

REPORT ON
PRELIMINARY GEOTECHNICAL INVESTIGATION
PROPOSED DEVELOPMENT
CALEDON STATION
&
ARGO KING I & II
BOLTON, ONTARIO

Draft Plan of Subdivision and Amendment for Zoning By-Law of Caledon Station (21T-220001 & RZ 2022-0002) and Argo Humber Station (21T-22002 & RZ 2022-0003)

PREPARED FOR:
Caledon Community Partners
c/o Glen Schnarr & Associates

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DS CONSULTANTS LTD.

6221 Highway 7, Unit 16
Vaughan, Ontario, L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

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1. INTRODUCTION

DS Consultants Ltd. (DS) was retained by Caledon Community Partners to prepare a preliminary geotechnical investigation report for the proposed development, Caledon Station (Argo Macville I, Argo Macville II, Robert Speirs, Argo Macville V, Argo Humberking and Argo Humberking Station lands), in connection with a Preliminary Framework Plan to establish the Macville Community Secondary plan area, located at The Gore Road and King Street in Bolton, Ontario.

It is understood that the proposed development will consist of a residential subdivision (single-family dwellings and low to mid-rise residential buildings), stormwater ponds, and a possible transit hub.

The proposed site grades and lowest finished floor elevations for the proposed structures were not known to us at the time of writing this report.

The purpose of this geotechnical investigation was to obtain information about the subsurface conditions at boreholes locations and from the findings in the boreholes to make engineering recommendations pertaining to the geotechnical design of underground utilities, roads and to comment on the foundation conditions for the building construction.

This report deals with geotechnical issues only. Findings in the hydrogeological investigation by DS are documented under separate cover.

This report is provided on the basis of the terms of reference presented above and, on the assumption, that the design will be in accordance with the applicable codes and standards. If there are any changes in the design features relevant to the geotechnical analyses, or if any questions arise concerning the geotechnical aspects of the codes and standards, this office should be contacted to review the design. It may then be necessary to carry out additional borings and reporting before the recommendations of this office can be relied upon.

The format and contents are guided by client specific needs and economics and do not conform to generalized standards for services. Laboratory testing for most part follows ASTM or CSA Standards or modifications of these standards that have become standard practice.

This report has been prepared for Caledon Community Partners and its architect and designers. Third party use of this report without DS consent is prohibited.

2. BACKGROUND INFORMATION

In 2020, DS was retained by Bolton Option 3 Landowners Group to complete a preliminary geotechnical, environmental, and hydrogeological studies for the proposed development at the Site

(Macville Community, in connection with a LOPA application to establish the Macville Community Secondary plan area, located at The Gore Road and King Street in Bolton, Ontario).

DS carried out the geotechnical investigation field work at the subject site during the period of July 27 to 31, 2020, consisting of sixteen (16) boreholes (BH20-1 to BH20-16) which were drilled to depths ranging from 6.7 to 11.3 m below the existing grade at the locations shown on the Borehole Location Plan, **Drawing 1**. The Borehole logs are attached in **Appendix A** of this report

Monitoring wells were installed in all boreholes, except Boreholes BH20-8, BH20-10, and BH20-13 to monitor long-term stabilized groundwater levels.

In addition, laboratory tests such as moisture content for all soil samples, grain size distribution (sieve and hydrometer analyses) and Atterberg Limit tests were carried out, by DS Consultants on selected samples.

Additionally, Soil Engineers Ltd. also carried out a hydrogeological assessment at the subject site, which included the advancement of eighteen boreholes (BH1 to BH18) and the findings of their investigation are documented in their report titled "Hydrogeological Assessment, Proposed Mixed Use Development King Street and Humber Station Road, Town of Caledon" dated December 2022. The borehole logs from Soil Engineers' report are appended to this report for information purposes only.

3. FIELD AND LABORATORY WORK

DS has now been retained by Caledon Community Partners to carry out a subsequent preliminary geotechnical investigation for the Macville Community Preliminary Framework Plan to establish the Macville Community Secondary plan area.

A total of forty-two (42) sampled boreholes (BH22-1 through BH22-42), see **Drawing 1** for borehole locations) were drilled by DS in 2022, to depths ranging from 8.1 to 13.6 m below the existing grade. **Additionally, three boreholes, (BH22-36A, BH22-39A and BH22-40A) were augered to depths of 4.0 to 7.6 m without soil sampling beside BH22-36, BH22-39, and BH22-40, respectively, for installation of shallow monitoring wells.**

Boreholes were drilled with solid and hollow stem continuous flight augers equipment by a drilling sub-contractor under the direction and supervision of DS personnel. Samples were retrieved at regular intervals with a 50 mm O.D. split-barrel sampler driven with a hammer weighing 624 N and dropping 760 mm in accordance with the Standard Penetration Test (SPT) method. The samples were logged in the field and returned to the DS laboratory for detailed examination by the project engineer and for laboratory testing.

As well as visual examination in the laboratory, all soil samples from geotechnical boreholes were tested for moisture contents. Grain size analyses of sixteen (16) selected soil samples were conducted and the results are presented on **Drawings 47 to 49**. Atterberg Limits testing was conducted on selected seven (7) soil sample and results are presented on the respective borehole logs and on **Drawings 50 and 51**.

Water level observations were made during and upon completion of drilling. Twenty-four (24) monitoring wells of 50mm diameter were installed in Boreholes BH22-1, BH22-3, BH22-5, BH22-10, BH22-11, BH22-13, BH22-14, BH22-15, BH22-17, BH22-20, BH22-22, BH22-25, BH22-27, BH22-28, BH22-29, BH22-32, BH22-33, BH22-35, BH22-36A, BH22-39, BH22-39A, BH22-40, BH22-40A and BH22-42, for the long-term groundwater levels monitoring. The elevation surveying of the boreholes was undertaken by DS Consultants Ltd. personnel, using the differential GPS unit.

4. SUBSURFACE CONDITIONS

4.1 Soil Conditions

The borehole location plan is shown on **Drawing 1**. General notes on sample description are provided on **Drawing 1A**. The subsurface conditions in the boreholes (BH22-1 to BH22-42) by DS were generally consistent with the findings from the 2020 investigation and are presented in the individual borehole logs presented on **Drawings 2 to 46**. Logs of the previous boreholes (BH20-1 to BH20-16) are attached in **Appendix A**.

Topsoil and Fill/(Possible Fill) Material and Weathered/Disturbed Native Material:

A surficial layer of topsoil, ranging from 200 to 550 mm in thickness, was observed at the surface of all the boreholes, except BH20-4.

Fill or weathered/disturbed native material (possible fill in BH22-9) consisting of clayey silt to silty clay and sandy silt to silty sand soils were detected in all the boreholes below the topsoil layer and extended to approximate depths ranging from 0.4 to 2.3 m below the existing ground surface. In the area of Borehole BH20-4, the fill layer was overlain by a concrete slab, approximately 300 mm in thickness. In the area of Borehole BH22-9, the weathered/disturbed clayey silt to silty clay with inclusions of gravel, organic staining, and no readily apparent structure. Hence, this layer may be possible fill. The fill and weathered/disturbed native materials were generally brown to dark brown in color and contained trace of organics, gravel, and rootlets.

SPT 'N' values measured in fill and weathered/disturbed native materials ranged from 3 to 15 blows per 300mm penetration, indicating a soft to stiff consistency or loose to compact state. The

moisture content of this moist to wet fill and weathered/disturbed native soil layer ranged from 5 to 24%.

The type/quantity and extent of the existing weathered/disturbed soil or fill, and topsoil layers must be explored by further test pit investigation prior to/during excavation.

Clayey Silt/Silty Clay Till:

Clayey silt to silty clay till deposit was encountered below the weathered/disturbed soil layer in Boreholes BH22-1 to BH22-5, BH22-8, BH22-10, BH22-11, BH22-14 to BH22-35, BH22-37 to BH22-40 and BH22-42, below a thin sandy silt to silty sand deposit in BH22-36 and BH22-41, below the fill layer in BH20-1 to BH20-3 and BH20-5 to BH20-16, and extended to approximate depths ranging from 1.5 to 12.8 m below existing ground surface, i.e., the maximum explored depth of Boreholes BH22-14, BH22-16, BH22-17, BH22-19, BH22-20, BH22-21, BH22-24, BH22-34, BH22-36, BH22-37 to BH22-41, BH20-6, BH20-7, BH20-10, BH20-14 and BH20-15. The clayey silt till was interrupted by a cohesionless silt deposit between 4.6 and 6.1 m depth in BH22-24 and by a gravelly sand deposit between 1.8 and 10.7 m depths in BH22-34. This, in general, moist to very moist clayey to silty clay till deposit was brown to grey in color and contained some sand too sandy and trace to some gravel. SPT 'N' values measured in the clayey silt to silty clay till ranged from 8 to more than 50 blows per 300 mm of penetration, indicating a stiff to hard consistency (generally very stiff to hard). The moisture content of this clayey silt to silty clay till deposit ranged from 7 to 26%.

Grain size analyses of seven (7) soil samples (BH22-1/SS3, BH22-14/SS7, BH22-21/SS5, BH22-25/SS3, BH22-36/SS3 and SS8, and BH22-41/SS6) obtained from the current drilling program, were conducted and the results are presented on **Drawings 47 and 48**. Grain size analyses of one (1) silty clay till soil sample (BH20-7/SS4) was conducted during 2020 drilling program and the results are presented on the logs in **Appendix A**. The fractions of soil particles of clayey silt to silty clay tills are presented as follows:

Clay:	20 to 37%
Silt:	38 to 51%
Sand:	11 to 31%
Gravel:	1 to 15%

Atterberg limits tests of above noted seven (7) soil samples (BH22-1/SS3, BH22-14/SS7, BH22-21/SS5, BH22-25/SS3, BH22-36/SS3 and SS8, and BH22-41/SS6) were conducted. The results are shown on the borehole logs and on **Drawings 50 and 51**. The results of BH20-7/SS4) are shown on the log in **Appendix A**. They are summarized as follows:

Liquid limit (W_L):	19 to 33%
Plastic limit (W_P):	12 to 26%

Plasticity index (PI): 7 to 16

Clayey Silt:

A thin layer of clayey silt with trace sand was encountered below the clayey silt/silty clay till deposit in BH22-18 and extended to a depth of 7.6 m below existing ground surface. SPT 'N' value measured in the clayey silty was in the order of 29 blows per 300 mm of penetration, indicating a very stiff consistency. The moisture content of this clayey silt layer was 10 %.

Sandy Silt Till:

A cohesionless sandy silt till deposit was encountered below the clayey silt to silty clay till deposit in Boreholes BH22-1, BH22-3, BH22-10, BH22-11, BH22-15, BH22-22, BH22-23, BH22-28, and BH22-33, below a sand deposit in BH22-2 and 22-42, and below the clayey silt layer in BH22-18. The sandy silt till deposit extended to depths ranging from 3.1 to 12.8 m below existing ground surface, i.e., the maximum depth explored in BH22-2, BH22-15, BH22-18, BH22-23, and BH22-42.

SPT 'N' values measured within this sandy silt till deposit ranged from 21 to more than 50 blows per 300 mm of penetration, indicating compact to very dense relative density. The moisture content of this moist to wet sandy silt till deposit ranged from 8 to 23%.

Grain size analyses of two (2) sandy silt till samples soil samples (BH22-10/SS5 and BH22-18/SS8) were obtained from the current drilling program, were conducted and the results are presented on **Drawings 47 and 49**, with the following fractions:

Clay: 11%
Silt: 40 to 64%
Sand: 24 to 38%
Gravel: 1 to 11%

Cohesionless Deposits of silt, sandy Silt to Silty Sand, Sand, Sand and Gravel, and Sandy Gravel/Gravelly Sand:

Cohesionless deposits of silt, sandy silt to silty sand, sand, sand and gravel and sandy gravel/gravelly sand soils with inclusions of clay and varying amounts of gravel was encountered underlying or embedded in the clayey silt to silty clay till and/or sandy silt till deposits in Boreholes BH22-1, BH22-2, BH22-3, BH22-4, BH22-5, BH22-8, BH22-10, BH22-11, BH22-24, BH22-25, BH22-26, BH22-27, BH22-28, BH22-29 to BH22-35, BH22-42, BH20-1 to BH20-3, BH20-5, BH20-8, BH20-9, BH20-11 to BH20-13 and BH20-16, below the weathered/disturbed soils in BH22-6, BH22-7, BH22-9, BH22-12, BH22-13, BH22-36 and BH22-41, and below the fill in BH20-4. These cohesionless deposits extended to depths ranging from 0.8 to 13.6 m below existing ground surface, i.e., the maximum

depths explored in BH22-1, BH22-3, BH22-4, BH22-5, BH22-6, BH22-7, BH22-8, BH22-9, BH22-10, BH22-11, BH22-12, BH22-13, BH22-25 to BH22-33, BH22-35, BH20-1 to BH20-3, BH20-5, BH20-8, BH20-9, BH20-11 to BH20-13 and BH20-16.

SPT 'N' values measured within these sandy, silty deposits ranged from 7 to more than 50 blows per 300 mm of penetration, indicating loose to very dense relative density. Disturbance of the split spoon samples noted at depth in BH22-27 and BH22-30 is likely attributable to heaving of the water bearing silty sand/sand. The moisture content of this moist to wet sands and silts ranged from 6 to 27%.

This moist to wet deposit was brown to grey in color and layers of sand and gravel and/or sandy gravel/gravelly sand materials were encountered in the area of Borehole BH22-33 between depths of 6.1 and 9.1 m, BH22-34 between depths of 1.8 and 10.7 m, and BH20-16, between depths of 1.5 and 3.3 m and between depths of 4.5 and 6.2 m. SPT 'N' values measured within this sand and gravel and sandy gravel/gravelly sand layers ranged from 24 to 66 blows per 300mm of penetration, indicating compact to very dense relative density.

Grain size analyses of seven (7) cohesionless, silt, sandy silt to silty sand, sand, and sandy gravel/gravelly sand soil samples (BH22-13/SS6 and SS9, BH22-25/SS9, BH22-28/SS7, BH22-32/SS10, BH22-33/SS8 and BH22-34/SS6) obtained from the current drilling program were conducted and the results are presented on **Drawings 47 to 49**. Grain size analyses of eight (8) cohesionless, silt, sandy silt to silty sand, and sand and gravel soil samples sample (BH20-5/SS8, BH20-8/SS4 and SS7, BH20-11/SS8, BH20-12/SS7, BH20-16/SS4, SS6 and SS7) was conducted during 2020 drilling program and the results are presented on the logs in **Appendix A**. The fractions of soil particles of cohesionless sands, silts and gravel are presented as follows:

Clay:	2 to 18%
Silt:	10 to 94%
Sand:	1 to 82%
Gravel:	0 to 52%

4.2 Groundwater Conditions

During drilling and upon completion of drilling, groundwater was observed at variable depths, or the bottom of boreholes was wet in some boreholes while some boreholes remained dry.

Groundwater levels in the monitoring wells installed at twenty-four (24) borehole locations from current drilling program (BH22-1, BH22-3, BH22-5, BH22-10, BH22-11, BH22-13, BH22-14, BH22-15, BH22-17, BH22-20, BH22-22, BH22-25, BH22-27, BH22-28, BH22-29, BH22-32, BH22-33, BH22-35,

BH22-36A, BH22-39, BH22-39A, BH22-40, BH22-40A) were measured on September 8 and October 18, 2022, and March 21, 2023, and in thirteen (13) borehole locations from 2020 drilling program (BH1 to BH7, BH9, BH 11, BH 12 and BH14 to BH 16) on August 6, 2020, September 8, 2020, October 22, 2020, and March 21, 2023. The groundwater level measurements are provided below on **Table 1**.

Table 1: Summary of Groundwater Level Measurements in Monitoring Wells

BH No.	Ground Surface Elevation (m)	Date of Drilling	Date of Observation	Depth of Groundwater (m)	Elevation of Groundwater (m)
BH 22- 1	279.0	Aug 31, 2022	Sept 8, 2022	3.40	275.60
			Mar. 21, 2023	2.62	276.40
BH 22-3	274.8	Aug 30, 2022	Sept 8, 2022	1.42	273.40
			Mar. 21, 2023	0.32	274.50
BH 22-5	279.7	Aug 31, 2022	Sept 8, 2022	6.53	273.20
			Mar. 21, 2023	5.82	273.90
BH 22-10	269.9	Sept 6, 2022	Sept 8, 2022	1.27	268.60
			Mar. 21, 2023	0.22	269.70
BH 22-11	272.9	Sept 6, 2022	Sept 8, 2022	2.78	269.30
			Mar. 21, 2023	3.11	269.80
BH 22-13	276.1	Sept 1, 2022	Sept 8, 2022	6.03	270.10
			Mar. 21, 2023	5.43	270.70
BH 22-14	271.4	Sept 1, 2022	Sept 8, 2022	11.9	259.50
			Mar. 21, 2023	0.33	271.10
BH 22-15	270.2	Aug 29, 2022	Sept 8, 2022	1.93	268.30
BH 22-17	269.0	Aug 29, 2022	Sept 8, 2022	2.26	266.70

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			Mar. 21, 2023	-0.71	269.70
BH 22-20	269.4	Aug 29, 2022	Sept 8, 2022 Mar. 21, 2023	2.51	266.90
BH 22-22	267.8	Aug 26, 2022	Sept 8, 2022 Mar. 21, 2023	1.43 0.73	266.30 267.00
BH 22-25	270.9	Aug 25, 2022	Sept 8, 2022 Mar. 21, 2023	3.10 2.27	267.80 268.60
BH 22-27	271.2	Aug 19, 2022	Sept 8, 2022 Mar. 21, 2023	4.25 2.96	266.90 268.20
BH 22-28	270.9	Aug 19, 2022	Sept 8, 2022 Mar. 21, 2023	4.81 3.68	266.10 267.20
BH 22-29	268.9	Aug 23, 2022	Sept 8, 2022 Mar. 21, 2023	3.80 2.65	265.10 266.20
BH 22-32	265.3	Aug 23, 2022	Sept 8, 2022 Mar. 21, 2023	0.32 -0.48	265.00 265.80
BH 22-33	268.0	Aug 25, 2022	Sept 8, 2022 Mar. 21, 2023	4.29 3.17	263.70 264.80
BH 22-35	266.1	Aug 24, 2022	Sept 8, 2022 Mar. 21, 2023	2.23 1.23	263.80 264.80
BH 22-36A	261.8	Sept 7, 2022	Sept 19, 2022 Mar. 21, 2023	2.70 0.14	259.10 261.70
BH 22-39A	266.6	Sept 7, 2022	Sept 19, 2022 Mar. 21, 2023	1.92 -0.02	264.70 266.60
BH 22-40	264.0	Sept 7, 2022	Oct 18, 2022	3.03	260.90
BH 22-40A	263.9	Sept 7, 2022	Sept 19, 2022	1.92	262.00

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BH22-42	266.7	Sept. 6, 2022	Oct 18, 2022	2.05	264.60
			Mar. 21, 2023	0.51	266.20
BH 20- 1	279.8	July 27, 2020	Aug 6, 2020	4.10	275.70
			Sept 8, 2020	4.24	275.56
			Oct 22, 2020	4.51	275.29
			Mar. 21, 2023	3.96	275.90
BH 20-2	278.8	July 27, 2020	Aug 6, 2020	6.12	272.68
			Sept 8, 2020	6.36	272.44
			Oct 22, 2020	6.48	272.32
			Mar. 21, 2023	6.08	272.70
BH 20-3	278.6	July 27, 2020	Aug 6, 2020	6.0	272.60
			Sept 8, 2020	Dry	Dry
			Oct 22, 2020	Dry	Dry
			Mar. 21, 2023	5.93	272.60
BH 20-4	277.1	July 27, 2020	Aug 6, 2020	3.77	273.33
			Sept 8, 2020	3.90	273.20
			Oct 22, 2020	Not accessible	Not accessible
			Mar. 21, 2023	4.75	272.30
BH 20-5	273.0	July 29, 2020	Aug 6, 2020	2.78	270.22
			Sept 8, 2020	3.09	269.91
			Oct 22, 2020	3.38	269.62
			Mar. 21, 2023	2.68	270.40
BH 20-6	271.0	July 28, 2020	Aug 6, 2020	6.71	264.23
			Sept 8, 2020	1.15	269.85
			Mar. 21, 2023	0.26	270.70

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BH 20-7	261.7	July 31, 2020	Aug 6, 2020	Dry	Dry
			Sept 8, 2020	6.52	255.18
			Oct 22, 2020	3.40	258.30
BH 20-9	274.1	July 28, 2020	Aug 6, 2020	4.43	269.67
			Sept 8, 2020	4.72	269.38
			Oct 22, 2020	4.97	269.13
			Mar. 21, 2023	4.50	269.61
BH 20-11	270.1	July 29, 2020	Aug 6, 2020	5.42	264.68
			Sept 8, 2020	5.37	264.73
			Oct 22, 2020	5.33	264.77
			Mar. 21, 2023	1.63	268.50
BH 20-12	264.9	July 31, 2020	Aug 6, 2020	0.20	264.70
			Sept 8, 2020	0.10	264.80
			Oct 22, 2020	0.14	264.76
			Mar. 21, 2023	-0.15	265.10
BH 20-14	267.7	July 30, 2020	Aug 6, 2020	3.32	264.38
			Sept 8, 2020	3.43	264.27
			Oct 22, 2020	3.59	264.11
			Mar. 21, 2023	0.19	267.50
BH 20-15	264.1	July 30, 2020	Aug 6, 2020	2.41	261.69
			Sept 8, 2020	2.33	261.77
			Oct 22, 2020	2.41	261.69
			Mar. 21, 2023	1.65	262.50
BH 20-16	265.5	July 31, 2020	Aug 6, 2020	2.12	263.38
			Sept 8, 2020	2.27	263.23

			Oct 22, 2020	2.49	263.01
			Mar. 21, 2023	1.30	264.20

It should be noted that the groundwater levels can vary and are subject to seasonal fluctuations in response to major weather events. Further groundwater level readings in the monitoring wells are recommended.

5. DISCUSSION AND RECOMMENDATIONS

5.1 SITE GRADING & ENGINEERED FILL

It is understood that the Macville Community Secondary Plan, once approved through a Local Official Plan Amendment (LOPA), will serve as a framework for future development of the Subject Lands for the purposes of accommodating residential and mixed-use development with related complimentary uses, such as open spaces, parks, trails, commercial uses, the Bolton GO Station, the Natural Heritage System (NHS), and stormwater management facilities. This report must be updated when the site plan is approved. Recommendations for different components will be provided in the updated geotechnical report.

For the residential subdivision with residential lots/buildings, underground services, roads, and driveways, it is recommended that all fill to be placed for grading purposes be constructed as engineered fill to provide competent subgrade below house foundations, roads, boulevards, etc.

Prior to placement of engineered fill, all existing surficial organic material/topsoil, fill materials, weathered/disturbed native soils and soils containing topsoil/organics should be stripped to expose the undisturbed inorganic native subgrade. The exposed subgrade should then be proof rolled with a heavy sheepsfoot roller to identify weak areas. Any weak or excessively wet zones identified during proof-rolling should be sub-excavated and replaced with compacted competent material to establish stable and uniform conditions. Prior to placement of engineered fill, the subgrade should be inspected and approved by a geotechnical engineer.

General guidelines for the placement and preparation of engineered fill are presented in **Appendix B**. Bearing capacity values of 150 kPa at SLS and 225 kPa at ULS can be used on engineered fill, provided that all requirements in **Appendix B** are adhered to. To reduce the risk of improperly placed engineered compacted fill, full-time supervision of the contractor is essential.

The following is a recommended procedure for an engineered fill:

1. Prior to site work involving engineered fill, a site meeting to discuss all aspects must be convened. The surveyor, contractor, design engineer and geotechnical engineer must attend the

meeting. At this meeting, the limits of the engineered fill will be defined. The contractor must make known where all fill material will be obtained and samples must be provided to the geotechnical engineer for review, and approval before filling begins.

2. Detailed drawings indicating the lower boundaries as well as the upper boundaries of the engineered fill must be available at the site meeting and be approved by the geotechnical engineer.
3. The building footprint and base of the pad, including basements, garages, etc. must be defined by offset stakes that remain in place until the footings and service connections are all constructed. Confirmation that the footings are within the pad, service lines are in place, and that the grade conforms to drawings, must be obtained by the owner in writing from the surveyor and DS. Without this confirmation no responsibility for the performance of the structure can be accepted by DS. Survey drawing of the pre, and post fill location and elevations will also be required.
4. The area must be stripped of all topsoil and fill materials. Subgrade must be proof-rolled. Soft spots must be dug out. The stripped native subgrade must be examined and approved by a DS engineer prior to placement of fill.
5. The approved engineered fill must be compacted to 100% Standard Proctor Maximum Dry Density throughout. Granular Fill preferred. Engineered fill should not be placed (where it will support footings) during the winter months. Engineered fill compacted to 100% SPMDD will settle under its own weight approximately 0.5% of the fill height and the structural engineer must be aware of this settlement. In addition to the settlement of the fill, additional settlement due to consolidation of the underlying soils from the structural and fill loads will occur.
6. Full-time geotechnical inspection by DS during placement of engineered fill is required. Work cannot commence or continue without the presence of the DS representative.
7. The fill must be placed such that the specified geometry is achieved. Refer to sketches for minimum requirements. Take careful note that the projection of the compacted pad beyond the footing at footing level is a minimum of 2 m. The base of the compacted pad extends 2 m plus the depth of excavation beyond the edge of the footing.
8. Bearing capacity values of 150 kPa at SLS and 225 kPa at ULS may be used provided that all conditions outlined above are adhered to. A minimum footing width of 500 mm (20 inches) is suggested, and footings should be provided with nominal steel reinforcement.
9. All excavations must be done in accordance with the Occupational Health and Safety Regulations of Ontario.

10. After completion of the pad a second contractor may be selected to install footings. All excavations must be backfilled under full time supervision by DS to the same degree as the engineered fill pad. Surface water cannot be allowed to pond in excavations or to be trapped in clear stone backfill. Clear stone backfill can only be used with the approval of DS.

11. After completion of compaction, the surface of the pad must be protected from disturbance from traffic, rain, and frost.

12. If there is a delay in construction, the engineered fill pad must be inspected and accepted by the geotechnical engineer. The location of the structure must be reconfirmed that it remains within the pad.

The native soils and any existing fill materials free from organics/topsoil and organics to be excavated from cut-areas are considered suitable for re-use as engineered fill, provided that their moisture contents at the time of construction are at or near optimum. Clayey tills are likely to be excavated in cohesive chunks or blocks and will be difficult to compact. They should be pulverized and placed in thin layers not exceeding 200 mm and compacted using heavy equipment suitable for these types of soils (e.g., heavy sheepfoot compactors).

5.2 ROADS/PAVEMENTS

The investigation has shown that the predominant subgrade soil, after stripping the topsoil and any other organic and otherwise unsuitable subsoil, will generally consist of clayey silt/silty clay till and silt to sandy silt soils.

Based on the above and assuming that traffic usage will be residential, the following minimum pavement thickness is recommended for the roads to be constructed within the development.

For Minor Local or Local Roads

40 mm HL3 Asphaltic Concrete
65 mm HL8 Asphaltic Concrete
150 mm Granular 'A'
300 mm Granular 'B'

For Collector Roads

40 mm HL3 Asphaltic Concrete
90 mm HL8 Asphaltic Concrete
150 mm Granular 'A'
450 mm Granular 'B'

Roads and driveway pavements/aprons should be constructed as per the Town of Bolton standards.

The site subgrade and weather conditions (i.e., if wet) at the time of construction may necessitate the placement of thicker granular sub-base layer and/or geogrid in order to facilitate the construction. Furthermore, heavy construction equipment may have to be kept off the newly constructed roads before the placement of asphalt and/or immediately thereafter, to avoid damaging the weak subgrade by heavy truck traffic.

