

May 26, 2025

Sheldon Creek Developments Inc.
51 First Street
Orangeville, ON
L9W 2E3

Attn: Willem Wildeboer

Re: Technical Memorandum
Potential Seepage Feature
40-60 Emma Street, Grand Valley

It is understood comments have been received from reviewing agencies regarding the potential seepage feature observed/reported on the 40-60 Emma Street property (the subject property).

Having reviewed the following documents:

- Geotechnical investigation and Slope Stability Assessment. Proposed Residential Development, 40-60 Emma Street. Grand Valley, Ontario. (CMT Engineering Inc., Revised Report Dated June 12, 2024).
- Email correspondence and field notes from CMT Engineering Inc.
- Updated Borehole Logs provided by CMT Engineering Inc.
- Updated Site Plan provided by CMT Engineering Inc.
- Two geological cross sections based on boreholes drilled on the subject property.

The following observations are provided:

1. The location of existing BH 3 is approximately 8 m east of the observed/reported seepage feature location.
2. The subsurface stratigraphy encountered at BH 3 consists of a thin layer of topsoil underlain by approximately 3 m of silty gravelly sand, in turn underlain by silty gravelly sand till to the completion depth of the borehole at 5.12 mBGS.

3. The general subsurface stratigraphy observed in borehole at similar topographic elevations and positions on the slope (BH 2 and BH 5) vary from similar silty gravelly sand underlain by silty gravelly sand till at BH 2; to more than 2 m of sandy/sand and gravel fill underlain by a thin deposit of sand and gravel followed by 1 m of silty clay followed by silty gravelly sand to the completion depth of the borehole at 5.18 mBGS.
4. Groundwater conditions encountered at BH 3 consisted of “wet-saturated” conditions reported in the near-surface silty gravelly sand; however, measured moisture content in both the silty gravelly sand and the underlying silty gravelly sand till was 11.2% or less, generally suggesting unsaturated conditions.
5. Groundwater conditions encountered at BH 2 consisted of “moist” deposits reported with measured moisture content in both the silty gravelly sand and the silty gravelly sand till at 8.4% or less, generally suggesting unsaturated conditions.
6. Groundwater conditions encountered at BH 5 consisted of “moist” deposits reported from the ground surface to approximately 4 mBGS, with “wet” conditions reported in the deeper silty gravelly sand deposit. Measured moisture content from samples collected between approximately 1-3 mBGS were 7.6% or less, generally suggesting unsaturated conditions. Measured moisture content from samples collected between approximately 3.5-3.5 mBGS were 15.6-16.3%, generally suggesting wet/saturated conditions.
7. Measured groundwater levels in the monitoring well at BH 5 ranged from 3.50 mBGS (August 24, 2023) to 2.92 mBGS (May 5, 2025).
8. Measured groundwater levels in BH 1 (at the top of the slope) ranged from 2.07 mBGS (August 24, 2023) to 1.31 mBGS (May 5, 2025).
9. Stratigraphic cross sections A-A' and B-B' illustrate the subsurface stratigraphy from the top of the slope to the toe of the slope.
 Cross Section A-A' indicates groundwater several meters below ground surface within silty clay/gravelly sand deposits with no indication of confined or flowing groundwater conditions (based on August 24, 2023 groundwater observations).
 Cross Section B-B' indicates laterally extensive deposits of silty gravelly sand overlying silty gravelly sand till, with no suggestion of a confining layer that could create confined or flowing groundwater conditions.
10. Stratigraphic cross section C-C' illustrates the subsurface stratigraphy across the slope through the approximately location of BH 3, slightly topographically downgradient of the observed/reported seepage feature.
 Cross Section A-A' indicates no confining layer at BH 3; however, a confining layer may exist west of BH 3.
11. The only reported seepage observations occurred on July 24, 2023 and May 5, 2025.
 Seepage was not observed in August 2023 or on November 20, 2023.
12. Based on historical climate information from the closest MECP weather station (Fergus Shand Dam, located approximately 8 km from the subject property), a 6.2 mm precipitation event occurred on July 23, 2023 and an 8.0 mm precipitation event occurred on May 5, 2025.

With measured groundwater levels in the vicinity of the observed/reported seepage area more than 1 mBGS on May 5, 2025 (considered a wetter-than-normal spring season due to the large amount of snowmelt plus precipitation in the earlier Spring), it is anticipated surface water that was observed on the subject property on May 5, 2025 (and July 24, 2023) is not indicative of a persistent groundwater upwelling or seepage feature. The most probable explanation for the observed surface water is ephemeral surficial runoff and/or outflow of upslope near-surface infiltration (i.e. exfiltration) due to the topography of the slope and resulting from wet spring conditions (May 5, 2025) and the previous day's precipitation event (July, 23, 2023).

Based on the available near surface stratigraphic information and groundwater level data it appears unlikely the conditions exist at the subject property to generate flowing groundwater conditions.

We trust that this assessment report satisfies your present requirements, and we thank you for this opportunity to be of service. If you have any questions, or require further hydrogeological consulting services, please feel free to contact the undersigned directly.

Sincerely,

A handwritten signature in blue ink, appearing to read "Chris Helmer", is written over a circular professional seal.

Chris Helmer, B.Sc., P.Geo.
Senior Hydrogeologist
MECP Licensed Well Contractor
www.hydrog.ca



- encl. CMT Engineering Inc. Borehole Logs BH1 through BH5 (May 5, 2025)
- encl. CMT Engineering Inc. Site Plan (May 5, 2025)
- encl. CMT Engineering Inc. Cross Sections B-B' and C-C' (May 7, 2025)



CMT Engineering Inc.
1011 Industrial Crescent, Unit 1
St. Clements, ON, N0B 2M0
Telephone: 519-699-5775

