBC.
- Installation of retaining structures over 1.0 m high and related backfilling operations must be field reviewed on a continuous basis by the geotechnical engineer as required in the OBC.
- The subgrade for shallow foundations associated with commercial, institutional, or mid to high-rise residential buildings must be reviewed in the field by the geotechnical engineer per the OBC. Foundations for low-rise residential structures (e.g. townhomes, detached houses) governed by Part 9 of the OBC, can be reviewed by the local building inspector.
- Full-time monitoring of the subgrade support capabilities, material quality, lift thickness, moisture content, degree of compaction, etc. shall also be conducted by GEI for the following areas to ensure the recommendations within this report are followed and they perform adequately in the long-term: Slabs-on-grade; Pavement structure (granulars); and Bedding/backfilling of site servicing.
- Testing of the concrete (compressive strength, slump, air content, etc.) and testing of the asphalt (asphalt content and gradation) are recommended to ensure that the quality of the materials being brought to site meet the requirements of the project.

## 5.5. Site Work

The soils found at this site will become weakened when subjected to traffic, particularly when wet. If there is site work conducted during periods of wet weather, then it can be expected that the subgrade will be disturbed unless an adequate granular working surface is provided to protect the integrity of the subgrade soils from construction traffic. Subgrade preparation works cannot be adequately accomplished during wet weather and the project must be scheduled accordingly. The disturbance caused by the traffic can result in the removal of disturbed soil and use of granular fill material for site restoration or underfloor fill that is not intrinsic to the project requirements.

The most severe loading conditions on the subgrade may occur during construction. Consequently, special provisions such as end dumping and forward spreading of earth and aggregate fills, restricted construction lanes, and half-loads during paving and other work may be required, especially if construction is conducted during unfavourable weather.

If construction proceeds during freezing weather conditions, adequate temporary frost protection for the founding subgrade and concrete must be provided. The soil at this site is susceptible to frost damage. Consideration must be given to frost effects, such as heave or softening, on exposed soil surfaces in the context of this project development.

## 6. Limitations and Conclusions

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### 6.1. 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.

This report was prepared to support a draft plan of subdivision. It is noted that the recommendations provided in this report must be considered preliminary in nature due to the current uncertainty of the design for the project. As the design progresses further geotechnical review and input may be required which might necessitate the need for additional investigation and/or analysis.

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 with 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, the account of TACC Developments. 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.

### 6.2. Conclusions

It is essential to consider the preliminary nature of the recommendations in this geotechnical engineering report, particularly in light of the uncertainty surrounding the project's design, as well as the presence of confined aquifers with fluctuating artesian conditions that may impact excavation and foundation stability, necessitating further geotechnical investigation and additional analysis and reporting.

Some of the key geotechnical considerations for this site are summarized below:

- Artesian Groundwater: Flowing artesian conditions were observed in several boreholes, posing risks of instability and high inflow of groundwater during excavation, necessitating careful design and monitoring.

- Deep Sanitary Sewer Installation: The planned deep trunk sanitary sewer could extend to depths of 10 m below grade. Based on borehole findings, confined aquifers under artesian pressure will be encountered in some locations along the preliminary alignment. Harder digging and additional dewatering efforts should be expected in these locations to maintain a dry trench and to prevent disturbance to the subgrade from groundwater ingress. Trenchless installation methods may be required for the proposed creek crossing.
- Minimal Constraints for Low-Rise Residential Development: Most of the site is expected to present few major geotechnical constraints for the construction of standard low-rise residential buildings or shallower services, with favorable soil conditions for shallow foundations. However, some locations may require grade raises or slab-on-grade buildings without basement levels to stay above locally shallower confined aquifers with artesian groundwater conditions.

It is recognized that municipal/regional governing bodies, in their capacity as the planning and building authority under Provincial statutes, will make use of and rely upon this report, cognizant of the limitations thereof, both as are expressed and implied.

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

## **Figures**

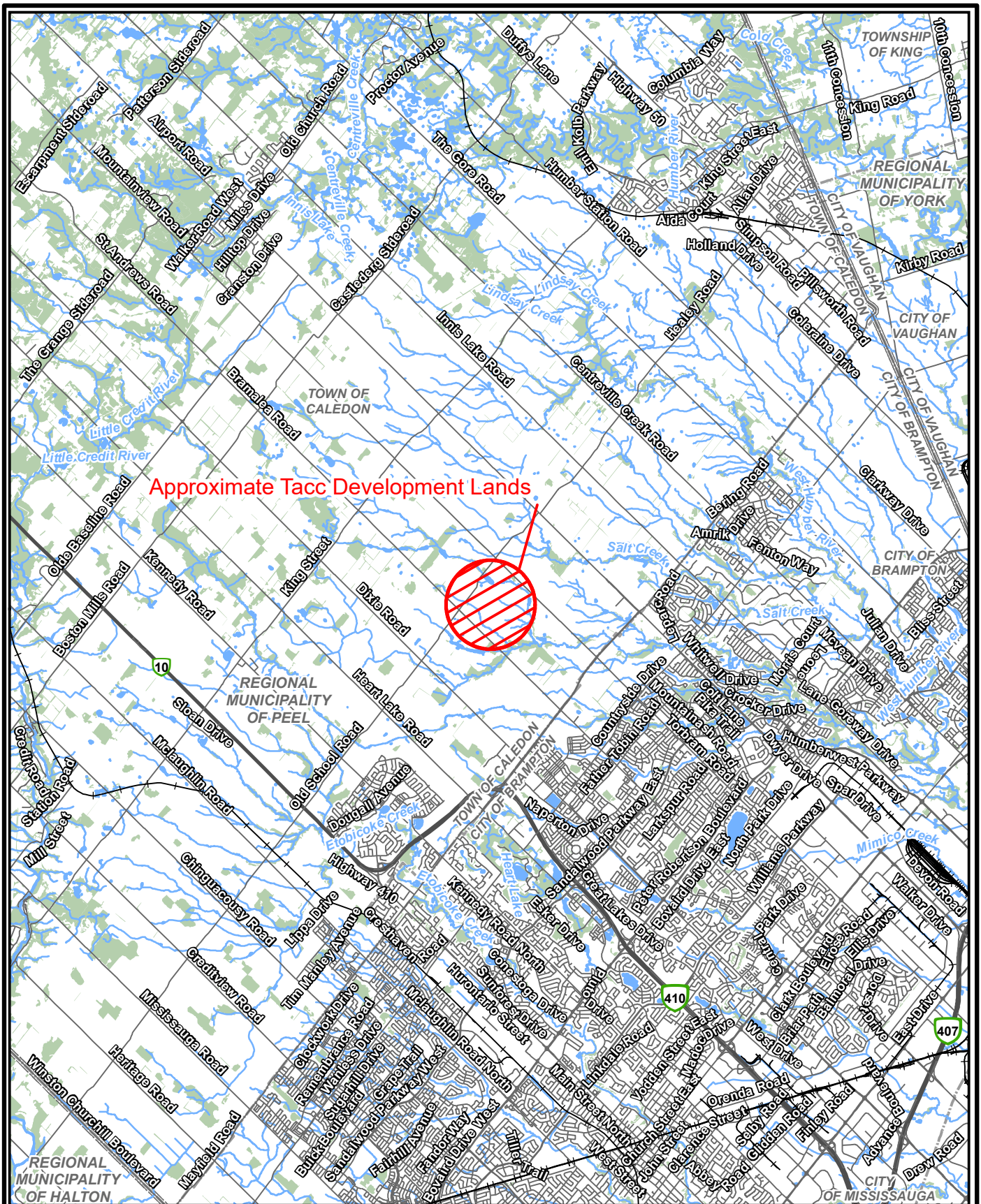
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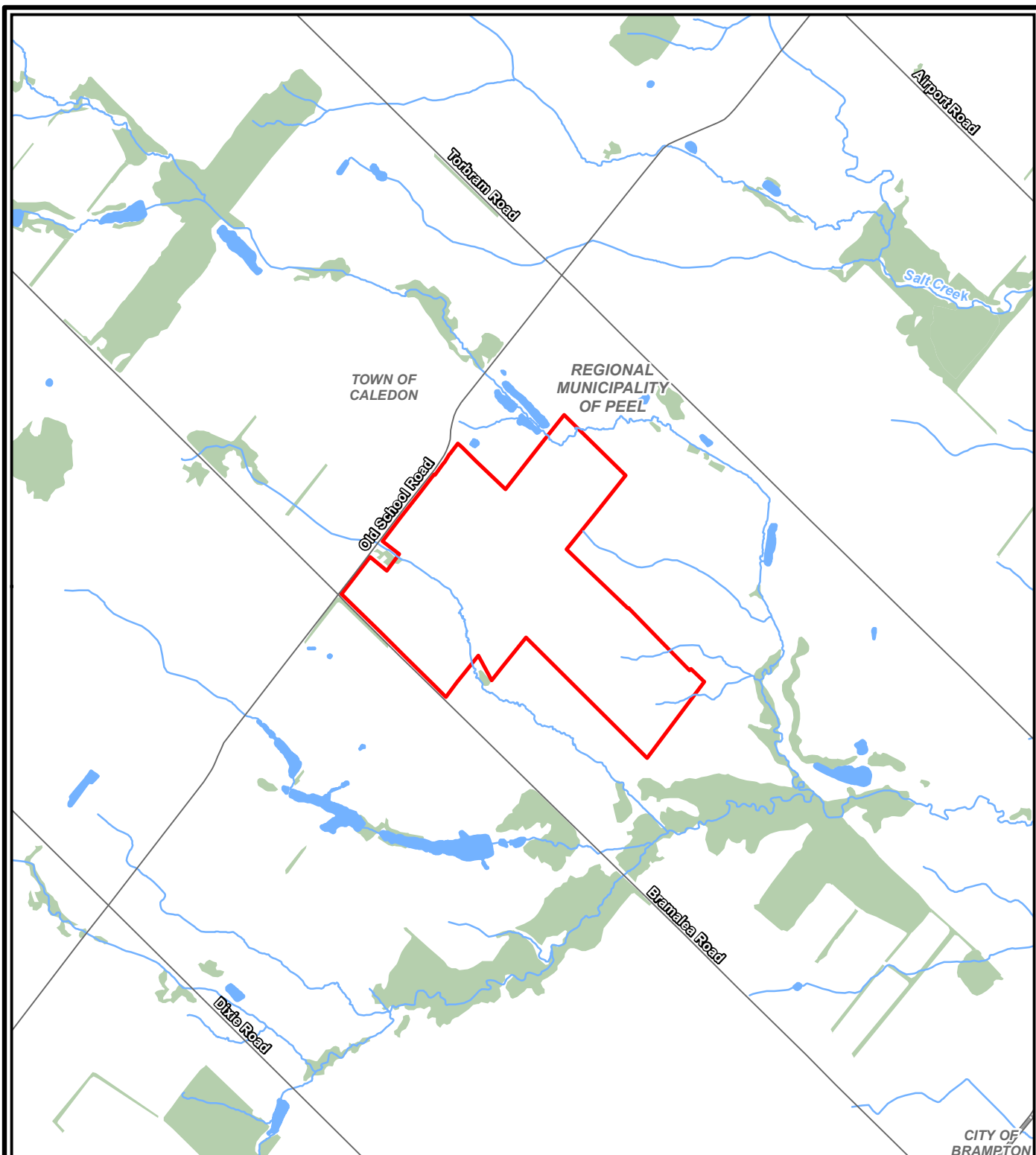
**Site Location Plan**

**Site Context Plan**

**Borehole Location Plans**

**Geological Cross-Sections**



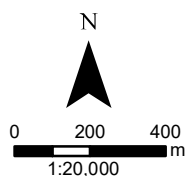


**NOTES:**

1. Coordinate System: NAD 1983 CSRS UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2026.

**Legend**

- Site Location
- Waterbody
- Road
- Wooded Area
- Watercourse



Draft Plan of Subdivision -  
Geotechnical Investigation  
TACC Development Lands – Bramalea  
Road  
and Old School Road, Caledon



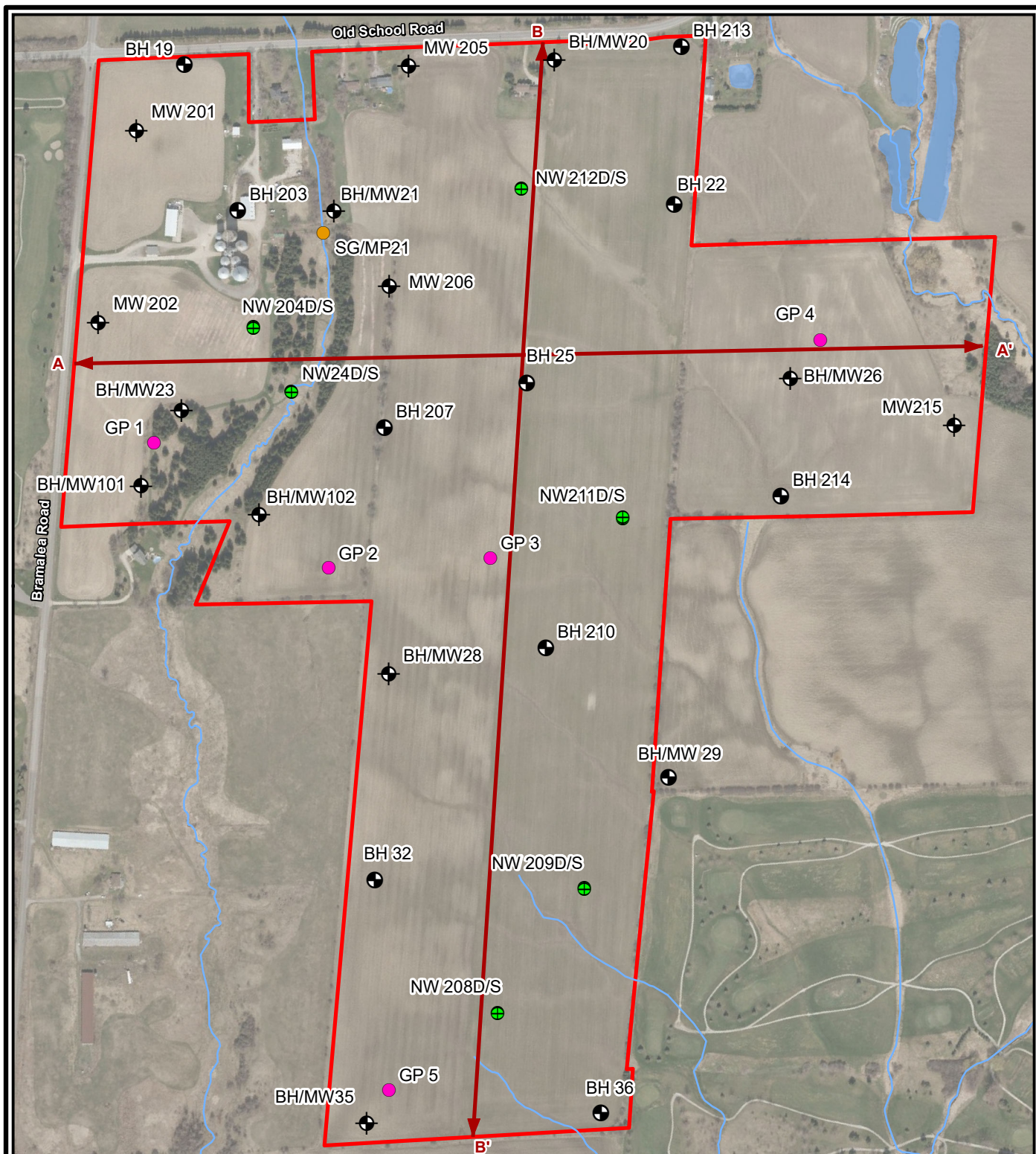
**SITE CONTEXT PLAN**

**TACC Developments**

**Project 2407688**

**May 2026**

**Fig. 2**

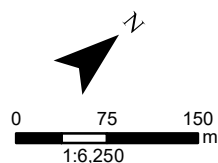


#### NOTES:

1. Coordinate System: NAD 1983 CSRS UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2026.
3. Orthoimagery © First Base Solutions, 2026. Imagery taken in 2022.

#### Legend

- Site Location
- Watercourse
- Waterbody
- Borehole Location
- Borehole/Monitoring Well Location
- + Borehole/Nested Well
- Guelph Permeameter Test
- Staff Gauge/Mini Piezometer
- ↔ Cross Section



Draft Plan of Subdivision -  
Geotechnical Investigation  
TACC Development Lands – Bramalea  
Road  
and Old School Road, Caledon

TACC Developments

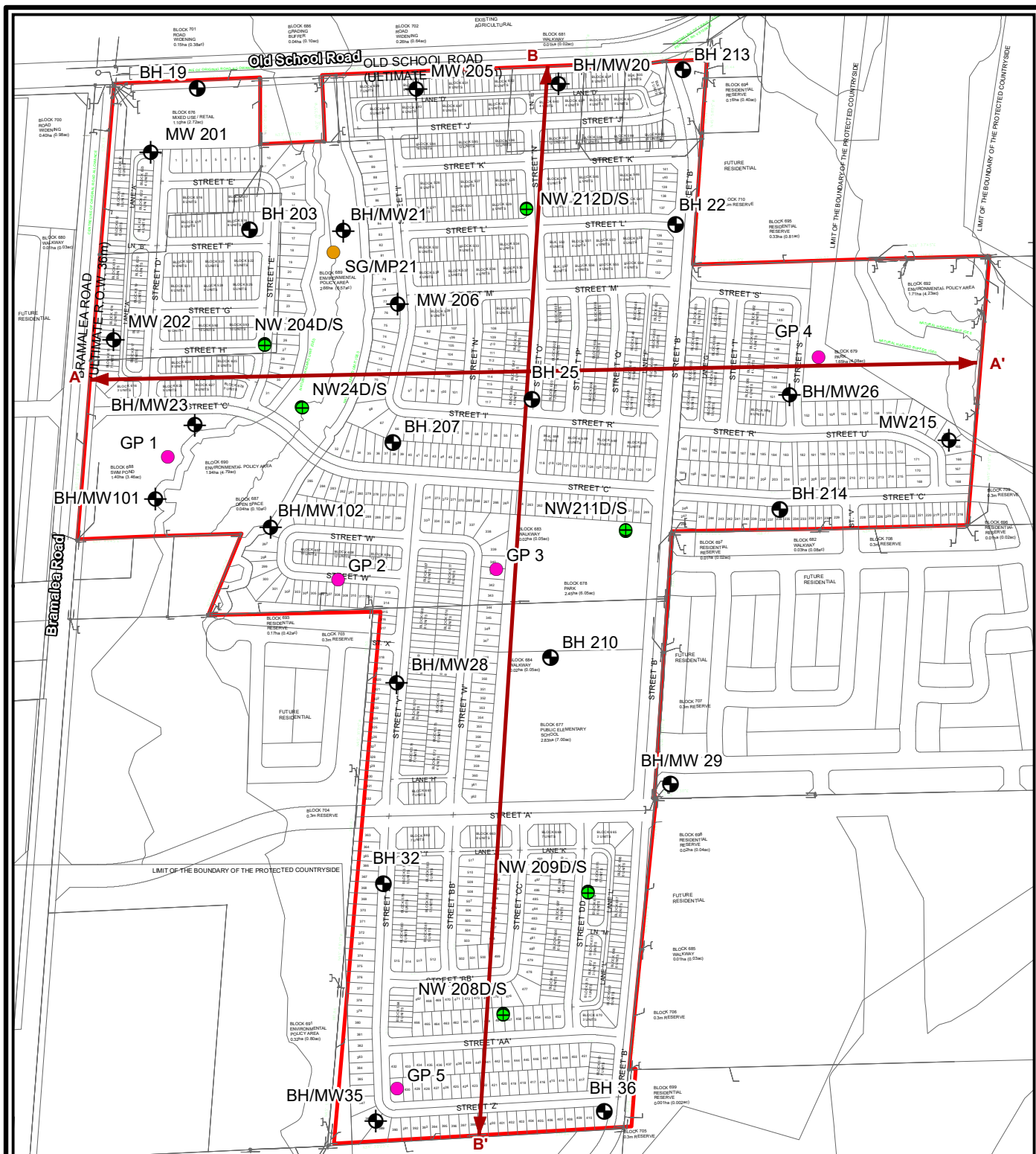


Project 2407688

BOREHOLE LOCATION PLAN  
(AERIAL)

May 2026

Fig. 3A

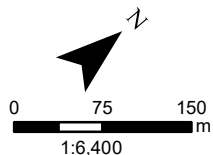


#### NOTES:

1. Coordinate System: NAD 1983 CSRS UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2026.
3. Draft Plan of Subdivision, TACC Developments (Armstrong) Inc., Dated April 17, 2026, by GSAI.

#### Legend

- Site Location
- Concept Plan
- Borehole Location
- Borehole/Monitoring Well Location
- Borehole/Nested Well
- Guelph Permeameter Test
- Staff Gauge/Mini Piezometer
- ↔ Cross Section



Draft Plan of Subdivision -  
Geotechnical Investigation  
TACC Development Lands – Bramalea  
Road  
and Old School Road, Caledon

TACC Developments

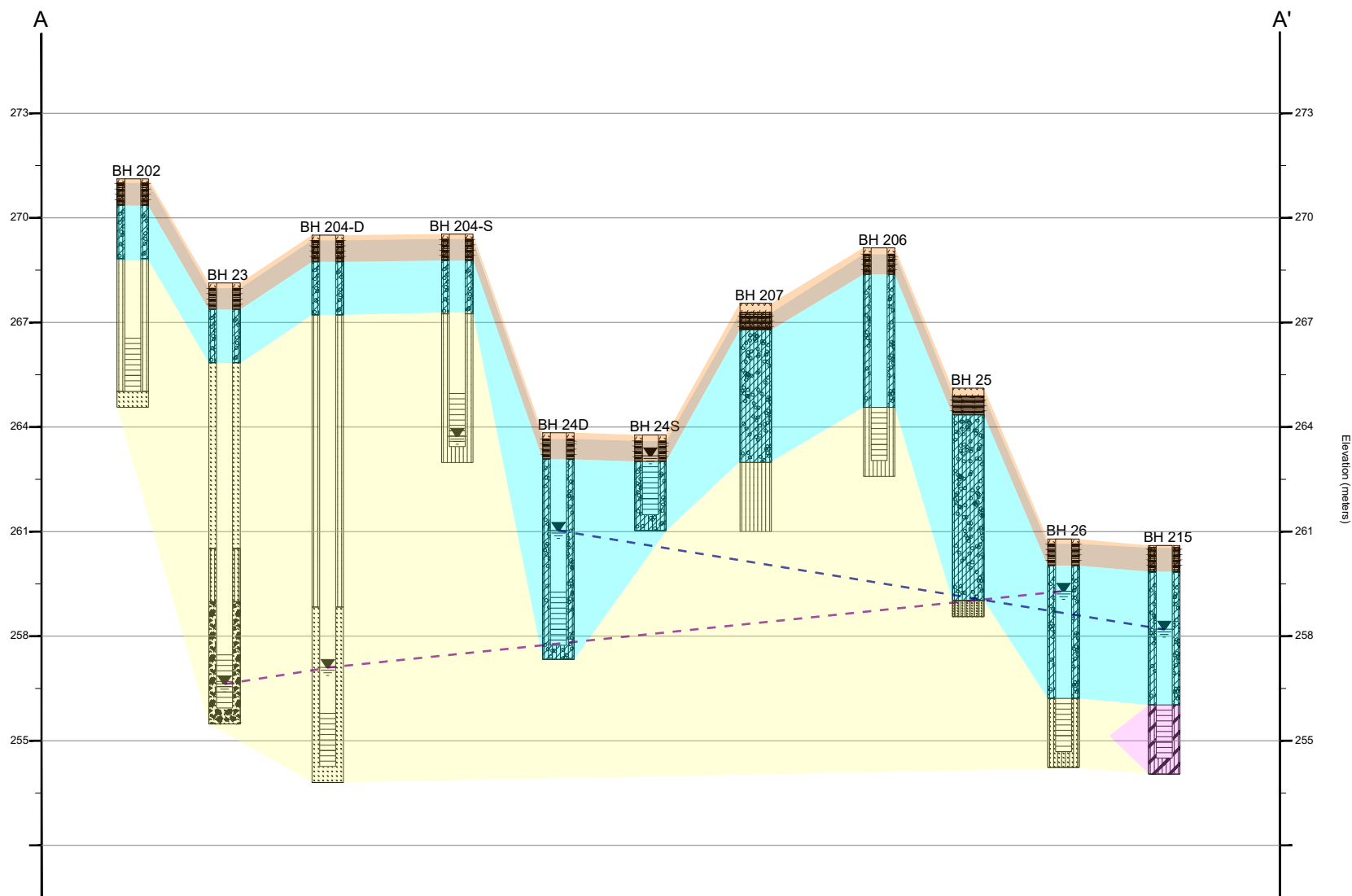
**GEI** Consultants

Project 2407688

**BOREHOLE LOCATION PLAN  
(DRAFT PLAN)**

May 2026

Fig. 3B



# **LEGEND:**

|                                                      |                 |             |            |                                                       |
|------------------------------------------------------|-----------------|-------------|------------|-------------------------------------------------------|
|                                                      |                 |             |            |                                                       |
| Water Level in Monitoring Well Measured Mar. 6, 2025 | Topsoil         | Sand        | Silty Sand | Piezometric Surface for Unconfined Glacial Till       |
|                                                      |                 |             |            | Piezometric Surface for Confined Sand and Silt (ORAC) |
| Weathered / Disturbed Soil                           | Sand and Silt   | Silt        |            |                                                       |
|                                                      |                 |             |            |                                                       |
| Clayey Silt Glacial Till                             | Sand and Gravel | Clayey Silt |            |                                                       |

## **NOTES:**

1. Boreholes evenly spaced for illustrative purposes only (no horizontal scaling).

HORIZONTAL SCALE

N.T.S.

VERTICAL SCALE



MAYFIELD TULLAMORE TACC LANDS

GEOTECHNICAL INVESTIGATION

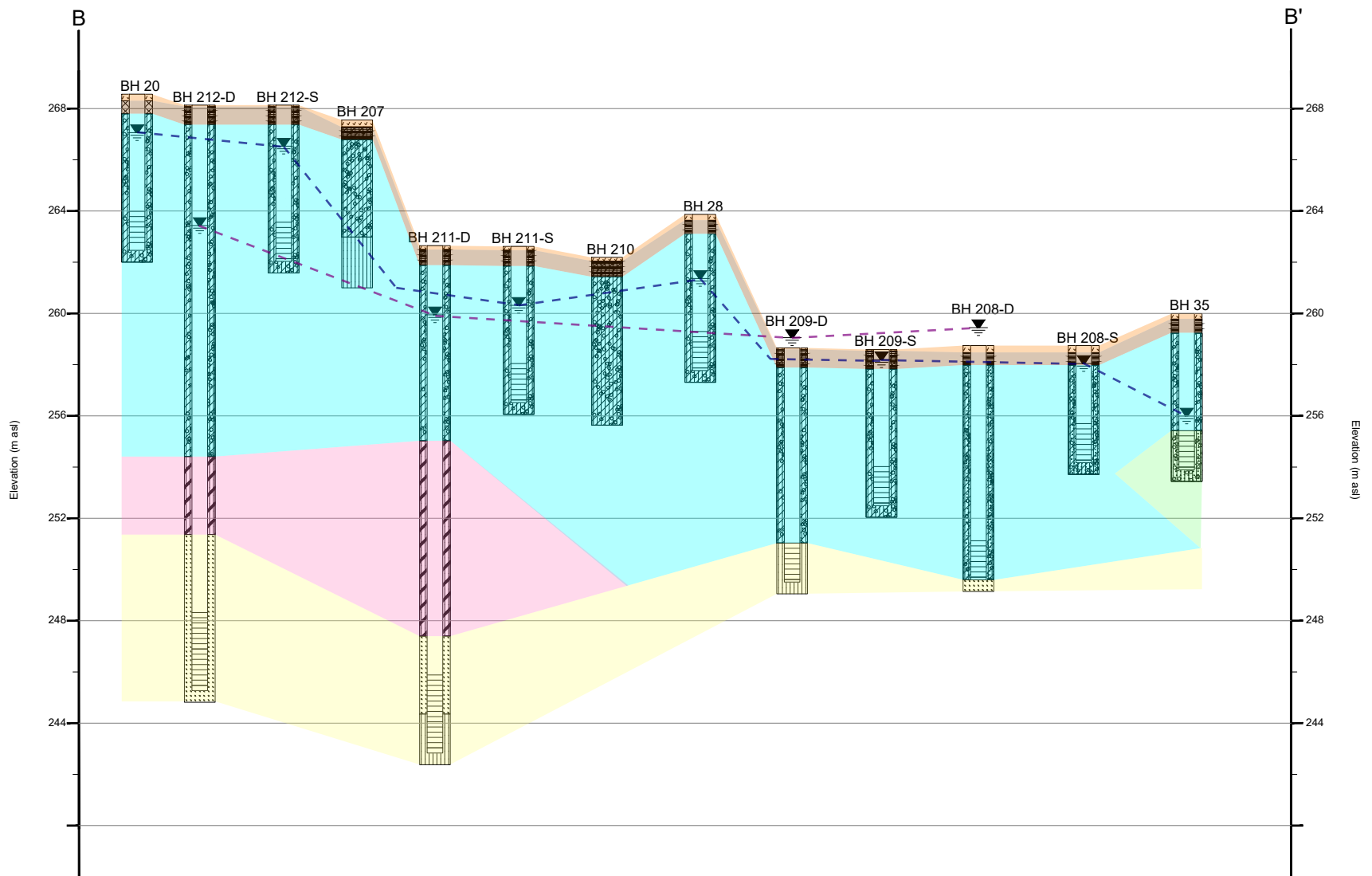


2407688

GEOLOGICAL CROSS SECTION A-A'

MAY 2026

Fig. 4A



# LEGEND:

Water Level in Monitoring Well Measured Mar. 6, 2025

Topsoil

Fill

Clayey Silt Glacial Till

Weathered / Disturbed Soil

Sandy Silt Glacial Till

Clayey Sandy Silt Glacial Till

Silt

Sand

Clayey Silt

Piezometric Surface for Unconfined Glacial Till

Piezometric Surface for Confined Sand and Silt (ORAC)

## NOTES:

1. Boreholes evenly spaced for illustrative purposes only (no horizontal scaling).

HORIZONTAL SCALE

N.T.S.

