February 3, 2021 LON-00017018-GE

Ms. Carrie O'Brien
Drewlo Holdings Inc.
P.O. Box 6000
London, Ontario
N0L 1R0

Attention: Ms. O'Brien

Slope Stability Assessment
Proposed Residential Development, Edgevalley Phase 2
Kilally Road, London, Ontario

EXP Services Inc. (EXP) was retained by Drewlo Holdings Inc. to conduct a slope stability assessment for the existing onsite slope and determine the top of stable slope and setback (if any) associated with the proposed residential development at Edgevalley Phase 2 on Kilally Road in London, Ontario (Site). It is understood that the development will consist of detached single-family dwellings and medium-density residential blocks.

A portion of the proposed development area is within an area regulated by the Upper Thames River Conservation Authority (UTRCA). As a result, consent from the Conservation Authority is required prior to establishing the limits of any proposed structures.

Background

EXP is currently conducting a hydrogeological assessment at the Site. The study consisted of advancing boreholes at 10 locations across the Site shown on **Drawing 1** and denoted as BH1 to BH10, inclusive. MW was suffixed to the borehole symbol (BH) at locations where monitoring wells were installed. The borehole depths ranged from 3.5 m below ground surface (bgs) to 17.2 m bgs.

Contour information from the topographic plan provided by MTE was utilized to create the cross sections. For areas outside of the Site boundary topography information was taken from City of London Digital Mapping.

Using engineering judgement and technical experience, various cross sections (which are considered to be representative of typical site conditions) have been reviewed.

Based on an interpretation of the factual borehole data, and a review of soil, groundwater information from test holes excavated at the site, and topography, EXP Services Inc. has provided geotechnical comments and recommendations on the stable top of slope.

Site Reconnaissance

A Site reconnaissance was conducted on January 13, 2021 to examine the condition of the slopes at the Site. The slope profile was reviewed at three locations using the 'Slope Stability Rating Chart' created by the Ontario Ministry of Natural Resources and Forestry (MNRF), which summarizes the Site observations and empirically scores various elements of the slope profile which contribute to slope stability, to provide an assessment of the potential for slope instability at the Site. Rating charts were completed at the critical slope inclinations, as assessed by EXP, indicated as Cross Section A-A', B-B' and C-C' on **Drawings 2, 3** and **4**, appended. The rating charts for the cross sections, which are considered to be representative of the worst-case scenarios of the slope on Site, are appended to this report. Each cross section scored a slope rating indicating a low potential for slope instability with values ranging from 10 to 18.

Quaternary mapping completed by Barnett et. al. (1981) indicates that the quaternary geology for the Site consists of glaciofluvial deposits of sand and gravel from deposits of rivers and delta topset facies. Also present in the vicinity of the Site is the Huron-Georgian Bay lobe of the Tavistock Till. The Tavistock Till consists of sandy silt to silt and silty clay with a moderate to high carbonate content. The Thames River is located over 200 m towards the north of the Site.

The slope on the Site runs through the northern portion of the site and slopes downward to the north. The slope was observed to be very gradual with natural inclinations varying from 3.4H:1V to less than 5H:1V based on the topographic mapping.

The floodplain between the northern boundary of the Site and the Thames River was also investigated. The slope was observed to be very gradual with natural inclinations varying from 3.1H:1V at one location near the north-west corner of the Site to less than 7H:1V along the northern boundary based on City of London topographic mapping.

The elevation drops approximately 19 m across the Site based on the topographic mapping. The slope is generally vegetated with mature trees, grasslands and/or shrubbery. A large stockpile of fill material was observed in the area of BH1 at the north-west corner of the Site. Minor seepage was observed at mid-slope near Cross Section B-B'. Seepage areas will be addressed in the Hydrogeological Investigation under separate cover. However, the seepage was considered in the slope stability modeling as described in the sections below.

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Generalized Slope Soil Stratigraphy

The soils encountered in the boreholes and monitoring wells advanced at the Site as part of the Hydrogeological Assessment were reviewed in the assessment of the Slope and the Borehole Logs are attached.

Boreholes BH1, BH5 and BH6 were located along the crest of the slope.

The borehole locations were surfaced with a layer of topsoil. The topsoil thickness ranged between 100 mm and 250 mm. A 1.4 m thick layer of fill was encountered below the topsoil in borehole BH6.

Underlying topsoil in BH5 was sand and gravel, extending to 4.0 m bgs. The sand and gravel was generally described as brown, with trace silt, coarse grained, dense and damp to wet.

Underlying the topsoil, fill, or sand and gravel in all boreholes was clayey silt till. All boreholes were terminated in the clayey silt till except for BH1/MW, which was terminated in a sand and gravel layer below the clayey silt till. The clayey silt till is generally described as grey with some clay and sand and trace gravel, hard to very stiff, and damp to very moist.

Slope Stability Assessment

Slope stability analyses investigating different Factors of Safety (FOS) were conducted on Cross Section A-A', B-B' and C'-C'. The analyses were undertaken by computer methods utilizing the Slope/W computer program for the three slope profiles. The existing slope geometry was evaluated using the soil and groundwater information from the geotechnical and hydrogeological investigations. The soil parameters used were conservative to build in an added safety factor for the analyses. Loading from buildings and roadways along the slope were accounted for in the analyses.

The minimum FOS was 5.97 for Cross Section A-A', 3.36 for Cross Section B-B' and 3.20 for Cross Section C-C'. These minimum FOS determined are well above the MNRF's Technical Guide recommended minimum FOS of 1.4 for Infrastructure and Public Use.

Development Setback

The existing slope has natural inclinations ranging from 3.4H:1V to flatter than 11H:1V and no water course was observed near the base of the slope. The slope was assessed in accordance with MNRF's Technical Guide – River & Stream Systems: Erosion Hazard Limit (2002) and is considered stable and no development setback, including emergency access allowance, is required from the top or base of the slope.

The existing soil stockpile that is present is anticipated to be regraded to generally match the surrounding slope inclination as this area is anticipated to be developed.

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Conclusions

The Site slopes are generally very gradual with inclinations ranging from 4.3H:1V to flatter than 5H:1V. The Thames River watercourse is located over 200 m towards the north of the base of the slope at the Site. Based on the slope stability analyses the slope is generally stable, no potential erosion hazards were identified, and the slope inclinations are flatter than the criteria outlined in the MNRF's Technical Guide to require any development setback. No development setback from the slope is required for the development from a geotechnical standpoint.

Additional Comments

The Site should be graded such that surface water is directed away from the slope. No water from the table land should be out-letted down the slope.