5.2.1 STRIPPING, SUB-EXCAVATION AND GRADING

The site should be stripped of all organic soil/topsoil, fill materials, weathered/disturbed soils, soils containing topsoil/organics or otherwise unsuitable soils to the full depth of the roads, both in cut and fill areas. Following stripping, the site should be graded to the subgrade level and approved. The subgrade should then be proof rolled, in the presence of the Geotechnical Engineer, by at least several passes of a heavy compactor having a rated capacity of at least 8 tonnes. Any soft spots thus exposed should be removed and replaced by select fill material, similar to the existing subgrade soil and approved by the Geotechnical Engineer. The subgrade should then be re-compacted from the surface to at least 98% of its Standard Proctor Maximum Dry Density (SPMDD). The final subgrade should be cambered or otherwise shaped properly to facilitate rapid drainage and to prevent the formation of local depressions in which water could accumulate.

Owing to the clayey (i.e., impervious) nature of some subsoils at the site, proper cambering and allowing the water to escape towards the sides (where it can be removed by means of subdrains) is considered to be beneficial for this project. Otherwise, any water collected in the granular sub-base materials could be trapped thus causing problems due to softened subgrade, differential frost heave, etc. For the same reason damaging the subgrade during and after placement of the granular materials by heavy construction traffic should be avoided. If the moisture content of the local material cannot be maintained at $\pm 2\%$ of the optimum moisture content, imported granular material may need to be used.

Any fill required for re-grading the site or backfill should be select, clean material, free of topsoil, organic or other foreign and unsuitable matter. The fill should be placed in thin layers and compacted to at least 98% of its SPMDD. The compaction of the new fill should be checked by frequent field density tests.

5.2.2 CONSTRUCTION

Once the subgrade has been inspected and approved, the granular base and sub-base course materials should be placed in layers not exceeding 200 mm (uncompacted thickness) and should

be compacted to at least 100% of their respective SPMDD. The grading of the material should conform to current OPS Specifications.

The placing, spreading, and rolling of the asphalt should be in accordance with OPS Specifications or, as required by the local authorities.

Frequent field density tests should be carried out on both the asphalt and granular base and sub-base materials to ensure that the required degree of compaction is achieved.

5.2.3 DRAINAGE

The installation of full-length subdrains on all roads is recommended. The subdrains should be properly filtered to prevent the loss of (and clogging by) soil fines.

All paved surfaces should be sloped to provide satisfactory drainage towards catch-basins. As discussed in Section 5.2.1, by means of good planning any water trapped in the granular sub-base materials should be drained rapidly towards subdrains or other interceptors.

5.3 WATERMAIN/SEWERS

As a part of the site development, a network of new watermain, storm and sanitary sewers will be constructed. It is assumed that the trenches will generally be within 4 to 5 m below the existing grade.

The type of material for the pipes to be used for watermain or sewers will be the choice of civil engineer.

5.3.1 TRENCHING

The boreholes show that below the existing topsoil and fill, the trenches will be predominantly dug through the silty clay till, sand and gravel and sandy silt to silt soils. Groundwater seepage within the clayey silt/silty clay till is expected to be slow to moderate and manageable by gravity drainage and pumping from filtered sumps. Positive dewatering will be required for any excavations in cohesionless soils (sand, gravel, silt, sandy silt to silty sand and sandy silt till) below groundwater table. The groundwater table must be lowered to at least 1.0 m below the excavation base.

Excavations in fill and native soils can be carried out with heavy hydraulic backhoe.

All excavations must be carried out in accordance with the most recent Occupational Health and Safety Act (OHSA). In accordance with OHSA, fill material and weathered/disturbed native soils can be classified as Type 3 Soil above groundwater and Type 4 Soil below groundwater table or in perched water condition. The very stiff to hard clayey silt/silty clay (till) can be classified as Type 2

Soil above groundwater and Type 3 Soil below groundwater. Cohesionless soils (sand, gravel, silt, sandy silt to silty sand, sandy silt till) can be classified as Type 3 soil above groundwater and as Type 4 below groundwater.

The sides of excavations in the natural strata can be expected to be temporarily stable at relatively steep side slopes above the groundwater table for short periods of time but they should be cut back at slopes no steeper than 1V:1.5H in fill material and 1V:1H in clayey silt/silty clay till in order to comply with the safety regulations. The OHSА stipulates that any excavation deeper than 1.2m must be shored or cut back at a slope of 1V:1H or flatter, depending on the soil type.

It should be noted that the till is a non-sorted sediment and therefore contain cobble and boulders. Possible large obstructions such as buried concrete pieces are also anticipated in the fill material. Provisions must be made in the excavation contract for the removal of possible boulders in the till and obstructions in the fill material.

5.3.2 BEDDING

Subject to design grades, the sewer pipes will predominantly be laid within the native soils and/or engineered fill which will provide adequate support for the sewer pipes and allow the use of normal Class B type bedding. The bedding should conform to the current Ontario Provincial Standard specifications (OPSS 401/OPSD 802) and/or standards set by the local municipality.

The recommended minimum thickness of granular bedding below the invert of the pipes is 150 mm. The thickness of the bedding may, however, have to be increased depending on the pipe diameter or in accordance with local standards or if wet or weak subgrade conditions or fill materials are encountered at the trench base level. The bedding material should consist of well graded granular material such as Granular 'A' or equivalent.

After installing the pipe on the bedding, a granular surround of approved bedding material, which extends at least 300 mm above the obvert of the pipe, or as set out by the local Authority, should be placed.

To avoid the loss of soil fines from the subgrade, uniformly graded clear stone should not be used unless, below the granular bedding material, a suitable, approved filter fabric (geotextile) is placed. The geotextile should extend along the sides of the trench and should be wrapped all around the poorly graded bedding material.

5.3.3 BACKFILLING OF TRENCHES

Based on visual and tactile examination, the on-site excavated inorganic native soils are considered to be suitable for re-use as backfill in the service trenches provided their moisture contents at the time of construction are within 2 percent of their optimum moisture content. Significant aeration of the wet excavated soils will be required prior to their use as backfill material.

The clayey deposits especially when its consistency is hard is likely to be excavated in cohesive chunks or blocks and will be difficult to compact in confined areas. For use as backfill, the clayey material will have to be pulverized and placed in thin layers. The clayey soils will have to be compacted using heavy equipment suitable for these soils which may be difficult to operate in the narrow confines of the trenches. Unless the clayey materials are properly pulverized and compacted in sufficiently thin lifts post-construction settlements could occur. Their use in narrow trenches such as laterals (where heavy compaction equipment cannot be operated) may not be feasible.

Selected inorganic fill and the native soils free from topsoil and organics can be used as general construction backfill where it can be compacted with sheep's foot type compactors. Loose lifts of soil, which are to be compacted, should not exceed 200 mm. Depending on the time of construction and weather, some excavated material may be too wet to compact and will require aeration prior to its use.

Imported granular fill, which can be compacted with handheld equipment, should be used in confined areas.

The excavated soils are not considered to be free draining. Where free draining backfill is required, imported granular fill such as OPSS Granular B should be used.

The backfill should be placed in maximum 200 mm thick layers at or near ($\pm 2\%$) their optimum moisture content and each layer should be compacted to at least 95% SPMDD. In the upper 1.5 m of the subgrade, underneath the road base, the compaction should be increased to 98% SPMDD.

Unsuitable materials such as organic soils, boulders, cobbles, frozen soils, etc. should not be used for backfilling.

The on-site excavated soils and especially the clayey soils should not be used in confined areas (e.g., around catch-basins and laterals under roadways) where heavy compaction equipment cannot be operated. The use of imported granular fill together with an appropriate frost taper would be preferable in confined areas and around structures, such as catch-basins.

It should be noted that the excavated soils are subject to moisture content increase during wet weather which would make these materials too wet for adequate compaction. Stockpiles should be compacted at the surface or be covered with tarpaulins to minimize moisture uptake.

The topsoil encountered at the site can be used for landscaping fill area to raise the grades. Topsoil cannot be reused as foundation or trench backfill material.

5.3.4 ANTI SEEPAGE COLLARS/TRENCH PLUGS

For pipes installed under the groundwater table, seepage between the trench backfill material and the trench wall may cause erosion of the backfill materials. It is recommended that nominal anti-seepage collars (maximum spacing 50 m) be provided to prevent erosion of the backfill materials. Anti seepage collar should not be located at pipe joint.

The anti-seepage collar may consist of a clay plug surrounding the sewer pipe. A typical clay plug will be about 1 m thick and extends laterally to a minimum distance of 0.5 m from the pipe circumference with a minimum of 0.3 m embedment into the shale or native sub-grade. Typical (not to scale) anti-seepage collar conceptual detail is provided on **Drawing 52**.

The on-site native clayey soils may be suitable for such purpose subject to additional sampling and testing.

5.3.5 THRUST BLOCKS AND JOINT RESTRAINTS

An allowable (or SLS) bearing resistance of 150 kPa and factored ULS bearing resistance of 225 kPa can be used in the design of thrust blocks constructed on undisturbed native soils or engineered fill.

5.4 FOUNDATION CONDITIONS

It is understood that the Macville Community Secondary Plan, once approved through a Local Official Plan Amendment (LOPA), will serve as a framework for future development of the Subject Lands for the purposes of accommodating residential and mixed-use development with related complimentary uses, such as open spaces, parks, trails, commercial uses, the Bolton GO Station, the Natural Heritage System (NHS), and stormwater management facilities. This report must be updated when the site plan is approved. Recommendations for different components will be provided in the updated geotechnical report.

5.4.1 Proposed Houses

It is understood that the proposed subdivision will consist of single-family homes (detached, townhomes, back-to-backs, and stacked) with one level of basement.

The native soils encountered in the boreholes are competent to support the proposed houses on conventional footings.

The spread and strip footings founded on the undisturbed native soils (below any fill or weathered/disturbed native soils) can be designed for a bearing capacity of 150 kPa at SLS (Serviceability Limit State), and for a factored geotechnical resistance of 225 kPa at ULS (Ultimate Limit State).

Subject to design grades, footing founding elevations, in the area of Borehole BH20-12 (2020 investigation), must be confirmed on site due to variable soil conditions. The footings might be lowered, or less bearing capacity be used.

In addition, the locally encountered silt, sandy silt to silty sand at the base of footings can be easily disturbed by construction activities. A concrete skim coat, about 50 mm in thickness, on the founding subgrade immediately after its approval might be required, on a case by case basis, to prevent its disturbance by construction activities.

Due to the difference in ground elevations and subject to design grades, should the proposed footings be founded above the competent native soils, then the proposed houses can also be supported by spread and strip footings founded on engineered fill for a bearing capacity of 150 kPa at the serviceability limit states (SLS) and for a factored geotechnical resistance of 225 kPa at the ultimate limit states (ULS), provided all requirements in Section 5.1 and in **Appendix B** are adhered to.

5.4.2 PROPOSED LOW TO MID-RISE RESIDENTIAL BUILDINGS

It is understood that low to mid-rise residential buildings (varying from 4 to 6 storey and up to probably 15 storey) are proposed to be erected in the vicinity of the GO station, the areas of boreholes BH22-36 to BH22-42 and BH20-10, BH20-11, BH20-14, and BH20-15 (2020 investigation). The proposed buildings will also include underground parking.

The design grades and number of floors/underground parking levels are not known at this stage. Therefore, our recommendations should be considered preliminary and will be revised when the proposed Site/Foundation plan becomes available.

Based on the provided recent information, it is understood that the number of floors could range as high as 15 storey structures in some locations, however, due to the variable soil conditions and the presence of less competent soils, the available soil bearing capacity information is not yet available to define the necessary geotechnical recommendations for such structures. Therefore, further location specific deep borehole investigation is required to investigate the subsurface soil conditions at greater depths and the need to utilize deep foundation alternative (if required) and or raft foundation and confirm the soil bearing capacities, subject to design loads.

In addition, settlement analyses will be required when the foundation plan/design loads areas available to evaluate/quantify the total and differential settlements.

Subject to design grades/loads, number of floors/levels of underground parking and based on the information from the above-mentioned boreholes, the following soil bearing capacities, as presented in Table 2, are available (which must be confirmed by further borehole investigation).

Table 2: Bearing Values and Founding Levels of conventional Footings in Native Soils

BH No.	Surface Elevation At Borehole (m)	Bearing Capacity at SLS (kPa)	Factored Geotechnical Resistance at ULS (kPa)	Minimum Depth below Existing Ground (m)	Founding Level At or Below Elevation (m)
BH22-36	261.7	150	225	1.0	260.7
		200	300	2.3	259.4
BH22-37	265.1	200	300	1.2	263.9
BH22-38	262.7	150	225	1.1	261.6
		250	375	1.8	260.9
BH22-39	266.5	250	375	1.7	264.8
BH22-40	265.1	200	300	1.1	264.0
BH22-41	264.0	150	225	1.1	262.9
		200	300	2.5	261.5
BH22-42	266.7	200	300	1.1	265.6
BH20-10	268.3	200	300	2.0	266.3
BH20-11	270.1	250	375	1.2	268.9
BH20-14	267.7	150	225	1.2	266.5
		250	375	2.5	265.2
BH20-15	264.1	200	300	2.0	262.1
		150	225	5.0	259.1

5.4.3 GENERAL FOUNDATION NOTES

Foundations designed to the specified bearing capacities at the serviceability limit states (SLS) are expected to settle less than 25 mm total and 19 mm differential.

All footings exposed to seasonal freezing conditions must have at least 1.4 metres of soil cover for frost protection.

Where it is necessary to place footings at different levels, the upper footing must be founded below an imaginary 10 horizontal to 7 vertical line drawn up from the base of the lower footing. The lower footing must be installed first to help minimize the risk of undermining the upper footing.

It should be noted that the recommended bearing capacities have been calculated by DS from the borehole information for the design stage only. The investigation and comments are necessarily on-going as new information of the underground conditions becomes available. For example, more specific information is available with respect to conditions between boreholes when foundation construction is underway. The interpretation between boreholes and the recommendations of this report must therefore be checked through field inspections provided by DS to validate the information for use during the construction stage.

5.5 FLOOR SLAB

The floor slab can be supported on grade provided all organic materials/topsoil, fill, and surficial softened/disturbed native soils are removed and the base thoroughly proof rolled. The fill required to raise the grade can consist of inorganic soil, approved by this office, placed in shallow lifts, and compacted to 98 percent of Standard Proctor Maximum Dry Density (SPMDD). Where engineered fill is used to support the foundations, the floor slab can also be supported by engineered fill.

A moisture barrier consisting of at least 200 mm of 19 mm clear crushed stone should be installed under the floor slab.

A perimeter and underfloor drainage system will be required around the exterior basement walls, as shown on **Drawing 53**.

5.6 EARTH PRESSURES

The lateral earth pressures acting on retaining walls or underground structures may be calculated from the following expression:

$$p = k(\gamma h + q)$$

where, p = Lateral earth pressure in kPa acting at depth h

K	=	Earth pressure coefficient, assumed to be 0.40 for vertical walls and horizontal backfill for permanent construction
γ	=	Unit weight of backfill, a value of 21 kN/m ³ may be assumed
h	=	Depth to point of interest in metres
q	=	Equivalent value of surcharge on the ground surface in kPa

The above expression assumes that the perimeter drainage system prevents the build up of any hydrostatic pressure behind the wall.

5.7 STORMWATER MANAGEMENT PONDS

It is understood that three stormwater management ponds are proposed in the following areas closest to boreholes advanced on the site by DS: **Pond 1** will be located in the area of BHH13 to BH16 (drilled by Soil Engineers Ltd.) and BH22-33 (drilled by DS); **Pond 2A** (will be located in closest proximity to BH20-7, however BH20-7 is a significant distance away from the Pond 2A) and **Interim Pond 2** will be located in the area of BH20-6, BH20-8, BH22-13 and BH22-14.

Five boreholes (BH13 to BH16 by Soil Engineers Ltd. (Soil-Eng.) and BH22-33 by DS) were carried out in the area of **Pond 1**. Borehole BH14 by Soil-Eng. was terminated at Elev. 261.2 m, i.e., 0.2 m above the base of the proposed pond and all Soil-Eng.'s boreholes indicated the presence of a surficial topsoil and weathered zone, followed by silty clay till for the extent of the boreholes, i.e., to Elev. 259.2 to 261.2 m. The water levels in the open boreholes and/or monitoring wells were noted as dry.

For **Pond 1**, BH22-33 by DS indicated that below a surficial topsoil and weathered disturbed layer, silty clay till was encountered and extended to Elev. 265.7 m and followed by sandy silt till which extended to Elev. 261.9 m. The sandy silt till was followed by a wet sandy gravel deposit to Elev. 258.9 and then wet silty sand to sandy silt which extended to the depth investigated, i.e., depth of 11.3 m below ground surface (Elev. 256.7 m). The groundwater level measured on March 21, 2023, in the monitoring well in BH22-33 was at Elev. 264.8 m. The measured groundwater in BH22-33 was **3.8 m** above the base of the pond.

BH20-7 was carried out by DS in closest proximity to **Pond 2A**. At BH20-7, surficial topsoil and shallow fill layers were underlain by clayey silt to silty clay till deposits which extended to the depth of investigation, i.e., a depth of 11.3 m below ground surface (Elev. 250.4 m). The measured groundwater level in the monitoring well installed in BH20-7 was at Elev. 255.2 m. Additional

boreholes should be carried out within the footprint of the proposed pond to obtain more specific subsurface information for the pond.

BH20-6, BH20-8, BH22-13, and BH22-14 were drilled by DS at or near **Interim Pond 2**. At BH20-6 and BH22-14, surficial topsoil underlain by weathered/disturbed native or fill materials were contacted at the surface of the boreholes. These materials were in-turn underlain by silty clay to clayey silt till which extended to the depth of investigation, i.e., depth of 8.2 and 12.8 m (Elev. 262.8 and 258.6 m) below ground surface, in BH20-6 and BH22-14, respectively. At BH20-8 and BH22-13, the surficial topsoil and weathered/disturbed native or fill materials were underlain by a silt deposit that extended to Elev. 271.2 and 268.5 m and followed by wet sandy silt to silty sand deposit which extended to the depth of investigation, i.e., depth of 12.8 and 8.2 m (Elev. 269.0 and 263.3 m) below ground surface.

The groundwater levels measured on March 21, 2023, in the monitoring wells installed in BH20-6, BH22-13 and BH22-14 were at Elev. 270.7, 270.7 and 271.1 m, respectively. The groundwater levels were above the base of the pond.

Where the pond bottom and sides consist of cohesionless (sandy) soils, a clay liner will be required to retain water in the pond. The required thickness and uplift stability of the liner must be estimated and analyzed when the design information for the pond is available.

Dewatering system will be required for excavations below groundwater levels, subject to depth of excavations and type of soils encountered, to be confirmed during design stage.

Anti-seepage collars should be considered for outlet works that direct flow out of the SWM pond as these outlet works are subject to hydraulic heads directly from the pond. The provision of anti-seepage collars would increase the seepage path along the outlet works and therefore reduce the quantity of potential seepage.

Further preliminary detailed geotechnical discussion based on provided design details/elevations for the ponds will be issued under separate cover.

6. GENERAL COMMENTS AND LIMITATIONS OF REPORT

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

This report is intended solely for the Client named. The material in it reflects our best judgment in light of the information available to DS at the time of preparation. Unless otherwise agreed in

writing by DS, it shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. No portion of this report may be used as a separate entity, it is written to be read in its entirety.

The conclusions and recommendations given in this report are based on information determined at the test hole locations. The information contained herein in no way reflects on the environment aspects of the project, unless otherwise stated. Subsurface and groundwater conditions between and beyond the test holes may differ from those encountered at the test hole locations, and conditions may become apparent during construction, which could not be detected or anticipated at the time of the site investigation. The benchmark and elevations used in this report are primarily to establish relative elevation differences between the test hole locations and should not be used for other purposes, such as grading, excavating, planning, development, etc.

The design recommendations given in this report are applicable only to the project described in the text and then only if constructed substantially in accordance with the details stated in this report.

The comments made in this report on potential construction problems and possible methods are intended only for the guidance of the designer. The number of test holes may not be sufficient to determine all the factors that may affect construction methods and costs. For example, the thickness of surficial organic soil/topsoil or fill layers may vary markedly and unpredictably.

The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the subsurface conditions may affect their work. This work has been undertaken in accordance with normally accepted geotechnical engineering practices.

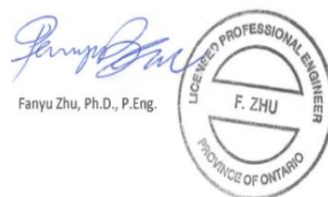
Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. DS accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

We trust that the information contained in this report is satisfactory. Should you have any questions, please do not hesitate to contact this office.

DS CONSULTANTS LTD



Osbert (Ozzie) Benjamin, P.Eng.
Senior Geotechnical Engineer

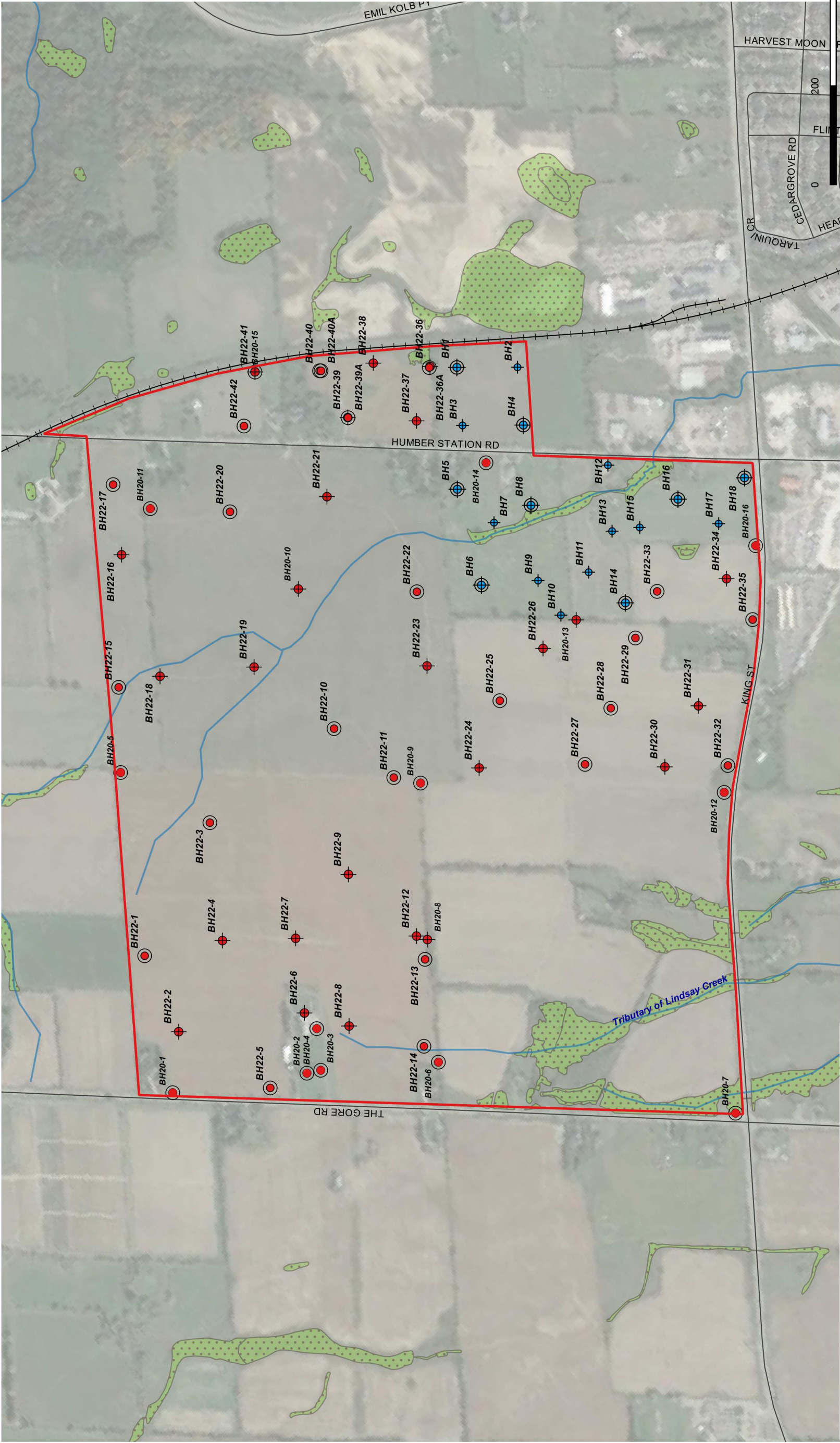


Fanyu Zhu, Ph.D., P.Eng.
Principal Engineer



Shabbir Bandukwala, M.Eng., P.Eng.
Principal Engineer

Drawings



Legend

- Caledon Station Property Boundary
- Argo King I & Argo King II
- Borehole
- Monitoring Well
- Borehole (Soil Eng)
- Monitoring Well (Soil Eng)
- Wetland

DS CONSULTANTS LTD.

6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca



Client:

CALEDON COMMUNITY PARTNERS
c/o GLEN SCHNARR & ASSOCIATES

Project:

GEOTECHNICAL INVESTIGATION
Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON

Title:

BOREHOLE AND MONITORING WELL LOCATIONS

Size:

11x17

Approved By:

O.B

Drawn By:

As Shown

Date:

May 2023

Scale:

20-169-104

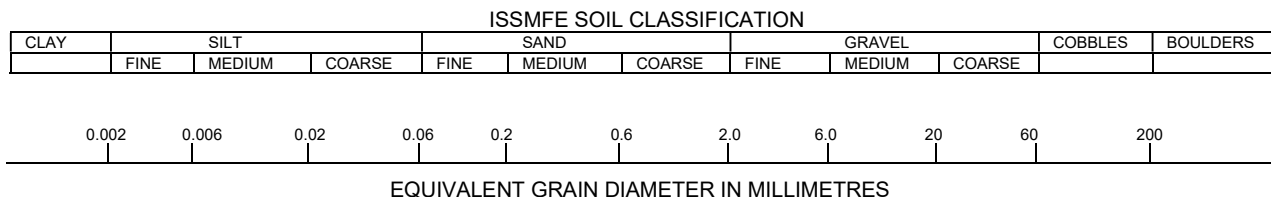
Drawing No.:

1

Image/Map Source: Google Satellite Image

Drawing 1A: Notes On Sample Descriptions

- All sample descriptions included in this report generally follow the Unified Soil Classification. Laboratory grain size analyses provided by DSCL also follow the same system. Different classification systems may be used by others, such as the system by the International Society for Soil Mechanics and Foundation Engineering (ISSMFE). Please note that, with the exception of those samples where a grain size analysis and/or Atterberg Limits testing have been made, all samples are classified visually. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.