BOREHOLE NUMBER BH1

PAGE 1 OF 1

PROJECT: Proposed Residential Development

PROJECT ADDRESS: 40-60 Emma Street South

PROJECT LOCATION: Grand Valley, ON

PROJECT NUMBER: 23-146

DRILLING DATE: 23-7-24

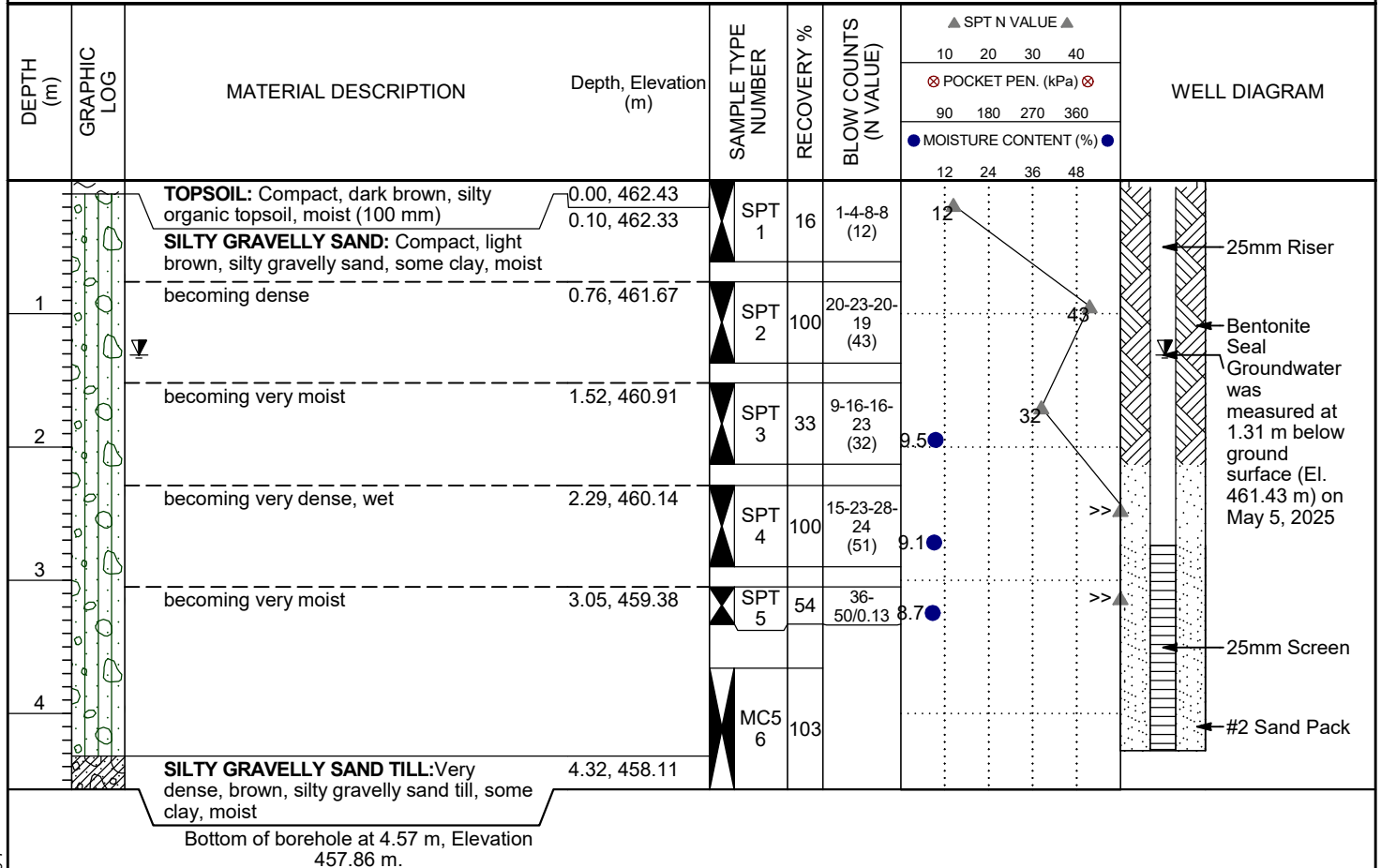
DRILLING CONTRACTOR: CMT Drilling Inc.

DRILLING EQUIPMENT: Geoprobe 7822DT

GROUND ELEVATION: 462.43 m

LOGGED BY: BRF

SAMPLING METHOD: SPT/MC5





CMT ENGINEERING INC.
1011 Industrial Crescent, Unit 1
St. Clements, Ontario N0B 2M0
Telephone: 519-699-5775
Fax: 519-699-4664