Water from downspouts and perimeter weeping tile etc. should be collected in a controlled manner and directed away from the slope.

Spoils from any excavation should be removed from the Site. Excavated soils should not be placed over the table land near the crest of slope, unless the soil is placed as engineered structural fill. No net surcharge should be placed on the slope.

During construction, stockpiles of materials, supplies and construction debris should be located away from the slope crest. Additional loading from stockpiled materials should be avoided in proximity to the slope crest.

Debris littering the slope should be removed and vegetation on the slope should be maintained.

Any bare spot or cracks observed at the slope should be revegetated.

A regular maintenance program should be implemented such as tree preservation, grading, and drainage control.

EXP should be contacted to review the final construction and design to verify that the recommendations of this report have been followed.

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General Comments

We trust the above is satisfactory for your present requirement. Should you have any questions regarding this matter, please don't hesitate to contact our office.

Yours very truly,

EXP Services Inc.

Craig Swinson, P. Eng.
Geotechnical Services

Botel M. F. Chiu, M.Eng., P. Eng.
Vice President, Earth and Environment
Southwestern Ontario

Appendices:
Drawing 1 – Cross Section Location Plan
Drawing 2 – Cross Section A – A'
Drawing 3 – Cross Section B – B'
Drawing 4 – Cross Section C – C'
Slope Stability Rating Charts
Slope Stability Analysis Results
EXP Geotechnical Borehole Logs
Limitations and Use of Report

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LIMITATIONS AND USE OF REPORT

BASIS OF REPORT

This report ("Report") is based on site conditions known or inferred by the geotechnical investigation undertaken as of the date of the Report. Should changes occur which potentially impact the geotechnical condition of the site, or if construction is implemented more than one year following the date of the Report, the recommendations of exp may require re-evaluation.

The Report is provided solely for the guidance of design engineers and on the assumption that the design will be in accordance with applicable codes and standards. Any changes in the design features which potentially impact the geotechnical analyses or issues concerning the geotechnical aspects of applicable codes and standards will necessitate a review of the design by exp. Additional field work and reporting may also be required.

Where applicable, recommended field services are the minimum necessary to ascertain that construction is being carried out in general conformity with building code guidelines, generally accepted practices and exp's recommendations. Any reduction in the level of services recommended will result in exp providing qualified opinions regarding the adequacy of the work. exp can assist design professionals or contractors retained by the Client to review applicable plans, drawings, and specifications as they relate to the Report or to conduct field reviews during construction.

Contractors contemplating work on the site are responsible for conducting an independent investigation and interpretation of the borehole results contained in the Report. The number of boreholes necessary to determine the localized underground conditions as they impact construction costs, techniques, sequencing, equipment and scheduling may be greater than those carried out for the purpose of the Report.

Classification and identification of soils, rocks, geological units, contaminant materials, building envelopment assessments, and engineering estimates are based on investigations performed in accordance with the standard of care set out below and require the exercise of judgment. As a result, even comprehensive sampling and testing programs implemented with the appropriate equipment by experienced personnel may fail to locate some conditions. All investigations or building envelope descriptions involve an inherent risk that some conditions will not be detected. All documents or records summarizing investigations are based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated. Some conditions are subject to change over time. The Report presents the conditions at the sampled points at the time of sampling. Where special concerns exist, or the Client has special considerations or requirements, these should be disclosed to exp to allow for additional or special investigations to be undertaken not otherwise within the scope of investigation conducted for the purpose of the Report.

RELIANCE ON INFORMATION PROVIDED

The evaluation and conclusions contained in the Report are based on conditions in evidence at the time of site inspections and information provided to exp by the Client and others. The Report has been prepared for the specific site, development, building, design or building assessment objectives and purpose as communicated by the Client. exp has relied in good faith upon such representations, information and instructions and accepts no responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of any misstatements, omissions, misrepresentation or fraudulent acts of persons providing information. Unless specifically stated otherwise, the applicability and reliability of the findings, recommendations, suggestions or opinions expressed in the Report are only valid to the extent that there has been no material alteration to or variation from any of the information provided to exp.

STANDARD OF CARE

The Report has been prepared in a manner consistent with the degree of care and skill exercised by engineering consultants currently practicing under similar circumstances and locale. No other warranty, expressed or implied, is made. Unless specifically stated otherwise, the Report does not contain environmental consulting advice.

COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment form part of the Report. This material includes, but is not limited to, the terms of reference given to exp by its client ("Client"), communications between exp and the Client, other reports, proposals or documents prepared by exp for the Client in connection with the site described in the Report. In order to properly understand the suggestions, recommendations and opinions expressed in the Report, reference must be made to the Report in its entirety. exp is not responsible for use by any party of portions of the Report.

