Part 1 General

1.1 A copy of the following investigations are enclosed in Binder C.

1.2 GEOTECHNICAL INVESTIGATIONS

.1 **Geotechnical Investigation**

Milton #13 Public School
Trudeau Drive and Street 1
Milton, Ontario
Prepared by: Soil Engineers Ltd.
Project No. : 2509-S167
Date: January 2026

1.3 DISCLAIMER

.1 The Geotechnical Report is not part of the Contract Documents prepared by the Architect or his sub consultants. It is bound into the Specifications set for convenient reference only. The Geotechnical report was not prepared by or under the supervision of the Architect. While every effort has been made to attempt to provide comprehensive geotechnical information for the purposes of design and tendering, the Architect claims no responsibility for the accuracy of the information contained in the report.

.2 Refer to Section 00 21 13 – ‘Instruction to Bidders’, article 1.24-Examination of the Site.

1.4 CAUTIONARY NOTE REGARDING SITE FILL

.1 The investigation referenced above took place after the site was filled by the subdivision developer.

.2 Report of the analysis for chemical testing of soil is included in Binder C.

Part 2 Products

2.1 NOT USED

.1 Not used.

.2

Part 3 Execution

3.1 NOT USED

.1 Not used.

.2

END OF SECTION

Soil Engineers Ltd.
CONSULTING ENGINEERS
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A REPORT TO
HALTON DISTRICT SCHOOL BOARD

A GEOTECHNICAL INVESTIGATION FOR PROPOSED ELEMENTARY SCHOOL

MILTON #13 PUBLIC SCHOOL
TRUDEAU DRIVE AND STREET 1

TOWN OF MILTON

REFERENCE NO. 2509-S167

JANUARY 2026

DISTRIBUTION

Digital Copy - Halton District School Board
Digital Copy - Hossack Architecture

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TABLES

ENCLOSURES

1.0 INTRODUCTION

In accordance with Purchase order 54672 issued by Halton District School Board, a geotechnical investigation was carried out at northeast corner of Trudeau Drive and Street 1 in the Town of Milton.

The purpose of this investigation was to reveal the subsurface conditions and determine the engineering properties of the disclosed soils for the design and construction of a proposed Public School, also known as “Milton #13 Public School”. The geotechnical findings and resulting recommendations are presented in this Report.

2.0 SITE AND PROJECT DESCRIPTION

The site is located in the Physiographic Region of Peel Plain, consisting of Bevelled Till Plains derived from fine-textured glaciolacustrine deposits of silt and clay, minor sand and gravel with interbedded silt and clay and gritty, pebbly flow till and rainout deposits.

The subject property, approximately 2.83 hectares in area, is located on the northeast corner of Trudeau Drive and Street ‘1’, within a residential subdivision that is currently under construction. At the time of investigation, the property has been partially graded. The placement of earth fill was monitored and supervised by Soil Engineers Ltd. between May and November 2024.

A review of the Site Plan prepared by Hossack Architecture, dated April 2024, indicates that the proposed development will consists of a three-storey slab-on-grade elementary school. The school will also be provided with two parking lots, area prepared for future portable classrooms, municipal services, low-impact design features, access roadways, walkways, play areas and associated landscape features.

3.0 FIELD WORK

The field work, consisting of 44 sampled boreholes to depths ranging from 3.9 to 7.8 m, was performed between October 9 to October 22, 2025 at the locations shown on the Borehole and Monitoring Well Location Plan, Drawing No. 1, enclosed. The borehole locations were specified by Hossack Architecture and adjusted by Soil Engineers Ltd. based on the site condition.

All boreholes were advanced at intervals to the sampling depths by a track-mounted machine with solid-stem augers for soil sampling. Standard Penetration Tests (SPTs), using the procedures described on the enclosed “List of Abbreviations and Terms”, were performed at the sampling depths. The test results are recorded as the Standard Penetration Resistance (or ‘N’ values) of the subsoil. The compactness of the cohesionless strata and the consistency of the cohesive strata are inferred from the ‘N’ values. Split-spoon samples were recovered for soil classification and laboratory testing.

Monitoring wells, 50 mm in diameter, were installed at 9 selected borehole locations, i.e., Boreholes 1, 3, 9, 16, 29, 33, 40 and 43, for groundwater level monitoring and hydrogeological assessment. The depth and details of the monitoring wells are shown on the corresponding Borehole Logs.

Shear Wave Velocity survey for Seismic Site Class determination was carried out on October 28, 2025, by Geophysics GPR International Inc. within the property. The report, including the findings, is presented in Appendix ‘A’.

The field work was supervised and the findings were recorded by a Geotechnical Technician. The ground elevation at each borehole location was obtained using a hand-held Global Navigation Satellite System (GNSS) equipment.

4.0 SUBSURFACE CONDITIONS

The investigation revealed that beneath a layer of earth fill, the site is underlain by strata of silty clay till.

Detailed descriptions of the encountered subsurface conditions are presented on the Boreholes Logs, comprising Figures 1 to 44, inclusive. The revealed stratigraphy is plotted on the Subsurface Profile, Drawing Nos. 2 to 7, inclusive. The engineering properties of the disclosed soils are discussed herein.

4.1 Engineered Earth Fill

The earth fill placed on site has been supervised by Soil Engineers Ltd. between May and November 2024. The earth fill extends to depths ranging from 0.8 to 2.3 m below the prevailing ground surface and generally consists of silty clay.

Due to exposure to weathering, the surficial layer of the engineered earth fill may be disturbed and must be reassessed by SEL during the project construction and may require some recompaction if construction is not imminent.

The natural water content of the samples was determined and the results are plotted on the Borehole Logs; the values range from 9% to 17%, with a median of 11%, indicating that the earth fill is moist to very moist, generally moist condition. The fill with high water content was encountered near the ground surface.

The obtained 'N' values range from 9 to 40, with a median of 17 blows per 30 cm of penetration, indicating that the fill is stiff to hard, being generally very stiff in consistency.

The fill is amorphous in structure; it will ravel and is susceptible to collapse in steep cuts.

The non-weathered engineered fill is suitable for supporting building foundations, slab-on-grade and pavement construction.

4.2 Silty Clay Till

The silty clay till was encountered in all boreholes extending to the borehole depths of 4.3 to 7.8 m from the ground surface. It is the predominant soils in the revealed stratigraphy. The clay till consists of a random mixture of particle sizes ranging from clay to gravel, with the silt and clay being the dominant fraction. Sample examination indicates that it is sandy and contains a trace of gravel, with occasional grey and red clay pockets, cobbles, boulders and shale fragments. Grain size analysis was performed on a representative sample of silty clay till in and the result is plotted on Figure 45.

The obtained 'N' values range from 9 to over 100 blows, with a median of 30 blows per 30 cm of penetration, indicating the silty clay till is stiff to hard, being generally very stiff in consistency.

The water content of silty clay till samples range between 6% and 28%, with a median of 13%, indicating damp to wet, generally moist condition. The Atterberg Limits of two representative sample of the silty clay till were also determined in the present investigation, having a liquid limit of 29% and 27% and plastic limit of 18% and 17% respectively, showing that it is low plasticity.

The engineering properties of the silty clay till deposit are presented below:

- High frost susceptibility and high soil-adfreezing potential.
- Low water erodibility.
- It will generally be stable in a relatively steep cut; however, prolonged exposure will allow the fissures in the weathered zone and the wet sand seams and layers to become saturated, which may lead to localized sloughing.

4.3 Compaction Characteristics of the Revealed Soils

The obtainable degree of compaction is primarily dependent on the soil moisture and, to a lesser extent, on the type of compactor used and the effort applied. As a general guide, the typical water content values of the revealed soils for Standard Proctor compaction are presented in Table 1.

Table 1 - Estimated Water Content for Compaction of On-Site Material

Soil Type	Determined Natural Water Content (%)	Water Content (%) for Standard Proctor Compaction	
		100% (optimum)	Range for 95% or +
Earth Fill	9 to 26 (median 11)	16	12 to 20
Silty Clay Till	6 to 28 (median 13)	15	11 to 20

* The above values are provided as a guideline. Standard Proctor Tests must be performed on bulk samples collected from site during construction prior to backfill and compaction.

4.4 Soil Chemistry

In order to assess the soil chemistry to determine the soil compatibility with in-ground concrete structures, a soil sample was selected and tested to determine sulphate and chloride concentration, and pH. The results are summarized in Table 2:

Table 2 - Soil Chemistry

BH No.	Sample No.	Soil Description	Chloride Concentration (ppm)	Sulphate Concentration (ppm)	pH Value
4	2	Earth Fill	25	50	8.1

Based on the pH value (near neutral, between 8.1 and 8.3), the sulphate content of 50 ppm and chloride content of 25 ppm, the in situ earth fill have a low potential to sulphate attack to concrete.

5.0 GROUNDWATER CONDITION

Upon the completion of borehole drilling, groundwater was observed in 10 of the 44 boreholes in the investigation, while all other boreholes remain dry. The boreholes where groundwater was observed on completion are summarized in Table 3.

Table 3 - Groundwater Levels on Borehole Completion

BH No.	Ground Elevation (m)	Borehole Depth (m)	Measured Groundwater Level on Completion	
			Depth (m)	El. (m)
4	192.8	7.7	7.3	185.5
6	193.1	6.9	5.8	187.3
7	193.2	7.7	7.5	185.7
8	193.9	7.7	7.3	186.6

Table 3 - Groundwater Levels on Borehole Completion (cont'd)

BH No.	Ground Elevation (m)	Borehole Depth (m)	Measured Groundwater Level on Completion	
			Depth (m)	El. (m)
9	192.3	7.7	7.3	185.0
10	192.7	7.7	5.5	187.2
18	193.4	7.7	6.9	186.5
20	193.3	7.7	7.5	185.8
21	193.9	7.8	5.8	188.1
26	192.7	7.8	5.5	187.2

Groundwater levels in the boreholes were recorded on borehole completion between 5.5 m and 7.5 m from existing grade, or between El. 185.0 m and El. 188.1 m. It is subject to seasonal fluctuation.

Additional discussion on the groundwater condition within the property will be presented in the hydrogeological report, under separate cover.

6.0 DISCUSSION AND RECOMMENDATIONS

The investigation revealed that beneath a layer of engineered earth fill, the site is underlain by a stratum of silty clay till.

Groundwater levels in the boreholes were recorded on borehole completion between 5.5 m and 7.5 m from existing grade, or between El. 185.0 m and El. 188.1 m. It is subject to seasonal fluctuation.

The proposed development will consist of a three-storeys slab-on-grade elementary school. The facility will also be provided with two parking lots, area prepared for future portable classrooms, municipal services, low-impact design features, access roadways, walkway, play areas and associated landscape features. The geotechnical findings warranting special consideration for the proposed project are presented below:

1. Where the site is to be raised, the earth fill must be placed in an engineered manner.
2. The proposed structures can be supported on conventional spread and strip footing founded on the native soils or engineered fill below the frost penetration depth. The foundation subgrade must be inspected by the geotechnical engineer or a senior geotechnical technician to ensure that the revealed conditions are compatible with the foundation design requirements.

3. The footing subgrade must be inspected by a geotechnical engineer, or a geotechnical technician under the supervision of a geotechnical engineer, or a building inspector who has geotechnical experience, to assess its suitability for bearing the designed foundations.

The recommendations appropriate for the design of the development are presented herein. One must be aware that the subsurface conditions may vary between boreholes. Should subsurface variances become apparent during construction, a geotechnical engineer must be consulted.

6.1 **Site Preparation**

It is understood that additional earth filling is required for site grading, the earth fill can be constructed in an engineered manner for the school foundations, underground services and pavement support. The engineering requirements for a certifiable fill are presented below:

1. The exposed subgrade must be inspected and proof-rolled prior to any fill placement.
2. Inorganic soils must be used for the fill, and it is recommended that the soil should be uniformly compacted in lifts 20 cm thick to 98% or + of the Standard Proctor Maximum Dry Density (SPMDD) up to the proposed pre-grade or finished grade. The soil moisture must be properly controlled near the optimum. If the foundations are to be built soon after the fill placement, the densification process for the engineered fill must be increased to 100% SPMDD.
3. If the engineered fill is compacted with the moisture content on the wet side of the optimum, the underground services and pavement construction must not begin until the pore pressure within the fill mantle has completely dissipated. This must be further assessed at the time of the engineered fill construction.
4. If imported fill is to be used, it must be inorganic soils, free of any deleterious material with environmental issue (contamination). Any potential imported earth fill from off-site must be reviewed for geotechnical and environmental quality by the appropriate personnel as authorized by the developer or agency, before it is hauled to the site.
5. The engineered fill must not be placed during the period where freezing ambient temperatures occur either persistently or intermittently. This is to ensure that the fill is free of frozen soils, ice and snow.
6. Where the fill is to be placed on a bank steeper than 3 horizontal (H):1 vertical (V), the face of the bank must be flattened to 3H:1V or flatter so that it is suitable for safe operation of the compactor and the required compaction, as well as long-term stability of the slope can be obtained.
7. The fill operation must be supervised on a full time basis and monitored by a technician under the direction of a geotechnical engineer.

8. The engineered fill envelope and finished elevations must be clearly and accurately defined in the field, and they must be precisely documented.
9. Foundations must be reinforced and must be designed by a structural engineer to properly distribute the stress induced by the abrupt differential settlement.
10. Any excavation carried out in the certified engineered fill must be reported to the geotechnical consultant who supervised the fill placement in order to document the locations of excavation and/or to supervise reinstatement of the excavated areas to engineered fill status. If construction on the engineered fill does not commence within a period of 2 years from the date of certification, the condition of the engineered fill must be assessed for re-certification.
11. The footing and underground services subgrade must be inspected by a geotechnical consulting firm. This is to ensure that the foundations and service pipes are placed within the engineered fill envelope, and the integrity of the fill has not been compromised by interim construction, environmental degradation and/or disturbance by the footing excavation.

6.2 Foundations

The proposed three-storey slab-on-grade elementary school can be constructed on conventional spread and strip footings founded into the competent native soil or on engineered fill. The recommended bearing pressures for the design of the conventional strip and spread footings are presented below:

- Maximum Bearing Pressure at Serviceability Limit State (SLS) = 150 kPa
- Factored Bearing Pressure at Ultimate Limit State (ULS) = 225 kPa

Where higher bearing capacity is required, the footings must extend into the native soils below the engineered fill. As a guide, the recommended bearing pressures for the design of the foundation founded at El. 190.0 m, are presented below:

- Maximum Bearing Pressure at Serviceability Limit State (SLS) = 250 kPa
- Factored Bearing Pressure at Ultimate Limit State (ULS) = 400 kPa

The total and differential settlements of footings designed for the bearing pressure at SLS are estimated to be 25 mm and 20 mm, respectively. The foundations must be reinforced and must be designed by a structural engineer to properly distribute the stress induced by the abrupt differential settlement, whether it is placed on the sound natural soil, or on engineered fill.

If drilled caissons are being considered, the recommended bearing pressures for the design of the foundation founded at El. 189.0 m, are presented below:

- Maximum Bearing Pressure at Serviceability Limit State (SLS) = 500 kPa
- Factored Bearing Pressure at Ultimate Limit State (ULS) = 800 kPa

If caissons are to be used for building foundations, the centre-to-centre spacing between the caissons must be at least twice the diameter of the largest adjacent caisson base. To facilitate the ease of subgrade inspection and cleaning, the caissons must be at least 80 cm in diameter.

During construction, the foundation subgrade must be inspected by a geotechnical engineer or a senior geotechnical technician to ensure that the revealed conditions are compatible with the foundation design requirements.

Foundations exposed to weathering or in unheated areas must have at least 1.2 m of earth cover for protection against frost action.

If surface water seepage is encountered in excavation, the foundation must be poured immediately after subgrade inspection or the subgrade must be protected by a concrete mud-slab immediately after exposure. This will prevent construction disturbance and costly rectification of the bearing subsoil.

The foundation should meet the requirement specified in the Ontario Building Code. Based on the results of the Shear Wave Velocity Survey completed within the property, as carried out by Geophyiscs GPR International Inc., a Site Class ‘C’ can be used for the design of the foundation.

Future Portable Classroom Pads

In the area where the future portable classrooms are proposed, it is recommended that engineered fill be completed up to the finished grade using inorganic soils, placed in accordance to the engineered fill specification in Section 6.1. Following the completion of the engineered fill, the foundation for the portable classrooms can be designed using the following bearing capacity:

- Maximum Bearing Pressure at Serviceability Limit State (SLS) = 150 kPa
- Factored Bearing Pressure at Ultimate Limit State (ULS) = 225 kPa

It must be noted that the surficial portion of the engineered fill may be weakened by environmental degradations overtime. If the portable classrooms are to be constructed at more than 2 years after certification, it will require additional evaluations prior to the placement of the portable classroom units within the designated area.

6.3 Slab-On-Grade Construction

The subgrade for slab-on-grade structures must consist of sound native soils or properly compacted inorganic earth fill. Where the engineered fill is left over winter months, the exposed surface must be inspected and reassessed through proof-rolling by SEL to confirm the competency of the engineered fill, to ensure all disturbed material are removed and replaced with properly compacted engineered fill, uniformly compacted to at least 98% SPMDD.

The concrete slab must be constructed on a 20 cm thick granular bedding, consisting of 19-mm Crusher-Run Limestone (CRL), or equivalent, compacted to 100% SPMDD. A Modulus of Subgrade Reaction of 30 MPa/m is recommended for the design of the floor slab.

The external grading must be such that runoff is directed away from the building.

6.4 Underground Services

The underground services must be founded on sound native soil or properly compacted inorganic earth fill. Where incompetent or weathered soil is encountered, it must be subexcavated and replaced with the bedding material, compacted to at least 98% SPMDD.

A Class ‘B’ bedding is recommended for the underground services construction, consisting of compacted 19-mm CRL, or equivalent, as approved by a geotechnical engineer.

The pipe joints connecting into the manholes and catch basins must be leak-proof to prevent the migration of fines through the joints. Openings to subdrains and catch basins must be shielded with a fabric filter to prevent blockage by silting.

A soil cover of at least equal to the diameter of the pipe must be in place at all times after pipe installation, to prevent pipe floatation when the trench is deluged with water derived from precipitation.

The on-site clayey soils are considered moderately high in corrosivity to ductile iron pipes and metal fittings; therefore, the underground services must be protected against soil corrosion. For estimation for the anode weight requirements, the electrical resistivities disclosed in Table 5 can be used. The proposed anode weight must meet the minimum requirements as specified by the Region and Municipality Standard.

6.5 Backfilling in Trenches and Excavated Areas

The on site inorganic soils are suitable for use as trench backfill. Where the soils are either too dry or on the dry site of the optimum, the soil may require wetting prior to structural compaction. Where the soils are wet, they must be aerated by spreading thinly on the ground or mixed with drier soil prior to structure compaction.

When compacting the till on the dry side of the optimum, the compactive energy will frequently bridge over the chunks in the soil and be transmitted laterally into the soil mantle. Therefore, the lifts must be limited to 20 cm or less (before compaction), or to a suitable thickness assessed by test strips performed by the compaction equipment. Boulders over 15 cm in size must be sorted and removed from the backfill.

The backfill in service trenches must be compacted to at least 95% SPMDD, increasing to 98% SPMDD below the concrete floor slab and within 1.0 m below the pavement. The material must be compacted with the water content at 2% to 3% drier than the optimum.

In normal construction practice, the problem areas of pavement settlement largely occur adjacent to manholes, catch basins, services crossings, foundation walls and columns. In confined areas where the desired slope cannot be achieved or the operation of a proper heavy-duty compactor cannot be facilitated, sand fill or granular backfill, which can be appropriately compacted by using a smaller vibratory compactor, must be used.

6.6 Pavement Design

The pavement design for the parking lots is presented in Table 4.

Table 4 - Pavement Design

Course	Thickness (mm)	OPS Specifications
Asphalt Surface	40	HL3
Asphalt Binder		HL8
Light Duty	50	
Heavy Duty/Fire Route	80	
Granular Base	150	Granular 'A'
Granular Sub-base		Granular 'B', Type II
Light Duty	300	
Heavy Duty/Fire Route	450	

The final subgrade must be proof-rolled using a heavy roller or loaded dump truck. Any soft spot as identified must be rectified by subexcavation and replacing with selected dry inorganic material. The subgrade within 1.0 m below the underside of the granular sub-base must be compacted to at least 98% SPMDD, with the water content at 2% to 3% drier than its optimum. All the granular bases must be compacted in 150 to 200 mm lifts to 100% SPMDD.

The pavement must be graded properly. In order to prevent infiltrated precipitation from seeping into the granular bases, since this may inflict frost damage on the pavement, swales or intercept subdrains connected to positive outlets must be installed along the perimeter where surface runoff drains into the granular base and subgrade.

6.7 Soil Parameters

The recommended soil parameters for the project design are given in Table 5.

Table 5 - Soil Parameters

Unit Weight and Bulk Factor	**Unit Weight γ (kN/m^3)**		**Estimated Bulk Factor**	
	Bulk	**Submerged**	**Loose**	**Compacted**
Earth Fill	21.0	11.0	1.20	1.00
Silty Clay Till	21.5	11.5	1.30	1.05

Lateral Earth Pressure Coefficients	**Active K_a**	**At Rest K_o**	**Passive K_p**
Earth Fill	0.40	0.50	2.50
Silty Clay Till	0.35	0.45	2.86

Coefficient of Permeability (K) and Percolation Time (T)	**K (cm/sec)**	**T (min/cm)**
Earth Fill/Silty Clay Till	10^{-7}	80+

Effective Shear Strength Parameters	**Cohesion c' (kPa)**	**Angle of Internal Friction, φ'**
Earth Fill	0	26°
Silty Clay Till	5	30°

Estimated Electrical Resistivity	
Silty Clay Till	3000 ohm·cm

Table 5 - Soil Parameters (Cont'd)

Coefficients of Friction	
Between Concrete and Granular Base	0.50
Between Concrete and Sound Native Soils	0.35

6.8 **Excavation**

Excavation must be carried out in accordance with Ontario Regulation 213/91. The types of soils are classified in Table 6.

Table 6 - Classification of Soils for Excavation

Material	Type
Silty Clay Till	2
Earth Fill	3

In the silty clay fill and till deposit, any perched groundwater yield can be collected and removed by conventional pumping from sumps. The amount of water is anticipated to be slow in rate and limited in quantity.

The hard till contains cobbles and boulders. Extra effort and a properly equipped backhoe will be required for excavation. Boulders and shale fragments larger than 15 cm in size are not suitable for structural backfill.

Prospective contractors must be asked to assess the in situ subsurface conditions for soil cuts by digging test pits to 1.0 m below the anticipated depth of excavation. These test pits must be allowed to remain open for a few hours to assess the trenching conditions.

7.0 LIMITATIONS OF REPORT

This report was prepared by Soil Engineers Ltd. for the account of Halton District School Board and for review by the designated consultants, financial institutions, government agencies and contractors. The material in the report reflects the judgment of Sze Wing Yu, B.Eng., and Kelvin Hung, P.Eng., in light of the information available to it at the time of preparation.

Use of the report is subject to the conditions and limitations of the contractual agreement. Any use which a Third Party makes of this report, and/or any reliance on decisions to be made based on it is the responsibility of such Third Parties. Soil Engineers Ltd. accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

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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

PENETRATION RESISTANCE

Standard Penetration Resistance or ‘N’ Value:

The number of blows of a 63.5 kg hammer falling from a height of 76 cm required to advance a 51 mm outer diameter drive open sampler 30 cm into undisturbed soil, after an initial penetration of 15 cm.

Plotted as ‘○’

Dynamic Cone Penetration Resistance:

A continuous profile showing the number of blows per each 30 cm of penetration of a 51 mm diameter, 90° point cone driven by a 63.5 kg hammer falling from a height of 76 cm.

Plotted as ‘—•—’

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

SOIL DESCRIPTION

Cohesionless Soils:

‘N’ (blows/30 cm)	Compactness
0 to 4	very loose
4 to 10	loose
10 to 30	compact
30 to 50	dense
> 50	very dense

Cohesive Soils:

Undrained Shear Strength (kPa)	‘N’ (blows/30 cm)	Consistency
<12	<2	very soft
12 to <25	2 to <4	soft
25 to <50	4 to <8	firm
50 to <100	8 to <15	stiff
100 to 200	15 to 30	very stiff
>200	>30	hard

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

METRIC CONVERSION FACTORS

1 ft = 0.3048 m
1 inch = 25.4 mm
1 lb = 0.454 kg
1 ksf = 47.88 kPa

JOB NO.: 2509-S167

LOG OF BOREHOLE: 1

FIGURE NO.: 1

PROJECT DESCRIPTION: Proposed Milton 13 Public School

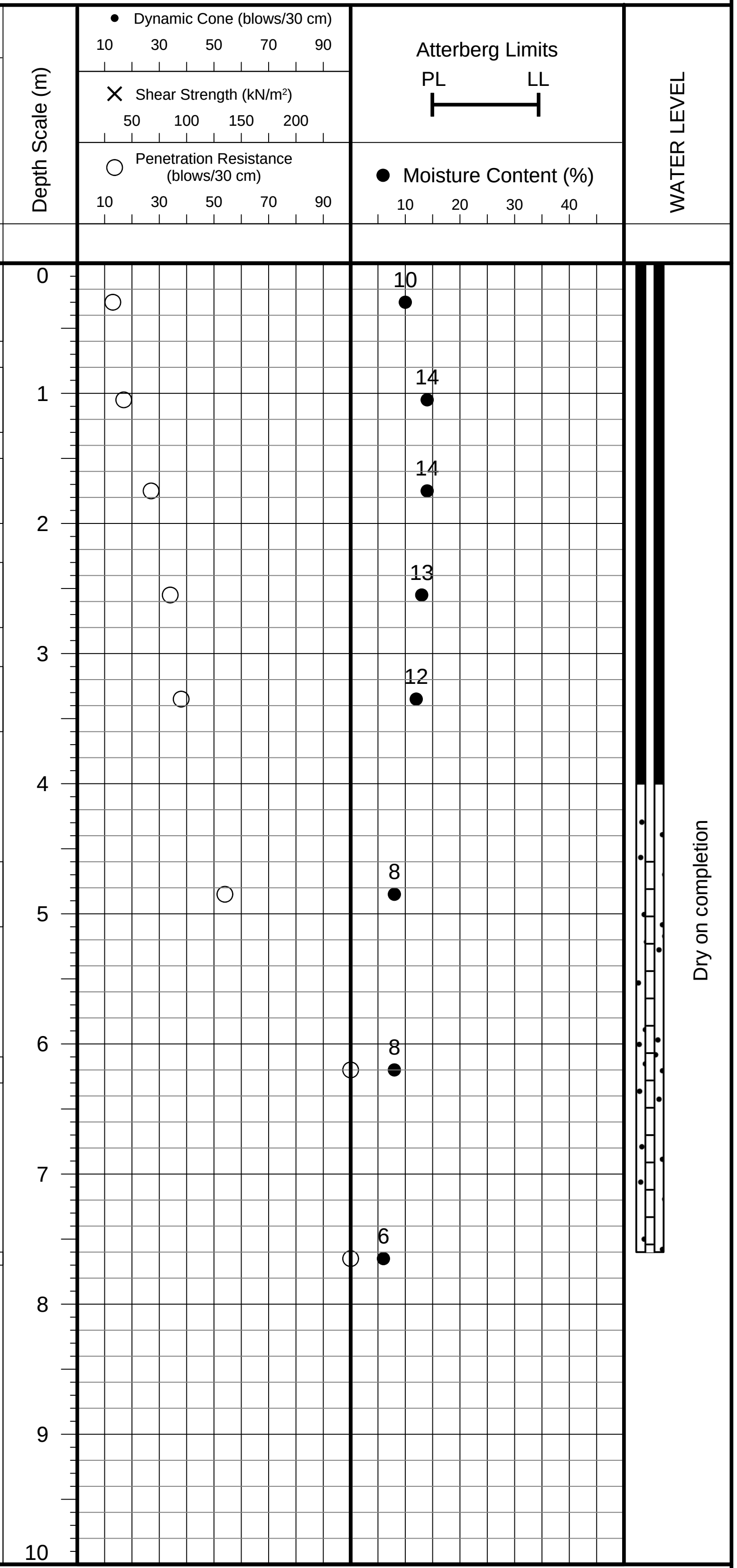
METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 16, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value
192.7	Ground Surface			
0.0	Brown **EARTH FILL** silty clay	1	DO	13
191.7 1.0	Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	17
		3	DO	27
		4	DO	34
		5	DO	38
		6	DO	54
	reddish brown grey	7	DO	50/15
	grey red	8	DO	50/13
185.0 7.7	**END OF BOREHOLE**			

Installed 50 mm Ø monitoring well to 7.6 m
completed with 3.0 m screen
Sand backfill from 4.0 to 7.6 m
Bentonite seal from 0.0 m to 4.0 m
Provided with a momument steel casing



JOB NO.: 2509-S167

LOG OF BOREHOLE: 2

FIGURE NO.: 2

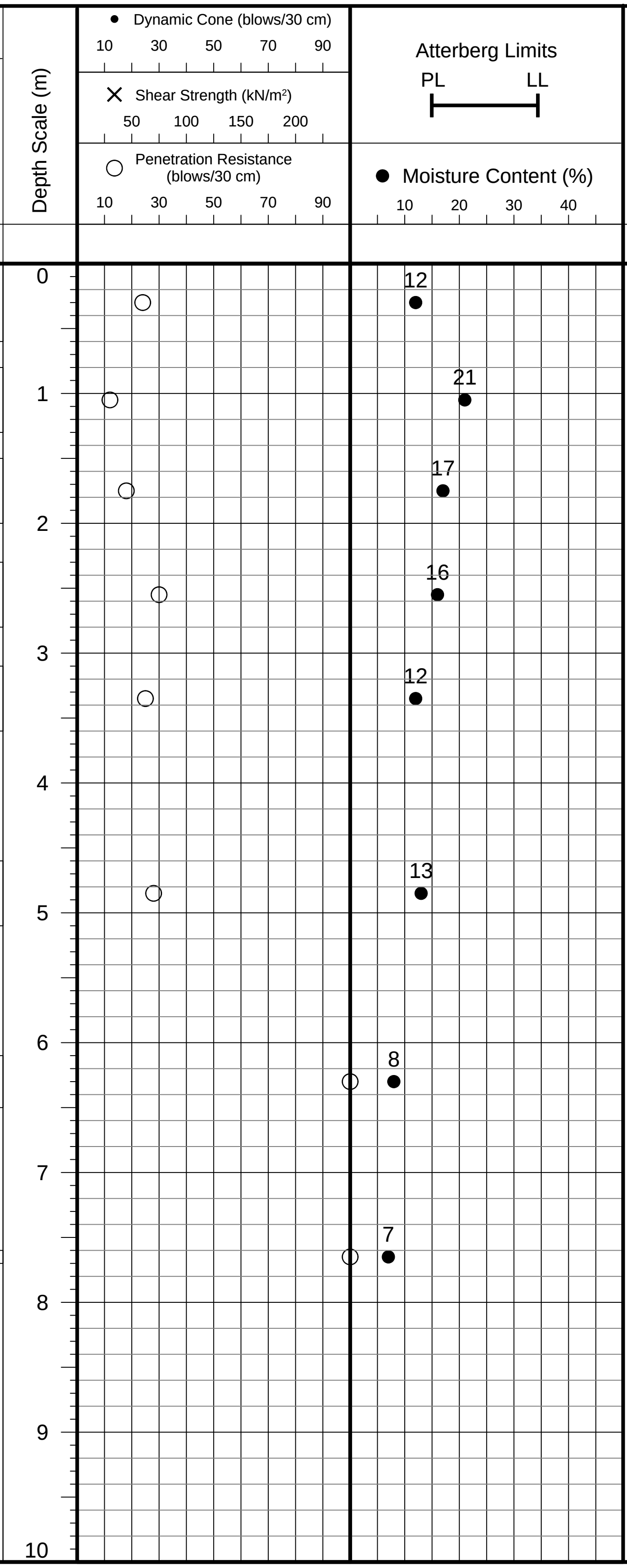
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 10, 2025

		SAMPLES			
El. (m) Depth (m)	SOIL DESCRIPTION	Number	Type	N-Value	WATER LEVEL
193.3	Ground Surface				
0.0	Reddish brown/brown **EARTH FILL** silty clay	1	DO	24	
192.3 1.0	Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	12	Dry on completion
		3	DO	18	
	brown/grey reddish brown	4	DO	30	
		5	DO	25	
	reddish brown reddish grey	6	DO	28	
		7	DO	83/13	
185.6 7.7	reddish grey red **END OF BOREHOLE**	8	DO	50/13	



Soil Engineers Ltd.