BOREHOLE NUMBER BH2

PAGE 1 OF 1

PROJECT: Proposed Residential Development

PROJECT ADDRESS: 40-60 Emma Street South

PROJECT LOCATION: Grand Valley, ON

PROJECT NUMBER: 23-146

DRILLING DATE: 7-24-23

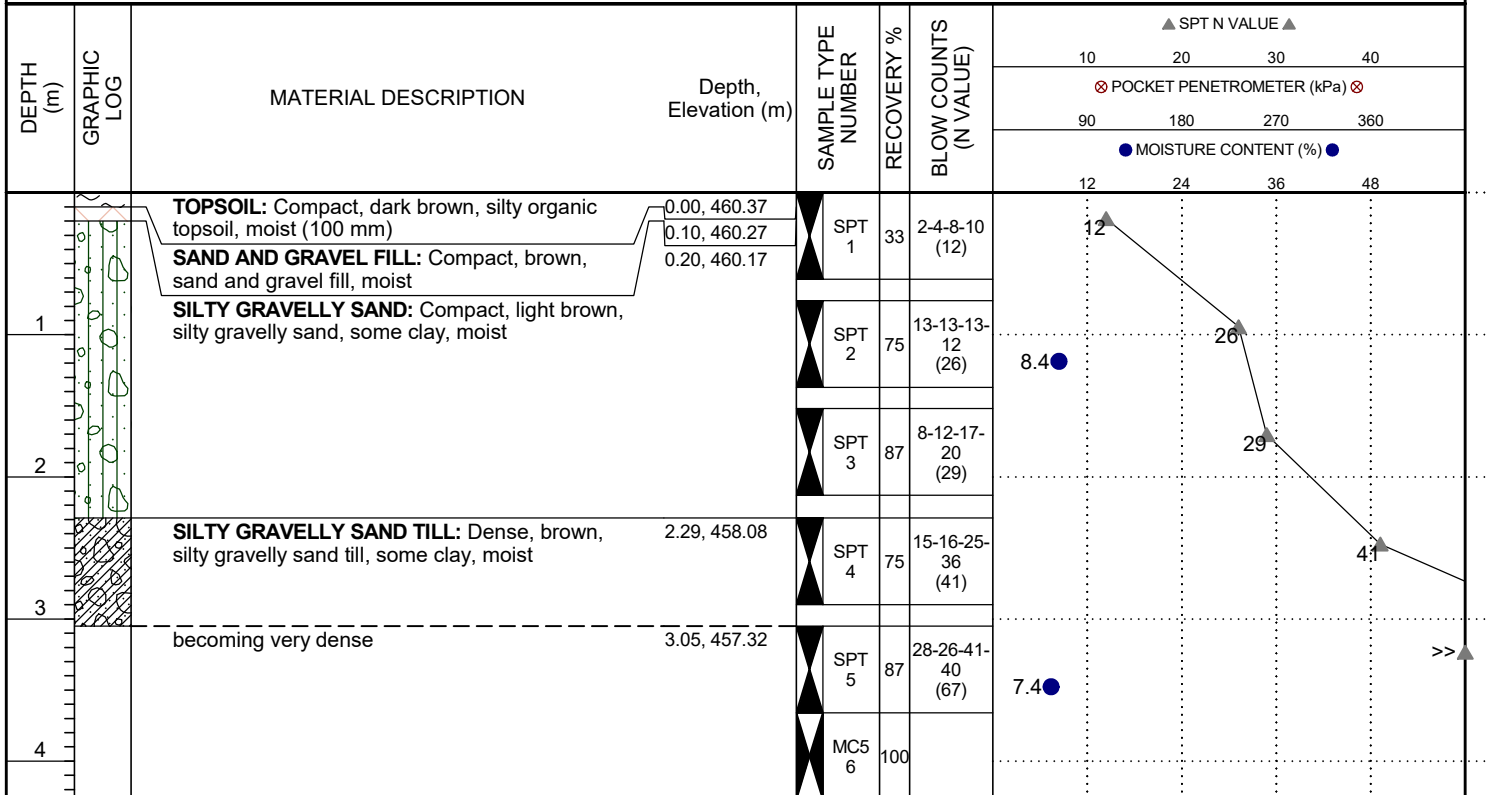
GROUND ELEVATION: 460.37 m

DRILLING CONTRACTOR: CMT Drilling Inc.

LOGGED BY: BRF

DRILLING EQUIPMENT: Geoprobe 7822DT

SAMPLING METHOD: SPT/MC5



Refusal on very dense till was encountered at a depth of 4.27 m (El. 456.10 m) below ground surface. Caving was encountered at a depth of 4.09 m (El. 456.28 m) below ground surface upon completion of the borehole.
Bottom of borehole at 4.27 m, Elevation 456.10 m.



CMT ENGINEERING INC.
1011 Industrial Crescent, Unit 1
St. Clements, Ontario N0B 2M0
Telephone: 519-699-5775
Fax: 519-699-4664

BOREHOLE NUMBER BH3

PAGE 1 OF 1

PROJECT: Proposed Residential Development

PROJECT ADDRESS: 40-60 Emma Street South

PROJECT LOCATION: Grand Valley, ON

PROJECT NUMBER: 23-146

DRILLING DATE: 7-24-23

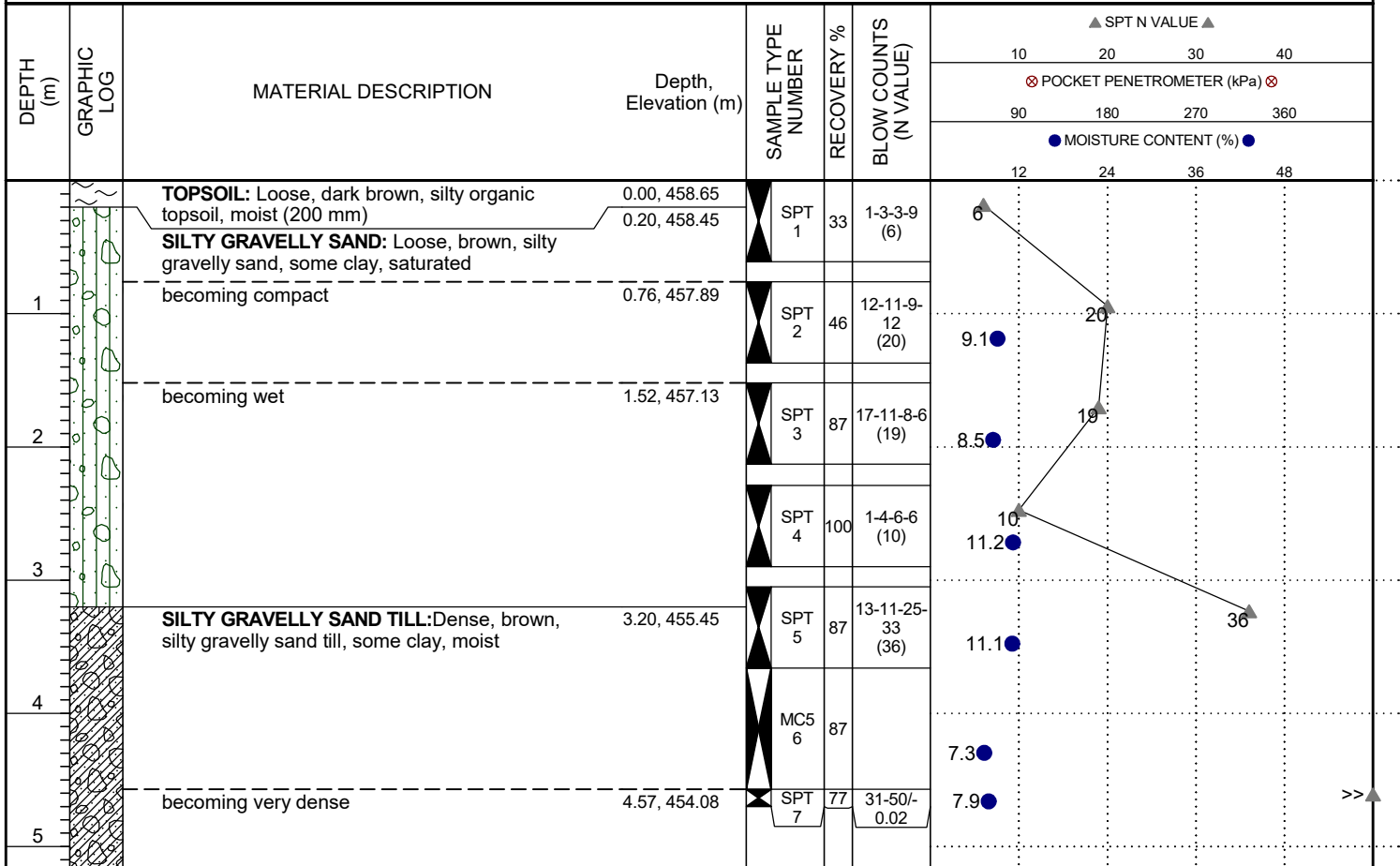
DRILLING CONTRACTOR: CMT Drilling Inc.