VERTICAL SCALE

0 2 4 METERS

MAYFIELD TULLAMORE TACC LANDS

GEOTECHNICAL INVESTIGATION



2407688

GEOLOGICAL CROSS SECTION B-B'

MAY 2026

Fig. 4B

## **Appendix A Borehole Logs**

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# RECORD OF BOREHOLE No. 201



Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849452** Date Started: **Nov 25/24**  
 Reviewed By: **AA** Easting: **595928** Date Completed: **Nov 25/24**

| LITHOLOGY PROFILE |             | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                |   | LAB TESTING      |   | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Lithology Plot    | DESCRIPTION | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa) |   | Atterberg Limits |   |                              | GR   SA   SI   CL                      |    |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                   |             |               |               |              |               | ×         | +             | ▲                            | △ | △                | ▲ | ◇                            | PL                                     | LL | ○ | ● | ○ | ○ | ○ | ○ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                   |             |               |               |              |               |           |               |                              |   |                  |   |                              |                                        |    |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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Groundwater depth encountered on completion of drilling: Dry Cave depth after auger removal: 5.9 m.  
 Groundwater depth observed on: Apr 23/25 at depth of: 5.7 m. Groundwater Elevation: 266.9 m

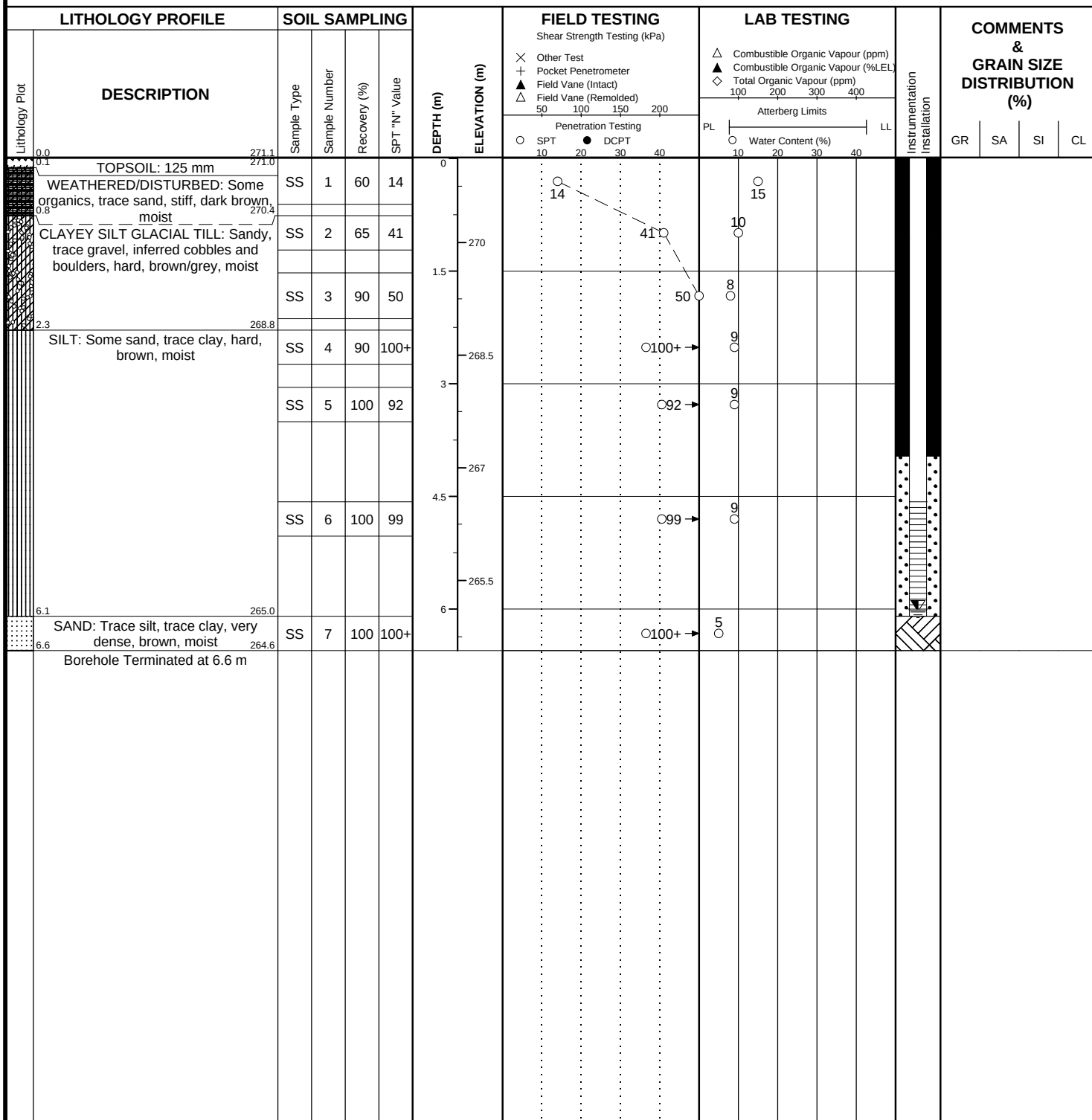
Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale: 1:75  
 Page: 1 of 1

# RECORD OF BOREHOLE No. 202

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849282** Date Started: **Nov 25/24**  
 Reviewed By: **AA** Easting: **596064** Date Completed: **Nov 25/24**



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Groundwater depth encountered on completion of drilling: Dry Cave depth after auger removal: Open  
 Groundwater depth observed on: Apr 23/25 at depth of: 6.0 m. Groundwater Elevation: 265.1 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 203



Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849481** Date Started: **Nov 26/24**  
 Reviewed By: **AA** Easting: **596068** Date Completed: **Nov 26/24**

| LITHOLOGY PROFILE |                                                                                                                     | SOIL SAMPLING |               |              |               | DEPTH (m)                                                                               | ELEVATION (m)                            | FIELD TESTING                |    | LAB TESTING      |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |  |  |  |
|-------------------|---------------------------------------------------------------------------------------------------------------------|---------------|---------------|--------------|---------------|-----------------------------------------------------------------------------------------|------------------------------------------|------------------------------|----|------------------|--|------------------------------|----------------------------------------|--|--|--|
| Lithology Plot    | DESCRIPTION                                                                                                         | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |                                                                                         |                                          | Shear Strength Testing (kPa) |    | Atterberg Limits |  |                              | GR   SA   SI   CL                      |  |  |  |
|                   |                                                                                                                     |               |               |              |               | Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded) | Penetration Testing<br>○ SPT      ● DCPT | PL<br>Water Content (%)      | LL |                  |  |                              |                                        |  |  |  |
|                   | 0.0 270.8                                                                                                           |               |               |              |               | 0                                                                                       |                                          |                              |    |                  |  |                              |                                        |  |  |  |
|                   | 0.2 270.6<br>TOPSOIL: 255 mm                                                                                        | SS            | 1             | 75           | 20            |                                                                                         |                                          |                              |    |                  |  |                              |                                        |  |  |  |
|                   | 0.8 270.1<br>WEATHERED/DISTURBED: Some organics, very stiff, dark brown, moist                                      |               |               |              |               |                                                                                         |                                          |                              |    |                  |  |                              |                                        |  |  |  |
|                   | CLAYEY SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff to hard, brown, moist | SS            | 2             | 100          | 20            |                                                                                         |                                          |                              |    |                  |  |                              |                                        |  |  |  |
|                   |                                                                                                                     | SS            | 3             | 100          | 37            |                                                                                         |                                          |                              |    |                  |  |                              |                                        |  |  |  |
|                   | 2.3 268.5                                                                                                           |               |               |              |               |                                                                                         |                                          |                              |    |                  |  |                              |                                        |  |  |  |
|                   | SILT: Some sand, trace clay, compact to very dense, brown, moist                                                    | SS            | 4             | 100          | 19            |                                                                                         |                                          |                              |    |                  |  |                              |                                        |  |  |  |
|                   |                                                                                                                     | SS            | 5             | 100          | 93            |                                                                                         |                                          |                              |    |                  |  |                              |                                        |  |  |  |
|                   | 4.6 266.2                                                                                                           |               |               |              |               |                                                                                         |                                          |                              |    |                  |  |                              |                                        |  |  |  |
|                   | SAND: Some silt, trace clay, very dense, brown, moist                                                               | SS            | 6             | 100          | 86            |                                                                                         |                                          |                              |    |                  |  |                              |                                        |  |  |  |
|                   |                                                                                                                     |               |               |              |               |                                                                                         |                                          |                              |    |                  |  |                              |                                        |  |  |  |
|                   | 6.6 264.3                                                                                                           | SS            | 7             | 100          | 100+          |                                                                                         |                                          |                              |    |                  |  |                              |                                        |  |  |  |
|                   | 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: Groundwater Elevation:

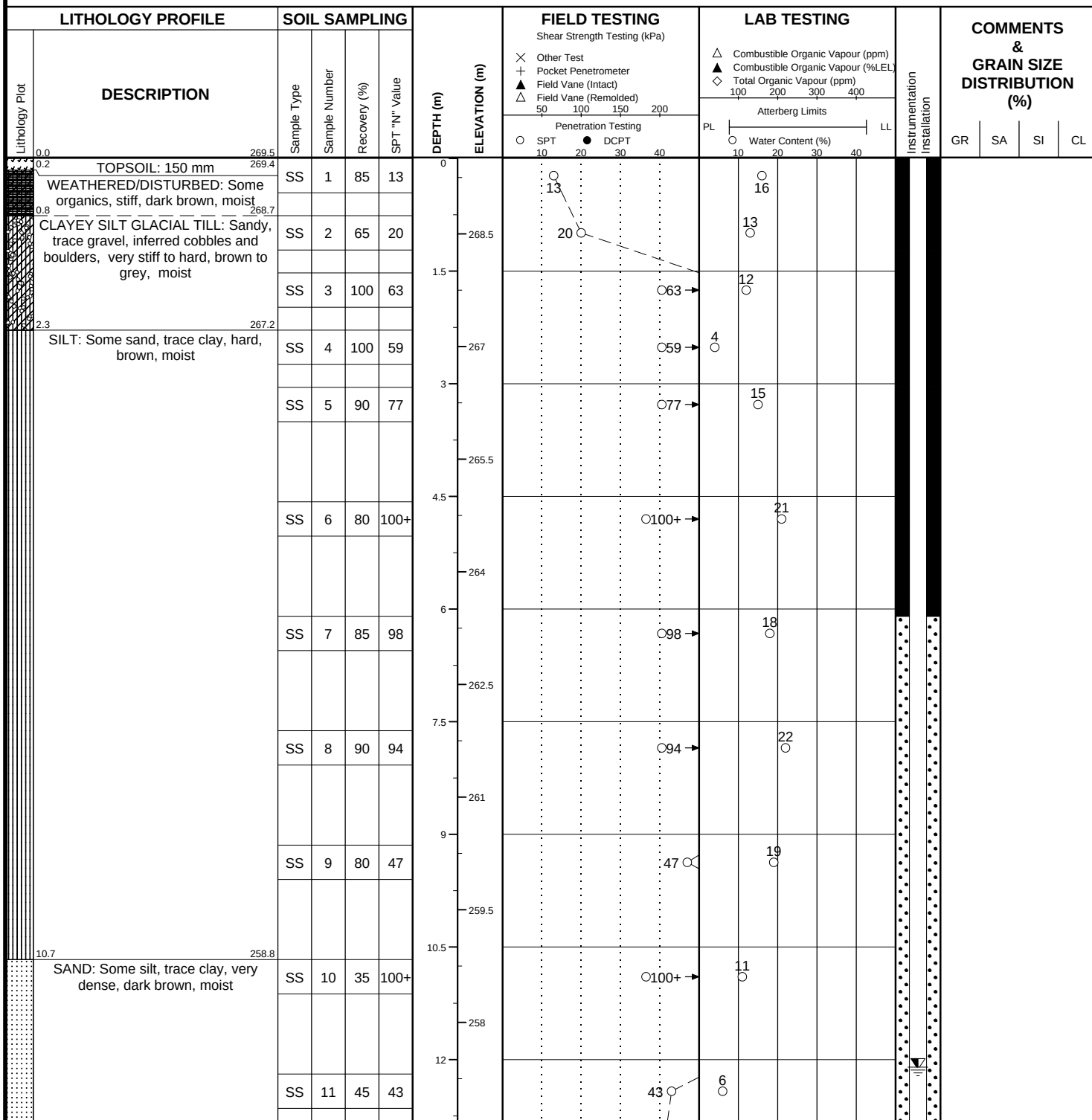
Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 204-D

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849411** Date Started: **Dec 02/24**  
 Reviewed By: **AA** Easting: **596180** Date Completed: **Dec 02/24**



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Groundwater depth encountered on completion of drilling: 15.4 m. Cave depth after auger removal: Open  
 Groundwater depth observed on: Apr 23/25 at depth of: 12.1 m. Groundwater Elevation: 257.4 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 204-D

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**



Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849411** Date Started: **Dec 02/24**  
 Reviewed By: **AA** Easting: **596180** Date Completed: **Dec 02/24**

| LITHOLOGY PROFILE |                               | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                                                                                                   |                                                                                                                                      | LAB TESTING      |  |  |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |
|-------------------|-------------------------------|---------------|---------------|--------------|---------------|-----------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------|--|--|--|------------------------------|----------------------------------------|----|----|----|
| Lithology Plot    | DESCRIPTION                   | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)                                                                                                                                    |                                                                                                                                      | Atterberg Limits |  |  |  |                              | GR                                     | SA | SI | CL |
|                   |                               |               |               |              |               |           |               | <div>✕ Other Test</div> <div>+ Pocket Penetrometer</div> <div>▲ Field Vane (Intact)</div> <div>△ Field Vane (Remolded)</div> <div>○ SPT</div> <div>● DCPT</div> | <div>△ Combustible Organic Vapour (ppm)</div> <div>▲ Combustible Organic Vapour (%LEL)</div> <div>◇ Total Organic Vapour (ppm)</div> |                  |  |  |  |                              |                                        |    |    |    |
|                   | --- Wet ---                   | SS            | 12            | 55           | 39            | 13.5      | 256.5         | 39                                                                                                                                                              |                                                                                                                                      | 20               |  |  |  |                              |                                        |    |    |    |
|                   |                               | SS            | 13            | 90           | 47            | 15        | 255           | 47                                                                                                                                                              |                                                                                                                                      | 20               |  |  |  |                              |                                        |    |    |    |
|                   | Borehole Terminated at 15.7 m |               |               |              |               |           |               |                                                                                                                                                                 |                                                                                                                                      |                  |  |  |  |                              |                                        |    |    |    |

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Groundwater depth encountered on completion of drilling: 15.4 m. Cave depth after auger removal: Open  
 Groundwater depth observed on: Apr 23/25 at depth of: 12.1 m. Groundwater Elevation: 257.40 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 204-S



Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849411** Date Started: **Dec 02/24**  
 Reviewed By: **AA** Easting: **596179** Date Completed: **Dec 02/24**

| LITHOLOGY PROFILE            |             | SOIL SAMPLING |               |              |               | DEPTH (m)                                                                                 | ELEVATION (m)   | FIELD TESTING                                                                                             |                                 | LAB TESTING      |    | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |  |  |  |  |
|------------------------------|-------------|---------------|---------------|--------------|---------------|-------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------|---------------------------------|------------------|----|------------------------------|----------------------------------------|--|--|--|--|
| Lithology Plot               | DESCRIPTION | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |                                                                                           |                 | Shear Strength Testing (kPa)                                                                              |                                 | Atterberg Limits |    |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               | × Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded) | ○ SPT<br>● DCPT | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm) | PL<br>○ Water Content (%)<br>LL | GR               | SA | SI                           | CL                                     |  |  |  |  |
| 0.0                          | 269.5       |               |               |              |               | 0                                                                                         |                 |                                                                                                           |                                 |                  |    |                              |                                        |  |  |  |  |
| 0.2                          | 269.4       | SS            | 1             | 85           | 13            |                                                                                           |                 | 13                                                                                                        |                                 | 16               |    |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               |                                                                                           |                 |                                                                                                           |                                 |                  |    |                              |                                        |  |  |  |  |
| 0.8                          | 268.8       | SS            | 2             | 65           | 20            | 268.5                                                                                     |                 | 20                                                                                                        |                                 | 13               |    |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               |                                                                                           |                 |                                                                                                           |                                 |                  |    |                              |                                        |  |  |  |  |
|                              |             | SS            | 3             | 100          | 63            | 1.5                                                                                       |                 |                                                                                                           | 63                              | 12               |    |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               |                                                                                           |                 |                                                                                                           |                                 |                  |    |                              |                                        |  |  |  |  |
| 2.3                          | 267.2       | SS            | 4             | 100          | 59            | 267                                                                                       |                 |                                                                                                           | 59                              | 4                |    |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               |                                                                                           |                 |                                                                                                           |                                 |                  |    |                              |                                        |  |  |  |  |
|                              |             | SS            | 5             | 90           | 77            | 3                                                                                         |                 |                                                                                                           | 77                              | 15               |    |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               |                                                                                           |                 |                                                                                                           |                                 |                  |    |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               | 265.5                                                                                     |                 |                                                                                                           |                                 |                  |    |                              |                                        |  |  |  |  |
|                              |             | SS            | 6             | 80           | 100+          | 4.5                                                                                       |                 |                                                                                                           | 100+                            | 21               |    |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               |                                                                                           |                 |                                                                                                           |                                 |                  |    |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               | 264                                                                                       |                 |                                                                                                           |                                 |                  |    |                              |                                        |  |  |  |  |
|                              |             | SS            | 7             | 85           | 98            | 6                                                                                         |                 |                                                                                                           | 98                              | 18               |    |                              |                                        |  |  |  |  |
| 6.6                          | 263.0       |               |               |              |               |                                                                                           |                 |                                                                                                           |                                 |                  |    |                              |                                        |  |  |  |  |
| 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: Apr 23/25 at depth of: 5.8 m. Groundwater Elevation: 263.7 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 205

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849730** Date Started: **Nov 26/24**  
 Reviewed By: **AA** Easting: **596068** Date Completed: **Nov 26/24**



| LITHOLOGY PROFILE            |             | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                                               |                                                                                                                              | LAB TESTING                         |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |  |  |  |  |
|------------------------------|-------------|---------------|---------------|--------------|---------------|-----------|---------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--|------------------------------|----------------------------------------|--|--|--|--|
| Lithology Plot               | DESCRIPTION | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)                                                                                |                                                                                                                              | Atterberg Limits                    |  |                              | GRAIN SIZE DISTRIBUTION (%)            |  |  |  |  |
|                              |             |               |               |              |               |           |               | × Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded)<br>50 100 150 200 | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm)<br>100 200 300 400 |                                     |  |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               |           |               | Penetration Testing<br>○ SPT 10 20 30 40<br>● DCPT                                                          |                                                                                                                              | PL Water Content (%) LL 10 20 30 40 |  |                              |                                        |  |  |  |  |
| 0.0                          | 270.2       |               |               |              |               | 0         | 270           |                                                                                                             |                                                                                                                              |                                     |  |                              |                                        |  |  |  |  |
| 0.2                          | 270.0       | SS            | 1             | 60           | 10            |           |               | 10                                                                                                          |                                                                                                                              | 22                                  |  |                              |                                        |  |  |  |  |
| 0.8                          | 269.5       |               |               |              |               |           |               |                                                                                                             |                                                                                                                              |                                     |  |                              |                                        |  |  |  |  |
|                              |             | SS            | 2             | 85           | 37            |           |               | 37                                                                                                          |                                                                                                                              |                                     |  |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               |           |               |                                                                                                             |                                                                                                                              |                                     |  |                              |                                        |  |  |  |  |
|                              |             | SS            | 3             | 100          | 62            | 1.5       | 268.5         | 62                                                                                                          |                                                                                                                              |                                     |  |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               |           |               |                                                                                                             |                                                                                                                              |                                     |  |                              |                                        |  |  |  |  |
|                              |             | SS            | 4             | 100          | 56            |           |               | 56                                                                                                          |                                                                                                                              |                                     |  |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               |           |               |                                                                                                             |                                                                                                                              |                                     |  |                              |                                        |  |  |  |  |
|                              |             | SS            | 5             | 100          | 57            | 3         | 267           | 57                                                                                                          |                                                                                                                              | 8                                   |  |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               |           |               |                                                                                                             |                                                                                                                              |                                     |  |                              |                                        |  |  |  |  |
|                              |             | SS            | 6             | 100          | 61            | 4.5       | 265.5         | 61                                                                                                          |                                                                                                                              |                                     |  |                              |                                        |  |  |  |  |
|                              |             |               |               |              |               |           |               |                                                                                                             |                                                                                                                              |                                     |  |                              |                                        |  |  |  |  |
| 6.6                          | 263.7       | SS            | 7             | 100          | 100+          | 6         | 264           | 100+                                                                                                        |                                                                                                                              | 18                                  |  |                              |                                        |  |  |  |  |
| 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: Apr 23/25 at depth of: 1.8 m. Groundwater Elevation: 268.4 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 206

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849556** Date Started: **Nov 26/24**  
 Reviewed By: **AA** Easting: **596241** Date Completed: **Nov 26/24**



| LITHOLOGY PROFILE |             | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                             |  | LAB TESTING                                                                                                                        |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |  |  |  |
|-------------------|-------------|---------------|---------------|--------------|---------------|-----------|---------------|-------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------|----------------------------------------|--|--|--|
| Lithology Plot    | DESCRIPTION | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)                                                              |  | Atterberg Limits                                                                                                                   |  |                              | GR   SA   SI   CL                      |  |  |  |
|                   |             |               |               |              |               |           |               | Penetration Testing                                                                       |  | Water Content (%)                                                                                                                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | ○ SPT      ● DCPT                                                                         |  | PL      LL                                                                                                                         |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | 50   100   150   200                                                                      |  | 10   20   30   40                                                                                                                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | X Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded) |  | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm)<br>100   200   300   400 |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | 0.0                                                                                       |  |                                                                                                                                    |  |                              |                                        |  |  |  |

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Groundwater depth encountered on completion of drilling: Dry Cave depth after auger removal: Open  
 Groundwater depth observed on: Apr 23/25 at depth of: 6.0 m. Groundwater Elevation: 263.1 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 207

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849451** Date Started: **Nov 26/24**  
 Reviewed By: **AA** Easting: **596358** Date Completed: **Nov 26/24**



| LITHOLOGY PROFILE |                                                                                                  | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                |  | LAB TESTING       |  |  |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |
|-------------------|--------------------------------------------------------------------------------------------------|---------------|---------------|--------------|---------------|-----------|---------------|------------------------------|--|-------------------|--|--|--|------------------------------|----------------------------------------|----|----|----|
| Lithology Plot    | DESCRIPTION                                                                                      | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa) |  | Atterberg Limits  |  |  |  |                              | GR                                     | SA | SI | CL |
|                   |                                                                                                  |               |               |              |               |           |               | Penetration Testing          |  | Water Content (%) |  |  |  |                              |                                        |    |    |    |
|                   |                                                                                                  |               |               |              |               |           |               | ○ SPT      ● DCPT            |  | PL      LL        |  |  |  |                              |                                        |    |    |    |
|                   | 0.0 267.6                                                                                        |               |               |              |               | 0         | 267           |                              |  |                   |  |  |  |                              |                                        |    |    |    |
|                   | 0.3 267.3                                                                                        | SS            | 1             | 80           | 18            |           |               | ○ 18                         |  | ○ 13              |  |  |  |                              |                                        |    |    |    |
|                   | 0.8 266.8                                                                                        |               |               |              |               |           |               |                              |  |                   |  |  |  |                              |                                        |    |    |    |
|                   | CLAYEY SILT GLACIAL TILL: Sandy, trace gravel, inferred cobbles and boulders, hard, brown, moist | SS            | 2             | 55           | 39            |           |               | ○ 39                         |  | ○ 8               |  |  |  |                              |                                        |    |    |    |
|                   |                                                                                                  | SS            | 3             | 100          | 45            |           |               | ○ 45                         |  | ○ 10              |  |  |  |                              |                                        |    |    |    |
|                   |                                                                                                  | SS            | 4             | 100          | 46            |           |               | ○ 46                         |  | ○ 11              |  |  |  |                              |                                        |    |    |    |
|                   |                                                                                                  | SS            | 5             | 100          | 58            |           |               | ○ 58                         |  | ○ 11              |  |  |  |                              |                                        |    |    |    |
|                   | 4.6 263.0                                                                                        | SS            | 6             | 100          | 100+          |           |               | ○ 100+                       |  | ○ 7               |  |  |  |                              |                                        |    |    |    |
|                   |                                                                                                  |               |               |              |               |           |               |                              |  |                   |  |  |  |                              |                                        |    |    |    |
|                   | 6.6 261.0                                                                                        | SS            | 7             | 100          | 53            |           |               | ○ 53                         |  | ○ 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:

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale: 1:75  
 Page: 1 of 1

# RECORD OF BOREHOLE No. 208-D

Project Number: 2407688

Project Client: **TACC Developments**

Project Name: **Mayfield Tullamore TACC Lands- Phase**

Project Location: **SE corner of Bramalea Rd & Old School Rd**

Drilling Location: **Caledon, ON**

Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers**

Drilling Machine: **Track Mount**

Logged By: KJT

Northing: 4849129

Date Started: Nov 27/24Reviewed By: **GW**

Easting: 596938

Date Completed: **Nov 27/24**

| LITHOLOGY PROFILE            |                                                                                                  |  |  | SOIL SAMPLING |               |              |               | DEPTH (m) |                     | ELEVATION (m) |  | FIELD TESTING                |                                                                                           |  |  | LAB TESTING      |                                                                                                           |  |  | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |                              |  |  |  |
|------------------------------|--------------------------------------------------------------------------------------------------|--|--|---------------|---------------|--------------|---------------|-----------|---------------------|---------------|--|------------------------------|-------------------------------------------------------------------------------------------|--|--|------------------|-----------------------------------------------------------------------------------------------------------|--|--|----------------------------------------|------------------------------|--|--|--|
| DESCRIPTION                  |                                                                                                  |  |  | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |                     |               |  | Shear Strength Testing (kPa) |                                                                                           |  |  | Atterberg Limits |                                                                                                           |  |  |                                        |                              |  |  |  |
| Lithology Plot               | 0.0258.7                                                                                         |  |  |               |               |              |               |           |                     |               |  |                              | X Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded) |  |  |                  | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm) |  |  |                                        | Instrumentation Installation |  |  |  |
|                              | 0.3258.5                                                                                         |  |  |               | SS            | 1            | 100           |           | Penetration Testing |               |  |                              | PL ○ Water Content (%) LL                                                                 |  |  |                  |                                                                                                           |  |  |                                        |                              |  |  |  |
|                              | 0.8258.0                                                                                         |  |  |               | SS            | 2            | 100           |           | ○ SPT ● DCPT        |               |  |                              | 10                                                                                        |  |  |                  |                                                                                                           |  |  |                                        |                              |  |  |  |
|                              | CLAYEY SILT GLACIAL TILL: Sandy, trace gravel, inferred cobbles and boulders, hard, brown, moist |  |  |               | SS            | 3            | 100           |           |                     |               |  |                              | 7                                                                                         |  |  |                  |                                                                                                           |  |  |                                        |                              |  |  |  |
|                              |                                                                                                  |  |  |               | SS            | 4            | 100           |           |                     |               |  |                              | 10                                                                                        |  |  |                  |                                                                                                           |  |  |                                        |                              |  |  |  |
|                              |                                                                                                  |  |  |               | SS            | 5            | 100           |           |                     |               |  |                              |                                                                                           |  |  |                  |                                                                                                           |  |  |                                        |                              |  |  |  |
|                              |                                                                                                  |  |  |               | SS            | 6            | 100           |           |                     |               |  |                              | 11                                                                                        |  |  |                  |                                                                                                           |  |  |                                        |                              |  |  |  |
|                              | --- Grey, very stiff to hard ---                                                                 |  |  |               | SS            | 7            | 85            |           |                     |               |  |                              | 10                                                                                        |  |  |                  |                                                                                                           |  |  |                                        |                              |  |  |  |
|                              |                                                                                                  |  |  |               | SS            | 8            | 85            |           |                     |               |  |                              |                                                                                           |  |  |                  |                                                                                                           |  |  |                                        |                              |  |  |  |
|                              | 9.1249.6                                                                                         |  |  |               | SS            | 9            | 100           |           |                     |               |  |                              | 17                                                                                        |  |  |                  |                                                                                                           |  |  |                                        |                              |  |  |  |
| 9.6249.1                     |                                                                                                  |  |  |               |               |              |               |           |                     |               |  |                              |                                                                                           |  |  |                  |                                                                                                           |  |  |                                        |                              |  |  |  |
| Borehole Terminated at 9.6 m |                                                                                                  |  |  |               |               |              |               |           |                     |               |  |                              |                                                                                           |  |  |                  |                                                                                                           |  |  |                                        |                              |  |  |  |

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|                                                                                     |                                                               |                                                                                     |                                      |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|
|  | Groundwater depth encountered on completion of drilling: Dry  |  | Cave depth after auger removal: Open |
|  | Groundwater depth observed on: Apr 23/25 at depth of: -0.7 m. |                                                                                     | Groundwater Elevation: 259.4 m       |

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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

# RECORD OF BOREHOLE No. 208-S



Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849129** Date Started: **Nov 27/24**  
 Reviewed By: **GW** Easting: **596938** Date Completed: **Nov 27/24**

| LITHOLOGY PROFILE |                                                                                                  | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                |                     | LAB TESTING      |                   | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |    |    |
|-------------------|--------------------------------------------------------------------------------------------------|---------------|---------------|--------------|---------------|-----------|---------------|------------------------------|---------------------|------------------|-------------------|------------------------------|----------------------------------------|----|----|----|----|----|
| Lithology Plot    | DESCRIPTION                                                                                      | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa) | Penetration Testing | Atterberg Limits | Water Content (%) |                              | GR                                     | SA | SI | CL |    |    |
|                   |                                                                                                  |               |               |              |               |           |               |                              |                     |                  |                   |                              |                                        |    |    |    |    |    |
|                   | TOPSOIL: 280 mm                                                                                  | SS            | 1             | 100          |               | 0         |               |                              |                     |                  | 15                |                              |                                        |    |    |    |    |    |
|                   | WEATHERED/DISTURBED: Some organics, stiff, dark brown, moist                                     | SS            | 2             | 100          |               | 258       |               |                              |                     |                  | 9                 |                              |                                        |    |    |    |    |    |
|                   | CLAYEY SILT GLACIAL TILL: Sandy, trace gravel, inferred cobbles and boulders, hard, brown, moist | SS            | 3             | 100          |               | 1.5       |               |                              |                     |                  |                   |                              |                                        |    | 2  | 26 | 46 | 26 |
|                   |                                                                                                  | SS            | 4             | 100          |               | 256.5     |               |                              |                     |                  | 10                |                              |                                        |    |    |    |    |    |
|                   |                                                                                                  | SS            | 5             | 100          |               | 3         |               |                              |                     |                  | 7                 |                              |                                        |    |    |    |    |    |
|                   |                                                                                                  |               |               |              |               | 255       |               |                              |                     |                  |                   |                              |                                        |    |    |    |    |    |
|                   | --- Grey, very stiff to hard ---                                                                 | SS            | 6             | 100          |               | 4.5       |               |                              |                     |                  | 11                |                              |                                        |    |    |    |    |    |
|                   | 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: Apr 23/25 at depth of: 0.0 Groundwater Elevation:

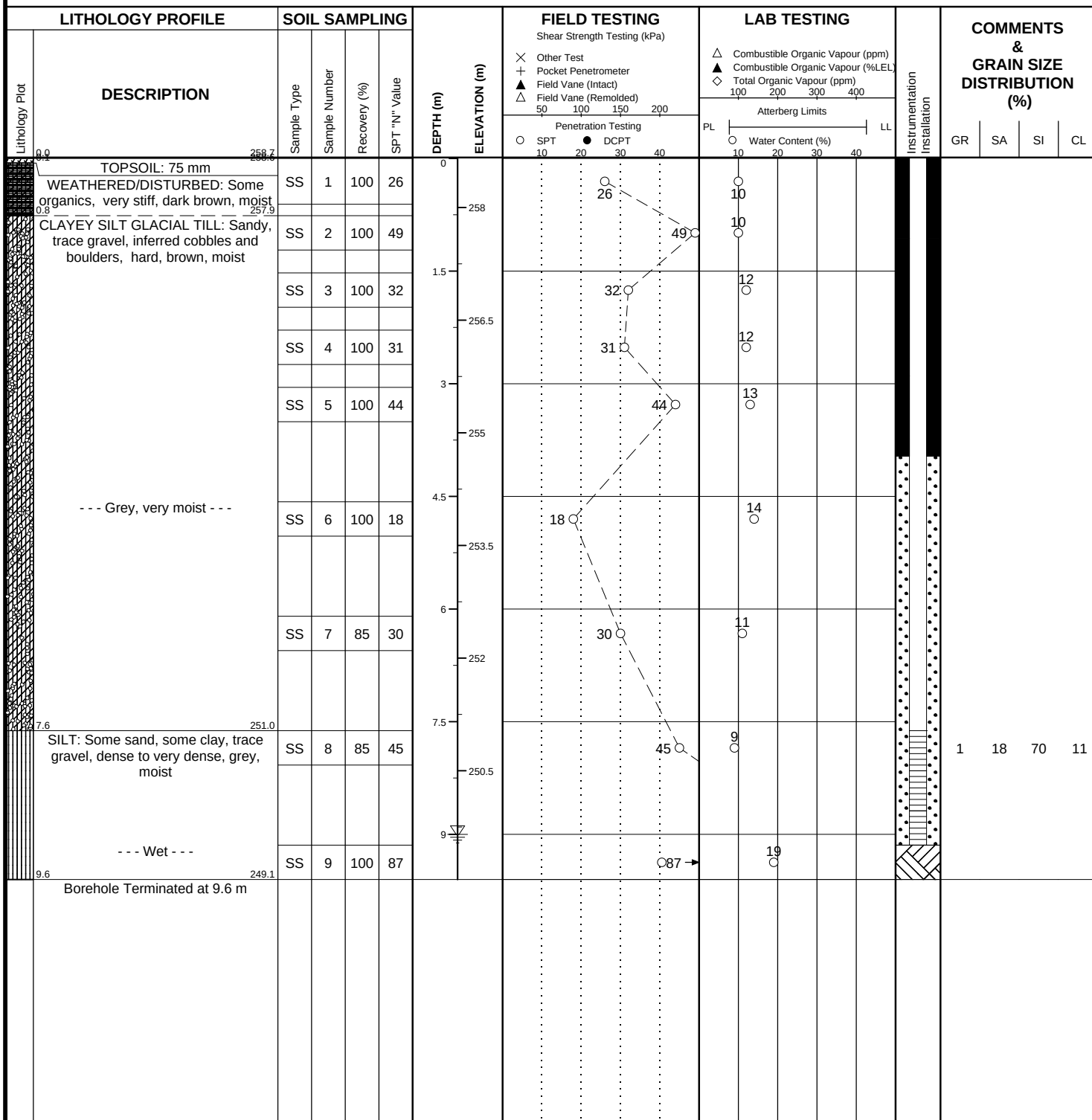
Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale: 1 : 75  
 Page: 1 of 1

# RECORD OF BOREHOLE No. 209-D

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849293** Date Started: **Nov 27/24**  
 Reviewed By: **GW** Easting: **596893** Date Completed: **Nov 27/24**



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Groundwater depth encountered on completion of drilling: 9.0 m. Cave depth after auger removal: Open  
 Groundwater depth observed on: Apr 23/25 at depth of: -1.0 m. Groundwater Elevation: 259.7 m

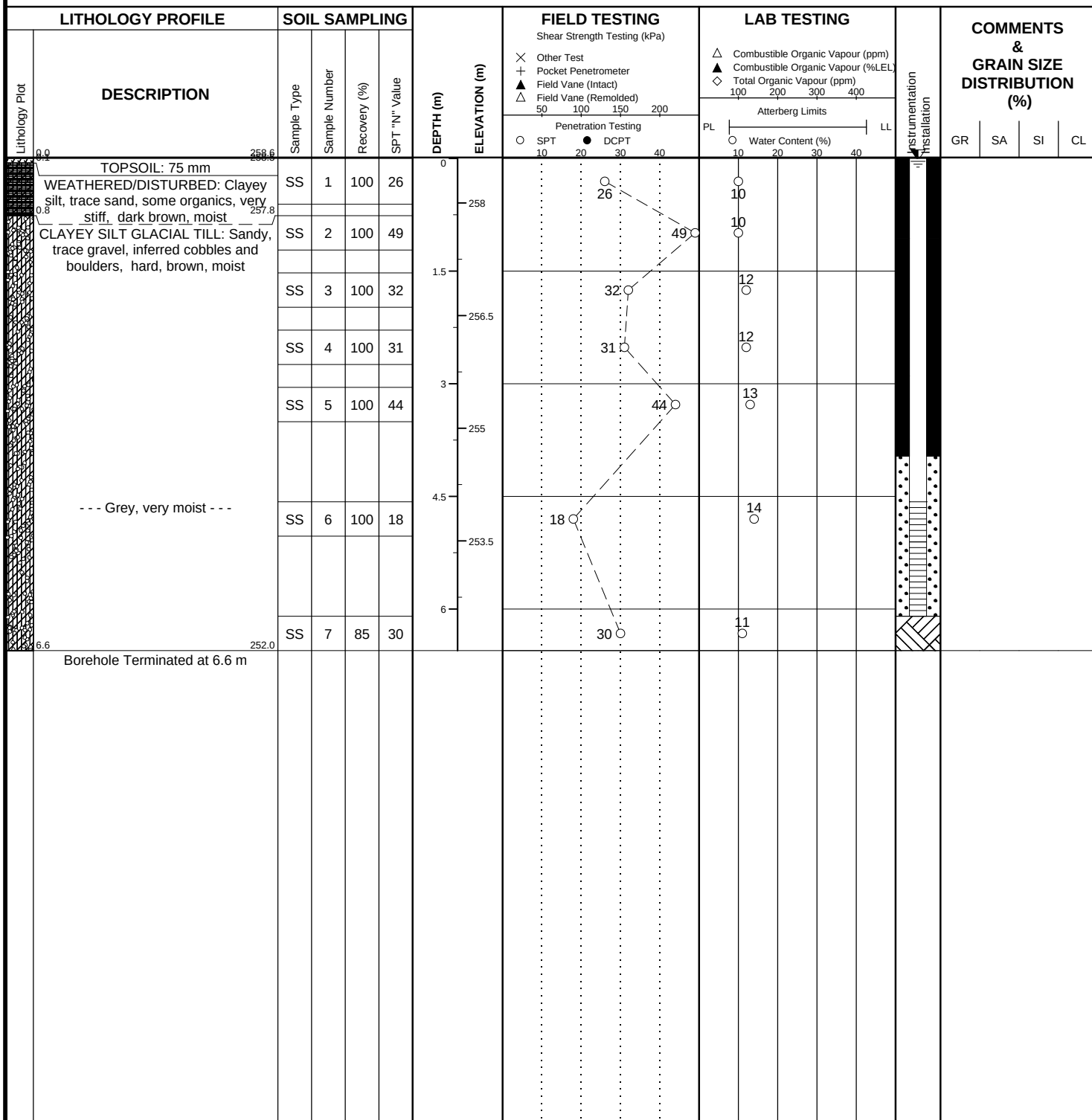
Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale: 1:75  
 Page: 1 of 1

# RECORD OF BOREHOLE No. 209-S

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849291** Date Started: **Nov 27/24**  
 Reviewed By: **GW** Easting: **596894** Date Completed: **Nov 27/24**



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Groundwater depth encountered on completion of drilling: Dry  
 Groundwater depth observed on: Apr 23/25 at depth of: 0.0  
 Cave depth after auger removal: Open  
 Groundwater Elevation:

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale: 1:75  
 Page: 1 of 1

# RECORD OF BOREHOLE No. 210

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849431** Date Started: **Nov 27/24**  
 Reviewed By: **GW** Easting: **596661** Date Completed: **Nov 27/24**



| LITHOLOGY PROFILE |             | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                |                     | LAB TESTING                      |                                   |                            |                   | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |  |
|-------------------|-------------|---------------|---------------|--------------|---------------|-----------|---------------|------------------------------|---------------------|----------------------------------|-----------------------------------|----------------------------|-------------------|------------------------------|----------------------------------------|----|----|----|--|
| Lithology Plot    | DESCRIPTION | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa) |                     | Atterberg Limits                 |                                   |                            |                   |                              | GR                                     | SA | SI | CL |  |
|                   |             |               |               |              |               |           |               | Other Test                   | Penetration Testing | Combustible Organic Vapour (ppm) | Combustible Organic Vapour (%LEL) | Total Organic Vapour (ppm) | Water Content (%) |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               | ×                            | ○                   | △                                | ○                                 | PL                         |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               | +                            | ●                   | ▲                                | ○                                 | LL                         |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               | ▲                            |                     |                                  | ◇                                 |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               | △                            |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
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|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                              |                     |                                  |                                   |                            |                   |                              |                                        |    |    |    |  |

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

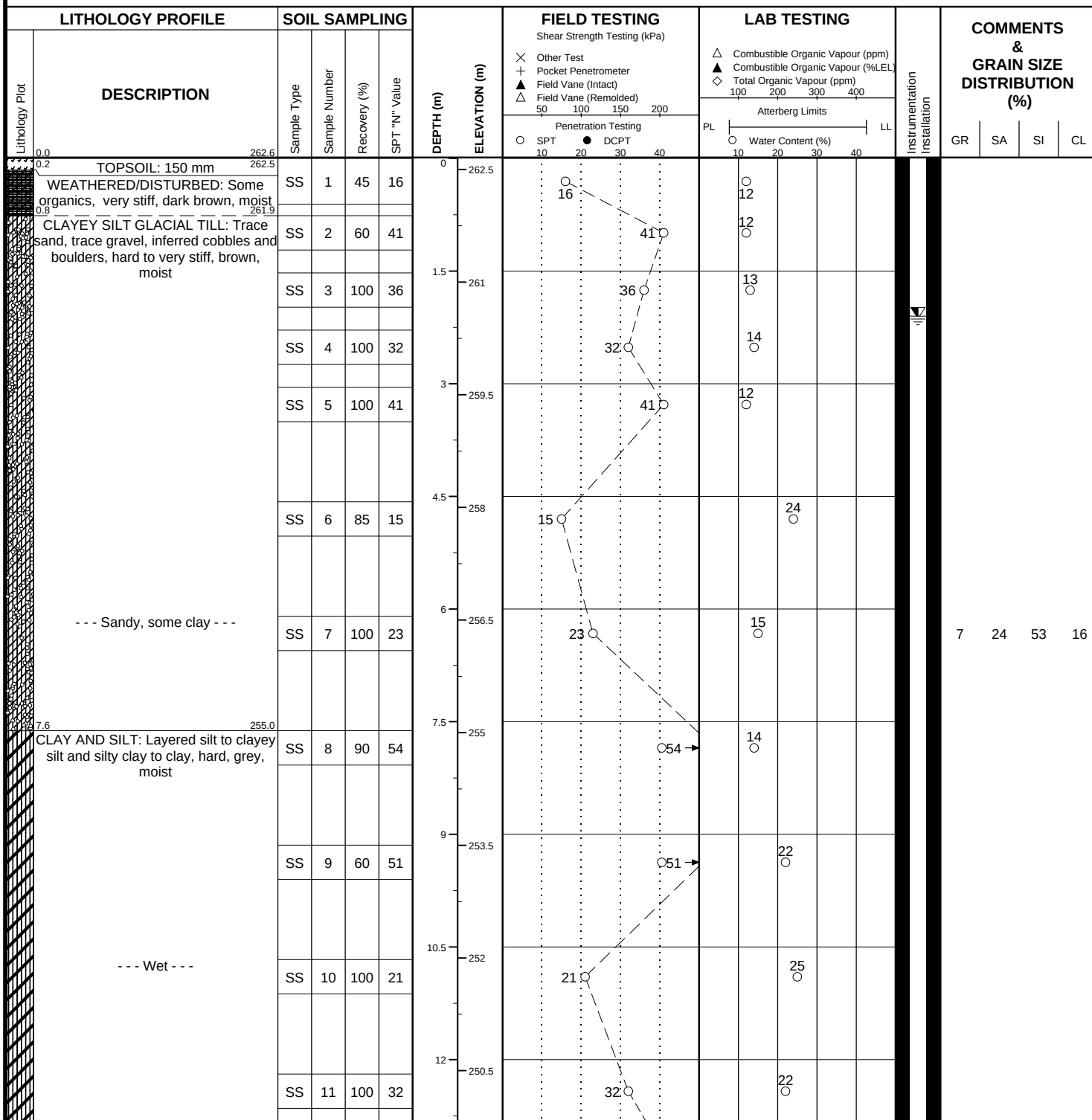
Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 211-D

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849590** Date Started: **Dec 02/24**  
 Reviewed By: **GW** Easting: **596605** Date Completed: **Dec 02/24**



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Groundwater depth encountered on completion of drilling: 18.2 m. Cave depth after auger removal: 18.4m.  
 Groundwater depth observed on: Apr 23/25 at depth of: 2.1 m. Groundwater Elevation: 260.5 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 211-D

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**



Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849590** Date Started: **Dec 02/24**  
 Reviewed By: **GW** Easting: **596605** Date Completed: **Dec 02/24**

| LITHOLOGY PROFILE |             | SOIL SAMPLING                                                             |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                                       |                                    | LAB TESTING                                                                                                            |                   | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |  |  |  |  |
|-------------------|-------------|---------------------------------------------------------------------------|---------------|--------------|---------------|-----------|---------------|-----------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------|----------------------------------------|----|----|----|--|--|--|--|
| Lithology Plot    | DESCRIPTION | Sample Type                                                               | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)                                                                        |                                    | Atterberg Limits                                                                                                       |                   |                              | GR                                     | SA | SI | CL |  |  |  |  |
|                   |             |                                                                           |               |              |               |           |               | Other Test<br>Pocket Penetrometer<br>Field Vane (Intact)<br>Field Vane (Remolded)<br>50 100 150 200 | Penetration Testing<br>SPT<br>DCPT | Combustible Organic Vapour (ppm)<br>Combustible Organic Vapour (%LEL)<br>Total Organic Vapour (ppm)<br>100 200 300 400 | Water Content (%) |                              |                                        |    |    |    |  |  |  |  |
|                   |             |                                                                           |               |              |               |           |               |                                                                                                     |                                    |                                                                                                                        |                   |                              |                                        |    |    |    |  |  |  |  |
|                   |             | SS                                                                        | 12            | 100          | 49            |           | 13.5          | 249                                                                                                 |                                    |                                                                                                                        |                   |                              |                                        |    |    |    |  |  |  |  |
|                   |             |                                                                           |               |              |               |           |               |                                                                                                     |                                    |                                                                                                                        |                   |                              |                                        |    |    |    |  |  |  |  |
|                   | 15.2 247.4  | SAND: Some silt, trace clay, trace gravel, dense, grey, wet               | SS            | 13           | 100           | 33        |               | 15                                                                                                  | 247.5                              |                                                                                                                        |                   |                              |                                        |    |    |    |  |  |  |  |
|                   |             |                                                                           |               |              |               |           |               |                                                                                                     |                                    |                                                                                                                        |                   |                              |                                        |    |    |    |  |  |  |  |
|                   |             |                                                                           | SS            | 14           | 85            | 46        |               | 16.5                                                                                                | 246                                |                                                                                                                        |                   |                              |                                        |    |    |    |  |  |  |  |
|                   |             |                                                                           |               |              |               |           |               |                                                                                                     |                                    |                                                                                                                        |                   |                              |                                        |    |    |    |  |  |  |  |
|                   | 18.3 244.4  | SILT: Some sand, trace clay, trace gravel, dense to very dense, grey, wet | SS            | 15           | 65            | 39        |               | 18                                                                                                  | 244.5                              |                                                                                                                        |                   |                              |                                        |    |    |    |  |  |  |  |
|                   |             |                                                                           |               |              |               |           |               |                                                                                                     |                                    |                                                                                                                        |                   |                              |                                        |    |    |    |  |  |  |  |
|                   | 20.3 242.4  |                                                                           | SS            | 16           | 55            | 57        |               | 19.5                                                                                                | 243                                |                                                                                                                        |                   |                              |                                        |    |    |    |  |  |  |  |
|                   |             | Borehole Terminated at 20.3 m                                             |               |              |               |           |               |                                                                                                     |                                    |                                                                                                                        |                   |                              |                                        |    |    |    |  |  |  |  |

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Groundwater depth encountered on completion of drilling: 18.2 m. Cave depth after auger removal: 18.4m.  
 Groundwater depth observed on: Apr 23/25 at depth of: 2.1 m. Groundwater Elevation: 260.55 m

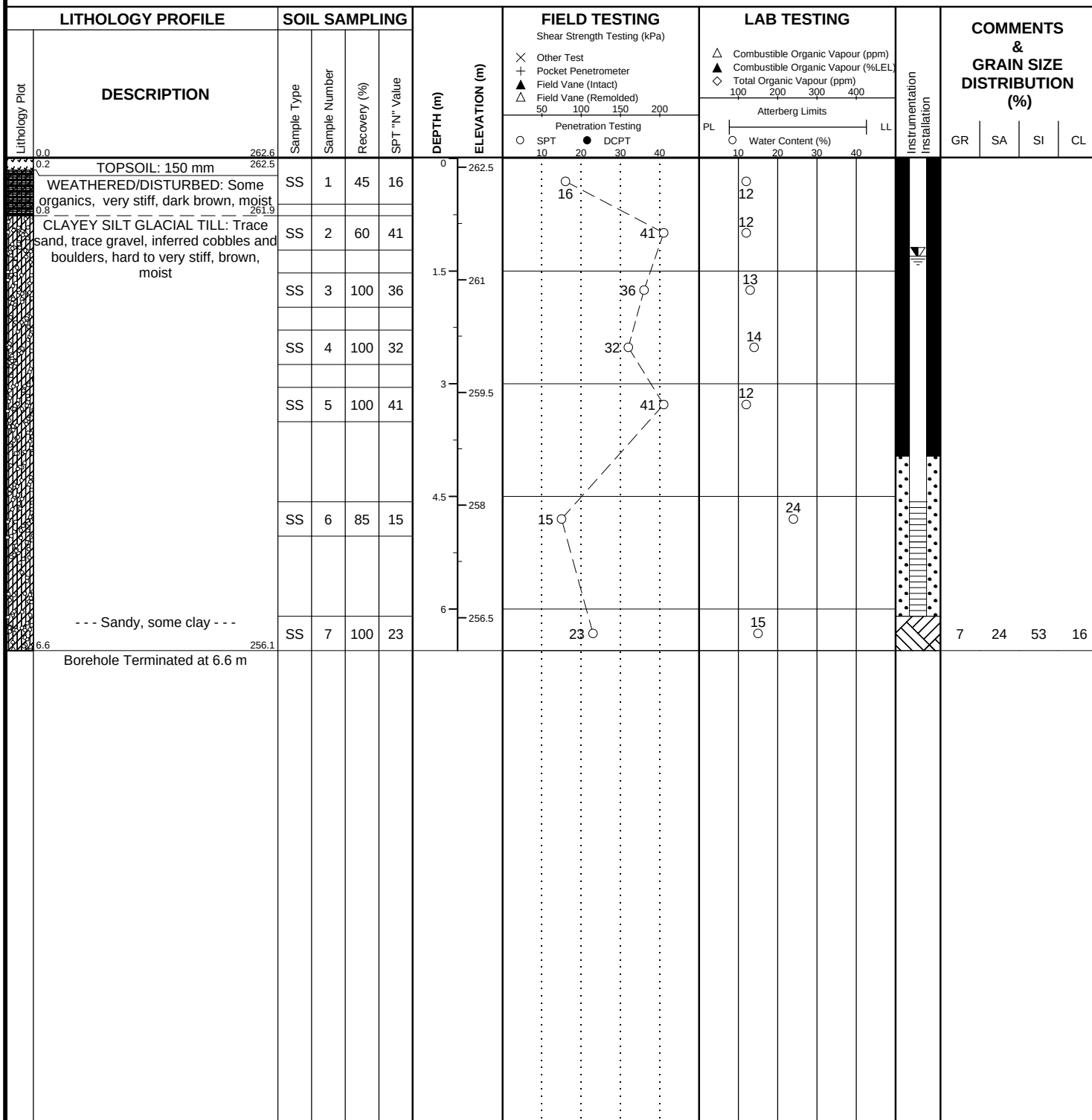
Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 211-S

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849589** Date Started: **Dec 02/24**  
 Reviewed By: **GW** Easting: **596606** Date Completed: **Dec 02/24**



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Groundwater depth encountered on completion of drilling: Dry Cave depth after auger removal: Open  
 Groundwater depth observed on: Apr 23/25 at depth of: 1.3 m. Groundwater Elevation: 261.3 m