CLAY (PLASTIC) TO	FINE	MEDIUM	CRS.	FINE	COARSE
SILT (NONPLASTIC)	SAND			GRAVEL	

UNIFIED SOIL CLASSIFICATION

- Fill:** Where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc., none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional preliminary geotechnical site investigation.
- Till:** The term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858060.2 E 597225.82

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug/31/2022
REF. NO.: 20-169-104
ENCL NO.: 2

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT MOISTURE CONTENT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			GR	SA	SI	CL
279.0	TOPSOIL: 300mm							20	40	60	80	100								
278.9	WEATHERED/DISTURBED		1	SS	9															
0.3	NATIVE: clayey silt to silty clay, trace sand, trace gravel, trace rootlets, brown, moist, stiff																			
278.2	SILTY CLAY TO CLAYEY SILT		2	SS	24		278													
0.8	TILL: trace to some sand, trace gravel, brown, moist, very stiff to hard																			
	sandy silt till layer @2.3m		3	SS	28		277													
			4	SS	32															
			5	SS	31															
	grey below 4.6m																			
			6	SS	34		274													
272.7	SANDY SILT TILL: trace clay, trace gravel, grey, very moist, very dense		7	SS	65		273													
6.3																				
271.4	SANDY SILT TO SILTY SAND: trace clay, trace gravel, grey, wet, very dense		8	SS	78		272													
7.6																				
270.8																				
8.2	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 8, 2022 3.4 Mar. 21, 2023 2.62																			

W. L. 276.4 m
Mar 21, 2023

W. L. 275.6 m
Sep 08, 2022

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857899.68 E 597174.15

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/31/2022
REF. NO.: 20-169-104
ENCL NO.: 3

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)										WATER CONTENT (%)		
								○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × LAB VANE										-----○-----		
280.2								20	40	60	80	100								
279.9	TOPSOIL: 300mm		1	SS	8		280							○						
0.3	WEATHERED/DISTURBED																			
279.4	NATIVE: sandy silt, clayey, trace																			
0.8	rootlets, trace gravel, brown, moist, loose		2	SS	13		279							○						
278.7	SILTY CLAY TO CLAYEY SILT																			
1.5	TILL: some sand to sandy, trace rootlets, trace gravel, brown, moist, stiff		3	SS	15		278							○						
	SILTY SAND TO SANDY SILT: trace clay, brown, moist, compact to dense		4	SS	36									○						
			5	SS	34		277							○						
							276													
	wet, trace gravel below 4.6m		6	SS	45		275							○						
			7	SS	44		274							○						
							273													
	grey below 7.8m		8	SS	35		272							○						
	compact below 9.1m		9	SS	19		271							○						
							270													
269.5																				
10.7	SAND: some silt to silty, trace clay, grey, wet, compact		10	SS	16		269							○						
268.0																				
12.2	SANDY SILT TILL: some clay, trace gravel, grey, wet, very dense		11	SS	53		268							○						
267.4																				
12.8	END OF BOREHOLE: Notes: 1) Water at depth of 4.5m during drilling.																			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-104 GEO COPY.GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858172.91 E 597505.29

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug/30/2022
REF. NO.: 20-169-104
ENCL NO.: 4

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)		
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)	
								20 40 60 80 100							W _P W W _L	
								○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE								
274.8	TOPSOIL: 250mm		1	SS	9		W. L. 274.5 m Mar 21, 2023								GR SA SI CL	
274.2	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace sand, trace gravel, trace rootlets, brown, moist, stiff		2	SS	20											
0.6	SILTY CLAY TO CLAYEY SILT TILL: trace sand, trace gravel, brown, moist, very stiff		3	SS	23		W. L. 273.4 m Sep 08, 2022									
			4	SS	28											
271.6			5	SS	30											
3.2	SANDY SILT TILL: some clay to clayey, trace gravel, grey, moist, compact to dense		6	SS	21											
			7	SS	28											
267.2			8	SS	42											
7.6	SANDY SILT: trace clay, trace gravel, grey, wet, dense to very dense		9	SS	59											
265.1																
9.7	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 08, 2022 1.42 Mar. 21, 2023 0.32															

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857977.59 E 597363.66

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/30/2022
REF. NO.: 20-169-104
ENCL NO.: 5

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			
279.8	TOPSOIL: 200mm		1	SS	9		279	20	40	60	80	100					GR SA SI CL
279.8	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace sand, trace gravel, trace rootlets, brown, moist, stiff		2	SS	26		279										
278.8	SILTY CLAY TO CLAYEY SILT TILL: trace sand, trace gravel, brown, moist, very stiff to hard sand pocket@1.5m		3	SS	50/130mm		278										
277.5	SAND: trace to some silt, trace gravel, brown, moist, dense		4	SS	36		277										
			5	SS	41		276										
275.2	SANDY SILT TO SILT: trace clay, brown, wet, compact to dense		6	SS	25		275										
			7	SS	39		274										
			8	SS	19		273										
			9	SS	41		272										
			10	SS	45		271										
268.5	grey below 10.7m						270										
11.3	END OF BOREHOLE: Notes: 1) Water at depth of 4.6m during drilling.						269										

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857690.79 E 597235.89

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug/31/2022
REF. NO.: 20-169-104
ENCL NO.: 6

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m										
								SHEAR STRENGTH (kPa)		WATER CONTENT (%)					
								○ UNCONFINED ● QUICK TRIAXIAL	+ FIELD VANE & Sensitivity × LAB VANE						
279.7	TOPSOIL: 320mm		1	SS	10										
279.4	WEATHERED/DISTURBED														
0.3	NATIVE: clayey silt, some sand to		2	SS	45		279								
278.9	sandy, trace rootlets, trace gravel,														
1	brown, moist, stiff														
0.8	SILTY CLAY TO CLAYEY SILT		3	SS	30		278								
	TILL: trace sand, trace gravel,														
	brown, moist, hard		4	SS	37		277								
276.6	SANDY SILT: trace clay, brown,		5	SS	82		276								
3.1	moist, dense to very dense														
	wet below 4.6m		6	SS	46		275								
273.6	SILT: some clay, trace sand, silty		7	SS	40		274								
6.1	clay pockets, trace gravel, brown,						W. L. 273.9 m								
	wet, dense						Mar 21, 2023								
	some sand to sandy@7.6m		8	SS	48		W. L. 273.2 m								
							Sep 08, 2022								
271.5							272								
8.2	END OF BOREHOLE:														
	Notes:														
	1) 50mm dia. monitoring well														
	installed upon completion.														
	2) Water Level Readings:														
	Date: Water Level(mbgl):														
	Sept. 08, 2022 6.53														
	Mar. 21, 2023 5.82														

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH
NOTES

+ 3 , × 3 : Numbers refer
to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857757.24 E 597389.06

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/31/2022
REF. NO.: 20-169-104
ENCL NO.: 7

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT MOISTURE LIMIT CONTENT			POCKET PEN (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				WATER CONTENT (%)					
								○ UNCONFINED ● QUICK TRIAXIAL	+ FIELD VANE & Sensitivity × LAB VANE	20 40 60 80 100	W _p	W	W _L				
278.0	TOPSOIL: 380mm																
277.6	WEATHERED/DISTURBED NATIVE: sandy silt, trace clay, trace gravel, trace rootlets, brown, moist, loose SILTY SAND TO SANDY SILT: trace clay, brown, moist, compact to dense wet below 4.6m		1	SS	9							○	○				
277.2			2	SS	10							○					
276.8			3	SS	25							○					
276.4			4	SS	38							○					
276.0			5	SS	45							○					
275.6																	
275.2																	
274.8																	
274.4																	
274.0																	
273.6			6	SS	33									○			
273.2																	
272.8																	
272.4																	
272.0		7	SS	23									○				
271.6																	
271.2																	
270.8																	
270.4		8	SS	19									○				
270.0																	
269.6																	
269.2		9	SS	18									○				
268.8																	
268.4																	
268.0																	
267.6																	
267.2		10	SS	26									○				
266.8																	
266.4																	
266.0																	
265.6																	
265.2	greyish brown below 12.2m		11	SS	31								○				
12.8	END OF BOREHOLE: Notes: 1) Water at depth of 4.6m during drilling.																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-104 GEO COPY.GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857881.68 E 597477

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/30/2022
REF. NO.: 20-169-104
ENCL NO.: 8

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL		
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)	
								○ UNCONFINED ● QUICK TRIAXIAL	+ FIELD VANE & Sensitivity × LAB VANE	20 40 60 80 100	W _P				W NATURAL MOISTURE CONTENT	W _L
279.8																
279.8	0.3	TOPSOIL: 300mm		1	SS	7										
279.0	0.8	WEATHERED/DISTURBED NATIVE: silty clay, trace sand, trace rootlets, trace gravel, brown, moist, firm		2	SS	10										
278.3	1.5	SANDY SILT: some clay, brown, moist, compact SILT: some sand to sandy, trace clay, trace gravel, brown, very moist, compact to dense occasional silty clay pockets, wet below 2.3m silty clay layer@3.1m		3	SS	24										
				4	SS	31										
				5	SS	31										
				6	SS	39										
				7	SS	26										
				8	SS	43										
				9	SS	31										
				10	SS	32										
				11	SS	30										
267.0																
12.8		END OF BOREHOLE: Notes: 1) Water at depth of 2.3m during drilling.														

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure



PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857677.07 E 597438.67

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep/01/2022
REF. NO.: 20-169-104
ENCL NO.: 9

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)		
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)										WATER CONTENT (%)	
ELEV DEPTH								○ UNCONFINED ● QUICK TRIAXIAL	+ FIELD VANE & Sensitivity	× LAB VANE	20							40	60
277.0																			
276.8																			
0.2																			
276.2																			
0.8																			
																</			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES



+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-104 GEO COPY.GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857907.13 E 597643.95

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep/02/2022
REF. NO.: 20-169-104
ENCL NO.: 10

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL				
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)			
								20 40 60 80 100							PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	
						○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE												
278.2	TOPSOIL: 250mm FILL: clayey silt to silty clay, some sand to sandy, trace gravel, trace rootlets, organic staining, dark brown to brown, moist, firm to stiff (possible weathered/disturbed native)		1	SS	7		278											
277.9			2	SS	11		277											
0.3			3	SS	9													
275.9	SILT: some sand to sandy, trace clay, brown, moist, dense to very dense wet below 4.6m	4	SS	31	276													
2.3		5	SS	53	275													
		6	SS	53	274													
					273													
272.1	SANDY SILT TO SILTY SAND: trace clay, brown, wet, dense		7	SS	42		272											
6.1							271											
			8	SS	38		270											
			9	SS	38	269												
			10	SS	43													
268.1	END OF BOREHOLE: Notes: 1) Water at depth of 4.6m during drilling.																	
10.1																		

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation

CLIENT: Caledon Community Partners

PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON

DATUM: Geodetic

BOREHOLE LOCATION: See Drawing 1 N 4858145.98 E 597819.82

DRILLING DATA

Method: Hollow Stem Auger

Diameter: 200mm

Date: Sep/06/2022

REF. NO.: 20-169-104

ENCL NO.: 11

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT MOISTURE CONTENT LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)					
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				WATER CONTENT (%)					GR	SA	SI	CL		
								20 40 60 80 100				10 20 30										
								○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × LAB VANE				W _P W W _L										
269.9	TOPSOIL: 280mm		1	SS	8	W. L. 269.7 m Mar 21, 2023																
0.3	WEATHERED/DISTURBED																					
269.1	NATIVE: clayey silt to silty clay, trace to some sand, trace gravel, trace rootlets, brown, moist, stiff		2	SS	15	269																
0.8																						
268.4	SILTY CLAY TILL: trace to some sand, trace gravel, brown, moist, very stiff		3	SS	29	W. L. 268.6 m Sep 08, 2022																
1.5																						
	SANDY SILT TILL: trace to some clay, trace gravel, brown, moist, compact to very dense		4	SS	71	268																
			5	SS	61	267																
						266																
	grey, wet below 4.6m		6	SS	56	265																
						264																
263.8			7	SS	38	263																
6.1	SANDY SILT TO SILTY SAND: trace clay, trace gravel, grey, wet, compact to dense																					
			8	SS	37	262																
						261																
			9	SS	23	260																
259.6			10	SS	31																	
10.3	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 08, 2022 1.27 Mar.21, 2023 0.22																					

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

**GRAPH
NOTES**

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857991.3 E 597843.47

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep/06/2022
REF. NO.: 20-169-104
ENCL NO.: 12

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)		
								20	40	60	80				100	W _p	W
272.9																	
272.0	0.3	TOPSOIL: 250mm	1	SS	8												
272.1	0.8	WEATHERED/DISTURBED NATIVE: silty clay, trace sand, trace gravel, trace rootlets, brown, moist, stiff	2	SS	21												
		SILTY CLAY TILL: trace sand, trace gravel, brown, moist, very stiff to hard	3	SS	32												
270.2	2.7		4	SS	40												
		SANDY SILT TILL: clayey, trace gravel, brown, moist, dense to very dense	5	SS	50/ 50mm												
268.3	4.6		6	SS	54												
			7	SS	44												
			8	SS	14												
			9	SS	37												
262.6			10	SS	53												
10.3		END OF BOREHOLE: Notes: 1) Monitoring well installed 1 m away from borehole. 2) 50mm dia. monitoring well installed upon completion. 3) Water Level Readings: Date: Water Level(mbgf): Sept. 08, 2022 3.6 Mar. 21, 2023 3.11															

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857721.12 E 597662.19

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep/02/2022
REF. NO.: 20-169-104
ENCL NO.: 13

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			
277.7								20 40 60 80 100									GR SA SI CL
277.7	TOPSOIL: 300mm		1	SS	10		277										
0.3	WEATHERED/DISTURBED NATIVE: sandy silt to silt, trace clay, trace gravel, trace rootlets, dark brown to brown, moist, compact		2	SS	18		276										
276.7	SILT: some sand to sandy, trace clay, trace gravel, brown, moist, compact to very dense clayey@2.3m		3	SS	33		275										
2			4	SS	59		274										
3	wet below 3.1m		5	SS	75		273										
4			6	SS	66		272										
5			7	SS	40		271										
6			8	SS	38		270										
7			9	SS	33		269										
270.1	SANDY SILT TO SILTY SAND: trace clay, brown, wet, compact to dense		10	SS	45		268										
8			11	SS	14		267										
9							266										
10	grey below 10.7m						265										
264.9	END OF BOREHOLE: Notes: 1) Water at depth of 3.1m during drilling.																
12.8																	

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857674.46 E 597643.49

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep/01/2022
REF. NO.: 20-169-104
ENCL NO.: 14

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)										
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)									
								○ UNCONFINED	● QUICK TRIAXIAL	+	×				FIELD VANE & Sensitivity LAB VANE	W _P	W	W _L						
276.1								20	40	60	80	100		10	20	30			GR	SA	SI	CL		
276.0	0.3	TOPSOIL: 250mm		1	SS	9									○									
275.2	0.9	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace rootlets, trace sand, trace gravel, brown, moist, stiff		2	SS	15									○									
		SILT: trace sand, trace clay, trace gravel, brown, moist, compact to very dense		3	SS	19									○									
				4	SS	70									○									
				5	SS	72									○									
		wet below 4.6m		6	SS	52									○						0	3	93	4
				7	SS	34									○									
268.5	7.6	SANDY SILT: trace clay, brown, wet, compact to dense		8	SS	35									○									
		grey below 9.1m		9	SS	21									○						0	31	64	5
				10	SS	46									○									
				11	SS	37									○									
263.3																								
12.8		END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 08, 2022 6.03 Mar. 21, 2023 5.43																						

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-104 GEO COPY.GPJ DS.GDT 5/16/23



PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857544.96 E 597523.95

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep/01/2022
REF. NO.: 20-169-104
ENCL NO.: 15

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT		POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			20 40 60 80 100	20 40 60 80 100	W _p W W _L	WATER CONTENT (%)			
271.4														GR SA SI CL
270.9	TOPSOIL: 300mm		1	SS	7		271.1 m							
0.3	WEATHERED/DISTURBED						Mar 21, 2023							
270.4	NATIVE: clayey silt, trace rootlets, trace sand, trace gravel, brown, moist, firm		2	SS	9									
1.0	SILTY CLAY TO CLAYEY SILT													
	TILL: some sand to sandy, trace gravel, brown, moist, stiff to hard		3	SS	34		270							
	sandy below 2.3m		4	SS	42		269							
	grey below 3.4m		5	SS	48		268							
			6	SS	22		267							
			7	SS	26		266							
			8	SS	28		265							
			9	SS	19		264							
			10	SS	16		263							
			11	SS	12		262							
258.6	moist to very moist @12.2m						261							
12.8	END OF BOREHOLE:						260							
	Notes:													
	1) 50mm dia. monitoring well installed upon completion.													
	2) Water Level Readings:													
	Date: Water Level(mbgl):													
	Sept. 08, 2022 11.9													
	Mar 21, 2023 0.33													

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858500.39 E 597551.22

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug/29/2022
REF. NO.: 20-169-104
ENCL NO.: 16

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC NATURAL LIQUID LIMIT MOISTURE LIMIT CONTENT		POCKET PEN (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)		WATER CONTENT (%)				
								20 40 60 80 100	20 40 60 80 100	10 20 30				
270.2														
269.9	TOPSOIL: 300mm		1	SS	10									
0.3	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace rootlets, trace gravel, trace sand, brown, moist, stiff to firm		2	SS	6									
268.7			3	SS	25									
1.5	SILTY CLAY TO CLAYEY SILT TILL: trace sand, trace gravel, brown, moist, very stiff to hard		4	SS	38									
			5	SS	24									
	grey below 4.6m		6	SS	22									
			7	SS	21									
262.6														
7.6	SANDY SILT TILL: trace to some clay, trace gravel, grey, moist, very dense		8	SS	57									
262.0														
8.2	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 08, 2022 1.93													

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858695.96 E 597735.36

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug/29/2022
REF. NO.: 20-169-104
ENCL NO.: 17

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			
268.8								20	40	60	80	100					
268.8	TOPSOIL: 250mm		1	SS	9												GR SA SI CL
0.3	WEATHERED/DISTURBED																
268.0	NATIVE: clayey silt, some sand, trace gravel, brown, moist, stiff		2	SS	17		268										
0.8	SILTY CLAY TO CLAYEY SILT																
	TILL: trace sand, trace gravel, brown, moist, very stiff to hard		3	SS	20		267										
			4	SS	36		266										
	grey below 3.5m		5	SS	27		265										
			6	SS	27		264										
			7	SS	21		263										
							262										
	silty sand pockets @ 7.6m		8	SS	25		261										
8.2	END OF BOREHOLE: Notes: 1) Borehole wet at the bottom upon completion.																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858813.11 E 597817.61

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug/29/2022
REF. NO.: 20-169-104
ENCL NO.: 18

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m		SHEAR STRENGTH (kPa)		W _p	W	W _L			
ELEV DEPTH							20 40 60 80 100	20 40 60 80 100						GR SA SI CL
269.0														
268.9	TOPSOIL: 300mm		1	SS	8									
0.3	WEATHERED/DISTURBED													
268.2	NATIVE: sandy silt, trace to some clay, trace rootlets, trace gravel, brown, moist, loose		2	SS	23									
0.8	SILTY CLAY TO CLAYEY SILT													
	TILL: trace sand, trace gravel, brown, moist, very stiff to hard		3	SS	27									
			4	SS	33									
			5	SS	31									
	grey below 4.9m		6	SS	26									
	possible boulder@6.1m		7	SS	50/75mm									
			8	SS	24									
260.8	END OF BOREHOLE:													
8.2	Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 08, 2022 2.26 Mar. 21, 2023 -0.71													

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure



PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858460.95 E 597628.58

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug/29/2022
REF. NO.: 20-169-104
ENCL NO.: 19

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)					
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)				
								20	40	60	80				100	W _p	W	W _L	GR
270.0																			
269.9	0.3	TOPSOIL: 250mm	1	SS	3														
269.2	0.8	WEATHERED/DISTURBED NATIVE: clayey silt, some sand, trace rootlets, trace gravel, brown, moist, soft	2	SS	21														
		SILTY CLAY TO CLAYEY SILT TILL: trace sand, trace gravel, brown, moist, very stiff to hard	3	SS	21														
			4	SS	34														
			5	SS	31														
		grey below 4.6m	6	SS	18														
263.9	6.1	CLAYEY SILT: trace sand, grey, moist, very stiff	7	SS	29														
262.4	7.6	SAND AND SILT TILL: some clay, some gravel, grey, moist, dense	8	SS	31														
261.8	8.2	END OF BOREHOLE: Notes: 1) Borehole wet at the bottom upon completion.																	

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure



PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858347.09 E 597782.77

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/30/2022
REF. NO.: 20-169-104
ENCL NO.: 20

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			
269.0								20	40	60	80	100					
268.0	TOPSOIL: 280mm		1	SS	6												GR SA SI CL
0.3	WEATHERED/DISTURBED																
268.2	NATIVE: clayey silt, trace sand, trace rootlets, trace gravel, brown, moist, firm		2	SS	9		268										
0.8	SILTY CLAY TO CLAYEY SILT																
	TILL: trace sand, trace gravel, brown, moist, stiff to hard trace fine rootlets above 0.9m		3	SS	23		267										
			4	SS	31		266										
			5	SS	32		265										
							264										
	sandy, grey below 4.6m		6	SS	24		263										
			7	SS	24		262										
							261										
8.2	END OF BOREHOLE: Notes: 1) Water at depth of 7.3 during drilling.		8	SS	20												

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858613.57 E 597956.89

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug/29/2022
REF. NO.: 20-169-104
ENCL NO.: 21

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL		
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)										WATER CONTENT (%)	
								○ UNCONFINED ● QUICK TRIAXIAL	+ FIELD VANE & Sensitivity	× LAB VANE									
269.4																			
269.2																			
0.3																			
268.6																			
1	0.8																		

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858504.78 E 598123.48

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/26/2022
REF. NO.: 20-169-104
ENCL NO.: 22

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)					
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)		W _p	W	W _L			WATER CONTENT (%)				GR	SA
267.4								20	40	60	80	100								
267.0	TOPSOIL: 250mm		1	SS	6															
0.3	WEATHERED/DISTURBED																			
266.6	NATIVE: sandy silt, trace rootlets, trace clay, trace gravel, brown, moist, loose		2	SS	20															
0.8	SILTY CLAY TILL: some sand, trace gravel, brown, moist, very stiff to hard		3	SS	18															
			4	SS	30															
			5	SS	33															
	grey below 4.6m		6	SS	16															
			7	SS	16															
			8	SS	19															
259.2	END OF BOREHOLE: Notes: 1) Borehole wet at the bottom upon completion.																			
8.2																				

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, × 3: Numbers refer to Sensitivity

○ = 3% Strain at Failure

DRILLING DATA

Method: Hollow Stem Auger	
Diameter: 200mm	REF. NO.: 20-169-104
Date: Aug/26/2022	ENCL NO.: 23

GRAPH NOTES + 3, X 3: Numbers refer to Sensitivity ○ ● = 3% Strain at Failure



PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858114.18 E 598044.93

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/26/2022
REF. NO.: 20-169-104
ENCL NO.: 24

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)											WATER CONTENT (%)		
								○ UNCONFINED	● QUICK TRIAXIAL	+	FIELD VANE & Sensitivity	×							LAB VANE		
270.6							20	40	60	80	100							GR	SA	SI	CL
270.0	TOPSOIL: 250mm		1	SS	5									○							
269.8	WEATHERED/DISTURBED NATIVE: silty clay, trace rootlets, trace sand, trace gravel, brown, moist, firm		2	SS	23									○							
269.8	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, very stiff to hard		3	SS	24									○							
			4	SS	29									○							
			5	SS	30									○							
	grey below 4.6m		6	SS	21									○							
264.5	SANDY SILT TILL: clayey, trace gravel, grey, moist, compact to very dense		7	SS	27									○							
262.5			8	SS	50/ 100mm									○							
8.1	END OF BOREHOLE: Notes: 1) Borehole wet at the bottom upon completion.																				

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, X 3: Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857889.88 E 597985.22

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/25/2022
REF. NO.: 20-169-104
ENCL NO.: 25

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)						WATER CONTENT (%)			
273.1	TOPSOIL: 200mm						273	20 40 60 80 100						10 20 30			
272.9	WEATHERED/DISTURBED NATIVE: silty clay, trace sand, trace rootlets, brown, moist, stiff		1	SS	12		273	20 40 60 80 100						10 20 30			
272.7	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, stiff to hard		2	SS	32		272	20 40 60 80 100						10 20 30			
272.0			3	SS	36		271	20 40 60 80 100						10 20 30			
271.0			4	SS	35		270	20 40 60 80 100						10 20 30			
270.0			5	SS	38		269	20 40 60 80 100						10 20 30			
268.5	SILT: some clay, some sand, trace gravel, grey, moist, dense		6	SS	30		268	20 40 60 80 100						10 20 30			
267.0	CLAYEY SILT TO SILTY CLAY TILL: trace sand, trace gravel, grey, moist, very stiff		7	SS	20		267	20 40 60 80 100						10 20 30			
266.0			8	SS	17		266	20 40 60 80 100						10 20 30			
265.0							265	20 40 60 80 100						10 20 30			
264.0	sandy @9.1m		9	SS	17		264	20 40 60 80 100						10 20 30			
262.7	END OF BOREHOLE: Notes: 1) Borehole wet at the bottom upon completion.		10	SS	16		263	20 40 60 80 100						10 20 30			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure



PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857963.09 E 598107.54

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/25/2022
REF. NO.: 20-169-104
ENCL NO.: 26

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)					
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)		GR	SA	SI	CL
270.9	TOPSOIL: 300mm																			
0.3	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace rootlets, trace sand, trace gravel, brown, moist, stiff		1	SS	10															
270.1			2	SS	28															
0.8	SILTY CLAY TILL: some sand, trace gravel, brown, moist, very stiff to hard		3	SS	29															
			4	SS	31															
			5	SS	30															
			6	SS	18															
			7	SS	34															
263.3	SILTY SAND: trace clay, silt seams, grey, wet, compact to very dense		8	SS	57															
7.6																				
			9	SS	22															
259.6	END OF BOREHOLE:		10	SS	37															
11.3	Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 08, 2022 3.1 Mar. 21, 2023 2.27																			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure



PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857983.06 E 598243.39

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/24/2022
REF. NO.: 20-169-104
ENCL NO.: 27

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)		WATER CONTENT (%)					GR	SA	SI	CL
ELEV	DEPTH							20 40 60 80 100	20 40 60 80 100	W _P	W	W _L						
269.0	0.0																	
268.8	0.2																	
268.2	0.8		1	SS	9		268											
			2	SS	28													
			3	SS	22		267											
			4	SS	39													
			5	SS	34		266											
							265											
			6	SS	14		264											
							263											
			7	SS	31		262											
							261											
			8	SS	53													
							260											
259.9			9	SS	50/30mm													
259.6																		
9.4																		

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857751.7 E 598149.64

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/19/2022
REF. NO.: 20-169-104
ENCL NO.: 28

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)		
								○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × LAB VANE							W _P	W	W _L
271.2								20	40	60	80	100					
270.0	TOPSOIL: 230mm		1	SS	12		271										
0.2	WEATHERED/DISTURBED																
270.4	NATIVE: clayey silt to silty clay, some sand to sandy, trace rootlets,		2	SS	23		270										
0.8	trace gravel, brown, moist, stiff																
269.5	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, very stiff		3	SS	35		269										
1.7	SANDY SILT: trace clay, trace gravel, brown, moist, dense																
			4	SS	46												
	clayey seams @3.1m		5	SS	44		W. L. 268.2 m Mar 21, 2023										
266.6	grey @4.5m		6	SS	29		267 W. L. 266.9 m Sep 08, 2022										
4.6	SILT: some clay to clayey, some sand, grey, very moist, compact						266										
	wet below 6.1m		7	SS	26		265										
							264										
263.6			8	SS	20		263										
7.6	SANDY SILT: trace clay, grey, wet, compact																
			9	SS	19		262										
							261										
			10	SS	17		260										
259.0			11	SS	disturbed		259										
12.2	SILTY SAND: trace clay, grey, wet, (disturbed)																disturbed sample
258.4																	
12.8	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 08, 2022 4.25 Mar. 21, 2023 2.96																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-104 GEO COPY.GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857801.25 E 598264.59

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/19/2022
REF. NO.: 20-169-104
ENCL NO.: 29