DRILLING EQUIPMENT: Geoprobe 7822DT

GROUND ELEVATION: 458.65 m

LOGGED BY: BRF

SAMPLING METHOD: SPT/MC5



Caving was encountered at a depth of 0.61 m (El. 458.04 m) below ground surface upon completion of the borehole.

Bottom of borehole at 5.18 m, Elevation 453.47 m.



CMT ENGINEERING INC.
1011 Industrial Crescent, Unit 1
St. Clements, Ontario N0B 2M0
Telephone: 519-699-5775
Fax: 519-699-4664

BOREHOLE NUMBER BH4

PAGE 1 OF 1

PROJECT: Proposed Residential Development

PROJECT ADDRESS: 40-60 Emma Street South

PROJECT LOCATION: Grand Valley, ON

PROJECT NUMBER: 23-146

DRILLING DATE: 7-24-23

DRILLING CONTRACTOR: CMT Drilling Inc.

DRILLING EQUIPMENT: Geoprobe 7822DT

GROUND ELEVATION: 462.64 m

LOGGED BY: BRF

SAMPLING METHOD: SPT/MC5

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	▲ SPT N VALUE ▲							
							10	20	30	40				
							⊗ POCKET PENETROMETER (kPa) ⊗							
							90	180	270	360				
							● MOISTURE CONTENT (%) ●							
							12	24	36	48				
1		TOPSOIL: Very loose, dark brown, silty organic topsoil, moist (325 mm)	0.00, 462.64	SPT 1	54	2-2-1-2 (3)								
		SILTY SAND FILL: Very loose, brown, silty sand fill, moist	0.33, 462.32											
		becoming loose	0.76, 461.88											
2		SILTY CLAY: Loose, dark brown, silty clay, some sand, trace gravel, moist	1.52, 461.12	SPT 3	100	1-2-3-3 (5)								
		becoming compact	2.29, 460.35											
3		SILTY GRAVELLY SAND: Compact, brown, silty gravelly sand, some clay, wet	2.69, 459.95	SPT 4	100	6-8-7-9 (15)								
4				SPT 5	46	10-5-11-6 (16)								
		becoming saturated	3.66, 458.98											
5				MC5 6	100									
		SILTY GRAVELLY SAND TILL: Dense, brown, silty gravelly sand till, moist	4.57, 458.07											
				SPT 7	49	7-14-33-33 (47)	47▲							

Caving was encountered at a depth of 3.66 m (El. 458.98 m) below ground surface upon completion of the borehole.

Bottom of borehole at 5.18 m, Elevation 457.46 m.



CMT Engineering Inc.
1011 Industrial Crescent, Unit 1
St. Clements, ON, N0B 2M0
Telephone: 519-699-5775

BOREHOLE NUMBER BH5

PAGE 1 OF 1

PROJECT: Proposed Residential Development

PROJECT ADDRESS: 40-60 Emma Street South

PROJECT LOCATION: Grand Valley, ON

PROJECT NUMBER: 23-146

DRILLING DATE: 23-7-24

DRILLING CONTRACTOR: CMT Drilling Inc.