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Appendix A – Drawings

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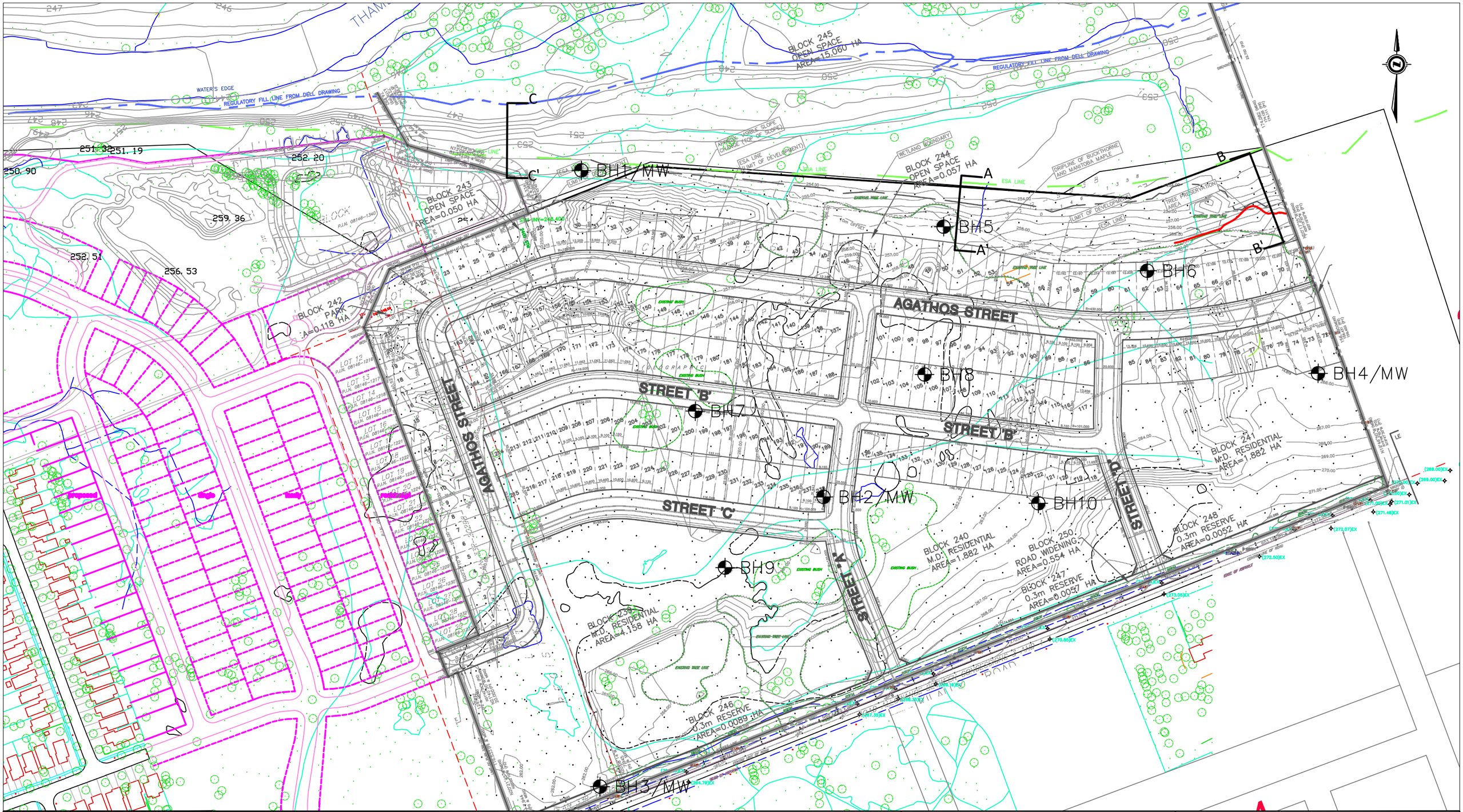


-LEDGEND-

Top of Slope

BH1/MW Approximate Borehole Location

-NOTES-

1. The cross section diagram should be read in conjunction with EXP Slope Stability Assessment LON-00017018-GE.

2. Topographic information within Site boundary provided by MTE.

3. Topographic information outside of Site boundary from City of London base mapping.

4. Development proposal based on information submitted with IPR. Plan adjustments required to accommodate Natural Heritage and City of London Comments.

Slope Assessment

Proposed Residential Development

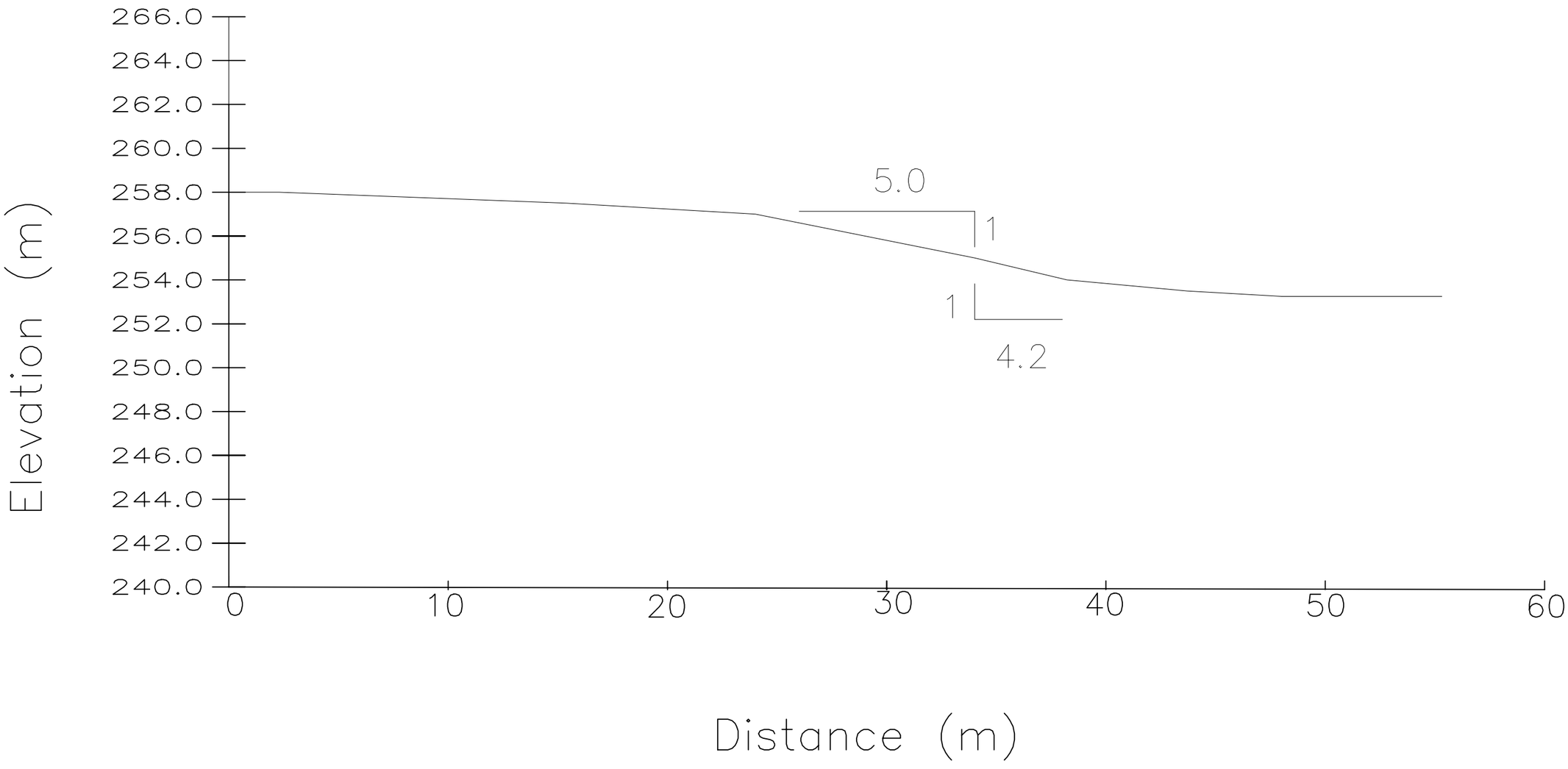
Edgevalley Phase 2
Kilally Road, London, Ontario