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)										WATER CONTENT (%)		
								○ UNCONFINED	● QUICK TRIAXIAL	+ FIELD VANE & Sensitivity	× LAB VANE							W _P	W	W _L
270.9																				
270.0	TOPSOIL: 200mm		1	SS	13															
270.1	WEATHERED/ DISTURBED NATIVE: clayey silt, some sand to sandy, trace gravel, trace rootlets, brown, moist, stiff		2	SS	30															
268.6	SILTY CLAY TO CLAYEY SILT TILL: trace sand, trace gravel, brown, moist, hard sandy@1.5m		3	SS	55															
267.8	SANDY SILT TILL: trace clay, trace to some gravel, brown, moist, dense		4	SS	44															
265.9	SANDY SILT: trace clay, brown, very moist to wet, very dense		5	SS	72															
263.3	SILT: some clay to clayey, trace sand, trace to some gravel, grey, very moist to wet, dense to very dense		6	SS	56															
259.6	SANDY SILT: trace clay, grey, wet, compact to dense		8	SS	37															
			9	SS	29															
			10	SS	14															
11.3	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 08, 2022 4.81 Mar. 21, 2023 3.68																			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857873.47 E 598396.84

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/23/2022
REF. NO.: 20-169-104
ENCL NO.: 30

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)		
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)										WATER CONTENT (%)	
								20	40	60	80							100	10
						○ UNCONFINED + FIELD VANE & Sensitivity													
						● QUICK TRIAXIAL × LAB VANE													
268.9																			
268.0	TOPSOIL: 250mm		1	SS	10														
0.3	WEATHERED/DISURBED																		
268.1	NATIVE: silty clay, trace sand,		2	SS	26														
0.8	trace gravel, trace rootlets, brown,																		
	moist, stiff																		
	SILTY CLAY TO CLAYEY SILT		3	SS	26														
	TILL: trace sand, trace gravel,																		
	brown, moist, very stiff to hard																		
	sandy silt till lenses below 2.3m		4	SS	34														
265.7																			
3.2	SAND: trace silt, trace gravel,		5	SS	36														
	orange brown, moist to wet,																		
	compact to dense																		
	clayey silt pockets, grey, wet@4.6m		6	SS	39														
			7	SS	29														
			8	SS	32														
259.8																			
9.1	SILTY SAND: silt pockets, trace		9	SS	43														
259.2	clay, grey, wet, dense																		
9.7	END OF BOREHOLE:																		
	Notes:																		
	1) 50mm dia. monitoring well																		
	installed upon completion.																		
	2) Water Level Readings:																		
	Date: Water Level(mbgl):																		
	Sept. 08, 2022 3.8																		
	Mar. 21, 2023 2.65																		

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH
NOTES

+ 3 , × 3 : Numbers refer
to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857638.89 E 598267.27

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/23/2022
REF. NO.: 20-169-104
ENCL NO.: 31

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)		
								20 40 60 80 100	○ UNCONFINED	+ FIELD VANE & Sensitivity	● QUICK TRIAXIAL				× LAB VANE	W _p	W
268.3																	
268.0																	
0.3																	
267.5																	
0.8																	
266.0																	
2.3																	
263.7																	
4.6																	
									</								

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

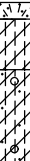

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-104 GEO COPY.GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857685.22 E 598400.58

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/23/2022
REF. NO.: 20-169-104
ENCL NO.: 32

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT			POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)					
268.8	TOPSOIL: 200mm WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace sand, trace gravel, trace organics/rootlets, brown, moist, stiff SILTY CLAY TILL: trace sand, trace gravel, brown, moist, very stiff		1	SS	9	20 40 60 80 100			PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W _L	GR SA SI CL	
268.0			2	SS	24	20 40 60 80 100			10 20 30				
266.5			3	SS	24	20 40 60 80 100			10 20 30				
2.3	SILT: some sand to sandy, trace to some clay, brown, wet, compact to dense grey below 4.6m		4	SS	37	20 40 60 80 100			10 20 30				
			5	SS	38	20 40 60 80 100			10 20 30				
			6	SS	28	20 40 60 80 100			10 20 30				
			7	SS	33	20 40 60 80 100			10 20 30				
			8	SS	37	20 40 60 80 100			10 20 30				
			9	SS	35	20 40 60 80 100			10 20 30				
			10	SS	30	20 40 60 80 100			10 20 30				
11.3	END OF BOREHOLE: Notes: 1) Water at depth of 2.3m during drilling.												

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857555.59 E 598363.99

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/23/2022
REF. NO.: 20-169-104
ENCL NO.: 33

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m		SHEAR STRENGTH (kPa)										WATER CONTENT (%)		
265.3							20	40	60	80	100								
265.0																			
264.5																			
264.0																			
263.3																			
263.0																			
262.0																			
261.0																			
260.0																			
259.0																			
258.0																			
257.0																			
256.0																			
255.0																			
254.6																			
254.0																			
253.1																			
252.5																			
252.8																			

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m		SHEAR STRENGTH (kPa)										WATER CONTENT (%)		
265.3							20	40	60	80	100								
265.0																			
264.5																			
264.0																			
263.3																			
263.0																			
262.0																			
261.0																			
260.0																			
259.0																			
258.0																			
257.0																			
256.0																			
255.0																			
254.6																			
254.0																			
253.1																			
252.5																			
252.8																			

265.3	TOPSOIL: 200mm		1	SS	9											
265.0	WEATHERED/DISTURBED															
264.5	NATIVE: clayey silt to silty clay,		2	SS	19											
264.0	trace sand, trace gravel, trace															
263.3	rootlets, brown mottled, moist, stiff		3	SS	14											
263.0	SILTY CLAY TILL: trace sand,															
262.0	trace gravel, brown mottled, moist,		4	SS	21											
261.0	stiff to very stiff		5	SS	27											
260.0	SANDY SILT: trace clay, trace to															
259.0	some gravel, grey, very moist,		6	SS	38											
258.0	compact to dense															
257.0	wet below 2.3m		7	SS	27											
256.0																
255.0			8	SS	33											
254.6																
254.0			9	SS	23											
253.1																
252.5			10	SS	24											
252.8																
252.0			11	SS	15											
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GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH
NOTES

+ 3 , X 3 : Numbers refer
to Sensitivity

O = 3% Strain at Failure

DS SOIL LOG 20-169-104 GEO COPY.GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857913.51 E 598493.46

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/25/2022
REF. NO.: 20-169-104
ENCL NO.: 34

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							
								20	40	60	80	100			
268.0															
267.0	TOPSOIL: 250mm		1	SS	10										
0.3	WEATHERED/DISTURBED														
267.2	NATIVE: clayey silt to silty clay, trace rootlets, trace sand, trace gravel, brown, moist, stiff		2	SS	12										
0.8	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, stiff to very stiff		3	SS	29										
265.7															
2.3	SANDY SILT TILL: trace clay, trace gravel, occasional cobble, brown, moist, compact to very dense occasional wet sand seams@3.1m		4	SS	41										
			5	SS	25										
			6	SS	50/ 100mm										
261.9															
6.1	SANDY GRAVEL: some silt, brown, wet, compact to dense		7	SS	25										
			8	SS	43										
258.9															
9.1	SILTY SAND TO SANDY SILT: trace clay, grey, wet, compact to dense		9	SS	27										
256.7			10	SS	35										
11.3	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 08, 2022 4.29 Mar. 21, 2023 3.17														

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure



PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857838.45 E 598615.09

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug/24/2022
REF. NO.: 20-169-104
ENCL NO.: 35

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)						
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)						WATER CONTENT (%)			GR	SA	SI	CL
267.0																				
266.8																				
0.3																				
266.2																				
1 0.8																				
265.2																				
2 1.8																				
																	</			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857741.56 E 598599.11

DRILLING DATA

Method: Hollow Stem Auger

Diameter: 200mm

Date: Aug/24/2022

REF. NO.: 20-169-104

ENCL NO.: 36

SOIL PROFILE					
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES	GROUNDWATER CONDITIONS	ELEVATION
			NUMBER	TYPE	"N" BLOWS /0.3 m
266.1	TOPSOIL: 250mm		1	SS	5
265.8	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay,		2	SS	21
265.3	trace sand, trace gravel, trace rootlets, brown, moist, firm		3	SS	18
264.6	SILT CLAY TILL: trace sand, trace gravel, brown, moist, very stiff		4	SS	30
264.0	SANDY SILT TO SILTY SAND: trace clay, brown, wet, compact to dense		5	SS	32
260.0	SAND: some silt, trace silt seams, brown, wet, compact		7	SS	17
258.5	SANDY SILT TO SILTY SAND: trace clay, grey, wet, compact to very dense		9	SS	52
252.5	END OF BOREHOLE:		12	SS	23
Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgf): Sept. 08, 2022 2.23 Mar. 21, 2023 1.23					

DS SOIL LOG 20-169-104 GEO COPY.GPJ DS.GDT 5/16/23

GROUNDWATER ELEVATIONS

	1st	2nd	3rd	4th
Measurement				

GRAPH
NOTES

+ 3, × 3: Numbers refer to Sensitivity

○ $\epsilon = 3\%$ Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858560.88 E 598455.25

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep/07/2022
REF. NO.: 20-169-104
ENCL NO.: 37

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			GR	SA	SI	CL
261.7								20	40	60	80	100								
260.9	TOPSOIL: 250mm		1	SS	7		W. L. 261.6 m													
0.3	WEATHERED/DISTURBED						Mar 21, 2023													
260.9	NATIVE: silty sand, trace rootlets,																			
0.8	trace gravel, brown, moist, loose		2	SS	12															
260.2	SANDY SILT: some clay, trace																			
1.5	gravel, brown, very moist, compact																			
	SILTY CLAY TILL: some sand to		3	SS	10															
	sandy, trace gravel, brown, moist,																			
	stiff to very stiff		4	SS	16															
	grey below 2.3m																			
			5	SS	16															
			6	SS	18															
			7	SS	19															
			8	SS	19															
			9	SS	27															
			10	SS	26															
251.2	END OF BOREHOLE:																			
10.5	Notes: 1) Borehole wet at the bottom upon completion.																			

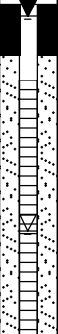
GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation							DRILLING DATA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
CLIENT: Caledon Community Partners							Method: Solid Stem Auger																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON							Diameter: 150mm																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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BOREHOLE LOCATION: See Drawing 1 N 4858560.27 E 598452.63							REF. NO.: 20-169-104																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC LIMIT NATURAL MOISTURE CONTENT			LIQUID LIMIT		POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)					W _P			W				GR	SA	SI	CL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
ELEV DEPTH								○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × LAB VANE & Sensitivity					WATER CONTENT (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
261.8	Straight drilled to 4m to installed well						W. L. 261.7 m Mar 21, 2023																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858497.3 E 598361.23

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep/07/2022
REF. NO.: 20-169-104
ENCL NO.: 39

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT		POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)		W _p	W			W _L	GR	SA	SI
265.1																	
264.9	TOPSOIL: 230mm		1	SS	5												
0.2	WEATHERED/DISTURBED																
264.3	NATIVE: clayey silt to silty clay, trace rootlets, trace sand, trace gravel, brown, moist, firm		2	SS	22												
0.8	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, stiff to very stiff		3	SS	27												
			4	SS	29												
	grey below 3.1m		5	SS	22												
			6	SS	14												
			7	SS	14												
			8	SS	16												
256.9																	
8.2	END OF BOREHOLE: Notes: 1) Borehole wet at the bottom upon completion.																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858642.88 E 598374.23

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep/07/2022
REF. NO.: 20-169-104
ENCL NO.: 40

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)				
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	
262.7							20	40	60	80	100							
262.8	TOPSOIL: 250mm		1	SS	6													
0.3	WEATHERED/DISTURBED																	
261.9	NATIVE: clayey silt to silty clay, trace rootlets, trace sand, trace gravel, brown to reddish brown, moist, firm		2	SS	13													
0.8	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, stiff to very stiff		3	SS	22													
			4	SS	42													
	grey below 3.1m		5	SS	24													
			6	SS	21													
			7	SS	25													
254.5			8	SS	23													
8.2	END OF BOREHOLE: Notes: 1) Borehole wet at the bottom upon completion.																	

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858595.53 E 598262.19

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep/07/2022
REF. NO.: 20-169-104
ENCL NO.: 41

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT MOISTURE CONTENT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			
266.5	TOPSOIL: 200mm							20	40	60	80	100					GR SA SI CL
266.0	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace rootlets, brown, moist, firm silty sand lens below 0.5m		1	SS	5		266										
265.7			2	SS	9		265										
265.0	SILTY CLAY TILL: trace sand, trace gravel, trace rootlets, brown, moist, stiff (disturbed)		3	SS	23		264										
264.0			4	SS	35		263										
263.0			5	SS	41		262										
262.0			6	SS	34		261										
261.0			7	SS	19		260										
260.0			8	SS	26		259										
258.3	grey below 4.6m																
8.2	END OF BOREHOLE: Notes: 1) Borehole wet at the bottom upon completion.																

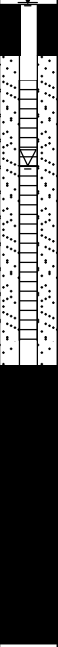
GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation							DRILLING DATA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
CLIENT: Caledon Community Partners							Method: Solid Stem Auger																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON							Diameter: 150mm							REF. NO.: 20-169-104																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
DATUM: Geodetic							Date: Sep/07/2022							ENCL NO.: 42																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
BOREHOLE LOCATION: See Drawing 1 N 4858595.12 E 598262.27																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
SOIL PROFILE			SAMPLES				GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	SHEAR STRENGTH (kPa)					W _P W W _L			GR SA SI CL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
						○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE					WATER CONTENT (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
266.6	Straight drilled to 7.6m to install well.							266.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						</

DS SOIL LOG 20-169-104 GEO COPY.GPJ DS.GDT 5/16/23

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

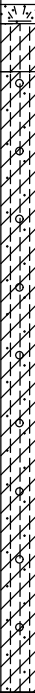

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858703.05 E 598283.24

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep/07/2022
REF. NO.: 20-169-104
ENCL NO.: 43

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT			PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL																																																													
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)									WATER CONTENT (%)																																																												
264.0	TOPSOIL: 230mm WEATHERED/DISTURBED NATIVE: silty clay, trace sand, trace rootlets, trace gravel, brown, moist, stiff SILTY CLAY TILL: trace sand, trace gravel, brown, moist, very stiff to hard trace rootlets above 1.0m grey below 3.1m		1	SS	8		20	40	60	80	100	10	20	30																																																															
263.2			2	SS	27												263																																																												
0.8			3	SS	27																							262																																																	
			4	SS	37																																	261																																							
			5	SS	29																																											260																													
			6	SS	15																																																					259																			
			7	SS	20																																																															258									
			8	SS	17																																																																								
255.8	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Oct 18, 2022 3.03																																																																												

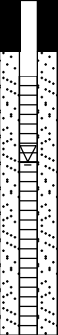
GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH
NOTES

+ 3 , × 3 : Numbers refer
to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation								DRILLING DATA													
CLIENT: Caledon Community Partners								Method: Solid Stem Auger													
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON								Diameter: 150mm													
DATUM: Geodetic								Date: Sep/07/2022													
BOREHOLE LOCATION: See Drawing 1 N 4858702.2 E 598285.12								REF. NO.: 20-169-104													
								ENCL NO.: 44													
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT			PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL					
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)									WATER CONTENT (%)				
ELEV DEPTH								○ UNCONFINED	+ FIELD VANE & Sensitivity	● QUICK TRIAXIAL								× LAB VANE			
263.9	Straight drilled to 4.0m to install well.						263														
0.0							262														
							261														
							260														
259.9	4.0	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgf): Sept. 19, 2022 1.92																			

GROUNDWATER ELEVATIONS
 Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3 , × 3 : Numbers refer to Sensitivity ○ ● = 3% Strain at Failure

DS SOIL LOG 20-169-104 GEO COPY.GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858790.18 E 598184.07

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep/06/2022
REF. NO.: 20-169-104
ENCL NO.: 45

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							
264.0	TOPSOIL: 350mm														
263.7	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace gravel, trace sand, organic staining, trace rootlets, brown, moist, stiff SANDY SILT TO SILTY SAND: trace to some clay, trace gravel, brown, very moist, compact SILTY CLAY TILL: trace to some sand, trace gravel, brown, moist, stiff to very stiff grey below 3.1m		1	SS	9										
0.4															
263.2			2	SS	12										
1															
0.8			3	SS	12										
2															
261.7			4	SS	24										
2.3															
			5	SS	21										
			6	SS	16										
			7	SS	13										
			8	SS	20										
255.8	END OF BOREHOLE:														
8.2	Notes: 1) Borehole wet at the bottom upon completion.														

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858723.71 E 598094.14

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep/06/2022
REF. NO.: 20-169-104
ENCL NO.: 46

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				POCKET PEN (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)							WATER CONTENT (%)		
20 40 60 80 100								PLASTIC LIMIT	NATURAL MOISTURE CONTENT	LIQUID LIMIT							
○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × LAB VANE								W _P	W	W _L							
266.7																	
266.4	TOPSOIL: 250mm		1	SS	13		W. L. 266.2 m Mar 21, 2023										
0.3	WEATHERED/DISTURBED																
265.9	NATIVE: clayey silt to silty clay, trace sand, trace gravel, trace rootlets, brown, moist, stiff		2	SS	21												
1 0.8	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, very stiff		3	SS	21												
			4	SS	26		W. L. 264.6 m Oct 18, 2022										
			5	SS	27												
	grey below 4.6m		6	SS	17												
260.6																	
6.1	SAND: silt pockets, grey, wet, compact		7	SS	18												
259.1																	
7.6	SANDY SILT TILL: trace clay, trace gravel, grey, very moist, dense		8	SS	32												
258.5																	
8.2	END OF BORHOLE: Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water level Readings: Date: Water Level(mbgl): Oct. 18, 2022 2.05 Mar. 21, 2023 0.51																

GROUNDWATER ELEVATIONS

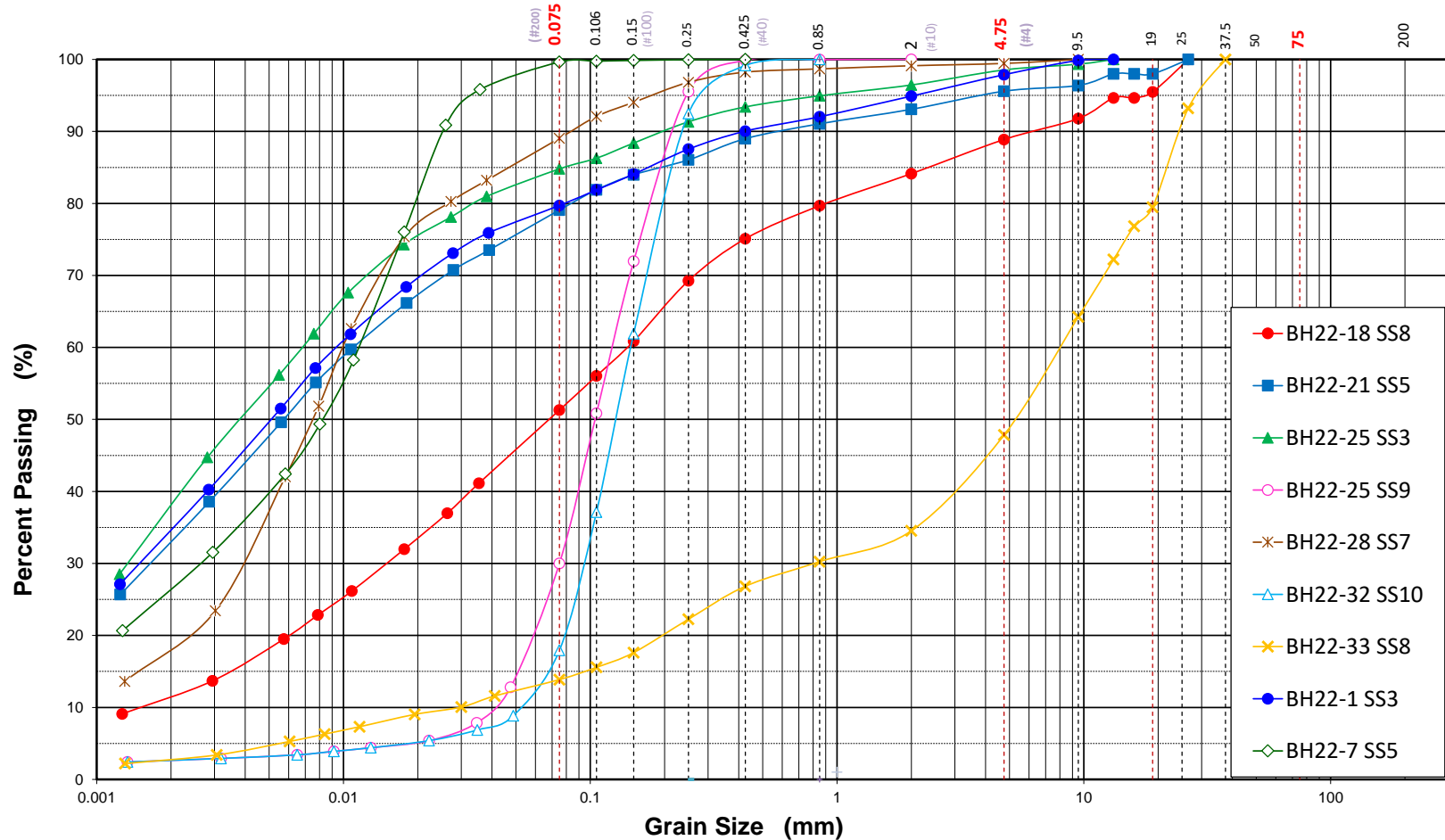
Measurement 1st 2nd 3rd 4th


GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

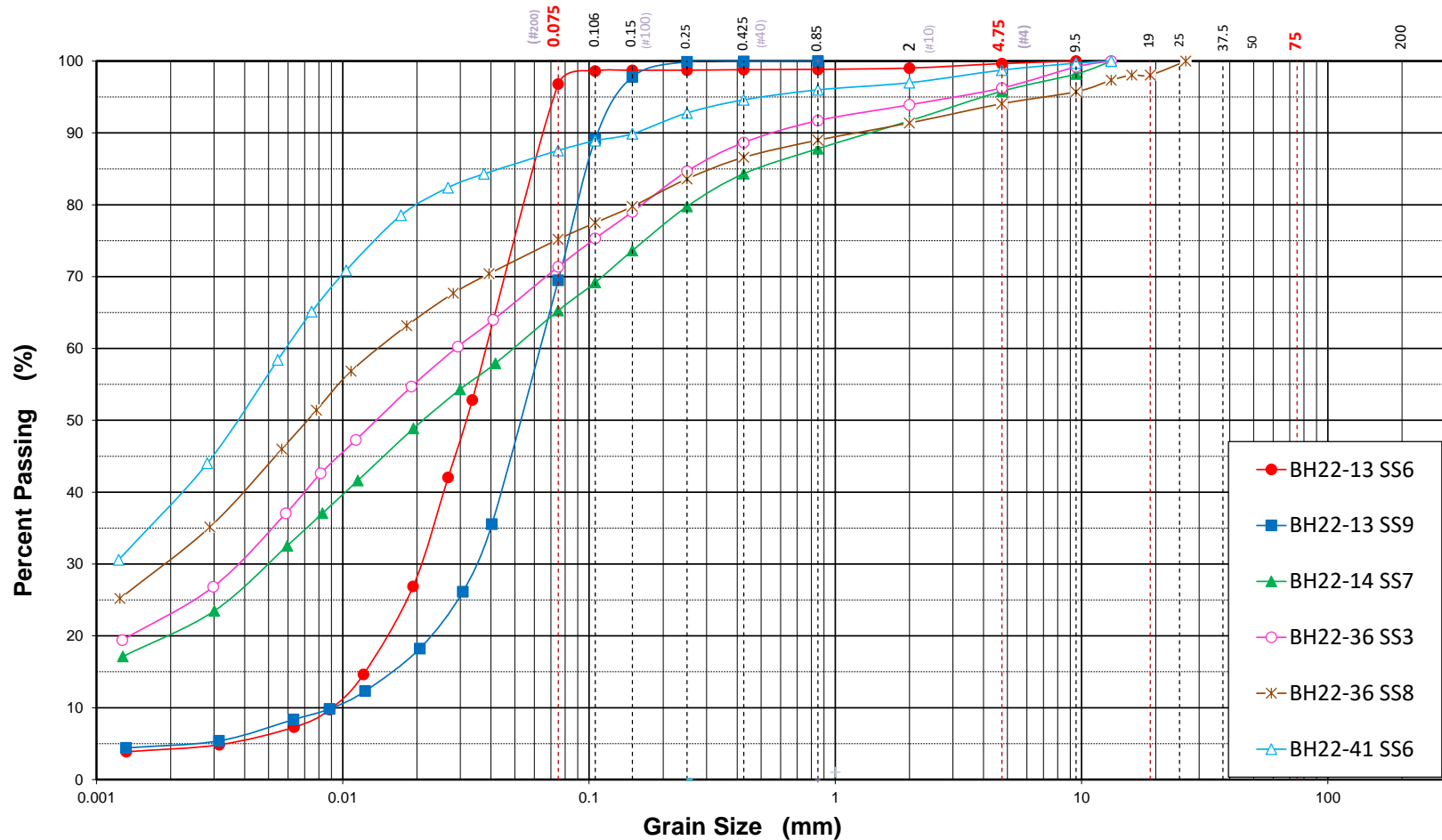
○ = 3% Strain at Failure


Particle Size Distribution (ASTM-D421/D422)



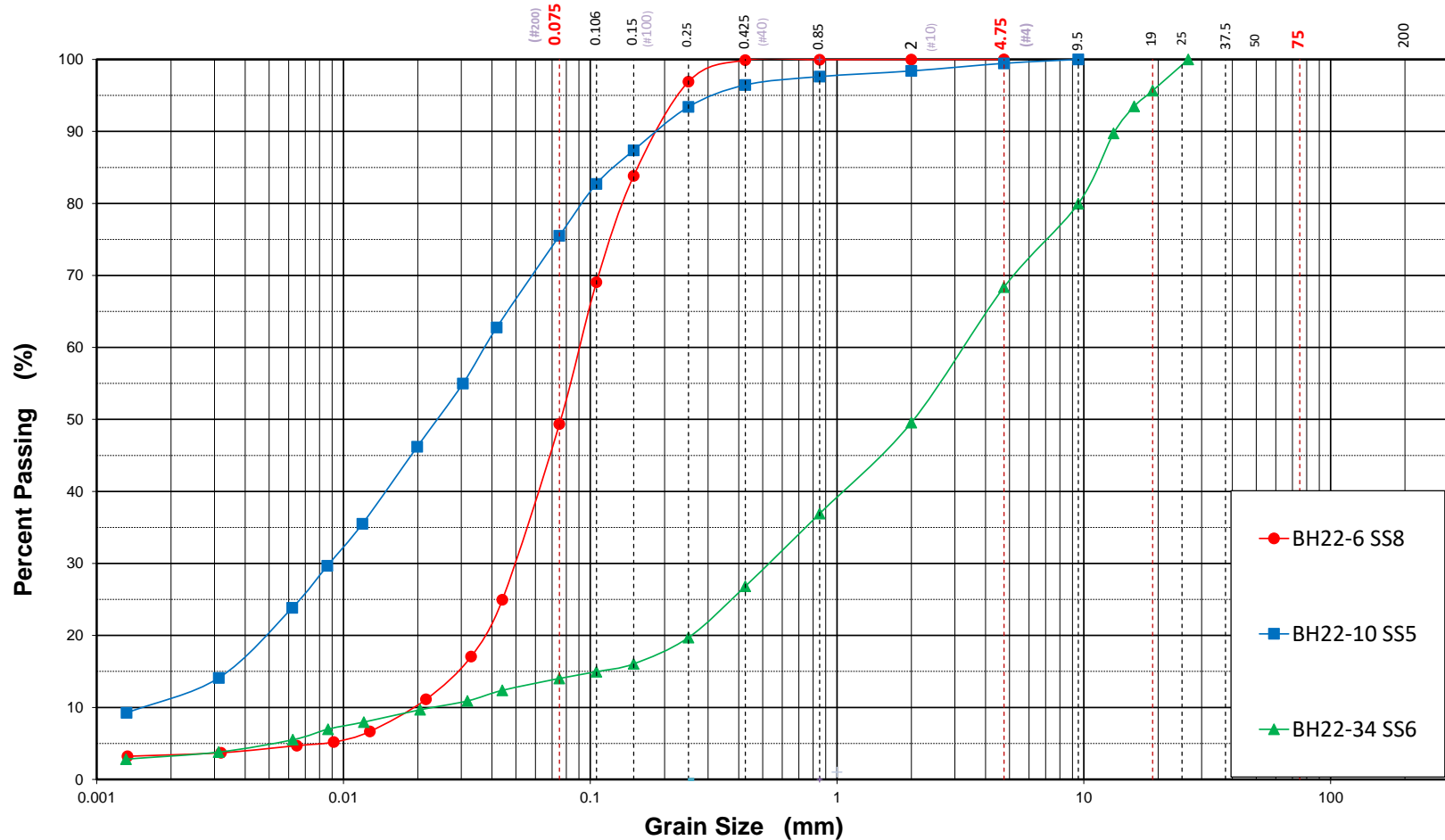
Silt and Clay		Sand			Gravel		Cobble +	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse		
<div><div>DS CONSULTANTS LTD. 6221 Highway 7, Unit 16 Vaughan, Ontario, L4H 0K8 Telephone: (905) 264-9393 www.dsconsultants.ca</div></div>		Project	Geotechnical Investigation				Project No	20-169-104
		Location	Macville Secondary Plan, Caledon, ON				Date	Aug-31-2022
		Client	Caledon Community Partners				Figure No	47