JOB NO.: 2509-S167 **LOG OF BOREHOLE: 3** **FIGURE NO.:** 3

PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

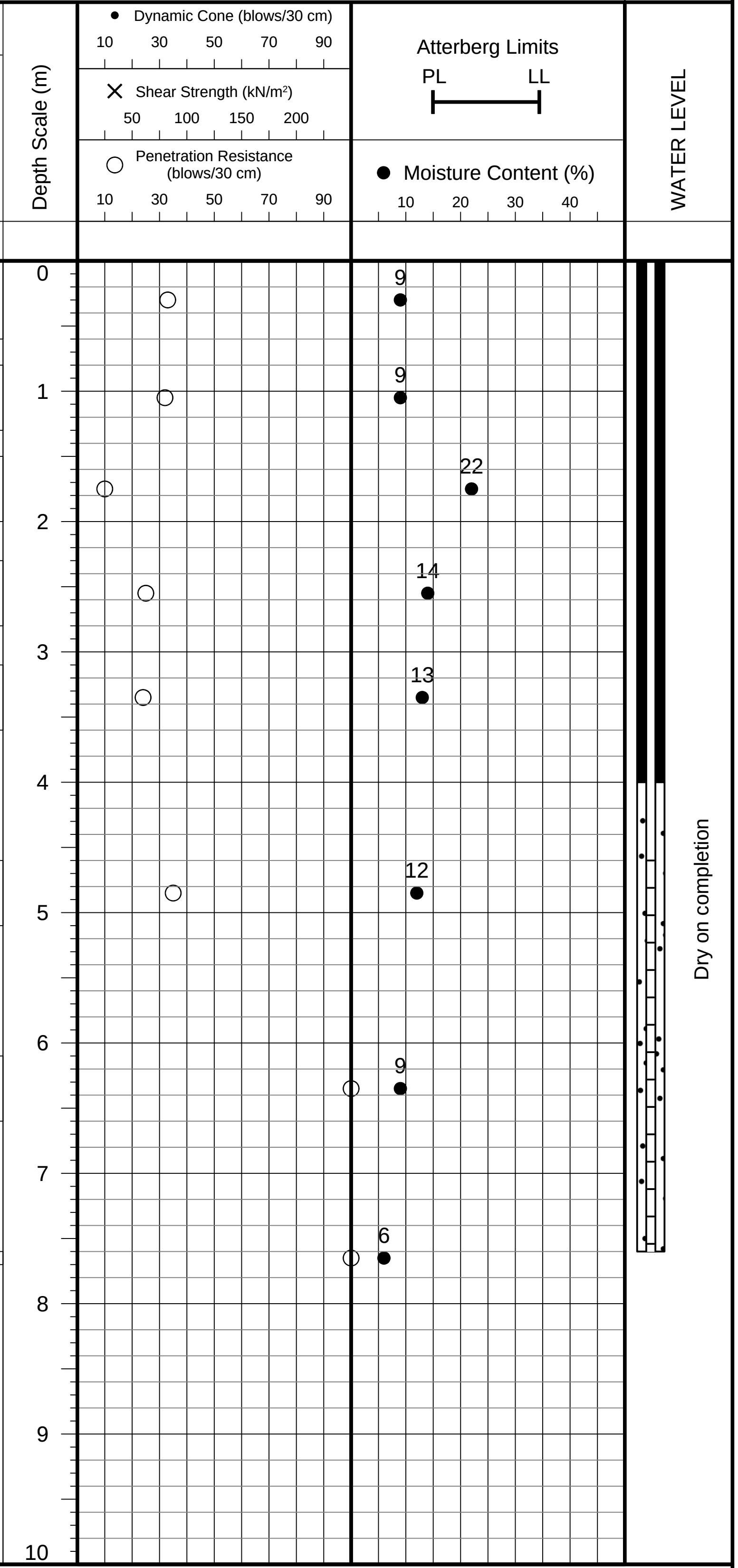
PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 10, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value
193.6	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	33
		2	DO	32
		3	DO	10
191.8 1.8	Stiff to hard **SILTY CLAY TILL** brown/grey reddish brown sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	4	DO	25
		5	DO	24
		6	DO	35
	reddish brown reddish grey	7	DO	50
185.9 7.7	reddish grey red	8	DO	50/10

END OF BOREHOLE

Installed 50 mm Ø monitoring well to 7.6 m
completed with 3.0 m screen
Sand backfill from 4.0 to 7.6 m
Bentonite seal from 0.0 m to 4.0 m
Provided with a momument steel casing



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 4

FIGURE NO.: 4

PROJECT DESCRIPTION: Proposed Milton 13 Public School

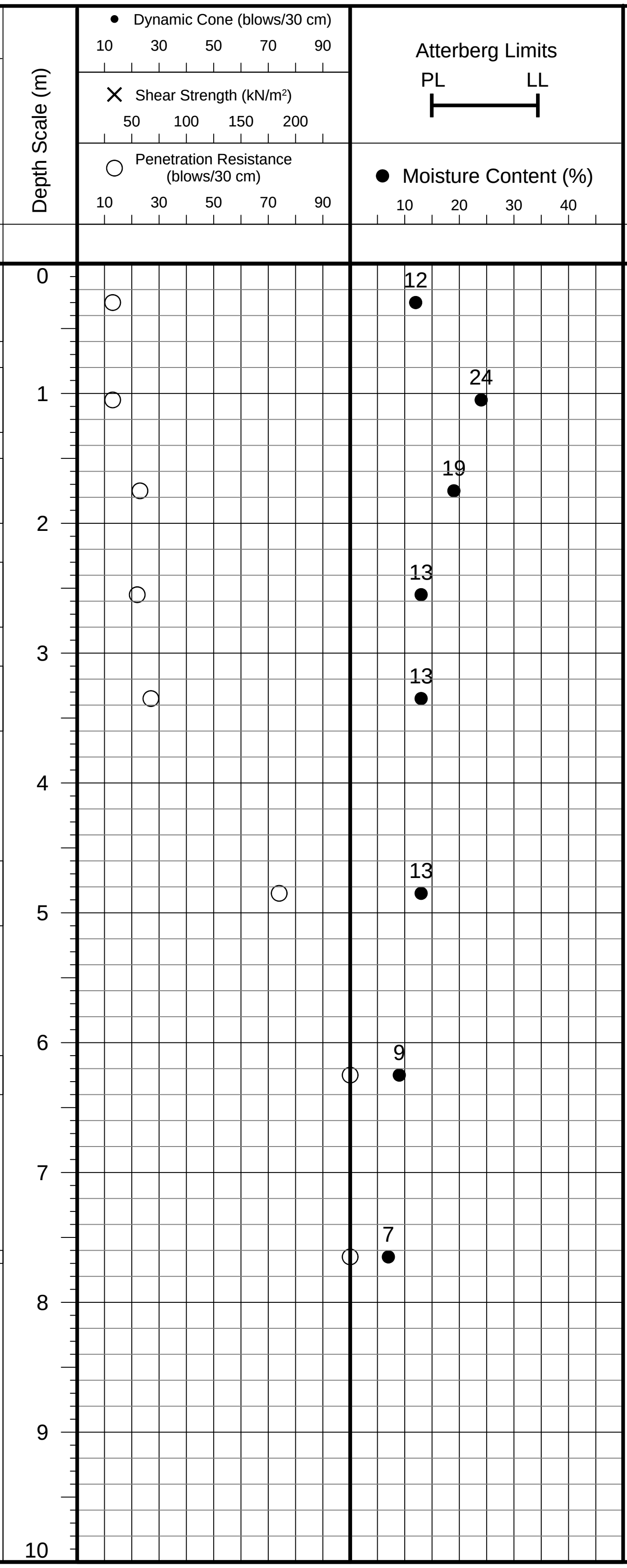
METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 15, 2025

El. (m) Depth (m)	SOIL DESCRIPTION
192.8	Ground Surface
0.0	Reddish brown/brown/grey **EARTH FILL**
192.0 0.8	silty clay Very Stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders
	reddish brown grey
	grey red
185.1 7.7	**END OF BOREHOLE**

SAMPLES		
Number	Type	N-Value
1	DO	13
2	DO	13
3	DO	23
4	DO	22
5	DO	27
6	DO	74
7	DO	50/13
8	DO	50/8



WATER LEVEL

W.L. @ El. 185.5 m on completion ⊻

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 5

FIGURE NO.: 5

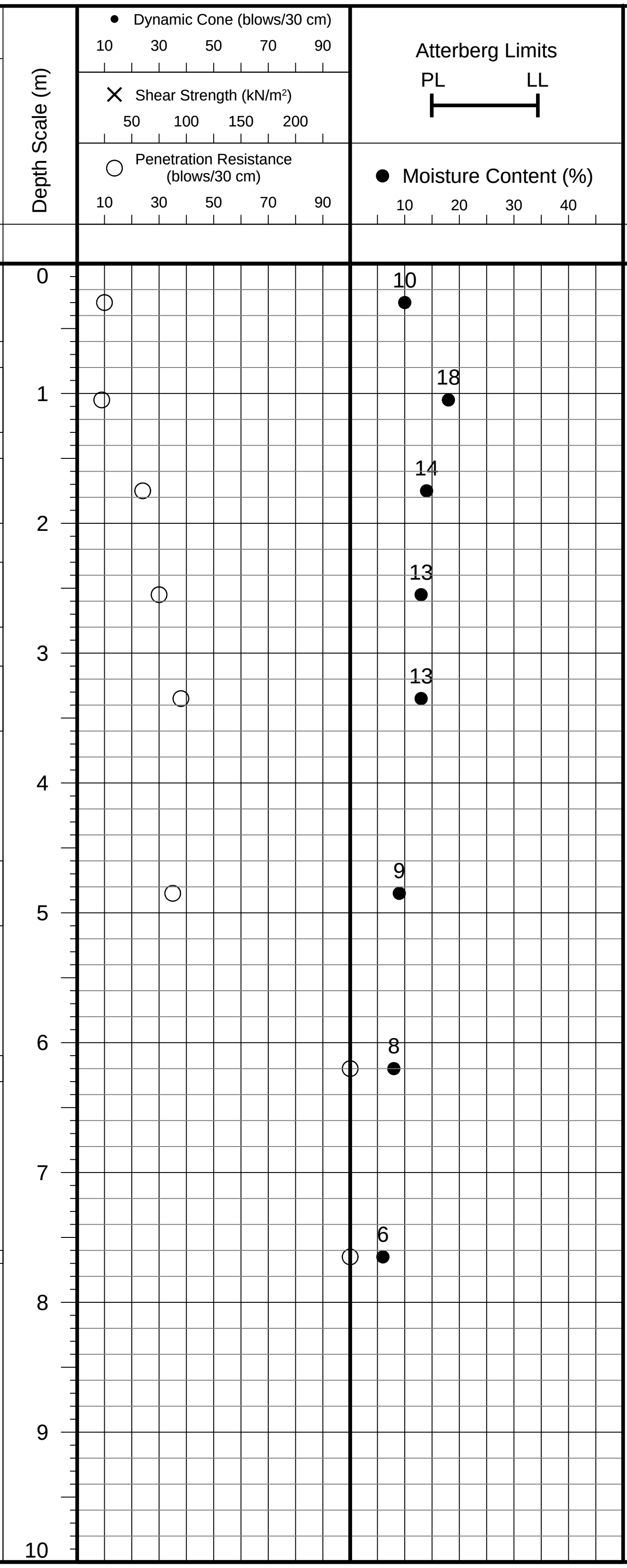
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 15, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value	Moisture Content (%)	WATER LEVEL
192.5	Ground Surface					
0.0	Reddish brown/brown/grey **EARTH FILL** silty clay	1	DO	10	10	Dry on completion
191.7 0.8	Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	9	18	
		3	DO	24	14	
		4	DO	30	13	
		5	DO	38	13	
	reddish brown reddish grey	6	DO	35	9	
		7	DO	50/8	8	
	reddish grey red	8	DO	50/8	6	
184.8 7.7	**END OF BOREHOLE**					



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 6

FIGURE NO.: 6

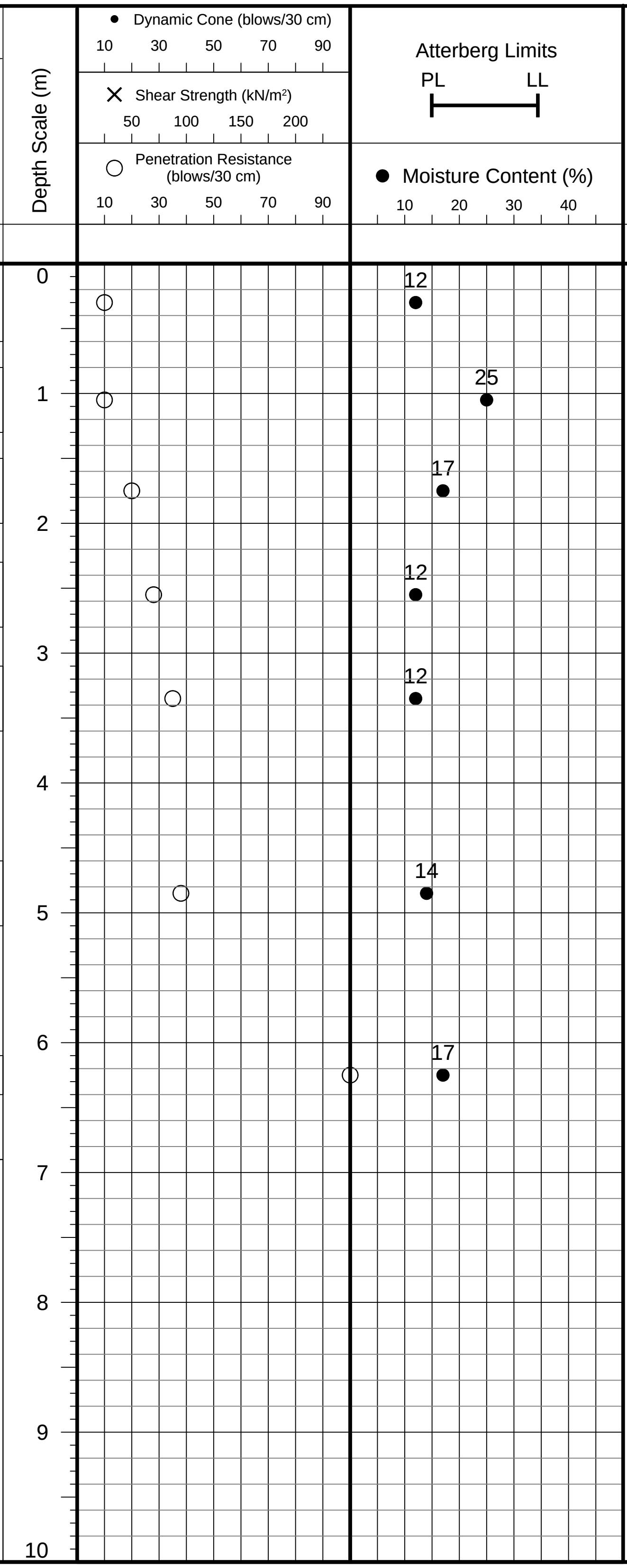
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 15, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)
193.1	Ground Surface				
0.0	Reddish brown/brown/grey **EARTH FILL**	1	DO	10	0
192.3 0.8	silty clay Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders seepage under 6.1 m	2	DO	10	1
		3	DO	20	
		4	DO	28	2
		5	DO	35	3
	reddish brown grey	6	DO	38	4
		7	DO	50/13	6
186.2 6.9	**END OF BOREHOLE DUE TO AUGER REFUSAL**				



WATER LEVEL

W.L. @ El. 187.3 m on completion ▽

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 7

FIGURE NO.: 7

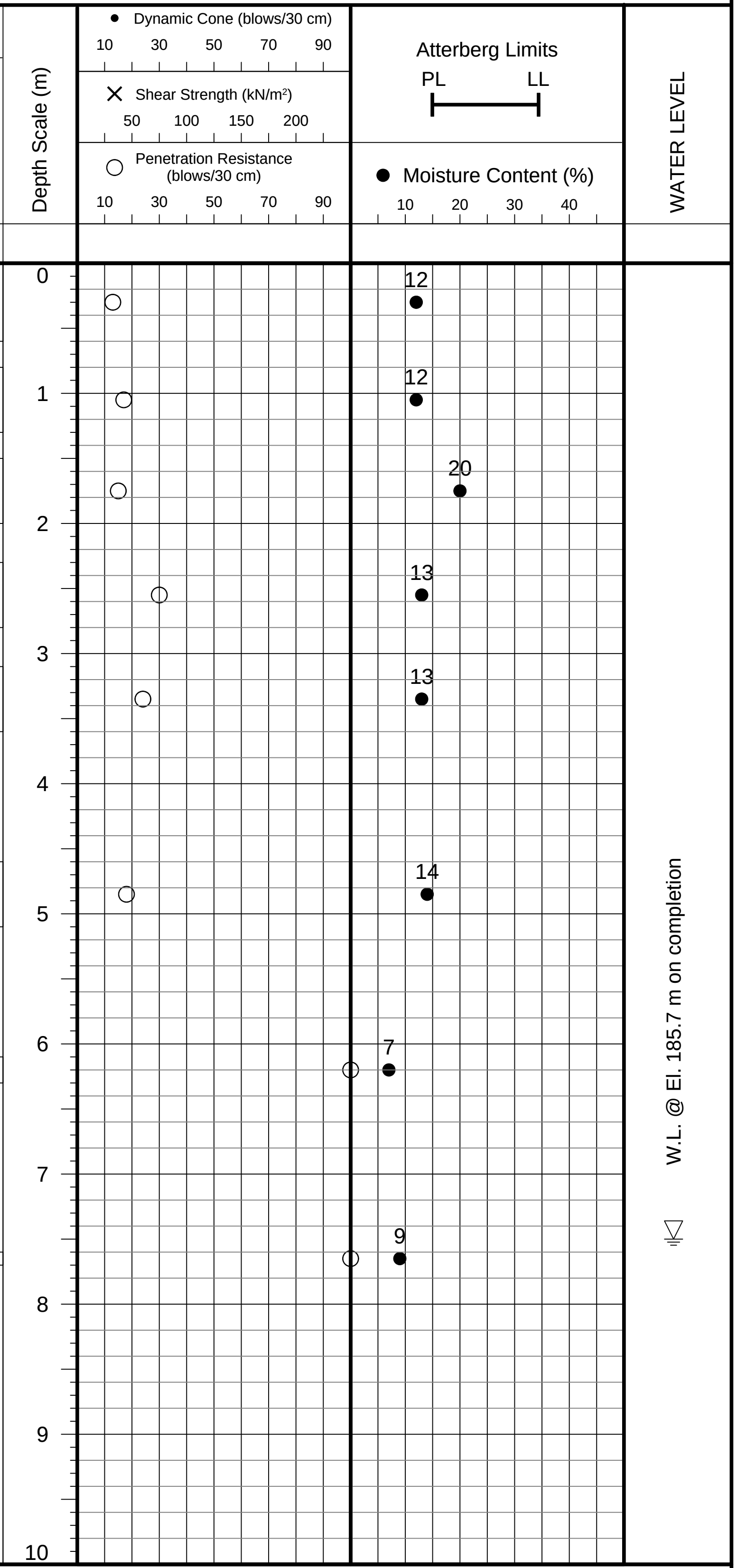
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 9, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES		
		Number	Type	N-Value
193.2	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	13
		2	DO	17
191.7 1.5	Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	15
		4	DO	30
		5	DO	24
	— — reddish brown reddish grey	6	DO	18
		7	DO	50/15
185.5 7.7	— — reddish grey red **END OF BOREHOLE**	8	DO	50/13



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 8

FIGURE NO.: 8

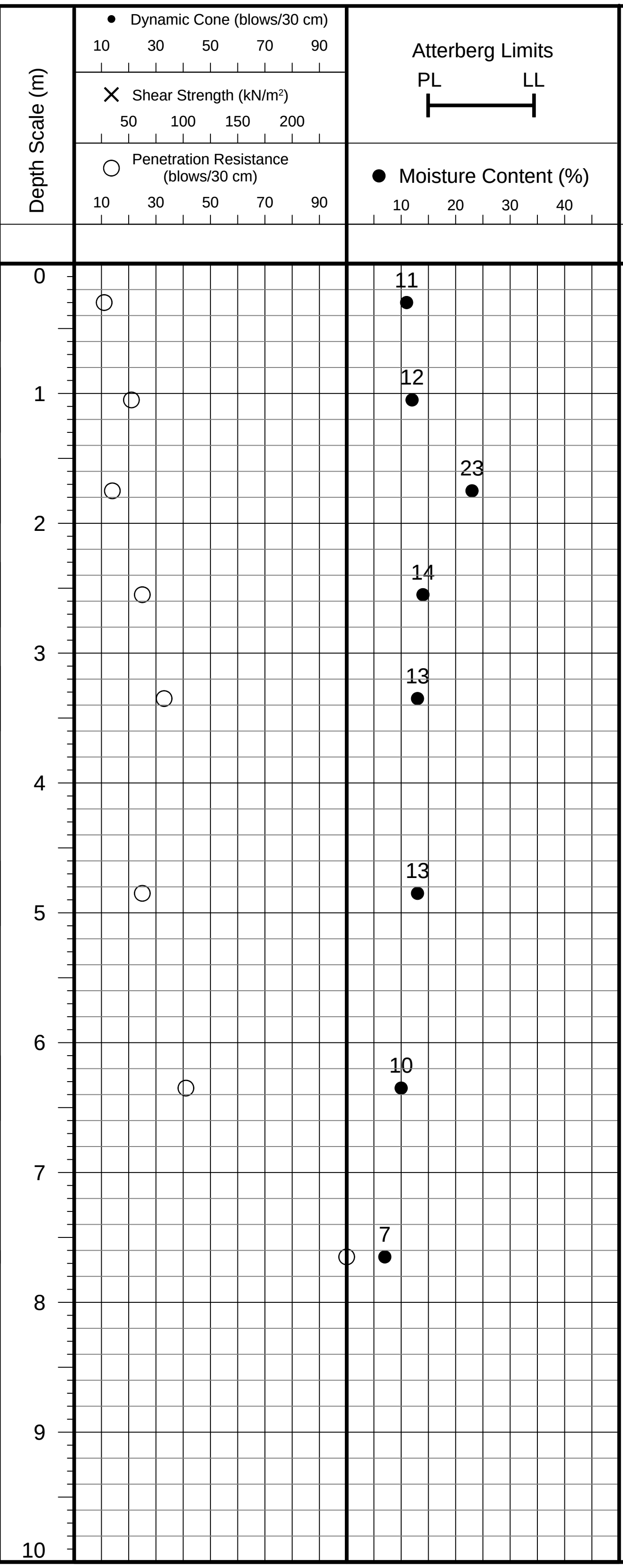
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 9, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value
193.9	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	11
		2	DO	21
192.4 1.5	Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	14
	brown/grey reddish brown	4	DO	25
		5	DO	33
		6	DO	25
	reddish brown grey	7	DO	41
	grey red	8	DO	50/13
186.2 7.7	**END OF BOREHOLE**			



WATER LEVEL

W.L. @ El. 186.6 m on completion ∇

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 9

FIGURE NO.: 9

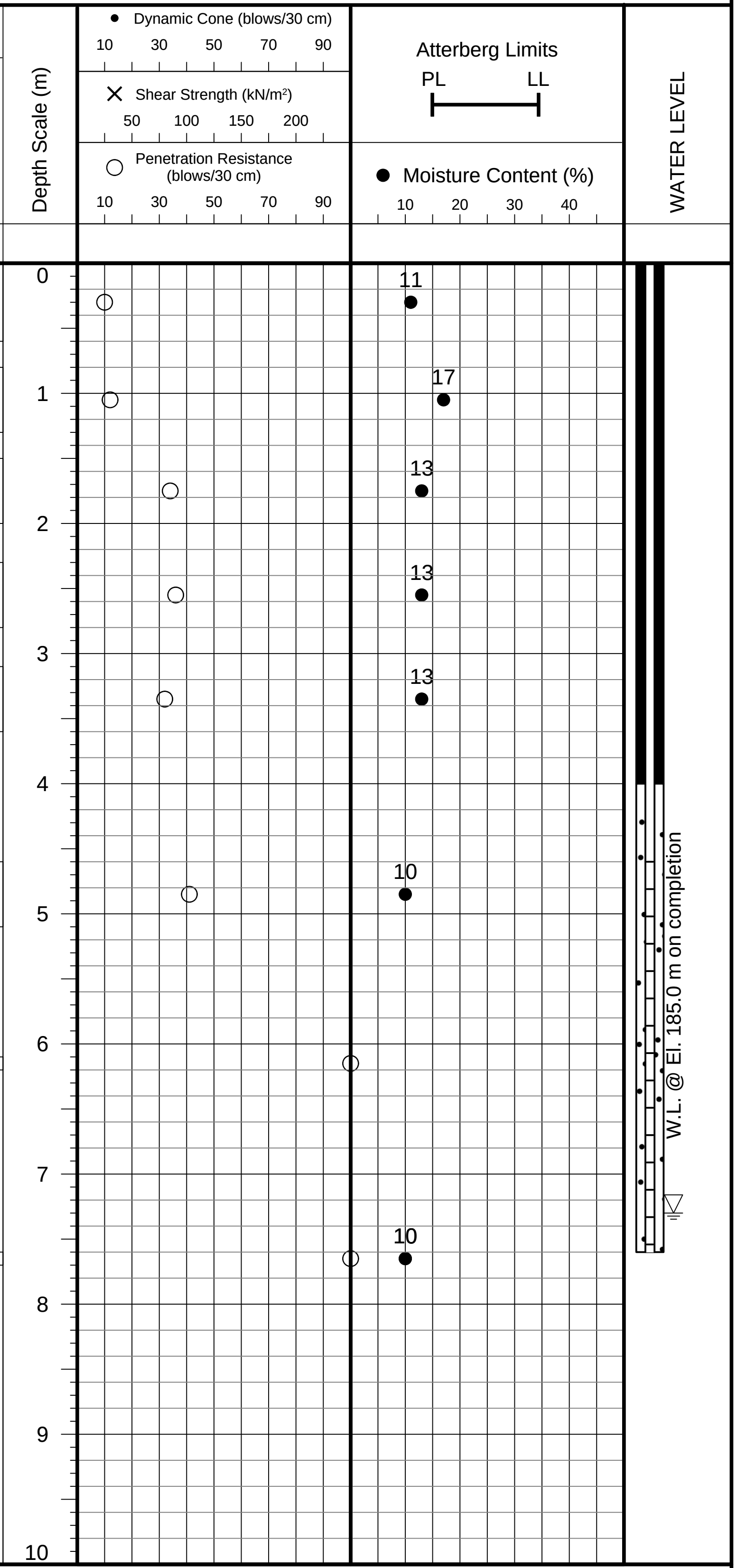
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 14, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value
192.3	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	10
191.5 0.8	Stiff to hard **SILTY CLAY TILL** brown/grey reddish brown sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	12
		3	DO	34
		4	DO	36
		5	DO	32
	reddish brown reddish grey/grey	6	DO	41
		7	DO	50/5
		8	DO	50/8
184.6 7.7	**END OF BOREHOLE** Installed 50 mm Ø monitoring well to 7.6 m completed with 3.0 m screen Sand backfill from 4.0 to 7.6 m Bentonite seal from 0.0 m to 4.0 m Provided with a momument steel casing			