DRILLING EQUIPMENT: Geoprobe 7822DT

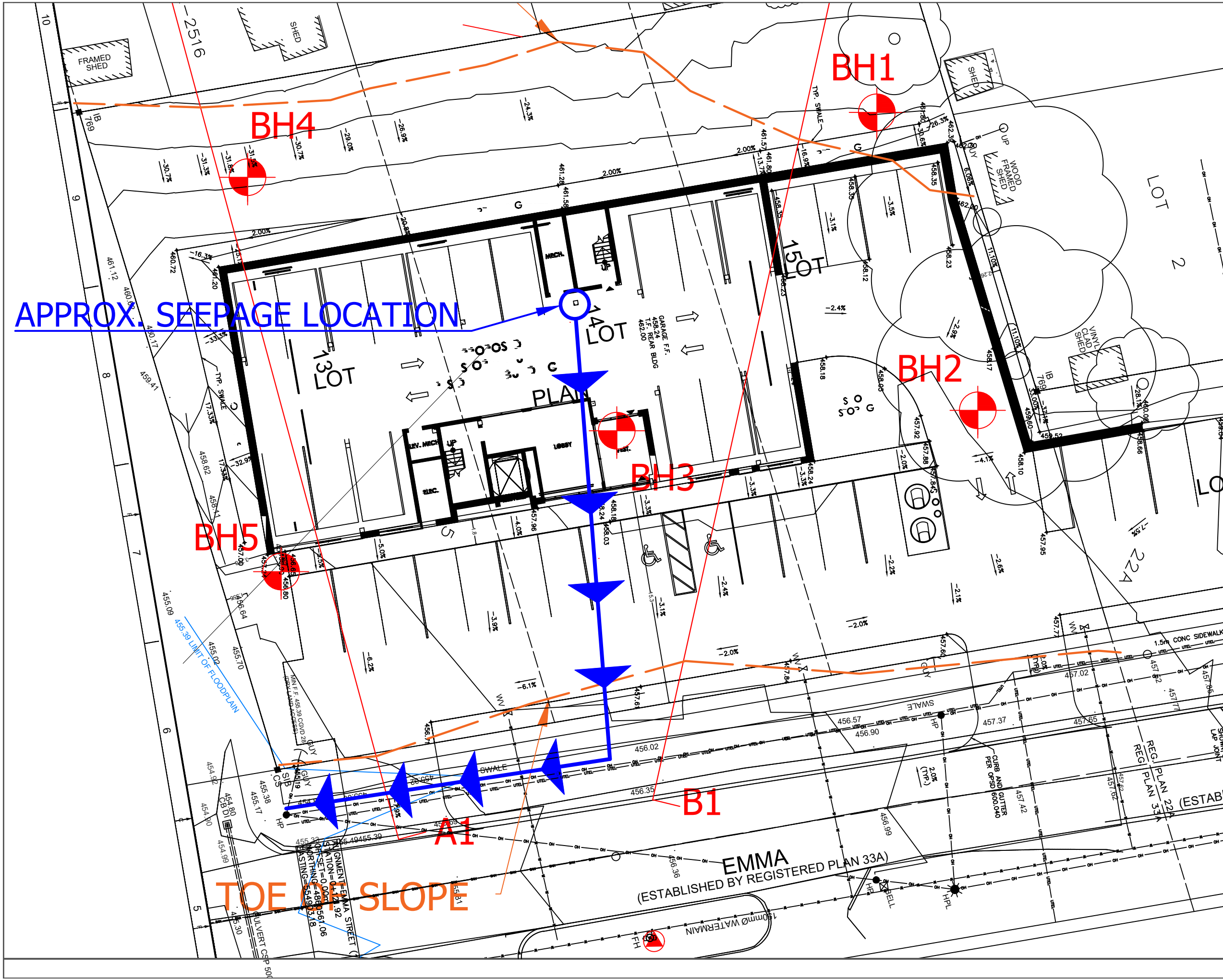
GROUND ELEVATION: 457.60 m

LOGGED BY: BRF

SAMPLING METHOD: SPT/MC5

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	▲ SPT N VALUE ▲				WELL DIAGRAM										
							10	20	30	40											
							⊗ POCKET PEN. (kPa) ⊗														
							90	180	270	360											
							● MOISTURE CONTENT (%) ●														
							12	24	36	48											
1		TOPSOIL: Very loose, dark brown, silty organic topsoil, moist (325 mm)	0.00, 457.60	SPT 1	62	1-1-2-1 (3)	3	13	7.6	5.2	20	39									
		SILTY SAND FILL: Very loose, brown, silty sand fill, moist	0.33, 457.28																		
		SAND AND GRAVEL FILL: Compact, brown, sand and gravel fill, moist	0.76, 456.84																		
2		SAND AND GRAVEL FILL: Compact, brown, sand and gravel fill, moist	0.76, 456.84	SPT 2	33	8-8-5-9 (13)	7.6	13	5.2	20	39	24									
				SPT 3	75	14-13-7-15 (20)															
				SPT 4	46	11-27-12-17 (39)															
3		SILTY SAND FILL: Dense, dark brown, silty sand, moist	2.29, 455.31	SPT 5	100	6-10-14-12 (24)	15.6	24	16.3	24	24	24									
		SAND AND GRAVEL: Dense, brown, sand and gravel, moist	2.36, 455.24																		
		SILTY CLAY: Compact, brown, silty clay, some sand, trace gravel, moist	3.05, 454.55																		
4		SILTY CLAY: Compact, brown, silty clay, some sand, trace gravel, moist	3.05, 454.55	MC5 6	76	7-12-12-12 (24)	16.3	24	24	24	24	24									
				SPT 7	5																
				SPT 7	5	7-12-12-12 (24)	16.3	24	24	24	24	24									
5		SILTY GRAVELLY SAND: Compact, brown, silty gravelly sand, wet	4.04, 453.56																		

Bottom of borehole at 5.18 m, Elevation 452.42 m.



NOTES:

1. DRAWING PROVIDED BY CLIENT

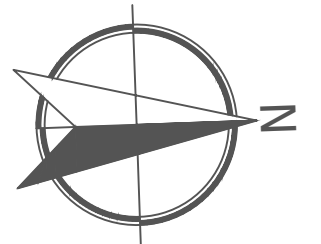
Legend



CMT Borehole - 2023



Temporary Benchmark (TBM)