CLIENT	Drewlo Holdings Inc.
TITLE	Site Plan
Prepared By: C.S.	Reviewed By: B.C.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

DATE	SCALE	PROJECT NO.	DWG.
JANUARY 2021	1:2,500	LON-00017018-GE	1

CROSS SECTION A-A'



-NOTES-

1. The cross section diagram should be read in conjunction with EXP Slope Assessment Report LON-00017018-GE.

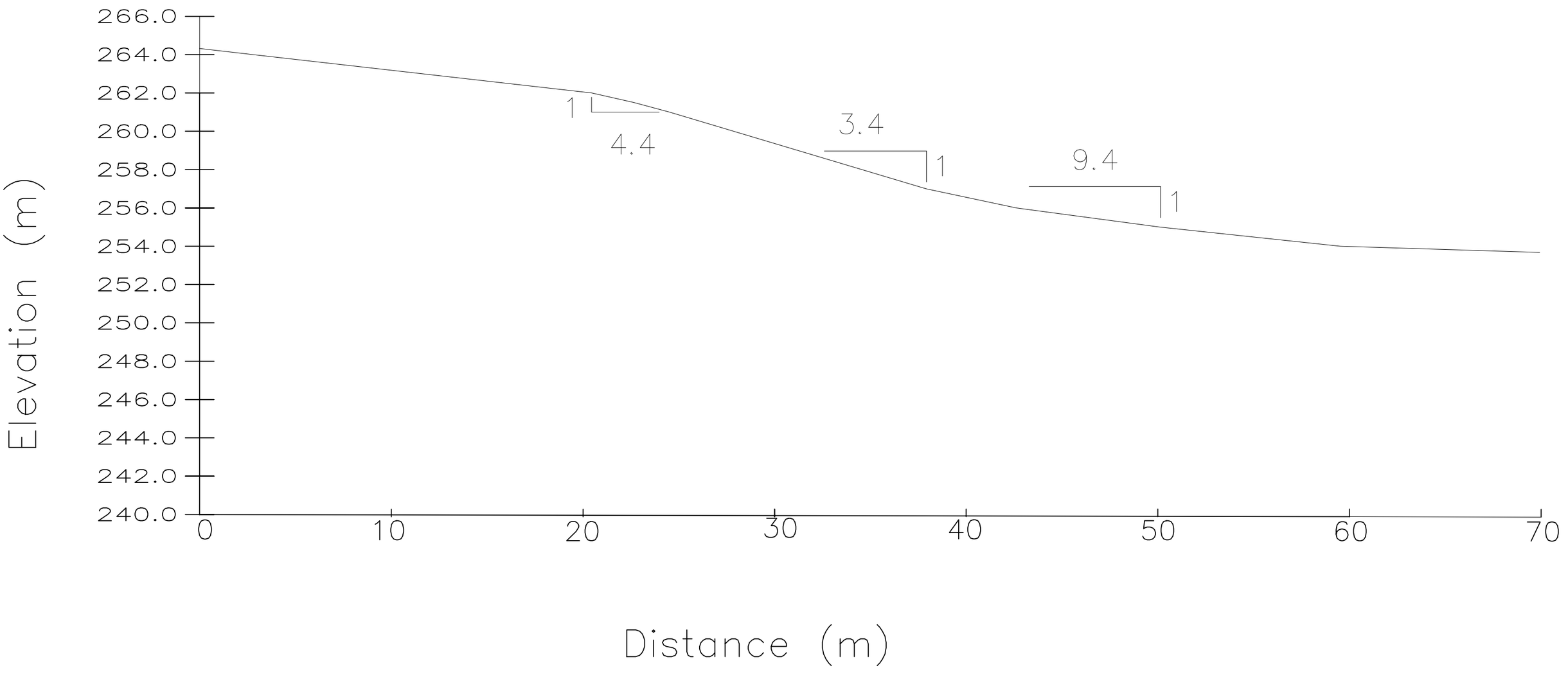
Slope Assessment

Proposed Residential Development

Edgevalley Phase 2
Kilally Road, London, Ontario

CLIENT	Drewlo Holdings Inc.
TITLE	Cross Section A-A'
Prepared By: C.S.	Reviewed By: B.C.
exp.	EXP Services Inc. 15701 Robin's Hill Road, London, ON, N5V 0A5
D-TE: JANUARY 2021	SC-LE: 1:200
PROJECT NO.: LON-00017018-GE	DWG.: 2

CROSS SECTION B-B'



