GEMTEC
Consulting Engineers and Scientists

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February 7, 2023

File: 64913.01 – R03

12213559 Canada Inc.
996-B St Augustin Rd
Embrun, Ontario
K0A 1W0

Attention: Ketan Dhawan, Project Manager

Re: Slope Stability Assessment
5497 Manotick Main Street
Manotick (Ottawa), Ontario

This letter presents the results of a slope stability assessment carried out at 5497 Manotick Main Street in Manotick (Ottawa), Ontario.

PROJECT DESCRIPTION

The purpose of this slope stability assessment was to determine whether there is potential for slope instability at the site and, if so, to establish the "Erosion Hazard Limit" in accordance with the Natural Hazard Policies set forth in Section 3.1 of the Provincial Policy Statements of the Planning Act of Ontario. This limit constitutes a safe setback for development with respect to slope stability. It is noted that the setback related to the slope stability is separate from any required development setback set forth by the Rideau Valley Conservation Authority (RVCA).

DESCRIPTION OF SITE AND SLOPE

The property is located on the north side of Manotick Main Street in Manotick (Ottawa) and slopes downwards towards the west channel of the Rideau River. A commercial building and paved parking area are currently located on the property.

A site reconnaissance was carried out by a member of our engineering staff on April 25, 2019. At that time, the general topography of the site, surficial ground conditions and the current slope were observed and photographed. The geometry of the slope on the subject property was measured at two (2) locations (Sections A-A' and B-B') using our Trimble R10 GPS equipment. The cross sections were positioned at the site by GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) personnel at key locations based on slope inclination and height. The locations of the cross-sections are provided on the Site Plan, Figure 1. Cross-sections of the slope at these locations are provided on Figures A1 and A2 in Attachment A. Details of the slopes at Sections A-A' and B-B', inclusive, are provided in Table 1.

It is noted that at the time of the site reconnaissance the Rideau River was experiencing high water levels and based on a review of aerial photographs, the river's edge had advanced up the toe of the slope. The approximate location of the river's edge at the time of the site reconnaissance is shown on Figure 1. Also shown on Figure 1 are the main components of the proposed development based on the Site Plan prepared by P2 concepts dated May 2022 (which was not available to GEMTEC at the time of initial submission of this letter).

The following observations were made at the time of the site reconnaissance:

- The slopes at the property are relatively flat and are vegetated with grass and large trees.
- An existing timber retaining wall is located at the toe of the slope.
- The river's edge was located at the retaining wall at the time of the site reconnaissance and, as a result, the conditions at the toe of the retaining wall could not be observed.
- Based on visual observations, the height of the retaining wall appears to be less than 1 metre.
- No signs of active erosion or instability were observed at the subject site (i.e., tension cracks, rotational failures, etc.) at the time of the site reconnaissance.

Photographs of the site are provided on Figure B1 in Attachment B.

Table 1 - Details of the slopes at Sections A-A' and B-B'

Location	Slope Height	Slope Gradient Horizontal : Vertical
A-A'	2 metres	3H:1V (18 degrees)
B-B'	1 metres	5H:1V (11 degrees)

Notes:

1. Slope height and gradient measured from behind existing retaining wall.

SUBSURFACE CONDITIONS

Review of Available Geology Maps

Surficial geology maps of the Ottawa area indicate that the site is underlain by silt and clay. Bedrock geology maps indicate that the bedrock is composed of dolostone of the Oxford formation at depths ranging between about 5 to 15 metres below ground surface.

Ministry of the Environment, Conservation and Parks (MECP) Water Well Records in the area indicate that the site is underlain by clay to depths of about 6 to 7 metres.

GEMTEC Site Investigation, 2019

In order to determine the shallow subsurface conditions at the site two (2) hand augerholes numbered AH19-1 and AH19-2 were advanced at the site on April 25, 2019, by GEMTEC personnel. The subsurface conditions encountered in the augerholes were determined based on tactile examination of the material recovered on the flights of the auger. Details of the hand augerholes advanced at the site are as follows:

- Augerhole AH19-1 was advanced in the higher ground portion of the site closer to the existing structure along Section B-B' and encountered about 100 millimetres of brown, sandy topsoil overlying grey brown sand (possible fill material). Silty clay was encountered at a depth of about 0.3 metres below ground surface. The hand augerhole was terminated at a depth of about 1.4 metres below ground surface in the silty clay. Groundwater seepage was observed at a depth of about 300 millimetres below ground surface.

- Augerhole AH19-2 was advanced at the lower portions of the site closer to the river's edge also along Section B-B' and encountered about 100 millimetres of brown, sandy topsoil overlying grey brown silty sand and sand and gravel. Practical refusal to manual augering was encountered at a depth of about 0.8 metres below ground surface.

Descriptions of the subsurface conditions logged in the hand augerholes are provided on the Record of Test Hole sheets in Attachment C.

Investigations by Others, 2021

The records of an investigation caried out by Paterson Group at the site in 2021 has been provided to GEMTEC (following initial submission of this letter). The findings of the investigation were described in a report titled Geotechnical Investigation, Proposed Multi-Storey Building, 5497 Manotick Main Street, Ottawa, Ontario, reference PG5957-1, dated September 2021. The report is referred to herein as Paterson (2021).

Paterson (2021) presents the results of three (3) boreholes identified as BH 1-21, BH 2-21 and BH 3-21. BH 1-21 is located at the southern end of the site close to Manotick Main Street.

Boreholes BH 2-21 and BH 3-21 are located on the northern portion of the site, BH 3-21 being closest to the Rideau River.

Records of Borehole Sheets for BH 1-21 to BH 3-21, inclusive are provided in Attachment D, with the Test Hole Location Plan from Paterson (2021). In summary, the boreholes were advanced to depths of 5.7 to 6.1 metres below ground surface (at one (1) location a dynamic probe was advanced from the base of the borehole to a depth of 7.6 metres). The reported depth to groundwater level in standpipe piezometers installed in the boreholes was also variable, ranging from 5.3 metres at one location to 'dry' at another location. Refer to the Record of Borehole Sheets for further details of the conditions encountered in the Paterson (2021) boreholes.

SLOPE STABILITY ASSESSMENT

Slope Stability Analyses

The slope stability analyses were carried out for Sections A-A' and B-B' using SLIDE, a two-dimensional limit equilibrium slope stability program. The locations of the sections were selected for analysis by GEMTEC personnel based on slope geometry and height.

Input Parameters

The soil conditions used in the stability analysis were based on the hand augerholes advanced at the site, the more recent investigations described in Paterson (2021), our experience in the vicinity of the subject site, and also information from surficial geology maps of the area. Based on our experience in the vicinity of the subject site in combination with these data sources, as a reasonably conservative approach GEMTEC has assumed that the slope is composed entirely of silty clay.