Particle Size Distribution (ASTM-D421/D422)

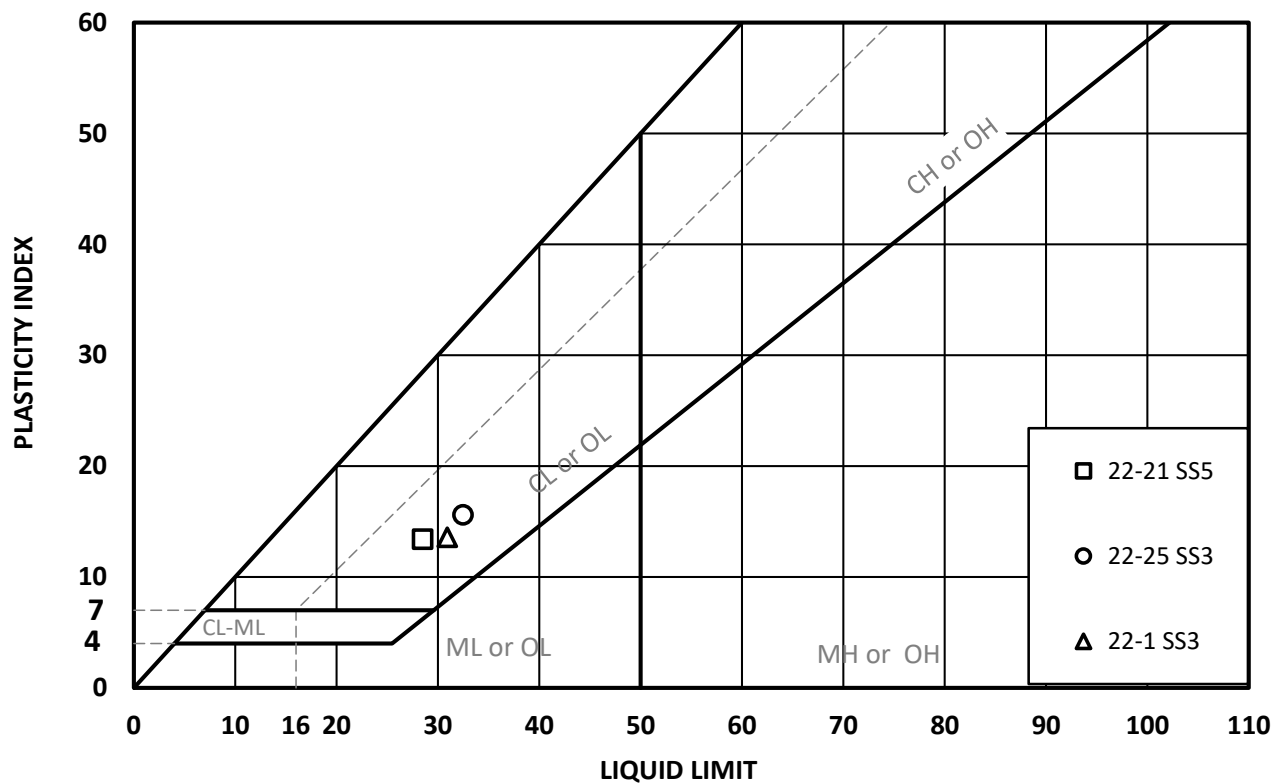


Silt and Clay		Sand			Gravel		Cobble +	
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse		
<div><div>DS CONSULTANTS LTD. 6221 Highway 7, Unit 16 Vaughan, Ontario, L4H 0K8 Telephone: (905) 264-9393 www.dsconsultants.ca</div></div>		Project	Geotechnical Investigation				Project No	20-169-104
		Location	Macville Secondary Plan, Caledon, ON				Date	Sep-09-2022
		Client	Caledon Community Partners				Figure No	48

Particle Size Distribution (ASTM-D421/D422)



Silt and Clay		Sand			Gravel		Cobble +
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse	
 DS CONSULTANTS LTD. 6221 Highway 7, Unit 16 Vaughan, Ontario, L4H 0K8 Telephone: (905) 264-9393 www.dsconsultants.ca		Project	Geotechnical Investigation			Project No	20-169-104
		Location	Macville Secondary Plan, Caledon, ON			Date	Sep-20-2022
		Client	Caledon Community Partners			Figure No	49

Atterberg Test (ASTM D-4318)

Code	Sample ID	Sample No.		Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	USCS Symbol
1	□	22-21	SS5	13	28.5	15.1	13.4	CL
2	○	22-25	SS3	15	32.5	16.9	15.6	CL
3	△	22-1	SS3	14	30.9	17.3	13.6	CL



DS CONSULTANTS LTD.
 6221 Highway 7, Unit 16
 Vaughan, Ontario, L4H 0K8
 Telephone: (905) 264-9393
www.dsconsultants.ca

Project **Geotechnical Investigation**

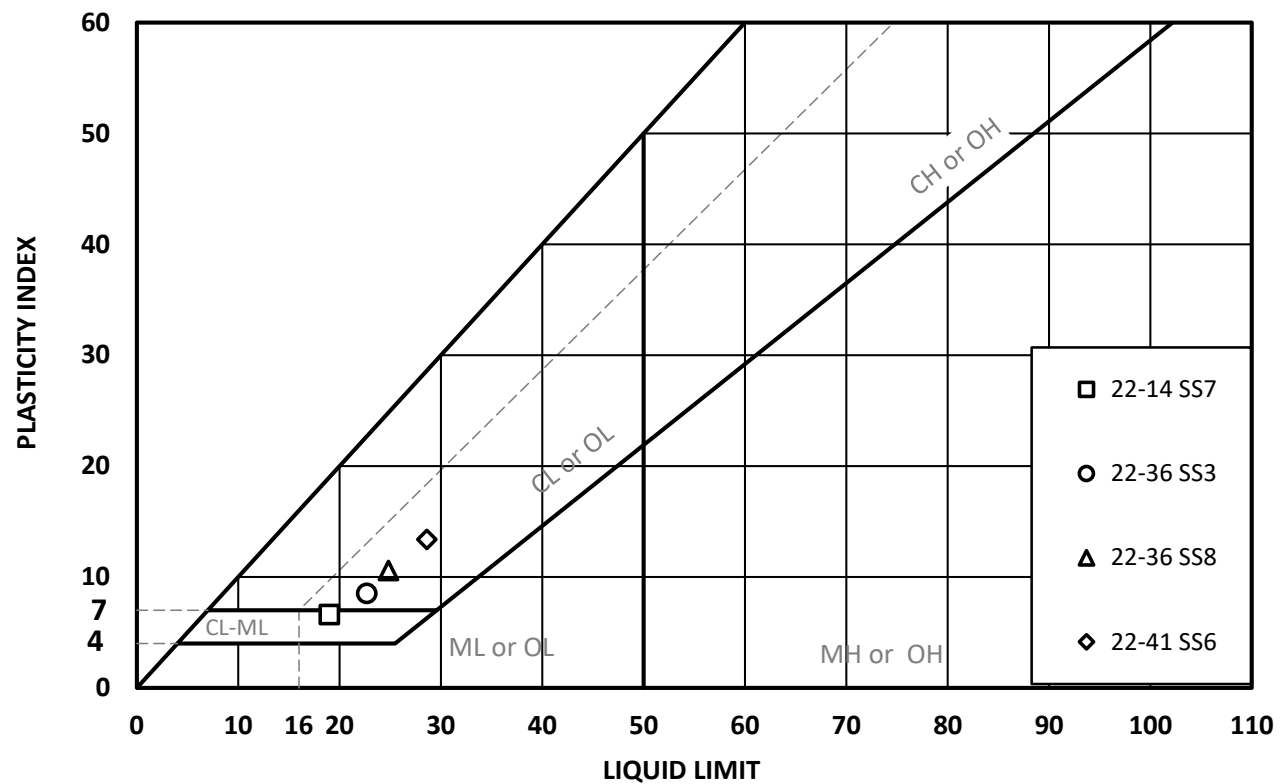
Project No **20-169-104**

Location **Macville Secondary Plan, Caledon, ON**


Date **Aug-31-2022**

Client **Caledon Community Partners**

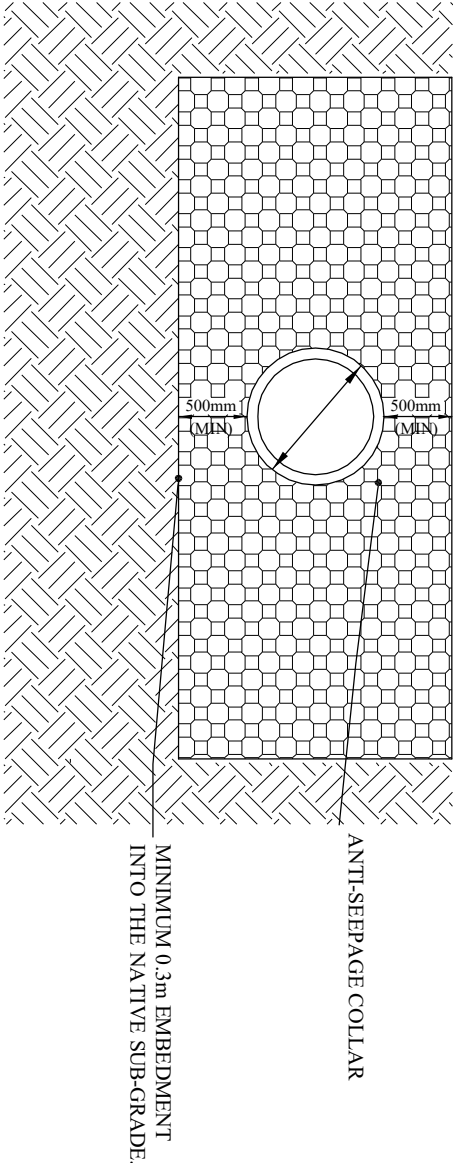
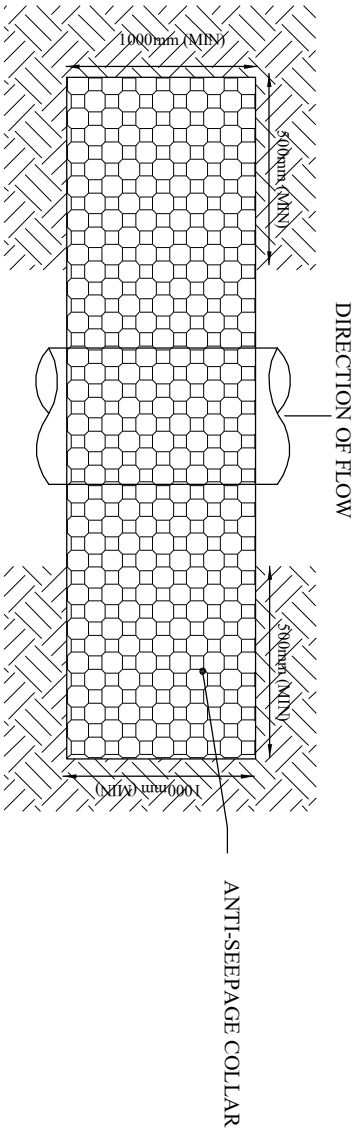
Figure No 50

Atterberg Test (ASTM D-4318)

Code	Sample ID	Sample No.		Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	USCS Symbol
1	□	22-14	SS7	9	19	12.4	6.6	CL-ML
2	○	22-36	SS3	17	22.7	14.2	8.5	CL
3	△	22-36	SS8	13	24.8	14.2	10.6	CL
4	◇	22-41	SS6	15	28.6	15.2	13.4	CL

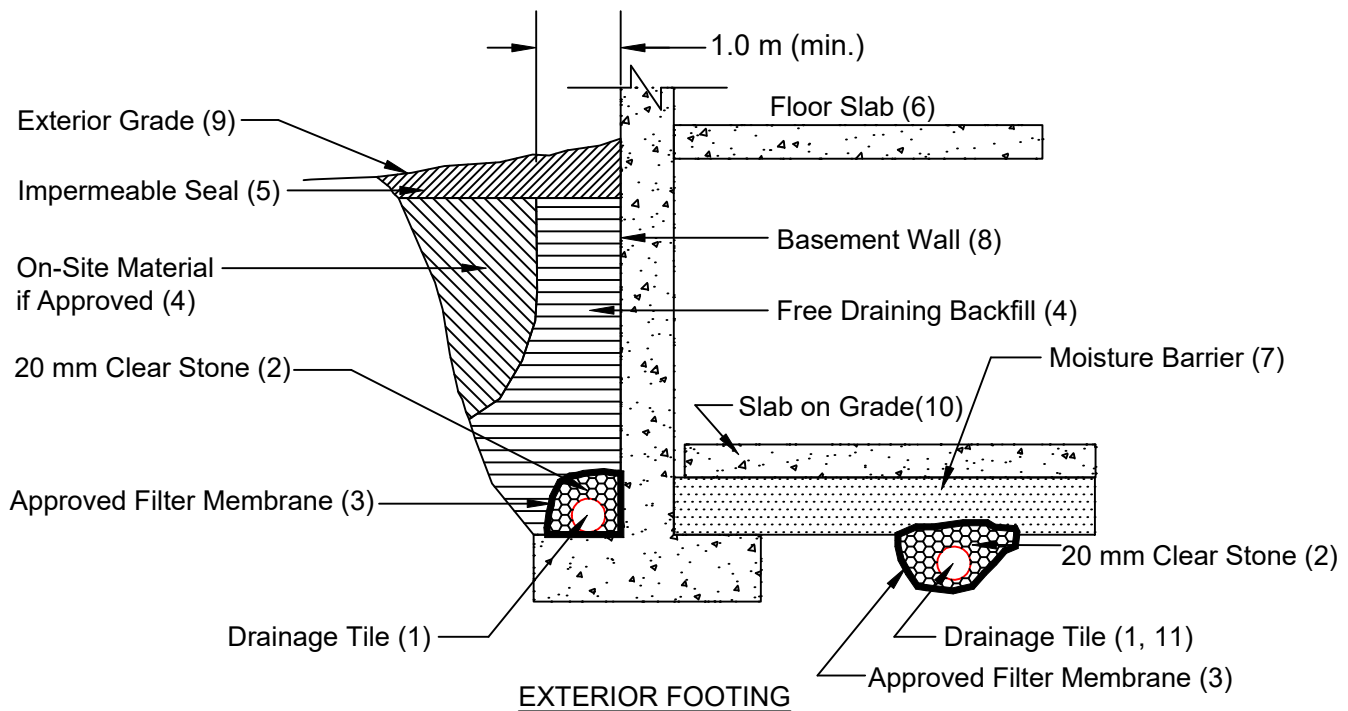
 DS CONSULTANTS LTD. 6221 Highway 7, Unit 16 Vaughan, Ontario, L4H 0K8 Telephone: (905) 264-9393 www.dsconsultants.ca	Project	Geotechnical Investigation				Project No	20-169-104
	Location	Macville Secondary Plan, Caledon, ON				Date	Sep-09-2022
	Client	Caledon Community Partners				Figure No	51

Drawing No. 52: TYPICAL TRENCH PLUG INSTALLATION



ANTI-SEEPAGE COLLAR DETAIL

SCALE: N.T.S.



Notes

1. Drainage tile to consist of 100 mm (4") diameter weeping tile or equivalent perforated pipe leading to a positive sump or outlet.
2. 20 mm (3/4") clear stone - 150 mm (6") top and side of drain. If drain is not on footing, place 100 mm (4 inches) of stone below drain.
3. Wrap the clear stone with an approved filter membrane (Terrafix 270R or equivalent).
4. Free Draining backfill - OPSS Granular B or equivalent compacted to the specified density. Do not use heavy compaction equipment within 450 mm (18") of the wall. Use hand controlled light compaction equipment within 1.8 m (6') of wall. The minimum width of the Granular 'B' backfill must be 1.0 m.
5. Impermeable backfill seal - compacted clay, clayey silt or equivalent. If original soil is free-draining, seal may be omitted. Maximum thickness of seal to be 0.5 m.
6. Do not backfill until wall is supported by basement and floor slabs or adequate bracing.
7. Moisture barrier to be at least 200 mm (8") of compacted clear 20 mm (3/4") stone or equivalent free draining material. A vapour barrier may be required for specialty floors.
8. Basement wall to be damp proofed /water proofed.
9. Exterior grade to slope away from building.
10. Slab on grade should not be structurally connected to the wall or footing.
11. Underfloor drain invert to be at least 300 mm (12") below underside of floor slab.
12. Drainage tile placed in parallel rows 6 to 8 m (20 to 25') centers one way. Place drain on 100 mm (4") clear stone with 150 mm (6") of clear stone on top and sides. Enclose stone with filter fabric as noted in (3).
13. The entire subgrade to be sealed with approved filter fabric (Terrafix 270R or equivalent) if non-cohesive (sandy) soils below ground water table encountered.
14. Do not connect the underfloor drains to perimeter drains.
15. Review the geotechnical report for specific details.

DRAINAGE AND BACKFILL RECOMMENDATIONS

Basement with Underfloor Drainage

(not to scale)

Appendix A

Borehole Logs from DS 2020 Investigation

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857815.92 E 597082.44

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/27/2020
REF. NO.: 20-169-100
ENCL NO.: 2

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			
279.8	TOPSOIL: 300mm							20	40	60	80	100					GR SA SI CL
279.5	FILL: sandy silt, trace gravel, dark brown, moist, loose		1	SS	6												
279.0	CLAYEY SILT TILL: sandy, trace gravel, sand seams, brown, moist, very stiff to hard		2	SS	19		279										
278.5			3	SS	36		278										
278.0			4	SS	55		278										
277.5			5	SS	32		277										
277.0							276										
275.3	SILTY CLAY: trace sand, grey, very moist, very stiff		6	SS	17		275.3										
273.8	SILT: trace clay, grey, wet, compact		7	SS	12		274										
271.6			8	SS	20		272										
8.2	END OF BOREHOLE: Notes: 1) Water level at 4.5m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 6, 2020 4.11 Sept 8, 2020 4.24 Oct 22, 2020 4.51 Mar 21, 2023 3.96																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857663.29 E 597311.06

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/27/2020
REF. NO.: 20-169-100
ENCL NO.: 3

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)	
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				WATER CONTENT (%)						
278.8							20	40	60	80	100						GR SA SI CL	
278.8	TOPSOIL: 200mm		1	SS	8													
0.2	FILL: sandy silt, trace gravel, brown, moist, loose																	
278.0																		
0.8	CLAYEY SILT TILL: sandy, trace gravel, sand seams, brown, moist, very stiff		2	SS	16													
			3	SS	19													
276.5																		
2.3	SANDY SILT: trace clay, brown, moist to very moist, very dense		4	SS	58													
			5	SS	58													
			6	SS	66													
			7	SS	51													
			8	SS	52													
270.6																		
8.2	END OF BOREHOLE: Notes: 1) Water level at 6.1m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 6, 2020 6.12 Sept 8, 2020 6.36 Oct 22, 2020 6.48 Mar21, 2023 6.08																	

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857648.82 E 597335.94

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/27/2020
REF. NO.: 20-169-100
ENCL NO.: 4

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			
278.6	TOPSOIL: 300mm							20 40 60 80 100									GR SA SI CL
278.3	FILL: sandy silt, trace gravel, brown, moist, compact		1	SS	10		278	○ UNCONFINED + FIELD VANE & Sensitivity				○					
277.8	SILTY CLAY TILL: sandy, trace gravel, sand seams, brown, moist, stiff		2	SS	13		277	● QUICK TRIAXIAL × LAB VANE					○				
276.3	SILTY SAND: trace clay, grey, moist, compact to very dense		3	SS	10		276						○				
275			4	SS	15		275						○				
273			5	SS	35		273						○				
272			6	SS	65		272						○				
271.9			7	SS	49		271.9						○				
6.7	END OF BOREHOLE: Notes: 1) Water level at 4.5m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 6, 2020 6.0 Sept 8, 2020 dry Oct 22, 2020 dry Mar 21, 2023 5.93																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DRILLING DATA

Method: Solid Stem Auger

Diameter: 150mm

Date: Jul/27/2020

REF. NO.: 20-169-100

ENCL NO.: 5

GRAPH NOTES +3, ×3: Numbers refer to Sensitivity ○ 8=3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858369.55 E 597438.77

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/29/2020
REF. NO.: 20-169-100
ENCL NO.: 6

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)										WATER CONTENT (%)			
273.0								20	40	60	80	100									
272.9	TOPSOIL: 250mm		1	SS	15																
0.3	FILL: sandy silt, trace topsoil/ organics, trace gravel, trace rootlets, brown, moist, compact																				
272.2			2	SS	35		272														
0.8	SILTY CLAY TILL: sandy, trace gravel, frequent sand seams, brown, moist, hard																				
			3	SS	31		271														
			4	SS	39																
270.0																					
3.0	CLAYEY SILT TILL: sandy, trace gravel, interbed of sandy silt layers, greyish brown, moist to very moist, hard		5	SS	35		270														
	grey below 4.5m																				
			6	SS	37		268														
	sand seams below 6m																				
			7	SS	46		267														
265.5							266														
7.5	SILTY SAND: trace clay, grey, moist, very dense		8	SS	74/ 280mm		265														
	very moist at 9m																				
			9	SS	59		264														
263.3																					
9.7	END OF BOREHOLE: Notes: 1) Water level at 9.1m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 6, 2020 2.78 Sept 8, 2020 3.09 Oct 22, 2020 3.38 Mar 21, 2023 2.68																				

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES





+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857501.44 E 597524.2

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/28/2020
REF. NO.: 20-169-100
ENCL NO.: 7

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)										WATER CONTENT (%)		
								○ UNCONFINED ● QUICK TRIAXIAL	+ FIELD VANE & Sensitivity × LAB VANE											
271.0								20	40	60	80	100								
270.9	TOPSOIL: 250mm		1	SS	8															
0.3	FILL: sandy silt, trace topsoil/ organics, trace gravel, trace rootlets, dark brown, moist, loose																			
270.2																				
0.8	CLAYEY SILT TILL: sandy, trace gravel, sand seams, brown, moist, stiff to hard		2	SS	12															
	hard below 2.3m		3	SS	21															
										</										

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 5/16/23

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857020.81 E 597903.58

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/31/2020
REF. NO.: 20-169-100
ENCL NO.: 8

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)		W _p	W	W _L			
261.7	TOPSOIL: 500mm		1	SS	8		261	20	40	60	80	100			GR SA SI CL
261.2	FILL: clayey silt, trace topsoil/organics, trace gravel, trace rootlets, dark brown, moist, stiff		2	SS	10		261								
260.9	CLAYEY SILT TILL: some sand, trace gravel, brownish grey, very moist, stiff with silt and sand seams at 1.5m		3	SS	13		260								
259.4	SILTY CLAY TILL: some sand, some gravel, greyish brown, moist, very stiff to hard		4	SS	39		260								
259.4			5	SS	28		259.4								
259.4			6	SS	21		257								
259.4			7	SS	19		256								
259.4			8	SS	25		254								
259.4			9	SS	16		253								
259.4			10	SS	24		252								
250.4	END OF BOREHOLE:						251								
11.3	Notes: 1) Borehole dry during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 6, 2020 dry Sept 8, 2020 6.52 Oct 22, 2020 3.40														

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation						DRILLING DATA															
CLIENT: Bolton Option 3 Landowners Group						Method: Solid Stem Auger															
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario						Diameter: 150mm															
DATUM: Geodetic						Date: Jul/28/2020															
BOREHOLE LOCATION: See Drawing 1 N 4857701.02 E 597673.81						REF. NO.: 20-169-100															
						ENCL NO.: 9															
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)					WATER CONTENT (%)					GR	SA	SI	CL
ELEV DEPTH								20 40 60 80 100					W _P W W _L								
277.2																					
0.0	TOPSOIL: 340mm		1	SS	8		277														
276.8																					
0.4	FILL: sandy silt, trace topsoil/ organics, trace gravel, brown, moist, loose																				
276.4																					
0.8	CLAYEY SILT TILL: sandy, trace gravel, brown, moist, compact		2	SS	10		276														
275.7																					
1.5	SILT: some clay, trace sand, trace gravel, brown, very moist, compact to very dense		3	SS	19		275														
			4	SS	58		274														
			5	SS	92/ 255mm		273														
			6	SS	74		272														
271.2																					
6.0	SANDY SILT: trace clay, brown, wet, very dense		7	SS	62		271														
			8	SS	54		270														
269.0																					
8.2	END OF BOREHOLE: Notes: 1) Water at depth of 6.1m during drilling.						269														



PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857946.64 E 597876.44

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/28/2020
REF. NO.: 20-169-100
ENCL NO.: 10

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			
274.1								20	40	60	80	100					
0.0	TOPSOIL: 550mm		1	SS	5		274										GR SA SI CL
273.6																	
273.6	FILL: sandy silt, trace topsoil/organics, trace clay, trace gravel, trace organics, trace rootlets, dark brown, moist, loose		2	SS	16		273										
0.8	SILTY CLAY TILL: some sand, trace gravel, brown, moist, very stiff to hard		3	SS	25		272										
	sand seams below 2.3m		4	SS	38		271										
			5	SS	72		270										
							269										
	grey below 4.5m		6	SS	45		268										
							267										
	trace cobble, very moist below 6m		7	SS	24		266										
266.6																	
7.5	SANDY SILT: trace clay, grey, wet, compact		8	SS	29		265										
265.9																	
8.2	END OF BOREHOLE: Notes: 1) Water level at 7.6m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 6, 2020 4.43 Sept 8, 2020 4.72 Oct 22, 2020 4.97 Mar 21, 2023 4.5																

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 5/16/23

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858404.6 E 597955.26

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/29/2020
REF. NO.: 20-169-100
ENCL NO.: 11

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			
268.3								20	40	60	80	100					
268.0	TOPSOIL: 300mm		1	SS	15		268										GR SA SI CL
0.3	FILL: sandy silt, trace topsoil/organics, trace gravel, trace rootlets, brown, moist, compact																
267.5	SILTY CLAY TILL: some sand, trace gravel, sand seams, brown, moist to very moist, very stiff		2	SS	21		267										
0.8			3	SS	25		266										
			4	SS	25		265										
	grey below 3m		5	SS	16		264										
			6	SS	20		263										
			7	SS	17		262										
			8	SS	15		261										
8.2	END OF BOREHOLE: Notes: 1) Borehole dry and open upon completion.																

