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A REPORT TO
12341433 CANADA INC.

A GEOTECHNICAL INVESTIGATION AND SLOPE STABILITY ASSESSMENT FOR PROPOSED TEMPORARY TRANSPORTATION DEPOT

4848 MAYFIELD ROAD
TOWN OF CALEDON

REFERENCE NO. 2306-S196

OCTOBER 2023

DISTRIBUTION

Digital Copy - 12341433 Canada Inc.
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ENCLOSURES

1.0 INTRODUCTION

In accordance with written authorization dated June 10, 2023 from Mr. Baltej Gill of 123341433 Canada Inc., a geotechnical investigation was carried out at 4848 Mayfield Road, in the Town of Caledon.

The purpose of the investigation was to reveal the subsurface conditions and determine the engineering properties of the disclosed soils to facilitate a slope stability assessment at the site, and for the design and construction of a proposed temporary transportation depot. The geotechnical findings and recommendations, and resulting slope stability assessment, are presented in this report.

2.0 SITE AND PROJECT DESCRIPTION

The Town of Caledon is situated on Peel-Halton till plain where the drift dominates the soil stratigraphy. In places, lacustrine sand, silt, clay and drift, which has been reworked by the water action of Peel Ponding (glacial lake), have modified the drift stratigraphy.

The subject property is rectangular in shape, and is located on the north side of Mayfield Road, approximately 350 m west of Bramalea Road. At the time of investigation, the site consisted of a 2-storey building with a garage within the south half of the property, and a steel building and a granular-covered truck yard within the north half of the property. The remainder of the site within the south half is grass-covered. The ground surface within the site, at the tableland, is relatively flat.

In the north portion and at the east limit of the site, the ground surface descends at an average gradient ranging from 1.5 to 3.6+ horizontal (H):1 vertical (V), with an overall slope height ranging from approximately 1.5 to 5 m. The slope is vegetated with tall weeds in places. In addition, a tributary of the West Humber River is located beyond the bottom of slope at the northeast corner of the site.

The existing house and other structures at the site will remain for the development. The project will consist of a temporary transportation depot with a proposed underground stormwater storage system and bioretention facility.

3.0 FIELD WORK

The field work, consisting of 3 boreholes to depths of 3.5 m, 5.0 m and 6.6 m, was performed on September 6, 2023, at the locations shown on the Borehole and Monitoring Well Location Plan, Drawing No. 1

The boreholes were advanced at intervals to the sampling depths by a track-mounted machine equipped with solid stem augers and split spoon samplers for soil sampling. Standard Penetration Tests, 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 relative density of the non-cohesive 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. The field work was supervised and the findings were recorded by a Geotechnical Technician.

Upon completion of borehole drilling and sampling, one monitoring well was installed in Borehole 2 to facilitate the slope stability assessment.

The ground elevation at each borehole location was obtained using a handheld Global Navigation Satellite System (GNSS).

4.0 SUBSURFACE CONDITIONS

The investigation has disclosed that beneath a layer of granular fill, and earth fill in places, the site is underlain by a stratum of sandy silt till.

Detailed descriptions of the encountered subsurface conditions are presented on the Borehole Logs, comprising Figures 1, 2 and 3; the revealed stratigraphy is plotted on the Subsurface Profile, Drawing No. 2.

4.1 Granular Fill

The boreholes were completed within the truck yard in the north half of the property on granular surface; the surficial granular fill layer is approximately 300 mm in thickness.

4.2 Earth Fill

Earth fill was encountered beneath the granular fill at Boreholes 1 and 3, extending to a depth of 0.8 to 1.4 m below the prevailing ground surface; it consists of sandy silt with occasional topsoil inclusions and brick fragments.

The obtained 'N' values of 6, 16 and more than 50 blows per 30 cm of penetration, indicate that the fill was placed with non-uniform compaction.

The natural water content of the fill are 6%, 19% and 21%, indicating that the earth fill is in a damp to wet condition.

One must be aware that the samples retrieved from boreholes may not be truly representative of the geotechnical and environmental quality of the fill, and do not indicate whether the topsoil beneath the earth fill was completely stripped. This should be further assessed by test pits.

4.3 Sandy Silt Till

The sandy silt till was encountered beneath the granular fill and/or earth fill in all boreholes. It consists of a random mixture of soils; the particle sizes range from clay to gravel, with sand and silt predominating the soil stratigraphy. A grain size analysis was performed on 1 representative sandy silt till sample; the result is plotted on Figure 4.

The obtained 'N' values of the sandy silt till range from 13 to more than 50, with a median of 23 blows per 30 cm of penetration, indicating that the till is compact to very dense, being generally compact in relative density.

The natural water content values range from 9% to 14%, with a median of 12%, indicating that the sandy silt till is generally in a moist condition.

The engineering properties of the sandy silt till are presented below:

- Moderately high frost susceptibility and low water erodibility.
- The till will generally be stable in relatively steep cuts. However, localized sloughing and sheet collapse may occur under prolonged exposure.

4.4 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

Soil Type	Determined Natural Water Content (%)	Water Content (%) for Standard Proctor Compaction	
		100% (optimum)	Range for 95% or +
Earth Fill	6, 19 and 21	11 to 12	6 to 16
Sandy Silt Till	9 to 14 (median 12)	12	8 to 16

The above values show that the in situ soils are generally suitable for a 95% or + Standard Proctor compaction. The earth fill should be sorted free of topsoil inclusions and any other deleterious material, and will require aeration or mixing with drier inorganic soils prior to structural compaction. Aeration can be achieved by spreading the wet soil thinly on the ground in the dry and warm weather.

Any oversized cobbles or boulders (over 15 cm in size) should not be used for structural backfill.

5.0 GROUNDWATER CONDITION

The boreholes were checked for the presence of groundwater upon the completion of drilling. No groundwater was encountered and the boreholes remained dry and open upon their completion.

Upon completion of borehole drilling and sampling, one groundwater monitoring well was installed at Borehole 2. Subsequently, groundwater was recorded at a depth of 5.8 m (or El. 247.8 m) on September 26, 2023 in the installed well. The groundwater is subject to seasonal fluctuation.

In excavation, groundwater yield from the till is expected to be relatively slow in rate and limited in quantity, due to its relatively low permeability.