The slope stability analyses were carried out using silty clay strength parameters typical for the Ottawa area. The soil parameters used in the analyses are provided in Table 2.

Table 2 – Soil Parameters

Soil Type	Effective Angle of Internal Friction, ϕ (degrees)	Effective Cohesion, c' (kPa)	Undrained Shear Strength (kPa)	Unit Weight, γ (kN/m^3)
Silty Clay	32	10	50	17.5

As a further conservative consideration, for the purpose of the slope stability assessment, we have assumed that the slope is fully saturated with the groundwater level at the ground surface – which is higher than the levels observed and reported in Paterson (2021).

Note that some components of the proposed development, for instance the proposed basement parking level, have not been included in the analyses as these components would not contribute a significant destabilising force to the slopes and are at distance from the crest / toe of slope and waters edge.

Existing Factor of Safety

The slope stability analyses were carried out using soil parameters, groundwater conditions, and a slope profile that attempt to model the slope in question, but do not exactly represent the actual conditions.

For the purposes of this study, a computed factor of safety (FoS) of 1.0 or lower is considered to represent a slope bordering on failure, a computed FoS of 1.0 to 1.3 is considered marginally stable, a FoS of 1.3 to 1.5 is considered to indicate a slope that is less likely to fail in the long term. A FoS of 1.5, or greater, is considered to indicate adequate long-term stability.

Static Conditions

The slope stability analyses indicate that the existing slope, in its current configuration, has a factor of safety against overall rotational failure of about 2.1 and 3.1 for Sections A-A' and B-B', respectively. Based on the slope stability analyses, the factors of safety against overall rotational failure for static loading conditions are considered to indicate adequate long-term stability. The results of the stability analyses are provided on Figures A1 and A2 in Attachment A.

Pseudo-Static (Seismic) Conditions

The slopes at Sections A-A' and B-B' were analysed for pseudo-static (seismic) conditions using the undrained silty clay strength parameters. A seismic coefficient of 0.14 was used in the pseudo-static analyses (i.e., half of the Peak Ground Acceleration for Ottawa (Barrhaven) according to the Ontario Building Code 2015). The slope stability analyses indicate that the existing slopes, in their current configurations, have a factor of safety against failure of greater than 1.1 for pseudo-static (seismic) conditions, which is considered acceptable. The results of the pseudo-static stability analyses are provided on Figures A3 and A4 in Attachment A.

Setback Requirements

For unstable slopes, the distance from the unstable slope to the safe setback line is called the 'Erosion Hazard Limit'. In accordance with the Ministry of Natural Resources (MNR) Technical Guide "Understanding Natural Hazards" dated 2001, the Erosion Hazard Limit consists of three (3) components: (1) Stable Slope Allowance, (2) Toe Erosion Allowance, and (3) Erosion Access Allowance. The following provides a breakdown of these three (3) components.

- The Stable Slope Allowance, as described in the MNR procedures, is the area where a factor of safety of less than 1.5 against overall rotational failure is calculated. The slope stability analyses indicate that the slope has a factor of safety against failure of greater

than 1.5 (refer to Figures A1 and A2 in Attachment A). Therefore, the Stable Slope Allowance described in the MNR procedures is not required.

- In accordance with the MNR documents, a minimum Toe Erosion Allowance of between 5 to 8 metres is required for clay soils. No obvious signs of erosion were observed at the time of the site reconnaissance; however, the river's edge had advanced up the toe of the slope (located adjacent to the existing retaining wall) as a result of high-water levels in the Ottawa area. In our opinion, a Toe Erosion Allowance of 8 metres should be used at Sections A-A' and B-B' as a conservative approach.

- The MNR procedures also includes the application of a 6-metre-wide Erosion Access Allowance to allow for access by equipment to repair a possible failed slope.

Therefore, the Erosion Hazard Limit for the slope at this site is located about 14 metres from the crest of the existing slopes at Sections A-A' and B-B' (refer to Figures A1 and A2). It may be possible to reduce the Toe Erosion Allowance if an additional site visit is carried out when the water levels have receded in order to confirm the state of erosion along the slope toe at the base of the existing retaining wall. However, this may not be warranted, should the proposed development not be impacted by the proposed (conservatively estimated) Erosion Hazard Limit.

The proposed position of the Erosion Hazard Limit is shown on Figure 1, as well as an estimate of the location of the crest of slope line. The location of the crest of slope was not readily identifiable on site during GEMTECs site visit due to the relatively shallow slopes (refer to the site photographs in Appendix B). A top of slope line is identified on P2 concepts Site Plan south of the existing retaining wall which may be used for reference.

ADDITIONAL CONSIDERATIONS

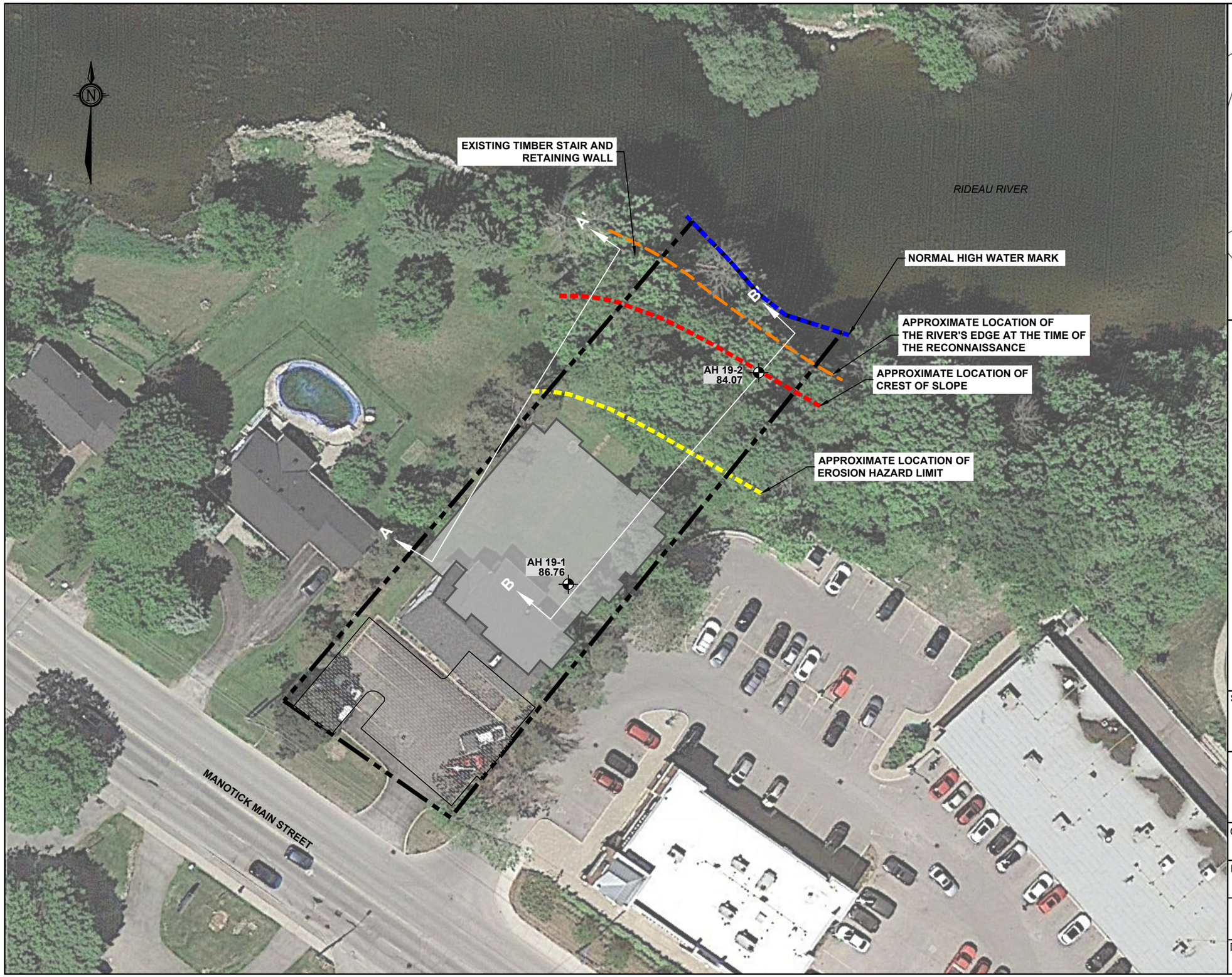
GEMTEC recommends that the existing vegetation and trees along the slope be maintained, to ensure the stability of the slope is not affected.