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 5/16/23

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858726.5 E 597841.19





DRILLING DATA

Method: Solid Stem Auger	
Diameter: 150mm	REF. NO.: 20-169-100
Date: Jul/29/2020	ENCL NO.: 12

[illegible]

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 5/16/23

GROUNDWATER ELEVATIONS

	1st	2nd	3rd	4th
Measurement				

GRAPH
NOTES

+ 3, × 3: Numbers refer to Sensitivity

○ $\epsilon = 3\%$ Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857520.15 E 598321.99

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/31/2020
REF. NO.: 20-169-100
ENCL NO.: 13

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT MOISTURE LIMIT CONTENT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m		SHEAR STRENGTH (kPa)				W _p	W	W _L			GR	SA	SI	CL
264.9	TOPSOIL: 400mm		1	SS	8														
0.0 264.5	FILL: clayey silt, trace topsoil/ organics, trace gravel, sand seams, trace rootlets, dark brown, moist, stiff		2	SS	8														
0.4 264.1	SILTY CLAY TILL: some sand, trace gravel, sand seams, brown, moist to very moist, stiff		3	SS	9														
0.8	grey below 2.3m		4	SS	10														
261.9	SANDY SILT TO SILT: trace clay, grey, very moist, dense		5	SS	32														
3.0	wet below 4.5m		6	SS	36														
258.9	SILT: trace clay, trace sand, grey, very moist, compact to loose		7	SS	25														
6.0			8	SS	7														
256.7	END OF BOREHOLE: Notes: 1) Water level at 3.1m below grade during drilling 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 6, 2020 0.2 Sept 8, 2020 0.1 Oct 22, 2020 0.14 Mar 21, 2023 -0.15																		

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH
NOTES

+ 3 , × 3 : Numbers refer
to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857981.07 E 598332.09

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/30/2020
REF. NO.: 20-169-100
ENCL NO.: 14

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			
268.1	TOPSOIL: 200mm		1	SS	12		268	20	40	60	80	100					GR SA SI CL
268.0	FILL: clayey silt, trace topsoil/organics, trace gravel, trace rootlets, dark brown, moist, stiff		2	SS	19		267										
267.3	SILTY CLAY TILL: some sand, trace gravel, sand seams, brownish grey, moist, stiff to very stiff		3	SS	20		266										
267.0			4	SS	26		265										
266.0			5	SS	14		264										
265.0			6	SS	9		263										
264.0			7	SS	19		262										
263.0			8	SS	94/255mm		261										
260.6	SANDY SILT TO SILT: trace clay, trace gravel, grey, wet, very dense						260										
259.9	END OF BOREHOLE: Notes: 1) Water at 7.6m below grade during drilling																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858339.89 E 598409.18

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/30/2020
REF. NO.: 20-169-100
ENCL NO.: 15

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			GR	SA	SI	CL
267.7								20	40	60	80	100								
0.0	TOPSOIL: 400mm		1	SS	7		267.5													
0.4	FILL: clayey silt, trace topsoil/organics, trace gravel, trace sand, trace rootlets, brown, moist, firm		2	SS	14		267.3													
0.8	SILTY CLAY TILL: some sand, trace gravel, frequent sand seams, brown, moist, stiff to hard		3	SS	13		266.9													
			4	SS	27		266													
			5	SS	28		265													
			6	SS	24		264.3													
			7	SS	18		263													
			8	SS	29		262													
			9	SS	22		261													
			10	SS	35		260													
							259													
							257													
11.3	END OF BOREHOLE: Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water level Reading: Date: Water Level (mbgl): Aug 6, 2020 3.32 Sept 8, 2020 3.43 Oct 22, 2020 3.59 Mar 21, 2023 0.19																			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858789.95 E 598183.97

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/30/2020
REF. NO.: 20-169-100
ENCL NO.: 16

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (C _u) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			GR	SA	SI	CL
264.1	TOPSOIL: 350mm		1	SS	12		264													
263.8	FILL: clayey silt, trace topsoil/organics, trace gravel, trace sand, trace rootlets, brown, moist, stiff		2	SS	18		263													
263.3	CLAYEY SILT TILL: some sand, trace gravel, sand seams, brown, moist, stiff to very stiff		3	SS	22		262													
262.1			4	SS	27		261													
261.7			5	SS	27		260													
261.2			6	SS	17		259													
261.0			7	SS	14		258													
260.8			8	SS	16		257													
259.5			9	SS	12		255													
254.4	END OF BOREHOLE: Notes: 1) Water level at 9.1m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 6, 2020 2.41 Sept 8, 2020 2.33 Oct 22, 2020 2.41 Mar 21, 2023 1.65																			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 5/16/23

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857848.7 E 598703.75

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/31/2020
REF. NO.: 20-169-100
ENCL NO.: 17

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC NATURAL LIQUID LIMIT			POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)			
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)				W _p	W	W _L			GR	SA	SI	CL
265.5	TOPSOIL: 400mm		1	SS	9															
265.1	FILL: clayey silt, trace topsoil/organics, trace gravel, trace rootlets, brown, moist, stiff		2	SS	33															
264.7	SILTY CLAY TILL: some sand, trace gravel, sand seams, brown, moist, stiff to hard		3	SS	30															
264.0	GRAVELLY SAND: some silt, trace clay, brown, very moist to wet, compact to dense		4	SS	24															
262.2	SANDY SILT: trace clay, brown, wet, compact		5	SS	20															
261.0	SAND AND GRAVEL: some silt, trace clay, brownish grey, wet, very dense		6	SS	66															
259.3	SILTY SAND: some clay, trace gravel, greyish brown, wet, dense		7	SS	38															
258.0	SANDY SILT: trace clay, grey, wet, dense		8	SS	41															
257.3	END OF BOREHOLE: Notes: 1) Water level at 2.3m below grade during drilling. 2) 50mm dia. monitoring well installed upon completion. 3) Water level Reading: Date: Water Level (mbgl): Aug 6, 2020 2.12 Sept 8, 2020 2.27 Oct 22, 2020 2.49 Mar 21, 2023 1.30																			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ = 3% Strain at Failure

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 5/16/23

Appendix B

Engineered Fill Guidelines

GENERAL REQUIREMENTS FOR ENGINEERED FILL

Compacted imported soil that meets specific engineering requirements and is free of organics and debris and that has been continually monitored on a full-time basis by a qualified geotechnical representative is classified as engineered fill. Engineered fill that meets these requirements and is bearing on suitable native subsoil can be used for the support of foundations.

Imported soil used as engineered fill can be removed from other portions of a site or can be brought in from other sites. In general, most of Ontario soils are too wet to achieve the 100% Standard Proctor Maximum Dry Density (SPMDD) and will require drying and careful site management if they are to be considered for engineered fill. Imported non-cohesive granular soil is preferred for all engineered fill. For engineered fill, we recommend use of OPSS Granular 'B' sand and gravel fill material.

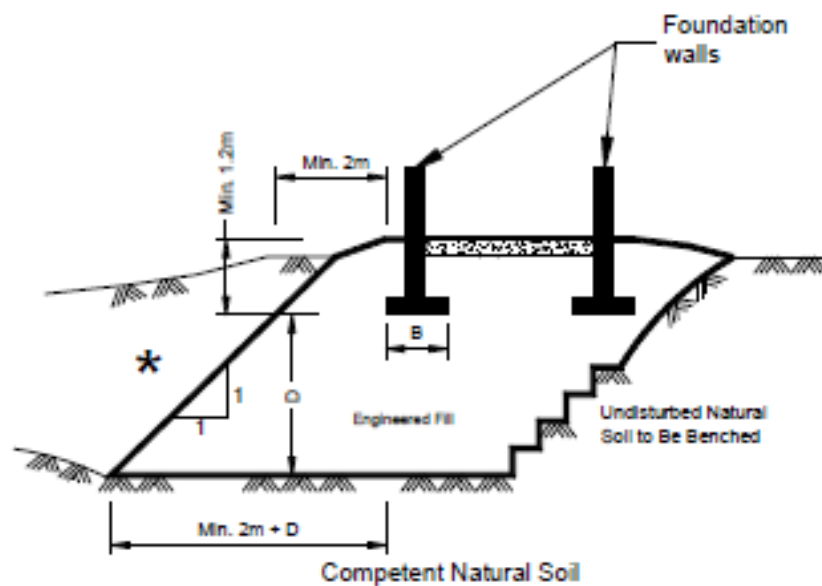
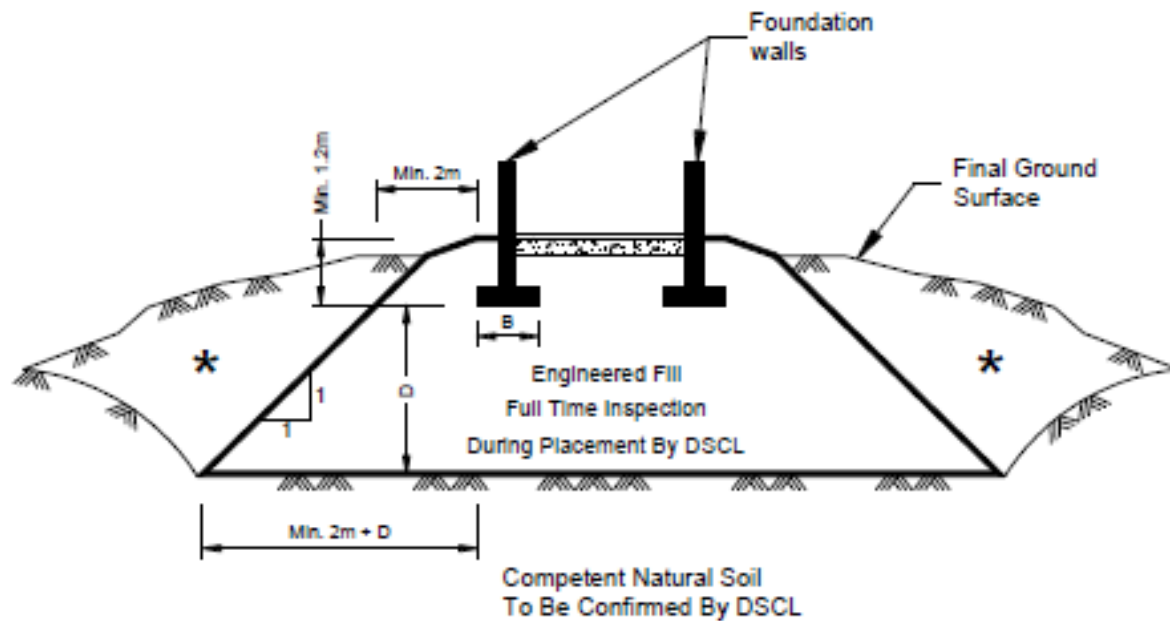
Adverse weather conditions such as rain make the placement of engineered fill to the required degree of density difficult or impossible; engineered fill cannot be placed during freezing conditions, i.e. normally not between December 15 and April 1 of each year.

The location of the foundations on the engineered fill pad is critical and certification by a qualified surveyor that the foundations are within the stipulated boundaries is mandatory. Since layout stakes are often damaged or removed during fill placement, offset stakes must be installed and maintained by the surveyors during the course of fill placement so that the contractor and engineering staff are continually aware of where the engineered fill limits lie. Excavations within the engineered fill pad must be backfilled with the same conditions and quality control as the original pad.

To perform satisfactorily, engineered fill requires the cooperation of the designers, engineers, contractors and all parties must be aware of the requirements. The minimum requirements are as follows; however, the geotechnical report must be reviewed for specific information and requirements.

1. Prior to site work involving engineered fill, a site meeting to discuss all aspects must be convened. The surveyor, contractor, design engineer and geotechnical engineer must attend the meeting. At this meeting, the limits of the engineered fill will be defined. The contractor must make known where all fill material will be obtained from and samples must be provided to the geotechnical engineer for review, and approval before filling begins.
2. Detailed drawings indicating the lower boundaries as well as the upper boundaries of the engineered fill must be available at the site meeting and be approved by the geotechnical engineer.
3. The building footprint and base of the pad, including basements, garages, etc. must be defined by offset stakes that remain in place until the footings and service connections are all constructed. Confirmation that the footings are within the pad, service lines are in place, and that the grade conforms to drawings, must be obtained by the owner in writing from the surveyor and DS Consultants Ltd (DSCL). Without this confirmation no responsibility for the performance of the structure can be accepted by DSCL. Survey drawing of the pre and post fill location and elevations will also be required.
4. The area must be stripped of all topsoil and fill materials. Subgrade must be proof-rolled. Soft spots must be dug out. The stripped native subgrade must be examined and approved by a DSCL engineer prior to placement of fill.

5. The approved engineered fill material must be compacted to 100% Standard Proctor Maximum Dry Density throughout. Engineered fill should not be placed during the winter months. Engineered fill compacted to 100% SPMDD will settle under its own weight approximately 0.5% of the fill height and the structural engineer must be aware of this settlement. In addition to the settlement of the fill, additional settlement due to consolidation of the underlying soils from the structural and fill loads will occur and should be evaluated prior to placing the fill.
6. Full-time geotechnical inspection by DSCL during placement of engineered fill is required. Work cannot commence or continue without the presence of the DSCL representative.
7. The fill must be placed such that the specified geometry is achieved. Refer to the attached sketches for minimum requirements. Take careful note that the projection of the compacted pad beyond the footing at footing level is a minimum of 2 m. The base of the compacted pad extends 2 m plus the depth of excavation beyond the edge of the footing.
8. A bearing capacity of 150 kPa at SLS (225 kPa at ULS) can be used provided that all conditions outlined above are adhered to. A minimum footing width of 500 mm (20 inches) is suggested and footings must be provided with nominal steel reinforcement.
9. All excavations must be done in accordance with the Occupational Health and Safety Regulations of Ontario.
10. After completion of the engineered fill pad a second contractor may be selected to install footings. The prepared footing bases must be evaluated by engineering staff from DSCL prior to footing concrete placements. All excavations must be backfilled under full time supervision by DSCL to the same degree as the engineered fill pad. Surface water cannot be allowed to pond in excavations or to be trapped in clear stone backfill. Clear stone backfill can only be used with the approval of DSCL.
11. After completion of compaction, the surface of the engineered fill pad must be protected from disturbance from traffic, rain and frost. During the course of fill placement, the engineered fill must be smooth-graded, proof-rolled and sloped/crowned at the end of each day, prior to weekends and any stoppage in work in order to promote rapid runoff of rainwater and to avoid any ponding surface water. Any stockpiles of fill intended for use as engineered fill must also be smooth-bladed to promote runoff and/or protected from excessive moisture take up.
12. If there is a delay in construction, the engineered fill pad must be inspected and accepted by the geotechnical engineer. The location of the structure must be reconfirmed that it remains within the pad.
13. The geometry of the engineered fill as illustrated in these General Requirements is general in nature. Each project will have its own unique requirements. For example, if perimeter sidewalks are to be constructed around the building, then the projection of the engineered fill beyond the foundation wall may need to be greater.
14. These guidelines are to be read in conjunction with DS Consultants Ltd report attached.



* Backfill in this area to be as per the DSCL report.

Appendix C

Borehole Logs from Soil Engineers Ltd. 2021 Hydrogeological Assessment

LIST OF ABBREVIATIONS AND DESCRIPTION OF TERMS

The abbreviations and terms commonly employed on the borehole logs and figures, and in the text of the report, are as follows:

SAMPLE TYPES

AS Auger sample
CS Chunk sample
DO Drive open (split spoon)
DS Denison type sample
FS Foil sample
RC Rock core (with size and percentage recovery)
ST Slotted tube
TO Thin-walled, open
TP Thin-walled, piston
WS Wash sample

SOIL DESCRIPTION

Cohesionless Soils:

<u>'N' (blows/ft)</u>	<u>Relative Density</u>
0 to 4	very loose
4 to 10	loose
10 to 30	compact
30 to 50	dense
over 50	very dense

Cohesive Soils:

PENETRATION RESISTANCE

Dynamic Cone Penetration Resistance:

A continuous profile showing the number of blows for each foot of penetration of a 2-inch diameter, 90° point cone driven by a 140-pound hammer falling 30 inches.

Plotted as '—●—'

Undrained Shear
Strength (ksf)

less than 0.25
0.25 to 0.50
0.50 to 1.0
1.0 to 2.0
2.0 to 4.0
over 4.0

'N' (blows/ft)

0 to 2	very soft
2 to 4	soft
4 to 8	firm
8 to 16	stiff
16 to 32	very stiff
over 32	hard

Consistency

Standard Penetration Resistance or 'N' Value:

The number of blows of a 140-pound hammer falling 30 inches required to advance a 2-inch O.D. drive open sampler one foot into undisturbed soil.

Plotted as '○'

Method of Determination of Undrained Shear Strength of Cohesive Soils:

x 0.0 Field vane test in borehole; the number denotes the sensitivity to remoulding

△ Laboratory vane test

□ Compression test in laboratory

WH Sampler advanced by static weight
PH Sampler advanced by hydraulic pressure
PM Sampler advanced by manual pressure
NP No penetration

For a saturated cohesive soil, the undrained shear strength is taken as one half of the undrained compressive strength

METRIC CONVERSION FACTORS

1 ft = 0.3048 metres
1lb = 0.454 kg

1 inch = 25.4 mm
1ksf = 47.88 kPa



Soil Engineers Ltd.