-NOTES-

1. The cross section diagram should be read in conjunction with EXP Slope Assessment Report LON-00017018-GE.

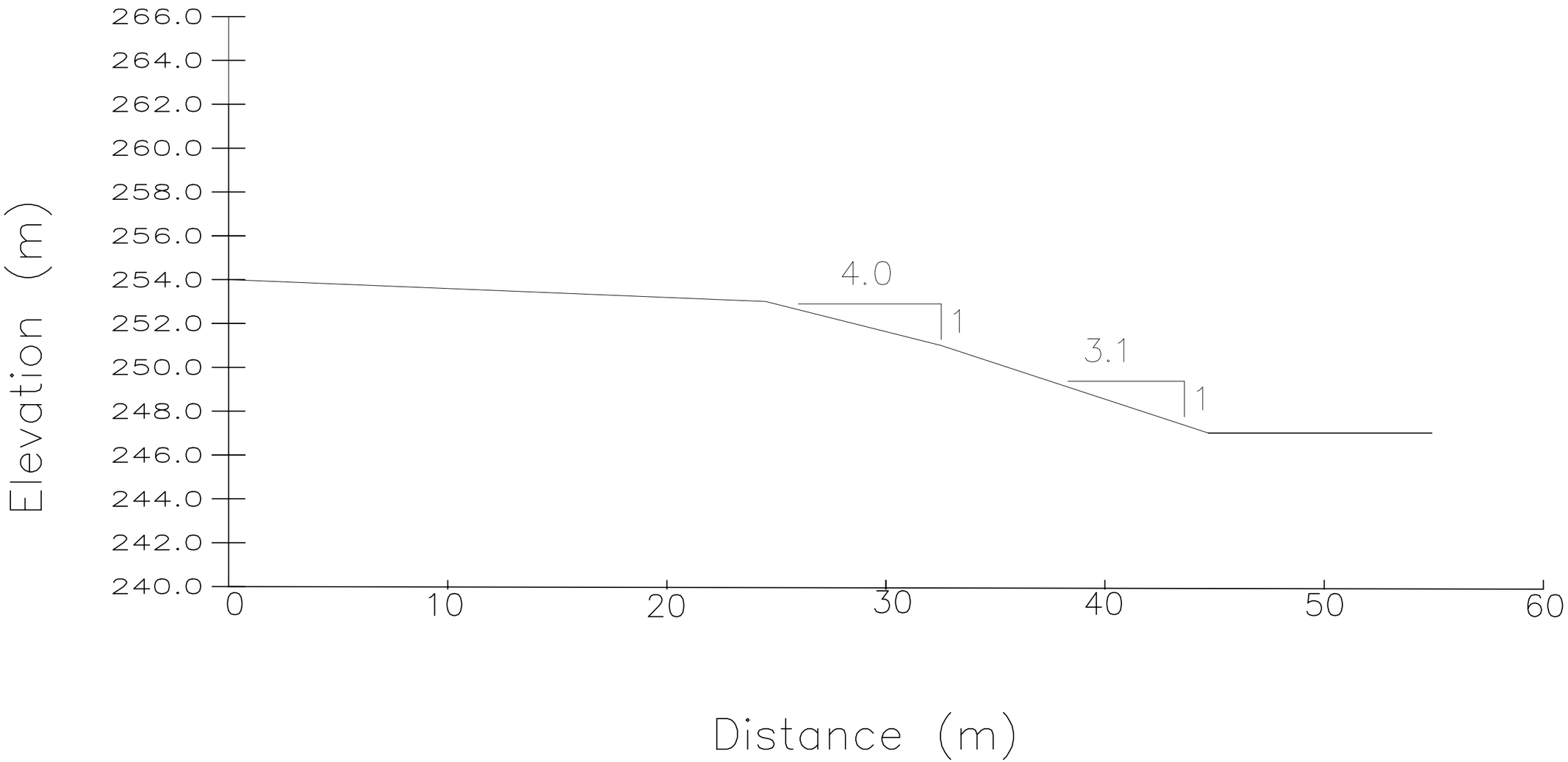
Slope Assessment

Proposed Residential Development

Edgevalley Phase 2
Kilally Road, London, Ontario

CLIENT	Drewlo Holdings Inc.
TITLE	Cross Section B-B'
Prepared By: C.S.	Reviewed By: B.C.
exp	EXP Services Inc. 15701 Robin's Hill Road, London, ON, N5V 0A5
DATE: JANUARY 2021	SCALE: 1:200
PROJECT NO.: LON-00017018-GE	DWG.: 3

CROSS SECTION C-C'



-NOTES-

1. The cross section diagram should be read in conjunction with EXP Slope Assessment Report LON-00017018-GE.

Slope Assessment

Proposed Residential Development

Edgevalley Phase 2
Kilally Road, London, Ontario

CLIENT	Drewlo Holdings Inc.
TITLE	Cross Section C-C'
Prepared By: C.S.	Reviewed By: B.C.
exp	EXP Services Inc. 15701 Robin's Hill Road, London, ON, N5V 0A5
DATE: JANUARY 2021	SCALE: 1:200
PROJECT NO.: LON-00017018-GE	DWG.: 4

Appendix B – Slope Rating Charts

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Slope Stability Rating Chart

Geotechnical Principles for Stable Slopes
Ontario Ministry of Natural Resources

Cross Section A-A

Site Location: Edgevalley Phase 2	**Project No.:** LON-00017018-GE
Town/City: London, ON	**Inspection Date:** Jan 13th, 2021
Inspected by: M. B	**Weather:** Cloudy, 1°C

	Rating Value	Slope Rating
Slope Inclination		
degrees or less (3H:1V or flatter)	0	
to 28 degrees (2H:1V to 3H:1V)	6	**0**
degrees or more (steeper than 2H:1V)	16	
Soil Stratigraphy		
shale / limestone	0	
sand, gravel	6	
till	9	**6**
clay, silt	12	
fill	18	
leda clay	24	
Seepage from Slope Face		
none, or near bottom only	0	
near mid-slope only	6	**0**
near crest only, or from several levels	12	
Slope Height		
2 m or less	0	
2.1 to 5 m	2	**2**
5.1 to 10 m	4	
more than 10 m	8	
Vegetation Cover on Slope Face		
well vegetated: heavy shrubs or forested with mature trees	0	
light vegetation: grass, weeds, occasional trees, shrubs	4	**0**
no vegetation: bare	8	
Table Land Drainage		
table land flat, no apparent drainage over slope	0	
minor drainage over slope, no active erosion	2	**2**
drainage over slope, active erosion, gullies	4	
Proximity of Watercourse to Slope Toe		
15 m or more from slope toe	0	**0**
Less than 15 m from slope toe	6	
Previous Landslide Activity		
No	0	**0**
Yes	6	
Slope Instability Rating		**10**

Low Potential	< 24	Site Inspection only, confirmation, report letter
Slight Potential	25-35	Site Inspection and surveying, preliminary study, detailed report
Moderate Potential	> 35	BH Investigation, piezometers, lab tests, surveying, detailed report

Notes:
Is there is a water body (stream, creek, river, pond, bay, lake) at the toe of slope? **No**
If YES - the potential for toe erosion and undercutting should be evaluated in detail.

Slope Stability Rating Chart

Geotechnical Principles for Stable Slopes
Ontario Ministry of Natural Resources

Cross Section B-B

Site Location: Edgevalley Phase 2	**Project No.:** LON-00017018-GE
Town/City: London, ON	**Inspection Date:** Jan 13th, 2021
Inspected by: M. B	**Weather:** Cloudy, 1°C

	Rating Value	Slope Rating
Slope Inclination		
degrees or less (3H:1V or flatter)	0	
to 28 degrees (2H:1V to 3H:1V)	6	**0**
degrees or more (steeper than 2H:1V)	16	
Soil Stratigraphy		
shale / limestone	0	
sand, gravel	6	
till	9	**6**
clay, silt	12	
fill	18	
leda clay	24	
Seepage from Slope Face		
none, or near bottom only	0	
near mid-slope only	6	**6**
near crest only, or from several levels	12	
Slope Height		
2 m or less	0	
2.1 to 5 m	2	**4**
5.1 to 10 m	4	
more than 10 m	8	
Vegetation Cover on Slope Face		
well vegetated: heavy shrubs or forested with mature trees	0	
light vegetation: grass, weeds, occasional trees, shrubs	4	**0**
no vegetation: bare	8	
Table Land Drainage		
table land flat, no apparent drainage over slope	0	
minor drainage over slope, no active erosion	2	**2**
drainage over slope, active erosion, gullies	4	
Proximity of Watercourse to Slope Toe		
15 m or more from slope toe	0	**0**
Less than 15 m from slope toe	6	
Previous Landslide Activity		
No	0	**0**
Yes	6	
Slope Instability Rating		**18**

Low Potential	< 24	Site Inspection only, confirmation, report letter
Slight Potential	25-35	Site Inspection and surveying, preliminary study, detailed report
Moderate Potential	> 35	BH Investigation, piezometers, lab tests, surveying, detailed report

Notes:
Is there is a water body (stream, creek, river, pond, bay, lake) at the toe of slope? **No**
If YES - the potential for toe erosion and undercutting should be evaluated in detail.