NO.	DESCRIPTION	DATE
-----	-------------	------

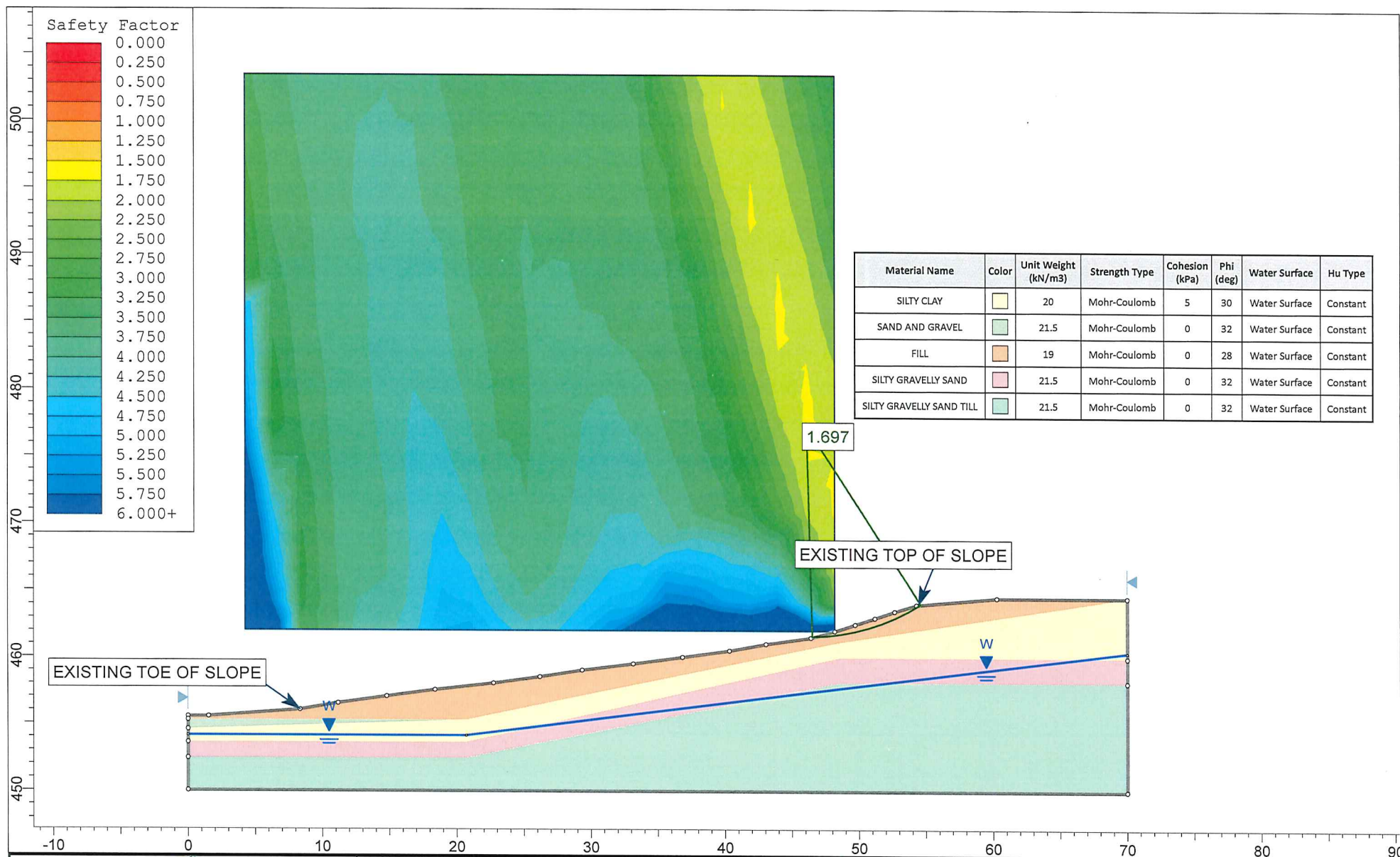
REVISIONS

CMT ENGINEERING INC.
1011 Industrial Crescent, Unit 1
St. Clements, Ontario N0B 2M0
Tel.: 519-699-5775
Fax: 519-699-4664