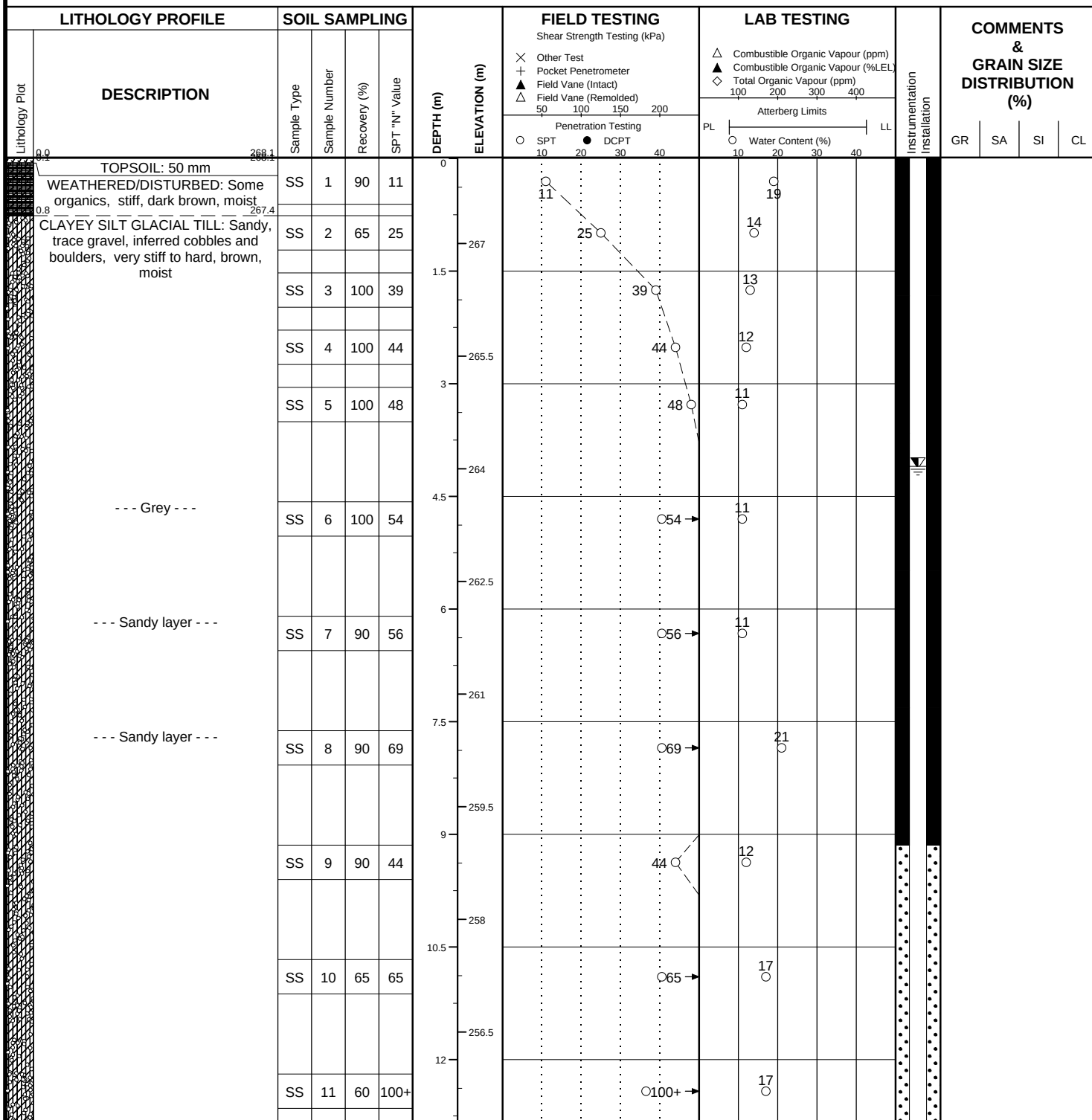
Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 212-D

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849738** Date Started: **Dec 02/24**  
 Reviewed By: **GW** Easting: **596253** Date Completed: **Dec 02/24**



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Groundwater depth encountered on completion of drilling: Dry Cave depth after auger removal: Open  
 Groundwater depth observed on: Apr 23/25 at depth of: 4.1 m. Groundwater Elevation: 264.0 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

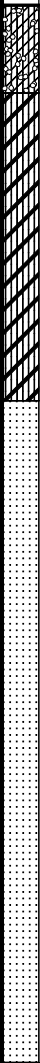
Scale: 1 : 75  
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# RECORD OF BOREHOLE No. 212-D

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849738** Date Started: **Dec 02/24**  
 Reviewed By: **GW** Easting: **596253** Date Completed: **Dec 02/24**



| LITHOLOGY PROFILE                                                                 |                                                                                                    | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                                                                               |                                                    | LAB TESTING                                                                                                                  |                                                                  |  |    | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |  |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------|---------------|--------------|---------------|-----------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|--|----|------------------------------|----------------------------------------|----|----|--|
| Lithology Plot                                                                    | DESCRIPTION                                                                                        | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)<br>× Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded)<br>50 100 150 200 | Penetration Testing<br>○ SPT 10 20 30 40    ● DCPT | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm)<br>100 200 300 400 | Atterberg Limits<br>PL ——— LL<br>○ Water Content (%) 10 20 30 40 |  | GR |                              | SA                                     | SI | CL |  |
|  | 13.7 254.4<br>CLAY AND SILT: Layered silt to clayey silt and silty clay to clay, hard, grey, moist | SS            | 12            | 65           | 100+          | 13.5      | 254.4         | ○100+ →                                                                                                                                     | 20                                                 |                                                                                                                              |                                                                  |  |    |                              |                                        |    |    |  |
|                                                                                   |                                                                                                    | SS            | 13            | 100          | 62            | 15        | 253.5         | ○62 →                                                                                                                                       | 22                                                 |                                                                                                                              |                                                                  |  |    |                              |                                        |    |    |  |
|                                                                                   |                                                                                                    |               |               |              |               | 16.5      | 252           | ○78 →                                                                                                                                       |                                                    |                                                                                                                              | 37                                                               |  |    |                              |                                        |    |    |  |
|                                                                                   | 16.8 251.4<br>SAND: Trace sand, very dense, grey, wet                                              | SS            | 14            | 95           | 78            | 18        | 250.5         | ○80 →                                                                                                                                       | 19                                                 |                                                                                                                              |                                                                  |  |    |                              |                                        |    |    |  |
|                                                                                   |                                                                                                    | SS            | 15            | 65           | 80            | 19.5      | 249           | ○53 →                                                                                                                                       | 20                                                 |                                                                                                                              |                                                                  |  |    |                              |                                        |    |    |  |
|                                                                                   |                                                                                                    |               |               |              |               | 21        | 247.5         | ○69 →                                                                                                                                       | 17                                                 |                                                                                                                              |                                                                  |  |    |                              |                                        |    |    |  |
|                                                                                   |                                                                                                    | SS            | 17            | 95           | 69            | 22.5      | 246           | ○52 →                                                                                                                                       | 20                                                 |                                                                                                                              |                                                                  |  |    |                              |                                        |    |    |  |
|                                                                                   |                                                                                                    | SS            | 18            | 90           | 52            | 23.3      | 244.8         |                                                                                                                                             |                                                    |                                                                                                                              |                                                                  |  |    |                              |                                        |    |    |  |
|                                                                                   | Borehole Terminated at 23.3 m                                                                      |               |               |              |               |           |               |                                                                                                                                             |                                                    |                                                                                                                              |                                                                  |  |    |                              |                                        |    |    |  |
|                                                                                   |                                                                                                    |               |               |              |               |           |               |                                                                                                                                             |                                                    |                                                                                                                              |                                                                  |  |    |                              |                                        |    |    |  |

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Groundwater depth encountered on completion of drilling: Dry    Cave depth after auger removal: Open  
 Groundwater depth observed on: Apr 23/25 at depth of: 4.1 m.    Groundwater Elevation: 264.03 m

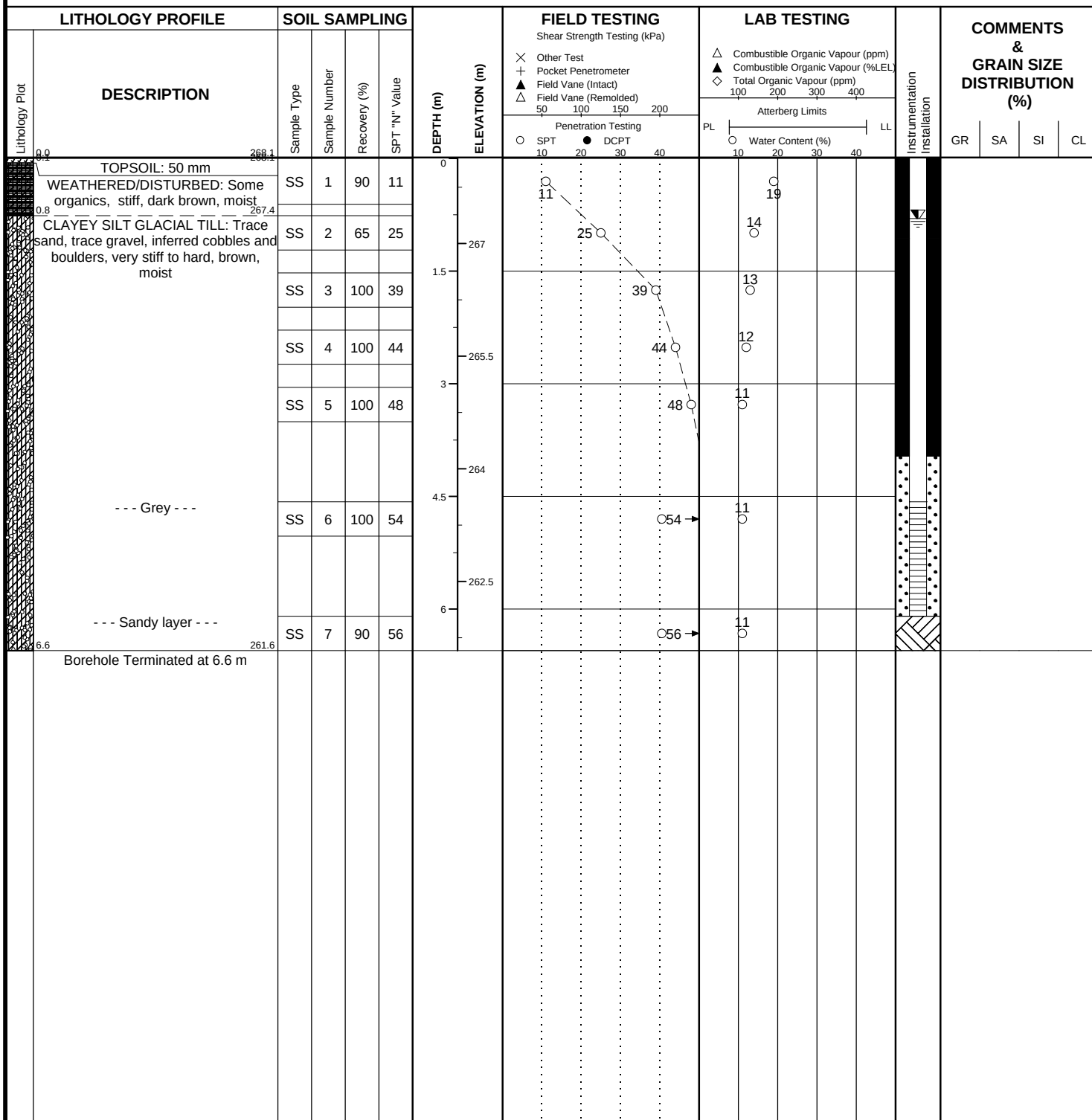
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# RECORD OF BOREHOLE No. 212-S

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849738** Date Started: **Dec 02/24**  
 Reviewed By: **GW** Easting: **596253** Date Completed: **Dec 02/24**



# RECORD OF BOREHOLE No. 213

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **TA** Northing: **4849976** Date Started: **Dec 04/24**  
 Reviewed By: **GW** Easting: **596246** Date Completed: **Dec 04/24**



| LITHOLOGY PROFILE |                              | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                           |                                          | LAB TESTING                                                                                               |                                   | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |  |
|-------------------|------------------------------|---------------|---------------|--------------|---------------|-----------|---------------|-----------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------|------------------------------|----------------------------------------|----|----|----|--|
| Lithology Plot    | DESCRIPTION                  | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)                                                            |                                          | Atterberg Limits                                                                                          |                                   |                              | GR                                     | SA | SI | CL |  |
|                   |                              |               |               |              |               |           |               | Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded) | Penetration Testing<br>○ SPT      ● DCPT | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm) | Water Content (%)<br>○ PL      LL |                              |                                        |    |    |    |  |
|                   |                              |               |               |              |               |           |               |                                                                                         |                                          |                                                                                                           |                                   |                              |                                        |    |    |    |  |
|                   | 0.2 265.2                    |               |               |              |               | 0         |               |                                                                                         |                                          |                                                                                                           |                                   |                              |                                        |    |    |    |  |
|                   | 0.8 264.5                    | SS            | 1             | 50           | 9             |           |               | 9                                                                                       |                                          |                                                                                                           | 22                                |                              |                                        |    |    |    |  |
|                   |                              |               |               |              |               |           |               |                                                                                         |                                          |                                                                                                           |                                   |                              |                                        |    |    |    |  |
|                   |                              | SS            | 2             | 90           | 34            |           | 264           | 34                                                                                      |                                          | 15                                                                                                        |                                   |                              |                                        |    |    |    |  |
|                   |                              |               |               |              |               | 1.5       |               |                                                                                         |                                          |                                                                                                           |                                   |                              |                                        |    |    |    |  |
|                   |                              | SS            | 3             | 100          | 45            |           |               | 45                                                                                      |                                          | 14                                                                                                        |                                   |                              |                                        |    |    |    |  |
|                   |                              |               |               |              |               |           |               |                                                                                         |                                          |                                                                                                           |                                   |                              |                                        |    |    |    |  |
|                   |                              | SS            | 4             | 100          | 49            |           | 262.5         | 49                                                                                      |                                          | 11                                                                                                        |                                   |                              |                                        |    |    |    |  |
|                   |                              |               |               |              |               | 3         |               |                                                                                         |                                          |                                                                                                           |                                   |                              |                                        |    |    |    |  |
|                   | 3.0 262.2                    | SS            | 5             | 100          | 43            |           |               | 43                                                                                      |                                          | 13                                                                                                        |                                   |                              |                                        |    |    |    |  |
|                   |                              |               |               |              |               |           |               |                                                                                         |                                          |                                                                                                           |                                   |                              |                                        |    |    |    |  |
|                   |                              |               |               |              |               | 4.5       | 261           |                                                                                         |                                          |                                                                                                           |                                   |                              |                                        |    |    |    |  |
|                   |                              | SS            | 6             | 100          | 47            |           |               | 47                                                                                      |                                          | 10                                                                                                        |                                   |                              |                                        |    |    |    |  |
|                   |                              |               |               |              |               |           |               |                                                                                         |                                          |                                                                                                           |                                   |                              |                                        |    |    |    |  |
|                   |                              |               |               |              |               | 6         | 259.5         |                                                                                         |                                          |                                                                                                           |                                   |                              |                                        |    |    |    |  |
|                   | 6.6 258.7                    | SS            | 7             | 100          | 39            |           |               | 39                                                                                      |                                          | 19                                                                                                        |                                   |                              |                                        |    |    |    |  |
|                   |                              |               |               |              |               |           |               |                                                                                         |                                          |                                                                                                           |                                   |                              |                                        |    |    |    |  |
|                   | 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 interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 214

Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849950** Date Started: **Nov 28/24**  
 Reviewed By: **GW** Easting: **596450** Date Completed: **Nov 28/24**



| LITHOLOGY PROFILE |                                                                                                                | SOIL SAMPLING |               |              |               | DEPTH (m)  | ELEVATION (m)       | FIELD TESTING                    |                                   | LAB TESTING                |                   |  |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |
|-------------------|----------------------------------------------------------------------------------------------------------------|---------------|---------------|--------------|---------------|------------|---------------------|----------------------------------|-----------------------------------|----------------------------|-------------------|--|--|------------------------------|----------------------------------------|----|----|----|
| Lithology Plot    | DESCRIPTION                                                                                                    | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |            |                     | Shear Strength Testing (kPa)     |                                   | Atterberg Limits           |                   |  |  |                              | GR                                     | SA | SI | CL |
|                   |                                                                                                                |               |               |              |               | Other Test | Penetration Testing | Combustible Organic Vapour (ppm) | Combustible Organic Vapour (%LEL) | Total Organic Vapour (ppm) | Water Content (%) |  |  |                              |                                        |    |    |    |
|                   | TOPSOIL: 75 mm                                                                                                 | SS            | 1             | 100          | 28            | 0          | 259.5               | 28                               |                                   | 14                         |                   |  |  |                              |                                        |    |    |    |
|                   | WEATHERED/DISTURBED: Trace organics, stiff, dark brown, moist                                                  | SS            | 2             | 85           | 47            |            |                     | 47                               |                                   | 15                         |                   |  |  |                              |                                        |    |    |    |
|                   | CLAYEY SILT GLACIAL TILL: Sandy, trace gravel, inferred cobbles and boulders, hard to very stiff, brown, moist | SS            | 3             | 100          | 45            | 1.5        | 258                 | 45                               |                                   | 12                         |                   |  |  |                              |                                        |    |    |    |
|                   | ---                                                                                                            |               |               |              |               |            |                     |                                  |                                   |                            |                   |  |  |                              |                                        |    |    |    |
|                   | Grey                                                                                                           | SS            | 4             | 100          | 27            |            |                     | 27                               |                                   | 13                         |                   |  |  |                              |                                        |    |    |    |
|                   |                                                                                                                |               |               |              |               |            |                     |                                  |                                   |                            |                   |  |  |                              |                                        |    |    |    |
|                   |                                                                                                                | SS            | 5             | 100          | 33            | 3          | 256.5               | 33                               |                                   | 9                          |                   |  |  |                              |                                        |    |    |    |
|                   |                                                                                                                |               |               |              |               |            |                     |                                  |                                   |                            |                   |  |  |                              |                                        |    |    |    |
|                   |                                                                                                                |               |               |              |               |            |                     |                                  |                                   |                            |                   |  |  |                              |                                        |    |    |    |
|                   | CLAY AND SILT: Layered silt to clayey silt and silty clay to clay, hard, grey, moist                           | SS            | 6             | 100          | 100+          | 4.5        | 255                 | 100+                             |                                   | 15                         |                   |  |  |                              |                                        |    |    |    |
|                   |                                                                                                                |               |               |              |               |            |                     |                                  |                                   |                            |                   |  |  |                              |                                        |    |    |    |
|                   |                                                                                                                |               |               |              |               |            |                     |                                  |                                   |                            |                   |  |  |                              |                                        |    |    |    |
|                   | ---                                                                                                            |               |               |              |               |            |                     |                                  |                                   |                            |                   |  |  |                              |                                        |    |    |    |
|                   | Very moist                                                                                                     | SS            | 7             | 100          | 98            | 6          | 253.5               | 98                               |                                   | 17                         |                   |  |  |                              |                                        |    |    |    |
|                   | 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: Groundwater Elevation:

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

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# RECORD OF BOREHOLE No. 215



Project Number: **2407688**  
 Project Client: **TACC Developments**  
 Project Name: **Mayfield Tullamore TACC Lands- Phase**  
 Project Location: **SE corner of Bramalea Rd & Old School Rd**  
 Drilling Location: **Caledon, ON**  
 Local Benchmark: **Elevations are Geodetic, taken using Trimble**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **KJT** Northing: **4849937** Date Started: **Nov 28/24**  
 Reviewed By: **GW** Easting: **596763** Date Completed: **Nov 28/24**

| LITHOLOGY PROFILE |             | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                             |                                                                                                           | LAB TESTING         |  |  |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |
|-------------------|-------------|---------------|---------------|--------------|---------------|-----------|---------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------|--|--|--|------------------------------|----------------------------------------|----|----|----|
| Lithology Plot    | DESCRIPTION | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)                                                              |                                                                                                           | Atterberg Limits    |  |  |  |                              | GR                                     | SA | SI | CL |
|                   |             |               |               |              |               |           |               | ✕ Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded) | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm) |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               | 50 100 150 200                                                                            | 100 200 300 400                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               | Penetration Testing                                                                       |                                                                                                           | PL                  |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               | ○ SPT ● DCPT                                                                              |                                                                                                           | ○ Water Content (%) |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                     |  |  |  |                              |                                        |    |    |    |

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Groundwater depth encountered on completion of drilling: Dry Cave depth after auger removal: Open  
 Groundwater depth observed on: Apr 23/25 at depth of: 2.2 m. Groundwater Elevation: 258.4 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale: 1:75  
 Page: 1 of 1

# RECORD OF BOREHOLE No. 19



Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **TA** Northing: **4849540** Date Started: **Apr 29/24**  
 Reviewed By: **RW** Easting: **595906** Date Completed: **Apr 29/24**

| LITHOLOGY PROFILE |                                                                                                                 | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                |                     | LAB TESTING      |                   | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |  |
|-------------------|-----------------------------------------------------------------------------------------------------------------|---------------|---------------|--------------|---------------|-----------|---------------|------------------------------|---------------------|------------------|-------------------|------------------------------|----------------------------------------|----|----|----|--|
| Lithology Plot    | DESCRIPTION                                                                                                     | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa) | Penetration Testing | Atterberg Limits | Water Content (%) |                              | GR                                     | SA | SI | CL |  |
|                   | 0.0 271.8                                                                                                       |               |               |              |               | 0         |               |                              |                     |                  |                   |                              |                                        |    |    |    |  |
|                   | 0.2 271.5                                                                                                       | SS            | 1             | 83           | 5             |           |               |                              |                     |                  |                   |                              |                                        |    |    |    |  |
|                   | 0.8 271.0                                                                                                       | SS            | 2             | 100          | 6             |           |               |                              |                     |                  |                   |                              |                                        |    |    |    |  |
|                   | CLAYEY SILT GLACIAL TILL: Sand, trace gravel, inferred cobbles and boulders, firm, brown, moist<br>--- Hard --- |               |               |              |               |           |               |                              |                     |                  |                   |                              |                                        |    |    |    |  |
|                   |                                                                                                                 | SS            | 3             | 100          | 35            |           |               |                              |                     |                  |                   |                              |                                        |    |    |    |  |
|                   |                                                                                                                 | SS            | 4             | 100          | 43            |           |               |                              |                     |                  |                   |                              |                                        |    |    |    |  |
|                   | --- Some clay ---                                                                                               |               |               |              |               |           |               |                              |                     |                  |                   |                              |                                        |    |    |    |  |
|                   |                                                                                                                 | SS            | 5             | 100          | 85            |           |               |                              |                     |                  |                   |                              |                                        |    |    |    |  |
|                   | 4.6 267.2                                                                                                       |               |               |              |               | 4         |               |                              |                     |                  |                   |                              |                                        |    |    |    |  |
|                   | SAND AND SILT: Trace gravel, very dense, brown, moist                                                           | SS            | 6             | 90           | 96            |           |               |                              |                     |                  |                   |                              |                                        |    |    |    |  |
|                   |                                                                                                                 |               |               |              |               |           |               |                              |                     |                  |                   |                              |                                        |    |    |    |  |
|                   | 6.6 265.2                                                                                                       | SS            | 7             | 100          | 71            | 6         |               |                              |                     |                  |                   |                              |                                        |    |    |    |  |
|                   | 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: Groundwater Elevation:

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale 1 : 100  
 Page: 1 of 1

# RECORD OF BOREHOLE No. 20

Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849858** Date Started: **May 03/24**  
 Reviewed By: **RW** Easting: **596166** Date Completed: **May 03/24**



| LITHOLOGY PROFILE |             | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                |        | LAB TESTING       |      | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |  |  |  |
|-------------------|-------------|---------------|---------------|--------------|---------------|-----------|---------------|------------------------------|--------|-------------------|------|------------------------------|----------------------------------------|--|--|--|
| Lithology Plot    | DESCRIPTION | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa) |        | Atterberg Limits  |      |                              | GR   SA   SI   CL                      |  |  |  |
|                   |             |               |               |              |               |           |               | Penetration Testing          |        | Water Content (%) |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | ○ SPT                        | ● DCPT | ○ PL              | ○ LL |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | 5                            |        | 15                |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | 27                           |        | 16                |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | 35                           |        | 17                |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | 49                           |        | 12                |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | 62                           |        | 12                |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | 81                           |        | 13                |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | 49                           |        | 11                |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
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|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
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|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                              |        |                   |      |                              |                                        |  |  |  |

# RECORD OF BOREHOLE No. 21



Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **TA** Northing: **4849563** Date Started: **Apr 29/24**  
 Reviewed By: **RW** Easting: **596137** Date Completed: **Apr 29/24**

| LITHOLOGY PROFILE |                                                                                                           | SOIL SAMPLING |               |              |               | DEPTH (m)        | ELEVATION (m)                             | FIELD TESTING                                                                           |                                                                                                           | LAB TESTING      |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |  |  |  |  |
|-------------------|-----------------------------------------------------------------------------------------------------------|---------------|---------------|--------------|---------------|------------------|-------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------|--|------------------------------|----------------------------------------|--|--|--|--|
| Lithology Plot    | DESCRIPTION                                                                                               | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |                  |                                           | Shear Strength Testing (kPa)                                                            |                                                                                                           | Atterberg Limits |  |                              | GR   SA   SI   CL                      |  |  |  |  |
|                   |                                                                                                           |               |               |              |               |                  |                                           | Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded) | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm) |                  |  |                              |                                        |  |  |  |  |
|                   | 0.0<br>0.2<br>0.6<br>2.3<br>6.6                                                                           |               |               |              |               | 0<br>2<br>4<br>6 | 266.4<br>266.2<br>265.6<br>264.1<br>259.8 | Penetration Testing<br>○ SPT      ● DCPT                                                | PL      LL<br>○ Water Content (%)                                                                         |                  |  |                              |                                        |  |  |  |  |
|                   | TOPSOIL: 150 mm                                                                                           | SS            | 1             | 100          | 4             |                  |                                           | 4                                                                                       |                                                                                                           |                  |  |                              |                                        |  |  |  |  |
|                   | WEATHERED/DISTURBED: Sandy clayey silt, trace gravel, firm to stiff, dark brown                           | SS            | 2             | 100          | 7             |                  |                                           | 7                                                                                       |                                                                                                           |                  |  |                              |                                        |  |  |  |  |
|                   | CLAYEY SILT GLACIAL TILL: Sandy, trace gravel, inferred cobbles and boulders, firm to stiff, brown, moist | SS            | 3             | 100          | 11            |                  |                                           | 11                                                                                      |                                                                                                           |                  |  |                              |                                        |  |  |  |  |
|                   | SAND: Trace to some silt, loose, brown orange, moist/                                                     | SS            | 4             | 100          | 7             |                  |                                           | 7                                                                                       |                                                                                                           |                  |  |                              |                                        |  |  |  |  |
|                   | --- Wet ---                                                                                               | SS            | 5             | 100          | 6             |                  |                                           | 6                                                                                       |                                                                                                           |                  |  |                              |                                        |  |  |  |  |
|                   |                                                                                                           |               |               |              |               |                  |                                           |                                                                                         |                                                                                                           |                  |  |                              |                                        |  |  |  |  |
|                   |                                                                                                           | SS            | 6             | 100          | 6             |                  |                                           | 6                                                                                       |                                                                                                           |                  |  |                              |                                        |  |  |  |  |
|                   |                                                                                                           |               |               |              |               |                  |                                           |                                                                                         |                                                                                                           |                  |  |                              |                                        |  |  |  |  |
|                   | --- Compact ---                                                                                           | SS            | 7             | 100          | 11            |                  |                                           | 11                                                                                      |                                                                                                           |                  |  |                              |                                        |  |  |  |  |
|                   | Borehole Terminated at 6.6 m                                                                              |               |               |              |               |                  |                                           |                                                                                         |                                                                                                           |                  |  |                              |                                        |  |  |  |  |

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Groundwater depth encountered on completion of drilling: 5.8 m. Cave depth after auger removal: 4.6 m.  
 Groundwater depth observed on: Apr 23/25 at depth of: 4.7 m. Groundwater Elevation: 261.7 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale 1:100  
 Page 1 of 1