6.0 SLOPE STABILITY ASSESSMENT

A slope stability assessment was carried out to determine the stability of the existing slope, and to establish the Long-Term Stable Top of Slope (LTSTOS) for the proposed development. Visual inspection, carried out on September 25, 2023, revealed that the ground surface at the bottom of slope, and along some parts of the slope, is vegetated with tall weeds. However, at some locations along the north and east sides, the slope appears to be bare and consisting of fill and debris. The banks of the watercourse observed beyond the

bottom of slope at the northeast corner of the site appeared to be well vegetated with no signs of active erosion.

The existing slope has an overall height ranging from approximately 1.5 to 4 m, with an average slope gradient ranging from 1.5 to 3.6+ H:1V.

Two (2) cross-sections, Cross-Sections A-A and B-B, were selected as representative profiles of the slope; the location of these cross-sections is shown on the Cross-Section Location Plan, Drawing No. 3. The slope profiles at the cross-sections were interpreted from the provided topographic survey plan, prepared by Tarasick McMillan Kubicki Limited dated November 18, 2022.

The subsurface profile at each cross-section was interpreted from the Borehole Logs. It should be noted that in the north portion of the site, fill was observed during visual inspection along the slope; therefore, it has been assumed that the slope in the area of Cross-Section A-A consists of fill material. In addition, the groundwater measured in the installed well has been incorporated into the analysis, and modelled as a phreatic surface at both cross-sections; it is assumed to taper to below the bottom of slope.

The slope stability at the cross-sections were analysed using the Bishop Method with the soil strength parameters shown in Table 2.

Table 2 - Soil Strength Parameters

Soil Type	Unit Weight γ (kN/m^3)	Cohesion c (kPa)	Internal Friction Angle ϕ
Earth Fill	20.5	0	26°
Sandy Silt Till	22.5	2	31°

The results of the analysis are presented on Drawing Nos. 4, 5 and 6, and the resulting minimum Factors of Safety (FOS) are summarized in Table 3.

Table 3 - Minimum Factors of Safety (FOS)

Cross-Section	FOS	Drawing No.
A-A (Existing Condition)	0.924	4
A-A (Stable Condition)	1.527	5
B-B (Existing Condition)	3.099	6

The results of the analysis for the existing condition at Cross-Section B-B shows that the minimum FOS meets the Ontario Ministry of Natural Resources (MNR) guideline requirements for active land use (minimum FOS of 1.5). However, the results of the analysis at Cross-Section A-A, under the existing condition, shows that the minimum FOS is less than 1.5, which fails to meet the MNR guideline requirements. Cross-Section A-A was subsequently reanalysed incorporating a stable slope gradient of 3H:1V. Based on the reanalysis, the resulting FOS meets the minimum required FOS of 1.5.

It should be noted that at the northeast corner of the site, a watercourse is located beyond the bottom of slope. Based on the watercourse being less than 5.0 m wide and showing no signs of active erosion, a toe erosion allowance (TEA) of 1.0 m would have been required. However, the bottom of slope throughout the site, including at Cross-Sections A-A and B-B, is located more than 1.0 m away from the edge of the watercourse; therefore, no further setback to account for the TEA was required to be incorporated into the analysis.

The LTSTOS, incorporating the stable slope allowance where necessary, has been established on Drawing No. 3. Furthermore, a development setback for man-made and environmental degradation will be required from the LTSTOS. This is subject to the requirements of the Toronto and Region Conservation Authority (TRCA).

In order to prevent disturbance of the existing slope, the following geotechnical constraints should be stipulated:

1. The prevailing vegetative cover on the slope must be maintained as it's rooting system acts as reinforcement against soil erosion by weathering. If, for any reason, the vegetative cover is stripped, it must be reinstated to its original, or better than its original, protective condition. Restoration with selected native plantings including deep rooting systems must be carried out after development to ensure bank stability.
2. Any leafy topsoil cover on the slope face should not be disturbed, since this provides insulation and screen against frost wedging and rainwash erosion, or the bare slope surface must be adequately sodded.
3. Grading of the land adjacent to the slope must be such that concentrated runoff is not allowed to drain onto the slope face. Landscaping features which may cause runoff to pond at the top of the slope, such as infiltration trenches, as well as saturating the crown of the bank, must not be permitted.
4. Where development is carried out adjacent to the slope, there are other factors to be considered related to possible human environmental abuse. These include soil saturation from frequent watering to maintain landscaping features, stripping of topsoil

or vegetation, dumping of loose fill, and material/heavy storage close to the top of slope; none of these should be permitted.

The above recommendations are subject to the approval and requirements of the TRCA.

7.0 DISCUSSION AND RECOMMENDATIONS

The investigation has disclosed that beneath a layer of granular fill, and earth fill in places, the site is underlain by a stratum of generally compact sandy silt till.

The boreholes were checked for the presence of groundwater upon the completion of drilling. No groundwater was encountered and the boreholes remained dry and open upon their completion. Groundwater, however, was recorded at a depth of 5.8 m (or El. 247.8 m) on September 26, 2023 in the well installed at Borehole 2. The groundwater is subject to seasonal fluctuation.

The project consists of a temporary transportation depot with a proposed underground stormwater storage system and bioretention facility. The geotechnical findings which warrant special consideration are presented below:

1. The earth fill, in its current condition, is unsuitable to support any structures sensitive to movement. It must be subexcavated, sorted free of organics or other deleterious materials, and aerated before reusing as structural backfill.
2. The sound native soil is suitable for construction/installation of the underground storage system and associated structures. The subgrade must be inspected by a geotechnical engineer, or a geotechnical technician under the supervision of a geotechnical engineer, to ensure that its condition is compatible with the design.

The recommendations appropriate for the project described in Section 2.0 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 to determine whether the following recommendations require revision.

7.1 Underground Stormwater Storage System and Bioretention Facility

According to the site servicing plan by TYLin, dated February 2023, an underground storage system and bioretention facility is proposed within the north half of the site. The storage system will consist of a Cultec (or equivalent), 112 Piece Recharger 360HD Storage System. The system will have a storage volume of 225.1 m^3, with a tank invert elevation of 249.50 m

and surrounded by stone with a bottom of stone elevation of 249.27 m. The system will have a minimum cover of 1.41 m.