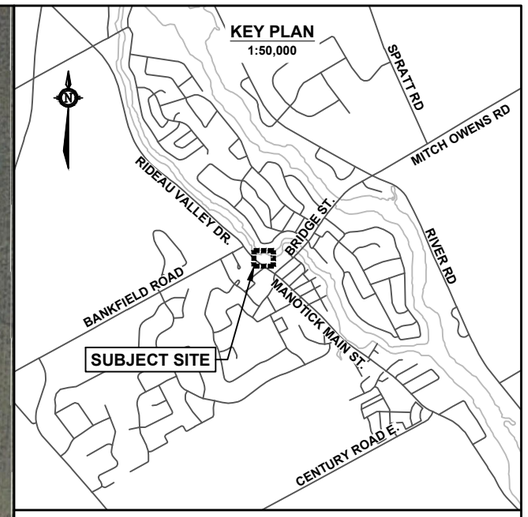
Final plans and finished grades for any proposed development adjacent to the slope should be reviewed by GEMTEC to ensure that the guidelines provided in this letter have been interpreted as intended.

We trust that this letter is sufficient for your purposes. If you have any questions concerning this information or if we can be of further assistance to you on this project, please call.

Daire Cummins, M.Sc.

Lauren Ashe, M.A.Sc., P.Eng.
Senior Geotechnical Engineer





LEGEND

- AUGER HOLE LOCATION IN PLAN
- AH # — AUGER HOLE ID
- XX.XX — GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM
- A A' — SLOPE CROSS SECTION LOCATION IN PLAN (current investigation by GEMTEC)
- APPROXIMATE PROPERTY BOUNDARY
- BUILDING FOOTPRINT
- PARKING AREA

NOTE:

"SITE PLAN", PROVIDE BY P-SQUARED CONCEPTS INC., DATED: MAY 09, 2022

Scale 1:500

0 10 20 30m

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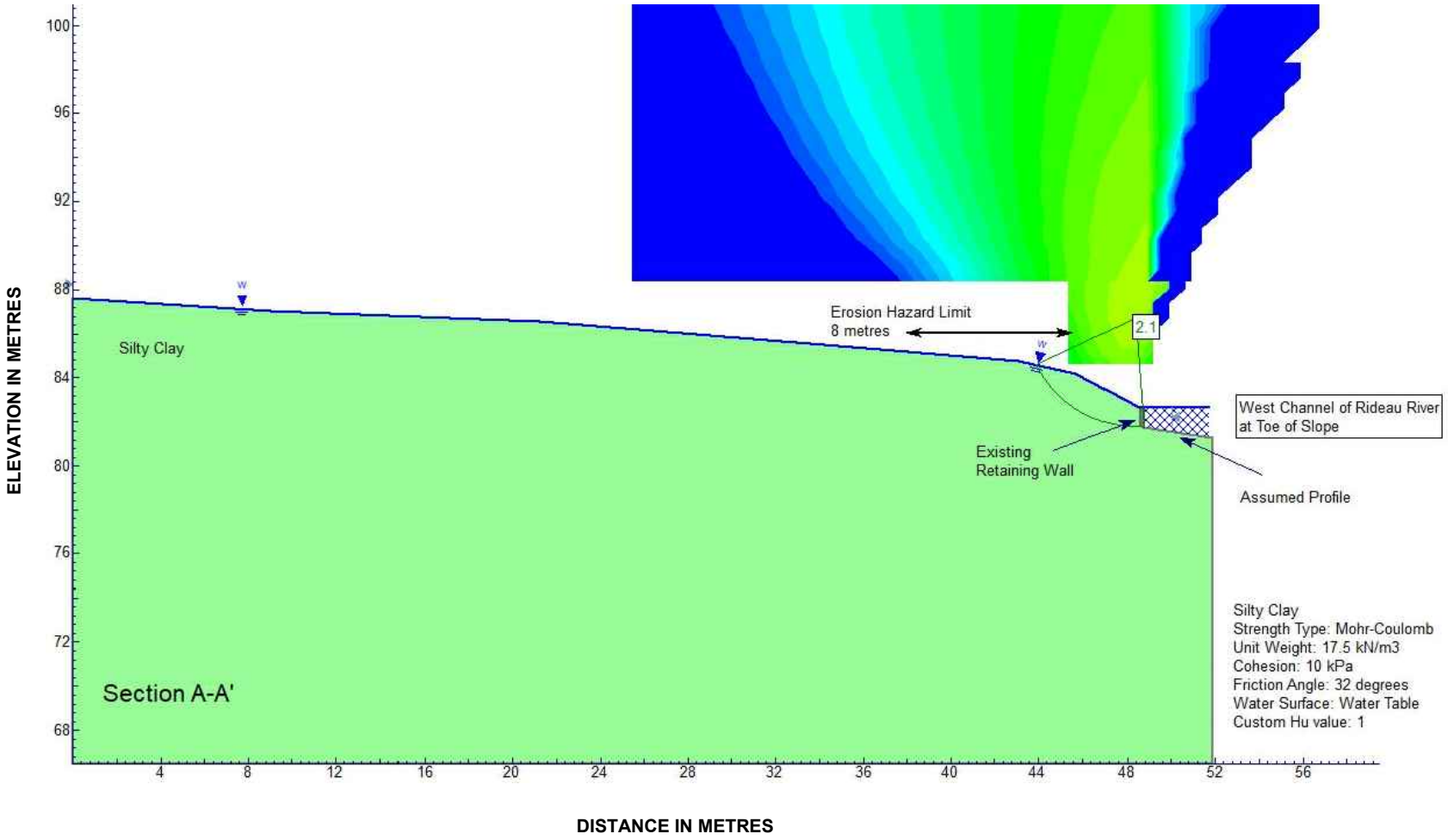
Client	OLIGO GROUP
Project	64913.01
Location	5497 MANOTICK MAIN STREET MANOTICK, ON
Drwn by	S.L.
Chkd by	D.C.
	SITE PLAN
Date	FEBRUARY, 2023
Rev.	2