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 10

FIGURE NO.: 10

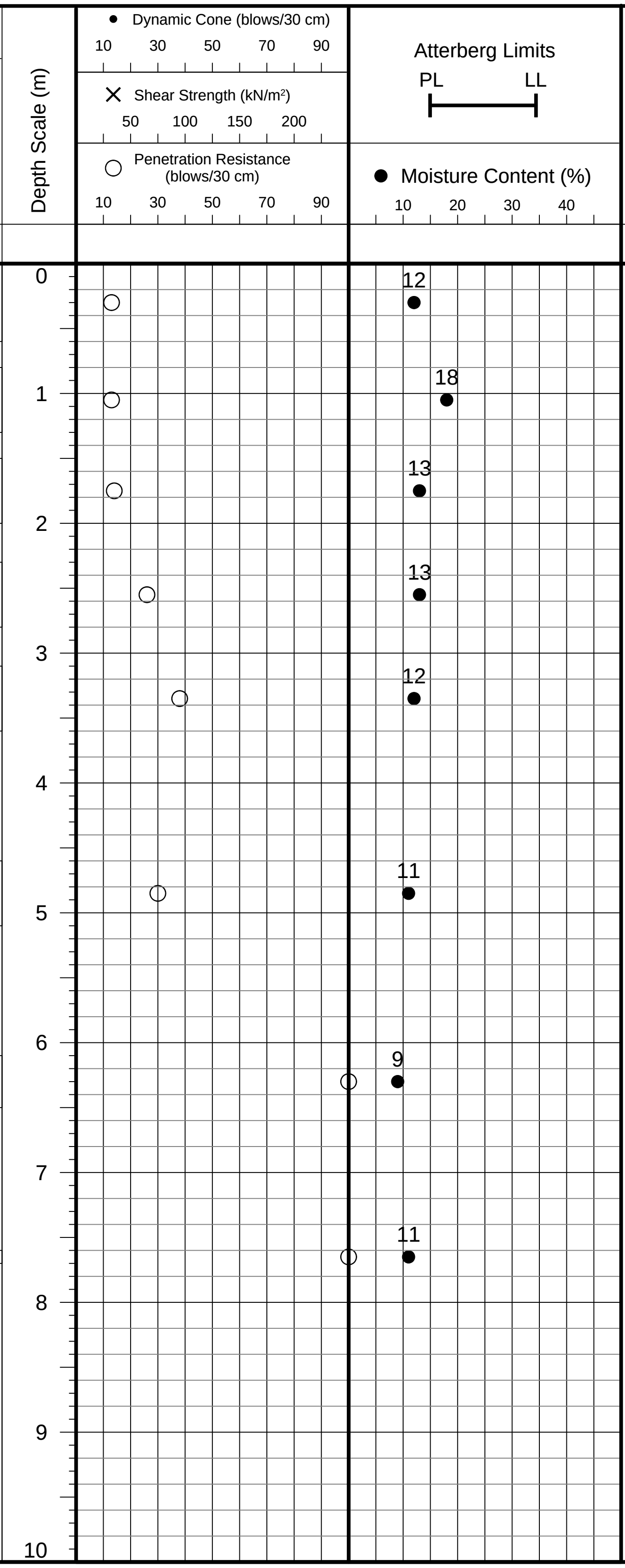
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 15, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES		
		Number	Type	N-Value
192.7	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	13
191.7 1.0	Stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders seepage under 7.6 m	2	DO	13
		3	DO	14
		4	DO	26
		5	DO	38
	— — reddish brown reddish grey	6	DO	30
		7	DO	50/10
	— — reddish grey red	8	DO	50/10
185.0 7.7	**END OF BOREHOLE**			



WATER LEVEL

W.L. @ El. 187.2 m on completion ∇

JOB NO.: 2509-S167

LOG OF BOREHOLE: 11

FIGURE NO.: 11

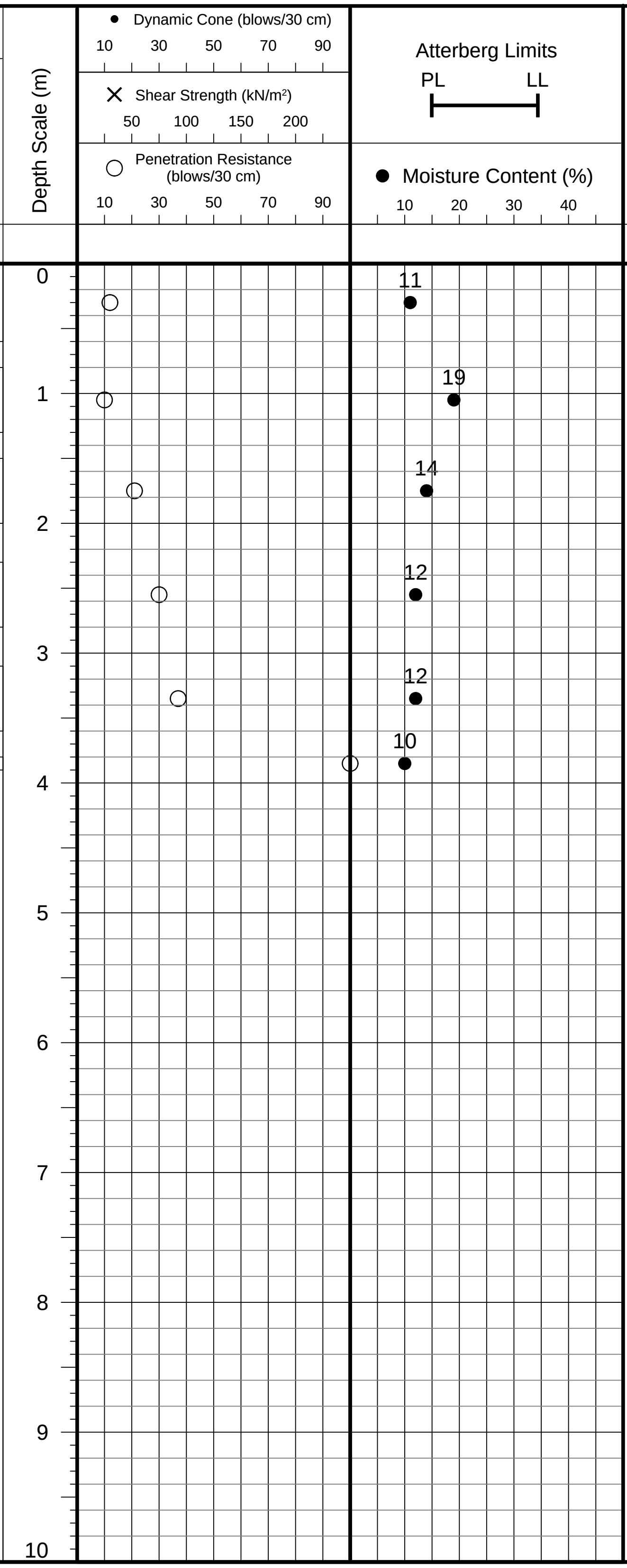
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 15, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	WATER LEVEL
192.8	Ground Surface				
0.0	Brown/grey **EARTH FILL** silty clay	1	DO	12	
191.8 1.0	Stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	10	
		3	DO	21	
		4	DO	30	
		5	DO	37	
	reddish brown grey	6	DO	50/5	
188.9 3.9	**END OF BOREHOLE**				Dry on completion



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 12

FIGURE NO.: 12

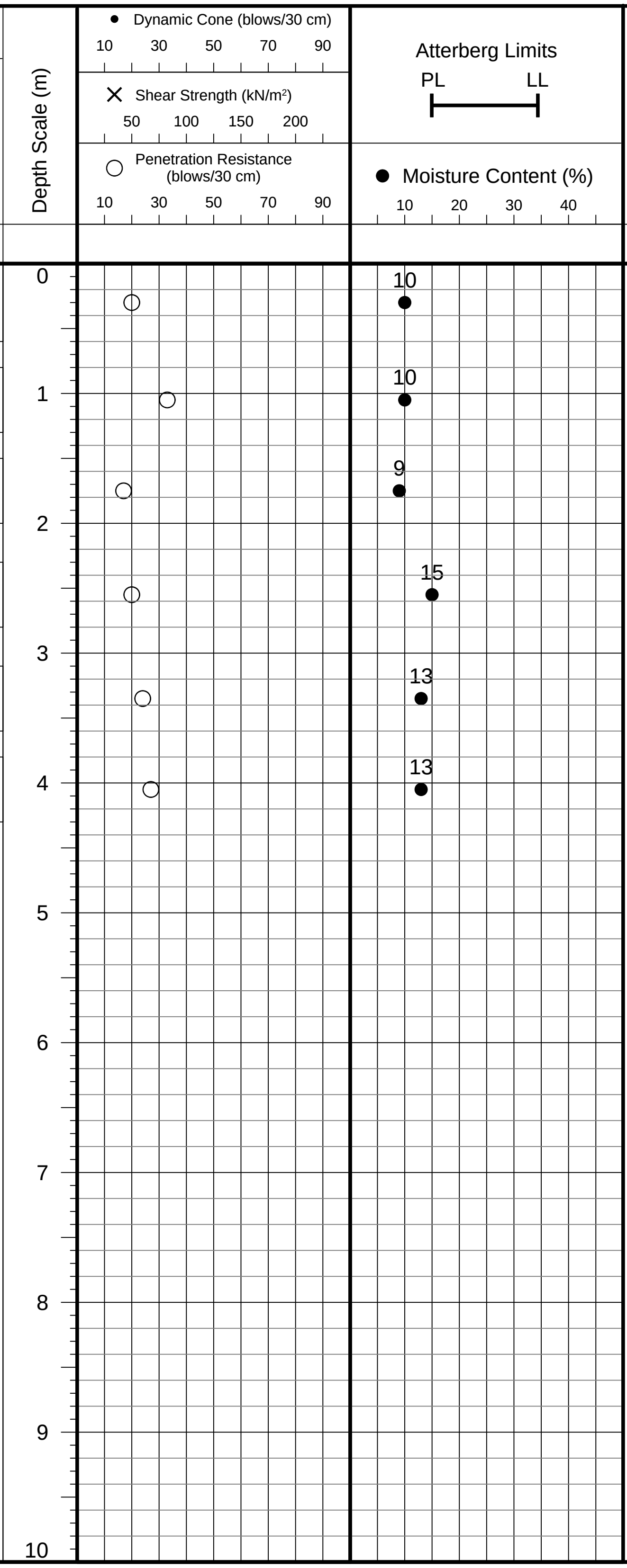
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 10, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value
194.0	Ground Surface			
0.0	Reddish brown/brown **EARTH FILL** silty clay	1	DO	20
		2	DO	33
		3	DO	17
191.7 2.3	Reddish brown, very stiff **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	4	DO	20
		5	DO	24
		6	DO	27
189.7 4.3	**END OF BOREHOLE**			



WATER LEVEL

Dry on completion

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 13

FIGURE NO.: 13

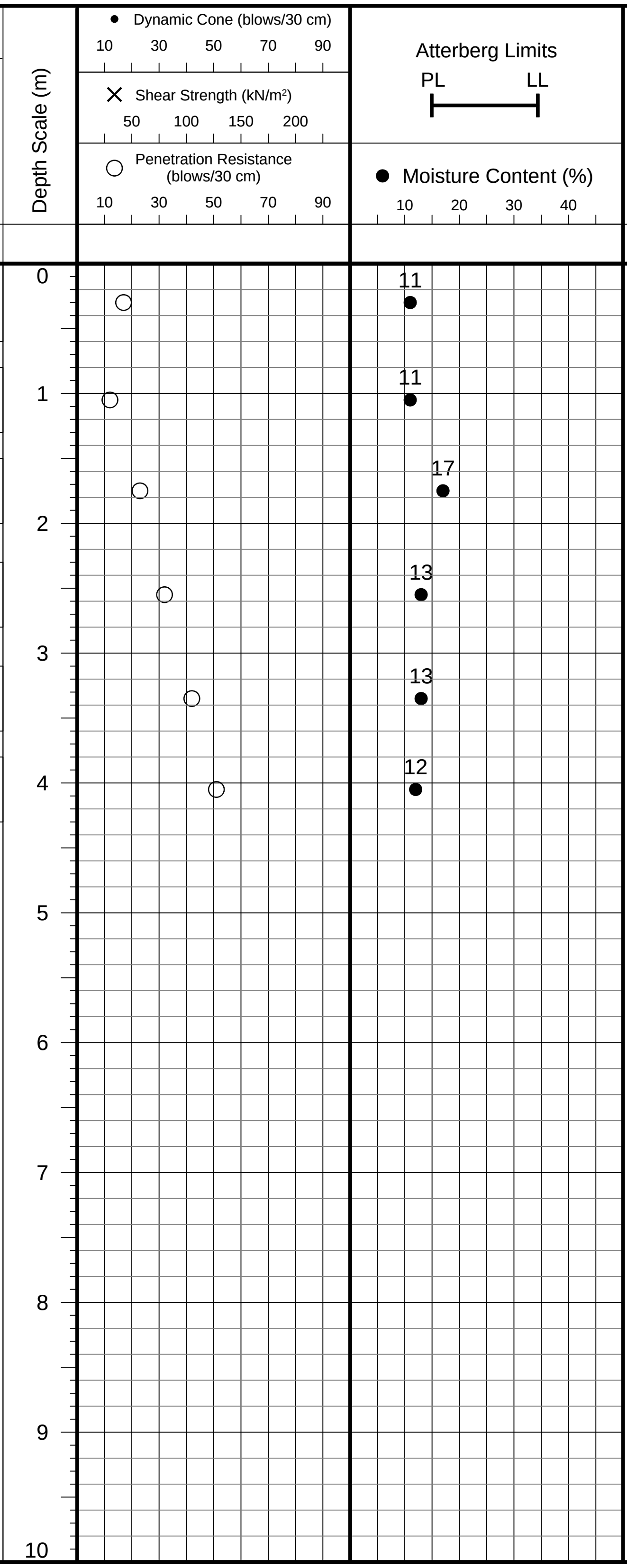
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 14, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value	WATER LEVEL
194.1	Ground Surface				
0.0	Brown **EARTH FILL** silty clay	1	DO	17	Dry on completion
		2	DO	12	
192.6 1.5	Reddish brown, very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	23	
		4	DO	32	
		5	DO	42	
		6	DO	51	
189.8 4.3	**END OF BOREHOLE**				



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 14

FIGURE NO.: 14

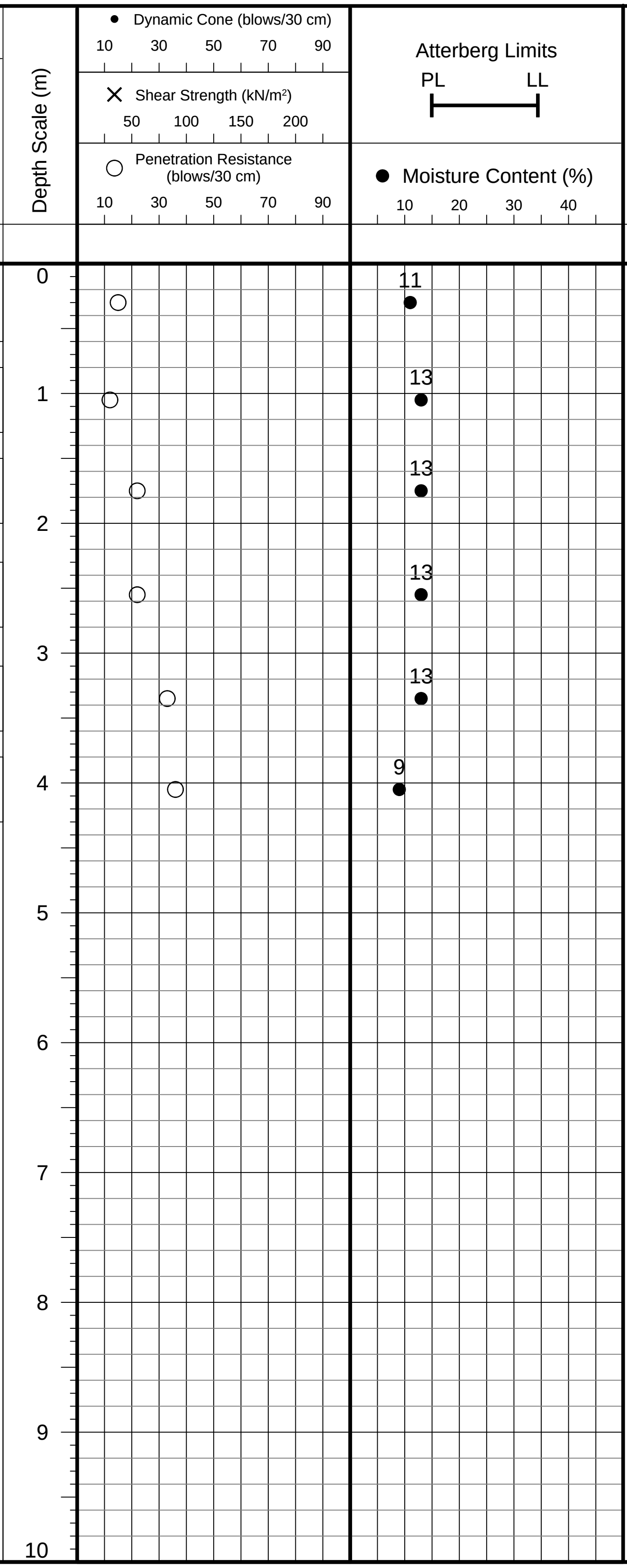
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 14, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Moisture Content (%)	WATER LEVEL
192.4	Ground Surface					
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	15	11	Dry on completion
191.4 1.0	Stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	12	13	
		3	DO	22	13	
		4	DO	22	13	
		5	DO	33	13	
	reddish brown grey	6	DO	36	9	
188.1 4.3	**END OF BOREHOLE**					



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 15

FIGURE NO.: 15

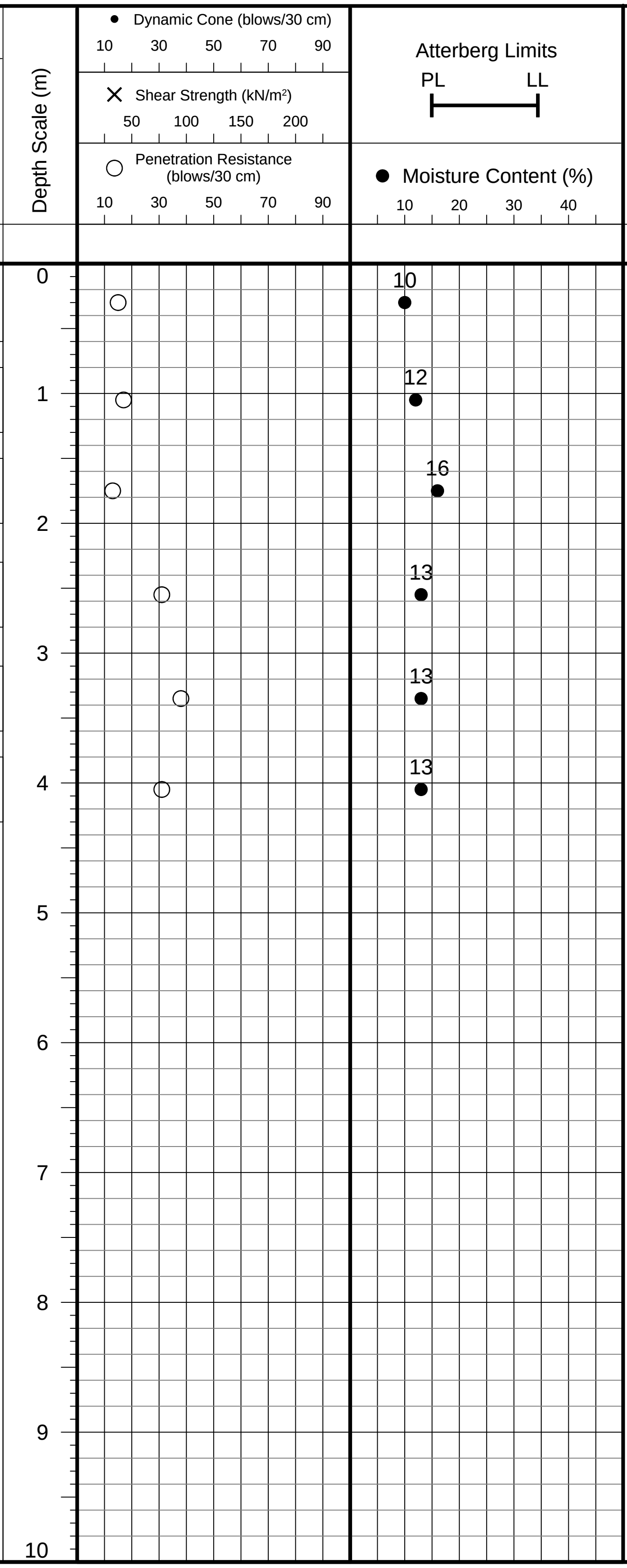
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 14, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Moisture Content (%)	WATER LEVEL
193.4	Ground Surface					
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	15	10	Dry on completion
		2	DO	17	12	
191.9 1.5	Stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders brown/grey reddish brown	3	DO	13	16	
		4	DO	31	13	
		5	DO	38	13	
		6	DO	31	13	
189.1 4.3	**END OF BOREHOLE**					



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 16

FIGURE NO.: 16

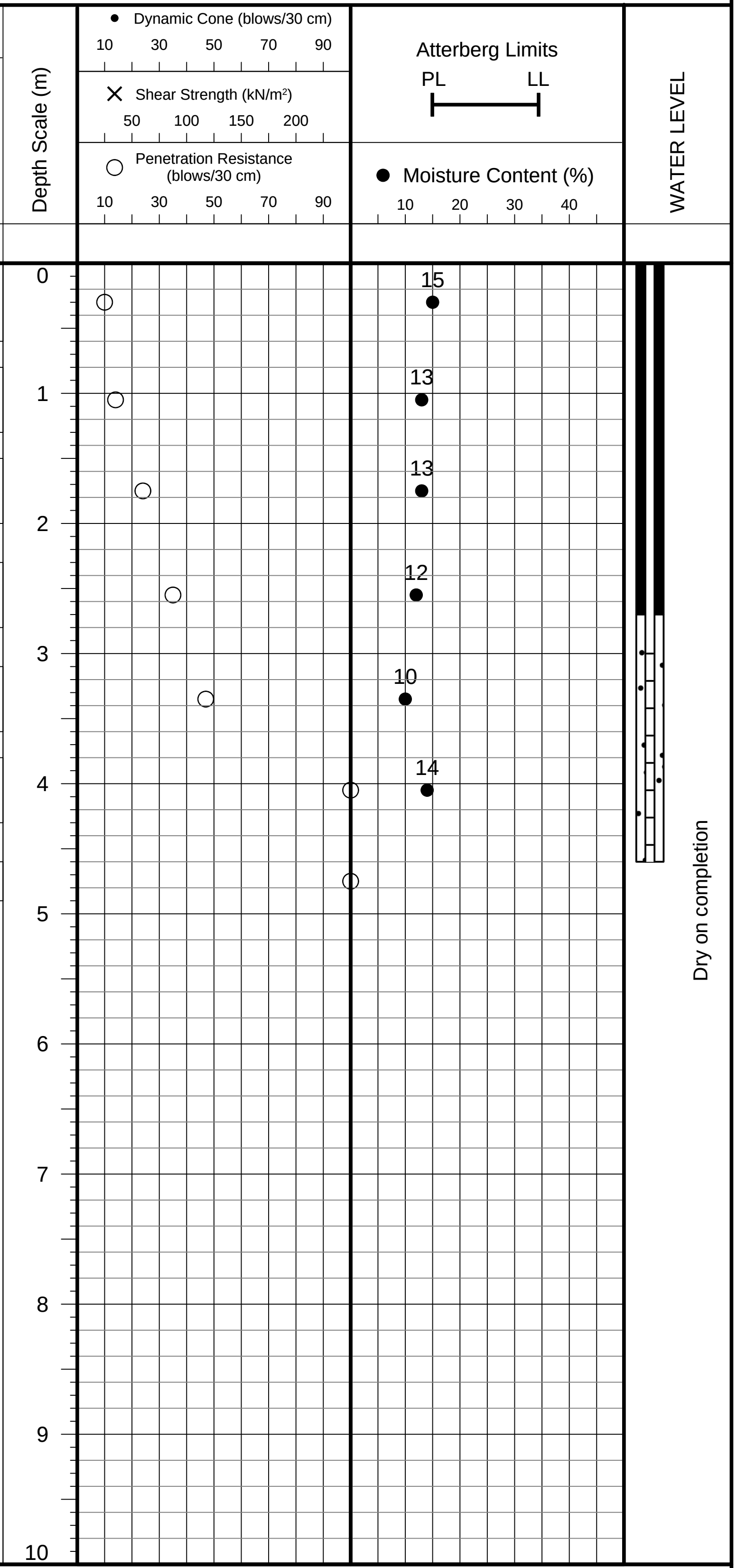
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 14, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES		
		Number	Type	N-Value
192.7	Ground Surface			
0.0	Brown/grey/reddish brown **EARTH FILL** silty clay	1	DO	10
191.7 1.0	Stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	14
		3	DO	24
		4	DO	35
		5	DO	47
	reddish brown grey	6	DO	59/15
		7	DO	50/13
187.8 4.9	**END OF BOREHOLE** Installed 50 mm Ø monitoring well to 4.6 m completed with 1.6 m screen Sand backfill from 2.7 to 4.6 m Bentonite seal from 0.0 m to 2.7 m Provided with a momument steel casing			



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 17

FIGURE NO.: 17

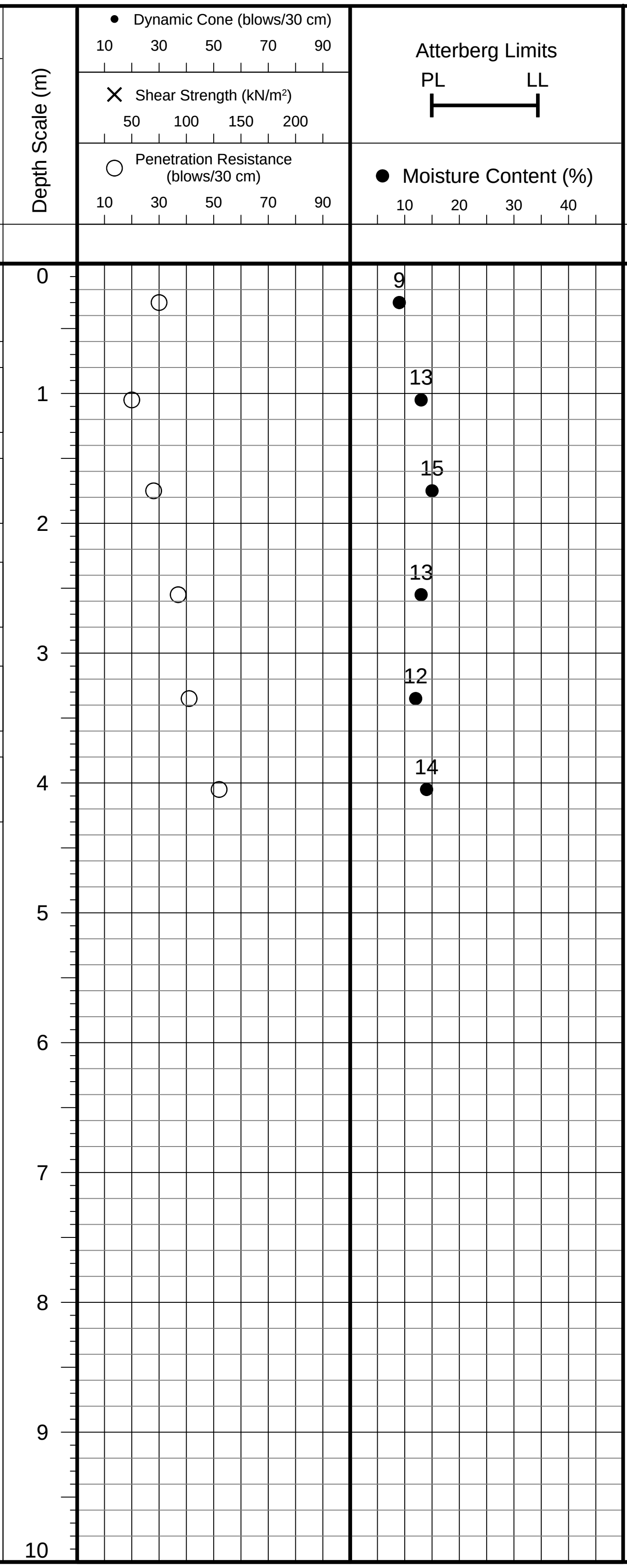
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 14, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value
193.5	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	30
192.5 1.0	Brown, very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	20
		3	DO	28
		4	DO	37
		5	DO	41
		6	DO	52
189.2 4.3	**END OF BOREHOLE**			



WATER LEVEL

Dry on completion

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 18

FIGURE NO.: 18

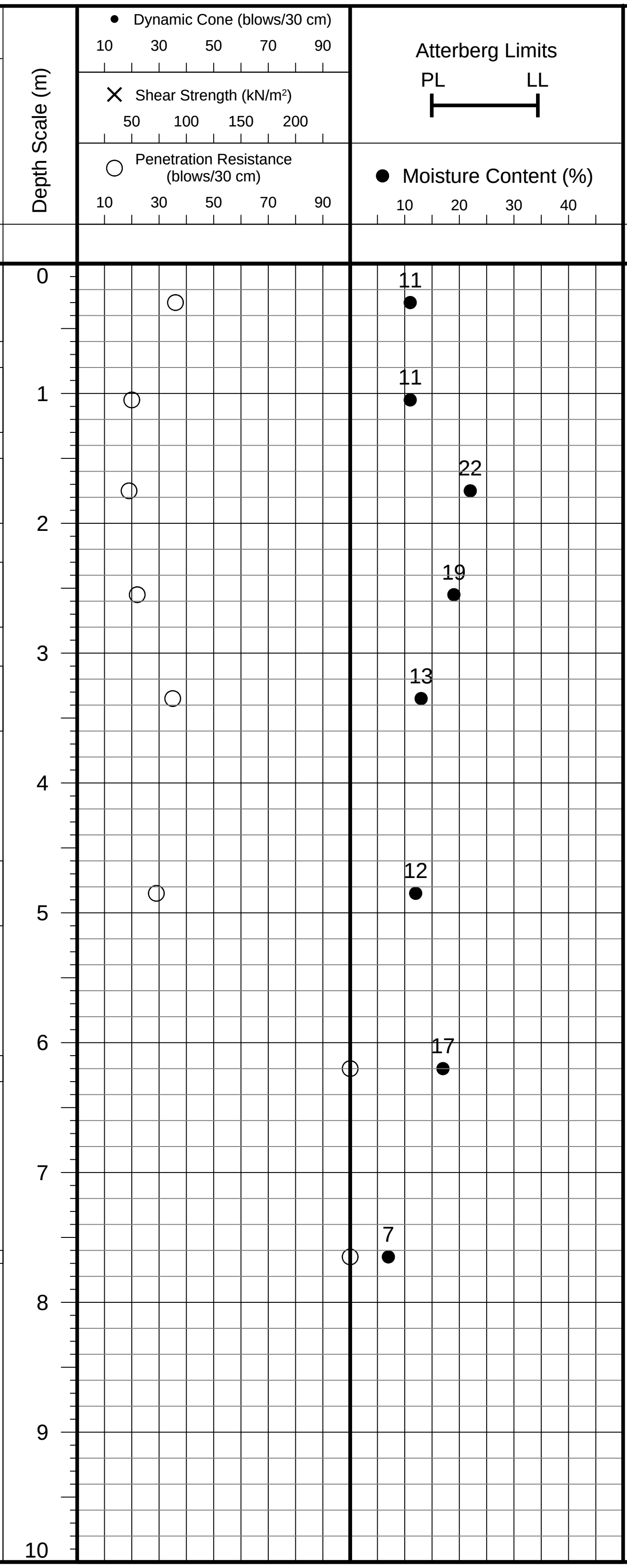
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 17, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value
193.4	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	36
		2	DO	20
191.9 1.5	Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	19
		4	DO	22
	brown/grey reddish brown	5	DO	35
		6	DO	29
	reddish brown reddish grey	7	DO	50/15
		8	DO	50/8
185.7 7.7	**END OF BOREHOLE**			