The bioretention facility is 22 m x 4 m in size, with proposed side slopes of 3H:1V; the maximum height of the sides slopes is 1.35 m at the southwest corner of the facility.

Based on the findings of Borehole 1, carried out at the location of the proposed storage system, the subsoil consists of earth fill to an elevation of 252.3 m, underlain by a stratum of relatively low permeability sandy silt till. In addition, no groundwater was encountered at the borehole. Test pits, extending to a depth of at least 1.0 m below the bottom of the storage system and bioretention facility, may be carried out to evaluate/confirm the groundwater level at the site.

For preliminary design purposes, the estimated coefficient of permeability and estimated percolation time are presented in Table 5.

The storage system around the stone surrounding should be wrapped with a filter fabric to prevent migration of fines.

Should the storage system be used for retention purposes, an impermeable layer, such as a clay liner, should be implemented in the design around the top, bottom and all sides; the design, including that of the bioretention facility, should ensure that the bottom of the structures is at least 1.0 m above the seasonally high water table. Should the storage system or bioretention facility be used for infiltration purposes, a clay liner and the minimum separation from the groundwater table will not be required.

Where bearing capacity recommendations are needed for the construction/installation of the underground storage system and for all associated control structures including the headwall located at the outlet, the native subsoils beneath the earth fill are suitable for bearing pressures of 150 kPa (SLS) and 240 kPa (ULS).

The foundations must be placed below the frost depth of 1.2 m, or below the scouring depth, whichever is deeper. The foundations subgrade must be inspected by a geotechnical engineer prior to concrete pouring to ensure its conformity to the design.

Due to the location of the proposed storage system, the design should take into account any loading from trucks parked at the ground surface. In addition, the fill material above the tank system should consist of inorganic soils, properly compacted to at least 98% of the maximum Standard Proctor Dry Density (SPDD).

7.2 Toe Walls

Based on the site grading plan, 2 toe walls are proposed along the north and east edges of the truck yard. The foundation of the toe walls should extend below the earth fill onto the sound native soil. The native subsoils are suitable for bearing pressures of 150 kPa (SLS) and 240 kPa (ULS) for the design of the toe walls. A geotechnical review can be carried out once detailed design of the proposed toe walls are available.

7.3 Underground Services

The subgrade for underground services connecting to the underground storage system and bioretention facility should consist of sound natural soils or properly compacted engineered fill. Where earth fill or badly weathered soil is encountered, it should be subexcavated and replaced with properly compacted inorganic soil and/or bedding material, compacted to at least 98% SPDD.

A Class 'B' bedding, consisting of compacted 19-mm Crusher-Run Limestone (CRL), or equivalent, is recommended for the underground services construction. The pipe joints connecting into manholes and catch basins must be leak-proof, or the joints should be wrapped with a waterproof membrane to prevent subgrade upfiltration through the joints.

Openings to subdrains and catch basins should be shielded with a fabric filter to prevent blockage by silting.

In order to prevent pipe floatation when the sewer trench is deluged with water, derived from precipitation, a soil cover of at least two times the diameter of the pipe should be in place at all times after completion of the pipe installation.

7.4 Backfilling in Trenches and Excavated Areas

The on site inorganic soils are generally suitable for use as trench backfill. The backfill soils should be sorted free of any topsoil inclusions and other deleterious material prior to the backfilling.

The backfill should be compacted to at least 95% SPDD, and increased to at least 98% SPDD above and below the storage system. In the zone within 1.0 m below the pavement subgrade, the backfill should be compacted to at least 98% SPDD with the water content within 2% to 3% drier than the optimum moisture content. This is to provide the required

stiffness for pavement construction. The lifts for compaction should be limited to 20 cm, or to a suitable thickness accessed by test strips.

Narrow trenches for services crossings should be cut at 2H:1V, or flatter, so that the backfill can be effectively compacted. Otherwise, soil arching will prevent the achievement of proper compaction. In normal construction practice, the problem areas of settlement largely occur adjacent to manholes, catch basins and services crossings; it is recommended that sand backfill be used for compaction in confined spaces and with a light duty vibratory compactor.

7.5 Pavement Design

For the granular truck yard, the recommended pavement design is presented in Table 4.

Table 4 - Pavement Design

Course	Thickness (mm)	OPS Specifications
Granular Base	150	Granular 'A' or equivalent
Granular Sub-base	450	Granular 'B' or equivalent

In preparation of the subgrade, the subgrade surface must be proof-rolled. Any weak spots identified must be subexcavated and replaced with selected on-site or imported material, free of organics, uniformly compacted to at least 98% SPDD, with the water content 2% to 3% drier than the optimum. All the granular bases should be compacted to 100% SPDD.

Regular maintenance of the granular base may be required due to the expected traffic volume within the truck yard.

7.6 Soil Parameters

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

Table 5 - Soil Parameters

Unit Weight and Bulk Factor	**Bulk Unit Weight (kN/m^3)**	**Estimated Bulk Factor**	
		Loose	**Compacted**
Earth Fill	20.0	1.20	0.98
Sandy Silt Till	22.5	1.33	1.03
Lateral Earth Pressure Coefficients	**Active K_a**	**At Rest K_0**	**Passive K_p**
Compacted Earth Fill	0.40	0.55	2.50
Sandy Silt Till	0.32	0.48	3.12
Estimated Coefficients of Permeability (K) and Estimated Percolation Times (T)		**K (cm/sec)**	**T (min/cm)**
Sandy Silt Till		10^{-6}	Over 50
Coefficients of Friction			
Between Concrete and Granular Base		0.50	
Between Concrete and Sound Natural Soils		0.35	

7.7 Excavation

Excavation should 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**
Sound Till	2
Earth Fill and weathered soil	3

Excavation into the till containing boulders may require extra effort and the use of a heavy-duty excavator. Boulders larger than 15 cm in size are not suitable for structural backfill and/or construction of engineered fill.

In excavation, groundwater yield is expected to be relatively slow in rate and limited in quantity due to the relatively low permeability of the underlying soil, and can generally be removed by conventional pumping from sumps where necessary.

8.0 LIMITATIONS OF REPORT

This report was prepared for the accounts of 12341433 Canada Inc. and for review by the designated consultants and government agencies. The material in the report reflects the judgement of Curtis Lee, B.Eng., EIT and Mumta Mistry, 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, 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.