CONSULTING ENGINEERS

GEOTECHNICAL • ENVIRONMENTAL • HYDROGEOLOGICAL • BUILDING SCIENCE

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 1

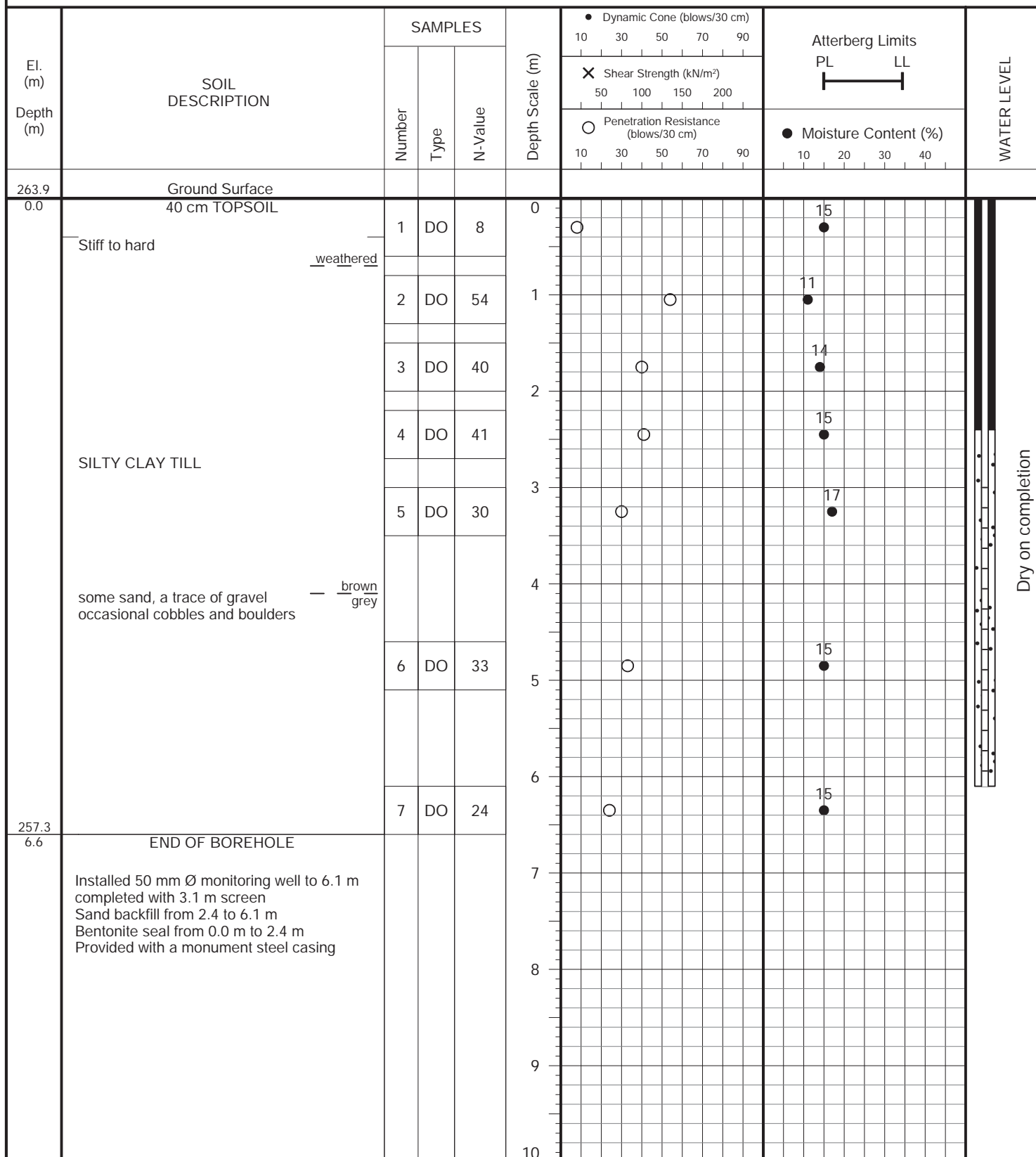
FIGURE NO.: 1

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 29, 2021



Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 2

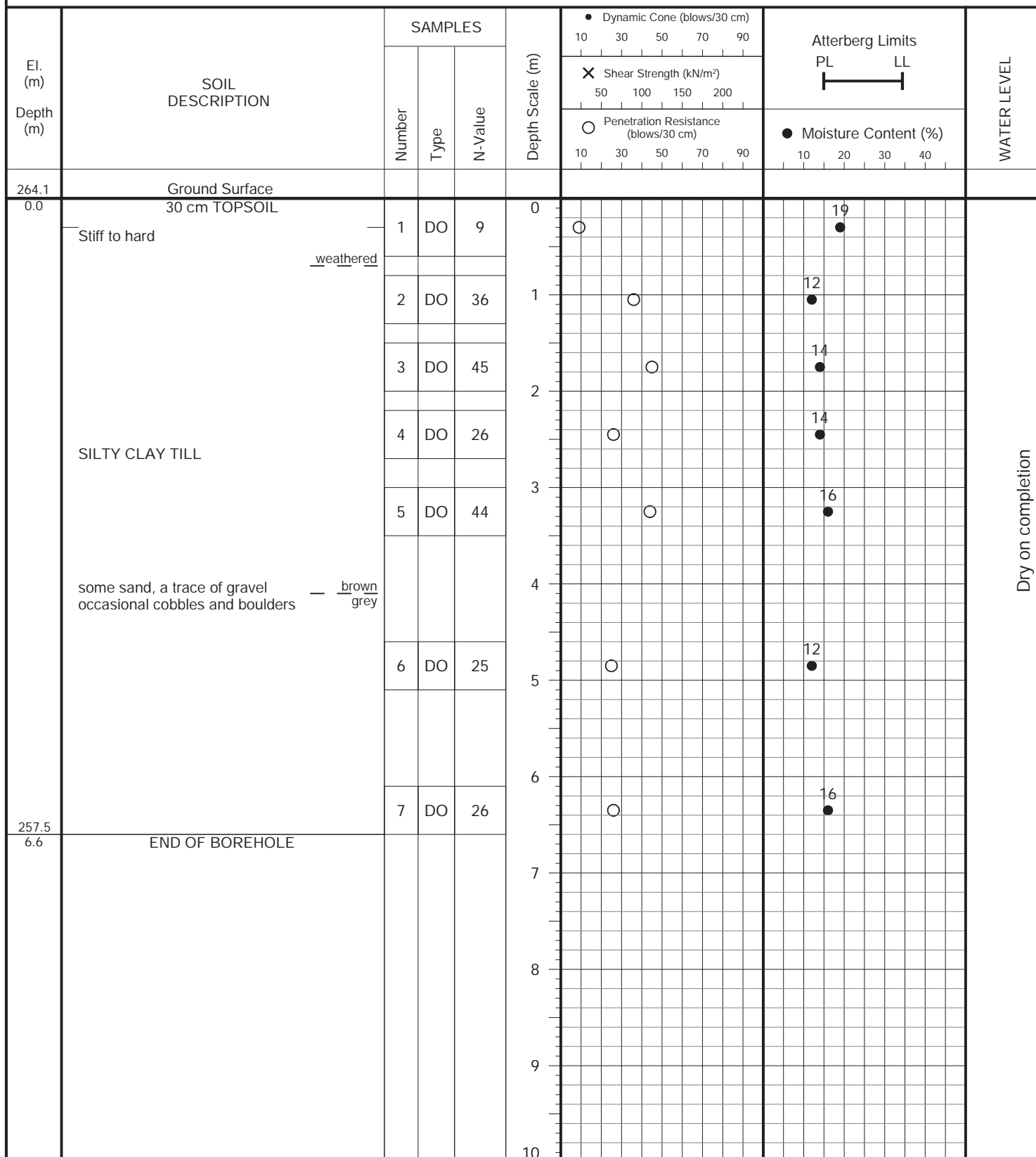
FIGURE NO.: 2

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 28, 2021



Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 3

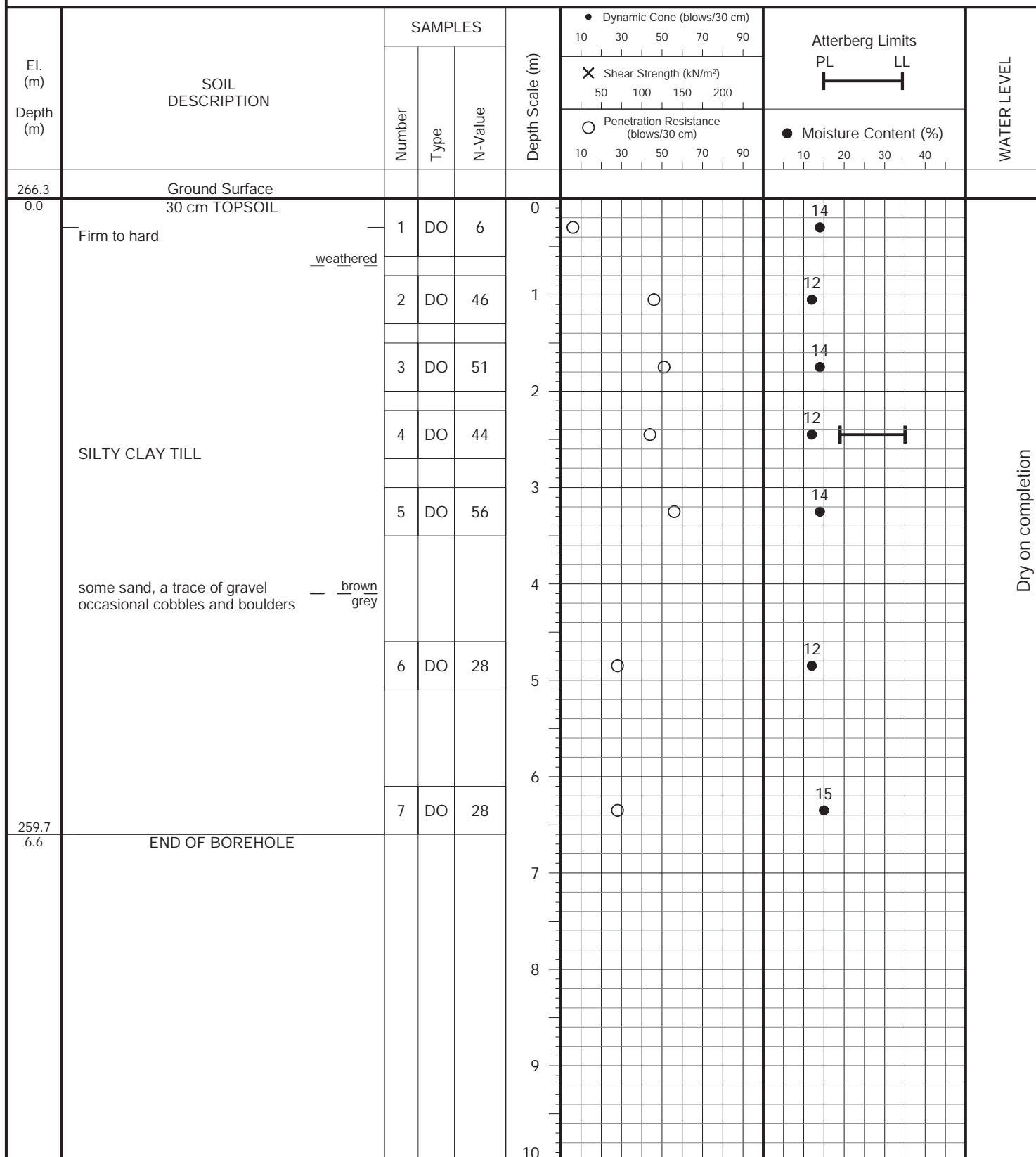
FIGURE NO.: 3

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 28, 2021



Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 4

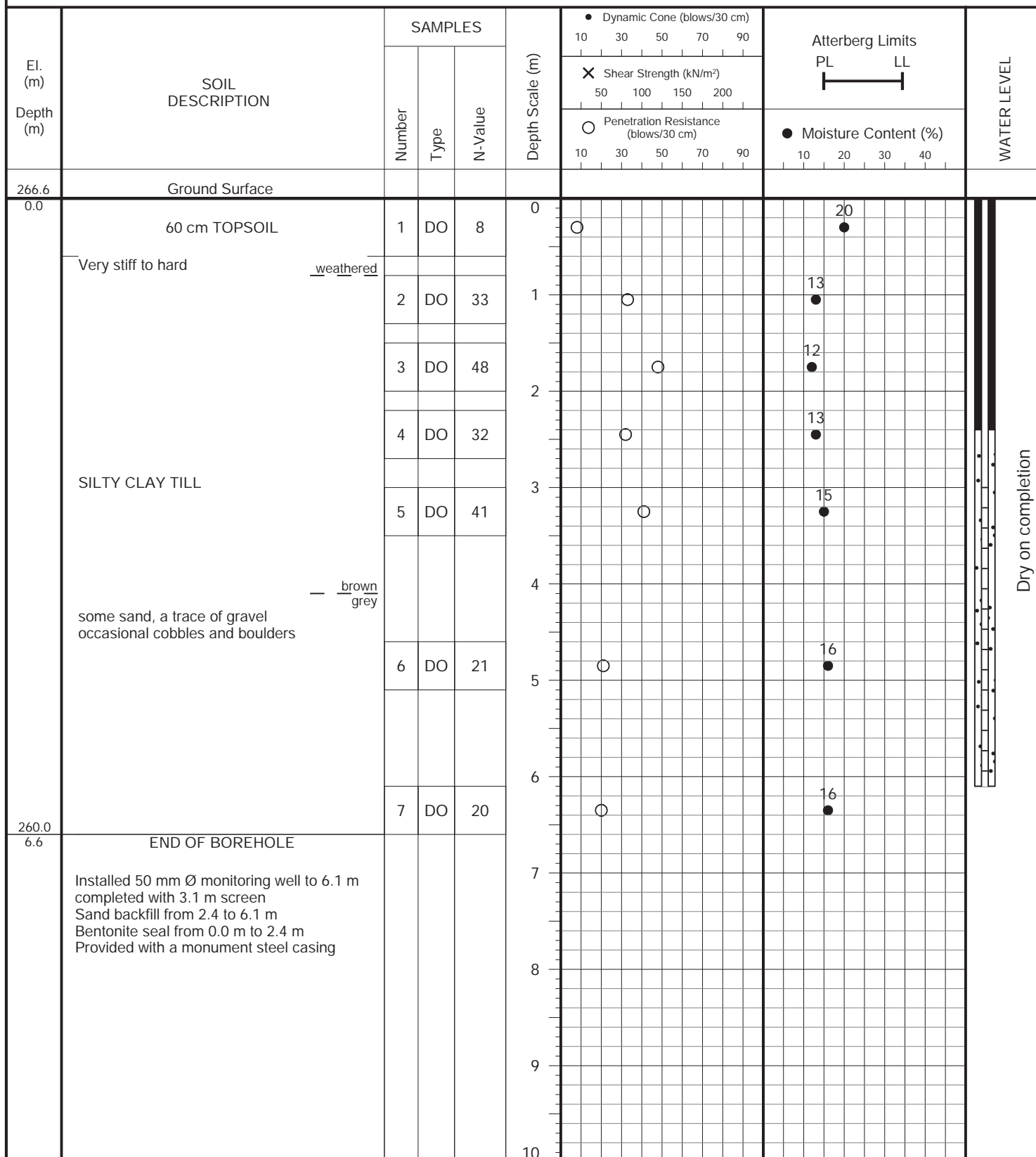
FIGURE NO.: 4

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 29, 2021



Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 5

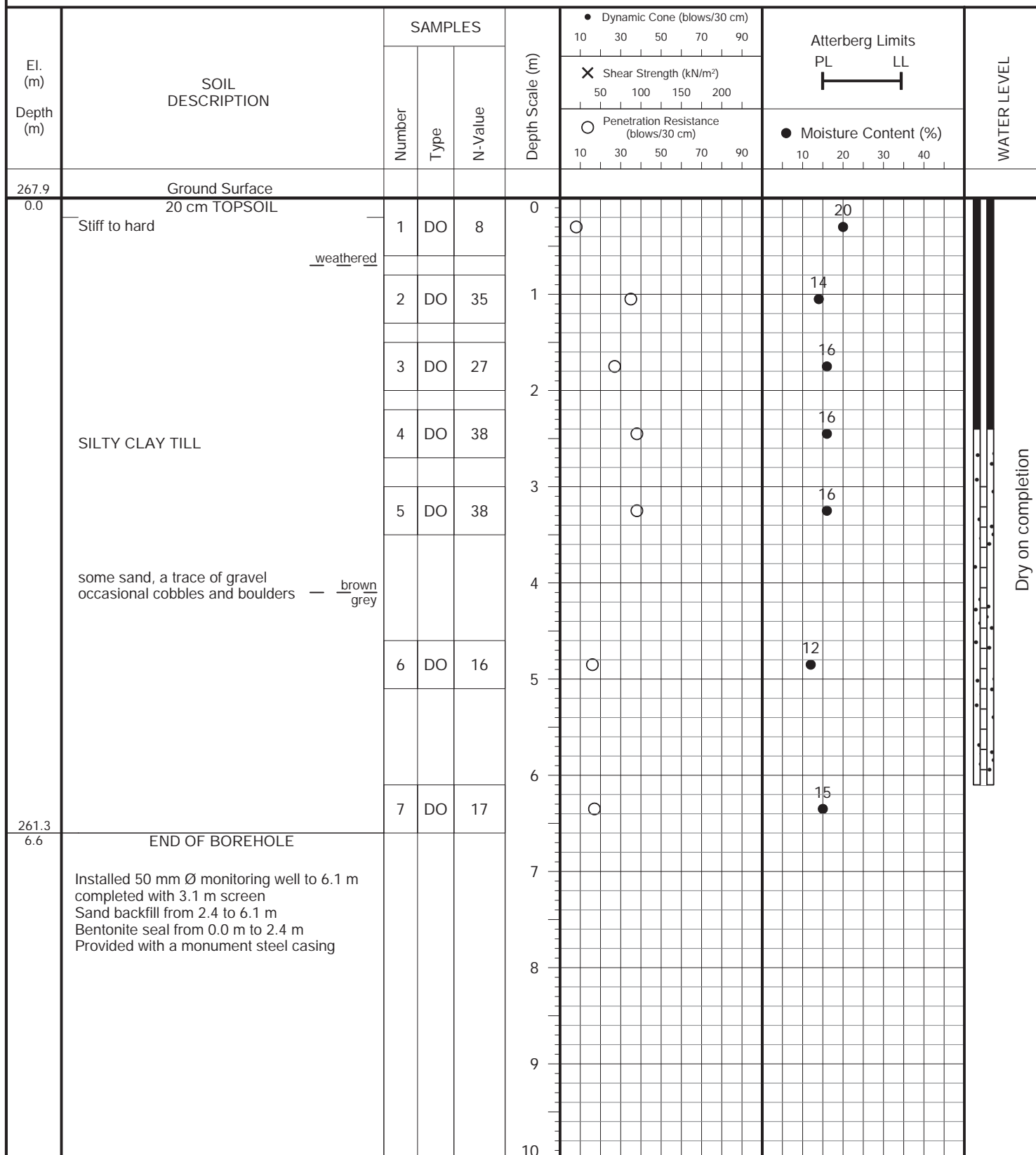
FIGURE NO.: 5

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 4, 2021



Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 6

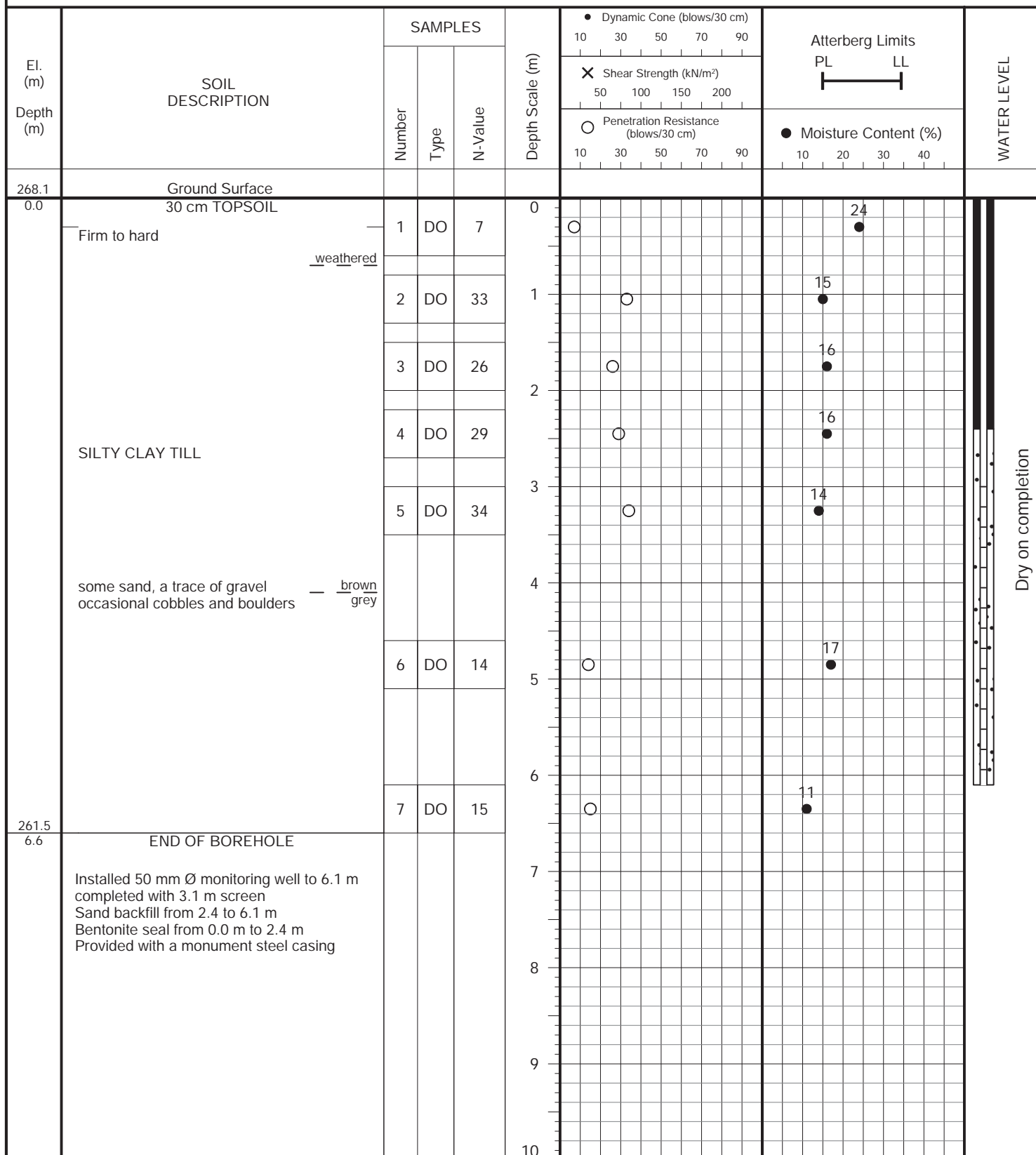
FIGURE NO.: 6

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 29, 2021



Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 7

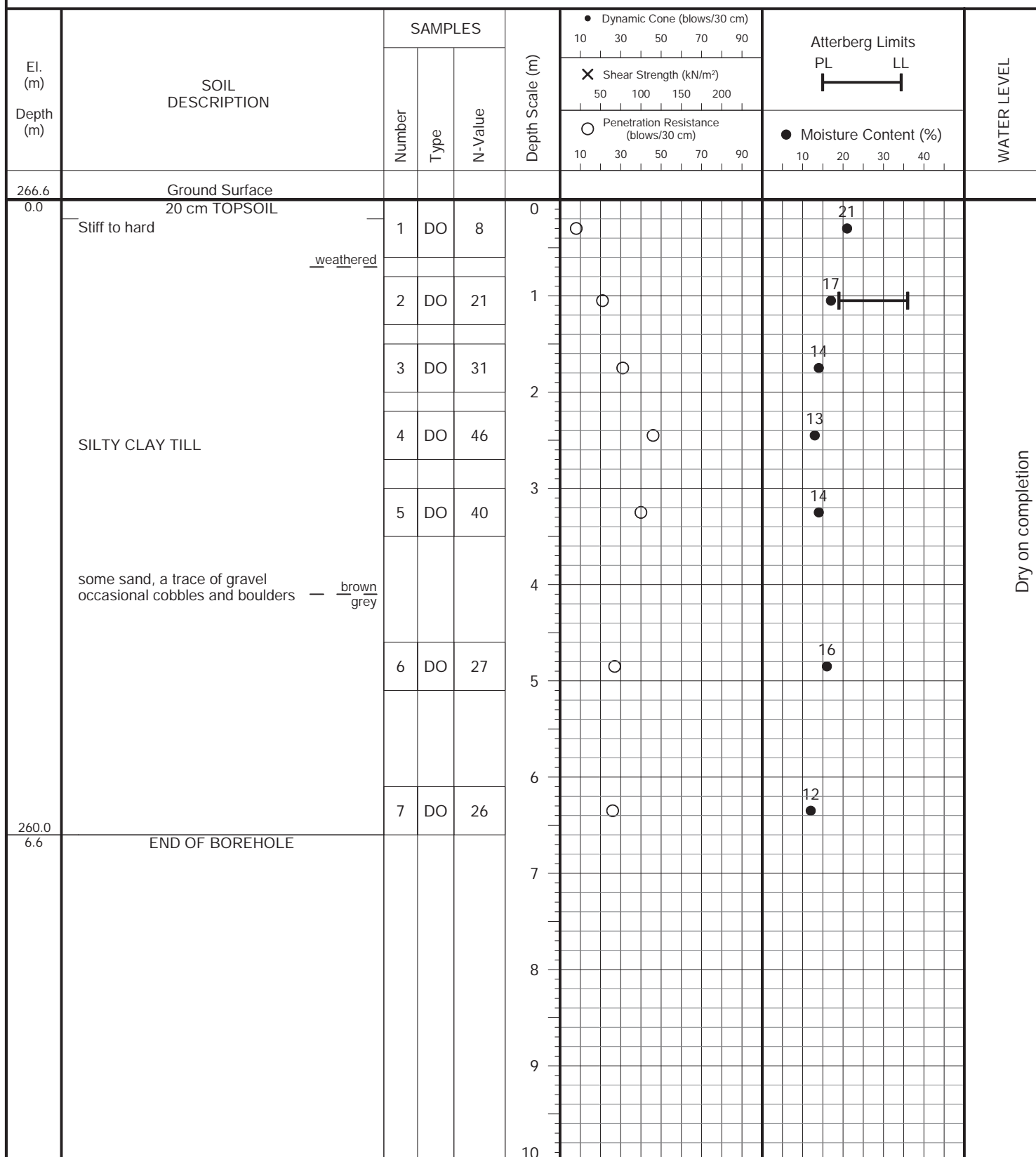
FIGURE NO.: 7

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 29, 2021



Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 8

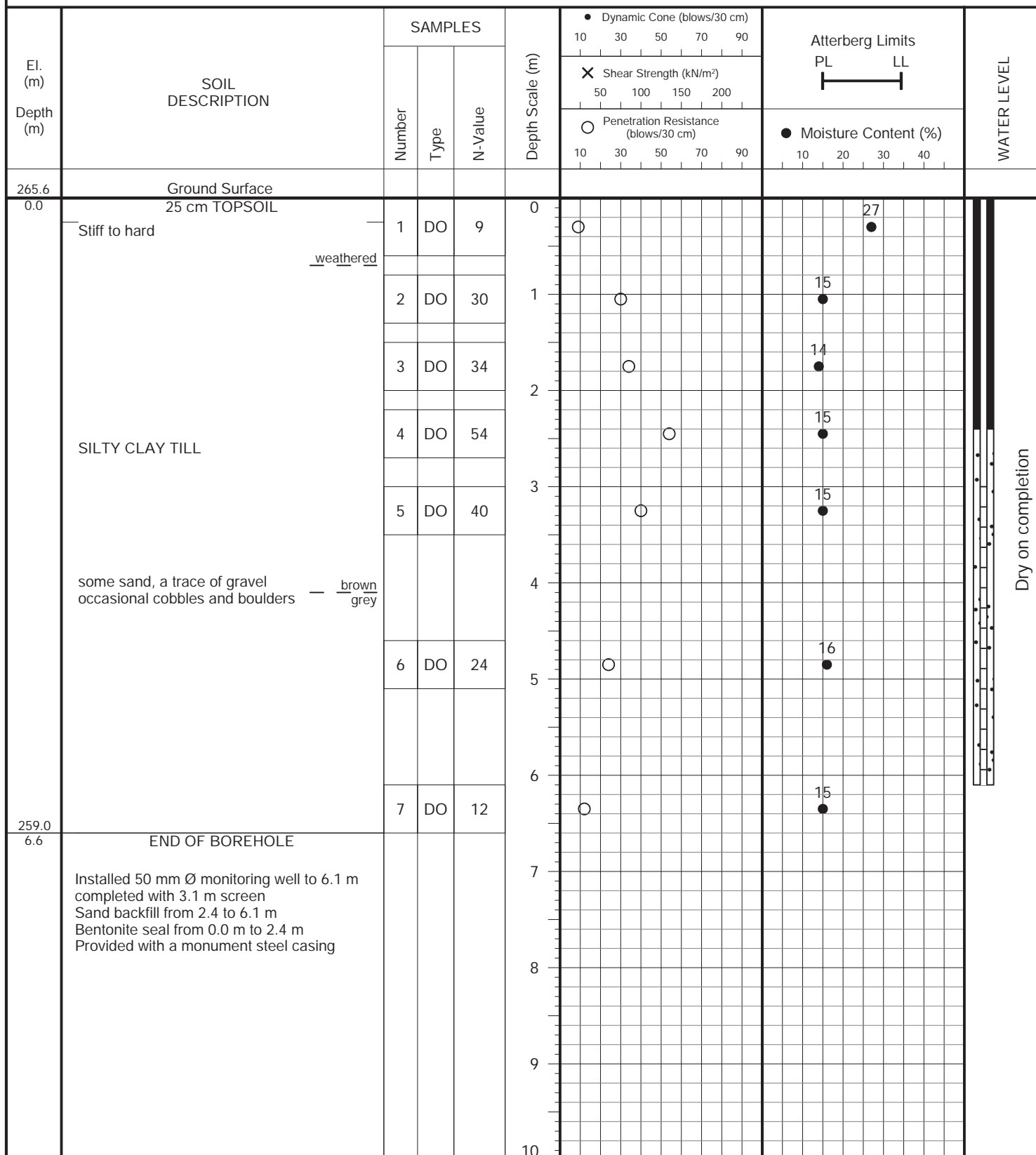
FIGURE NO.: 8

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 29, 2021



Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 9