# RECORD OF BOREHOLE No. 22



Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

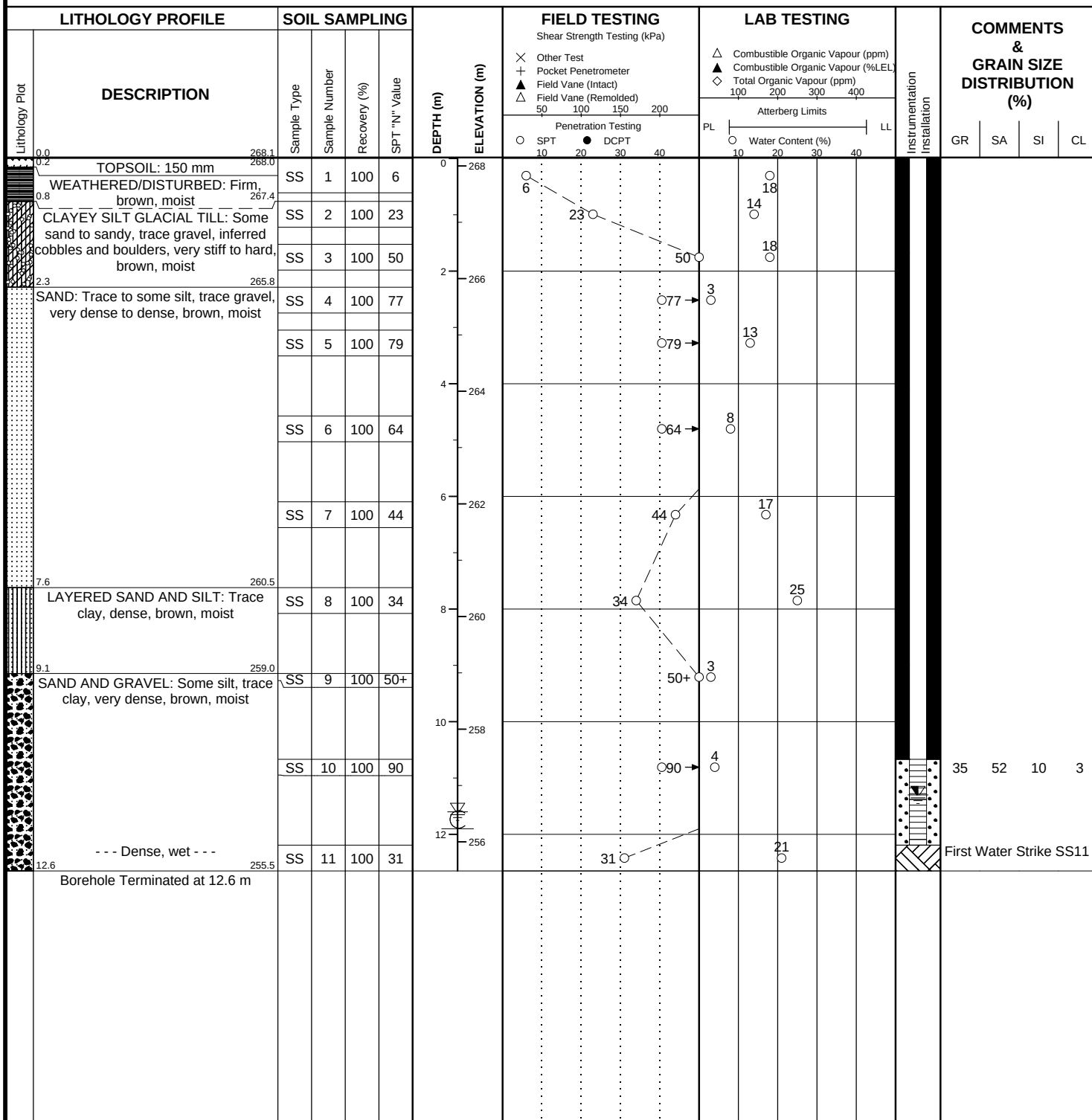
Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849857** Date Started: **May 08/24**  
 Reviewed By: **RW** Easting: **596375** Date Completed: **May 08/24**

| LITHOLOGY PROFILE                                                                 |                                                                                                                                                                                           | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                      |                                                                                                                              | LAB TESTING      |                   |  |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|--------------|---------------|-----------|---------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|--|--|------------------------------|----------------------------------------|----|----|----|
| Lithology Plot                                                                    | DESCRIPTION                                                                                                                                                                               | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)                       |                                                                                                                              | Atterberg Limits |                   |  |  |                              | GR                                     | SA | SI | CL |
|                                                                                   |                                                                                                                                                                                           |               |               |              |               |           |               | ×                                                  | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm)<br>100 200 300 400 |                  |                   |  |  |                              |                                        |    |    |    |
|                                                                                   |                                                                                                                                                                                           |               |               |              |               |           |               | Penetration Testing<br>○ SPT 10 20 30 40    ● DCPT |                                                                                                                              | PL               | Water Content (%) |  |  | LL                           |                                        |    |    |    |
|  | 0.0 264.4<br>0.2 264.1<br>TOPSOIL: 205 mm<br>CLAYEY SILT GLACIAL TILL: Some sand to sandy, trace gravel, inferred cobbles and boulders, stiff to very stiff, brown, moist<br>--- Hard --- | SS            | 1             | 100          | 9             | 0         | 264           | 9                                                  |                                                                                                                              |                  |                   |  |  |                              |                                        |    |    |    |
|                                                                                   |                                                                                                                                                                                           | SS            | 2             | 100          | 19            |           |               | 19                                                 |                                                                                                                              |                  |                   |  |  |                              |                                        |    |    |    |
|                                                                                   |                                                                                                                                                                                           | SS            | 3             | 100          | 34            |           |               | 34                                                 |                                                                                                                              |                  |                   |  |  |                              |                                        |    |    |    |
|                                                                                   |                                                                                                                                                                                           | SS            | 4             | 100          | 52            |           |               | 52                                                 |                                                                                                                              |                  |                   |  |  |                              |                                        |    |    |    |
|                                                                                   |                                                                                                                                                                                           | SS            | 5             | 100          | 47            |           |               | 47                                                 |                                                                                                                              |                  |                   |  |  |                              |                                        |    |    |    |
|                                                                                   |                                                                                                                                                                                           | SS            | 6             | 100          | 56            |           |               | 56                                                 |                                                                                                                              |                  |                   |  |  |                              |                                        |    |    |    |
|                                                                                   |                                                                                                                                                                                           | SS            | 7             | 100          | 48            |           |               | 48                                                 |                                                                                                                              |                  |                   |  |  |                              |                                        |    |    |    |
|                                                                                   | 6.6 257.8<br>Borehole Terminated at 6.6 m                                                                                                                                                 |               |               |              |               |           |               |                                                    |                                                                                                                              |                  |                   |  |  |                              |                                        |    |    |    |

# RECORD OF BOREHOLE No. 23

Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Hollow Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849291** Date Started: **May 02/24**  
 Reviewed By: **RW** Easting: **596198** Date Completed: **May 02/24**



# RECORD OF BOREHOLE No. 24D

Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **TA** Northing: **4849398** Date Started: **Apr 29/24**  
 Reviewed By: **RW** Easting: **596260** Date Completed: **Apr 29/24**



| LITHOLOGY PROFILE |             | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                     |                                                                                                     | LAB TESTING      |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |  |  |  |
|-------------------|-------------|---------------|---------------|--------------|---------------|-----------|---------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------|--|------------------------------|----------------------------------------|--|--|--|
| Lithology Plot    | DESCRIPTION | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)                                                      |                                                                                                     | Atterberg Limits |  |                              | GR   SA   SI   CL                      |  |  |  |
|                   |             |               |               |              |               |           |               | Other Test<br>Pocket Penetrometer<br>Field Vane (Intact)<br>Field Vane (Remolded) | Combustible Organic Vapour (ppm)<br>Combustible Organic Vapour (%LEL)<br>Total Organic Vapour (ppm) |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | 50 100 150 200                                                                    | 100 200 300 400                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | Penetration Testing                                                               |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               | ○ SPT ● DCPT                                                                      |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |  |                              |                                        |  |  |  |

# RECORD OF BOREHOLE No. 24S



Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **TA** Northing: **4849397** Date Started: **Apr 29/24**  
 Reviewed By: **RW** Easting: **596262** Date Completed: **Apr 29/24**

| LITHOLOGY PROFILE |             | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m)         | FIELD TESTING                |                                   | LAB TESTING      |     |     |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |  |  |  |
|-------------------|-------------|---------------|---------------|--------------|---------------|-----------|-----------------------|------------------------------|-----------------------------------|------------------|-----|-----|--|------------------------------|----------------------------------------|--|--|--|
| Lithology Plot    | DESCRIPTION | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |                       | Shear Strength Testing (kPa) |                                   | Atterberg Limits |     |     |  |                              | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |  |  |  |
|                   |             |               |               |              |               | ×         | Other Test            | △                            | Combustible Organic Vapour (ppm)  |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               | +         | Pocket Penetrometer   | ▲                            | Combustible Organic Vapour (%LEL) |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               | ▲         | Field Vane (Intact)   | ◇                            | Total Organic Vapour (ppm)        |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               | △         | Field Vane (Remolded) | ○                            | 100                               | 200              | 300 | 400 |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           | Penetration Testing   |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           | ○                     | SPT                          | ●                                 | DCPT             |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       | 10                           | 20                                | 30               | 40  |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
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|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
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|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               |               |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |
|                   |             |               | </            |              |               |           |                       |                              |                                   |                  |     |     |  |                              |                                        |  |  |  |

# RECORD OF BOREHOLE No. 25



Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849604** Date Started: **May 07/24**  
 Reviewed By: **RW** Easting: **596422** Date Completed: **May 07/24**

| LITHOLOGY PROFILE |             | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                             |                                                                                                           | LAB TESTING       |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |  |  |
|-------------------|-------------|---------------|---------------|--------------|---------------|-----------|---------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------|--|------------------------------|----------------------------------------|----|----|----|--|--|
| Lithology Plot    | DESCRIPTION | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)                                                              |                                                                                                           | Atterberg Limits  |  |                              | GR                                     | SA | SI | CL |  |  |
|                   |             |               |               |              |               |           |               | × Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded) | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm) |                   |  |                              |                                        |    |    |    |  |  |
|                   |             |               |               |              |               |           |               | 50 100 150 200                                                                            |                                                                                                           | PL                |  |                              |                                        |    |    |    |  |  |
|                   |             |               |               |              |               |           |               | Penetration Testing                                                                       |                                                                                                           | Water Content (%) |  |                              |                                        |    |    |    |  |  |
|                   |             |               |               |              |               |           |               | ○ SPT ● DCPT                                                                              |                                                                                                           |                   |  |                              |                                        |    |    |    |  |  |
|                   |             |               |               |              |               |           |               | 10 20 30 40                                                                               |                                                                                                           | 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: Groundwater Elevation:

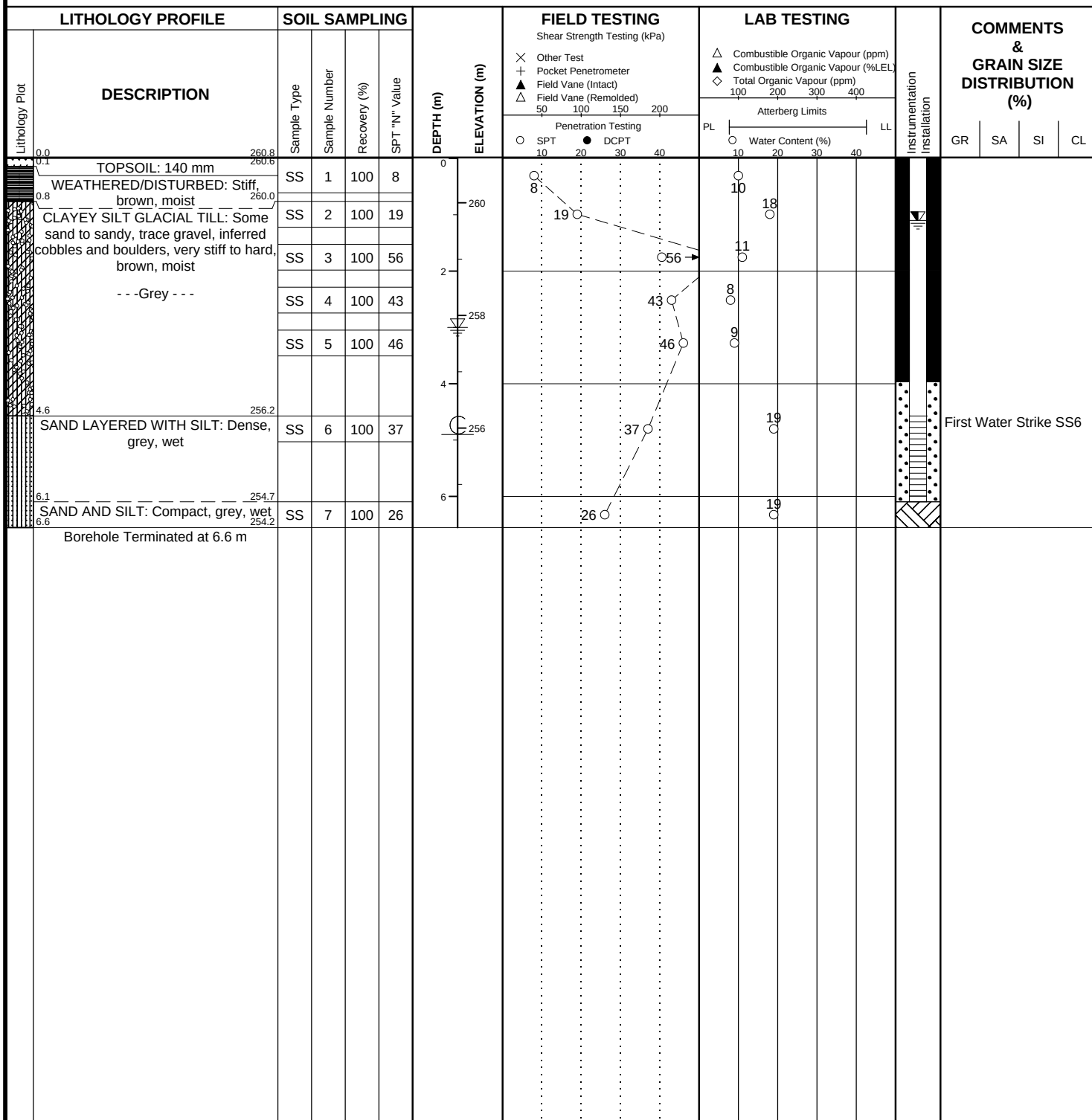
Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale 1 :100  
 Page: 1 of 1

# RECORD OF BOREHOLE No. 26

Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849832** Date Started: **May 07/24**  
 Reviewed By: **RW** Easting: **596606** Date Completed: **May 07/24**

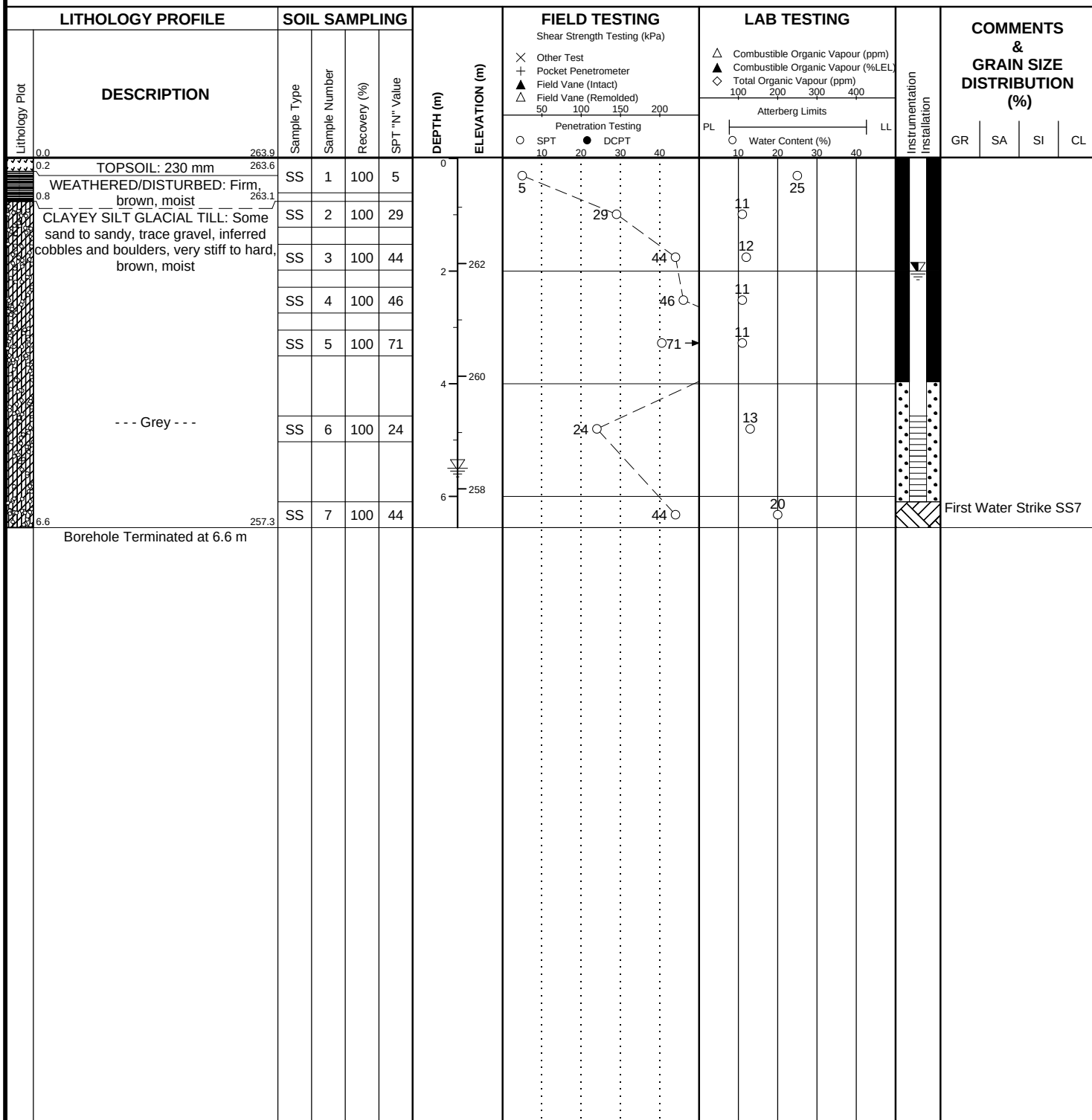


# RECORD OF BOREHOLE No. 28



Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

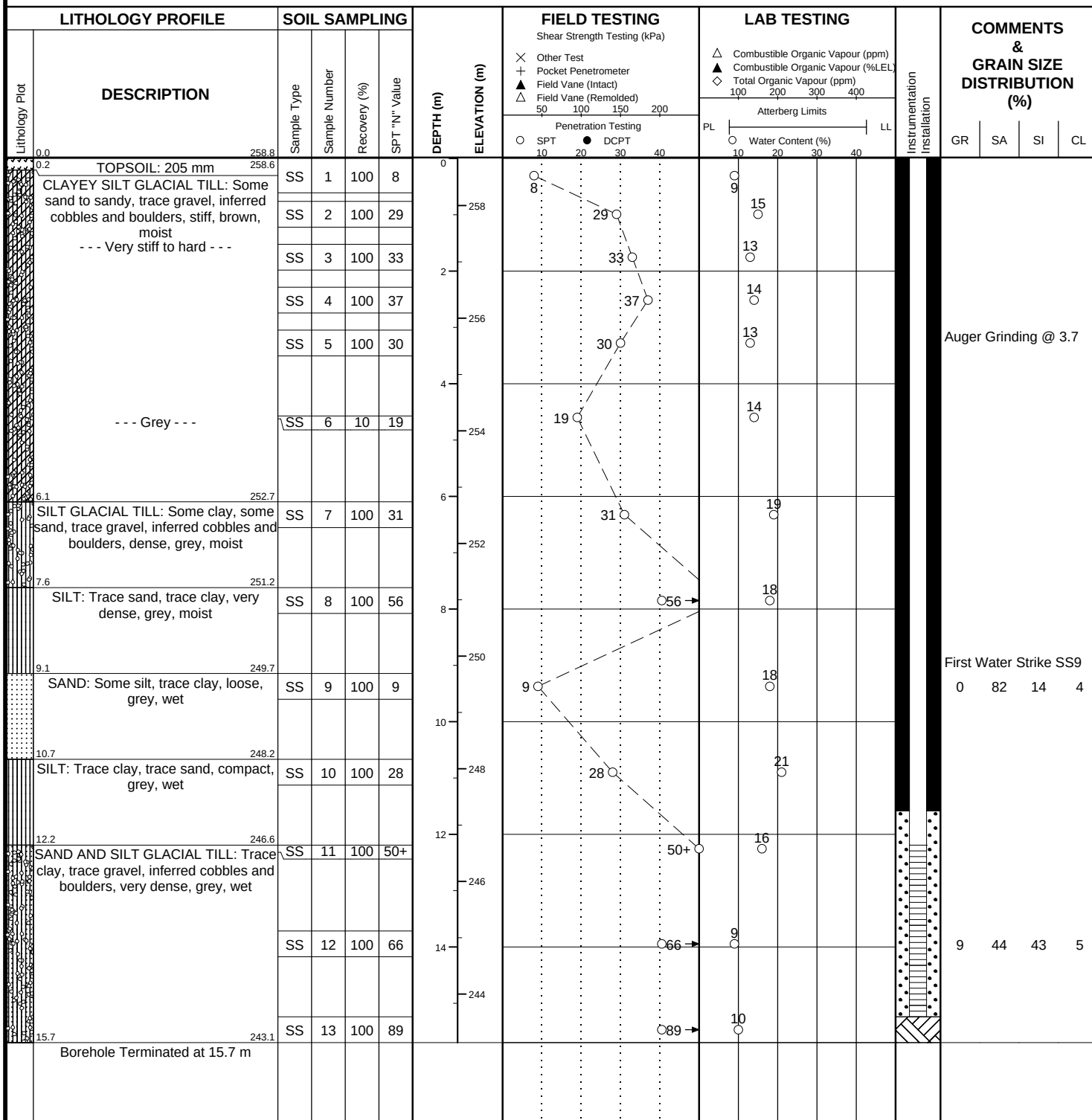
Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849278** Date Started: **May 02/24**  
 Reviewed By: **RW** Easting: **596571** Date Completed: **May 02/24**



# RECORD OF BOREHOLE No. 29

Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849443** Date Started: **May 03/24**  
 Reviewed By: **RW** Easting: **596859** Date Completed: **May 03/24**



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Groundwater depth encountered on completion of drilling: Dry Cave depth after auger removal: Open  
 Groundwater depth observed on: Apr 23/25 at depth of: -0.9 m. Groundwater Elevation: 259.7 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale 1:100  
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# RECORD OF BOREHOLE No. 32



Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849120** Date Started: **May 02/24**  
 Reviewed By: **RW** Easting: **596736** Date Completed: **May 02/24**

| LITHOLOGY PROFILE |                                                                                                                                          | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                                               |                                                                                                                              | LAB TESTING      |                   |  |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|--------------|---------------|-----------|---------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|--|--|------------------------------|----------------------------------------|----|----|----|
| Lithology Plot    | DESCRIPTION                                                                                                                              | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)                                                                                |                                                                                                                              | Atterberg Limits |                   |  |  |                              | GR                                     | SA | SI | CL |
|                   |                                                                                                                                          |               |               |              |               |           |               | × Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded)<br>50 100 150 200 | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm)<br>100 200 300 400 |                  |                   |  |  |                              |                                        |    |    |    |
|                   |                                                                                                                                          |               |               |              |               |           |               | Penetration Testing<br>○ SPT 10 20 30 40    ● DCPT                                                          |                                                                                                                              | PL               | Water Content (%) |  |  | LL                           |                                        |    |    |    |
|                   | 0.0 262.1<br>TOPSOIL: 255 mm                                                                                                             | SS            | 1             | 100          | 3             | 0         | 262           | 3                                                                                                           |                                                                                                                              | ○ 15             |                   |  |  |                              |                                        |    |    |    |
|                   | 0.3 261.9<br>WEATHERED/DISTURBED: Soft, brown, moist                                                                                     | SS            | 2             | 100          | 24            |           |               | 24                                                                                                          |                                                                                                                              | ○ 13             |                   |  |  |                              |                                        |    |    |    |
|                   | 0.8 261.4<br>CLAYEY SILT GLACIAL TILL: Some sand to sandy, trace gravel, inferred cobbles and boulders, very stiff to hard, brown, moist | SS            | 3             | 100          | 36            |           |               | 36                                                                                                          |                                                                                                                              | ○ 14             |                   |  |  |                              |                                        |    |    |    |
|                   |                                                                                                                                          | SS            | 4             | 100          | 40            | 2         | 260           | 40                                                                                                          |                                                                                                                              | ○ 14             |                   |  |  |                              |                                        |    |    |    |
|                   |                                                                                                                                          | SS            | 5             | 100          | 63            |           |               | 63                                                                                                          |                                                                                                                              | ○ 13             |                   |  |  |                              |                                        |    |    |    |
|                   |                                                                                                                                          |               |               |              |               | 4         | 258           | 61                                                                                                          |                                                                                                                              | ○ 17             |                   |  |  |                              |                                        |    |    |    |
|                   | 6.1 256.0<br>Borehole Terminated at 6.1 m                                                                                                | SS            | 7             | 100          | 50+           | 6         | 256           | 50+                                                                                                         |                                                                                                                              | ○ 10             |                   |  |  |                              |                                        |    |    |    |

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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 interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale 1 : 100  
 Page: 1 of 1

# RECORD OF BOREHOLE No. 35

Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4848939** Date Started: **May 02/24**  
 Reviewed By: **RW** Easting: **596937** Date Completed: **May 02/24**



| LITHOLOGY PROFILE |                                                                                                                             | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                     |                                                                                                     | LAB TESTING      |    | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |  |  |  |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------|---------------|--------------|---------------|-----------|---------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------|----|------------------------------|----------------------------------------|--|--|--|
| Lithology Plot    | DESCRIPTION                                                                                                                 | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)                                                      |                                                                                                     | Atterberg Limits |    |                              | GR   SA   SI   CL                      |  |  |  |
|                   |                                                                                                                             |               |               |              |               |           |               | Other Test<br>Pocket Penetrometer<br>Field Vane (Intact)<br>Field Vane (Remolded) | Combustible Organic Vapour (ppm)<br>Combustible Organic Vapour (%LEL)<br>Total Organic Vapour (ppm) |                  |    |                              |                                        |  |  |  |
|                   | TOPSOIL: 215 mm                                                                                                             | SS            | 1             | 100          | 5             | 0         | 260.0         | 5                                                                                 | 25                                                                                                  | 13               | 25 |                              |                                        |  |  |  |
|                   | WEATHERED/DISTURBED: Firm, brown, moist                                                                                     | SS            | 2             | 100          | 25            |           | 259.8         | 25                                                                                |                                                                                                     | 13               |    |                              |                                        |  |  |  |
|                   | CLAYEY SILT GLACIAL TILL: Some sand to sandy, trace gravel, inferred cobbles and boulders, very stiff to hard, brown, moist | SS            | 3             | 100          | 29            |           | 259.2         | 29                                                                                |                                                                                                     | 13               |    |                              |                                        |  |  |  |
|                   |                                                                                                                             | SS            | 4             | 100          | 43            |           |               | 43                                                                                |                                                                                                     | 12               |    |                              |                                        |  |  |  |
|                   | --- Greyish-brown ---                                                                                                       | SS            | 5             | 100          | 38            |           |               | 38                                                                                |                                                                                                     | 11               |    |                              |                                        |  |  |  |
|                   |                                                                                                                             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |    |                              |                                        |  |  |  |
|                   | SANDY SILT GLACIAL TILL: Trace to some clay, trace gravel, inferred cobbles and boulders, dense, grey, moist                | SS            | 6             | 100          | 38            |           | 255.4         | 38                                                                                |                                                                                                     | 10               |    |                              |                                        |  |  |  |
|                   |                                                                                                                             |               |               |              |               |           |               |                                                                                   |                                                                                                     |                  |    |                              |                                        |  |  |  |
|                   | Borehole Terminated at 6.6 m                                                                                                | SS            | 7             | 100          | 36            | 6         | 253.4         | 36                                                                                |                                                                                                     | 8                |    |                              |                                        |  |  |  |

# RECORD OF BOREHOLE No. 36



Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849146** Date Started: **May 07/24**  
 Reviewed By: **RW** Easting: **597096** Date Completed: **May 07/24**

| LITHOLOGY PROFILE |             | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                             |                                                                                                           | LAB TESTING       |    | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |  |
|-------------------|-------------|---------------|---------------|--------------|---------------|-----------|---------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------|----|------------------------------|----------------------------------------|----|----|----|--|
| Lithology Plot    | DESCRIPTION | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)                                                              |                                                                                                           | Atterberg Limits  |    |                              | GR                                     | SA | SI | CL |  |
|                   |             |               |               |              |               |           |               | × Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded) | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm) |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               | 50 100 150 200                                                                            | 100 200 300 400                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               | Penetration Testing                                                                       |                                                                                                           | Water Content (%) |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               | ○ SPT                                                                                     | ● DCPT                                                                                                    | PL                | LL |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               | 10 20 30 40                                                                               |                                                                                                           | 10 20 30 40       |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |
|                   |             |               |               |              |               |           |               |                                                                                           |                                                                                                           |                   |    |                              |                                        |    |    |    |  |