SOIL ENGINEERS LTD.

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Mumta Mistry, P.Eng.

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

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 '—●—'

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 '○'

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)	Relative Density
0 to 4	very loose
4 to 10	loose
10 to 30	compact
30 to 50	dense
over 50	very dense

Cohesive Soils:

Undrained Shear Strength (kPa)	'N' (blows/30 cm)	Consistency
less than 12	less than 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
over 200	over 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.: 2306-S196

LOG OF BOREHOLE: 1

FIGURE NO.: 1

PROJECT DESCRIPTION: Proposed Temporary Transportation Depot

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: 4848 Mayfield Road, Town of Caledon

DRILLING DATE: September 6, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
253.1	Ground Surface							
0.0	**300 mm GRANULAR FILL**				0			
	Brown **EARTH FILL** sandy silt occ. topsoil inclusions Compact to very dense	1	DO	16			21	
252.3 / 0.8		2	DO	20	1		14	
		3	DO	72	2		13	
	SANDY SILT TILL	4	DO	50/13			11	Dry on completion
		5	DO	29	3		12	
	some clay, a trace of gravel occ. cobbles and boulders				4			
	brown / grey	6	DO	18			10	
248.1 / 5.0	**END OF BOREHOLE**				5			
					6			
					7			
					8			
					9			
					10			

JOB NO.: 2306-S196

LOG OF BOREHOLE: 2

FIGURE NO.: 2

PROJECT DESCRIPTION: Proposed Temporary Transportation Depot

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: 4848 Mayfield Road, Town of Caledon

DRILLING DATE: September 6, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
253.6	Ground Surface							
0.0	**300 mm GRANULAR FILL**				0			
	Compact to very dense	1	DO	13			12	
		2	DO	19	1		12	
	weathered							
	sand layer	3	DO	18			13	
					2			
		4	DO	28			11	
	SANDY SILT TILL	5	DO	36	3		11	
	brown / grey	6	DO	42	4		9	
	some clay, a trace of gravel occ. cobbles and boulders				5			
247.0		7	DO	58	6		11	
6.6	**END OF BOREHOLE**				7			
	Installed 50 mm Ø monitoring well to 6.1 m completed with 3.0 m screen Sand backfill from 2.4 m to 6.1 m Bentonite seal from 0.0 m to 2.4 m Provided with a flushmount protective cover				8			
					9			
					10			

Dry on completion

Soil Engineers Ltd.

JOB NO.: 2306-S196

LOG OF BOREHOLE: 3

FIGURE NO.: 3

PROJECT DESCRIPTION: Proposed Temporary Transportation Depot

METHOD OF BORING: Solid Stem Augers

PROJECT LOCATION: 4848 Mayfield Road, Town of Caledon

DRILLING DATE: September 6, 2023

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
252.2	Ground Surface							
0.0	**300 mm GRANULAR FILL**	1	DO	50/15	0			
	Brown **EARTH FILL** sandy silt occ. brick fragments and topsoil inclusions	2	AS	6	1		19	
250.8								
1.4	Brown, compact	3	DO	14	2		12	
	SANDY SILT TILL	4	DO	17			12	
	some clay, a trace of gravel occ. cobbles and boulders	5	DO	23	3		12	
248.7								
3.5	**END OF BOREHOLE**				4			
					5			
					6			
					7			
					8			
					9			
					10			

Dry on completion

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GRAIN SIZE DISTRIBUTION

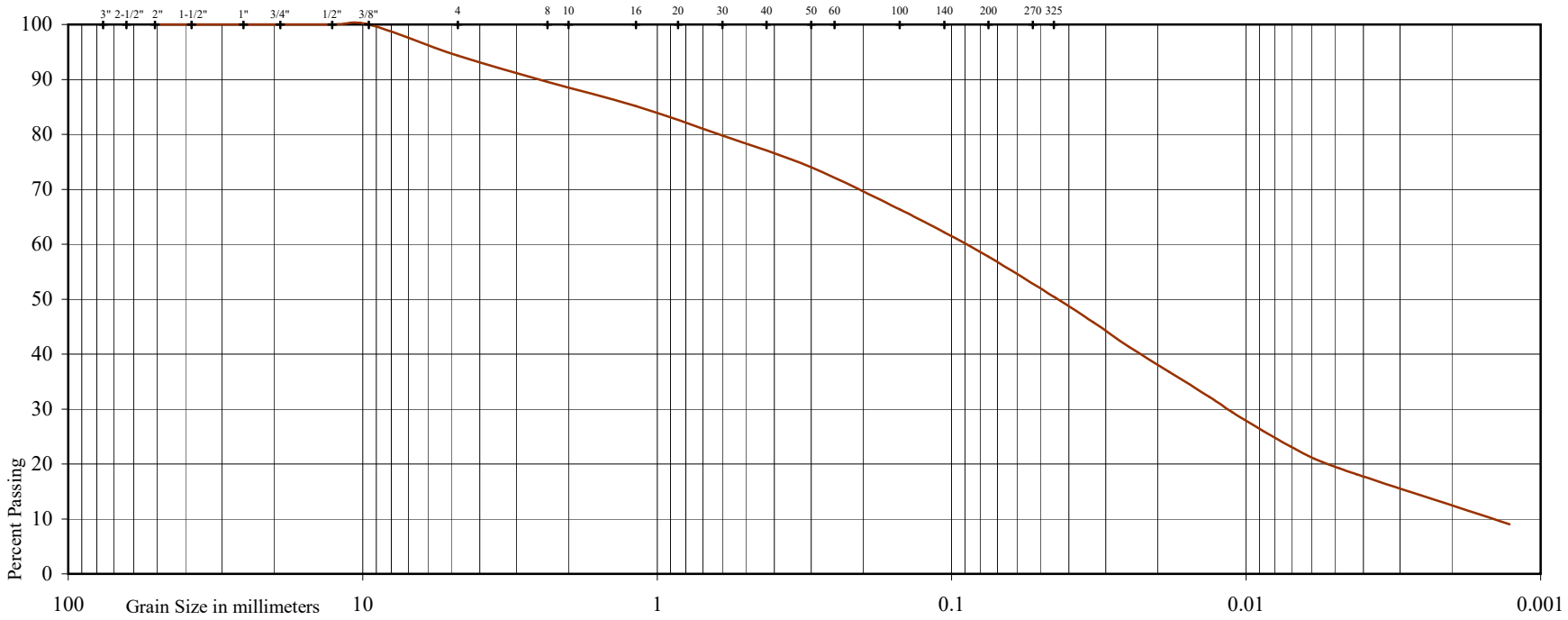
Reference No: 2306-S196

U.S. BUREAU OF SOILS CLASSIFICATION

GRAVEL		SAND				SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	V. FINE		

UNIFIED SOIL CLASSIFICATION

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Project: Proposed Temporary Transportation Depot