FIGURE 1

ATTACHMENT A

Slope Stability Analyses
Figures A1 to A4, inclusive



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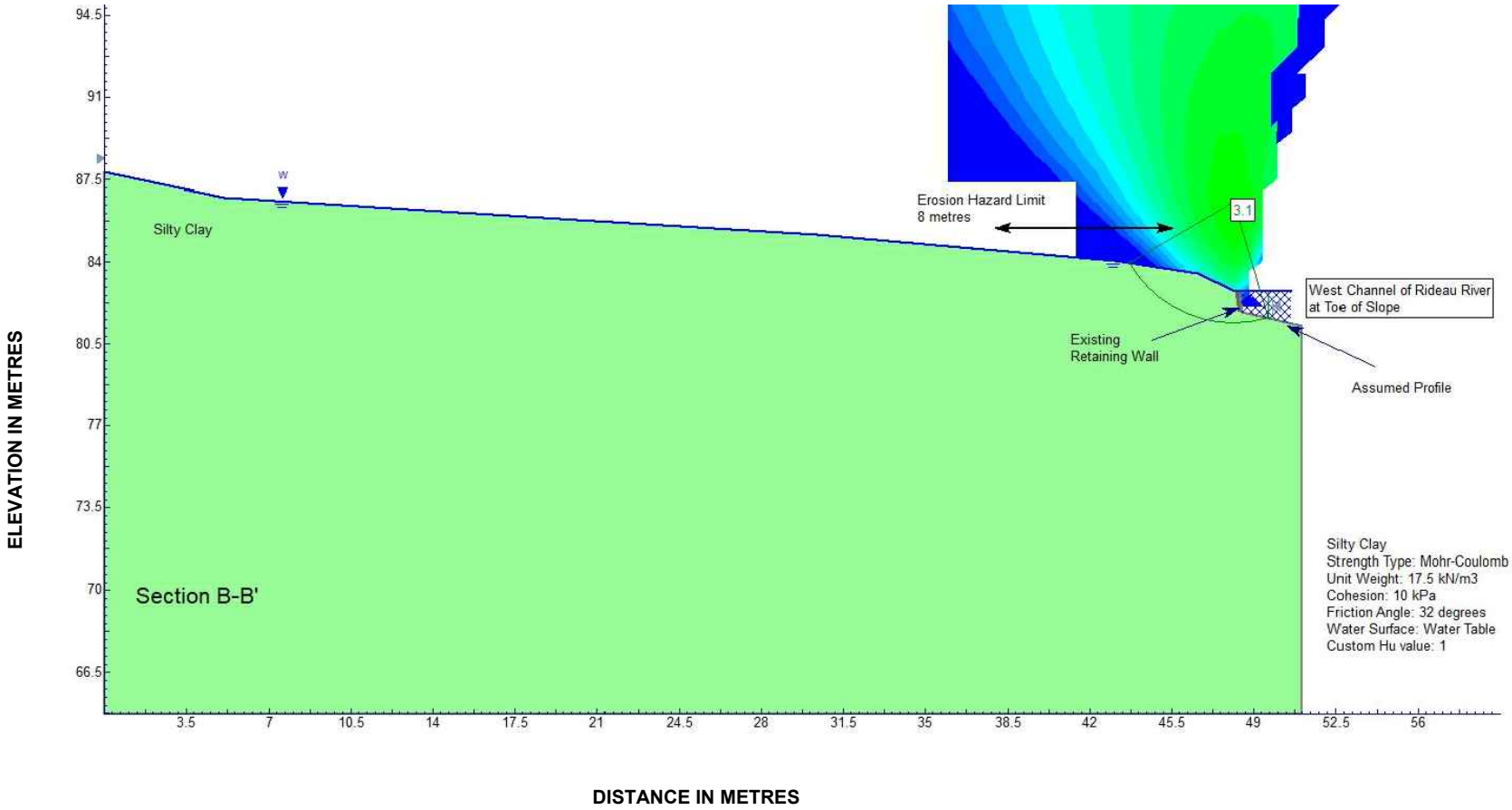
Project	Drwn By	Chkd By	Date	Drawing
SLOPE STABILITY ANALYSIS 5497 MANOTICK MAIN STREET MANOTICK, ONTARIO	P.C.	L.A.	FEBRUARY, 2023	SECTION A-A EXISTING
	File No. 64913.01	Revision No. 0	**FIGURE A1**	