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Groundwater depth encountered on completion of drilling: 3.0 m. Cave depth after auger removal: Open  
 Groundwater depth observed on: \_\_\_\_\_ Groundwater Elevation: \_\_\_\_\_

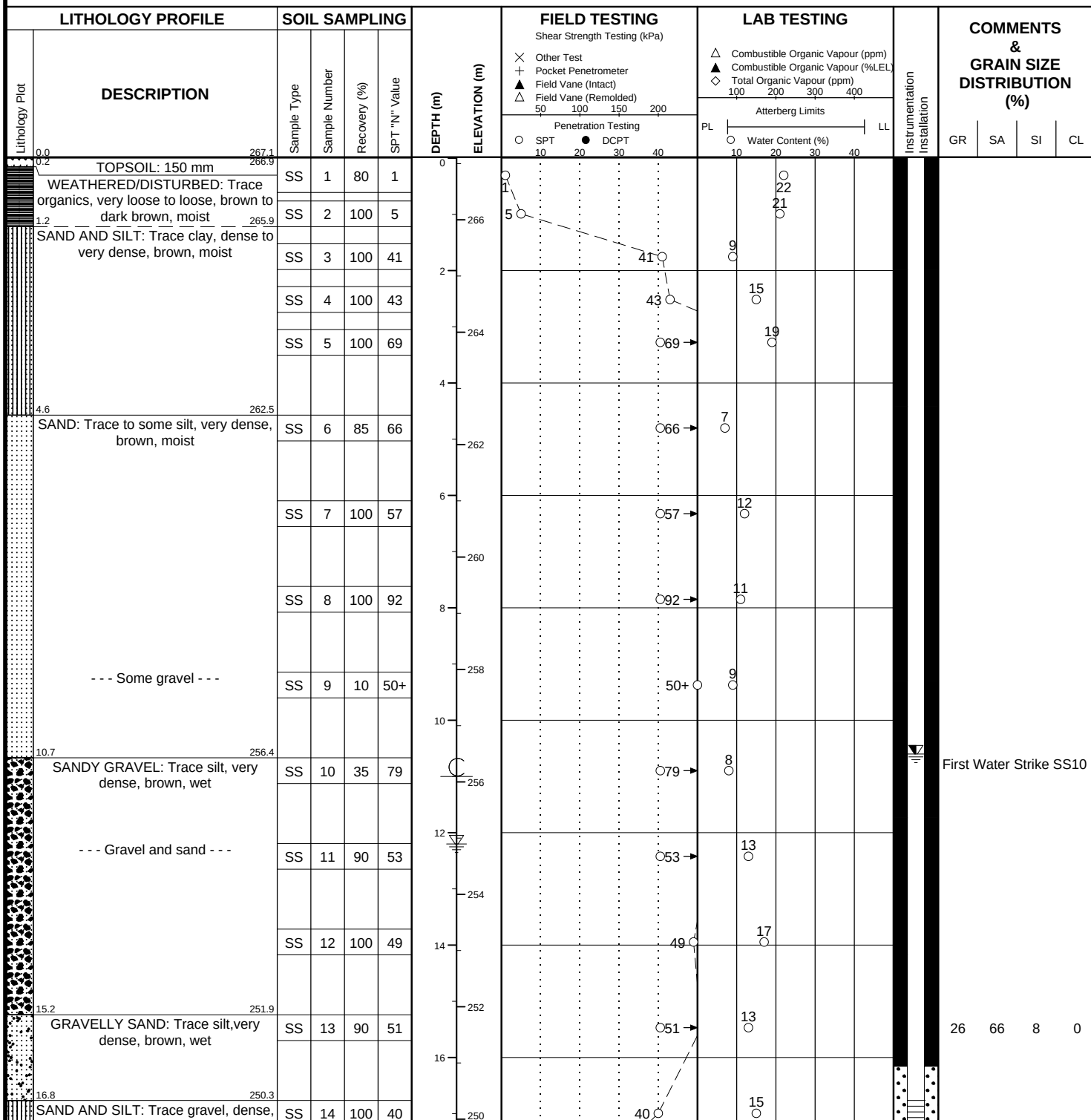
Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale 1:100  
 Page 1 of 1

# RECORD OF BOREHOLE No. 101

Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Hollow Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849202** Date Started: **Apr 30/24**  
 Reviewed By: **RW** Easting: **596234** Date Completed: **Apr 30/24**



# RECORD OF BOREHOLE No. 101



Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Hollow Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849202** Date Started: **Apr 30/24**  
 Reviewed By: **RW** Easting: **596234** Date Completed: **Apr 30/24**

| LITHOLOGY PROFILE             |                                                              | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                                                                                                                                                                                     | LAB TESTING                                                                                                                                                                                  |    |    |    | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |  |  |  |
|-------------------------------|--------------------------------------------------------------|---------------|---------------|--------------|---------------|-----------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|------------------------------|----------------------------------------|--|--|--|
| Lithology Plot                | DESCRIPTION                                                  | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa)<br>× Other Test<br>+ Pocket Penetrometer<br>▲ Field Vane (Intact)<br>△ Field Vane (Remolded)<br>50 100 150 200<br>Penetration Testing<br>○ SPT 10 20 30 40    ● DCPT | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm)<br>100 200 300 400<br>Atterberg Limits<br>PL 10 20 30 40 LL<br>○ Water Content (%) | GR | SA | SI |                              | CL                                     |  |  |  |
|                               | grey, wet                                                    |               |               |              |               | 18        |               |                                                                                                                                                                                                   |                                                                                                                                                                                              |    |    |    |                              |                                        |  |  |  |
|                               | --- Trace to some gravel, compact ---                        | SS            | 15            | 55           | 18            | 248       |               | 18                                                                                                                                                                                                |                                                                                                                                                                                              | 12 |    |    |                              |                                        |  |  |  |
|                               | 19.8 247.3<br>20.3 SAND: Some silt, compact, grey, wet 246.8 | SS            | 16            | 55           | 15            | 20        |               | 15                                                                                                                                                                                                |                                                                                                                                                                                              | 17 |    |    |                              |                                        |  |  |  |
| Borehole Terminated at 20.3 m |                                                              |               |               |              |               |           |               |                                                                                                                                                                                                   |                                                                                                                                                                                              |    |    |    |                              |                                        |  |  |  |

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Groundwater depth encountered on completion of drilling: 12.2 m. Cave depth after auger removal: 11.0m.  
 Groundwater depth observed on: May 22/24 at depth of: 10.6 m. Groundwater Elevation: 256.50 m

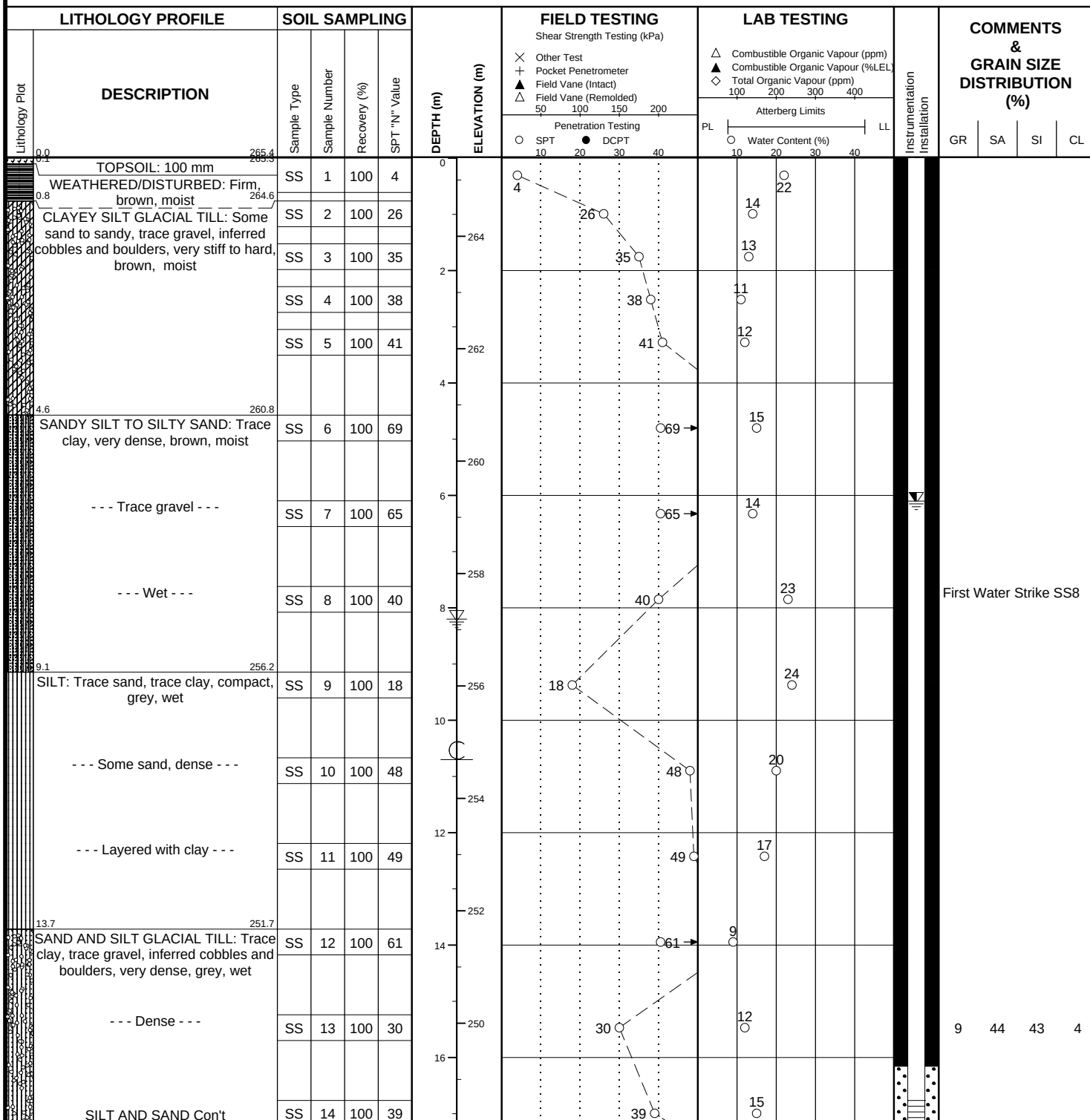
Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale: **1 :100**  
 Page: **2 of 2**

# RECORD OF BOREHOLE No. 102

Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849282** Date Started: **May 01/24**  
 Reviewed By: **RW** Easting: **596343** Date Completed: **May 01/24**



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Groundwater depth encountered on completion of drilling: 8.2 m. Cave depth after auger removal: 10.7m.  
 Groundwater depth observed on: May 22/24 at depth of: 6.1 m. Groundwater Elevation: 259.3 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale 1:100  
 Page: 1 of 2

# RECORD OF BOREHOLE No. 102



Project Number: **2400278**  
 Project Client: **Mayfield Tullamore Landowner Group Inc.**  
 Project Name: **Mayfield Tullamore LOG**  
 Project Location: **Caledon, ON**  
 Drilling Location: **See Borehole Location Plan**  
 Local Benchmark: \_\_\_\_\_

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**  
 Logged By: **AG** Northing: **4849282** Date Started: **May 01/24**  
 Reviewed By: **RW** Easting: **596343** Date Completed: **May 01/24**

| LITHOLOGY PROFILE |                                                                   | SOIL SAMPLING |               |              |               | DEPTH (m) | ELEVATION (m) | FIELD TESTING                |                                                                                                                              | LAB TESTING      |  | Instrumentation Installation | COMMENTS & GRAIN SIZE DISTRIBUTION (%) |    |    |    |          |
|-------------------|-------------------------------------------------------------------|---------------|---------------|--------------|---------------|-----------|---------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------|------------------|--|------------------------------|----------------------------------------|----|----|----|----------|
| Lithology Plot    | DESCRIPTION                                                       | Sample Type   | Sample Number | Recovery (%) | SPT "N" Value |           |               | Shear Strength Testing (kPa) |                                                                                                                              | Atterberg Limits |  |                              | GR                                     | SA | SI | CL |          |
|                   |                                                                   |               |               |              |               |           |               | ×                            | △ Combustible Organic Vapour (ppm)<br>▲ Combustible Organic Vapour (%LEL)<br>◇ Total Organic Vapour (ppm)<br>100 200 300 400 |                  |  |                              |                                        |    |    |    |          |
|                   | 18.3 247.1<br>SILT: Trace clay, trace sand, very dense, grey, wet | SS            | 15            | 100          | 72            | 18        | 248           | ○ SPT 10 20 30 40<br>● DCPT  | ○ 72 →                                                                                                                       | ○ 19             |  |                              |                                        |    |    |    | 0 2 93 5 |
|                   | 20.3 245.1<br>--- Some sand, compact ---                          | SS            | 16            | 100          | 21            | 20        | 246           |                              |                                                                                                                              | ○ 19             |  |                              |                                        |    |    |    |          |
|                   | Borehole Terminated at 20.3 m                                     |               |               |              |               |           |               |                              |                                                                                                                              |                  |  |                              |                                        |    |    |    |          |

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Groundwater depth encountered on completion of drilling: 8.2 m. Cave depth after auger removal: 10.7m.  
 Groundwater depth observed on: May 22/24 at depth of: 6.1 m. Groundwater Elevation: 259.29 m

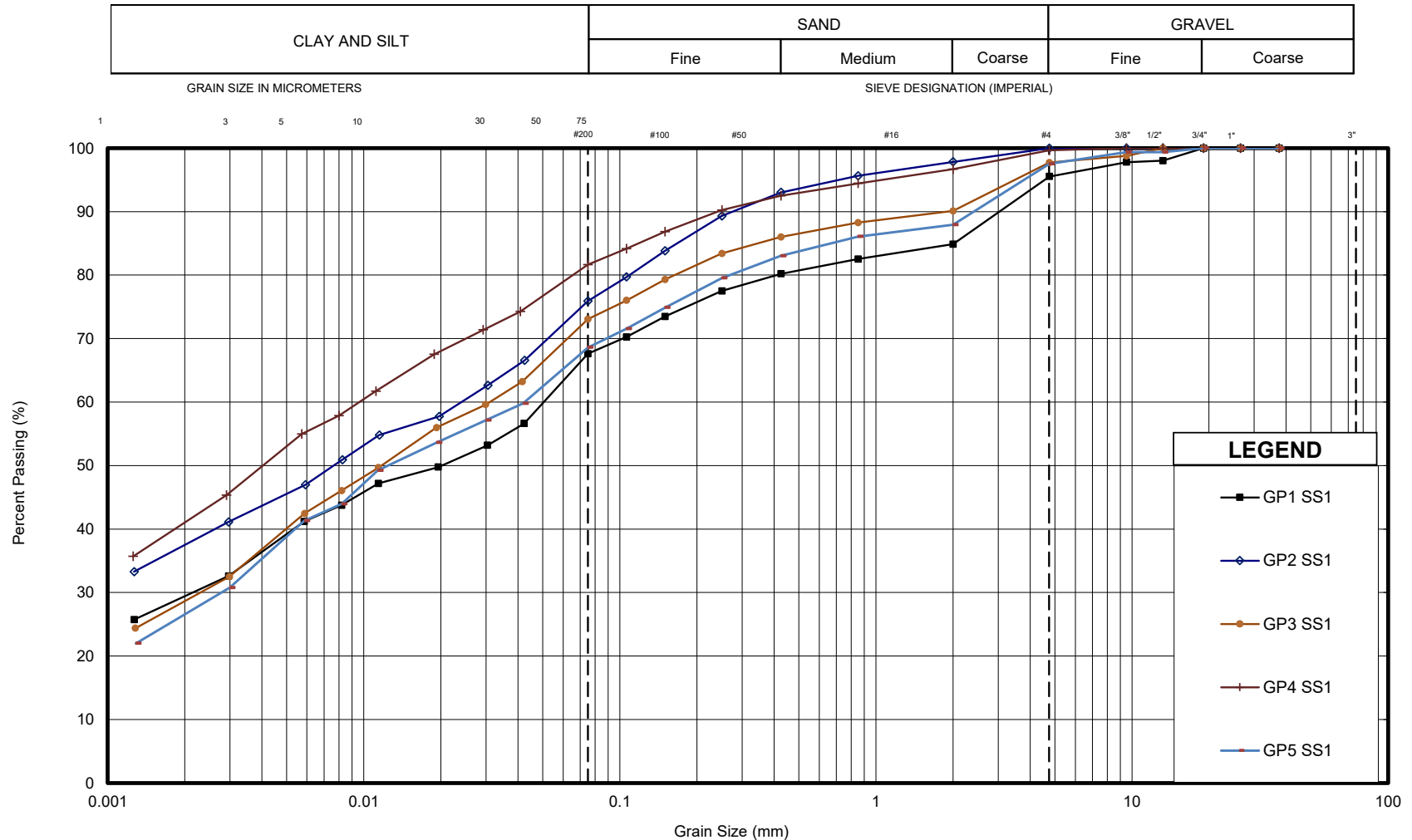
Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified professional. Borehole information must be read in conjunction with the accompanying report and any explanation of terms provided.

Scale: **1 :100**  
 Page: **2 of 2**

## **Appendix B Geotechnical Laboratory Data**

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# UNIFIED SOIL CLASSIFICATION SYSTEM



| Sample  | Description                                   | Gr. | Sa. | Si. | Cl. | D <sub>10</sub> | D <sub>30</sub> | D <sub>60</sub> | C <sub>u</sub> | C <sub>c</sub> |
|---------|-----------------------------------------------|-----|-----|-----|-----|-----------------|-----------------|-----------------|----------------|----------------|
| GP1 SS1 | CLAYEY SILT GLACIAL TILL, Sandy, Trace Gravel | 4   | 28  | 38  | 30  | -               | 0.002           | 0.050           | -              | -              |
| GP2 SS1 | SILT AND CLAY GLACIAL TILL, Sandy             | -   | 24  | 38  | 38  | -               | -               | 0.024           | -              | -              |
| GP3 SS1 | CLAYEY SILT GLACIAL TILL, Sandy, Trace Gravel | 2   | 25  | 44  | 29  | -               | 0.002           | 0.031           | -              | -              |
| GP4 SS1 | SILT AND CLAY GLACIAL TILL, Some Sand         | -   | 18  | 41  | 41  | -               | -               | 0.010           | -              | -              |
| GP5 SS1 | CLAYEY SILT GLACIAL TILL, Sandy, Trace Gravel | 2   | 29  | 42  | 27  | -               | 0.003           | 0.043           | -              | -              |



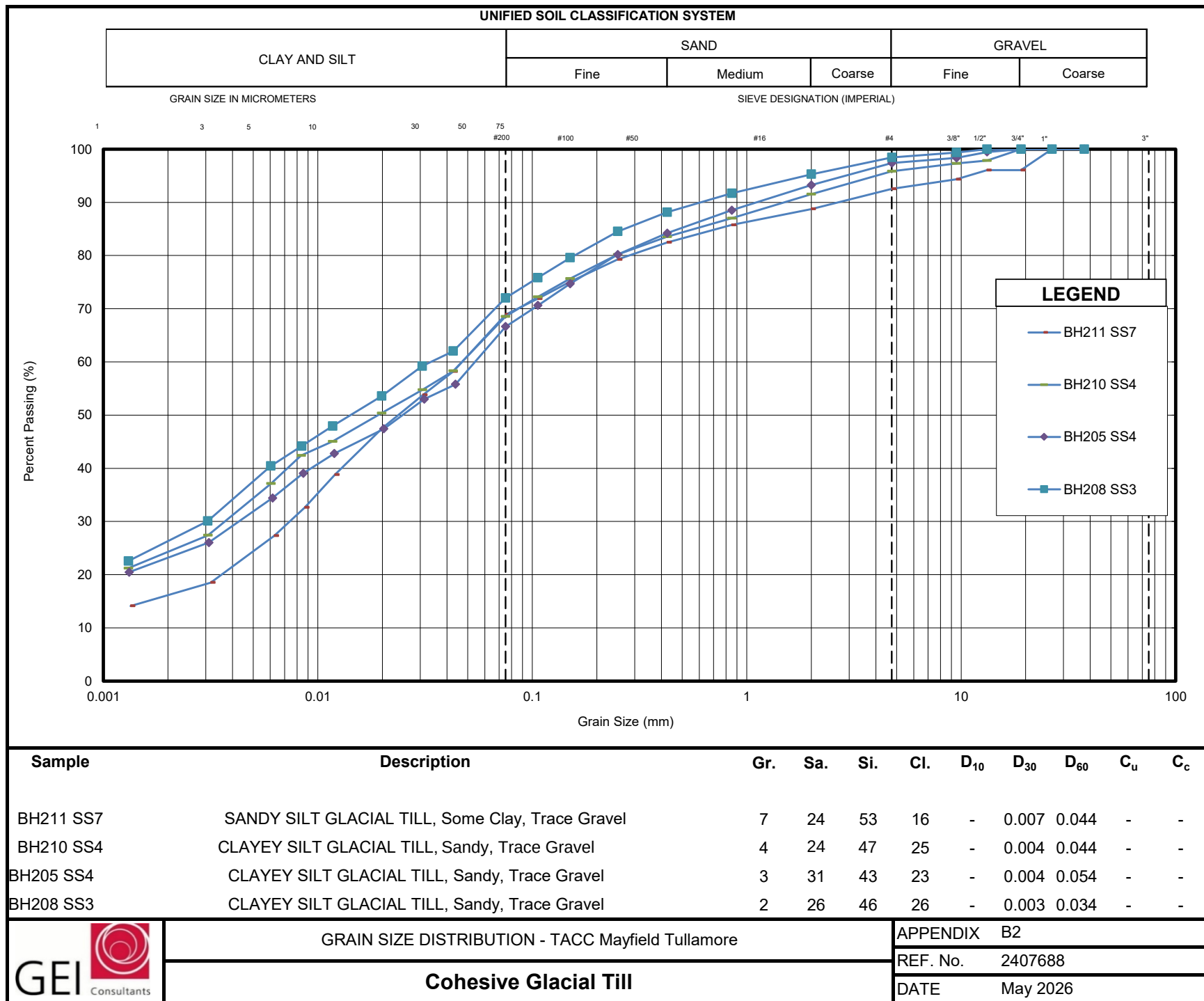
GRAIN SIZE DISTRIBUTION - TACC Mayfield Tullamore