Location: 4848 Mayfield Road, Town of Caledon

Borehole No: 2

Sample No: 6

Depth (m): 4.8

Elevation (m): 248.8

Liquid Limit (%) = -

Plastic Limit (%) = -

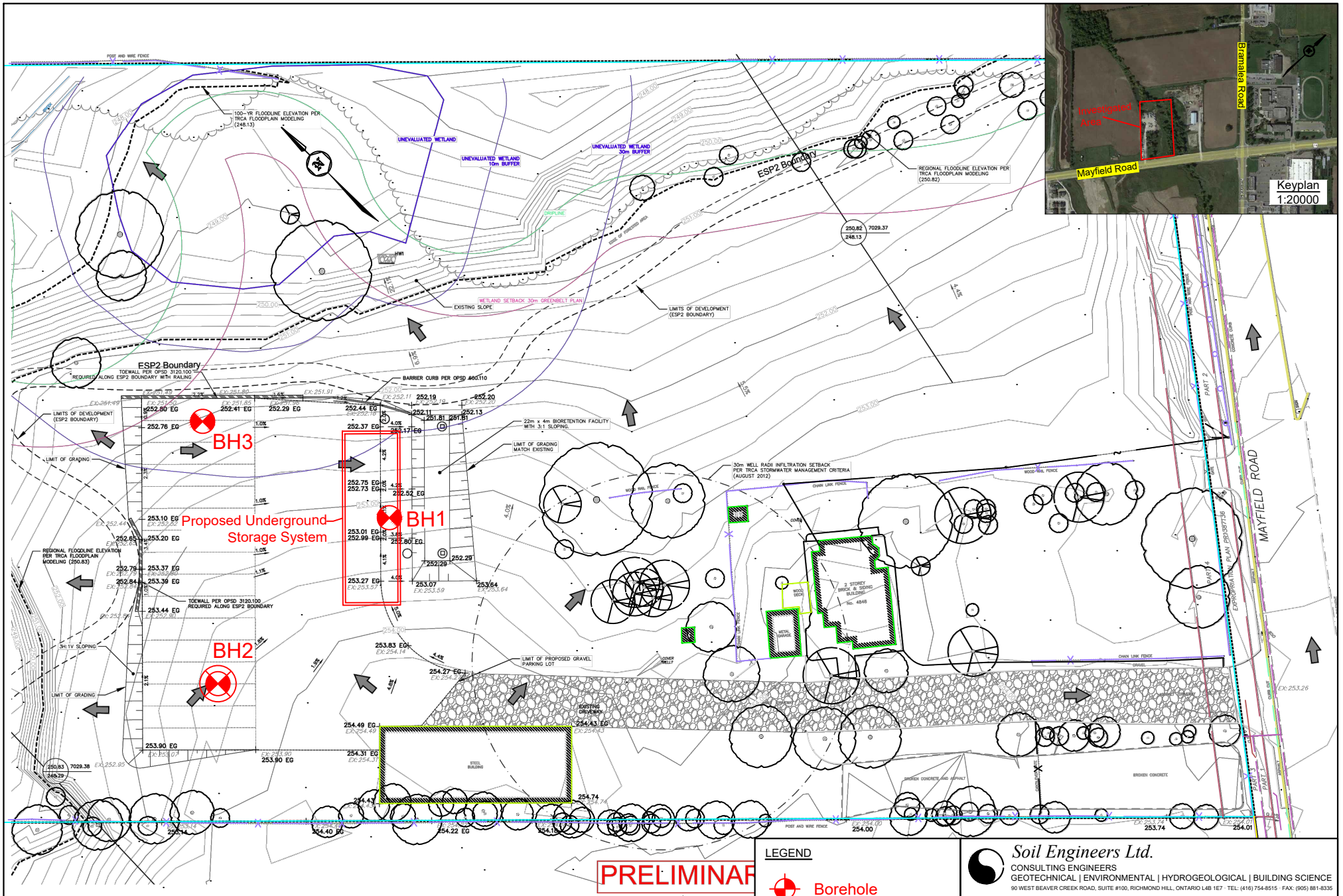
Plasticity Index (%) = -

Moisture Content (%) = 9

Estimated Permeability (cm./sec.) = 10^{-6}

Classification of Sample [& Group Symbol]: SANDY SILT, TILL
some clay, a trace of gravel

Figure: 4



LEGEND

- Borehole
- Borehole and 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 Well Location Plan

SITE: 4848 Mayfield Road, Town of Caledon			
DESIGNED BY: C.L.	**CHECKED BY:** M.M.	**DWG NO.:** 1	
SCALE: 1:800	**REF. NO.:** 2306-S196	**DATE:** October 2023	**REV** -