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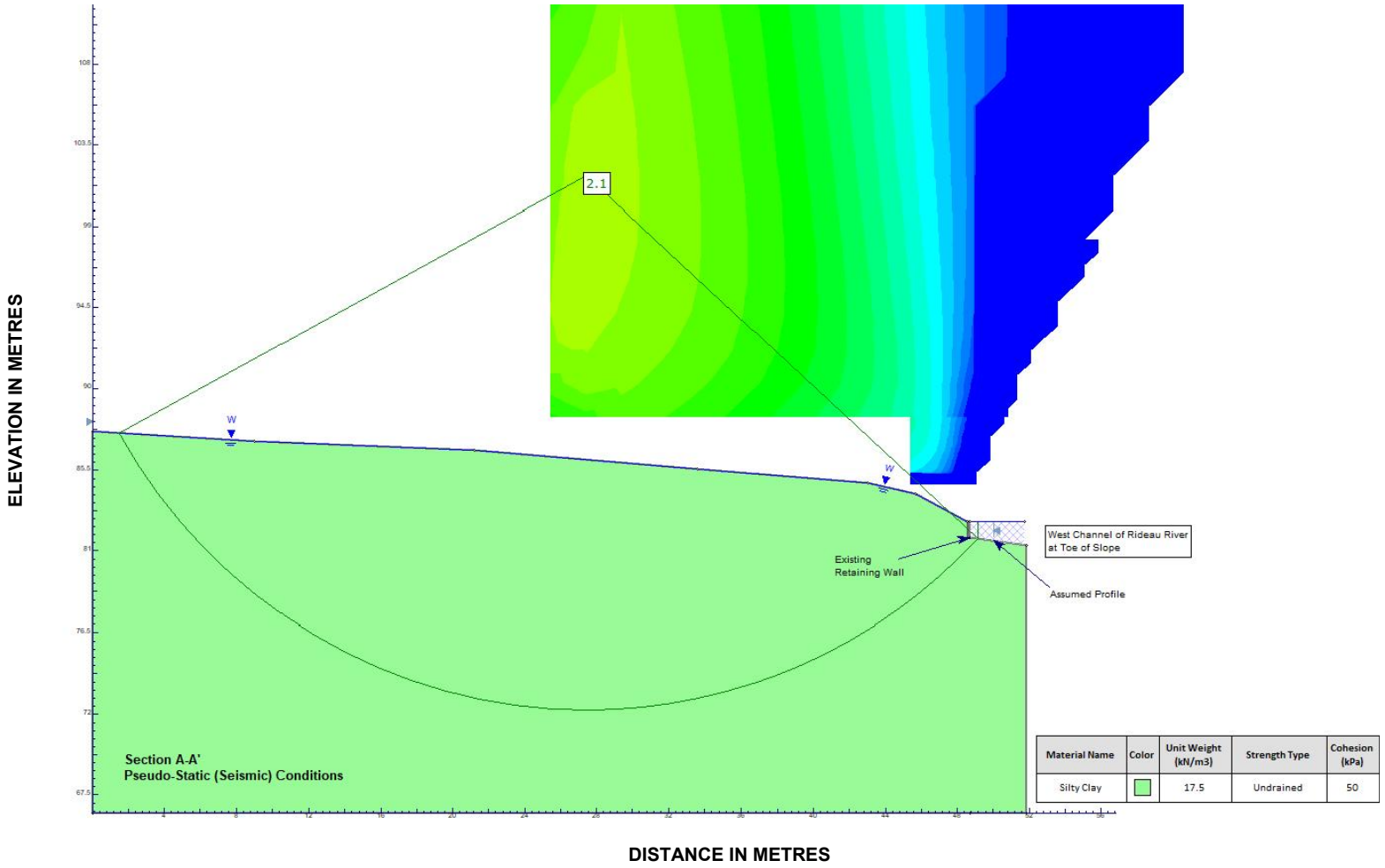
Project	Drwn By	Chkd By	Date	Drawing
SLOPE STABILITY ANALYSIS 5497 MANOTICK MAIN STREET MANOTICK, ONTARIO	P.C.	L.A.	FEBRUARY, 2023	SECTION B-B EXISTING
	File No. 64913.01	Revision No. 0	**FIGURE A2**	



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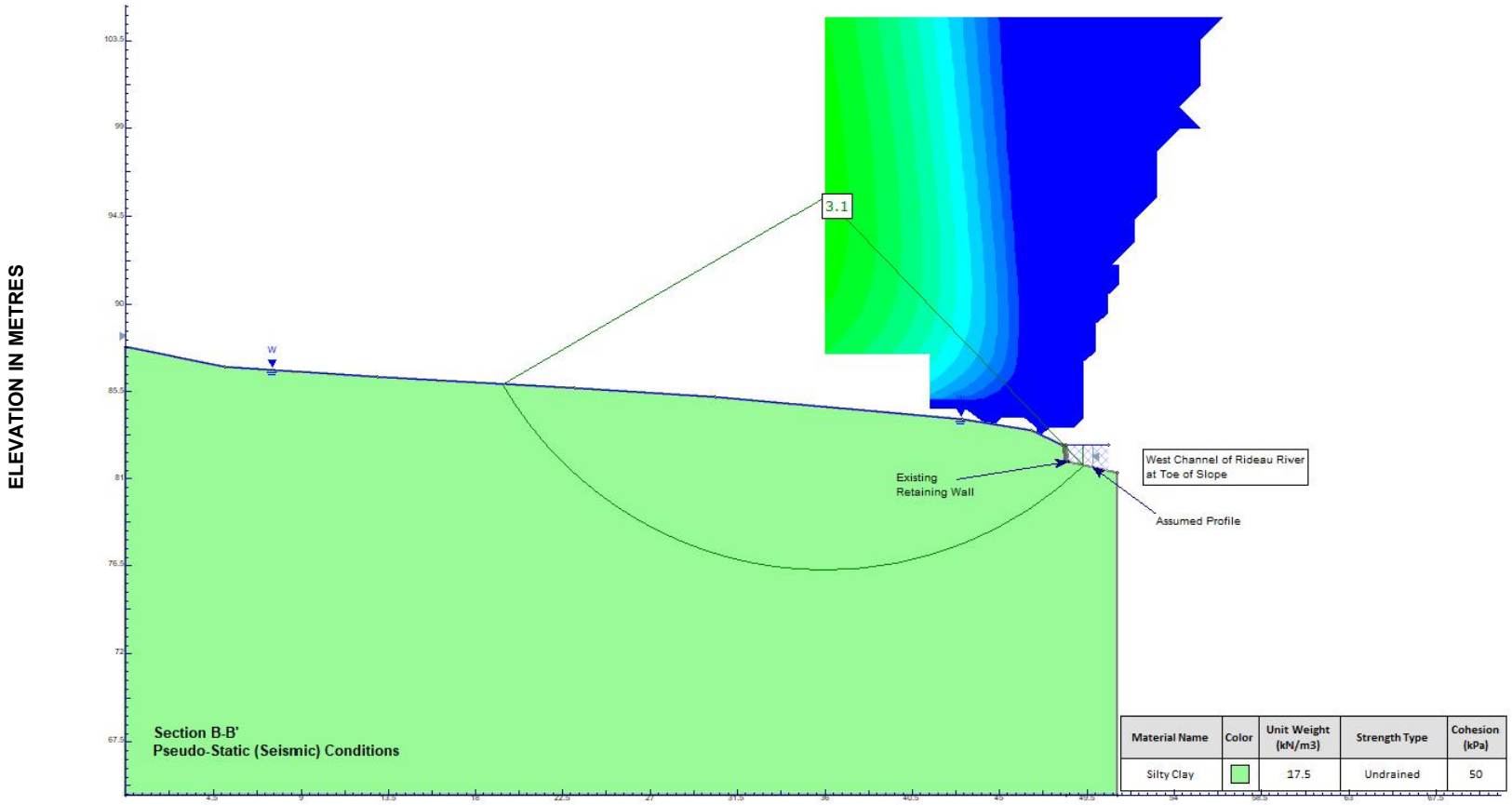
Project	Drwn By	Chkd By	Date	Drawing
SLOPE STABILITY ANALYSIS 5497 MANOTICK MAIN STREET MANOTICK, ONTARIO	S.L.	L.A.	FEBRUARY, 2022	SECTION A-A SEISMIC
	File No. 64913.01	Revision No. 0	**FIGURE A3**	