WATER LEVEL

W.L. @ El. 186.5 m on completion ▽

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 19

FIGURE NO.: 19

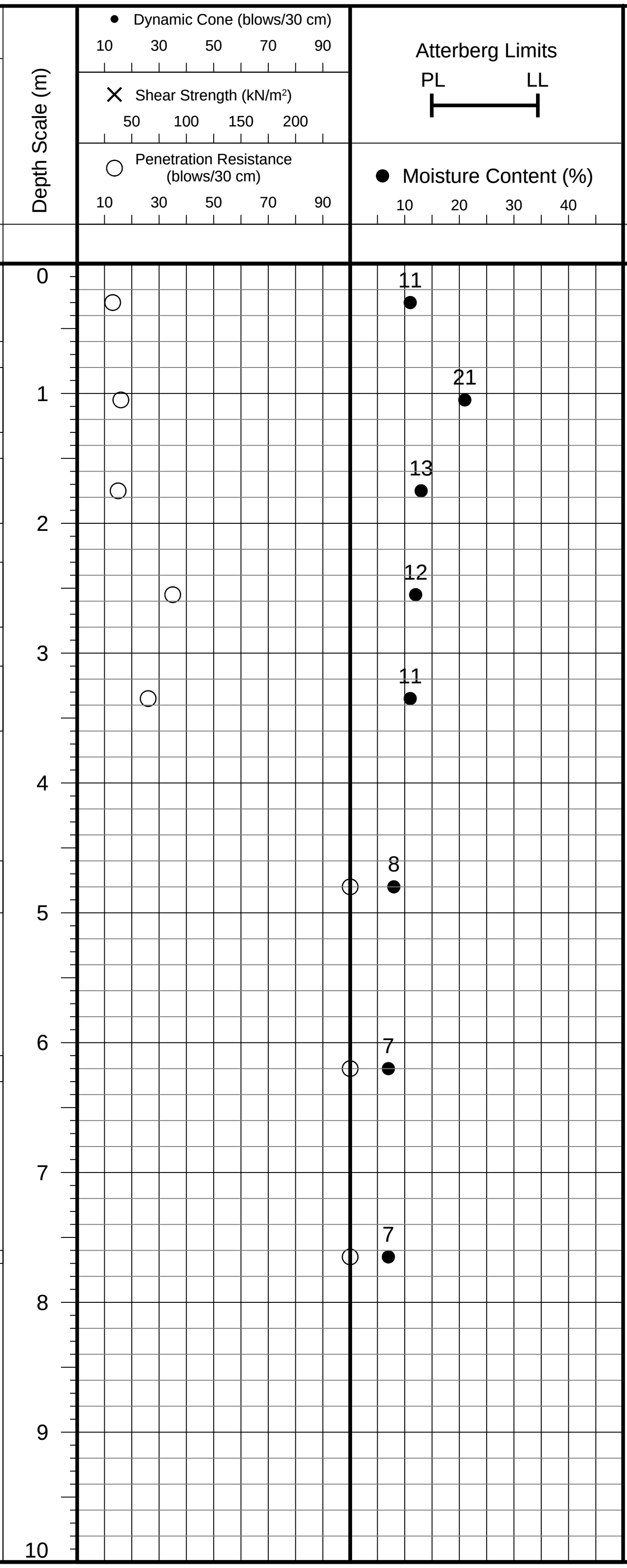
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 16, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value
192.4	Ground Surface			
0.0	Reddish brown/brown/grey **EARTH FILL** silty clay	1	DO	13
191.4 1.0	Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	16
		3	DO	15
		4	DO	35
		5	DO	26
	reddish brown grey	6	DO	72/8
		7	DO	50/8
184.7 7.7	grey red **END OF BOREHOLE**	8	DO	50/8



WATER LEVEL

Dry on completion

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 20

FIGURE NO.: 20

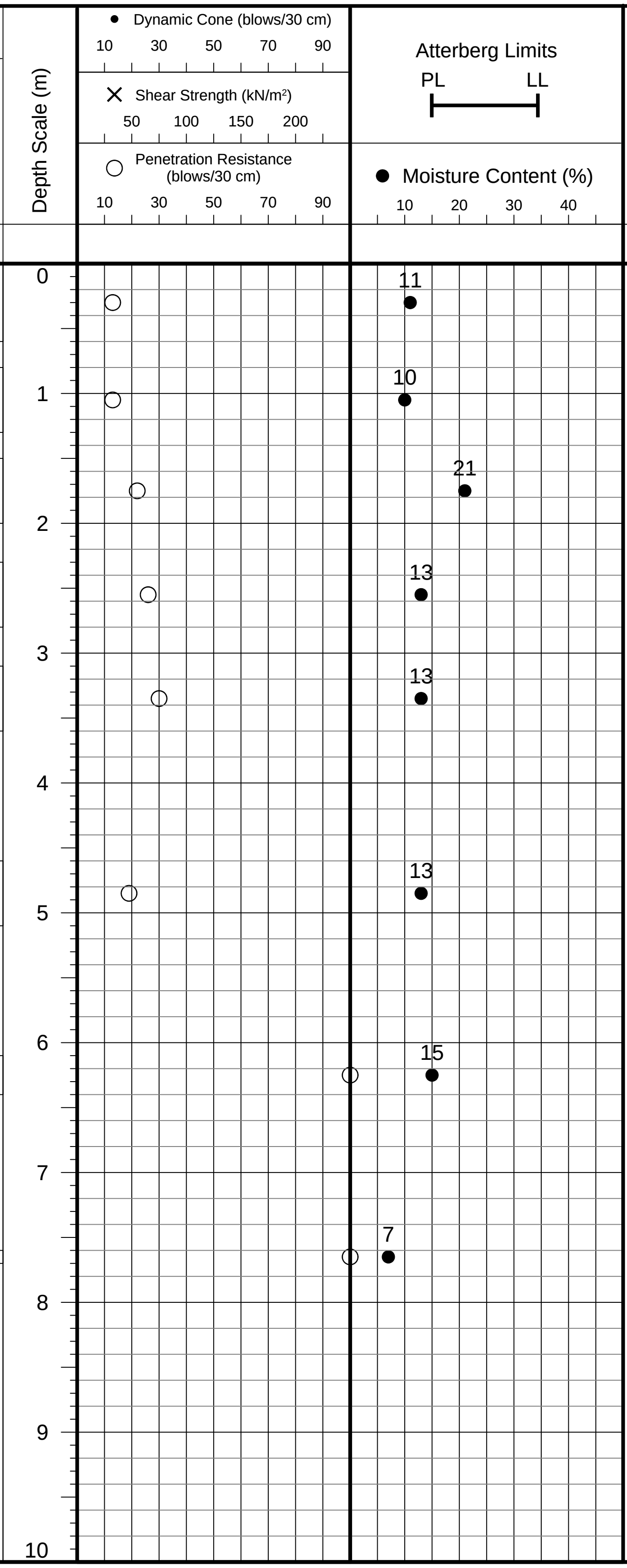
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 17, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value
193.3	Ground Surface			
0.0	Reddish brown/brown **EARTH FILL** silty clay	1	DO	13
		2	DO	13
191.8 1.5	Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders seepage below 6.1 m	3	DO	22
		4	DO	26
		5	DO	30
	— — reddish brown reddish grey	6	DO	19
		7	DO	50/15
		8	DO	50/8
185.6 7.7	**END OF BOREHOLE**			



WATER LEVEL

W.L. @ El. 185.8 m on completion ▽

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 21

FIGURE NO.: 21

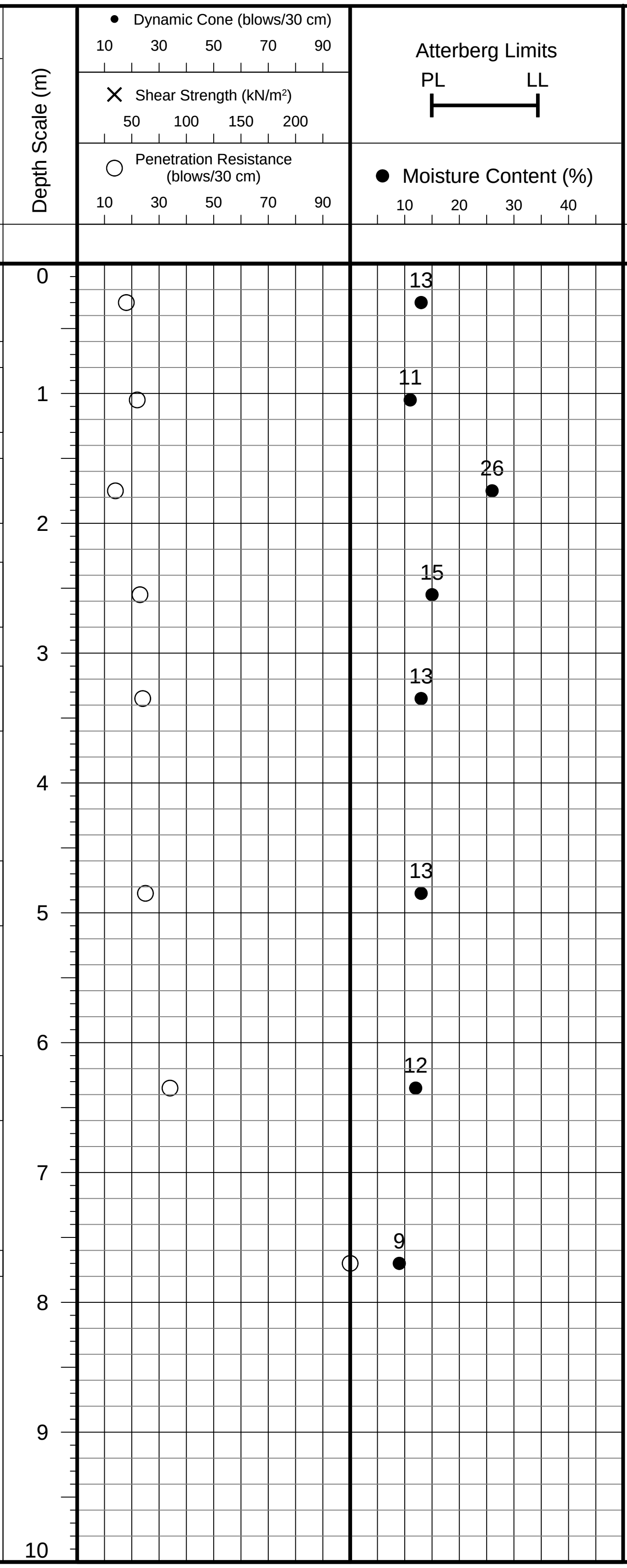
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 17, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	WATER LEVEL
193.9	Ground Surface				
0.0	Reddish brown/brown/grey **EARTH FILL** silty clay	1	DO	18	
		2	DO	22	
192.4 1.5	Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	14	
		4	DO	23	
		5	DO	24	W.L. @ El. 188.1 m on completion
		6	DO	25	∇
	reddish brown reddish grey wet sand layer	7	DO	34	
186.1 7.8		8	DO	50/15	
	END OF BOREHOLE				



JOB NO.: 2509-S167

LOG OF BOREHOLE: 22

FIGURE NO.: 22

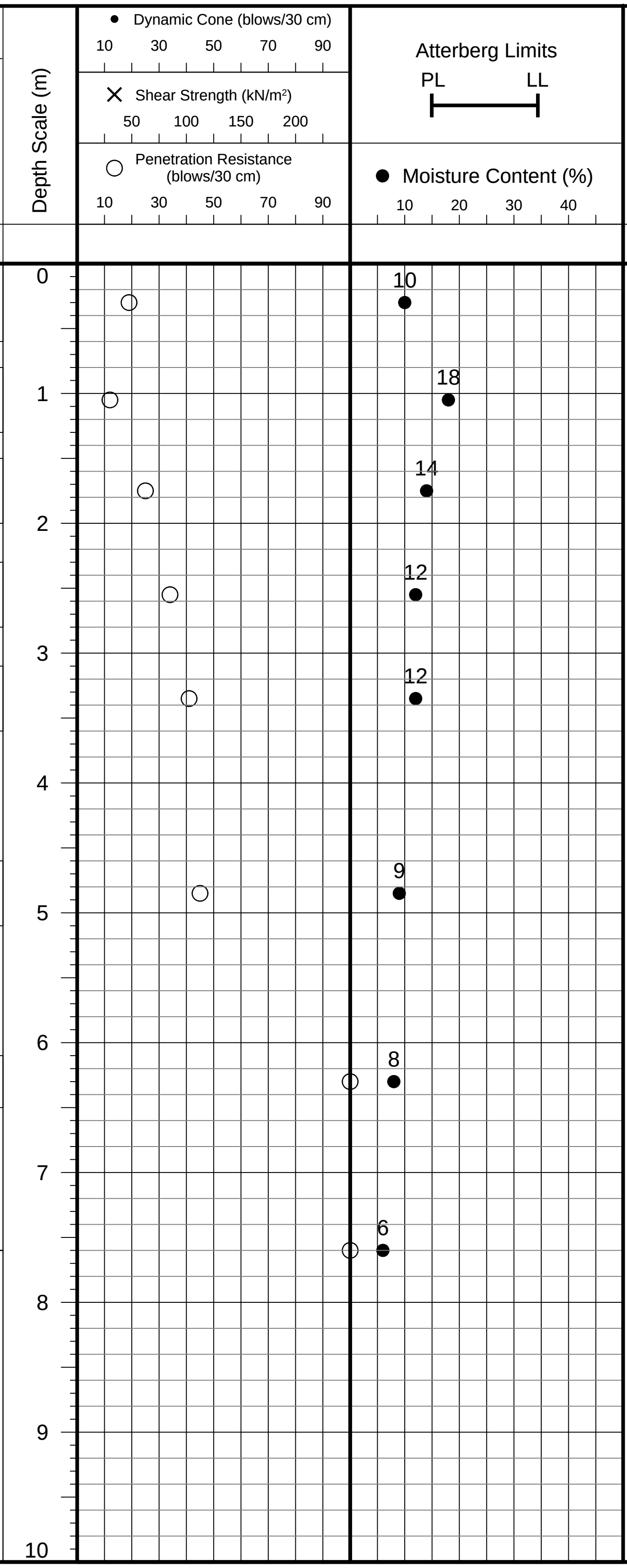
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 16, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	WATER LEVEL
192.8	Ground Surface				
0.0	Reddish brown **EARTH FILL**	1	DO	19	Dry on completion
192.0 0.8	silty clay Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	12	
		3	DO	25	
		4	DO	34	
		5	DO	41	
	— — reddish brown reddish grey	6	DO	45	
		7	DO	75/8	
185.2 7.6	**END OF BOREHOLE**	8	DO	50/3	



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 23

FIGURE NO.: 23

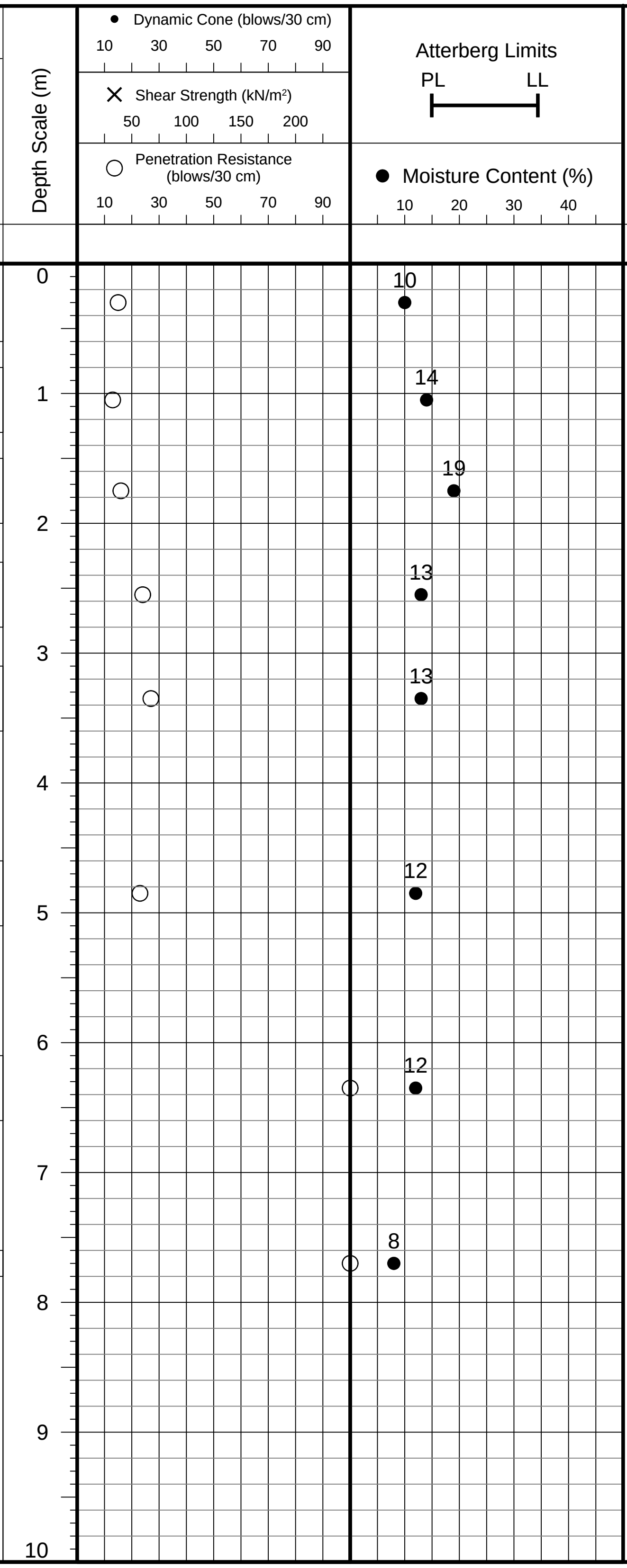
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 17, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value
193.3	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	15
		2	DO	13
191.8 1.5	Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders seepage under 6.1 m	3	DO	16
		4	DO	24
		5	DO	27
	reddish brown reddish grey	6	DO	23
		7	DO	50
185.5		8	DO	50/15
7.8	**END OF BOREHOLE**			



WATER LEVEL

Dry on completion

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 24

FIGURE NO.: 24

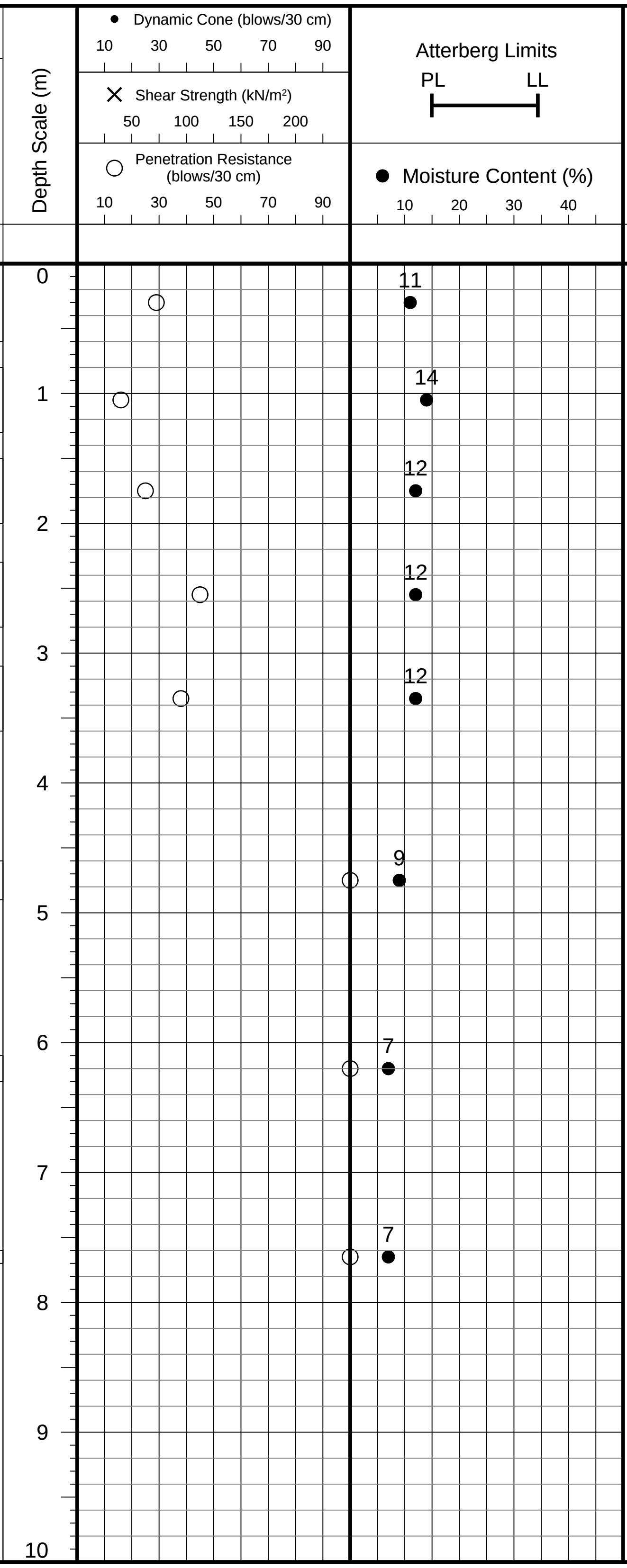
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 17, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value
192.5	Ground Surface			
0.0	Reddish grey **EARTH FILL** silty clay	1	DO	29
191.7 0.8	Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	16
		3	DO	25
		4	DO	45
		5	DO	38
	reddish brown reddish grey	6	DO	50/13
		7	DO	50/15
184.8 7.7	**END OF BOREHOLE**	8	DO	50/8



WATER LEVEL

Dry on completion

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 25

FIGURE NO.: 25

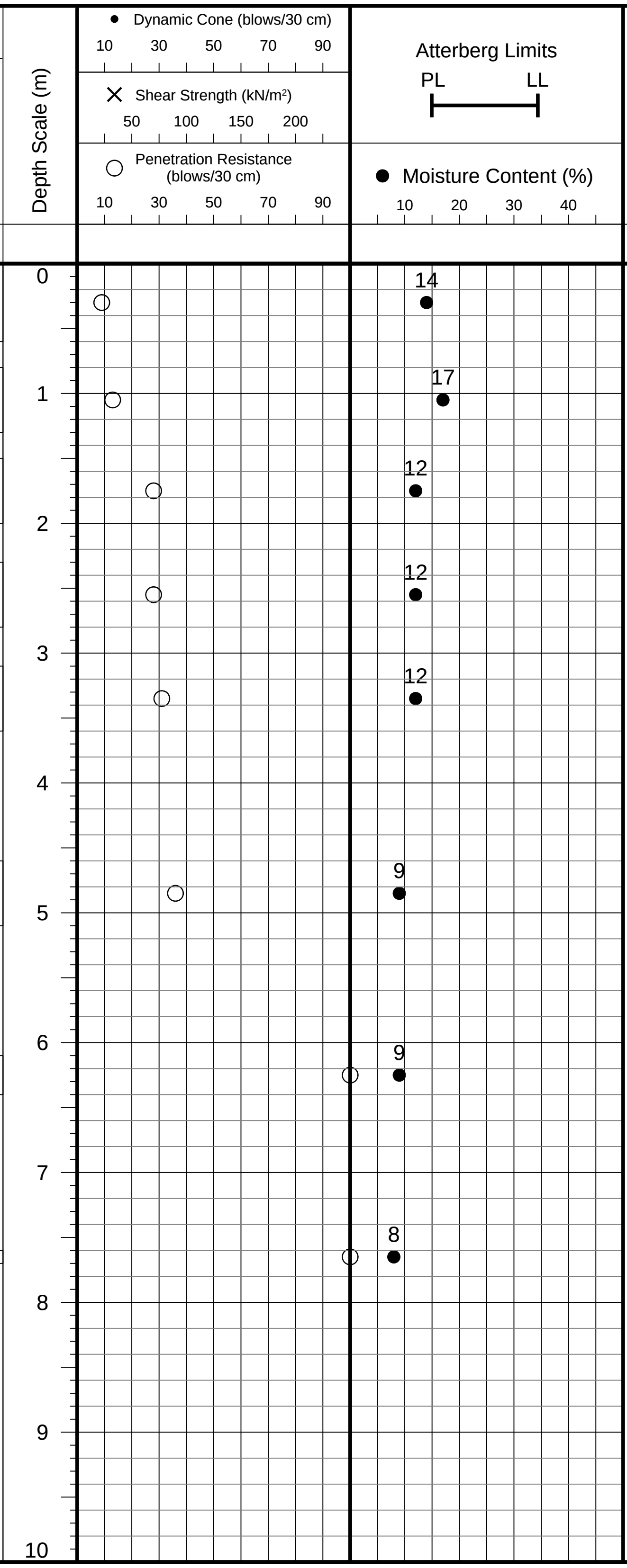
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 17, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES		
		Number	Type	N-Value
192.3	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	9
191.3 1.0	Very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	13
		3	DO	28
		4	DO	28
		5	DO	31
	— — reddish brown reddish grey	6	DO	36
		7	DO	50/15
184.6 7.7	**END OF BOREHOLE**	8	DO	50/8



WATER LEVEL

Dry on completion

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 26

FIGURE NO.: 26

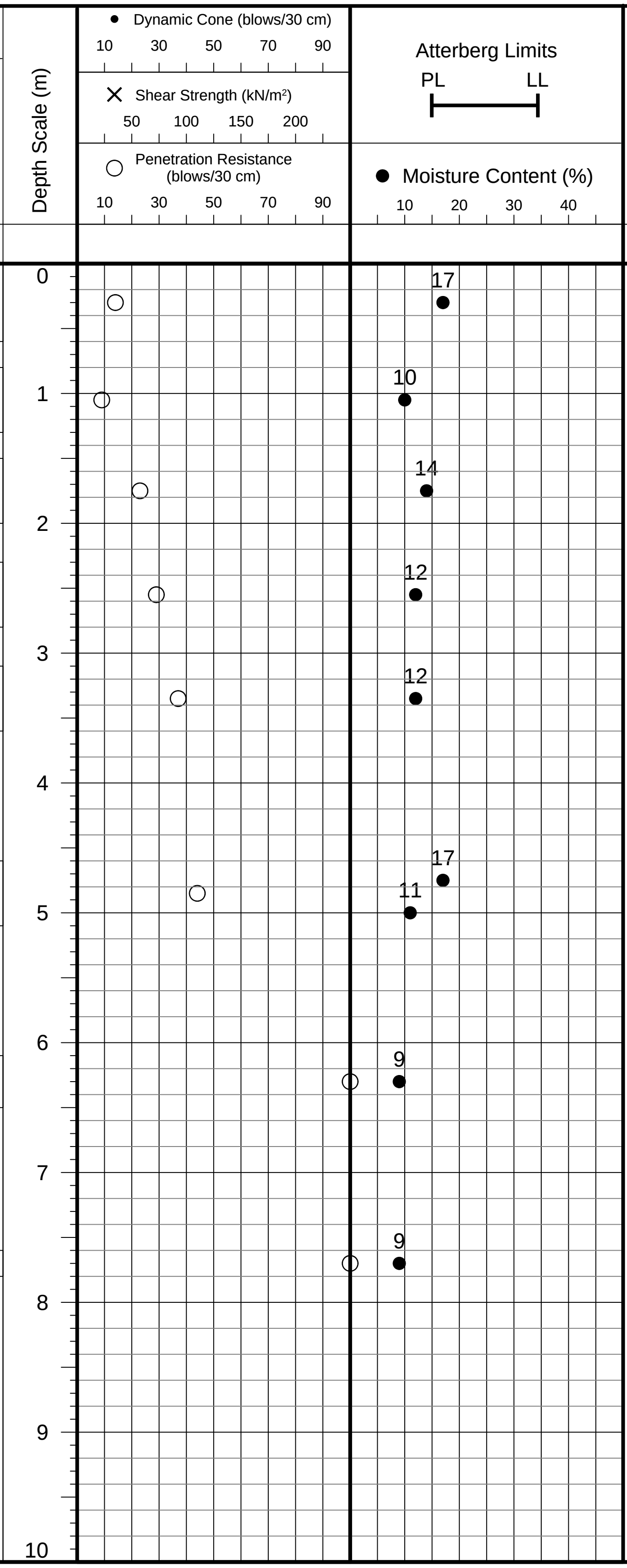
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 16, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES		
		Number	Type	N-Value
192.7	Ground Surface			
0.0	Brown **EARTH FILL** silty clay	1	DO	14
191.9 0.8	Stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	9
		3	DO	23
		4	DO	29
	reddish brown reddish grey	5	DO	37
	brown wet sand layer	6A 6B	DO	44
		7	DO	86/10
184.9	reddish grey red	8	DO	50/15
7.8	**END OF BOREHOLE**			