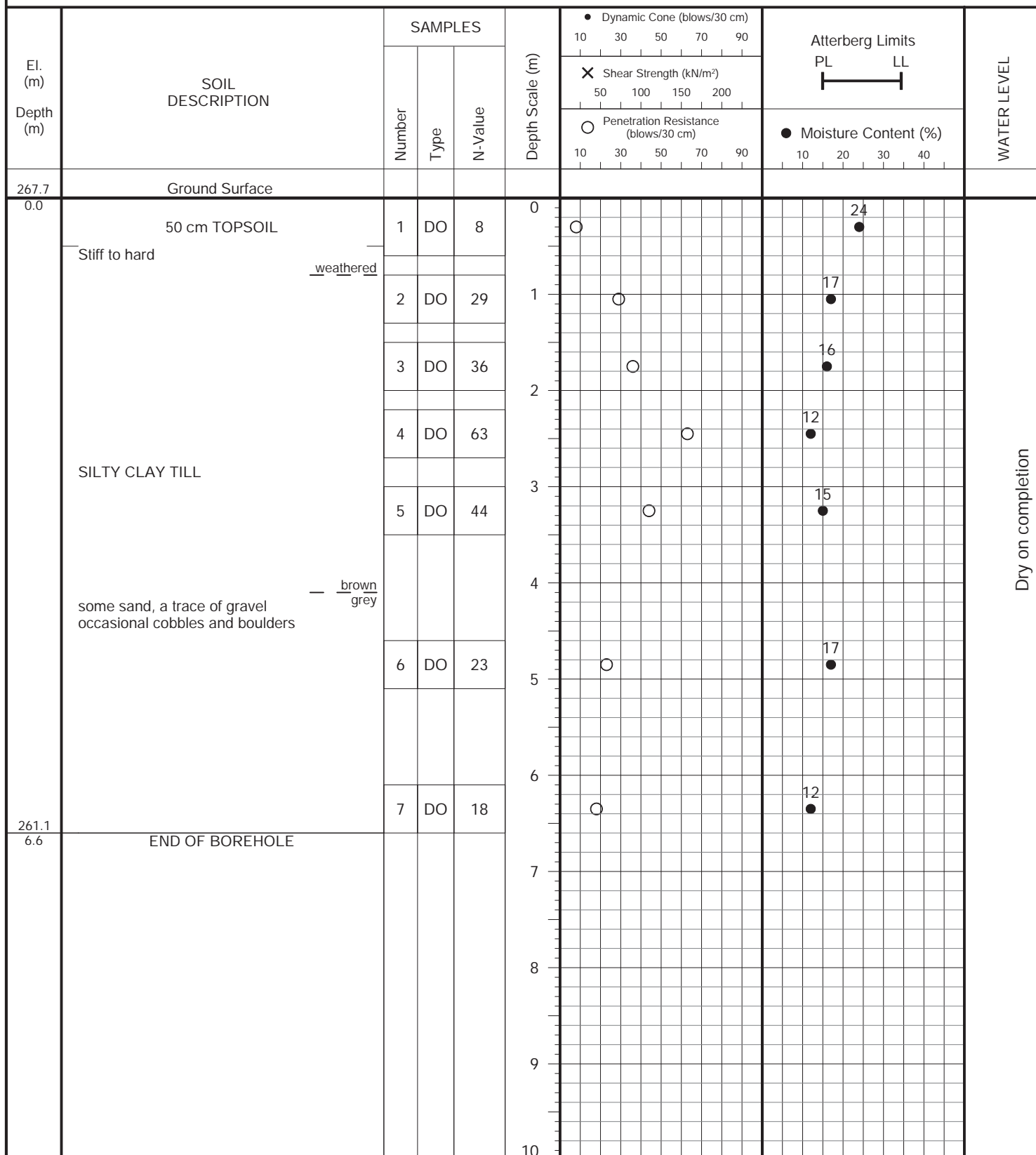
FIGURE NO.: 9

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 29, 2021



Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 10

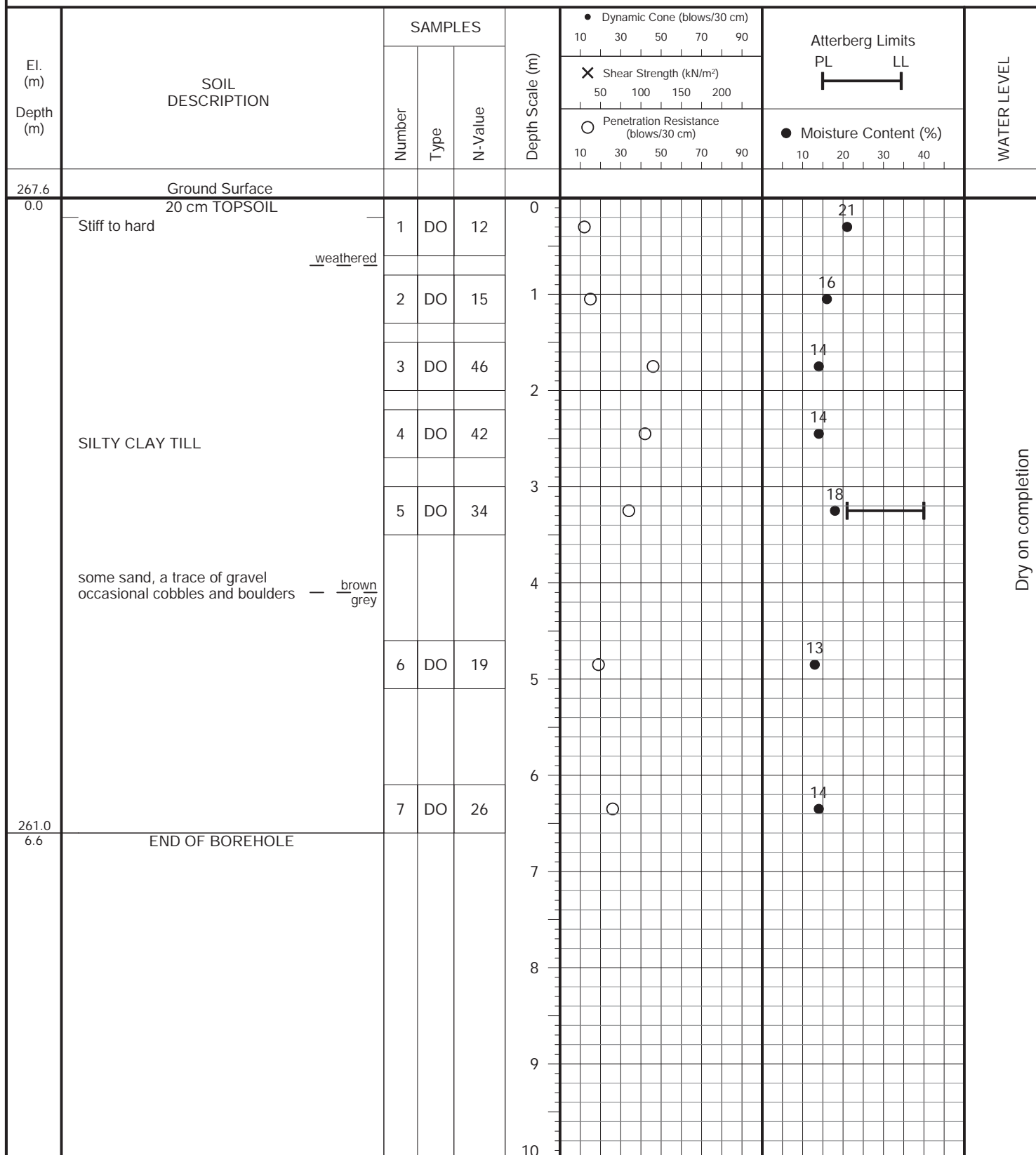
FIGURE NO.: 10

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 5, 2021



Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 11

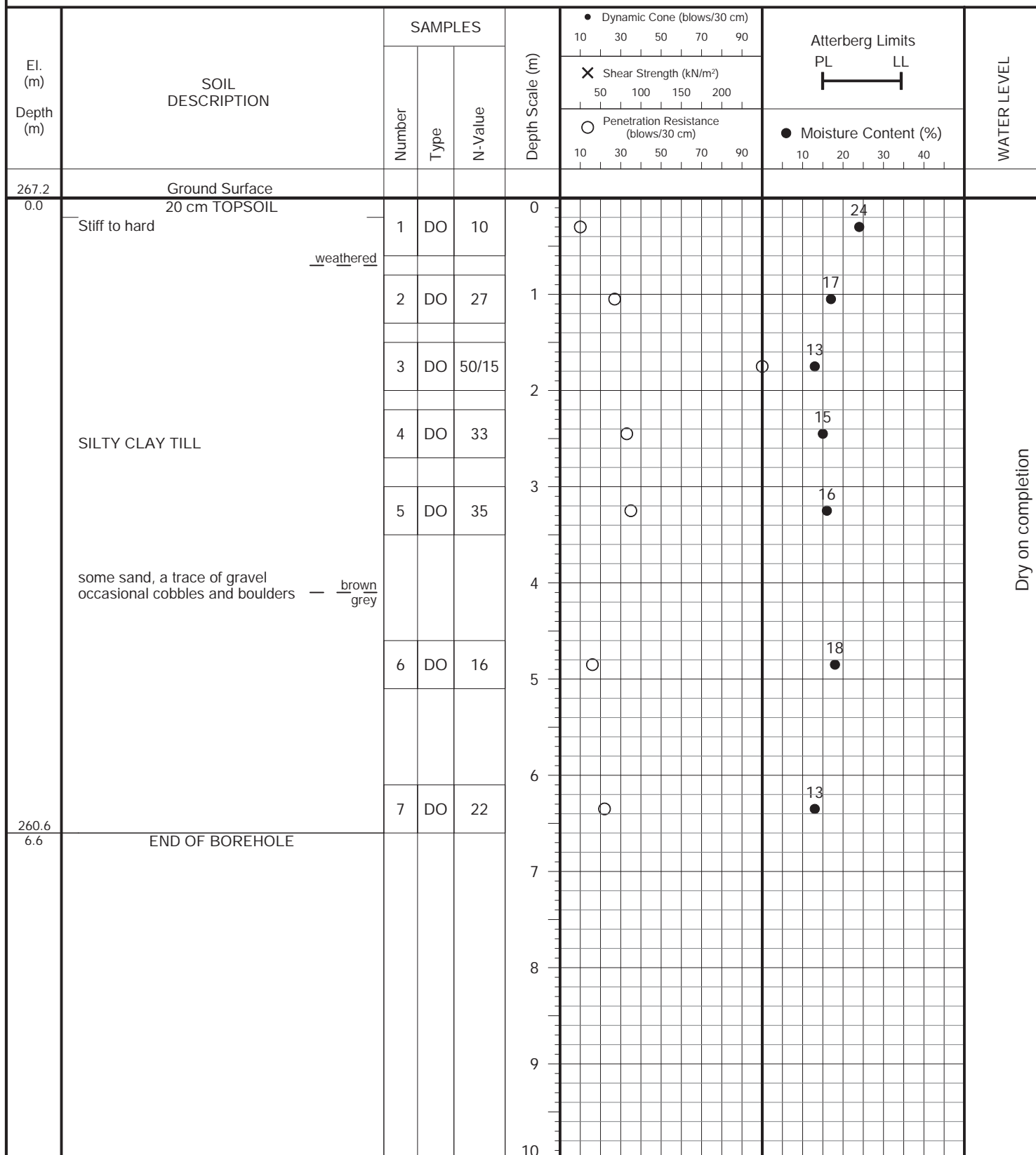
FIGURE NO.: 11

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 5, 2021



Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 12

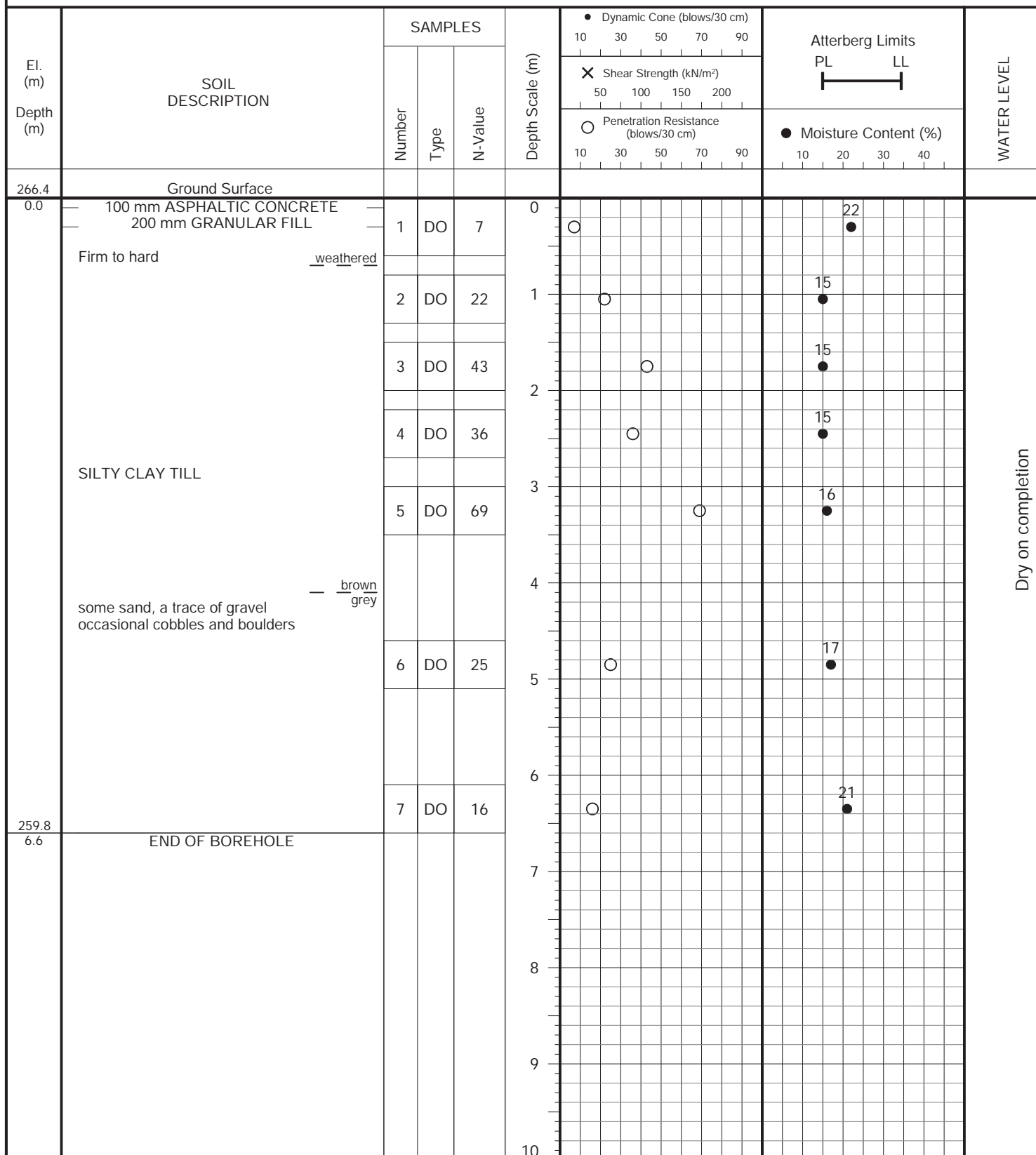
FIGURE NO.: 12

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 4, 2021



Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 13

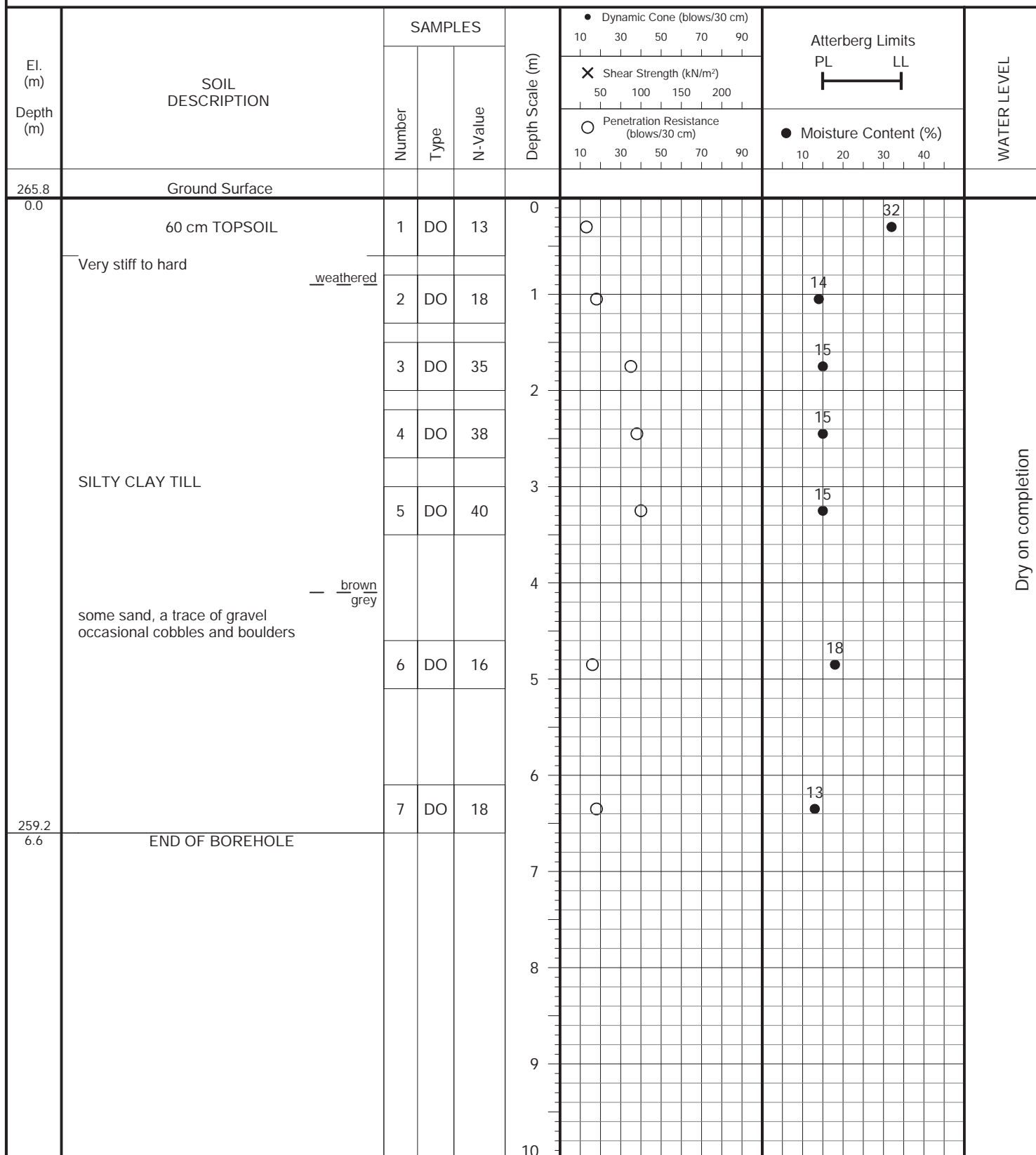
FIGURE NO.: 13

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 1, 2021



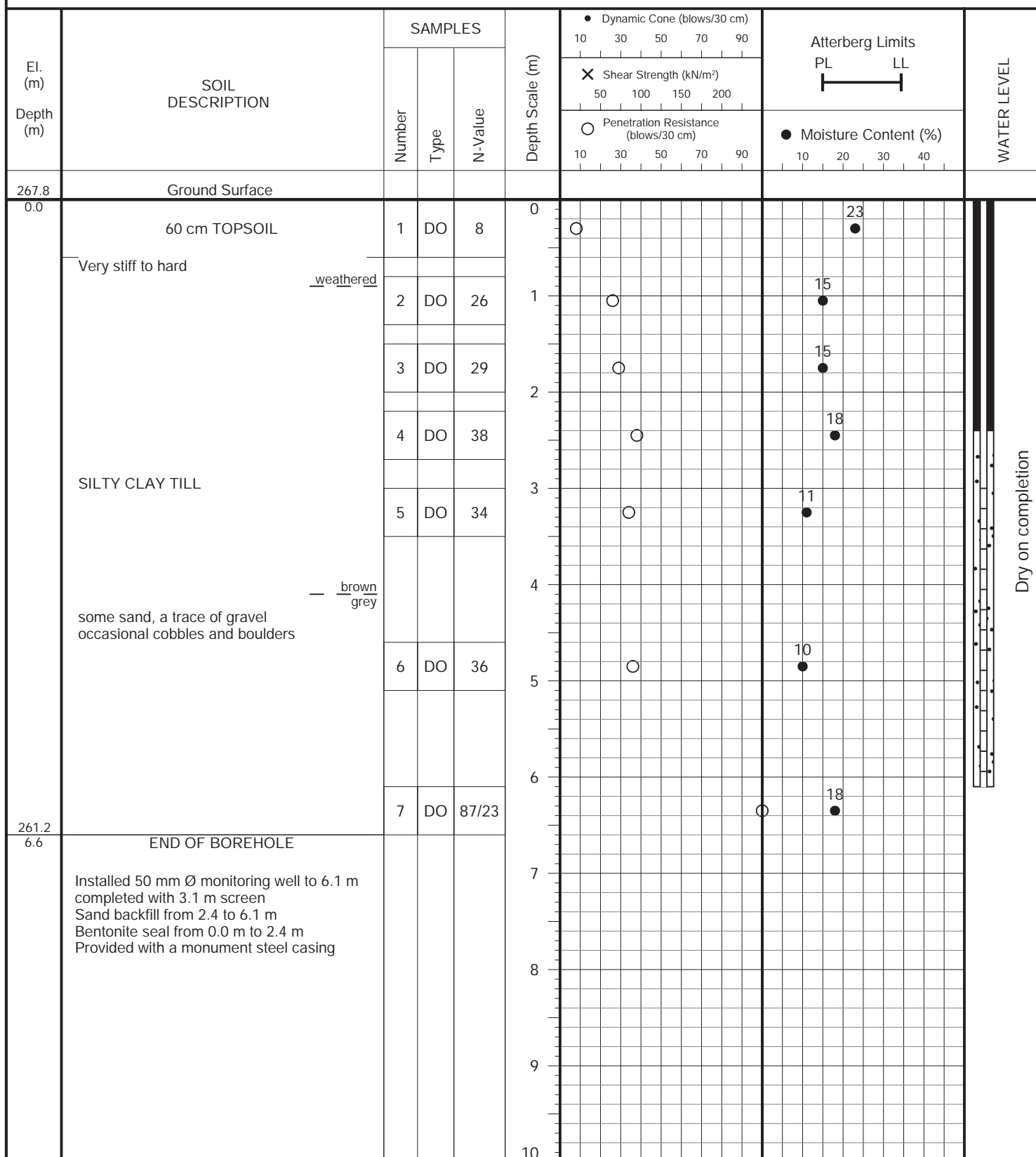
Soil Engineers Ltd.

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 4, 2021



JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 15

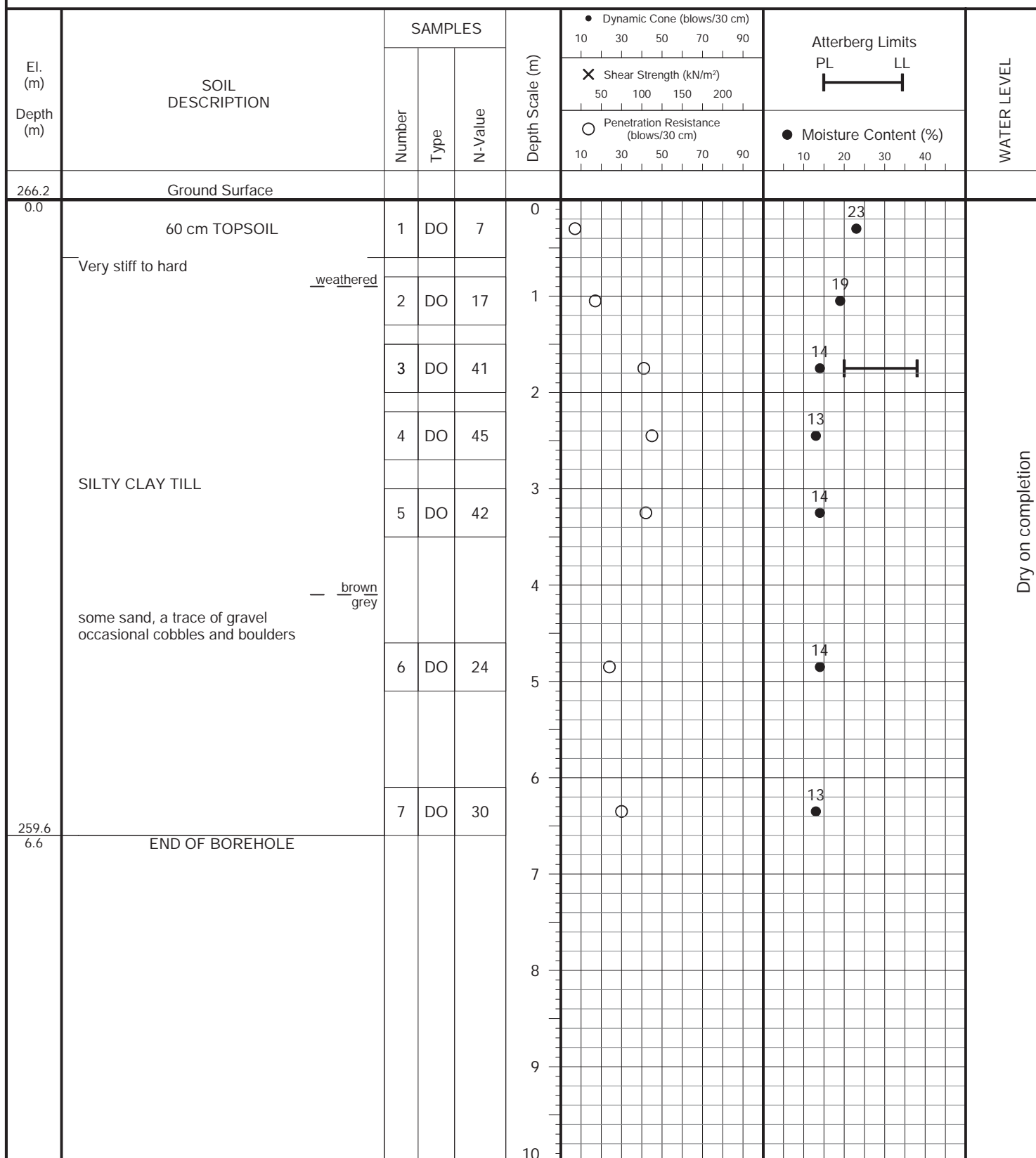
FIGURE NO.: 15

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 1, 2021



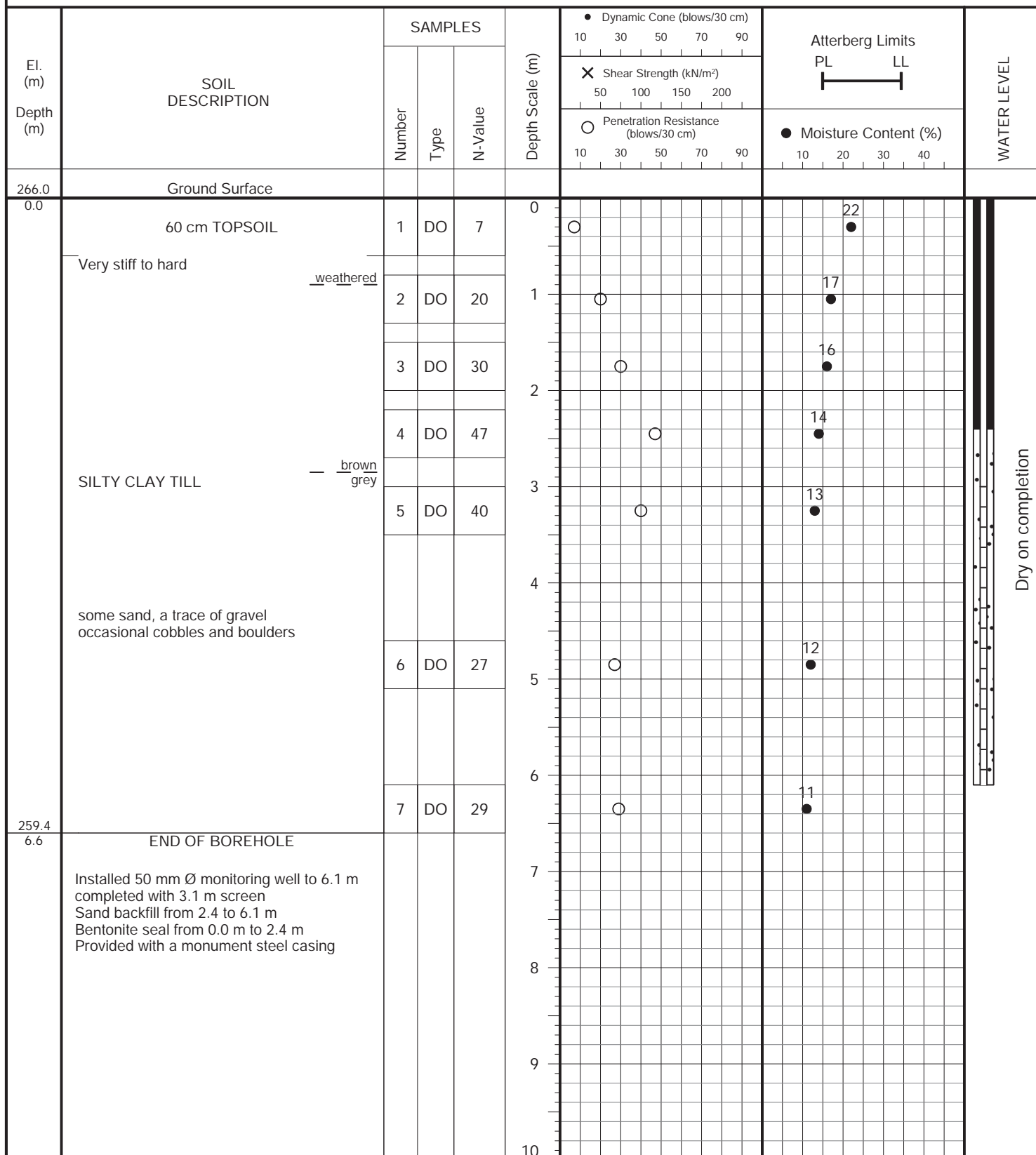
Soil Engineers Ltd.

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 1, 2021



JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 17

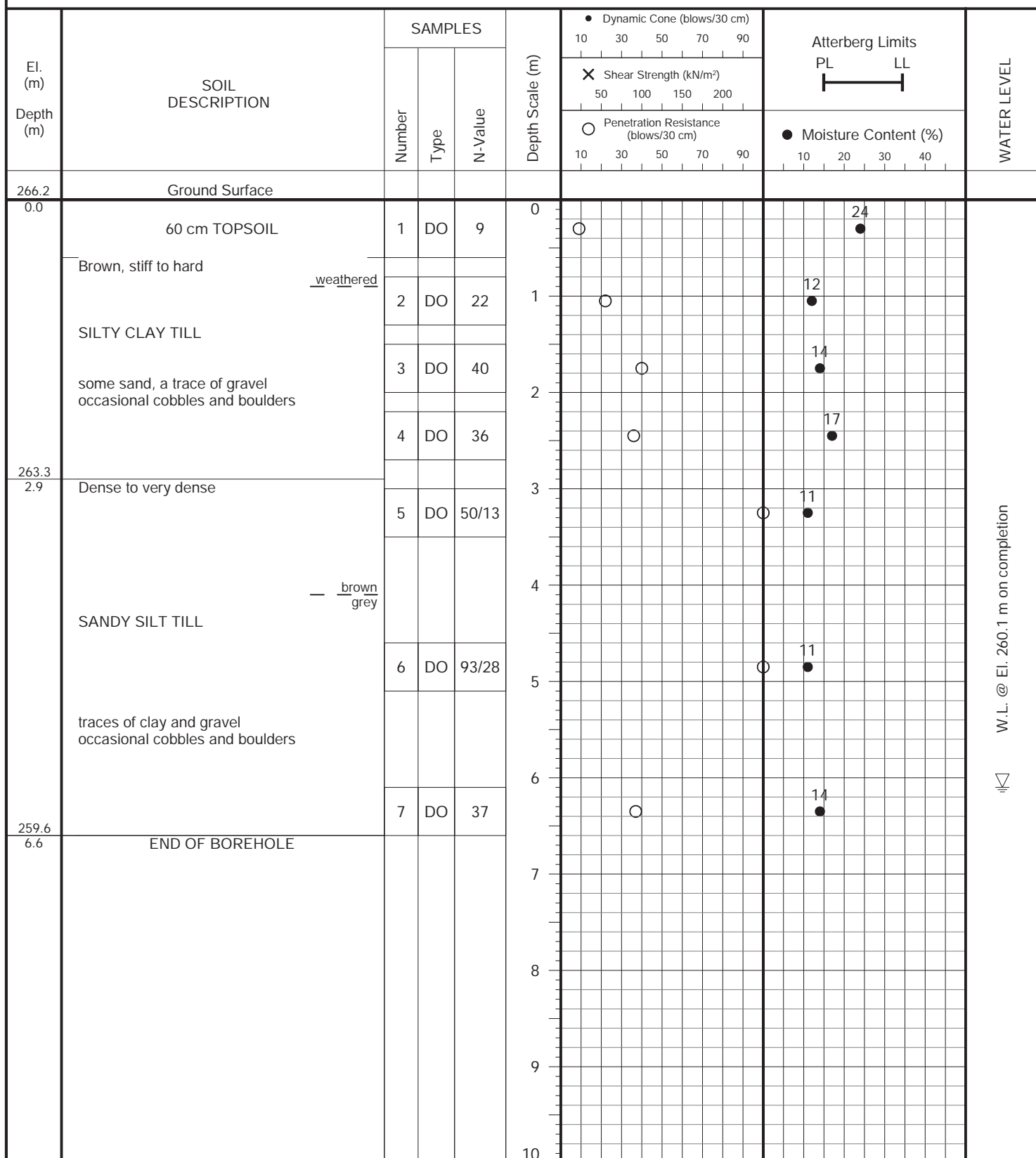
FIGURE NO.: 17

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 1, 2021



W.L. @ El. 260.1 m on completion



Soil Engineers Ltd.

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 1, 2021