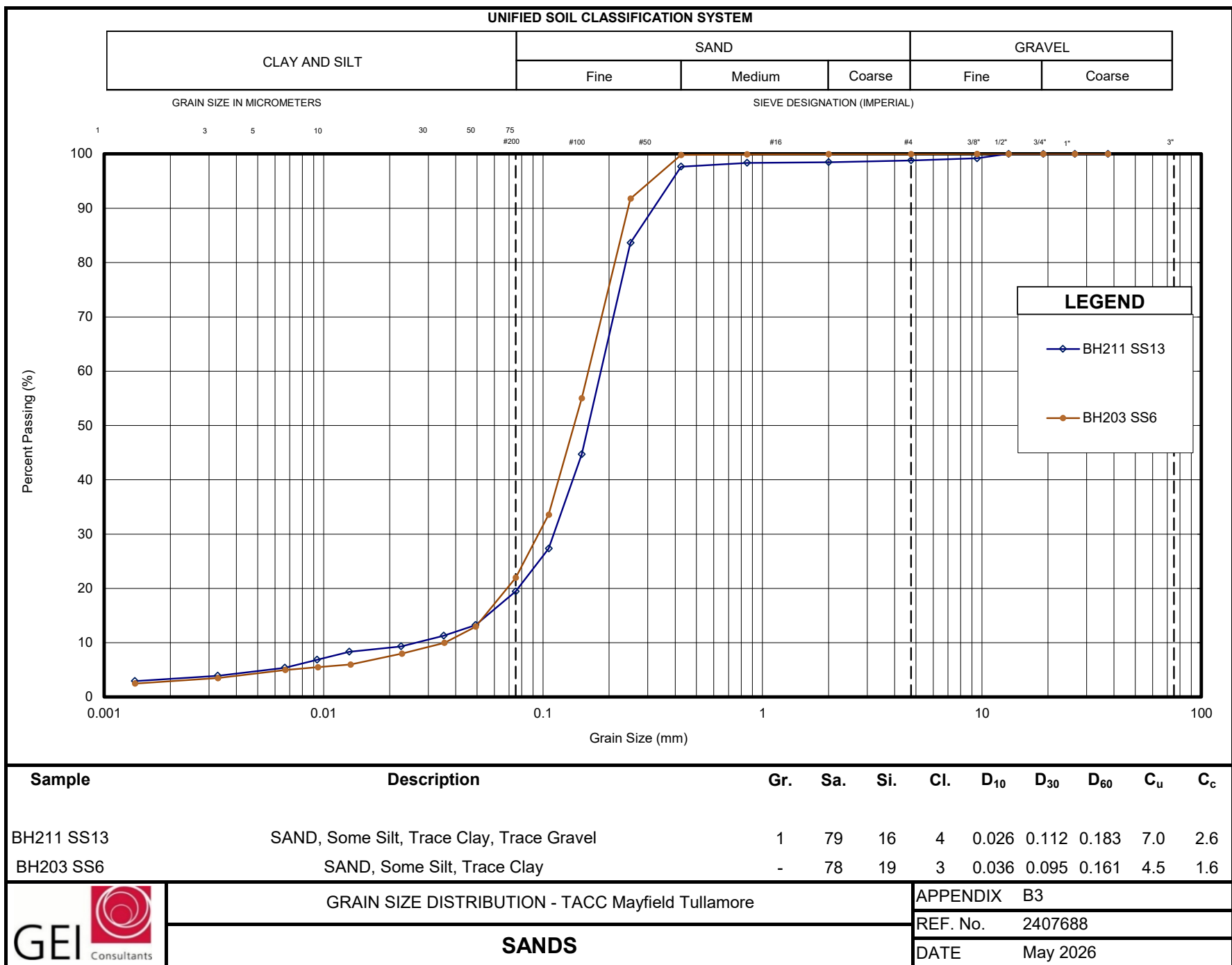
**Cohesive Glacial Till**

APPENDIX B1

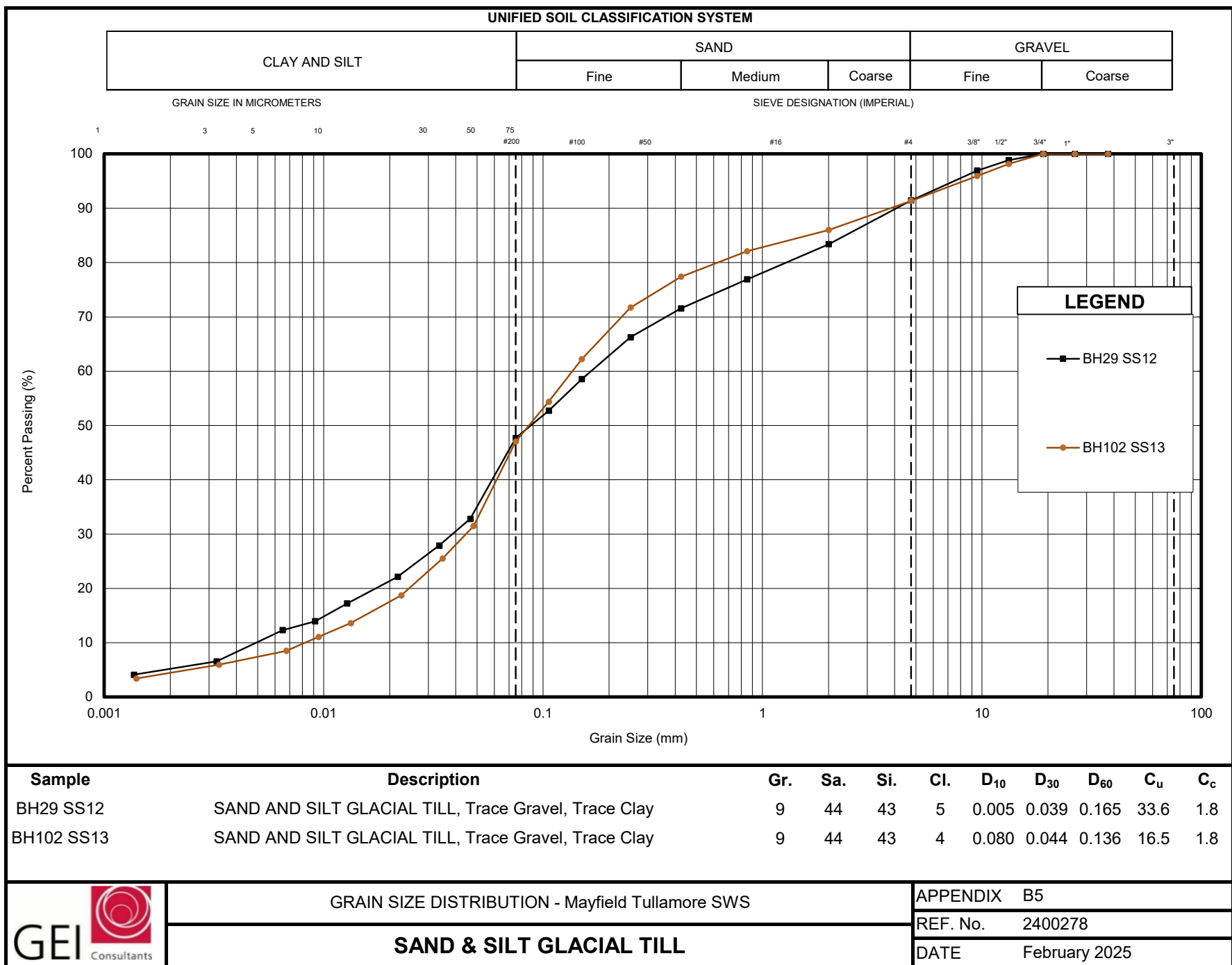
REF. No. 2407688

DATE May 2026



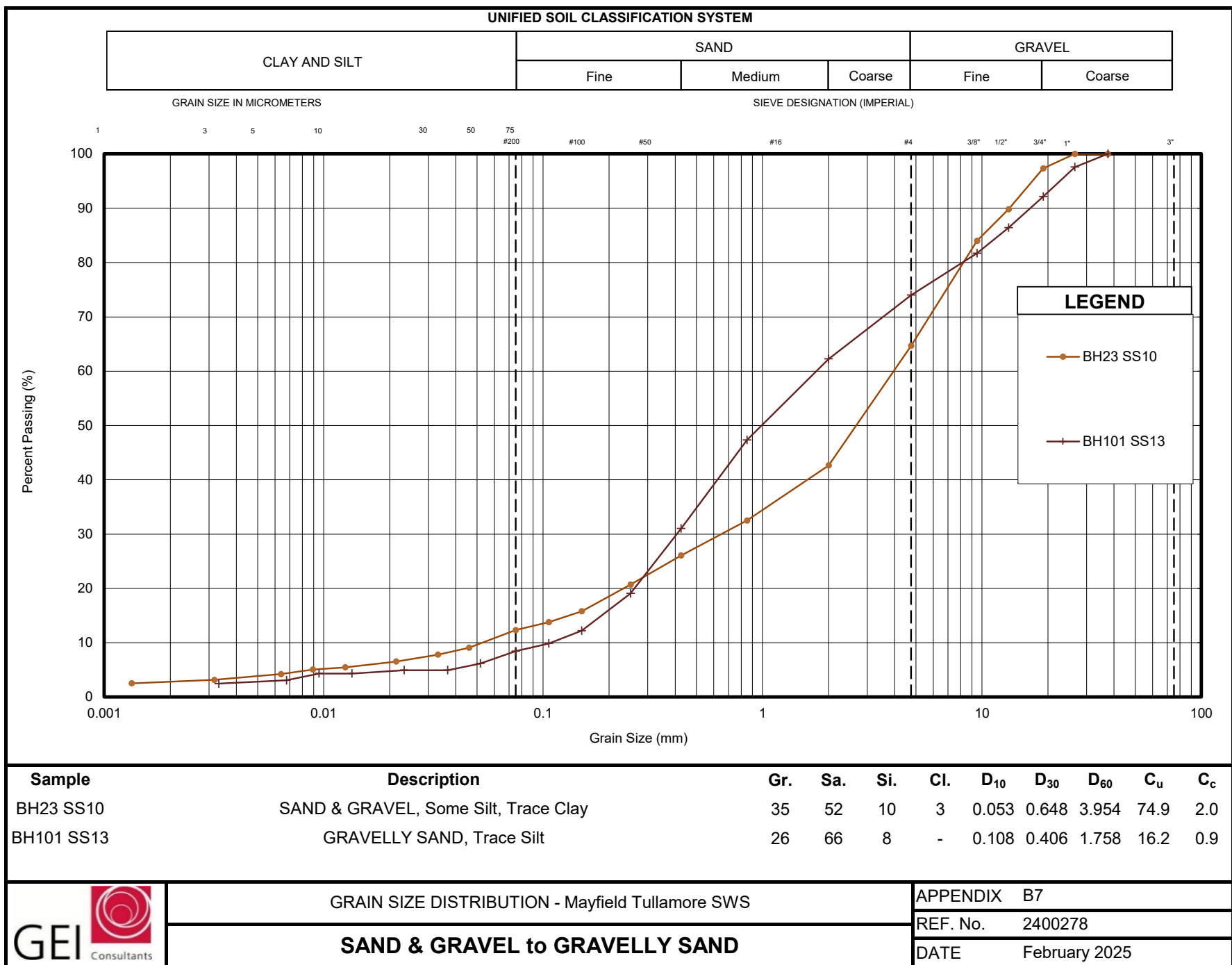


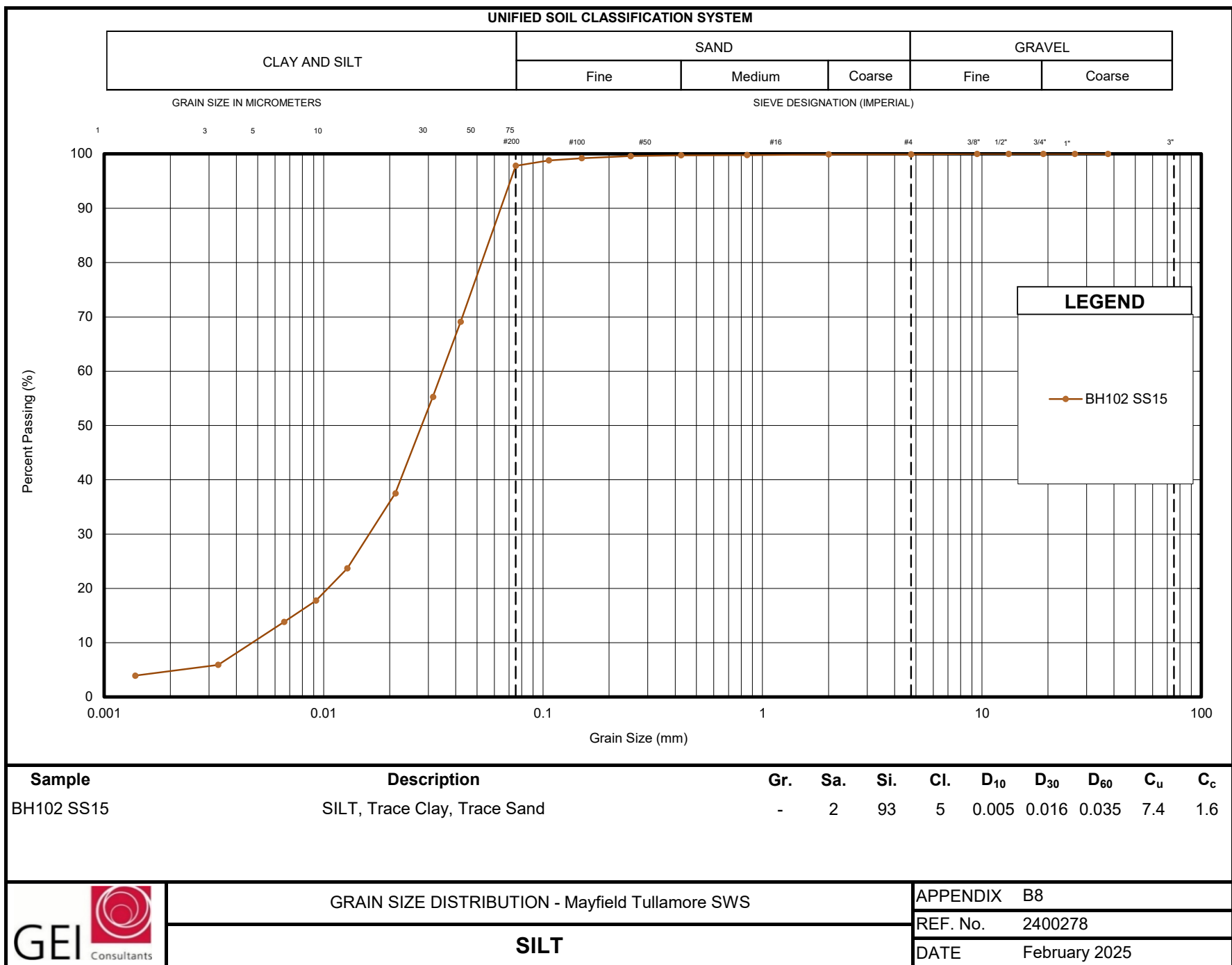




|               |      |        |        |        |        |
|---------------|------|--------|--------|--------|--------|
| CLAY AND SILT | SAND |        |        | GRAVEL |        |
|               | Fine | Medium | Coarse | Fine   | Coarse |







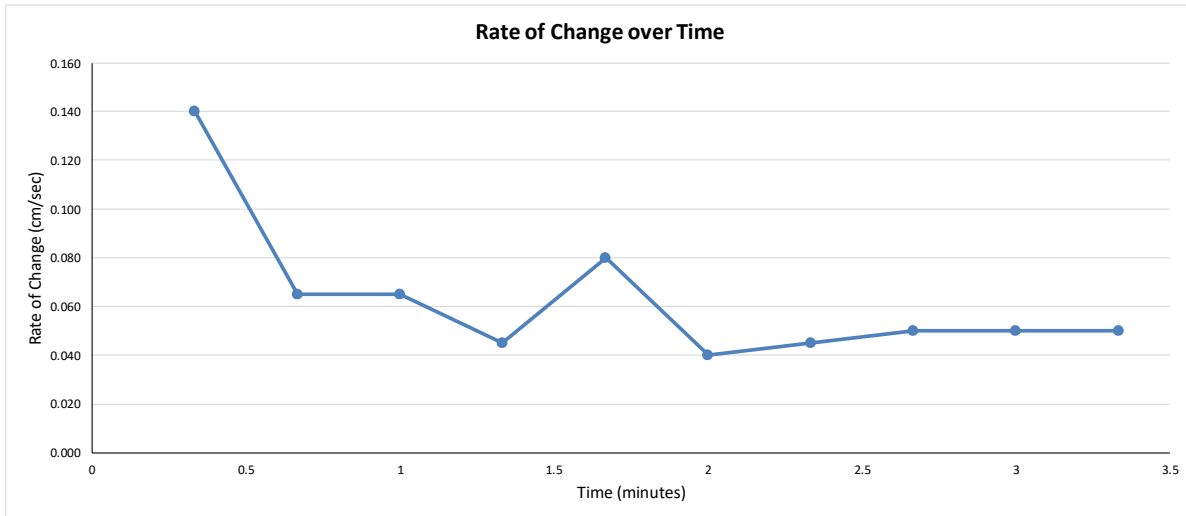
## **Appendix C   Infiltration Test Results**

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# Guelph Permeameter Infiltration Rate Determination



Test Location: GP1 (Test at 0.5 mbg, Elev. 267.4 m)



## INPUT PARAMETERS

|            |      |                  |
|------------|------|------------------|
| $\alpha^*$ | 0.12 | cm <sup>-1</sup> |
| H          | 10   | cm               |
| a          | 3    | cm               |
| X          | 2.16 | cm <sup>2</sup>  |
| R          | 0.05 | cm/sec           |

## SHAPE FACTOR

|                                          |       |
|------------------------------------------|-------|
| Shape Factor (1, 2 or 3) =               | 1     |
| Shape Factor Value (cm <sup>-1</sup> ) = | 1.288 |

## CALCULATED PARAMETERS

|                |       |                      |
|----------------|-------|----------------------|
| H <sub>a</sub> | 3.33  | unitless             |
| Q <sub>1</sub> | 0.108 | cm <sup>3</sup> /sec |

## CALCULATED DESIGN VALUES

|                      |          |                    |
|----------------------|----------|--------------------|
| k <sub>fs</sub>      | 1.17E-04 | cm/sec             |
| Φ <sub>m</sub>       | 9.75E-04 | cm <sup>2</sup> /s |
| Infiltration:        | 48.25    | mm/hr              |
| FOS:                 | 2.50     | unitless           |
| Design Infiltration: | 19.30    | mm/hr              |

## Variable Glossary

|            |                                                                                                                                                                                                                                                                                                                           |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\alpha^*$ | <ol style="list-style-type: none"> <li>1) is the ratio of gravity to capillarity forces during infiltration or drainage</li> <li>2) determined from table 1 on page 47 of the manual (or the adjacent table)</li> </ol>                                                                                                   |
| H          | <ol style="list-style-type: none"> <li>1) is the water head in the BH</li> <li>2) determined by the height that the inner tube is pulled up during field operation</li> </ol>                                                                                                                                             |
| a          | <ol style="list-style-type: none"> <li>1) is the radius of the borehole</li> <li>2) determine by the size of the auger</li> </ol>                                                                                                                                                                                         |
| X          | <ol style="list-style-type: none"> <li>1) is the reservoir constant</li> <li>2) determined by the reservoir knob at the top of the unit <ul style="list-style-type: none"> <li>• if the knob is up X = 35.22 (outer and inner reservoir)</li> <li>• if the knob is down X = 2.16 (inner reservoir)</li> </ul> </li> </ol> |
| R          | <ol style="list-style-type: none"> <li>1) is the steady state rate of flow per minute</li> <li>2) is determined by timing the drop of water in the Guelph Permeameter</li> </ol>                                                                                                                                          |

## Equation Glossary

|                          |                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| H <sub>a</sub>           | is the ratio of head to borehole radius                                                                                                                                                                                                                                                                                                                                           |
| Q <sub>1</sub>           | is the flow rate                                                                                                                                                                                                                                                                                                                                                                  |
| C <sub>(1, 2 or 3)</sub> | is the shape factor which accounts for the saturated area of the soil <ul style="list-style-type: none"> <li>• Select C<sub>1</sub> if <math>\alpha^*</math> is <math>\geq 0.12</math> cm<sup>-1</sup></li> <li>• Select C<sub>2</sub> if <math>\alpha^*</math> = 0.04 cm<sup>-1</sup></li> <li>• Select C<sub>3</sub> if <math>\alpha^*</math> = 0.01 cm<sup>-1</sup></li> </ul> |
| k <sub>fs</sub>          | is the field saturated hydraulic conductivity of the soil                                                                                                                                                                                                                                                                                                                         |
| Φ <sub>m</sub>           | is an indicator of the capillary pull exerted by the unsaturated soil on the water                                                                                                                                                                                                                                                                                                |

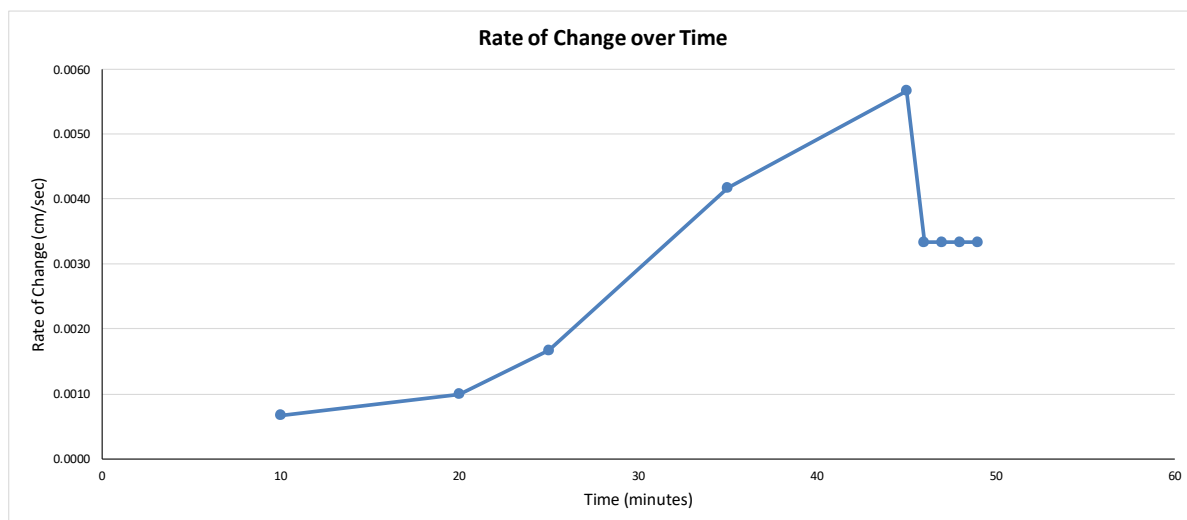
Table 1. Soil texture-structure categories for site-estimation of  $\alpha^*$  (adapted from Elrick et al., 1989)

| Soil Texture - Structure Category                                                                                                                                 | $\alpha^*$ (cm <sup>-1</sup> ) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| 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



Test Location: GP2 (Test at 0.5 mbg, Elev. 264.7 m)



## INPUT PARAMETERS

|            |       |                  |
|------------|-------|------------------|
| $\alpha^*$ | 0.12  | $\text{cm}^{-1}$ |
| H          | 10    | cm               |
| a          | 3     | cm               |
| X          | 2.16  | $\text{cm}^2$    |
| R          | 0.003 | cm/sec           |

## SHAPE FACTOR

|                                           |       |
|-------------------------------------------|-------|
| Shape Factor (1, 2 or 3) =                | 1     |
| Shape Factor Value ( $\text{cm}^{-1}$ ) = | 1.288 |

## CALCULATED PARAMETERS

|       |         |                          |
|-------|---------|--------------------------|
| $H_a$ | 3.33    | unitless                 |
| $Q_1$ | 0.00648 | $\text{cm}^3/\text{sec}$ |

## CALCULATED DESIGN VALUES

|                      |          |                        |
|----------------------|----------|------------------------|
| $k_{fs}$             | 7.02E-06 | cm/sec                 |
| $\Phi_m$             | 5.85E-05 | $\text{cm}^2/\text{s}$ |
| Infiltration:        | 22.72    | mm/hr                  |
| FOS:                 | 2.50     | unitless               |
| Design Infiltration: | 9.09     | mm/hr                  |

## Variable Glossary

|            |                                                                                                                                                                                                                                                                                                                                                    |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\alpha^*$ | <ol style="list-style-type: none"> <li>1) is the ratio of gravity to capillarity forces during infiltration or drainage</li> <li>2) determined from table 1 on page 47 of the manual (or the adjacent table)</li> </ol>                                                                                                                            |
| H          | <ol style="list-style-type: none"> <li>1) is the water head in the BH</li> <li>2) determined by the height that the inner tube is pulled up during field operation</li> </ol>                                                                                                                                                                      |
| a          | <ol style="list-style-type: none"> <li>1) is the radius of the borehole</li> <li>2) determine by the size of the auger</li> </ol>                                                                                                                                                                                                                  |
| X          | <ol style="list-style-type: none"> <li>1) is the resevoir constant</li> <li>2) determined by the reservoir knob at the top of the unit <ul style="list-style-type: none"> <li>• if the knob is up <math>X = 35.22</math> (outer and inner reservoir)</li> <li>• if the knob is down <math>X = 2.16</math> (inner reservoir)</li> </ul> </li> </ol> |
| R          | <ol style="list-style-type: none"> <li>1) is the steady state rate of flow per minute</li> <li>2) is determined by timing the drop of water in the Guelph Permeameter</li> </ol>                                                                                                                                                                   |

## Equation Glossary

|                            |                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $H_a$                      | is the ratio of head to borehole radius                                                                                                                                                                                                                                                                                                                                                    |
| $Q_1$                      | is the flow rate                                                                                                                                                                                                                                                                                                                                                                           |
| $C_{(1, 2 \text{ or } 3)}$ | is the shape factor which accounts for the saturated area of the soil <ul style="list-style-type: none"> <li>• Select <math>C_1</math> if <math>\alpha^*</math> is <math>\geq 0.12 \text{ cm}^{-1}</math></li> <li>• Select <math>C_2</math> if <math>\alpha^* = 0.04 \text{ cm}^{-1}</math></li> <li>• Select <math>C_3</math> if <math>\alpha^* = 0.01 \text{ cm}^{-1}</math></li> </ul> |
| $k_{fs}$                   | is the field saturated hydraulic conductivity of the soil                                                                                                                                                                                                                                                                                                                                  |
| $\Phi_m$                   | is an indicator of the capillary pull exerted by the unsaturated soil on the water                                                                                                                                                                                                                                                                                                         |

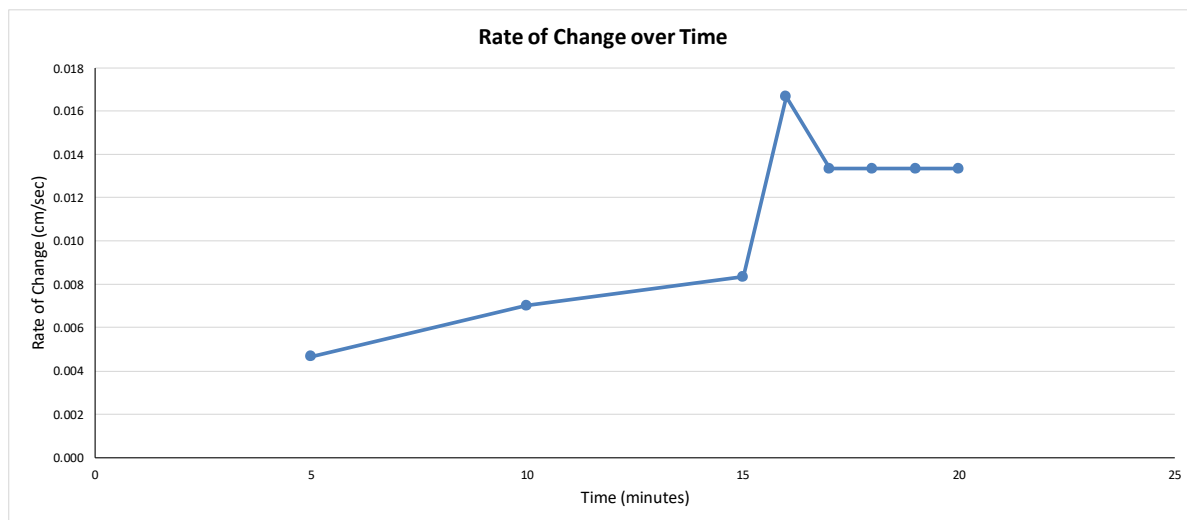
Table 1. Soil texture-structure categories for site-estimation of  $\alpha^*$  (adapted from Elrick et al., 1989)

| Soil Texture - Structure Category                                                                                                                                 | $\alpha^*$ ( $\text{cm}^{-1}$ ) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| 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



Test Location: GP3 (Test at 0.5 mbg, Elev. 263.5 m)



## INPUT PARAMETERS

|            |       |                  |
|------------|-------|------------------|
| $\alpha^*$ | 0.12  | $\text{cm}^{-1}$ |
| H          | 10    | cm               |
| a          | 3     | cm               |
| X          | 2.16  | $\text{cm}^2$    |
| R          | 0.013 | cm/sec           |

## SHAPE FACTOR

|                                           |       |
|-------------------------------------------|-------|
| Shape Factor (1, 2 or 3) =                | 1     |
| Shape Factor Value ( $\text{cm}^{-1}$ ) = | 1.288 |

## CALCULATED PARAMETERS

|       |         |                          |
|-------|---------|--------------------------|
| $H_a$ | 3.33    | unitless                 |
| $Q_1$ | 0.02808 | $\text{cm}^3/\text{sec}$ |

## CALCULATED DESIGN VALUES

|                      |          |                        |
|----------------------|----------|------------------------|
| $k_{fs}$             | 3.04E-05 | cm/sec                 |
| $\Phi_m$             | 2.54E-04 | $\text{cm}^2/\text{s}$ |
| Infiltration:        | 33.65    | mm/hr                  |
| FOS:                 | 2.50     | unitless               |
| Design Infiltration: | 13.46    | mm/hr                  |

## Variable Glossary

|            |                                                                                                                                                                                                                                                                                                                                                 |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\alpha^*$ | <ol style="list-style-type: none"> <li>1) is the ratio of gravity to capillarity forces during infiltration or drainage</li> <li>2) determined from table 1 on page 47 of the manual (or the adjacent table)</li> </ol>                                                                                                                         |
| H          | <ol style="list-style-type: none"> <li>1) is the water head in the BH</li> <li>2) determined by the height that the inner tube is pulled up during field operation</li> </ol>                                                                                                                                                                   |
| a          | <ol style="list-style-type: none"> <li>1) is the radius of the borehole</li> <li>2) determine by the size of the auger</li> </ol>                                                                                                                                                                                                               |
| X          | <ol style="list-style-type: none"> <li>1) is the resevoir constant</li> <li>2) determined by the resevoir knob at the top of the unit <ul style="list-style-type: none"> <li>• if the knob is up <math>X = 35.22</math> (outer and inner resevoir)</li> <li>• if the knob is down <math>X = 2.16</math> (inner resevoir)</li> </ul> </li> </ol> |
| R          | <ol style="list-style-type: none"> <li>1) is the steady state rate of flow per minute</li> <li>2) is determined by timing the drop of water in the Guelph Permeameter</li> </ol>                                                                                                                                                                |

## Equation Glossary

|                            |                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $H_a$                      | is the ratio of head to borehole radius                                                                                                                                                                                                                                                                                                                                                    |
| $Q_1$                      | is the flow rate                                                                                                                                                                                                                                                                                                                                                                           |
| $C_{(1, 2 \text{ or } 3)}$ | is the shape factor which accounts for the saturated area of the soil <ul style="list-style-type: none"> <li>• Select <math>C_1</math> if <math>\alpha^*</math> is <math>\geq 0.12 \text{ cm}^{-1}</math></li> <li>• Select <math>C_2</math> if <math>\alpha^* = 0.04 \text{ cm}^{-1}</math></li> <li>• Select <math>C_3</math> if <math>\alpha^* = 0.01 \text{ cm}^{-1}</math></li> </ul> |
| $k_{fs}$                   | is the field saturated hydraulic conductivity of the soil                                                                                                                                                                                                                                                                                                                                  |
| $\Phi_m$                   | is an indicator of the capillary pull exerted by the unsaturated soil on the water                                                                                                                                                                                                                                                                                                         |

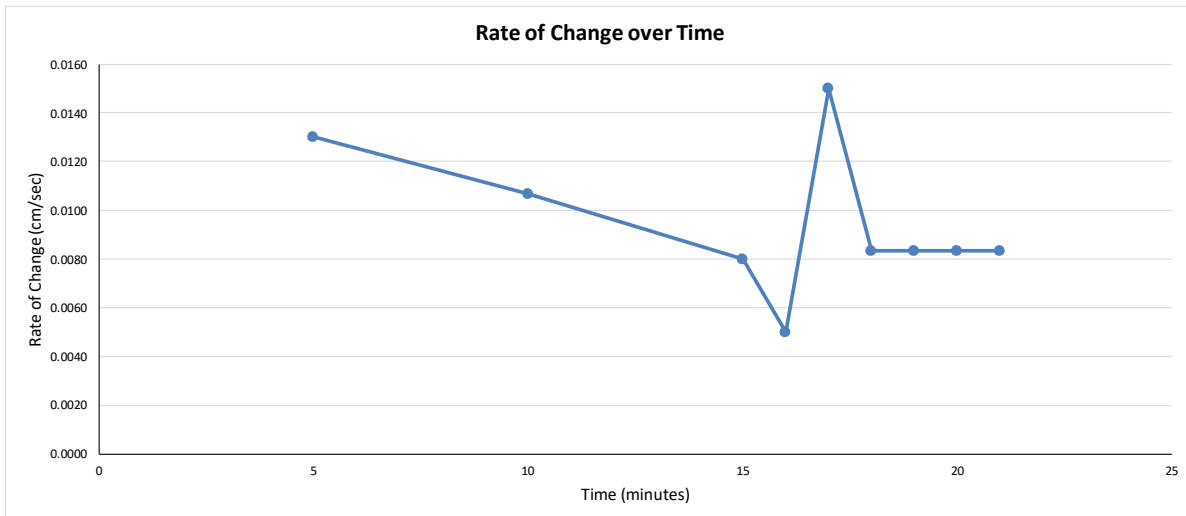
Table 1. Soil texture-structure categories for site-estimation of  $\alpha^*$  (adapted from Elrick et al., 1989)

| Soil Texture - Structure Category                                                                                                                                 | $\alpha^*$ ( $\text{cm}^{-1}$ ) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| 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