WATER LEVEL

W.L. @ El. 187.2 m on completion

▽

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 27

FIGURE NO.: 27

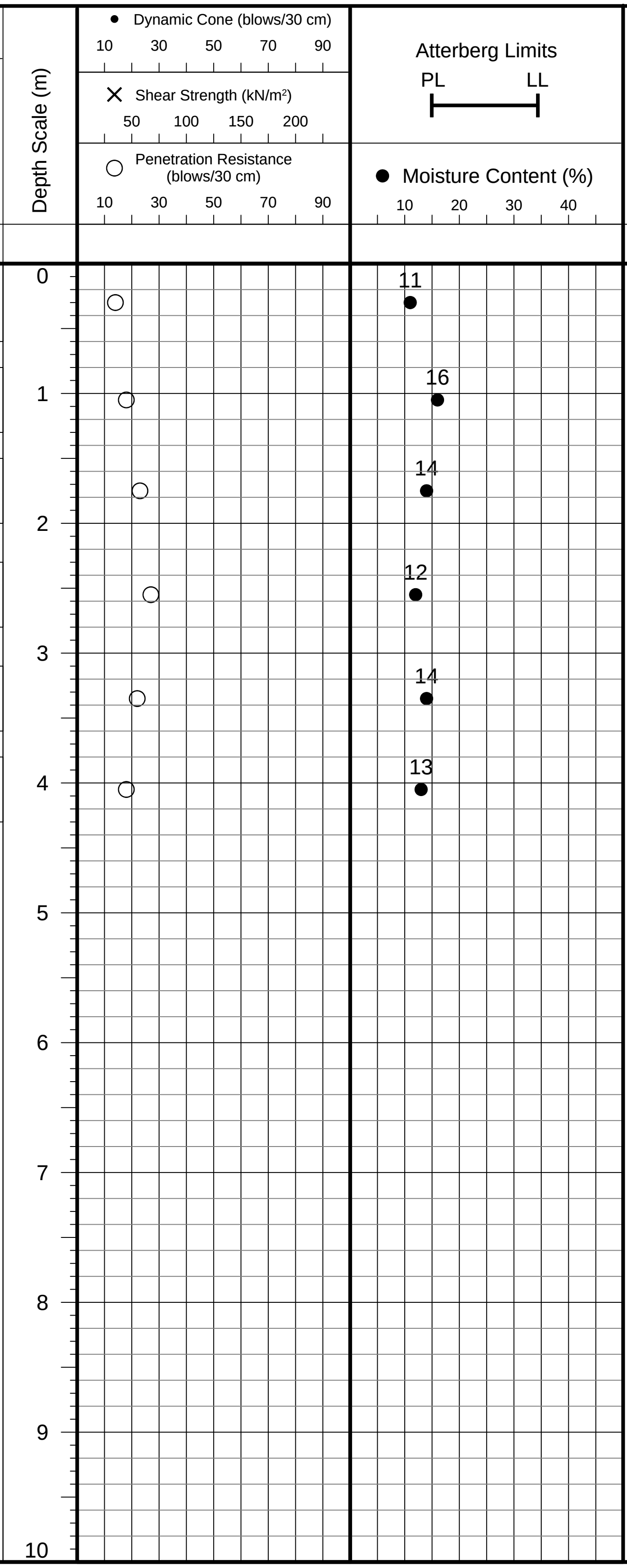
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 17, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES			WATER LEVEL
		Number	Type	N-Value	
192.5	Ground Surface				
0.0	Brown **EARTH FILL** silty clay	1	DO	14	Dry on completion
191.7 0.8	Reddish brown, very stiff **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	18	
		3	DO	23	
		4	DO	27	
		5	DO	22	
		6	DO	18	
188.2 4.3	**END OF BOREHOLE**				



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 28

FIGURE NO.: 28

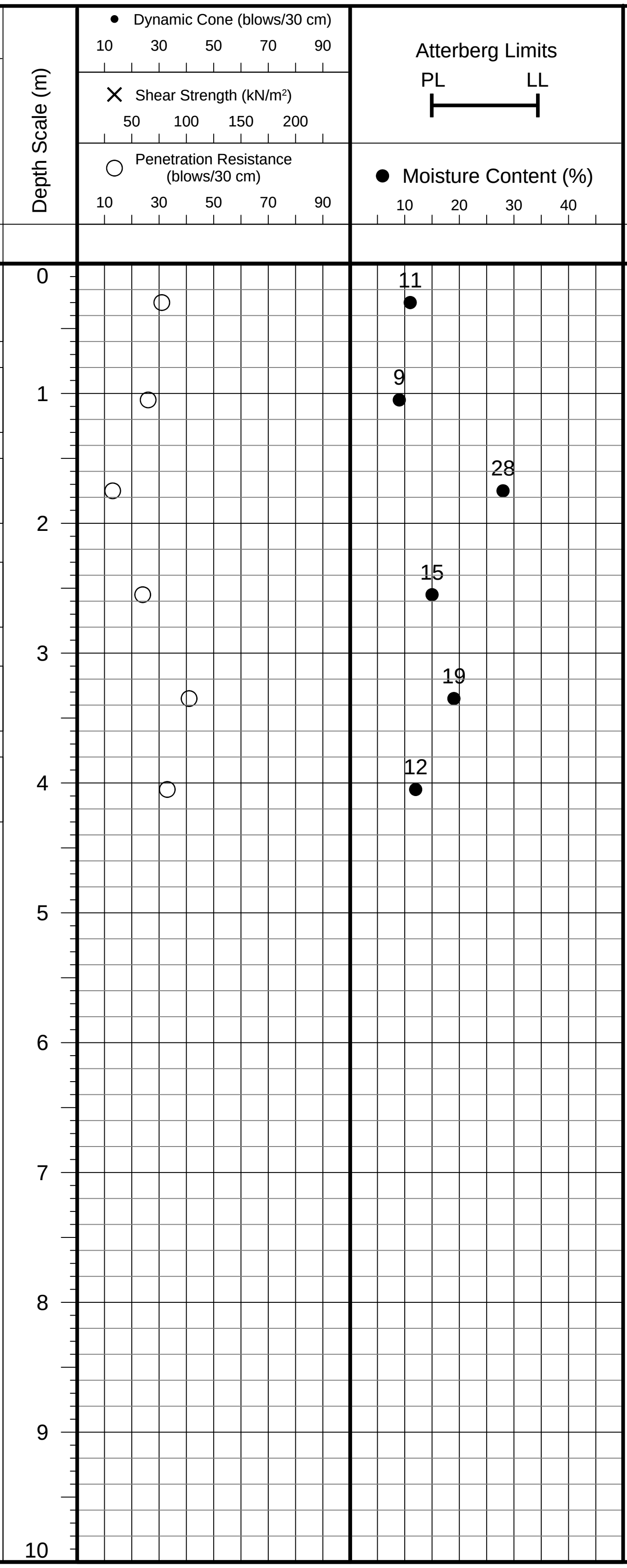
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 21, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES			WATER LEVEL
		Number	Type	N-Value	
193.6	Ground Surface				
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	31	Dry on completion
		2	DO	26	
192.1 1.5	Reddish brown, stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	13	
		4	DO	24	
		5	DO	41	
		6	DO	33	
189.3 4.3	**END OF BOREHOLE**				



Soil Engineers Ltd.

Page: 1 of 1

JOB NO.: 2509-S167

LOG OF BOREHOLE: 29

FIGURE NO.: 29

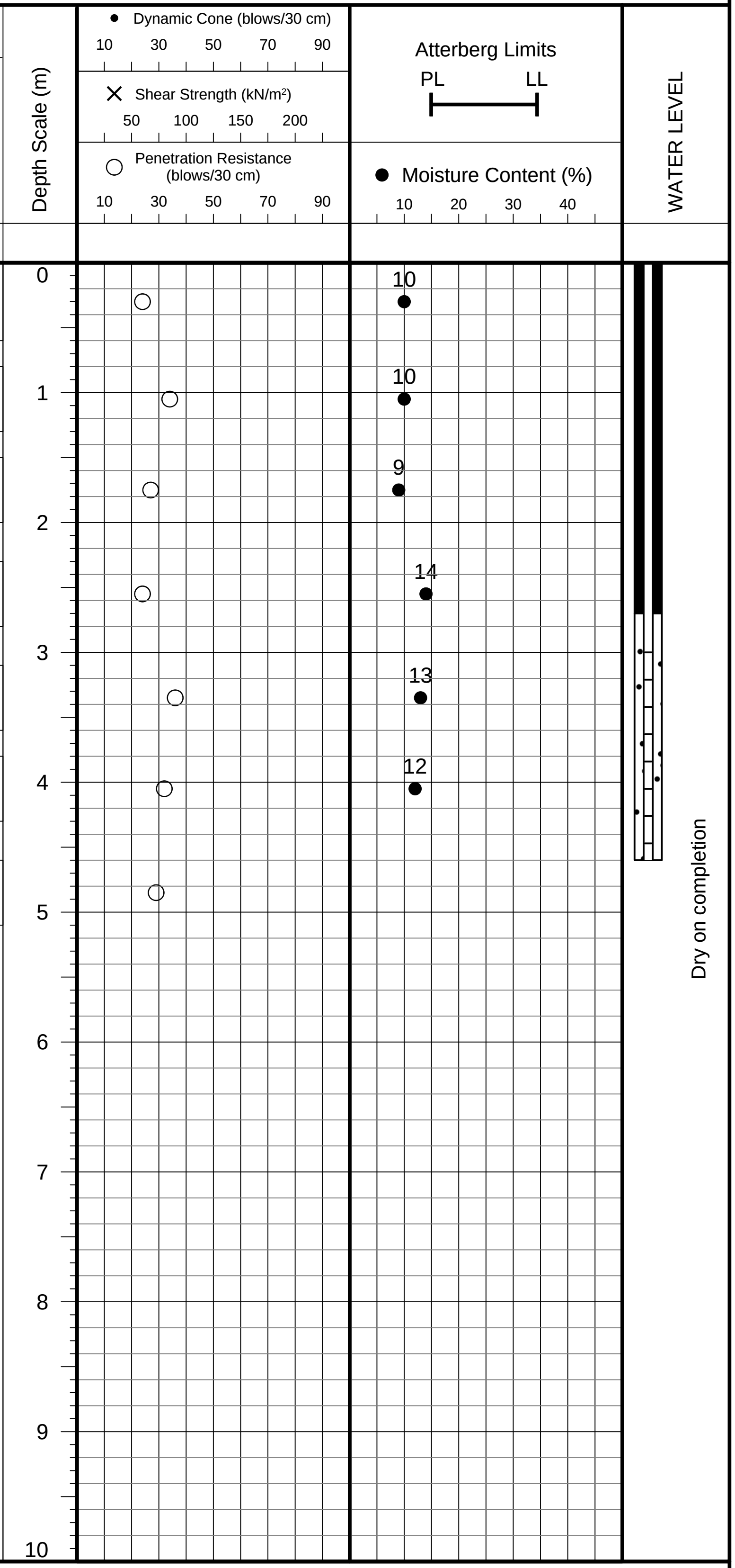
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 21, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value
194.0	Ground Surface			
0.0	Brown **EARTH FILL** silty clay	1	DO	24
		2	DO	34
		3	DO	27
191.7 2.3	Reddish brown, very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	4	DO	24
		5	DO	36
		6	DO	32
		7	DO	29
188.9 5.1	**END OF BOREHOLE** Installed 50 mm Ø monitoring well to 4.6 m completed with 1.6 m screen Sand backfill from 2.7 to 4.6 m Bentonite seal from 0.0 m to 2.7 m Provided with a momument steel casing			



Soil Engineers Ltd.

JOB NO.: 2509-S167 **LOG OF BOREHOLE: 30** **FIGURE NO.:** 30

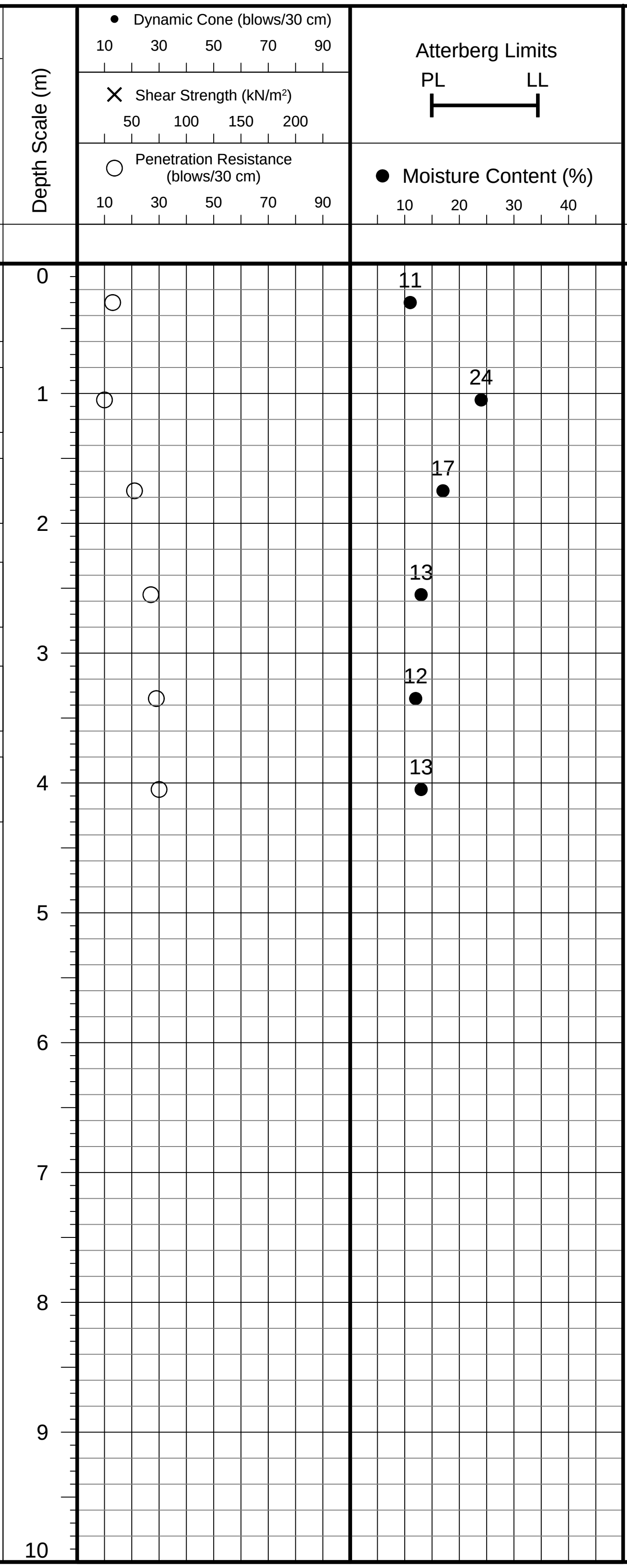
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 17, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	WATER LEVEL
193.1	Ground Surface				
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	13	Dry on completion
191.6 0.8	Reddish brown, very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	2	DO	10	
		3	DO	21	
	brown/grey reddish brown	4	DO	27	
		5	DO	29	
		6	DO	30	
188.8 4.3	**END OF BOREHOLE**				



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 31

FIGURE NO.: 31

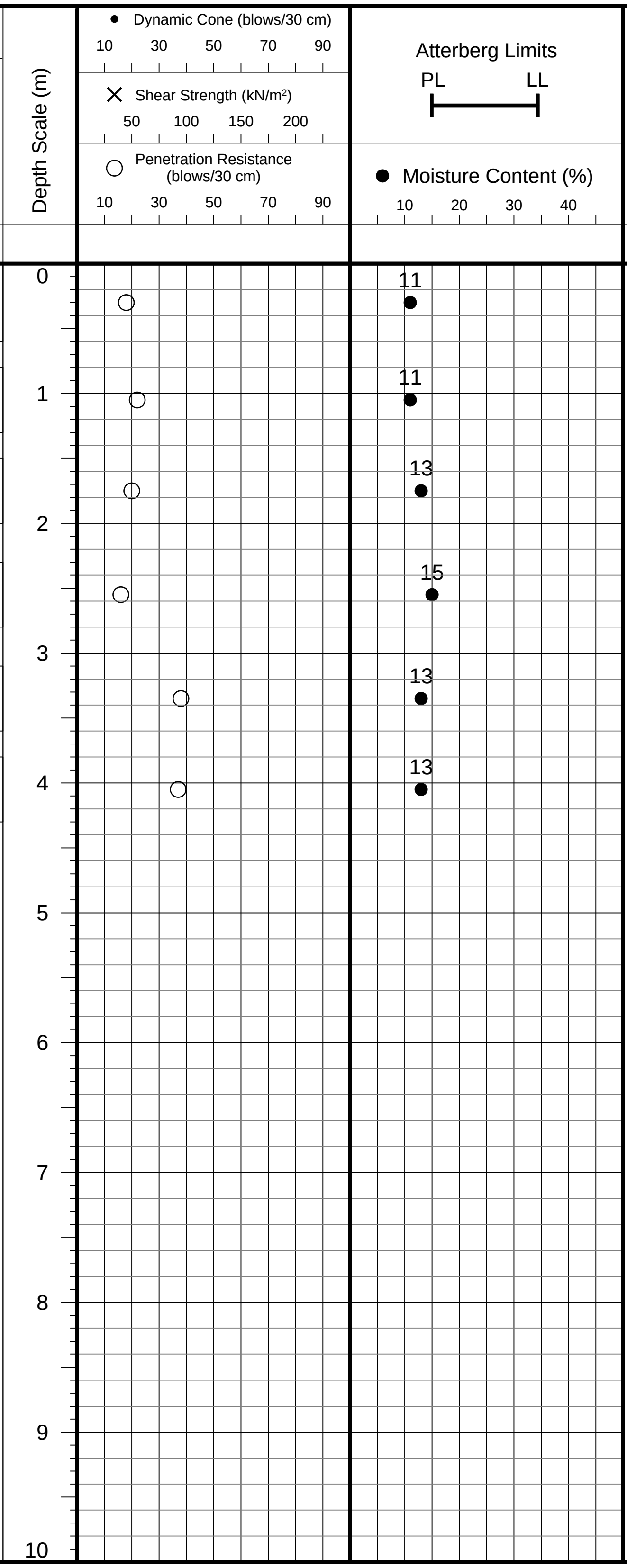
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 21, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	WATER LEVEL
193.9	Ground Surface				
0.0	Brown **EARTH FILL** silty clay	1	DO	18	
		2	DO	22	
192.4 1.5	Reddish brown, very stiff to hard **SILTY CLAY TILL** sandy — — brown/grey reddish brown a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	20	
		4	DO	16	
		5	DO	38	
		6	DO	37	Dry on completion
189.6 4.3	**END OF BOREHOLE**				



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 32

FIGURE NO.: 32

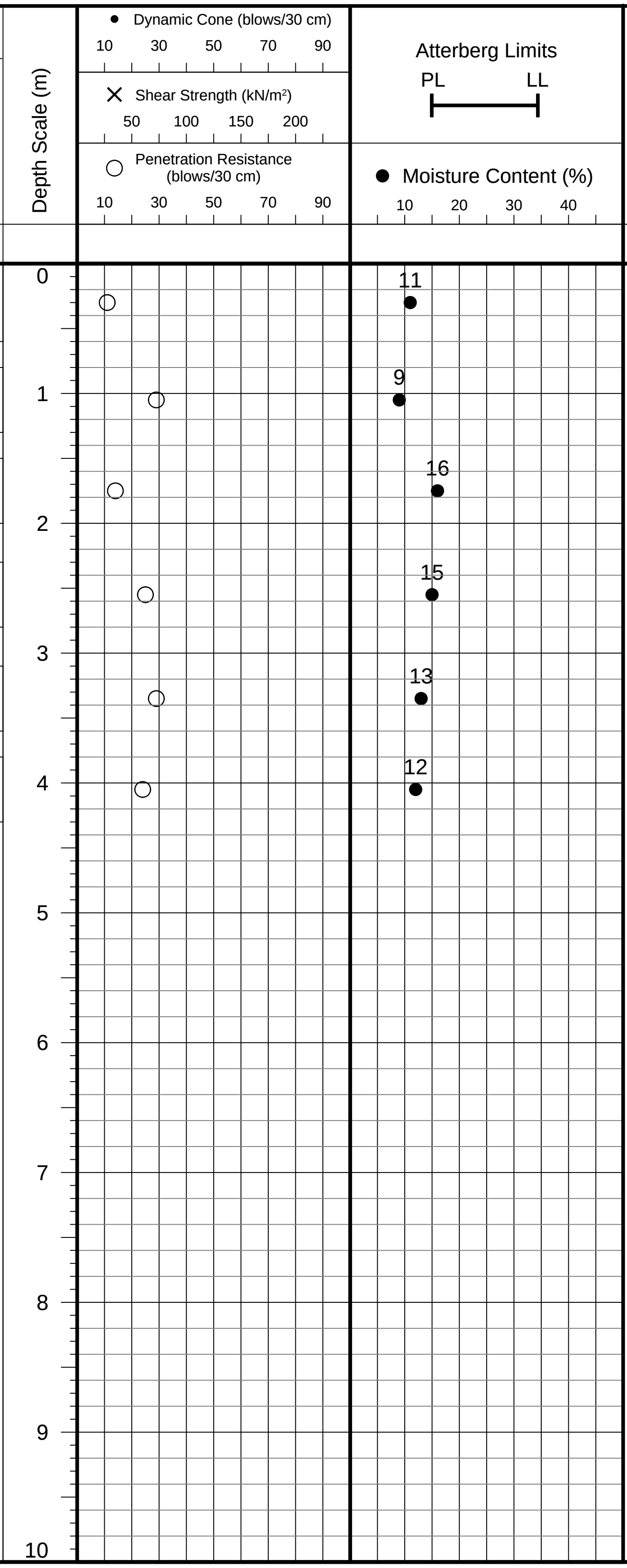
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 21, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES			WATER LEVEL
		Number	Type	N-Value	
194.1	Ground Surface				
0.0	Brown **EARTH FILL** silty clay	1	DO	11	
		2	DO	29	
192.6 1.5	Reddish brown, stiff to very stiff **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	14	
		4	DO	25	
		5	DO	29	
		6	DO	24	
189.8 4.3	**END OF BOREHOLE**				Dry on completion



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 33

FIGURE NO.: 33

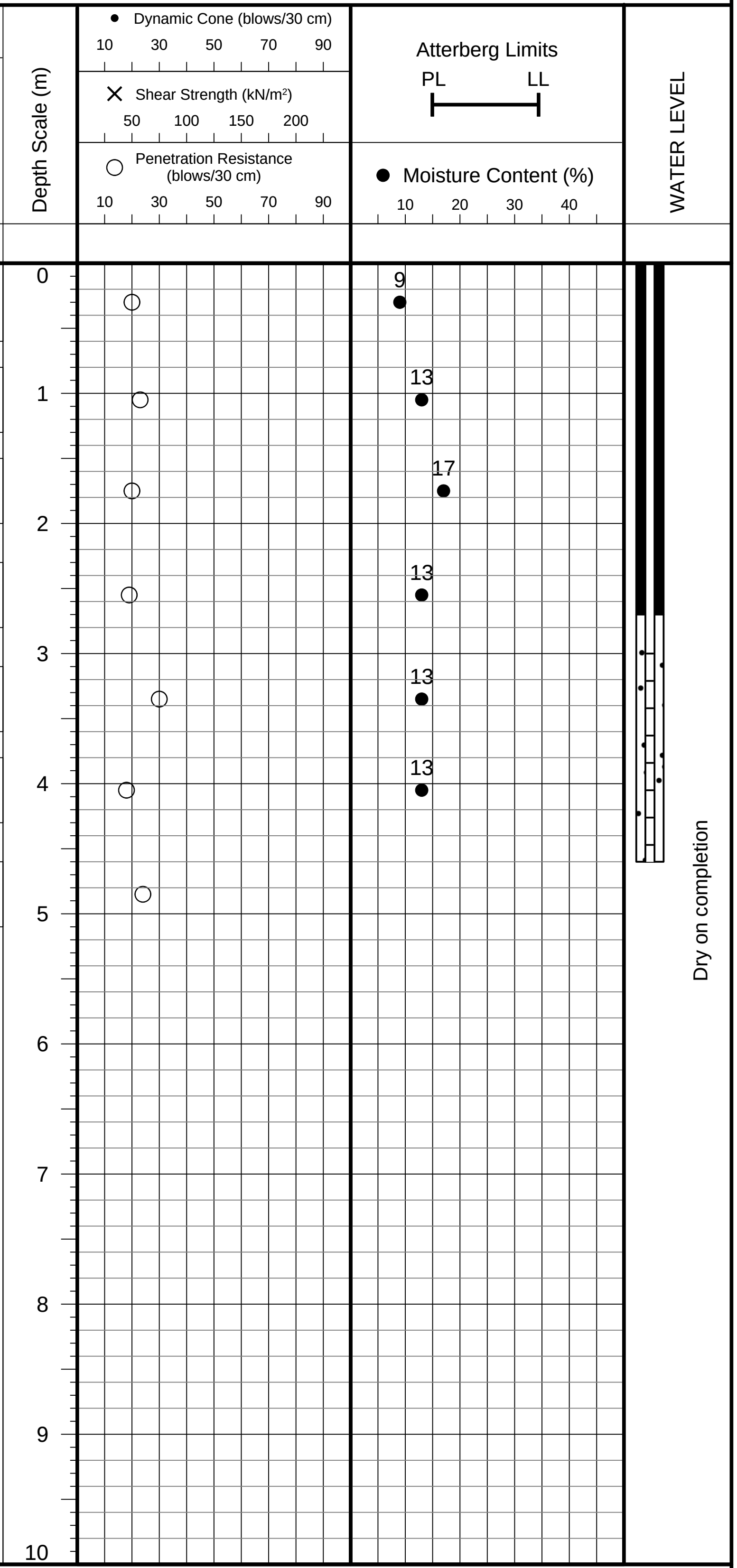
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 17, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value
193.7	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	20
		2	DO	23
192.2 1.5	Very stiff to hard **SILTY CLAY TILL** sandy — — brown/grey reddish brown a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	20
		4	DO	19
		5	DO	30
		6	DO	18
		7	DO	24
188.6 5.1	**END OF BOREHOLE** Installed 50 mm Ø monitoring well to 4.6 m completed with 1.6 m screen Sand backfill from 2.7 to 4.6 m Bentonite seal from 0.0 m to 2.7 m Provided with a momument steel casing			



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 34

FIGURE NO.: 34

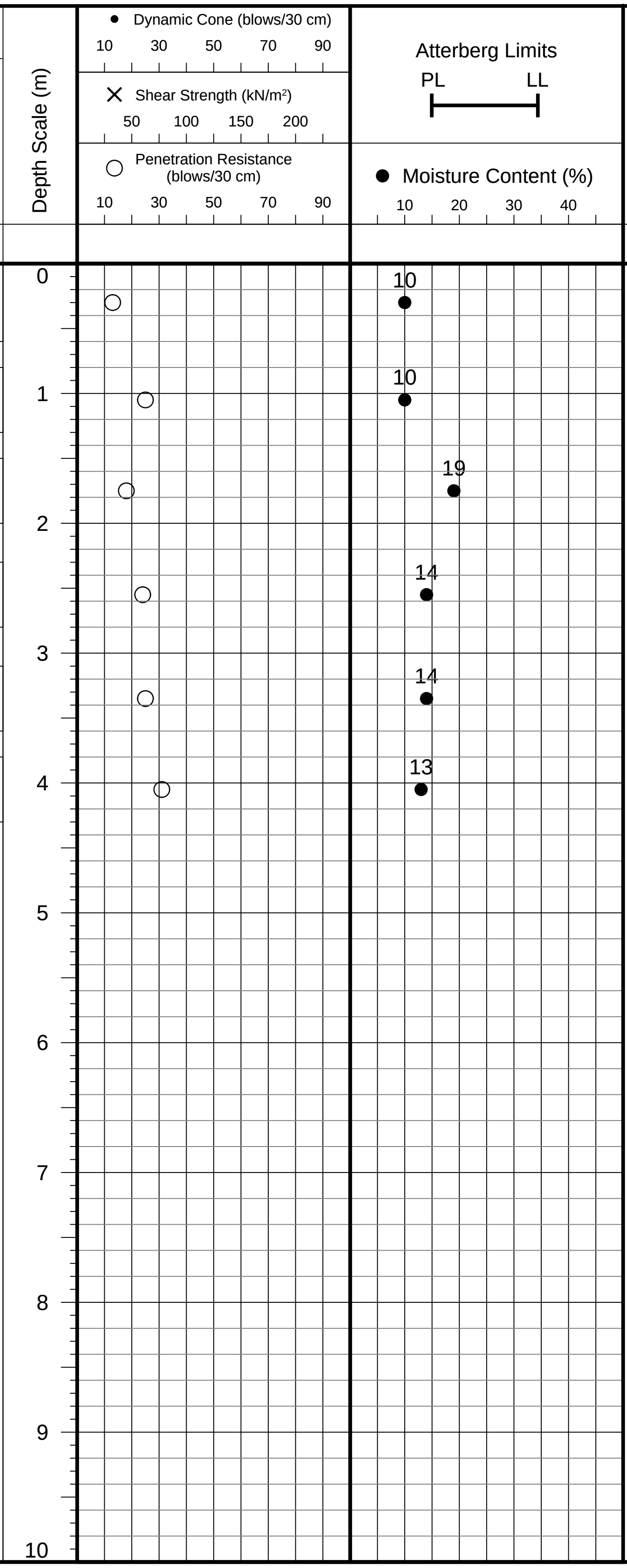
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 21, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	WATER LEVEL
194.1	Ground Surface				
0.0	Reddish grey **EARTH FILL** silty clay	1	DO	13	
		2	DO	25	
192.6 1.5	Brown, very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	18	
		4	DO	24	
		5	DO	25	
		6	DO	31	
189.8 4.3	**END OF BOREHOLE**				Dry on completion



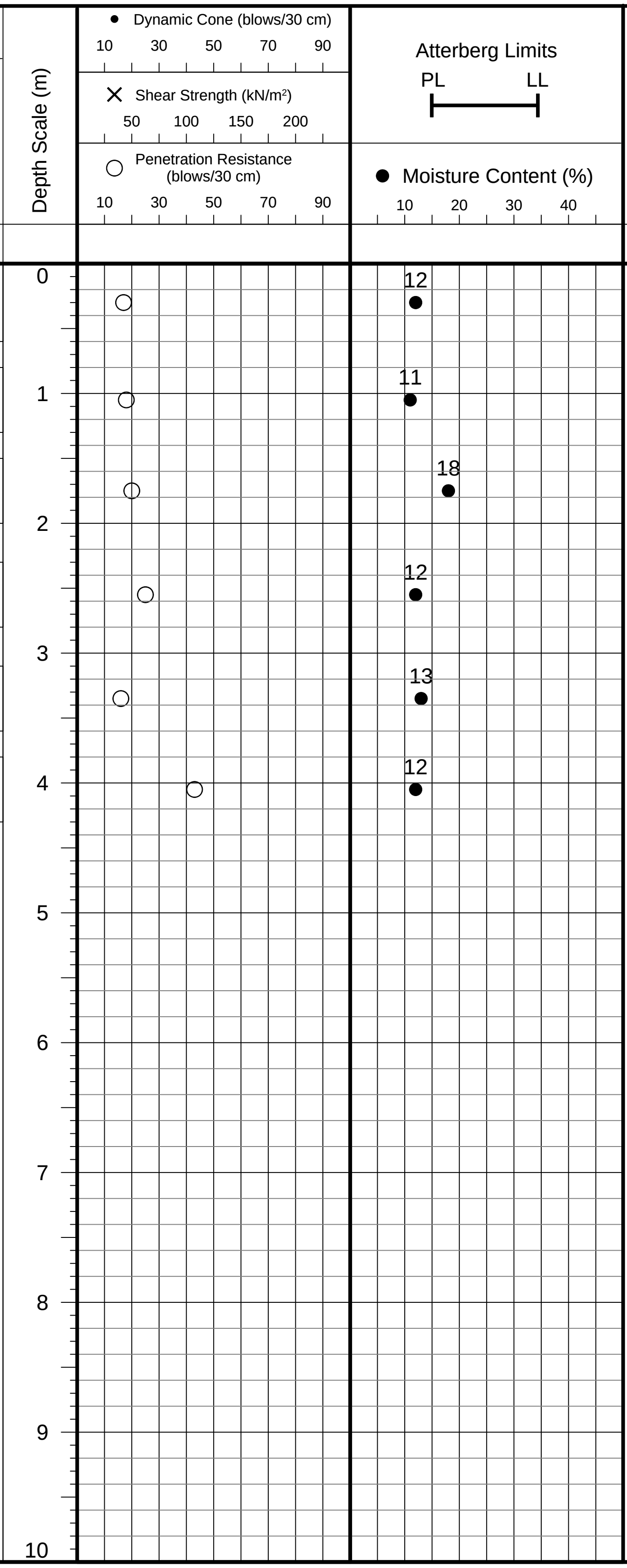
Soil Engineers Ltd.