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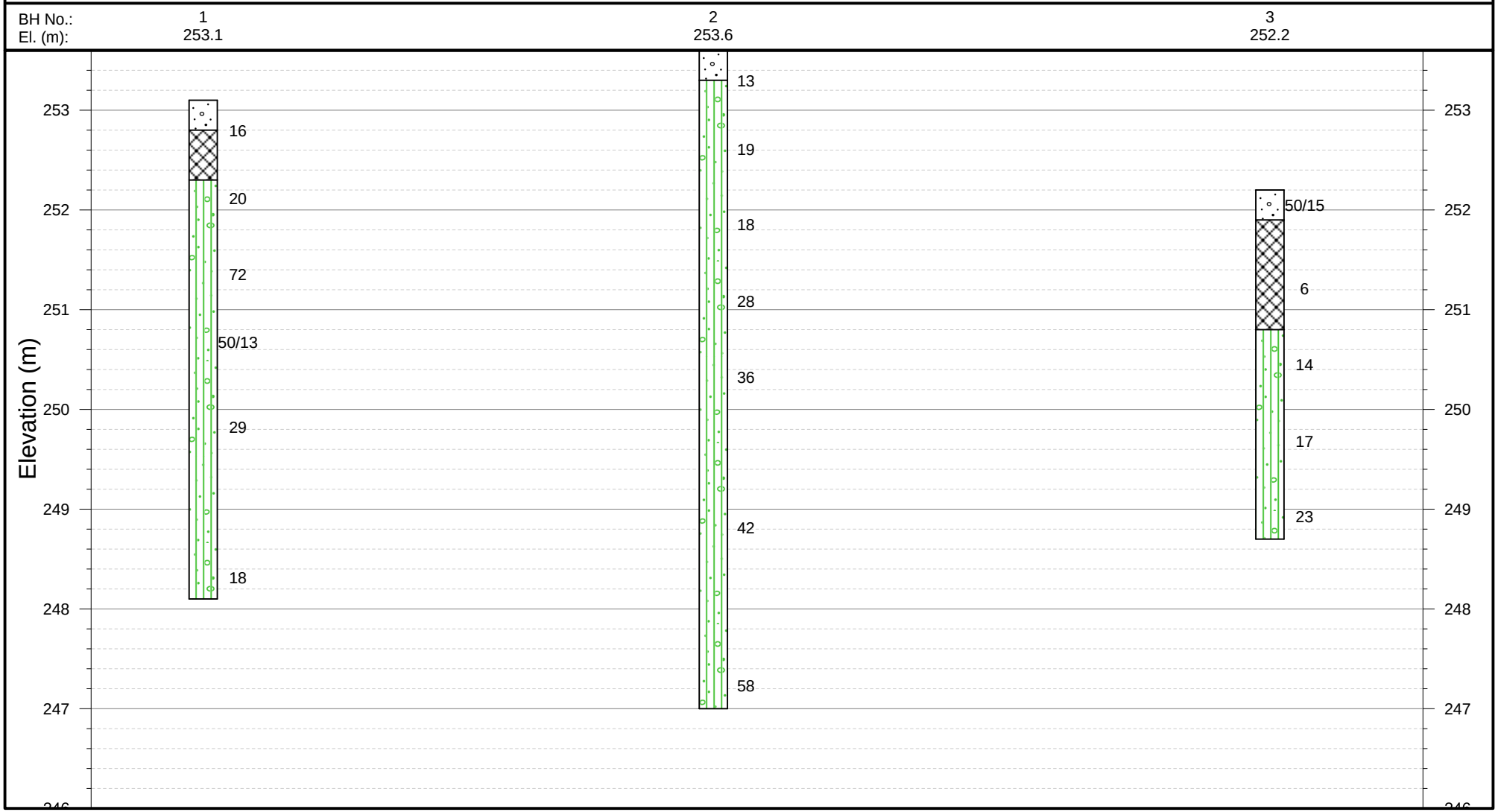
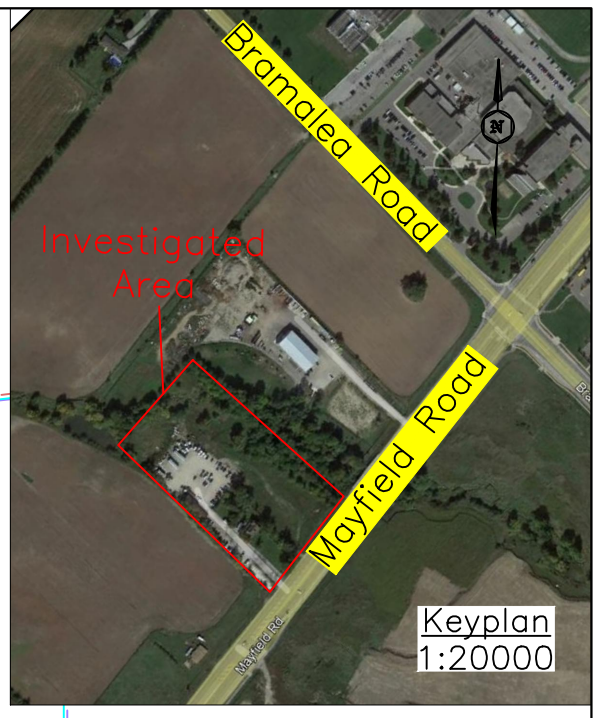
SUBSURFACE PROFILE
DRAWING NO. 2
SCALE: AS SHOWN

JOB NO.: 2306-S196
REPORT DATE: October 2023
PROJECT DESCRIPTION: Proposed Temporary Transportation Depot
PROJECT LOCATION: 4848 Mayfield Road, Town of Caledon

LEGEND
GRANULAR | FILL | SANDY SILT TILL





LOT

CONCESSION

PART 2
PLAN 43R-5909

EAST

PIN 14347-0327

PIN 14347-0323

PIN 14347-0342

BH1

BH2

BH3

A

A

B

B

Long Term Stable Top of Slope

EDGE OF FORESTED AREA

CREEK

STEEL BUILDING

GARAGE SILL

METAL SHED

METAL GARAGE

STOREY SIDING BUILDING

BROKEN CONCRETE

CANTILEVER GATE

GRAVEL DRIVEWAY

CHAIN LINK FENCE

WOOD RAIL FENCE

POST AND WIRE FENCE

OVER HEAD WIRES

MAYFIELD ROAD

(ROAD ALLOWANCE BETWEEN LOTS 17 AND 18, CONCESSION 4, EAST OF HURONTARIO STREET)