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Project	Drwn By	Chkd By	Date	Drawing
SLOPE STABILITY ANALYSIS 5497 MANOTICK MAIN STREET MANOTICK, ONTARIO	S.L.	L.A.	FEBRUARY, 2023	SECTION B-B SEISMIC
	File No. 64913.01	Revision No. 0	**FIGURE A4**	

ATTACHMENT B

Site Photographs
Figure B1

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SITE PHOTOGRAPHS

Project	Project No.	
SLOPE STABILITY ASSESSMENT 5497 MANOTICK MAIN STREET, MANOTICK, ON	64913.01	**FIGURE B1**

ATTACHMENT C

Record of Test Hole Sheets
List of Abbreviations and Terminology

ABBREVIATIONS AND TERMINOLOGY USED ON RECORDS OF BOREHOLES AND TEST PITS

SAMPLE TYPES	
AS	Auger sample
CA	Casing sample
CS	Chunk sample
BS	Borros piston sample
GS	Grab sample
MS	Manual sample
RC	Rock core
SS	Split spoon sampler
ST	Slotted tube
TO	Thin-walled open shelby tube
TP	Thin-walled piston shelby tube
WS	Wash sample

SOIL TESTS	
w	Water content
PL, w_p	Plastic limit
LL, w_L	Liquid limit
C	Consolidation (oedometer) test
D_R	Relative density
DS	Direct shear test
G_S	Specific gravity
M	Sieve analysis for particle size
MH	Combined sieve and hydrometer (H) analysis
MPC	Modified Proctor compaction test
SPC	Standard Proctor compaction test
OC	Organic content test
UC	Unconfined compression test
γ	Unit weight

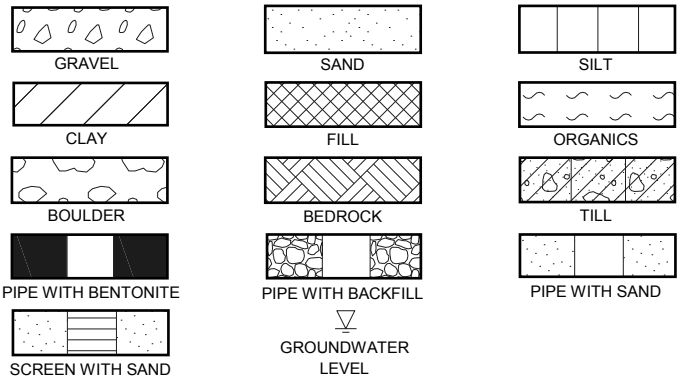
PENETRATION RESISTANCE

Standard Penetration Resistance, N
The number of blows by a 63.5 kg (140 lb) hammer dropped 760 millimetres (30 in.) required to drive a 50 mm split spoon sampler for a distance of 300 mm (12 in.). For split spoon samples where less than 300 mm of penetration was achieved, the number of blows is reported over the sampler penetration in mm.

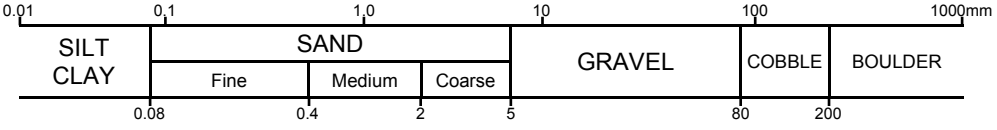
Dynamic Penetration Resistance
The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) to drive a 50 mm (2 in.) diameter 60° cone attached to 'A' size drill rods for a distance of 300 mm (12 in.).

WH	Sampler advanced by static weight of hammer and drill rods
WR	Sampler advanced by static weight of drill rods
PH	Sampler advanced by hydraulic pressure from drill rig
PM	Sampler advanced by manual pressure

COHESIONLESS SOIL Compactness		COHESIVE SOIL Consistency	
SPT N-Values	**Description**	**Cu, kPa**	**Description**
0-4	Very Loose	0-12	Very Soft
4-10	Loose	12-25	Soft
10-30	Compact	25-50	Firm
30-50	Dense	50-100	Stiff
>50	Very Dense	100-200	Very Stiff
		>200	Hard

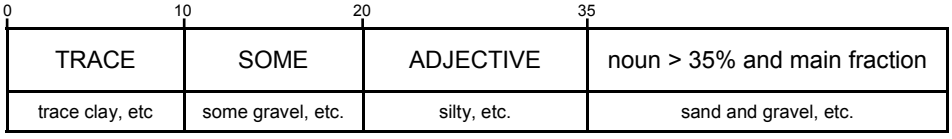


GRAIN SIZE



DESCRIPTIVE TERMINOLOGY

(Based on the CANFEM 4th Edition)



LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

WEATHERING STATE	
Fresh	No visible sign of rock material weathering
Faintly weathered	Weathering limited to the surface of major discontinuities
Slightly weathered	Penetrative weathering developed on open discontinuity surfaces but only slight weathering of rock material
Moderately weathered	Weathering extends throughout the rock mass but the rock material is not friable
Completely weathered	Rock is wholly decomposed and in a friable condition but the rock and structure are preserved

CORE CONDITION
Total Core Recovery (TCR) The percentage of solid drill core recovered regardless of quality or length, measured relative to the length of the total core run
Solid Core Recovery (SCR) The percentage of solid drill core, regardless of length, recovered at full diameter, measured relative to the length of the total core run.
Rock Quality Designation (RQD) The percentage of solid drill core, greater than 100 mm length, as measured along the centerline axis of the core, relative to the length of the total core run. RQD varies from 0% for completed broken core to 100% for core in solid segments.

BEDDING THICKNESS	
Description	**Thickness**
Thinly laminated	< 6 mm
Laminated	6 - 20 mm
Very thinly bedded	20 - 60 mm
Thinly bedded	60 - 200 mm
Medium bedded	200 - 600 mm
Thickly bedded	600 - 2000 mm
Very thickly bedded	2000 - 6000 mm

DISCONTINUITY SPACING	
Description	**Spacing**
Very close	20 - 60 mm
Close	60 - 200 mm
Moderate	200 - 600 mm
Wide	600 -2000 mm
Very wide	2000 - 6000 mm

ROCK QUALITY	
RQD	**Overall Quality**
0 - 25	Very poor
25 - 50	Poor
50 - 75	Fair
75 - 90	Good
90 - 100	Excellent

ROCK COMPRESSIVE STRENGTH	
Comp. Strength, MPa	**Description**
1 - 5	Very weak
5 - 25	Weak
25 - 50	Moderate
50 - 100	Strong
100 - 250	Very strong