Slope Stability Rating Chart

Geotechnical Principles for Stable Slopes
Ontario Ministry of Natural Resources

Cross Section C-C

Site Location: Edgevalley Phase 2	**Project No.:** LON-00017018-GE
Town/City: London, ON	**Inspection Date:** Jan 13th, 2021
Inspected by: M. B	**Weather:** Cloudy, 1°C

	Rating Value	Slope Rating
Slope Inclination		
degrees or less (3H:1V or flatter)	0	
to 28 degrees (2H:1V to 3H:1V)	6	**0**
degrees or more (steeper than 2H:1V)	16	
Soil Stratigraphy		
shale / limestone	0	
sand, gravel	6	
till	9	**9**
clay, silt	12	
fill	18	
leda clay	24	
Seepage from Slope Face		
none, or near bottom only	0	
near mid-slope only	6	**0**
near crest only, or from several levels	12	
Slope Height		
2 m or less	0	
2.1 to 5 m	2	**4**
5.1 to 10 m	4	
more than 10 m	8	
Vegetation Cover on Slope Face		
well vegetated: heavy shrubs or forested with mature trees	0	
light vegetation: grass, weeds, occasional trees, shrubs	4	**0**
no vegetation: bare	8	
Table Land Drainage		
table land flat, no apparent drainage over slope	0	
minor drainage over slope, no active erosion	2	**2**
drainage over slope, active erosion, gullies	4	
Proximity of Watercourse to Slope Toe		
15 m or more from slope toe	0	**0**
Less than 15 m from slope toe	6	
Previous Landslide Activity		
No	0	**0**
Yes	6	
Slope Instability Rating		**15**

Low Potential	< 24	Site Inspection only, confirmation, report letter
Slight Potential	25-35	Site Inspection and surveying, preliminary study, detailed report
Moderate Potential	> 35	BH Investigation, piezometers, lab tests, surveying, detailed report

Notes:
Is there is a water body (stream, creek, river, pond, bay, lake) at the toe of slope? **No**
If YES - the potential for toe erosion and undercutting should be evaluated in detail.

Appendix C – Slope Stability Analysis Results

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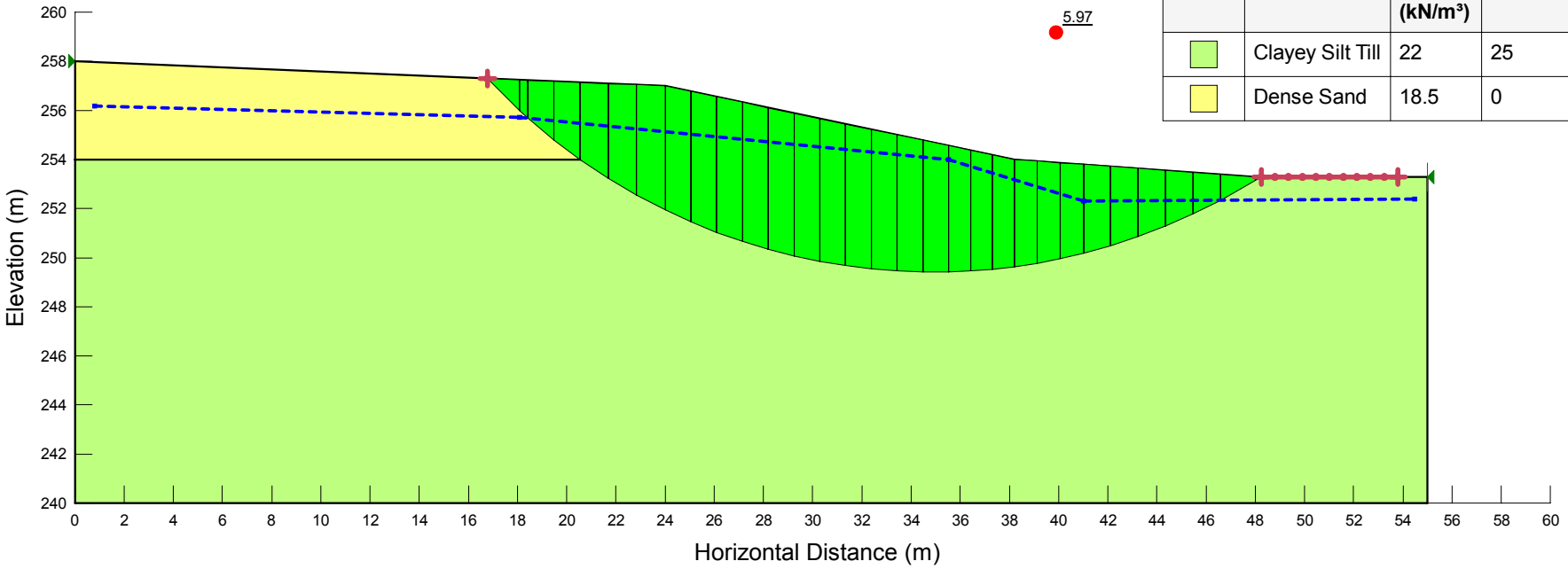
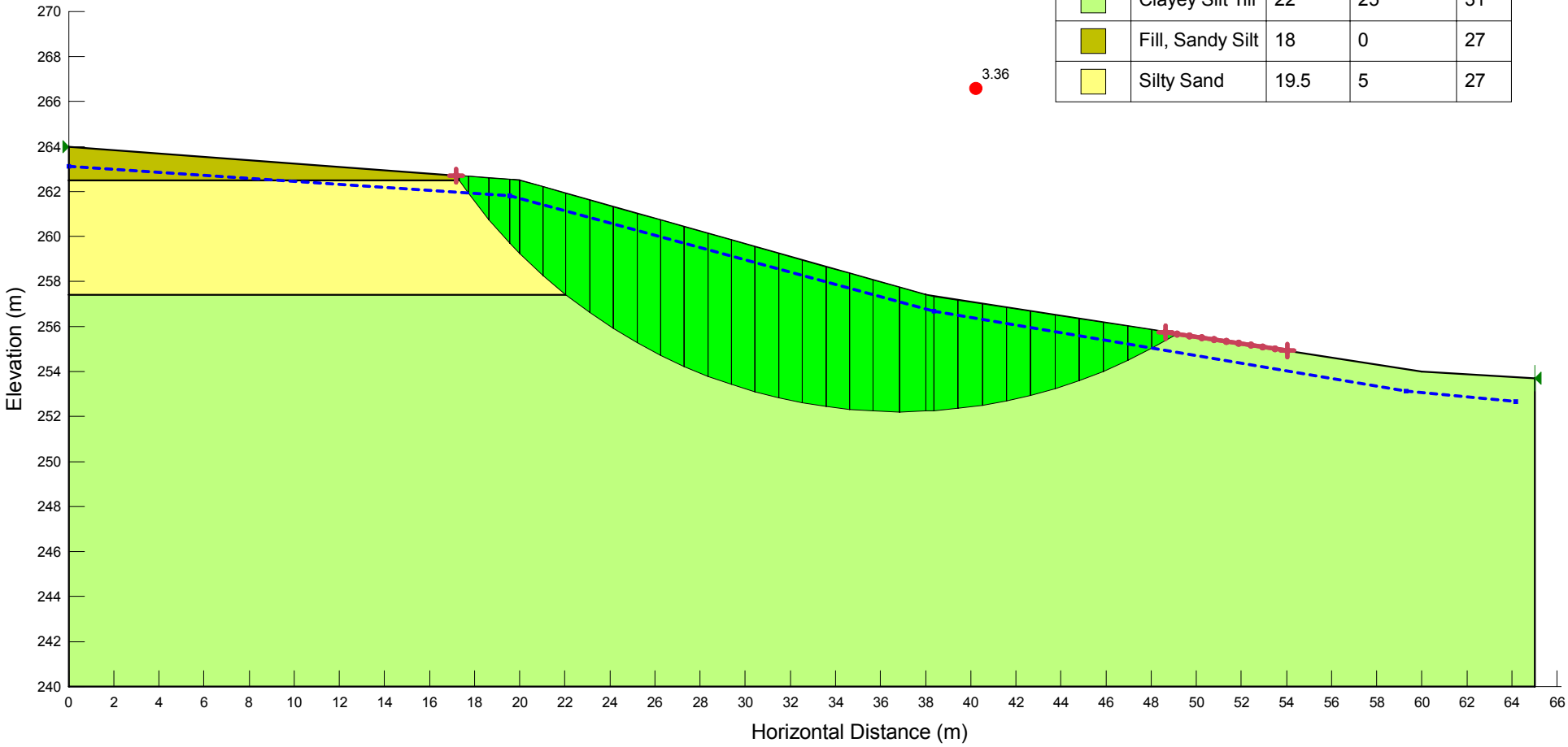
Cross Section A-A'