www.cmtinc.net

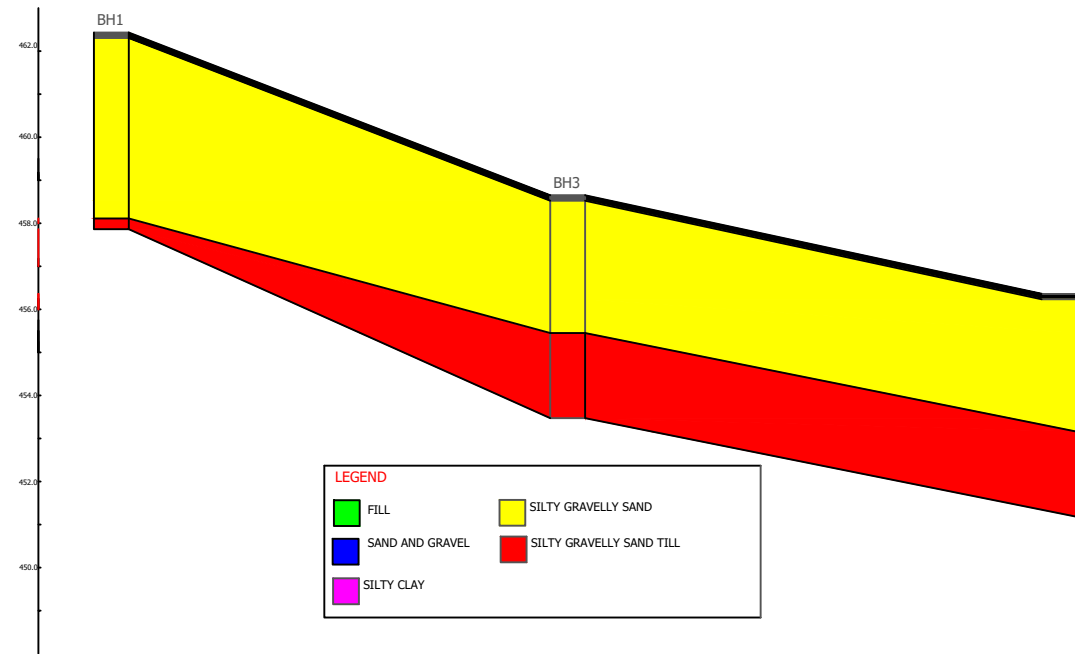
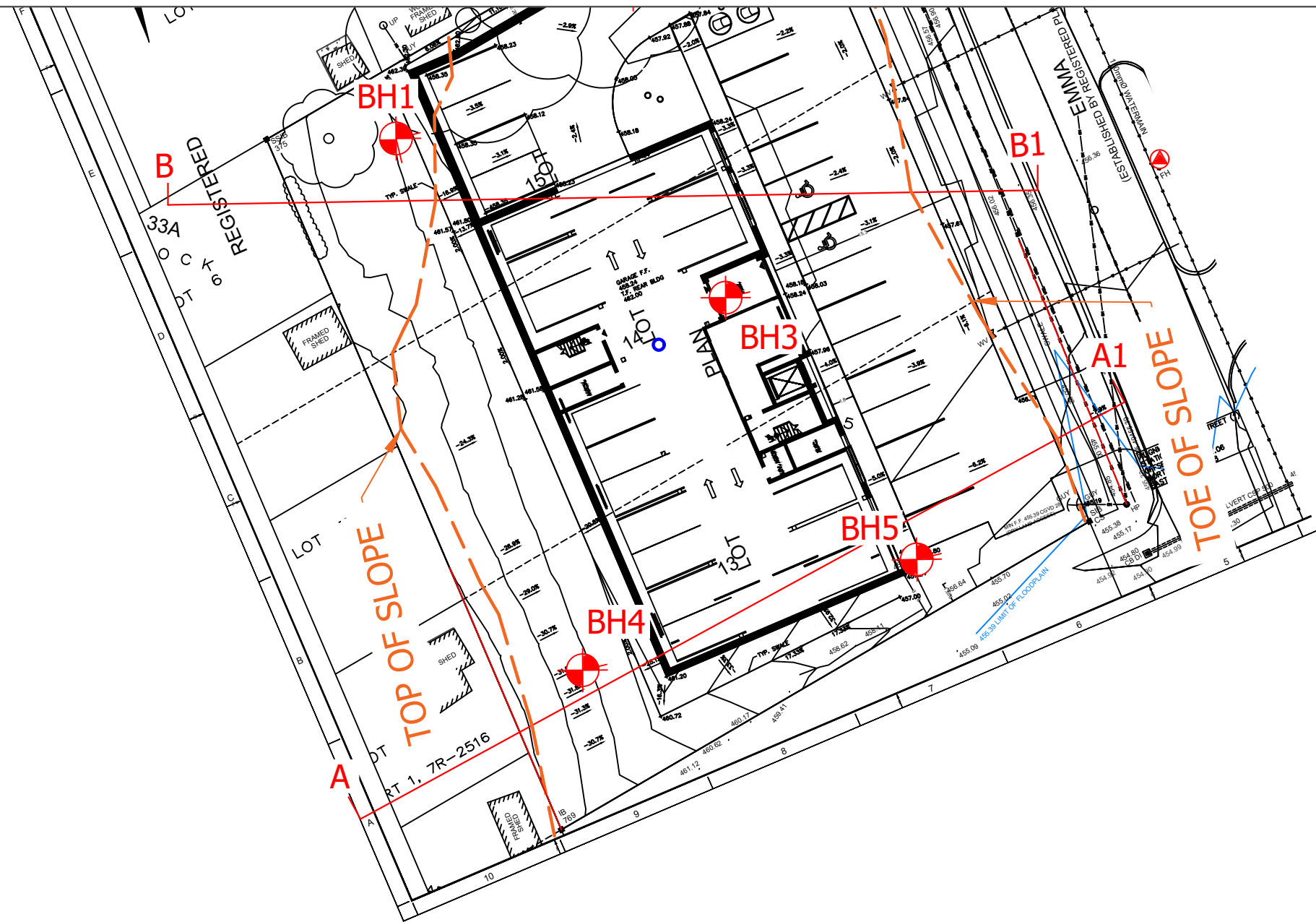
PROJECT: Geotechnical Investigation
Proposed Residential Development
40-60 Emma Street South,
Grand Valley, Ontario