Test Location: GP4 (Test at 0.5 mbg, Elev. 260.8 m)



## INPUT PARAMETERS

|            |   |       |                  |
|------------|---|-------|------------------|
| $\alpha^*$ | = | 0.12  | cm <sup>-1</sup> |
| H          | = | 5     | cm               |
| a          | = | 3     | cm               |
| X          | = | 2.16  | cm <sup>2</sup>  |
| R          | = | 0.008 | cm/sec           |

## SHAPE FACTOR

|                                          |       |
|------------------------------------------|-------|
| Shape Factor (1, 2 or 3) =               | 1     |
| Shape Factor Value (cm <sup>-1</sup> ) = | 0.803 |

## CALCULATED PARAMETERS

|                |   |         |                      |
|----------------|---|---------|----------------------|
| H <sub>a</sub> | = | 1.67    | unitless             |
| Q <sub>1</sub> | = | 0.01728 | cm <sup>3</sup> /sec |

## CALCULATED DESIGN VALUES

|                      |   |          |                    |
|----------------------|---|----------|--------------------|
| k <sub>fs</sub>      | = | 3.14E-05 | cm/sec             |
| Φ <sub>m</sub>       | = | 2.62E-04 | cm <sup>2</sup> /s |
| Infiltration:        |   | 33.94    | mm/hr              |
| FOS:                 |   | 2.50     | unitless           |
| Design Infiltration: |   | 13.58    | mm/hr              |

## Variable Glossary

|            |                                                                                                                                                                                                             |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\alpha^*$ | 1) is the ratio of gravity to capillarity forces during infiltration or drainage<br>2) determined from table 1 on page 47 of the manual (or the adjacent table)                                             |
| H          | 1) is the water head in the BH<br>2) determined by the height that the inner tube is pulled up during field operation                                                                                       |
| a          | 1) is the radius of the borehole<br>2) determine by the size of the auger                                                                                                                                   |
| X          | 1) is the reservoir constant<br>2) determined by the reservoir knob at the top of the unit<br>• if the knob is up X = 35.22 (outer and inner reservoir)<br>• if the knob is down X = 2.16 (inner reservoir) |
| R          | 1) is the steady state rate of flow per minute<br>2) is determined by timing the drop of water in the Guelph Permeameter                                                                                    |

## Equation Glossary

|                          |                                                                                                                                                                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| H <sub>a</sub>           | is the ratio of head to borehole radius                                                                                                                                                                                                                                          |
| Q <sub>1</sub>           | is the flow rate                                                                                                                                                                                                                                                                 |
| C <sub>(1, 2 or 3)</sub> | is the shape factor which accounts for the saturated area of the soil<br>• Select C <sub>1</sub> if $\alpha^*$ is $\geq 0.12$ cm <sup>-1</sup><br>• Select C <sub>2</sub> if $\alpha^*$ = 0.04 cm <sup>-1</sup><br>• Select C <sub>3</sub> if $\alpha^*$ = 0.01 cm <sup>-1</sup> |
| k <sub>fs</sub>          | is the field saturated hydraulic conductivity of the soil                                                                                                                                                                                                                        |
| Φ <sub>m</sub>           | is an indicator of the capillary pull exerted by the unsaturated soil on the water                                                                                                                                                                                               |

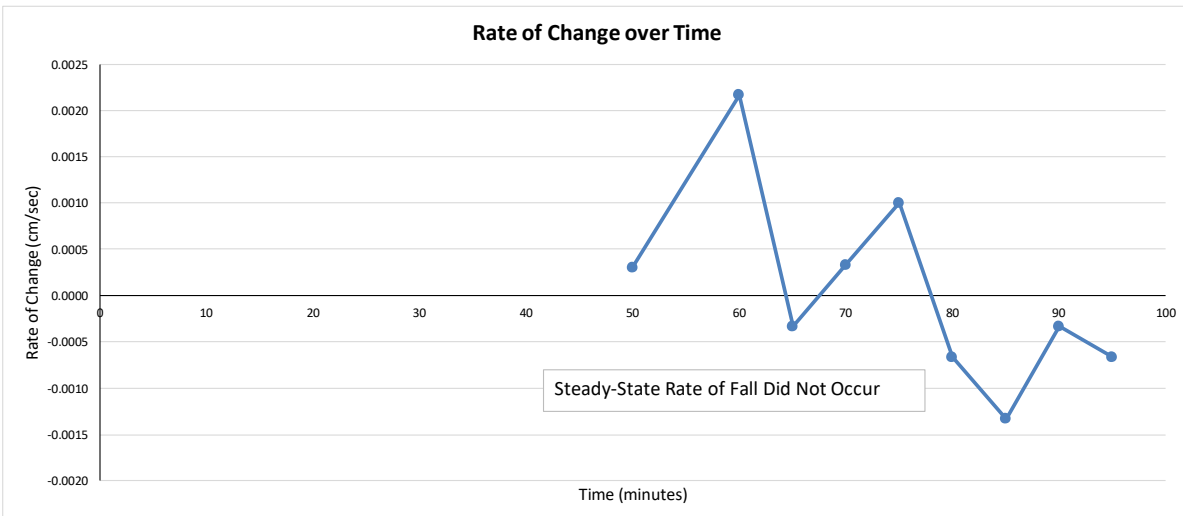
Table 1. Soil texture-structure categories for site-estimation of  $\alpha^*$  (adapted from Elrick et al., 1989)

| Soil Texture - Structure Category                                                                                                                                 | $\alpha^*$ (cm <sup>-1</sup> ) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| 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



Test Location: GP5 (Test at 0.5 mbg, Elev. 259.7 m)



## INPUT PARAMETERS

|              |       |                  |
|--------------|-------|------------------|
| $\alpha^*$ = | 0.12  | cm <sup>-1</sup> |
| H =          | 5     | cm               |
| a =          | 3     | cm               |
| X =          | 2.16  | cm <sup>2</sup>  |
| R =          | 0.008 | cm/sec           |

## SHAPE FACTOR

|                                          |       |
|------------------------------------------|-------|
| Shape Factor (1, 2 or 3) =               | 1     |
| Shape Factor Value (cm <sup>-1</sup> ) = | 0.803 |

## CALCULATED PARAMETERS

|                  |         |                      |
|------------------|---------|----------------------|
| H <sub>a</sub> = | 1.67    | unitless             |
| Q <sub>1</sub> = | 0.01728 | cm <sup>3</sup> /sec |

## CALCULATED DESIGN VALUES

|                      |          |                    |
|----------------------|----------|--------------------|
| k <sub>fs</sub> =    | 3.14E-05 | cm/sec             |
| Φ <sub>m</sub> =     | 2.62E-04 | cm <sup>2</sup> /s |
| Infiltration:        | n/a      | mm/hr              |
| FOS:                 |          | unitless           |
| Design Infiltration: | n/a      | mm/hr              |

## Variable Glossary

|            |                                                                                                                                                                                                                                                                                                                           |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\alpha^*$ | <ol style="list-style-type: none"> <li>1) is the ratio of gravity to capillarity forces during infiltration or drainage</li> <li>2) determined from table 1 on page 47 of the manual (or the adjacent table)</li> </ol>                                                                                                   |
| H          | <ol style="list-style-type: none"> <li>1) is the water head in the BH</li> <li>2) determined by the height that the inner tube is pulled up during field operation</li> </ol>                                                                                                                                             |
| a          | <ol style="list-style-type: none"> <li>1) is the radius of the borehole</li> <li>2) determine by the size of the auger</li> </ol>                                                                                                                                                                                         |
| X          | <ol style="list-style-type: none"> <li>1) is the reservoir constant</li> <li>2) determined by the reservoir knob at the top of the unit <ul style="list-style-type: none"> <li>• if the knob is up X = 35.22 (outer and inner reservoir)</li> <li>• if the knob is down X = 2.16 (inner reservoir)</li> </ul> </li> </ol> |
| R          | <ol style="list-style-type: none"> <li>1) is the steady state rate of flow per minute</li> <li>2) is determined by timing the drop of water in the Guelph Permeameter</li> </ol>                                                                                                                                          |

## Equation Glossary

|                          |                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| H <sub>a</sub>           | is the ratio of head to borehole radius                                                                                                                                                                                                                                                                                                                                           |
| Q <sub>1</sub>           | is the flow rate                                                                                                                                                                                                                                                                                                                                                                  |
| C <sub>(1, 2 or 3)</sub> | is the shape factor which accounts for the saturated area of the soil <ul style="list-style-type: none"> <li>• Select C<sub>1</sub> if <math>\alpha^*</math> is <math>\geq 0.12</math> cm<sup>-1</sup></li> <li>• Select C<sub>2</sub> if <math>\alpha^*</math> = 0.04 cm<sup>-1</sup></li> <li>• Select C<sub>3</sub> if <math>\alpha^*</math> = 0.01 cm<sup>-1</sup></li> </ul> |
| k <sub>fs</sub>          | is the field saturated hydraulic conductivity of the soil                                                                                                                                                                                                                                                                                                                         |
| Φ <sub>m</sub>           | 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  $\alpha^*$  (adapted from Elrick et al., 1989)

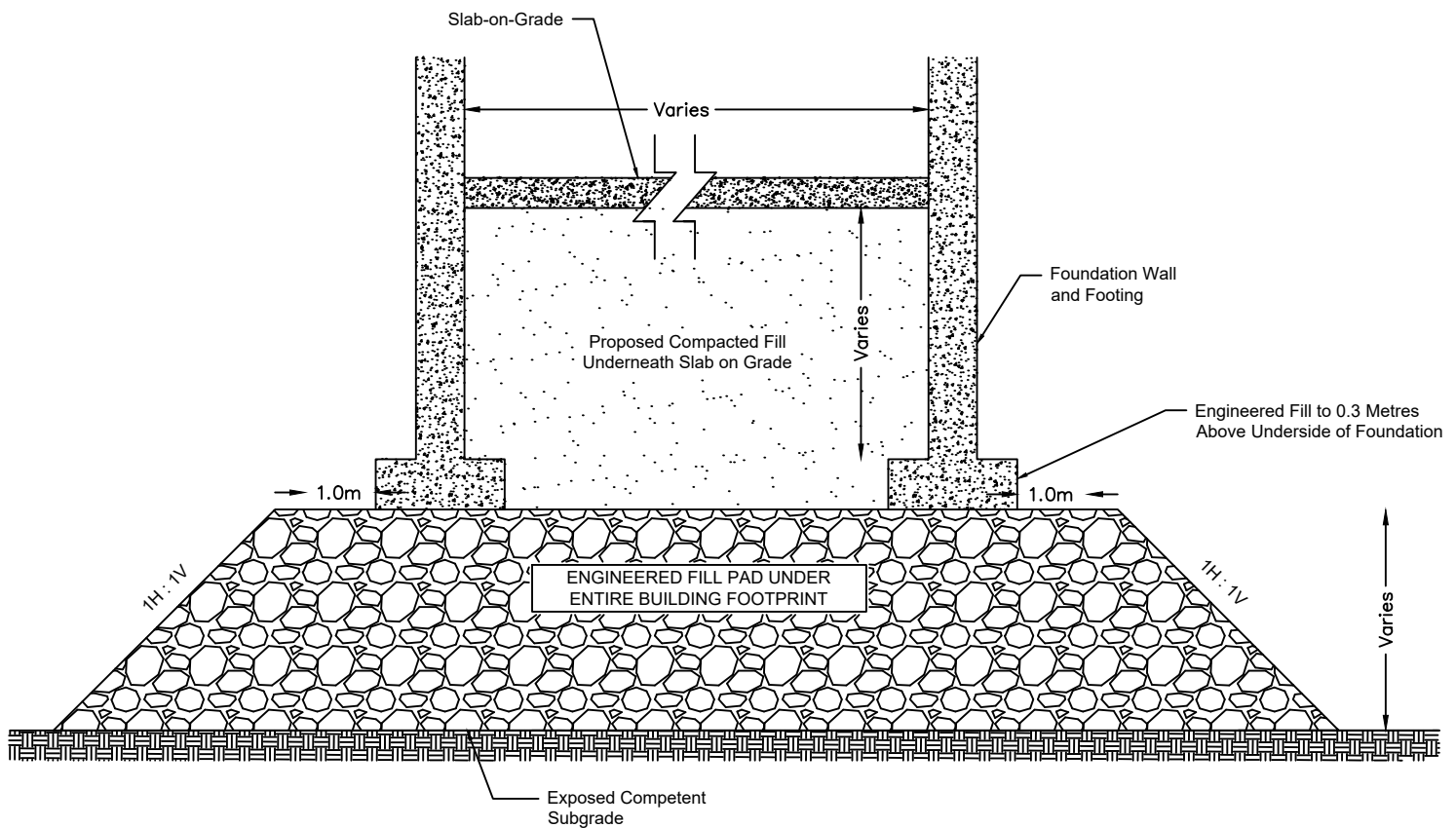
| Soil Texture - Structure Category                                                                                                                                 | $\alpha^*$ (cm <sup>-1</sup> ) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| 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                           |

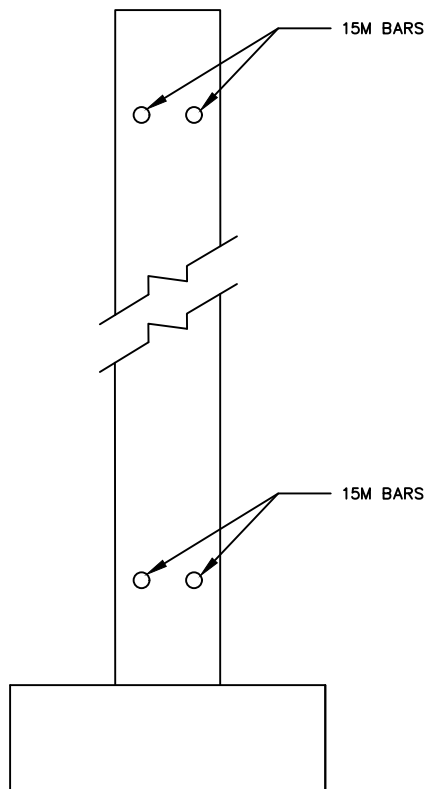
## **Appendix D Typical Details**

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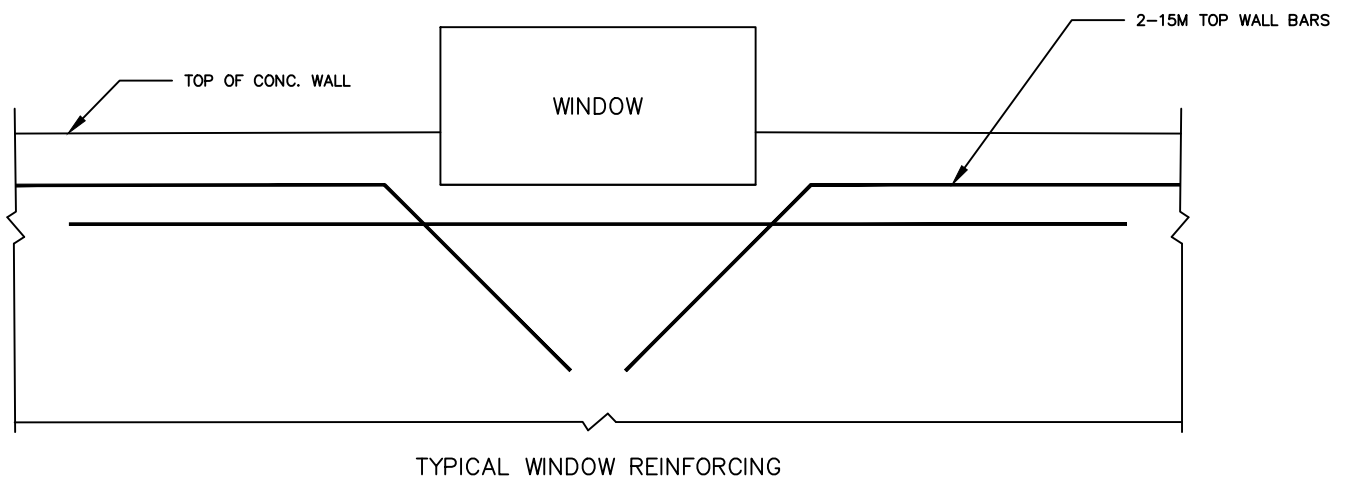
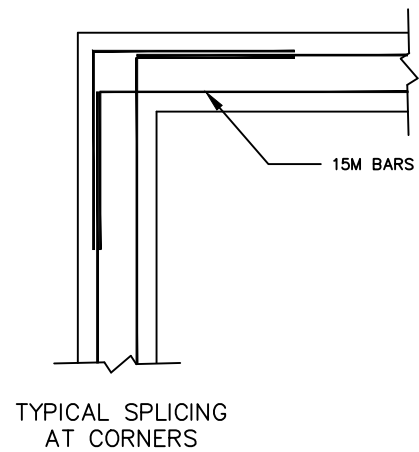
**Notes:**

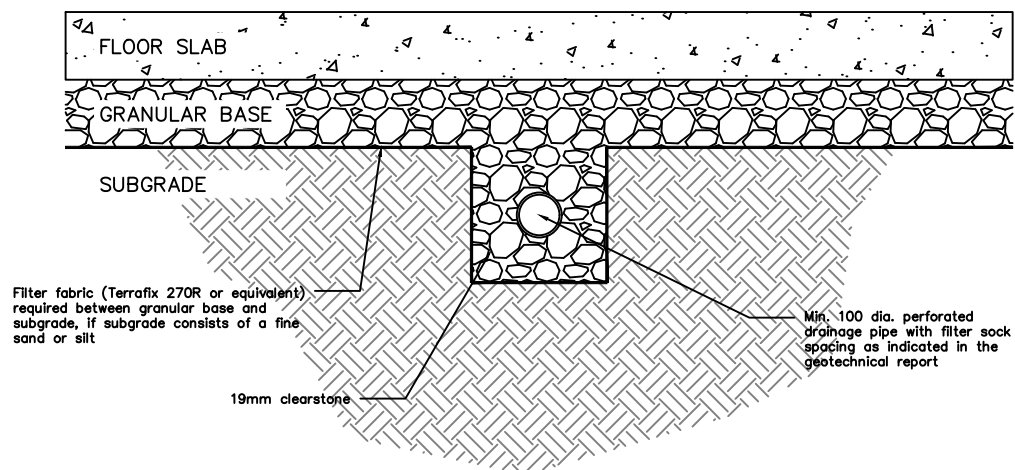
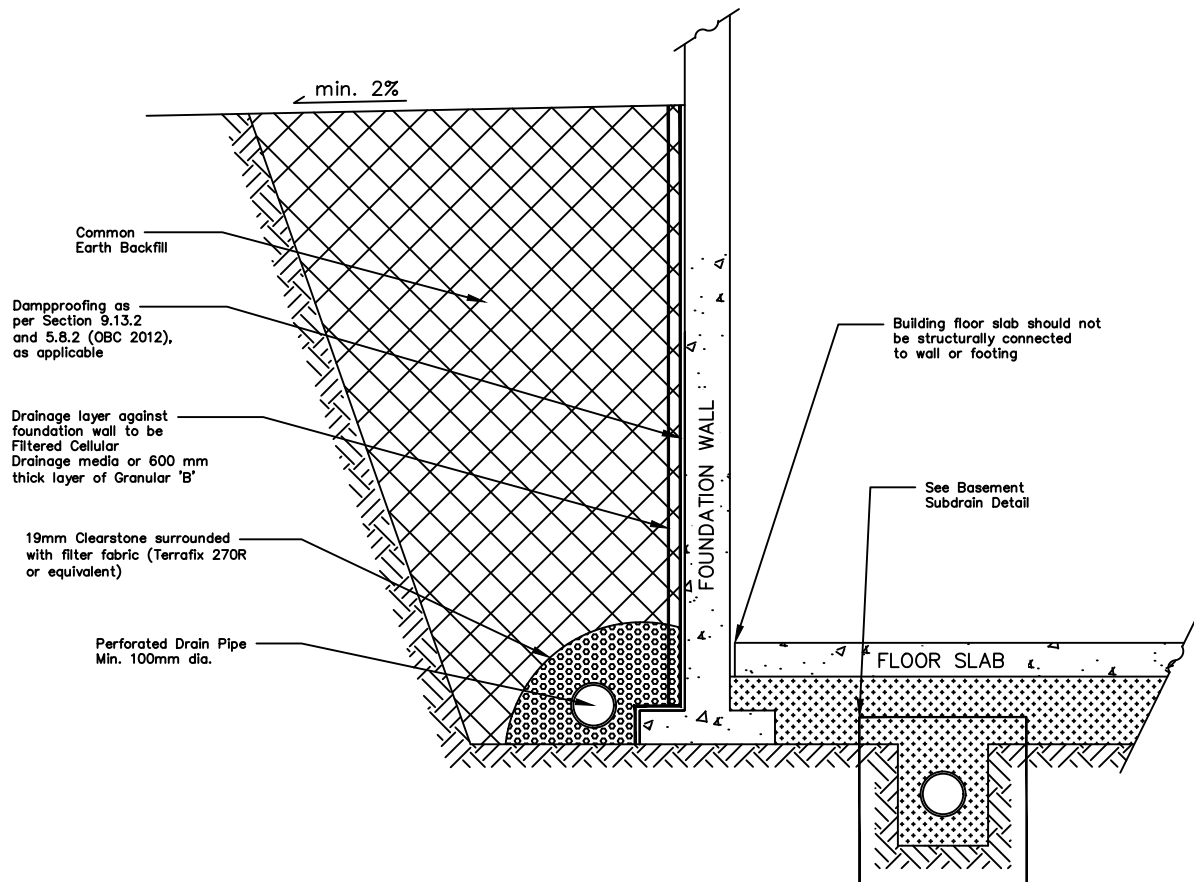
1. Engineered Fill compacted to 100% Standard Proctor Maximum Dry Density (SPMDD) and inspected under the full time supervision of GEI.
2. Engineered fill must be placed in loose lifts of 200 mm or less and then compacted as noted above.
3. Interior non-structural compacted fill compacted to 98% SPMDD with recommended part-time inspection.

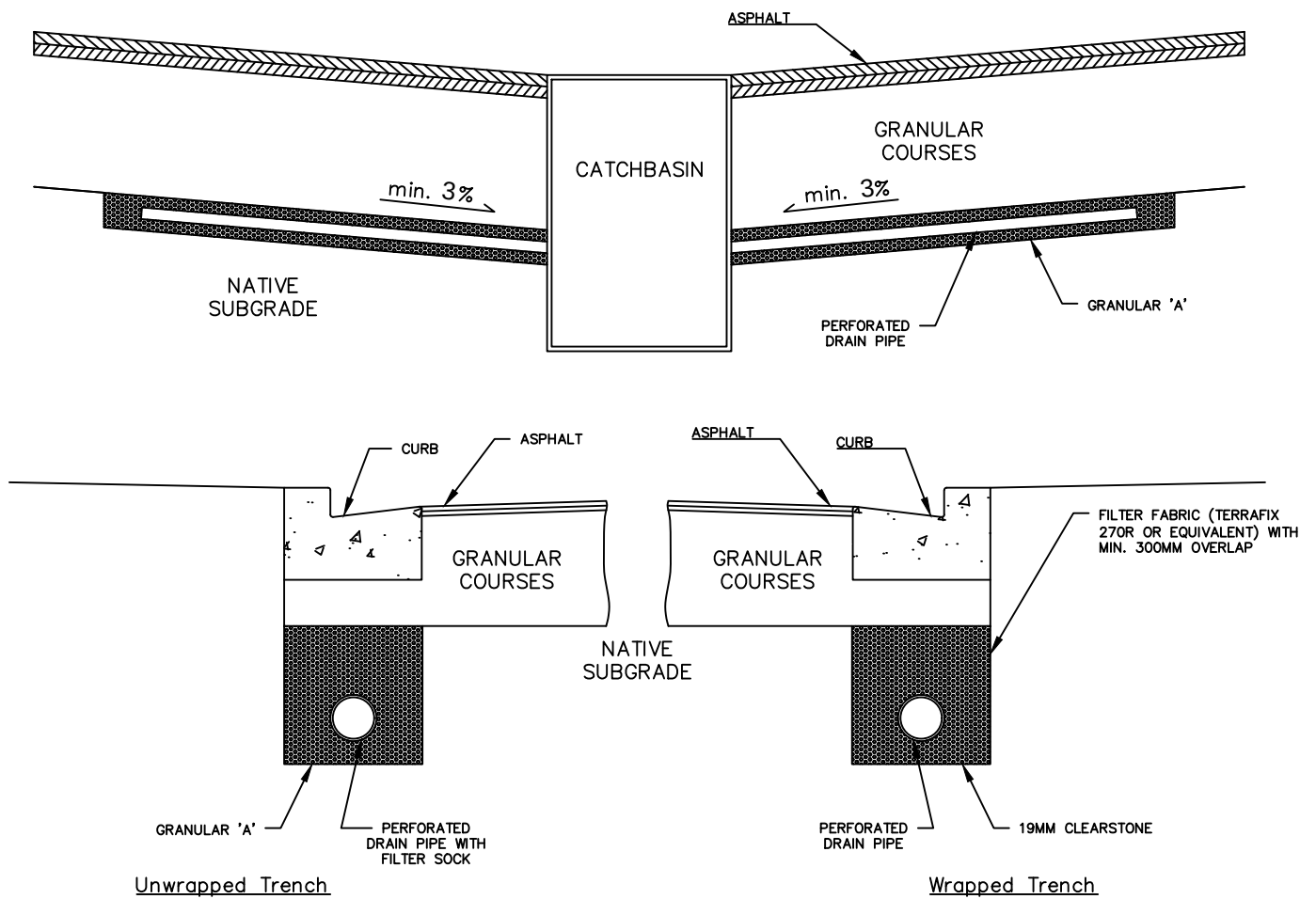




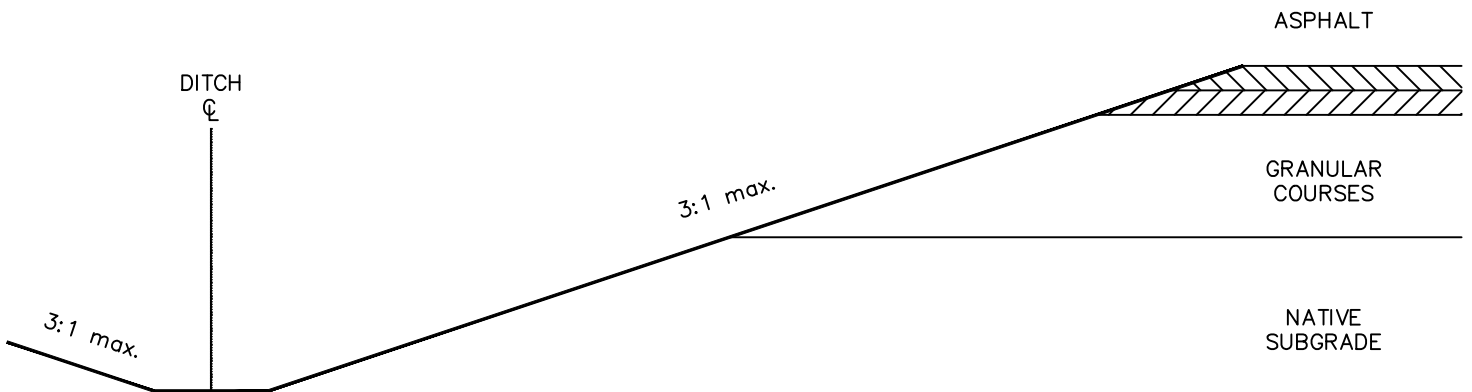
TYPICAL REINFORCED  
WALL







Urban Cross Sections



Rural Cross Section