RECORD OF TEST HOLE AH 19-01

CLIENT: 12213559 Canada Inc.
PROJECT: 5497 Manotick Main Street, Slope Stability Assessment
JOB#: 64913.01
LOCATION: See Site Plan, Figure 1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Apr 25 2019

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY, mm	SAMPLES: BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Hand Auger Manual Auger (32mm OD)	Ground Surface		86.76						Backfilled with soil cuttings
		Brown sand with organic material (TOPSOIL)		86.66 / 0.10						
		Grey brown sand (possible FILL MATERIAL)		86.46 / 0.30						
		Brown SILTY CLAY								
1		Grey brown to grey SILTY CLAY		85.86 / 0.90						
		End of Hand Auger Hole Groundwater observed at 300 millimetres below ground surface.		85.39 / 1.37						
2										
3										
4										
5										

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

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LOGGED: ML
CHECKED:

GEO - TESTHOLE LOG 64913.01_GINT_2021 03 23.GPJ GEMTEC 2018.GDT 2/7/23

RECORD OF TEST HOLE AH 19-02

CLIENT: 12213559 Canada Inc.
PROJECT: 5497 Manotick Main Street, Slope Stability Assessment
JOB#: 64913.01
LOCATION: See Site Plan, Figure 1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Apr 25 2019

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	RECOVERY, mm	BLOWS/0.3m	PENETRATION RESISTANCE (N), BLOWS/0.3m / DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m / SHEAR STRENGTH (Cu), kPA (NATURAL, REMOULDED) / WATER CONTENT, %	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Hand Auger / Manual Auger (32mm OD)	Ground Surface		84.07							
		Brown sand and organic material (TOPSOIL)		83.97 / 0.10							
		Grey brown SILTY SAND, trace clay									
		Brown SILTY SAND		83.77 / 0.30							Backfilled with soil cuttings
		SAND and GRAVEL		83.32 / 0.76							
		End of Hand Augerhole Practical refusal to manular augering within sand and gravel.									
1											
2											
3											
4											
5											

PENETRATION RESISTANCE (N), BLOWS/0.3m
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m
SHEAR STRENGTH (Cu), kPA: + NATURAL, ⊕ REMOULDED
WATER CONTENT, %: W_P — W — W_L
10 20 30 40 50 60 70 80 90

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LOGGED: ML
CHECKED:

GEO - TESTHOLE LOG 64913.01_GINT_2021 03 23.GPJ GEMTEC 2018.GDT 2/7/23

ATTACHMENT D

Previous Investigation by Others
Record of Test Hole Sheets (Paterson, 2021)
Test Hole Location Plan (Paterson, 2021)

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Multi-Storey Building - 5497 Manotick Main St.
Ottawa, Ontario

DATUM Geodetic

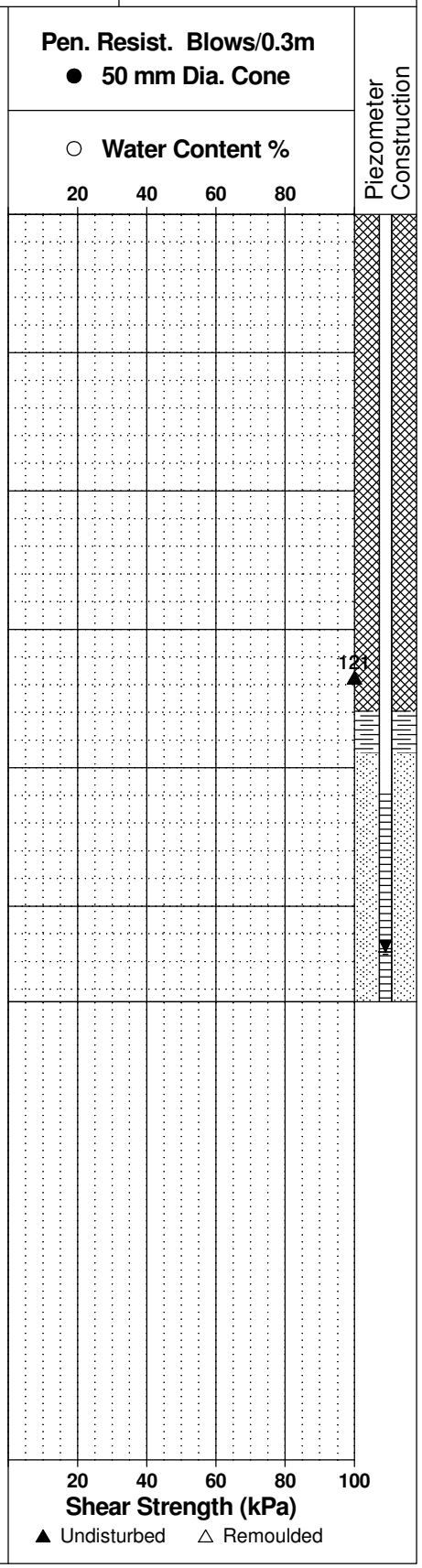
REMARKS

BORINGS BY CME-55 Low Clearance Drill **DATE** September 3, 2021

FILE NO. PG5957

HOLE NO. BH 1-21

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.45
Asphaltic concrete 0.08							
FILL: Brown silty sand, trace gravel and crushed stone 0.46		AU	1				
		SS	2	92	8	1	86.45
Hard to very stiff, brown **SILTY CLAY**		SS	3	83	8	2	85.45
		SS	4	83	5		
		SS	5	100		3	84.45
3.81							
		SS	6	78	62	4	83.45
GLACIAL TILL: Very dense, brown silty sand with gravel, cobbles and boulders		SS	7	42	47	5	82.45
		SS	8	45	50+		
5.69							
End of Borehole							
Practical refusal to augering at 5.69m depth							
(GWL @ 5.33 - September 8, 2021)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Multi-Storey Building - 5497 Manotick Main St.
Ottawa, Ontario