JOB NO.: 2509-S167 **LOG OF BOREHOLE: 35** **FIGURE NO.:** 35

PROJECT DESCRIPTION: Proposed Milton 13 Public School **METHOD OF BORING:** Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton **DRILLING DATE:** October 21, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	WATER LEVEL
194.0	Ground Surface				
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	17	
		2	DO	18	
		3	DO	20	
192.2 1.8	Reddish brown, very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	4	DO	25	
		5	DO	16	
		6	DO	43	
189.7 4.3	**END OF BOREHOLE**				Dry on completion



JOB NO.: 2509-S167

LOG OF BOREHOLE: 36

FIGURE NO.: 36

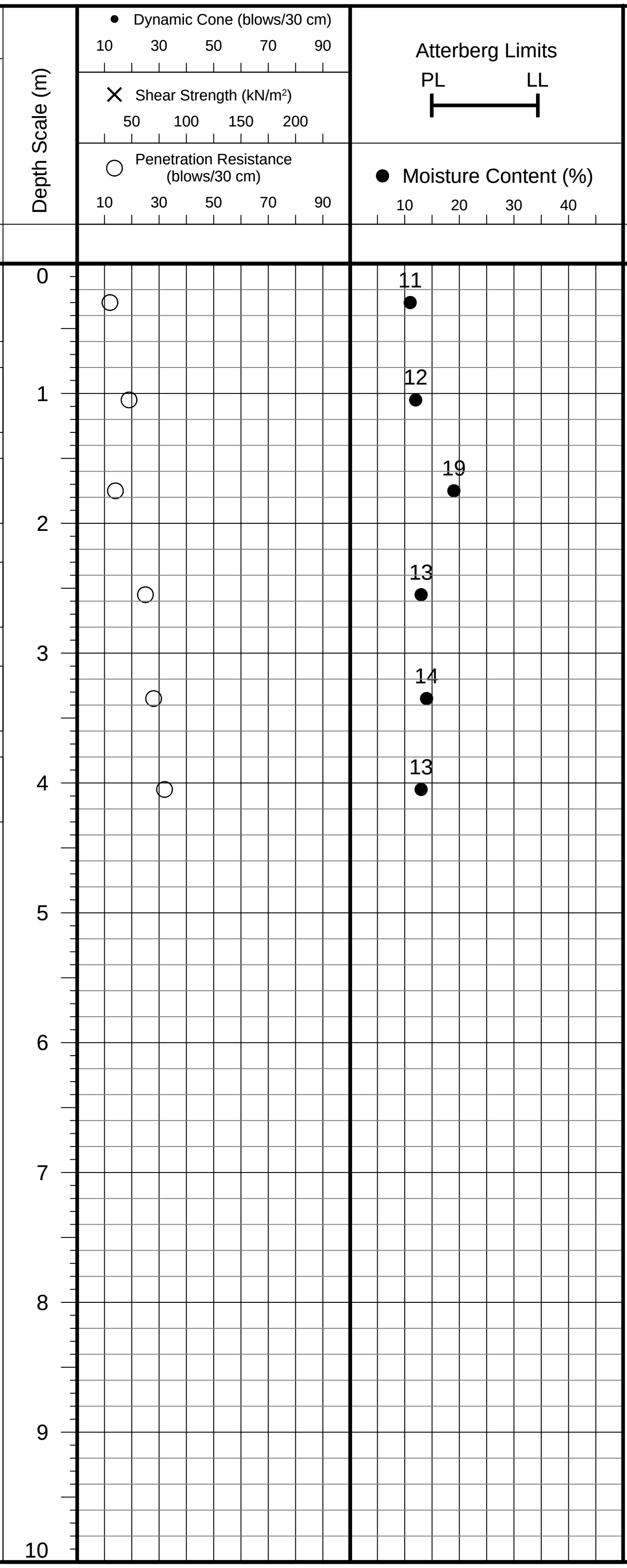
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 21, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value
193.9	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	12
		2	DO	19
192.4 1.5	Stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders brown/grey reddish brown	3	DO	14
		4	DO	25
		5	DO	28
		6	DO	32
189.6 4.3	**END OF BOREHOLE**			



WATER LEVEL

Dry on completion

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 37

FIGURE NO.: 37

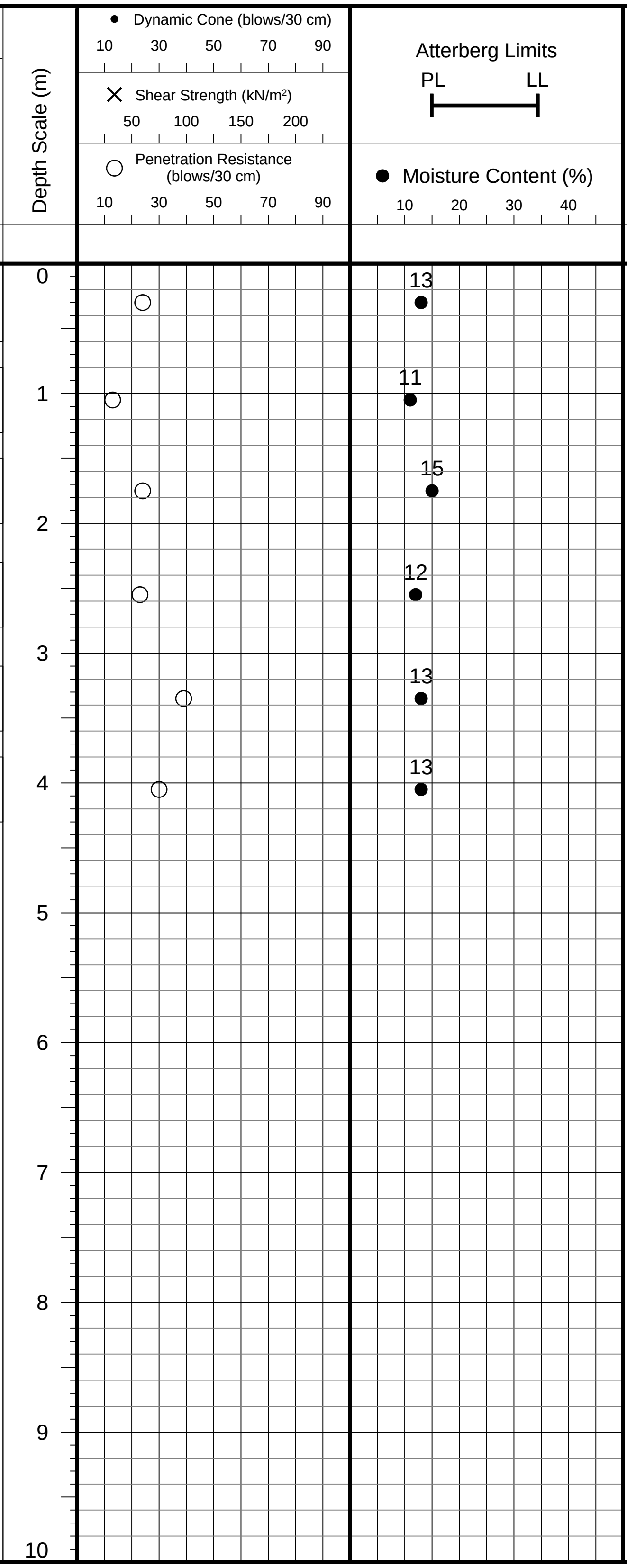
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 16, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value	WATER LEVEL
192.6	Ground Surface				
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	24	
		2	DO	13	
191.1 1.5	Reddish brown, very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	24	
		4	DO	23	
		5	DO	39	
		6	DO	30	
188.3 4.3	**END OF BOREHOLE**				Dry on completion



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 38

FIGURE NO.: 38

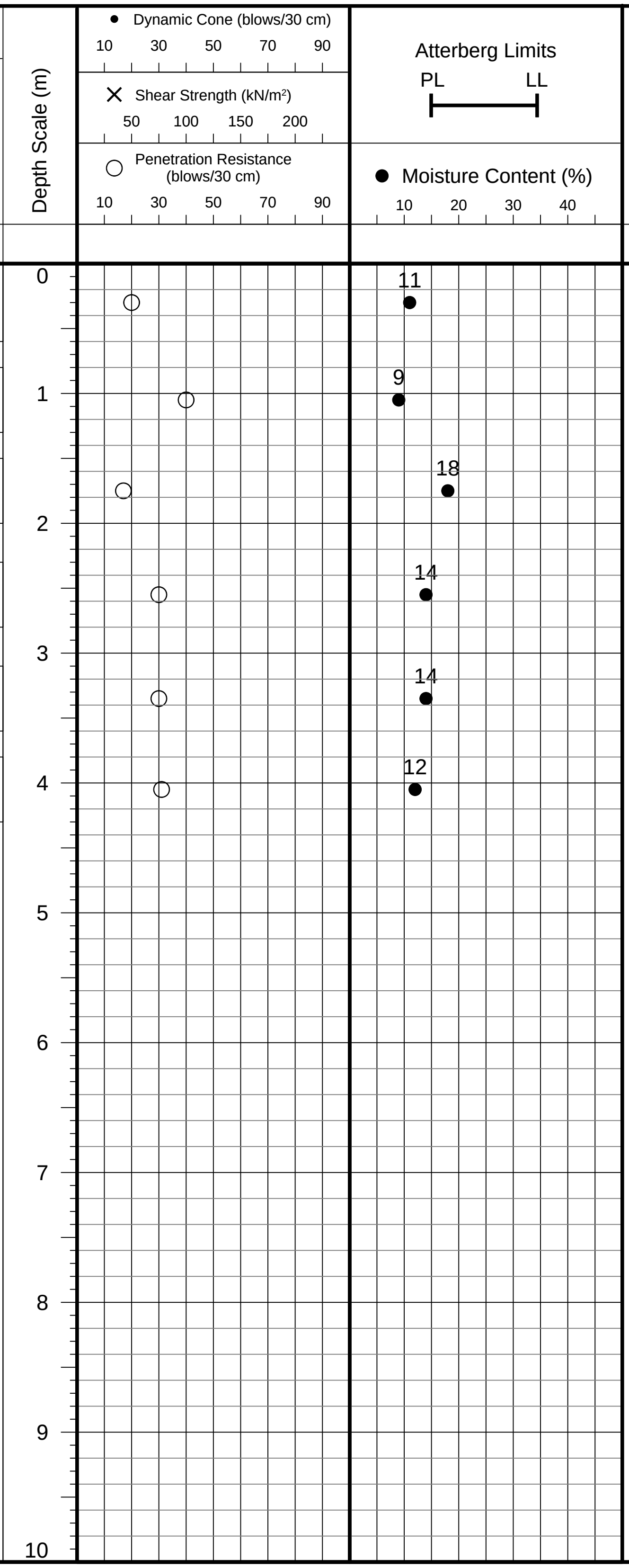
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 21, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value
194.2	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	20
		2	DO	40
192.7 1.5	Reddish brown, very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	17
		4	DO	30
		5	DO	30
		6	DO	31
189.9 4.3	**END OF BOREHOLE**			



WATER LEVEL

Dry on completion

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 39

FIGURE NO.: 39

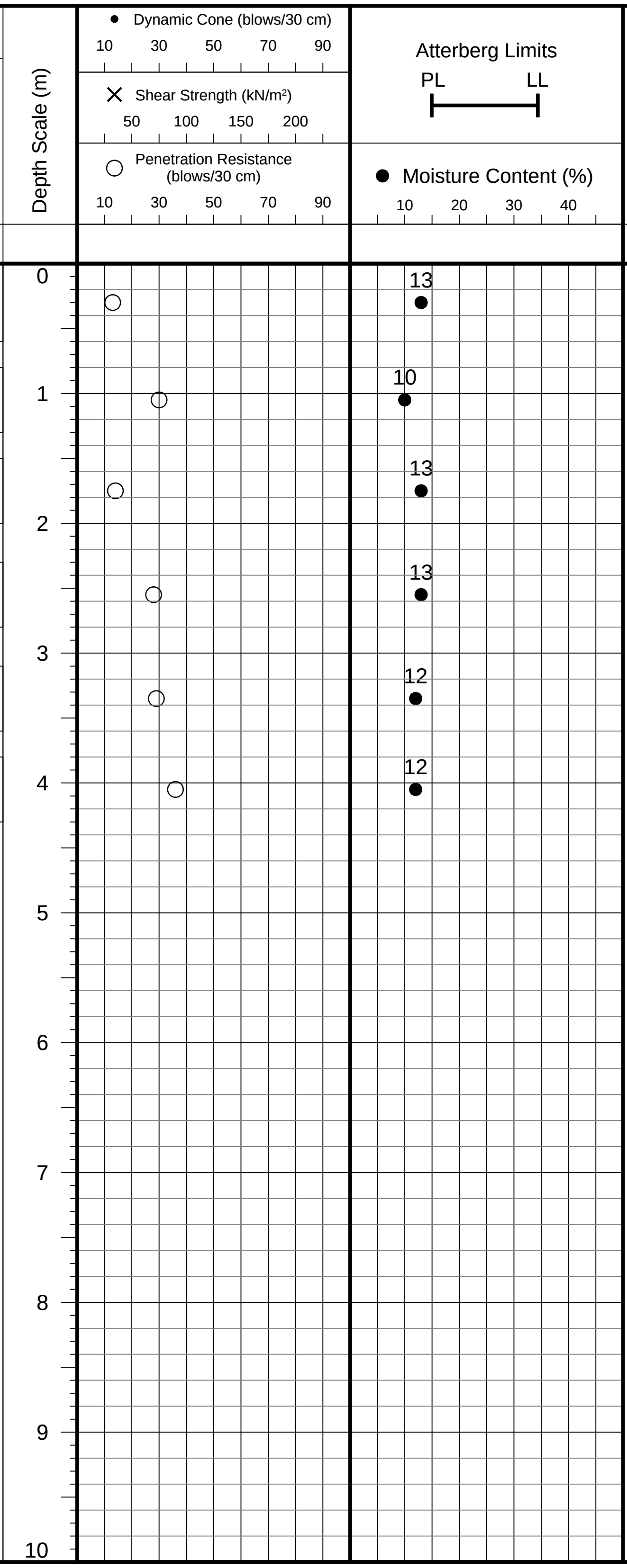
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 22, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value
194.8	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	13
		2	DO	30
		3	DO	14
192.5 2.3	Reddish brown, very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	4	DO	28
		5	DO	29
		6	DO	36
190.5 4.3	**END OF BOREHOLE**			



WATER LEVEL

Dry on completion

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 40

FIGURE NO.: 40

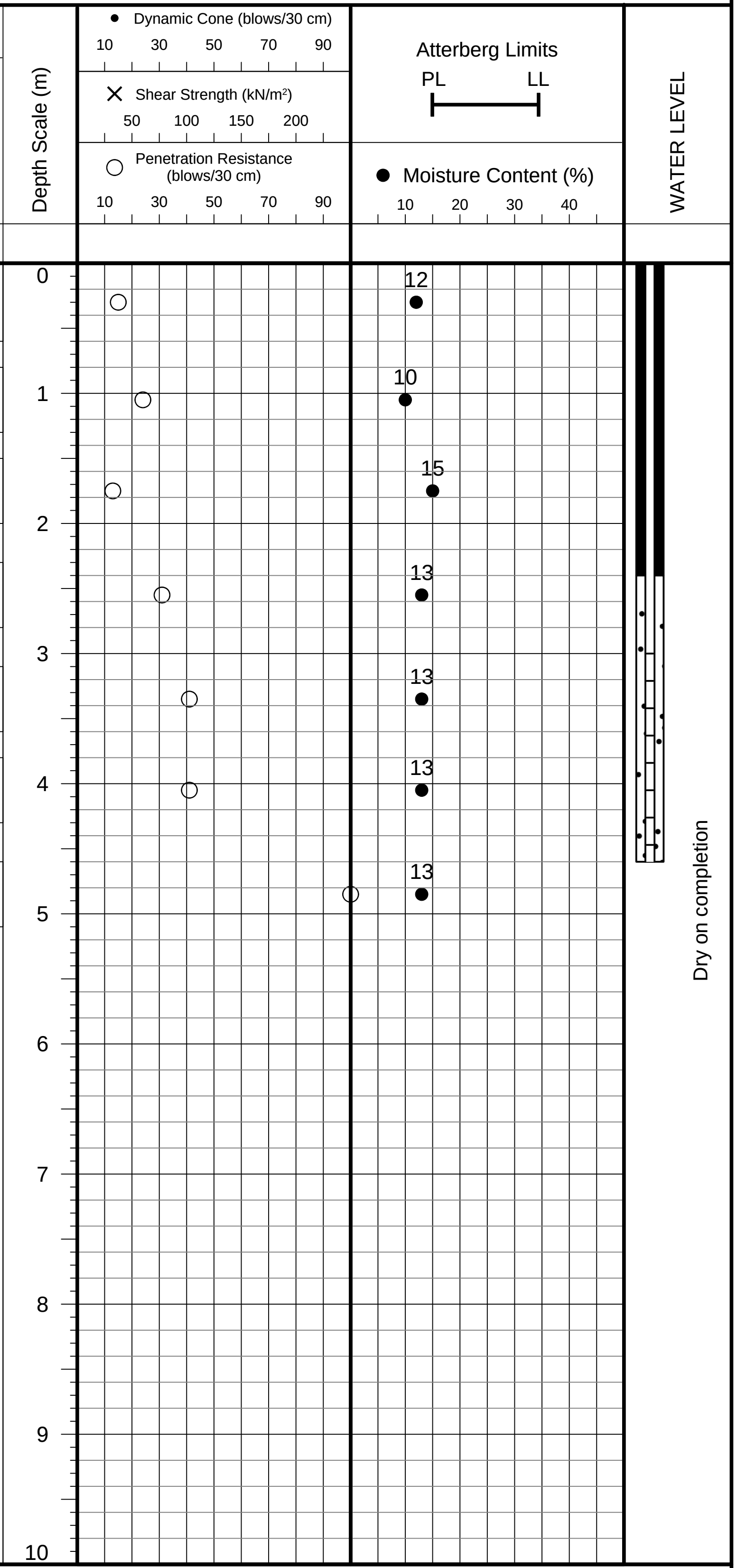
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 21, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value
194.5	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	15
		2	DO	24
193.0 1.5	Reddish brown, stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	13
		4	DO	31
		5	DO	41
		6	DO	41
		7	DO	50
189.4 5.1	**END OF BOREHOLE** Installed 50 mm Ø monitoring well to 4.6 m completed with 1.6 m screen Sand backfill from 2.4 to 4.6 m Bentonite seal from 0.0 m to 2.4 m Provided with a momument steel casing			



JOB NO.: 2509-S167

LOG OF BOREHOLE: 41

FIGURE NO.: 41

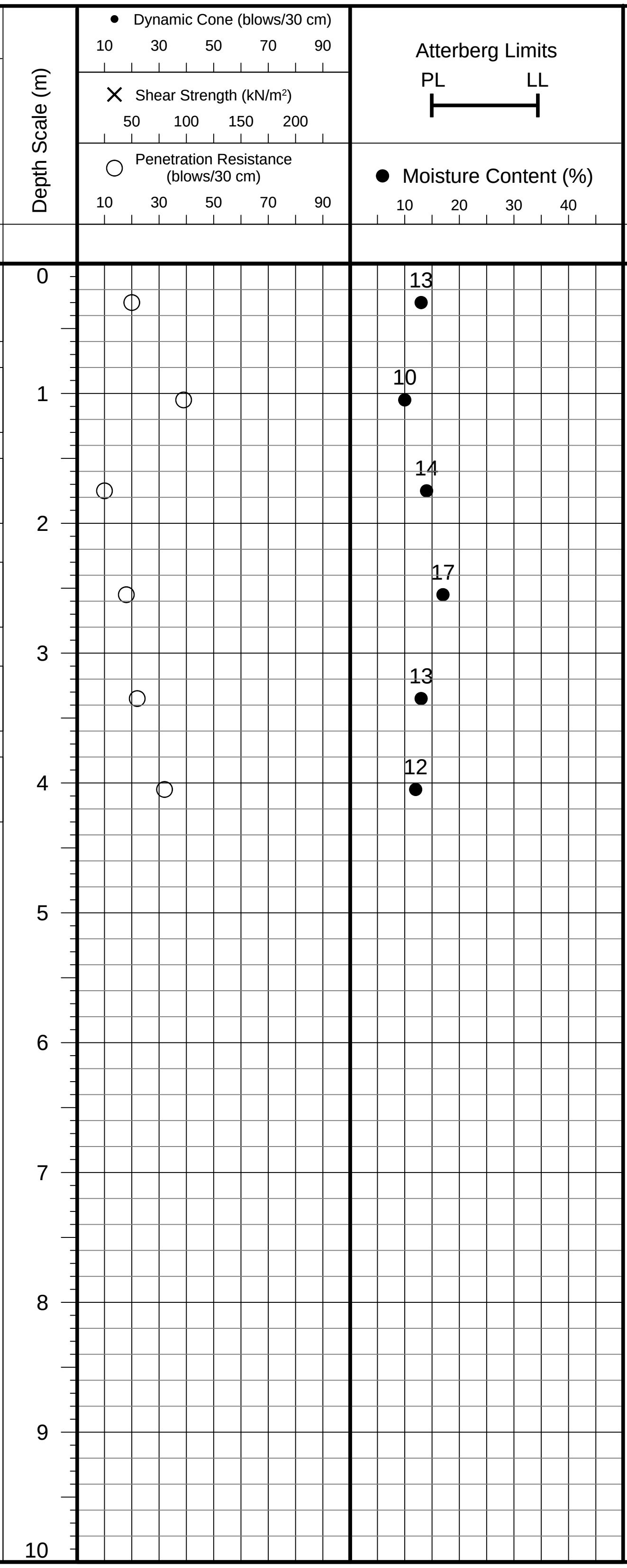
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 21, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES		
		Number	Type	N-Value
194.7	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	20
		2	DO	39
193.2 1.5	Reddish brown, stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	10
		4	DO	18
		5	DO	22
		6	DO	32
190.4 4.3	**END OF BOREHOLE**			



WATER LEVEL

Dry on completion

Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 42

FIGURE NO.: 42

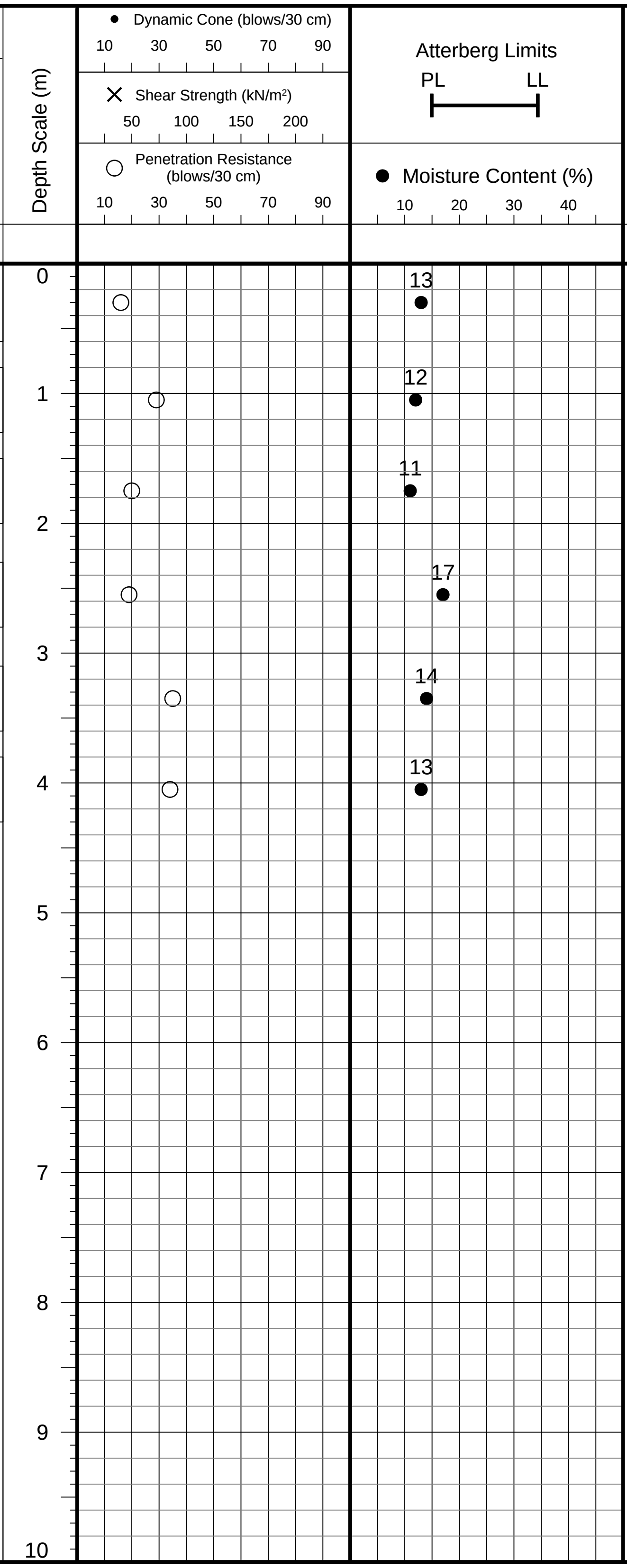
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 21, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	WATER LEVEL
195.0	Ground Surface				
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	16	
		2	DO	29	
		3	DO	20	
192.7 2.3	Reddish brown, very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	4	DO	19	
		5	DO	35	
		6	DO	34	
190.7 4.3	**END OF BOREHOLE**				Dry on completion



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JOB NO.: 2509-S167

LOG OF BOREHOLE: 43

FIGURE NO.: 43

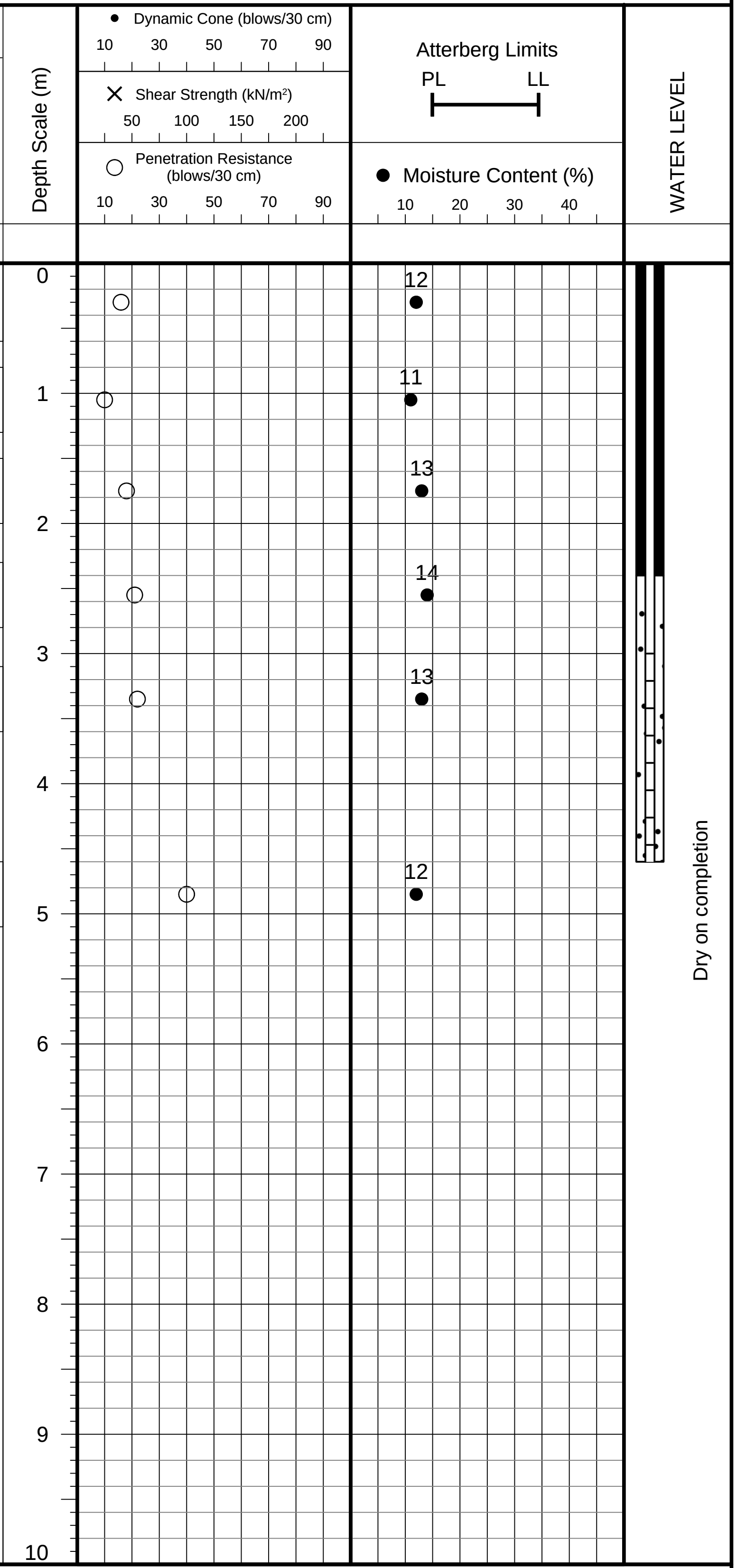
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 21, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value
194.3	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	16
		2	DO	10
192.0		3	DO	18
2.3	Reddish brown, very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	4	DO	21
		5	DO	22
189.2		6	DO	40
5.1	**END OF BOREHOLE** Installed 50 mm Ø monitoring well to 4.6 m completed with 1.6 m screen Sand backfill from 2.4 to 4.6 m Bentonite seal from 0.0 m to 2.4 m Provided with a momument steel casing			



Soil Engineers Ltd.