Color	Name	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)
	Clayey Silt Till	22	25	31
	Dense Sand	18.5	0	33



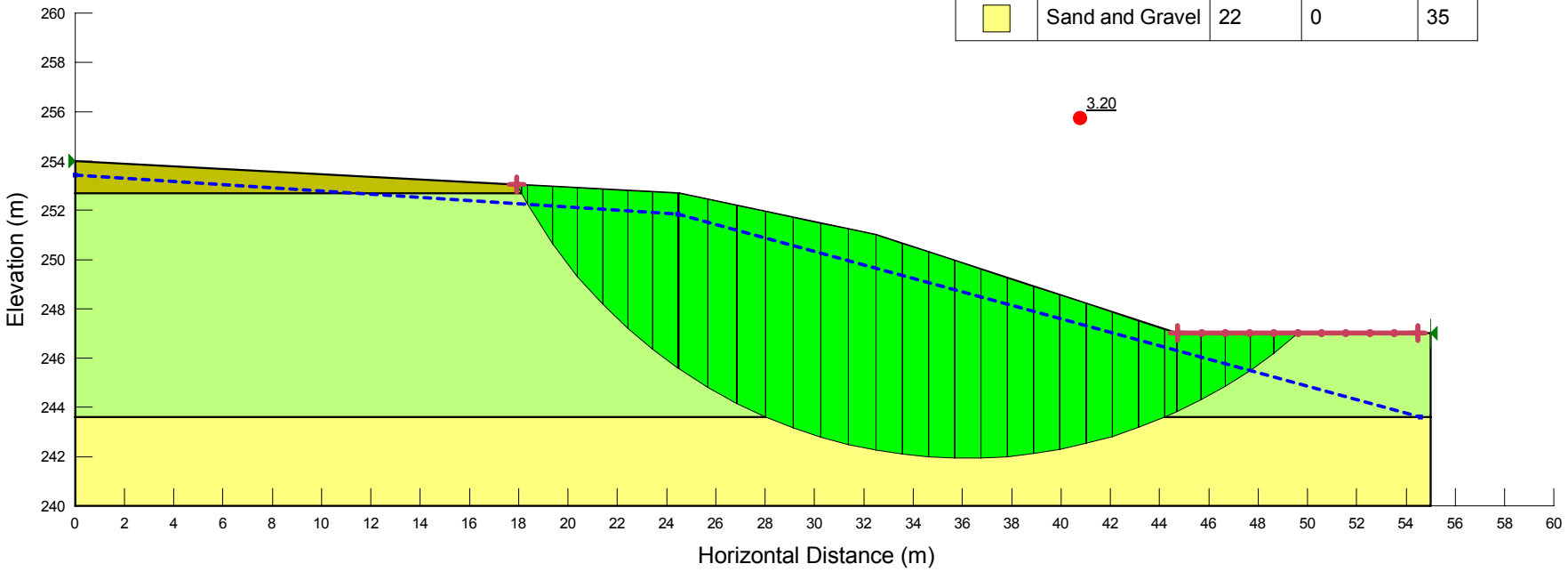
Cross Section B-B'

Color	Name	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)
	Clayey Silt Till	22	25	31
	Fill, Sandy Silt	18	0	27
	Silty Sand	19.5	5	27



Cross Section C-C'

Color	Name	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)
	Clayey Silt Till	22	25	31
	Fill, Sandy Silt	18	0	27
	Sand and Gravel	22	0	35