DATUM Geodetic

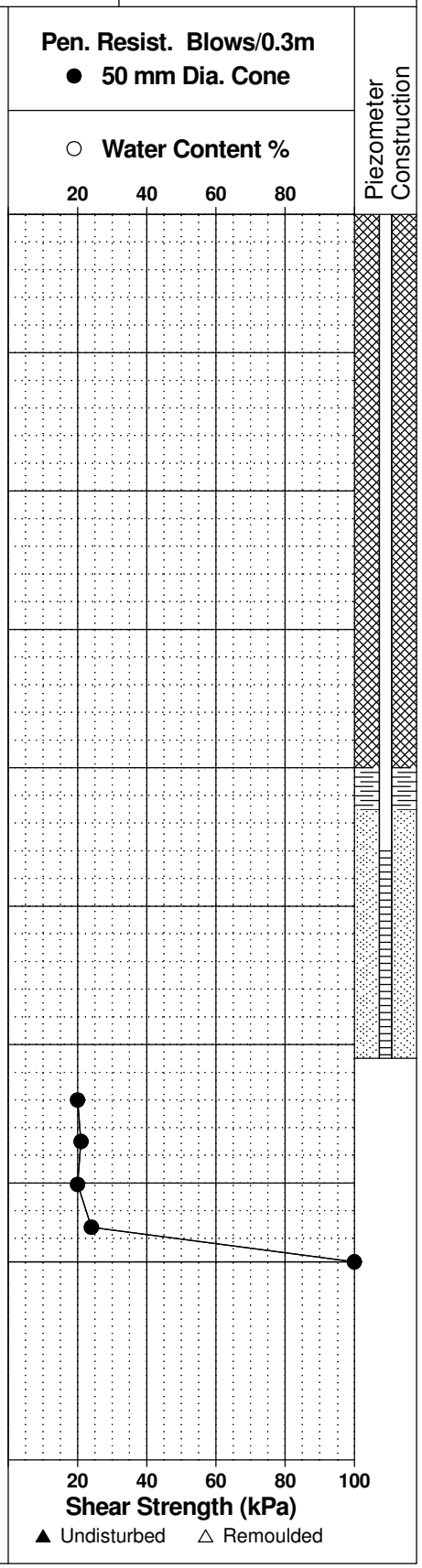
REMARKS

BORINGS BY CME-55 Low Clearance Drill **DATE** September 3, 2021

FILE NO. PG5957

HOLE NO. BH 2-21

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	85.20
TOPSOIL 0.13							
FILL: Brown silty sand, trace organics 0.46		AU	1				
		SS	2	33	12	1	84.20
Compact, brown **SILTY SAND,** trace gravel		SS	3	50	10	2	83.20
		SS	4	58	14		
		SS	5	58	11	3	82.20
3.66							
		SS	6	44	50+	4	81.20
GLACIAL TILL: Dense, brown silty sand with gravel, cobbles and boulders		SS	7	50	28	5	80.20
		SS	8	58	53		
6.10						6	79.20
Dynamic Cone Penetration Test commenced at 6.10m depth.						7	78.20
7.57							
End of Borehole							
Practical DCPT refusal at 7.57m depth.							
(Piezometer destroyed - Sept. 8, 2021)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Multi-Storey Building - 5497 Manotick Main St.
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DATUM Geodetic

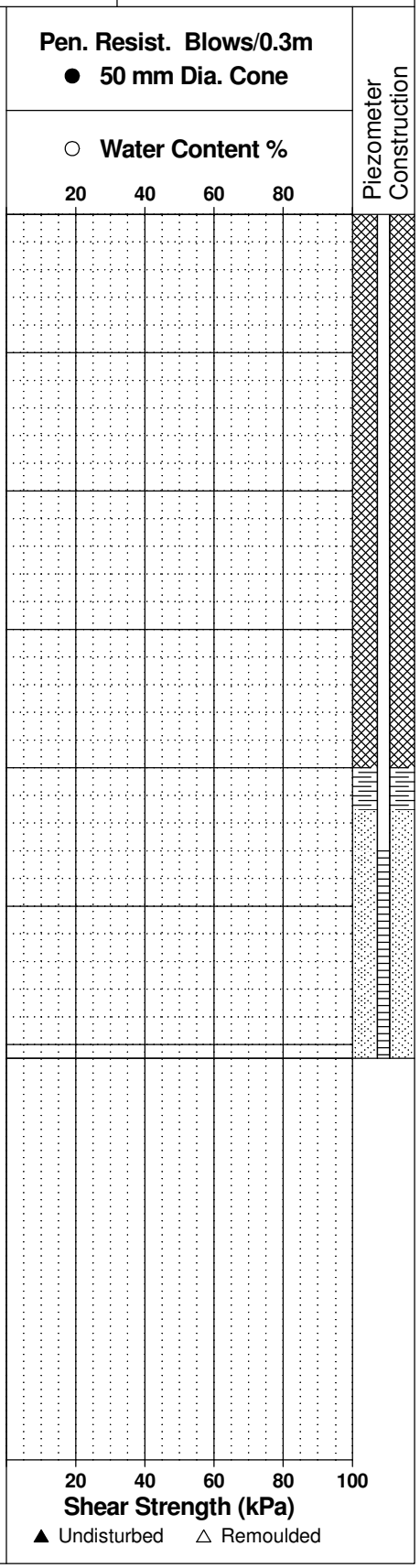
FILE NO. PG5957

REMARKS

HOLE NO. BH 3-21

BORINGS BY CME-55 Low Clearance Drill **DATE** September 3, 2021

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	84.56
TOPSOIL 0.10		AU	1				
FILL: Brown silty sand, trace topsoil		SS	2	50	19	1	83.56
- trace gravel by 1.2m depth		SS	3	67	8	2	82.56
2.74		SS	4	58	24		
		SS	5	25	15	3	81.56
GLACIAL TILL: Compact, brown silty sand with gravel, cobbles and boulders		SS	6	33	26	4	80.56
- loose by 4.6m depth		SS	7	25	8	5	79.56
		SS	8	17	7		
6.10						6	78.56
End of Borehole							
(BH dry - September 8, 2021)							



MANOTICK MAIN STREET

SIDEWALK

SIDEWALK

RIDEAU RIVER

BH 1-21
87.45
(81.76)

BH 3-21
84.56

BH 2-21
85.20
(77.63)

5497 MANOTICK MAIN STREET

PROPOSED
MULTI-STOREY
RESIDENTIAL BUILDING

EXISTING
RESIDENTIAL DWELLING

ASPHALTIC CONCRETE
PARKING LOT

LANSCAPED

CB 1
T/G = 87.24

CB 2
T/G = 87.26

CB
T/G = 87.69

MH-S
T/G = 87.67

CB
T/G = 87.32

98

98

88

LEGEND:

BOREHOLE LOCATION

87.45 GROUND SURFACE ELEVATION (m)

(81.76) PRACTICAL REFUSAL TO AUGERING / DCPT ELEVATION (m)

CONCEPTUAL DESIGN PROVIDED BY P2 CONCEPTS.

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:300

0 1 2 3 4 5 10 15 20m

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NO.	REVISIONS	DATE	INITIAL

12213559 CANADA INC.
GEOTECHNICAL INVESTIGATION
PROPOSED MULTI-STOREY RESIDENTIAL BUILDING
5497 MANITOCK MAIN STREET
OTTAWA, ONTARIO

Title:
TEST HOLE LOCATION PLAN

Scale: 1:300	Date: 09/2021
Drawn by: JM	Report No.: PG5957-1
Checked by: NP	Dwg. No.: PG5957-1
Approved by: FAS	Revision No.:

11x17

p:\autocad drawings\geotechnical\pg59xx\pg5957\pg5957-1 test hole location plan.dwg