JOB NO.: 2509-S167

LOG OF BOREHOLE: 44

FIGURE NO.: 44

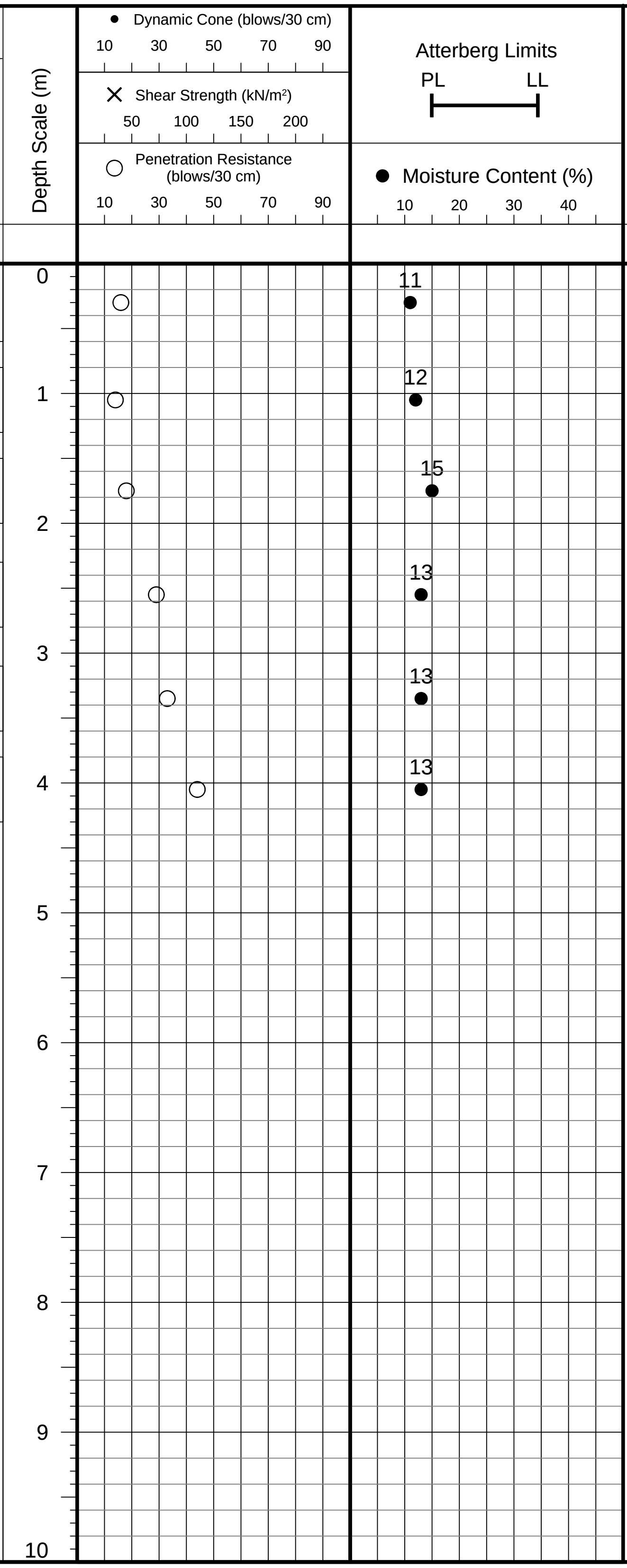
PROJECT DESCRIPTION: Proposed Milton 13 Public School

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

DRILLING DATE: October 22, 2025

El. (m) Depth (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value
194.2	Ground Surface			
0.0	Reddish brown **EARTH FILL** silty clay	1	DO	16
		2	DO	14
192.7 1.5	Reddish brown, very stiff to hard **SILTY CLAY TILL** sandy a trace of gravel occ. grey and red clay pockets occ. cobbles and boulders	3	DO	18
		4	DO	29
		5	DO	33
		6	DO	44
189.9 4.3	**END OF BOREHOLE**			



WATER LEVEL

Dry on completion

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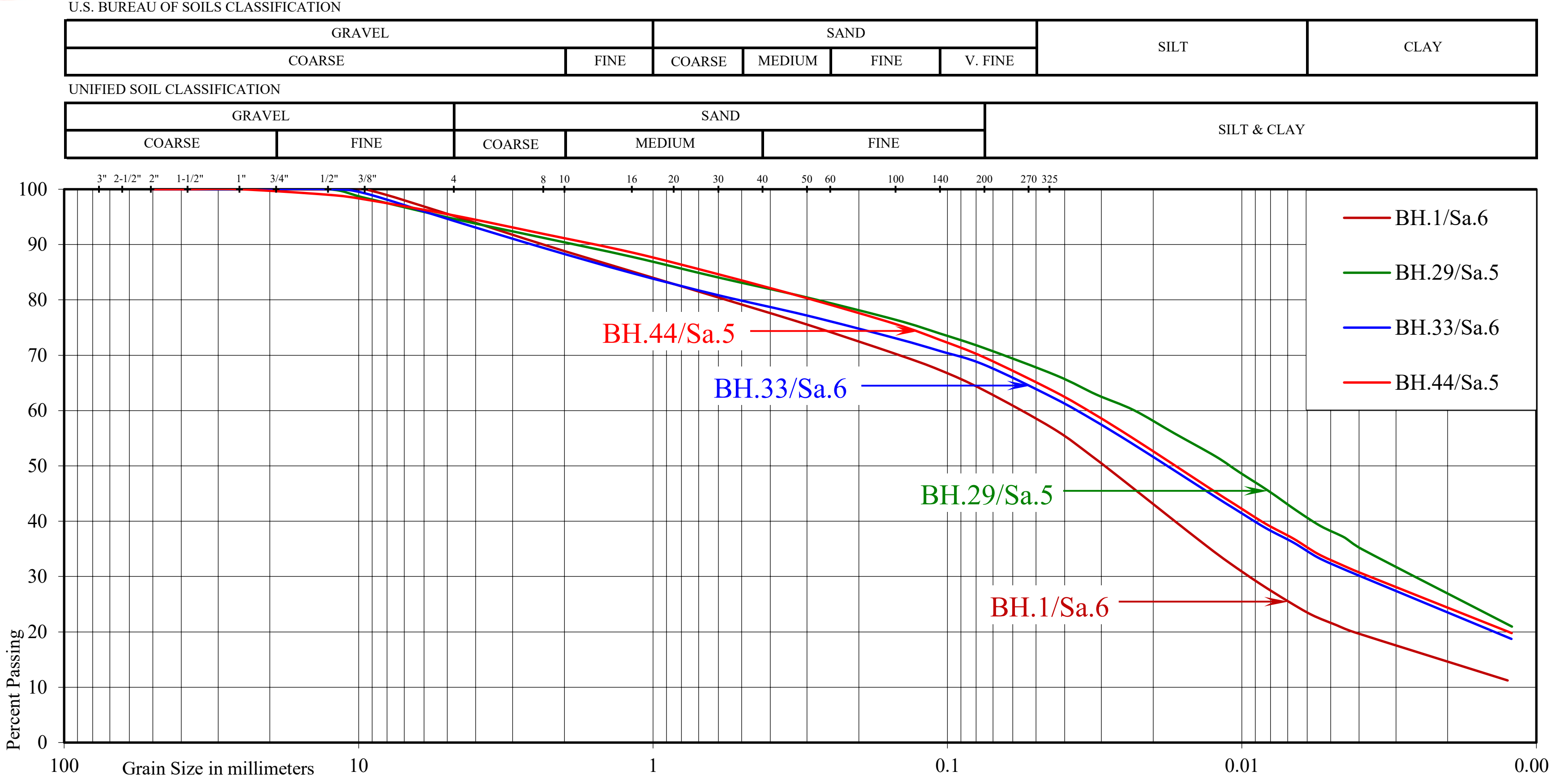
GRAIN SIZE DISTRIBUTION

Reference No: 2509-S167



Project: Proposed Milton 13 Public School

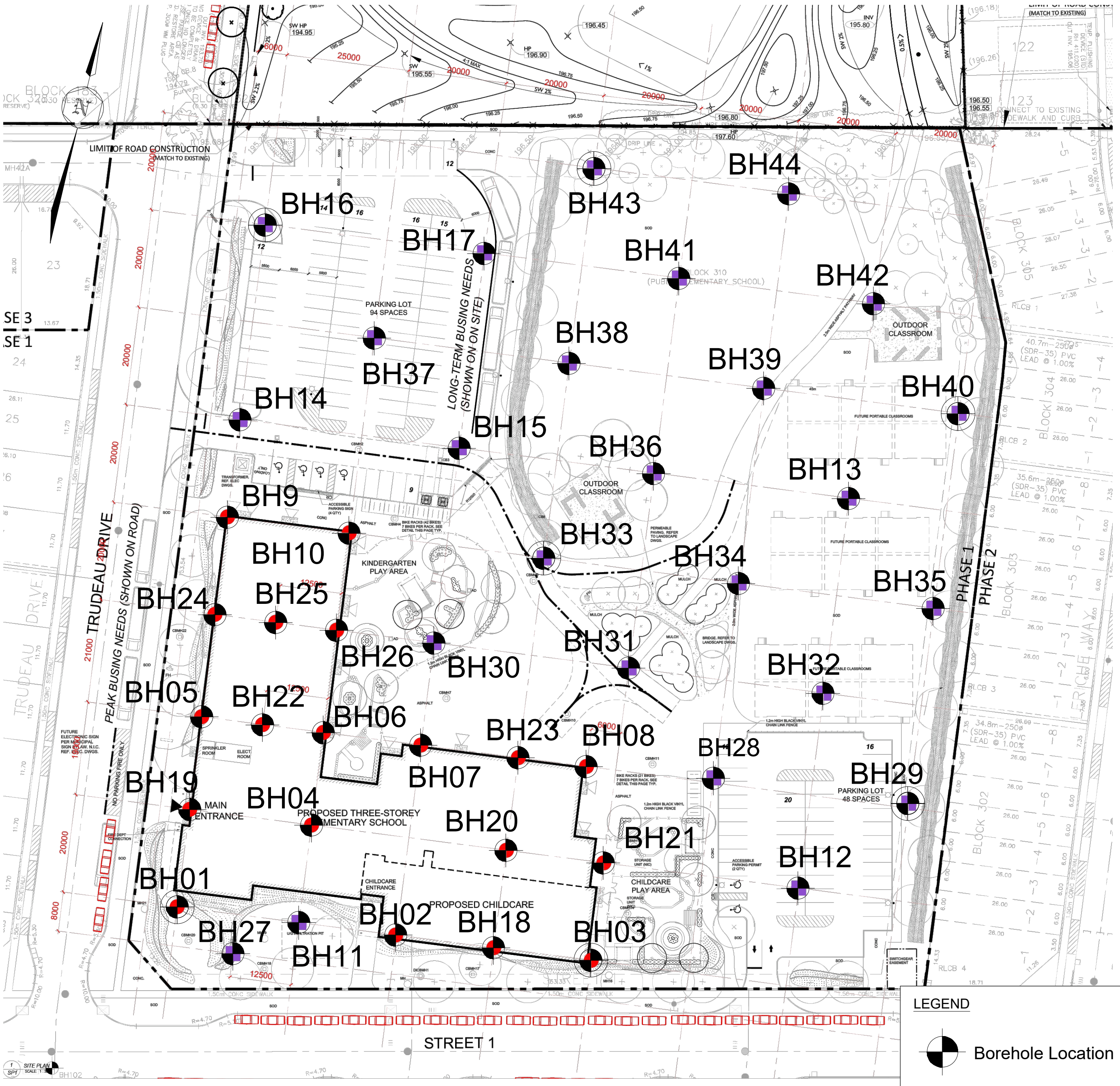
Location: Trudeau Drive and Street 1, Town of Milton

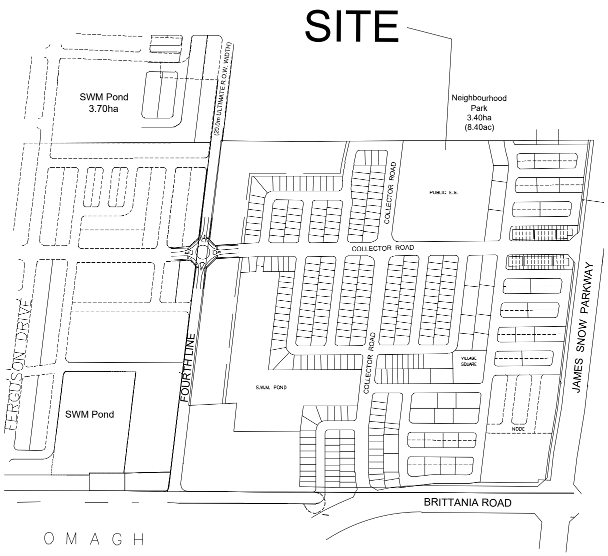
Borehole No:	1	29	33	44
Sample No:	6	5	6	5
Depth (m):	4.9	3.4	4.1	3.3
Elevation (m):	187.8	190.6	189.6	190.9

BH./Sa.	1/6	29/5	33/6	44/5
Liquid Limit (%) =	-	29	-	27
Plastic Limit (%) =	-	18	-	17
Plasticity Index (%) =	-	11	-	10
Moisture Content (%) =	8	13	13	13
Estimated Permeability (cm./sec.) =	10^{-6}	10^{-7}	10^{-7}	10^{-7}

Classification of Sample [& Group Symbol]: SILTY CLAY TILL

sandy, a trace of gravel





LEGEND

◐	Borehole Location
◉	Borehole Location with Monitoring Well

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90 WEST BEAVER CREEK ROAD, SUITE #100, RICHMOND HILL, ONTARIO L4B 1E7 · TEL: (416) 754-8515 · FAX: (905) 881-8335

BOREHOLE AND MONITORING WELLS LOCATION PLAN

SITE: Trudeau Drive and Street 1, Milton

DESIGNED BY: -
CHECKED BY: -
DWG NO.: 1
SCALE: 1:500
REF. NO.: 2509-S167
DATE: January 2026
REV -

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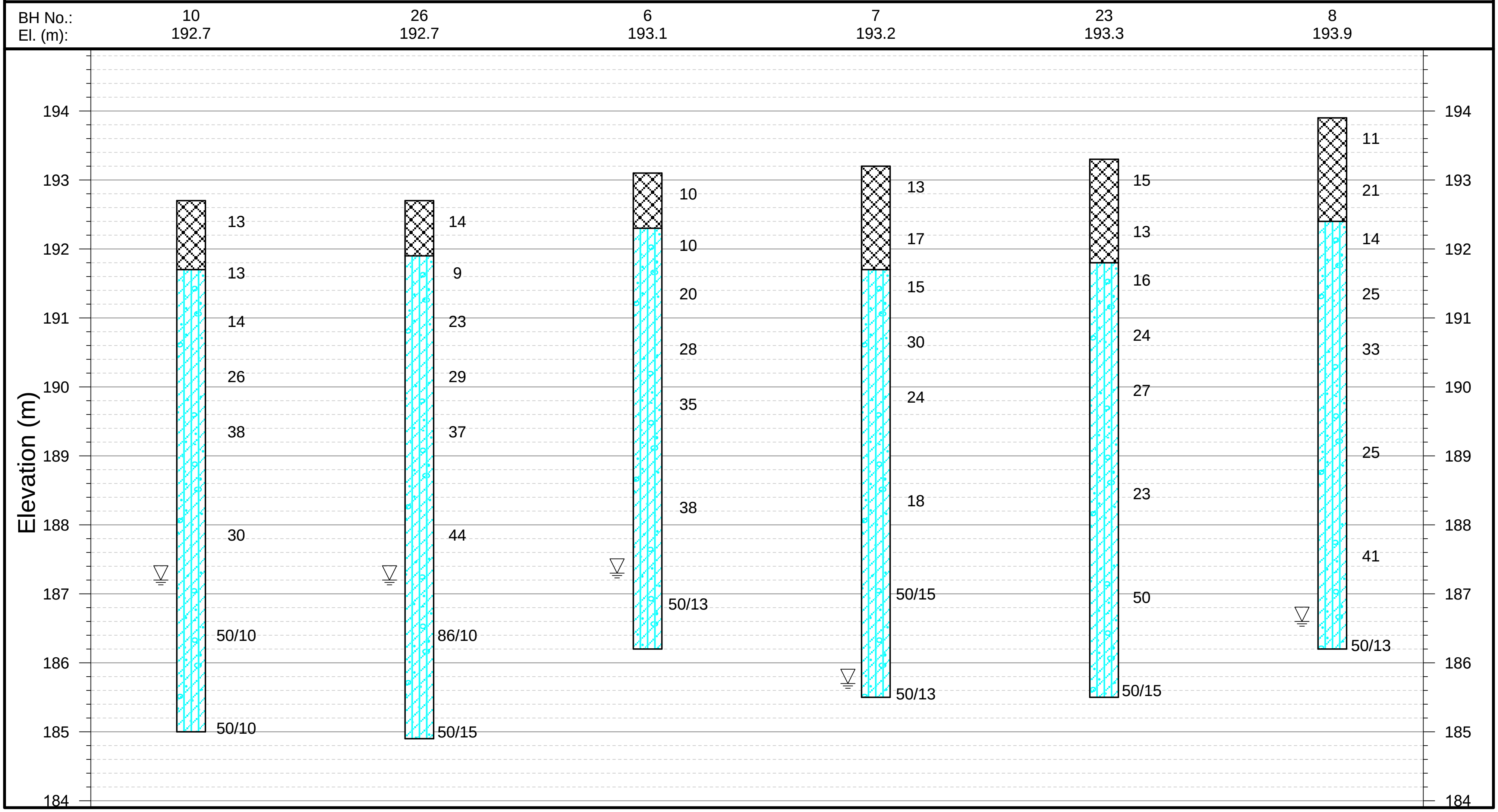
SUBSURFACE PROFILE
DRAWING NO. 2
SCALE: AS SHOWN

JOB NO.: 2509-S167
REPORT DATE: January 2026
PROJECT DESCRIPTION: Proposed Milton 13 Public School
PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

LEGEND

▨ FILL ▥ SILTY CLAY TILL

▽ WATER LEVEL (END OF DRILLING)



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SUBSURFACE PROFILE
DRAWING NO. 3
SCALE: AS SHOWN

JOB NO.: 2509-S167

REPORT DATE: January 2026

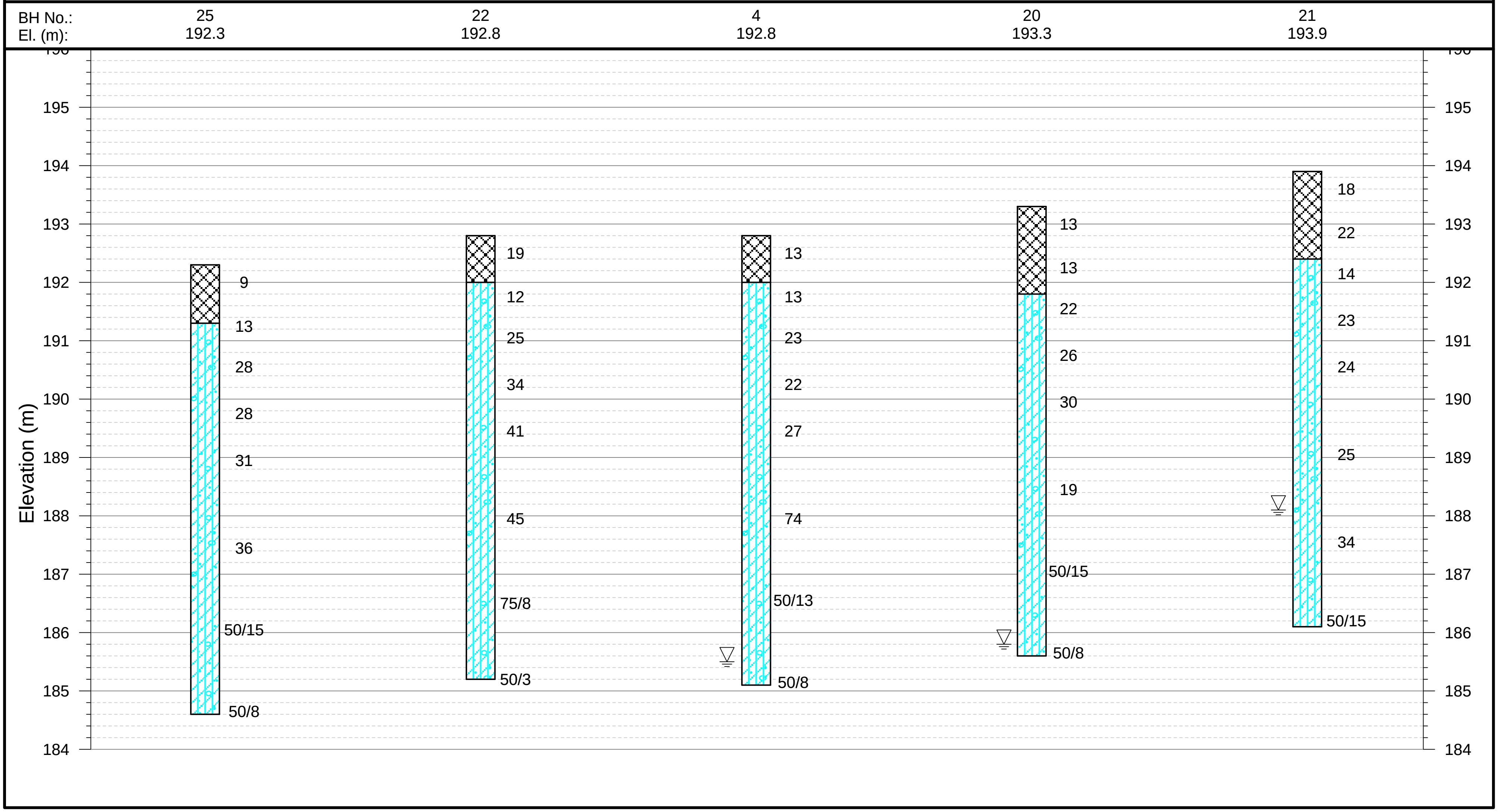
PROJECT DESCRIPTION: Proposed Milton 13 Public School

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

LEGEND

▦ FILL ▨ SILTY CLAY TILL

▽ WATER LEVEL (END OF DRILLING)



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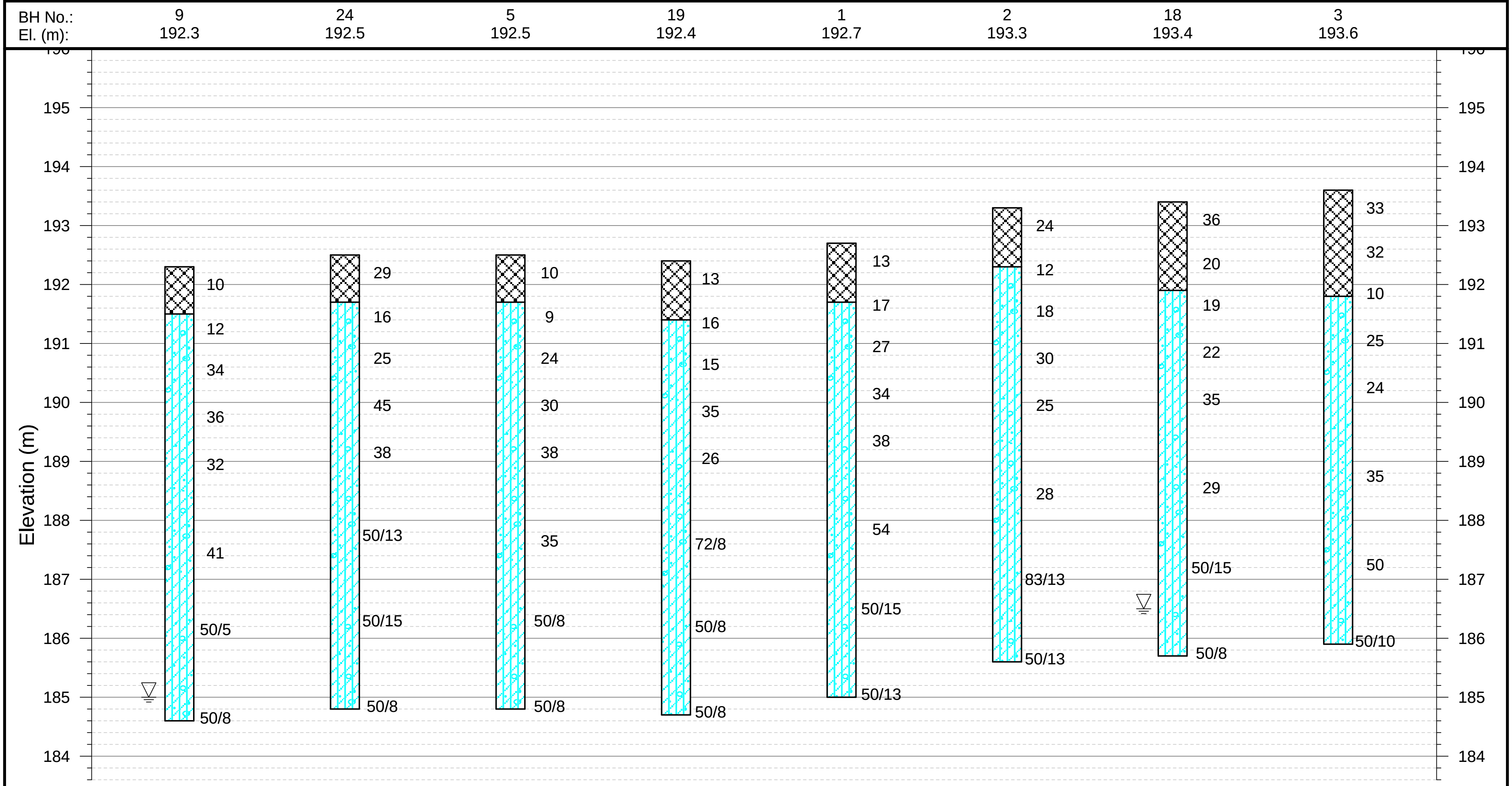
SUBSURFACE PROFILE
DRAWING NO. 4
SCALE: AS SHOWN

JOB NO.: 2509-S167
REPORT DATE: January 2026
PROJECT DESCRIPTION: Proposed Milton 13 Public School
PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

LEGEND

▨ FILL ▨ SILTY CLAY TILL

▽ WATER LEVEL (END OF DRILLING)



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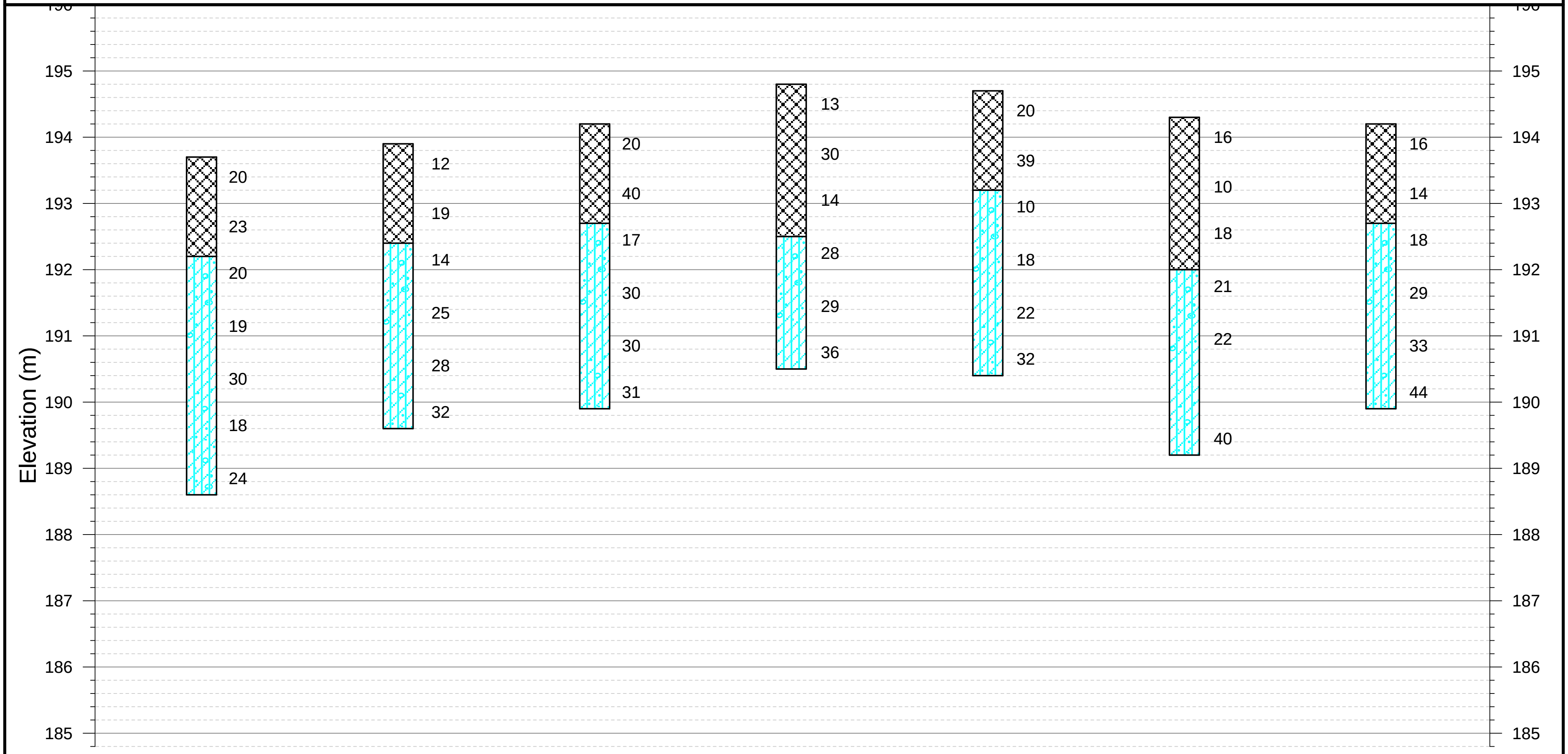
SUBSURFACE PROFILE
DRAWING NO. 5
SCALE: AS SHOWN