CROWN OF ASPHALT PAVEMENT

PART 1 43R-34259

PART 2 43R-34259

PART 3 43R-34259

EXPROPRIATION PLAN PR1425131

PART 1 43R-34259

PART 2 43R-34259

WIDENED BY DEPOSITED PLAN

SUBJECT TO EASEMENT AS IN CH27628

MOST EASTERLY ANGLE OF LOT 18, CONCESSION 4, EAST OF HURONTARIO STREET

MAYFIELD ROAD

LEGEND

- Borehole
- Borehole and Monitoring Well

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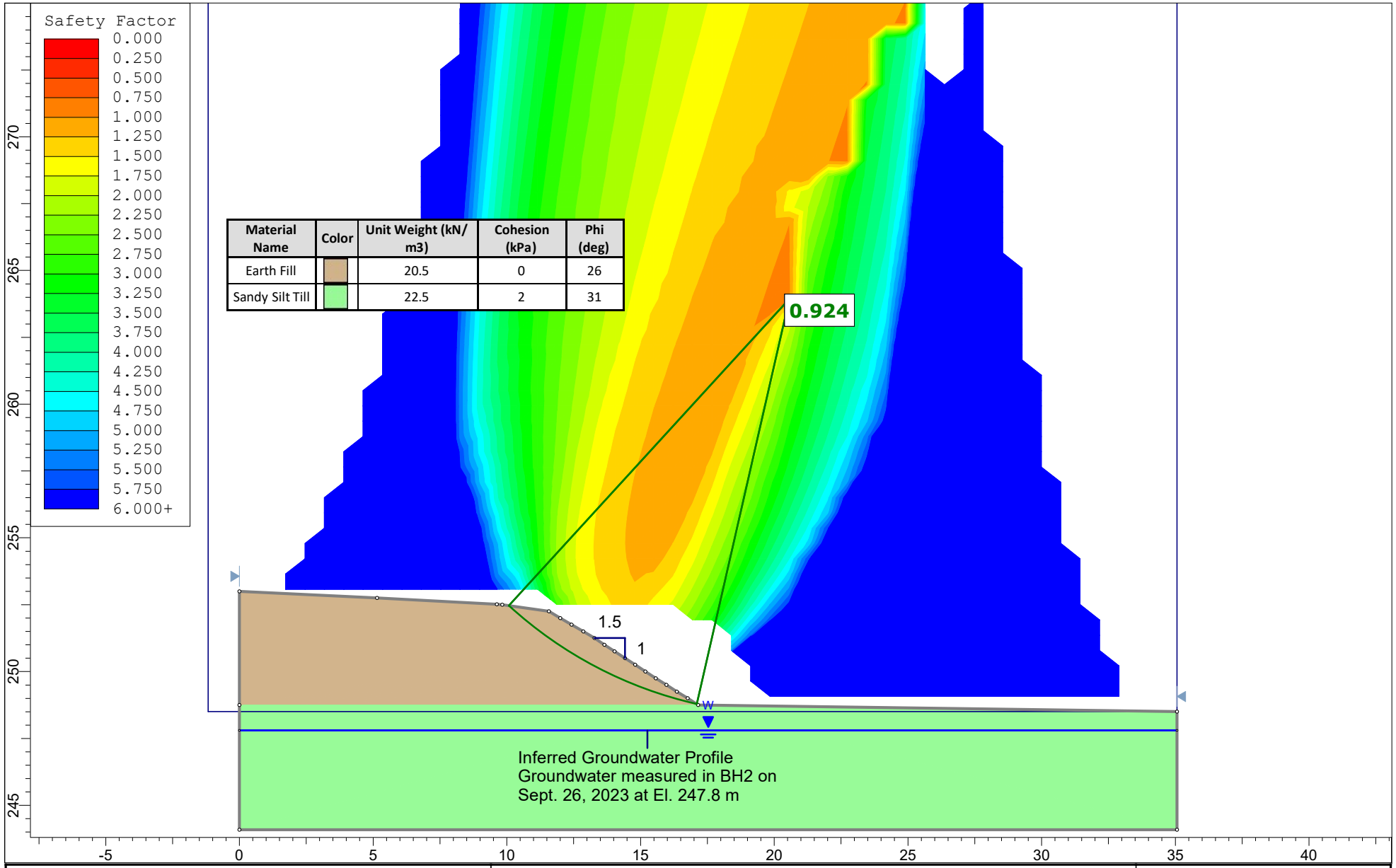
Cross Section Location Plan

SITE: 4848 Mayfield Road, Town of Caledon

DESIGNED BY: C.L.	CHECKED BY: M.M.	DWG NO.: 3	
SCALE: 1:750	REF. NO.: 2306-S196	DATE: October 2023	REV –



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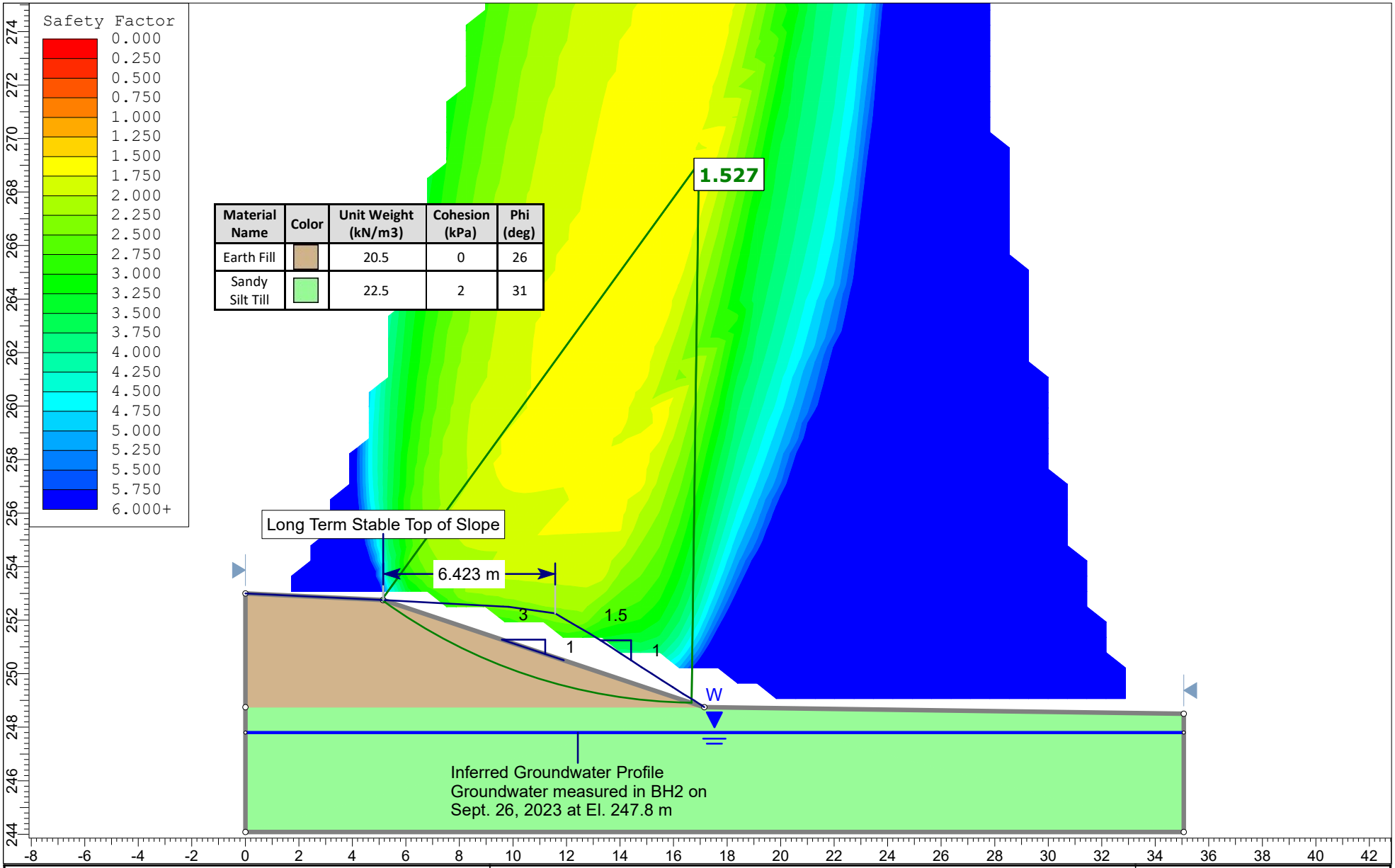
Project Title: Cross Section A-A			Load Case: Existing Condition
Location: 4848 Mayfield Road, Town of Caledon			
Drawn By: C.L.	Checked By: M.M.	Scale: 1:200	Revision: -
Date: October 2023		Reference No.: 2306-S196	Drawing No.: 4