DRAWING TITLE:
SITE PLAN SHOWING
APPROXIMATE SEEPAGE AND FLOW

PROJECT NO.: 23-146	DATE: May 5, 2025
SCALE: N.T.S.	DRAWING NO.: 2





Project				DRAWING 4 - SLOPE CROSS SECTION A-A1			
				SHOWING MINIMUM FACTORS OF SAFETY (LESS THAN 1.5) FOR EXISTING SLOPE CONDITIONS			
Location				40-60 Emma Street South, Grand Valley, ON			
Drawn By		BRF		Scale	1:400	Company	CMT ENGINEERING INC
Date		May 29, 2024				Job Number	23-146



NOTES:

1. CROSS-SECTION AS PER BOREHOLE ELEVATIONS.

LEGEND

-  CMT BOREHOLE (2023)
-  APPROXIMATE SEEPAGE LOCATION

NO.	DESCRIPTION	DATE
-----	-------------	------

REVISIONS

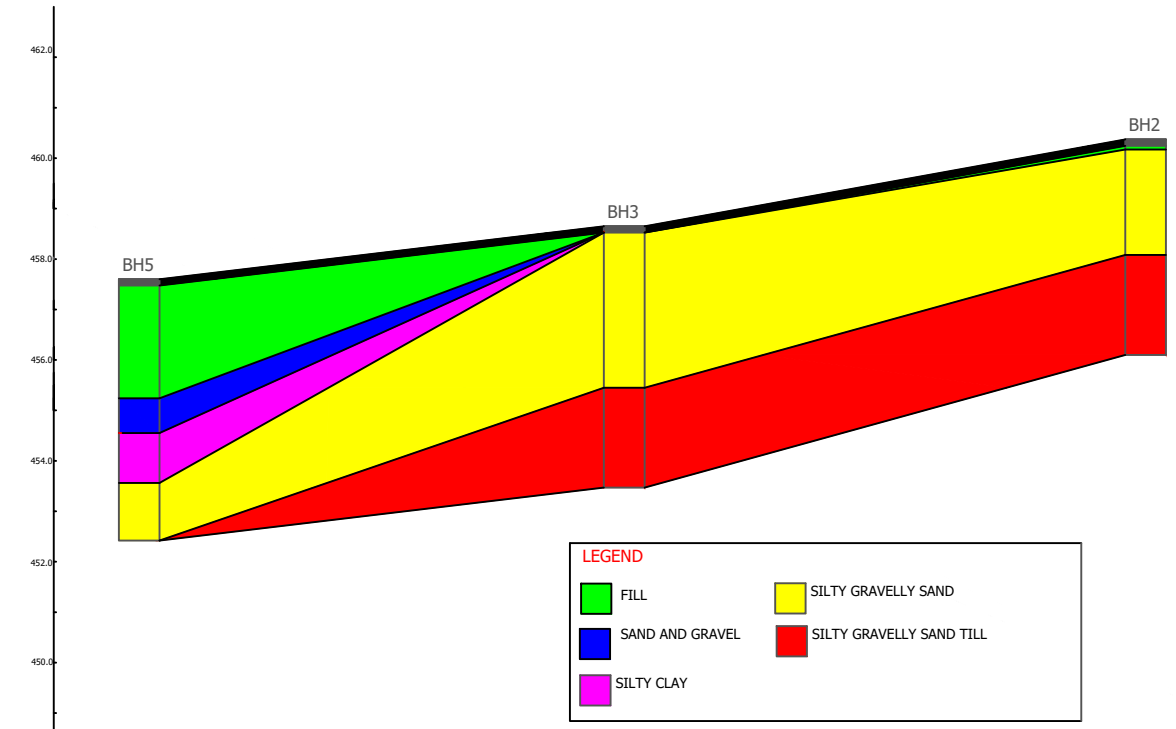
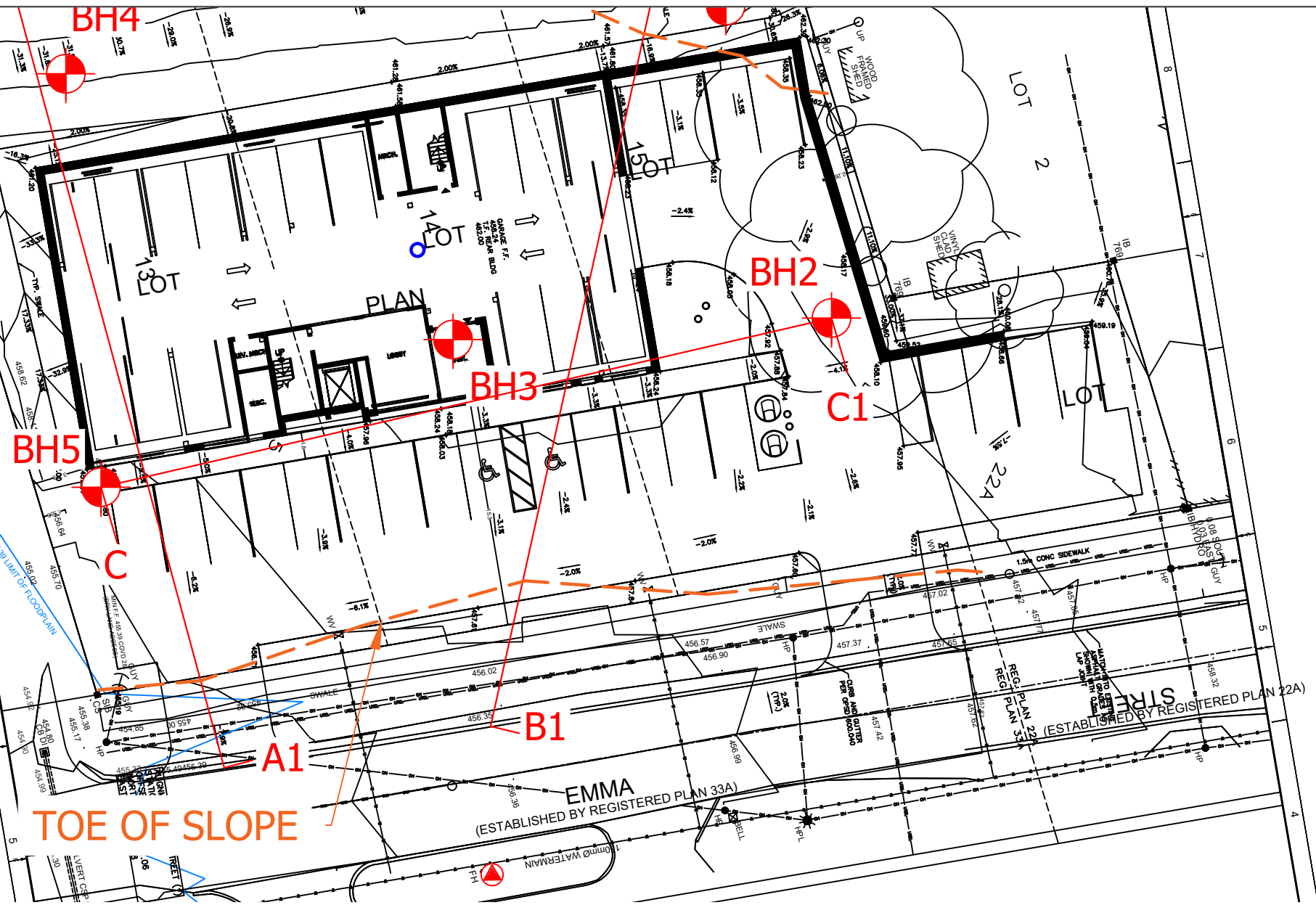


CMT ENGINEERING INC.
1011 Industrial Crescent, Unit 1
St. Clements, Ontario N0B 2M0
Tel.: 519-699-5775
Fax: 519-699-4664
www.cmtinc.net

PROJECT:
GEOTECHNICAL INVESTIGATION & SLOPE
STABILITY ASSESSMENT
PROPOSED RESIDENTIAL DEVELOPMENT
40-60 Emma Street South,
Grand Valley, Ontario

DRAWING TITLE:
**SOIL CHARACTERISTICS
CROSS-SECTION
B-B1**

PROJECT NO.: 23-146	DATE: May 7, 2025
SCALE: N.T.S.	DRAWING NO.: 1



NOTES:

1. CROSS-SECTION AS PER BOREHOLE ELEVATIONS.

LEGEND

- CMT BOREHOLE (2023)
- APPROXIMATE SEEPAGE LOCATION

NO.	DESCRIPTION	DATE

REVISIONS

CMT ENGINEERING INC.
1011 Industrial Crescent, Unit 1
St. Clements, Ontario N0B 2M0
Tel.: 519-699-5775
Fax: 519-699-4664
www.cmtinc.net

PROJECT:
GEOTECHNICAL INVESTIGATION & SLOPE STABILITY ASSESSMENT
PROPOSED RESIDENTIAL DEVELOPMENT
40-60 Emma Street South,
Grand Valley, Ontario

DRAWING TITLE:
SOIL CHARACTERISTICS
CROSS-SECTION
C-C1

PROJECT NO.: 23-146	DATE: May 7, 2025
SCALE: N.T.S.	DRAWING NO.: 2