JOB NO.: 2509-S167
REPORT DATE: January 2026
PROJECT DESCRIPTION: Proposed Milton 13 Public School
PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

LEGEND

▨ FILL ▨ SILTY CLAY TILL

BH No.:	33	36	38	39	41	43	44
El. (m):	193.7	193.9	194.2	194.8	194.7	194.3	194.2



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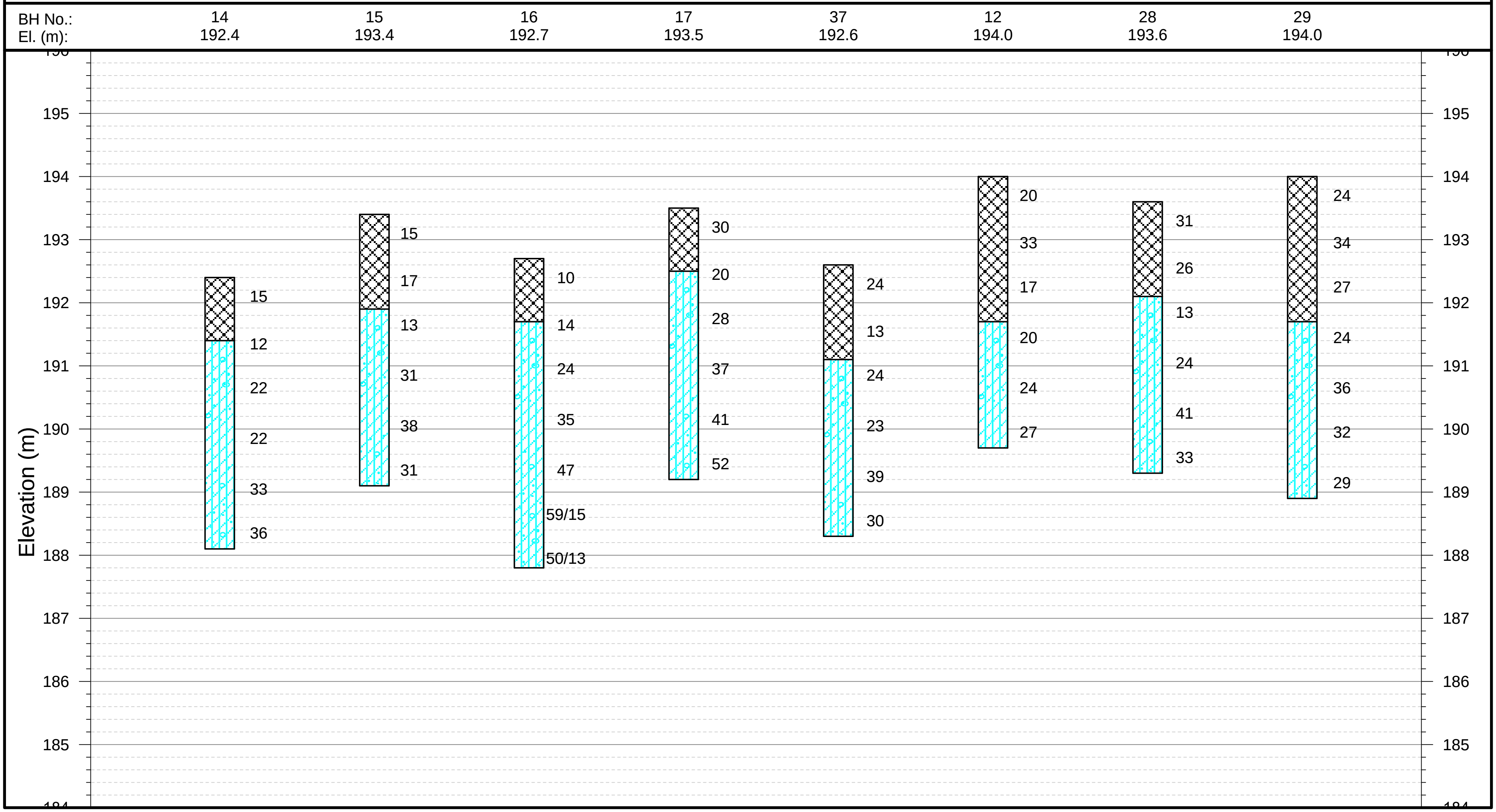
SUBSURFACE PROFILE
DRAWING NO. 6
SCALE: AS SHOWN

JOB NO.: 2509-S167
REPORT DATE: January 2026
PROJECT DESCRIPTION: Proposed Milton 13 Public School

PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

LEGEND

▦ FILL
▨ SILTY CLAY TILL



Soil Engineers Ltd.
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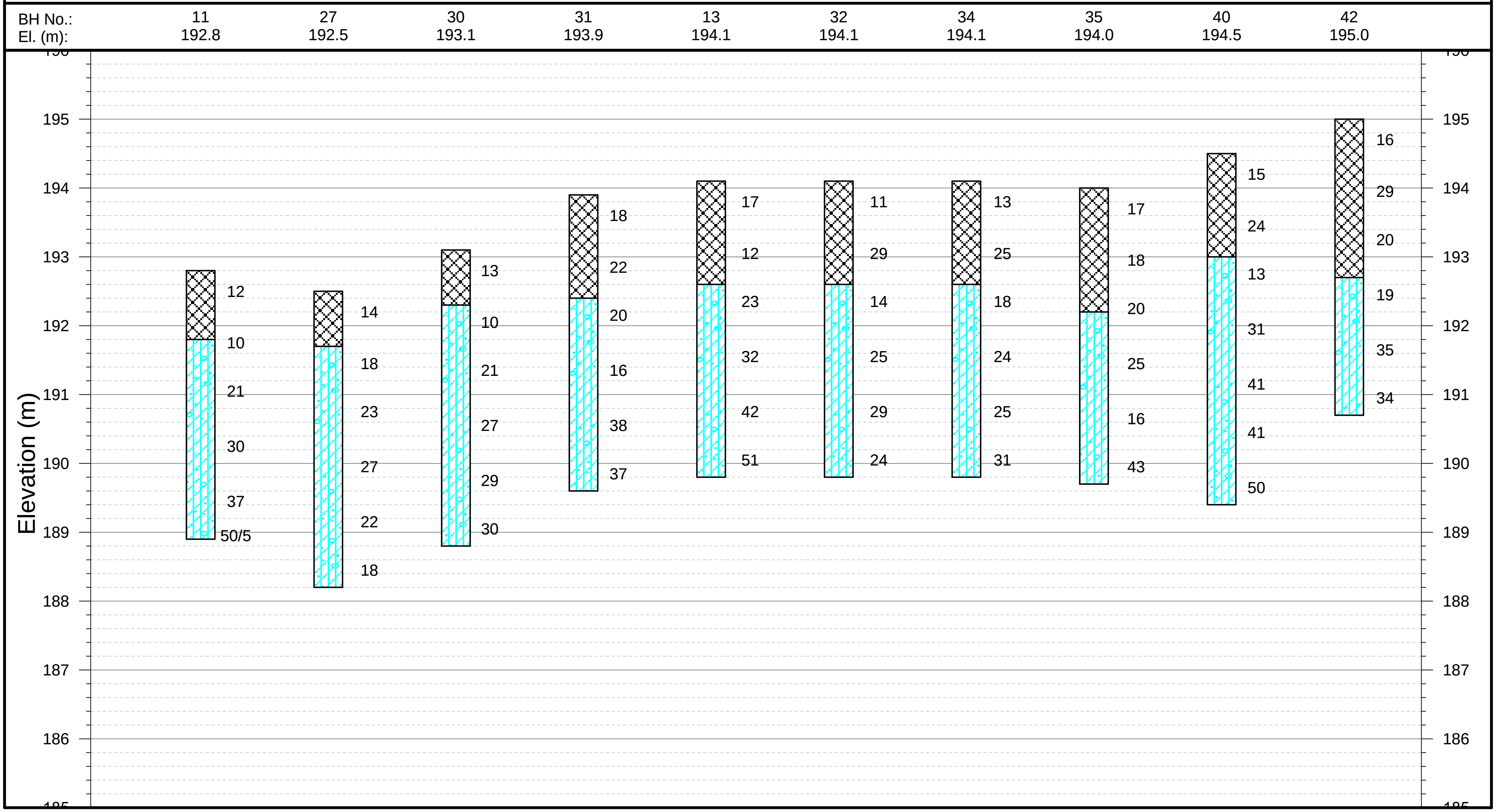
SUBSURFACE PROFILE
DRAWING NO. 7
SCALE: AS SHOWN

JOB NO.: 2509-S167
REPORT DATE: January 2026
PROJECT DESCRIPTION: Proposed Milton 13 Public School
PROJECT LOCATION: Trudeau Drive and Street 1, Town of Milton

LEGEND

▨ FILL ▨ SILTY CLAY TILL



APPENDIX 'A'

RESULTS OF SHEARWAVE VELOCITY SURVEY

REFERENCE NO. 2509-S167

GEOPHYSICS GPR
INTERNATIONAL INC.

November 25th, 2025 Transmitted by email: kelvinhung@soilengineersltd.com

Ref.: GPR-25-6700

Kelvin Hung, P.Eng.
Project Manager
Soil Engineers Ltd.
90 West Beaver Creek Road, Suite 100,
Richmond Hill, Ontario
L4B 1E7

Subject: Shear Wave Velocity Survey for Seismic Site Class Determination between Trudeau Drive and Leriche Way, Milton, Ontario

Dear Kelvin,

Geophysics GPR International Inc. has been requested by Soil Engineers Ltd. to carry out seismic shear-wave velocity (V_s) measurements between Trudeau Drive and Leriche Way, Milton, Ontario (Figure 1/ Figure 2).

The data collection was carried out on October 28, 2025, by the GPR Field crew James Head, Alexander Wagler and Jamal Cunningham. Figure 1 shows the regional location of the site and Figure 2 illustrates the location of the seismic spread. Figures are presented in the Appendix.

The geophysical investigation used the Multi-channel Analysis of Surface Waves (MASW), the Spatial AutoCorrelation (SPAC), and the seismic refraction methods. From the subsequent results, the seismic shear wave velocity values were calculated for the soil and the rock, to determine the seismic site classification.

The following report describes the survey design, the principles of the test methods, the methodology for interpreting the data, and a culmination of the results in table and chart formats.

MASW Principle

The Multi-channel Analysis of Surface Waves (MASW) and the SPatial AutoCorrelation (SPAC or MAM for Microtremors Array Method) are seismic methods used to evaluate the shear wave velocities of subsurface materials through the analysis of the dispersion properties of the Rayleigh surface wave. MASW is considered an "active" method, as the seismic signal is induced at known location and time in the vibration sensors' (geophones) array axis. Conversely, the SPAC method is considered a “passive” method, using the low frequency “signals” produced far away. The method can also be used with "active" seismic source records. The SPAC method generally allows deeper V_s soundings. Its dispersion curve can then be merged with the one of higher frequency from the MASW analysis to calculate a more complete inversion. The dispersion properties are expressed as a change of velocities with respect to frequencies. Surface wave energy will decay exponentially with depth. Lower frequency surface waves will travel deeper and thus be more influenced by deeper velocity layering than the shallow higher frequency waves. The inversion of the Rayleigh wave dispersion curve yields a shear wave (V_s) velocity depth profile (sounding).

Figure 3 outlines the basic operating procedure for the MASW method. Figure 4 illustrates an example of one of the MASW/SPAC records and the corresponding spectrogram analysis.

Survey Design

The seismic investigation consisted of a linear array of 24 x 4.5Hz geophones connected to an ABEM Terraloc Pro2 or equivalent seismograph. A sledgehammer was used as the primary energy source with traces being recorded at 7 locations: approximately 6 m off both ends, 25 to 30 m off both ends, and in the middle of the spread. Data were collected using arrays with geophone spacings of 3m and 1m for a total of 10 shot records per sounding.

Unlike the seismic refraction method, which produces a data point beneath each geophone, the shear-wave depth profile is the average of the bulk area within the middle third of the geophone spread.

The theoretical maximum depth of penetration (34.5m) for the MASW method is half of the maximum seismic array length (69 m), in practice the maximum depth of penetration is often influenced by the geology. The SPAC method in some cases can resolve greater depths.

Interpretation Method and Accuracy of the Results

The main processing sequence involved data inspection and editing when required; spectral analysis ("phase shift" for MASW, and "cross-correlation" for SPAC); picking the fundamental mode; and 1D inversion of the MASW and SPAC shot records using the SeisImagerSW™ software and/or MASwAI from Geophysics GPR.

Assuming all layers are flat, horizontal, and laterally homogeneous, all the shot records for a given seismic spread should produce a similar shear-wave velocity profile. In practice, however, differences can arise due to energy dissipation, local surface seismic velocities variations, and/or dipping of overburden layers or rock. In general, the precision of the calculated seismic shear wave velocities (V_s) is of the order of 15% or better.

The results of the inversion process are inherently non-unique, and the final model must be judged to be geologically realistic. Additionally, the inversion model is interpreted as a lateral average of the studied profiles, represented as a single column located at the centre of the survey area.

More detailed descriptions of these methods are presented in Shear Wave Velocity Measurement Guidelines for Canadian Seismic Site Characterization in Soil and Rock, Geological Surveys of Canada, General Information Product 110, 2015.

Results

The results of this investigation are presented as 1D shear-wave velocity profiles in Figure 5 and in Table 1.

The chart plots the average V_s values versus depth along with the minimum and maximum modelled envelopes. The spread of the minimum to maximum envelopes provides a visual representation of the confidence and variability in the results.

The V_{s30} value is calculated from the harmonic mean of the shear wave velocities, between the surface to 30 m below grade. It is calculated by dividing the total depth of interest (30 m) by the sum of the time spent in each velocity layer from the surface down to 30 m, as:

$$\bar{V}_{S30} = \frac{\sum_{i=1}^{N} \mathrm{H}_i}{\sum_{i=1}^{N} {}^{H_i}/_{V_i}} \quad | \quad \sum_{i=1}^{N} \mathrm{H}_i = 30 \text{ m}$$

(N: number of layers; H_i : thickness of layer "i" ; V_i : V_S of layer "i")

Thus, the V_{s30} value represents the seismic shear wave velocity of an equivalent homogeneous single layer response for the upper 30 m.

Based on the above formula, the average Vs30 value at this test location is calculated as 690 m/s over the depth interval of 0 to 30 m below grade (as determined through the MASW/SPAC and/or MAM methods). The minimum and maximum envelopes of the calculation over the same depth interval are 600 m/s and 790 m/s respectively.

Conclusions

A non-invasive geophysical survey was carried out to measure shear-wave velocities for seismic site classification between Trudeau Drive and Leriche Way, Milton, Ontario (Figure 2). The seismic survey used the MASW, MAM and/or the SPAC analysis methods to model the shear-wave velocities used in the calculation of the V_{s30} value. Its calculation is presented in Table 1 and summarized below.

The seismic refraction analysis indicates competent bedrock at an approximate depth of 12m +/- 2m below grade. The upper bedrock could have significant weathering. Regional borehole data from the *Ontario Well Records Open Data Catalogue* and the *Ontario Geological Survey Geotechnical Borehole Database* indicates red shale bedrock at depths on the order of less than 15 m below grade. Project specific geotechnical borehole data was limited to the upper 8m below grade and did not encounter bedrock.

Sounding	V_{s30}	Site Class	Site Designation
#1	690 m/s	C (1)	X_{690}(1)

Notes –

(1) Low shear-wave velocities (Vs < 200m/s) are noted in the overburden in the upper two metres. Low shear-wave velocities can be indicative of soft/loose or liquefiable soils and may require site specific analysis for seismic site classification based on the geotechnical findings.

The site classification provided in this report is based solely on the V_{s30} value as derived from non-invasive surface seismic methods and can be superseded by other geotechnical information. This geotechnical information includes, but is not limited to, variations in the thickness of the overburden within the building footprint, the presence of sensitive and/or liquefiable soils, more than 3m of soft clays, high moisture content, etc. The reader is referred to Table 4.1.8.4.A/B of the NBC, the 2020 NBC Structural Commentaries and the Ontario 2024 Building Code Compendium.

The V_S value calculated is representative of the in-situ materials and are not corrected for the total and effective stresses.

Analysis of the data was carried out by Duro Zeljkovic GIT and reviewed by Ben McClement, P.Eng.

Ben McClement, P.Eng.

LICENSED PROFESSIONAL ENGINEER
R.B. McCLEMENT
2025-11-25
PROVINCE OF ONTARIO

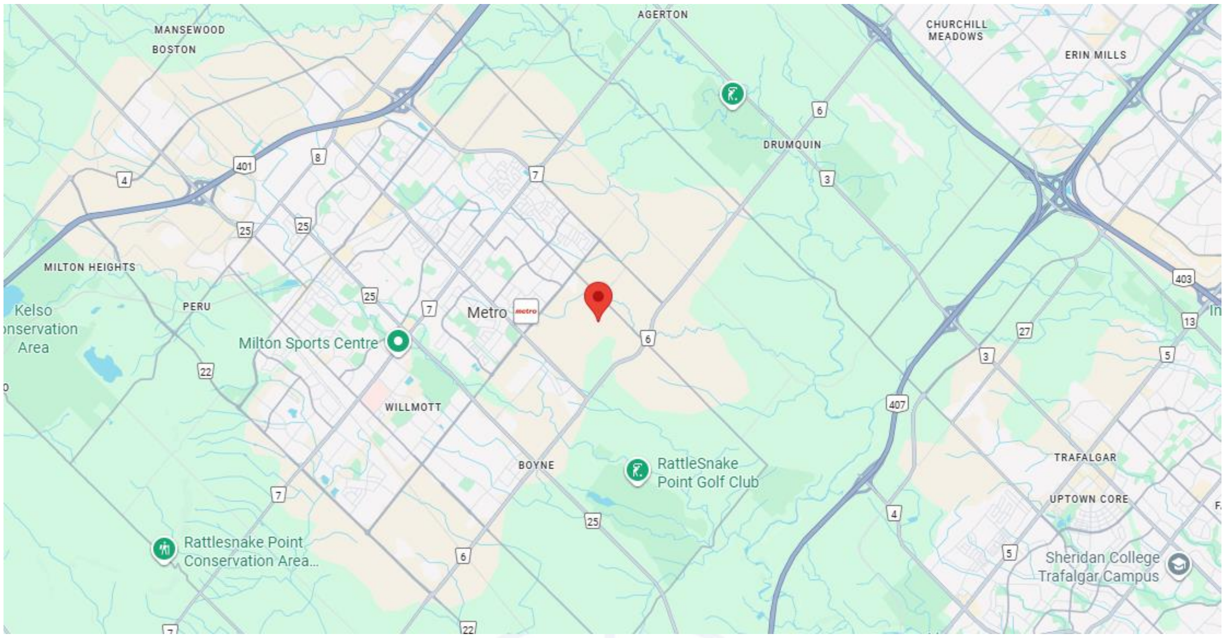


Figure 1: Regional location of the Site
(Source: Google Maps™)

Figure 2: Location of the seismic spread
(Source: *Google Earth™*)

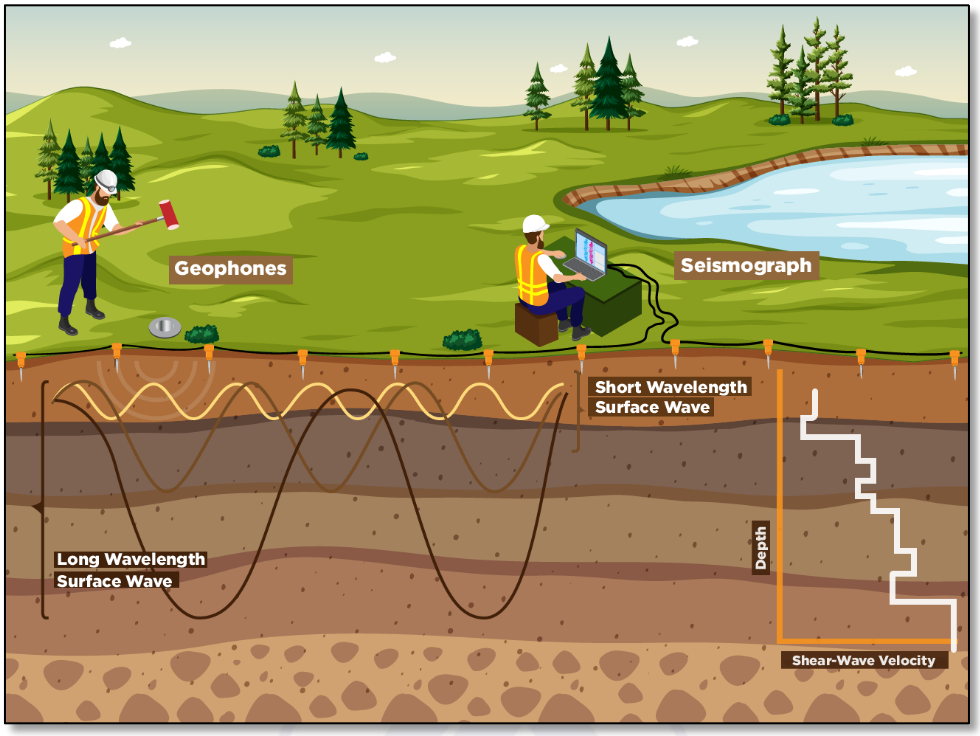


Figure 3: MASW Operating Principle

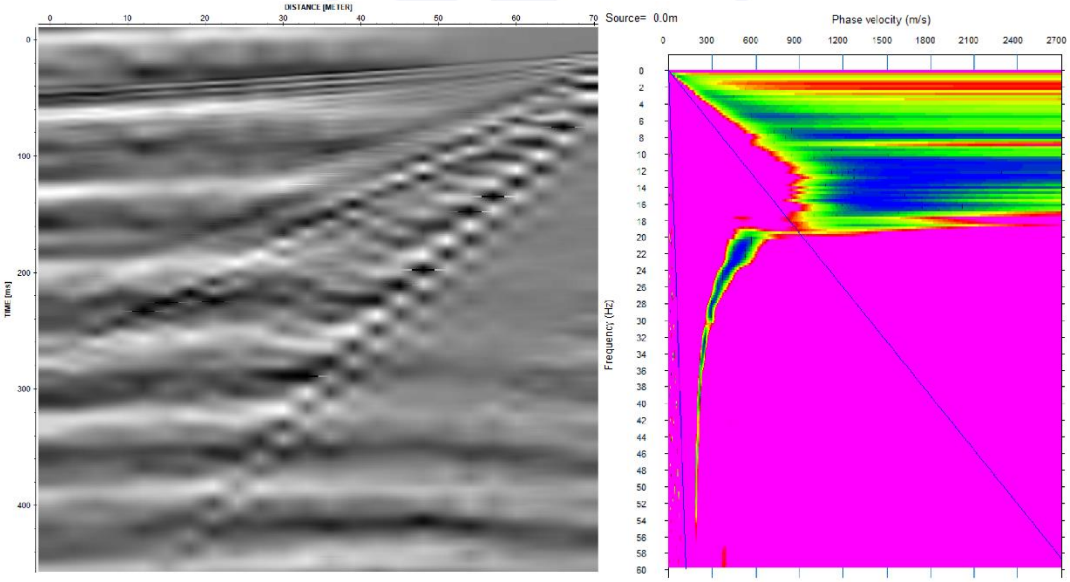


Figure 4: Example of a MASW/SPAC record, Phase Velocity - Frequency curve of the Rayleigh wave

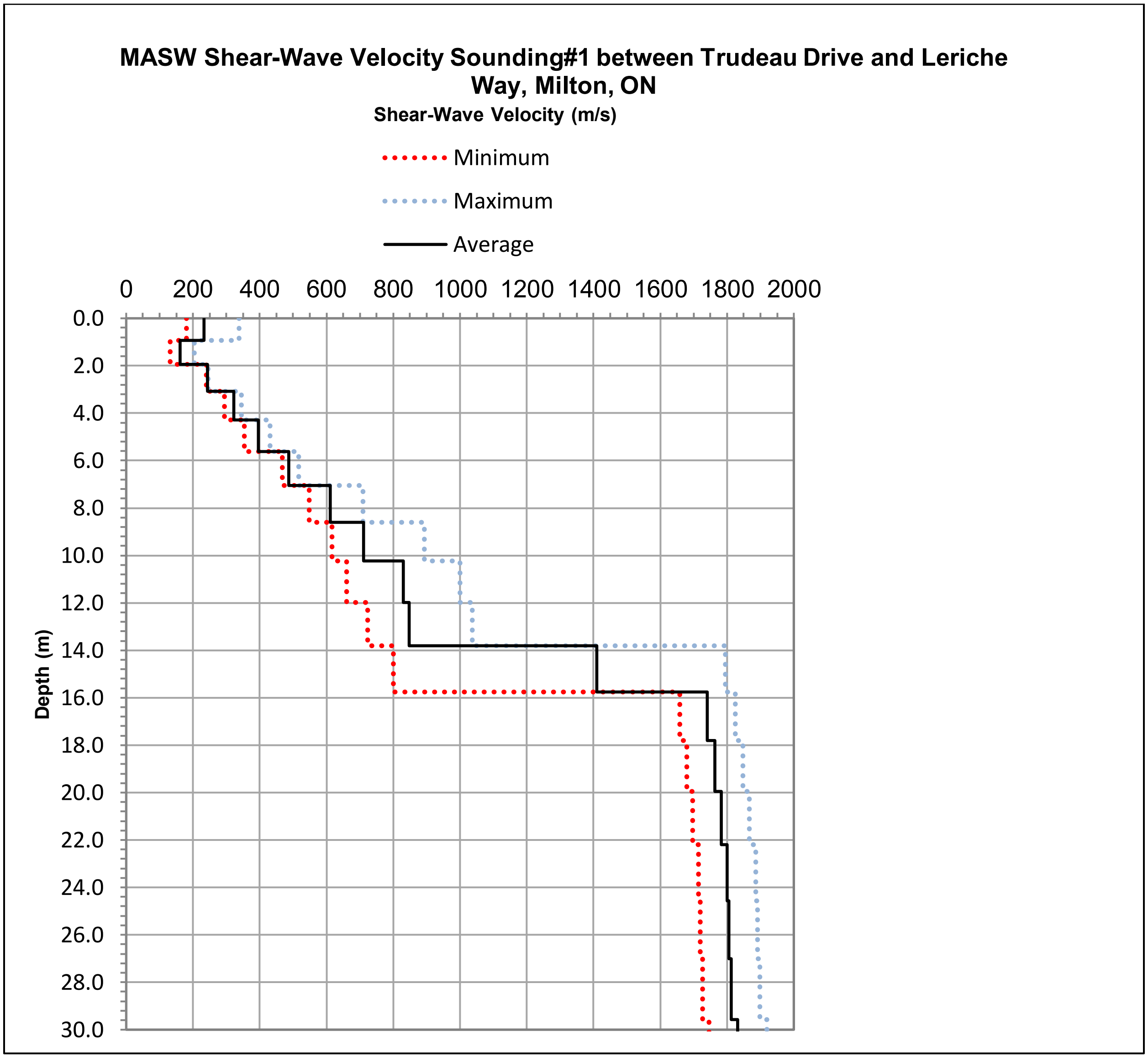


Figure 5: Shear-Wave Velocity Inversion Model from MASW/SPAC

TABLE 1: V_{S30} Calculation for the Site Class

Depth	Vs			Thickness	Cumulative Thickness	Delay for Vs Mean	Cumulative Delay	Vs Mean at given Depth
	Min.	Mean	Max.					
(m)	(m/s)	(m/s)	(m/s)	(m)	(m)	(s)	(s)	(m/s)
0.0	180	233	338	Grade Level				
0.9	132	161	204	0.9	0.9	0.003951	0.003951	233
1.9	240	243	245	1.0	1.9	0.006340	0.010291	189
3.1	295	323	344	1.1	3.1	0.004627	0.014918	206
4.3	354	395	431	1.2	4.3	0.003806	0.018724	230
5.6	468	487	516	1.3	5.6	0.003366	0.022090	255
7.1	548	610	709	1.4	7.1	0.002943	0.025033	282
8.6	617	711	894	1.5	8.6	0.002515	0.027547	312
10.2	660	830	1000	1.6	10.2	0.002305	0.029852	343
12.0	723	848	1037	1.7	12.0	0.002095	0.031947	375
13.8	801	1409	1795	1.8	13.8	0.002173	0.034120	405
15.8	1658	1741	1824	1.9	15.8	0.001380	0.035500	444
17.8	1680	1764	1848	2.0	17.8	0.001175	0.036675	486
20.0	1697	1782	1867	2.1	20.0	0.001218	0.037893	527
22.2	1714	1800	1886	2.3	22.2	0.001263	0.039157	567
24.6	1720	1806	1892	2.4	24.6	0.001308	0.040464	607
27.0	1727	1813	1899	2.5	27.0	0.001360	0.041824	646
29.6	1745	1832	1920	2.6	29.6	0.001411	0.043236	684
30.0				0.4	30.0	0.000231	0.043467	690