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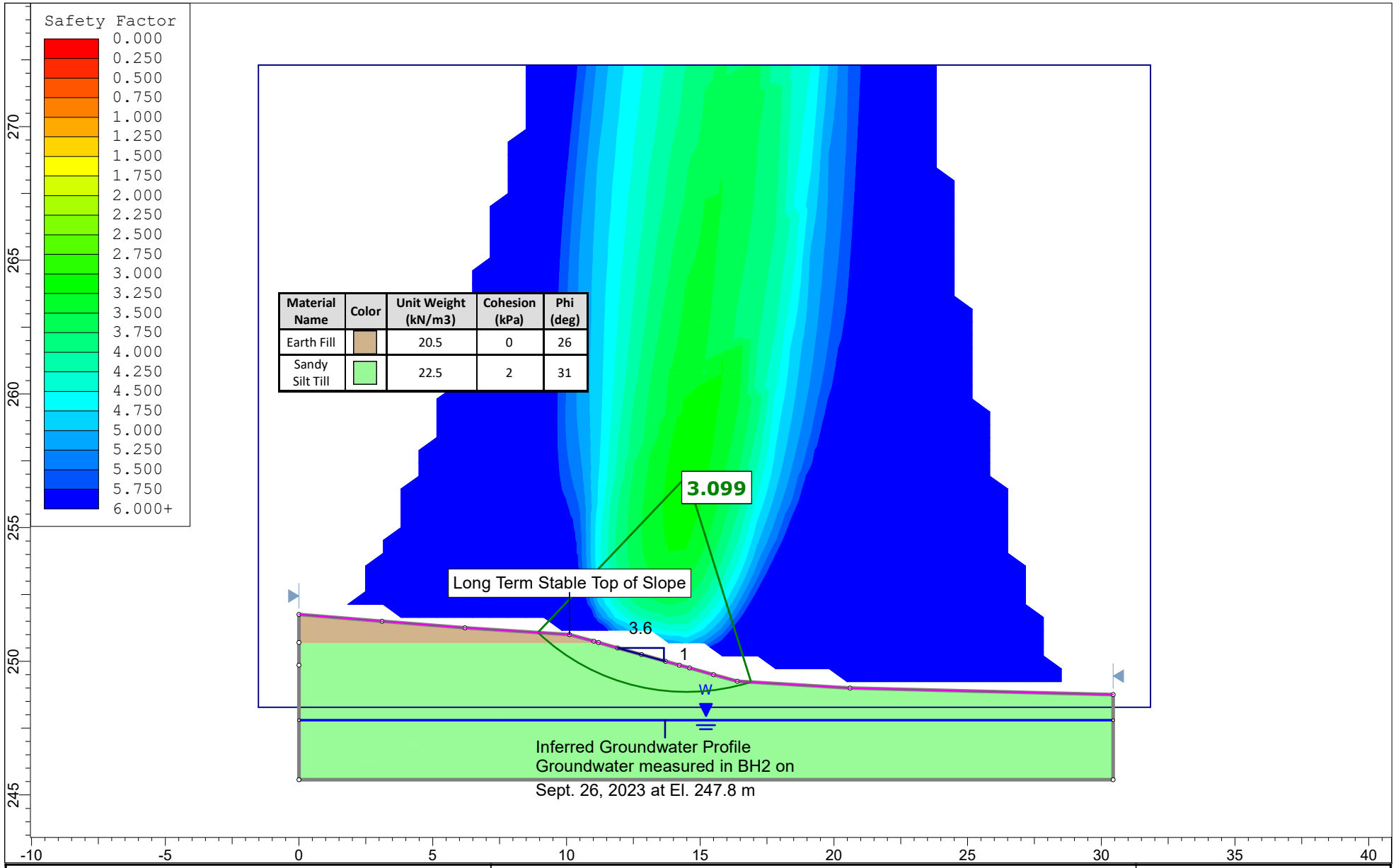
Project Title: Cross Section A-A			Load Case: Stable Condition
Location: 4848 Mayfield Road, Town of Caledon			
Drawn By: C.L.	Checked By: M.M.	Scale: 1:200	Revision: -
Date: October 2023		Reference No.: 2306-S196	Drawing No.: 5



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Project Title: Cross Section B-B			Load Case: Existing Condition
Location: 4848 Mayfield Road, Town of Caledon			
Drawn By: C.L.	Checked By: M.M.	Scale: 1:200	Revision: -
Date: October 2023		Reference No.: 2306-S196	Drawing No.: 6