Appendix D – Borehole Logs

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BOREHOLE LOG

BH1/MW
Sheet 1 of 1

CLIENT **Drewlo Holdings Inc.** PROJECT NO. **LON-00017018-GE**

PROJECT **Edge Valley Subdivision Phase 2** DATUM **Geodetic**

LOCATION **London, ON** DATES: Boring **April 17, 2019** Water Level **May 24/19**

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	BULK DENSITY (kN/m3)	SAMPLES TYPE	NUMBER	RECOVERY (mm)	N VALUE (blows)	MOISTURE CONTENT (%)
0	255.11								
	255.01	**TOPSOIL** - lightly vegetated, 100 mm							
1		**FILL** - sandy silt, dark brown, trace organics, weathered, very loose to loose, moist			SS	S1	100	1	14
	253.28								
2		**CLAYEY SILT TILL** - grey, some sand, trace fine gravel, some cobbles, firm to hard, damp to moist			SS	S2	175	7	22
					SS	S3	400	12	12
3					SS	S4	450	19	11
4									
5		- wet sand and gravel layer encountered near 4.9 m bgs			SS	S5	300	35	9
		- wet gravel layer encountered near 5.5 m bgs							
6		- cobbles encountered from 6.1 m bgs to 7.6 m bgs			SS	S6	300	42	13
7									
8					SS	S7	250	50 *	15
9					SS	S8	200	45	12
10									
	244.21								
11		**SAND AND GRAVEL** - grey, coarse grained, very dense, wet							
12					SS	S9	100	50**	4
13									
14	240.94				SS	S10	150	50**	9
		End of Borehole at 14.2 m bgs.							
15									
16									
17									
18									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Triaxial Tests
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON00017018GE.
2) Borehole was open and dry upon completion of drilling.
3) bgs denotes below ground surface.
4) No significant methane gas concentration was detected upon completion of drilling.
5) * denotes 50 blows for 130 mm split spoon sampler penetration.
6) ** denotes 50 blows for 100 mm split spoon sampler penetration.
8) Water Level Measurements

Date	Depth to Water (m bgs)	Water Level Elevation (mASL)
May 24, 2019	11.34	243.2

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

BOREHOLE LOG

BH2
Sheet 1 of 1

CLIENT **Drewlo Holdings Inc.** PROJECT NO. **LON-00017018-GE**

PROJECT **Edge Valley Subdivision Phase 2** DATUM **Assumed**

LOCATION **London, ON** DATES: Boring **April 25, 2019** Water Level

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	BULK DENSITY (kN/m3)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	N VALUE (blows)	MOISTURE CONTENT (%)	SHEAR STRENGTH / Atterberg Limits and Moisture
0	261.50									✤ S Field Vane Test (#=Sensitivity) ▲ Penetrometer ■ Triaxial Tests; 40 80 kPa; W_P W W_L; ● SPT N Value × Dynamic Cone; 10 20 30 40
1	260.13	**FILL** - clayey silt, black/grey, trace sand, trace organics, lightly vegetated, stripped surface, very stiff		▽	SS	S1	200	20		
2		**CLAYEY SILT TILL** - grey, some clay, trace fine gravel, very stiff to hard, moist			SS	S2	400	26		
3	257.99				SS	S3	450	37		
4		**End of Borehole at 3.5 m bgs.**			SS	S4	450	29		
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON00017018-GE.
2) Borehole was open to 1.8 m bgs and groundwater encountered near 0.6 m bgs upon completion of drilling.
3) bgs denotes below ground surface.
4) No significant methane gas concentration was detected upon completion of drilling.

SAMPLE LEGEND
☒ AS Auger Sample ▨ SS Split Spoon ■ ST Shelby Tube
▯ Rock Core (eg. BQ, NQ, etc.) ▯ VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
▽ Apparent ▼ Measured ▲ Artesian (see Notes)

BOREHOLE LOG

BH3/MW
Sheet 1 of 1

CLIENT **Drewlo Holdings Inc.** PROJECT NO. **LON-00017018-GE**

PROJECT **Edge Valley Subdivision Phase 2** DATUM **Geodetic**

LOCATION **London, ON** DATES: Boring **April 26, 2019** Water Level **May 24/19**

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	BULK DENSITY (kN/m3)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)	SHEAR STRENGTH / Atterberg Limits and Moisture
	264.80									S Field Vane Test (#=Sensitivity); Penetrometer; Triaxial Tests; 40; 80 kPa; W_P W W_L; SPT N Value; Dynamic Cone; 10; 20; 30; 40
0	264.50	**TOPSOIL** - 300 mm								
1		**FILL** - clayey silt, black/grey, trace sand, trace gravel, trace organics			AS	S1				
2	262.06									
3		**SAND AND GRAVEL** - brown, coarse grained, some silt, some fine sand layering, compact, wet			SS	S2	300	18		
4					SS	S3	300	14		
5	259.24				SS	S4	400	14		
6	258.25	**CLAYEY SILT TILL** - grey, trace sand, stiff, moist			SS	S5	450	13		
7		**End of Borehole at 6.6 m bgs.**								
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON00017018-GE.
2) Borehole was open and dry upon completion of drilling.
3) bgs denotes below ground surface.
4) No significant methane gas concentration was detected upon completion of drilling.
5) Water Level Measurements

Date	Depth to Water (m bgs)	Water Level Elevation (mASL)
May 24, 2019	3.70	260.9

SAMPLE LEGEND
AS Auger Sample; SS Split Spoon; ST Shelby Tube; Rock Core (eg. BQ, NQ, etc.); VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
Apparent; Measured; Artesian (see Notes)

BOREHOLE LOG

BH4/MW
Sheet 1 of 1

CLIENT **Drewlo Holdings Inc.** PROJECT NO. **LON-00017018-GE**

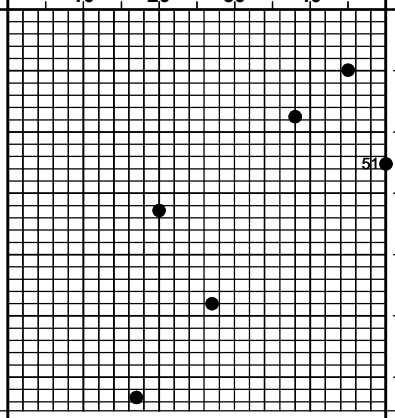
PROJECT **Edge Valley Subdivision Phase 2** DATUM **Geodetic**

LOCATION **London, ON** DATES: Boring **April 25, 2019** Water Level **May 24/19**

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	BULK DENSITY (kN/m3)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)
0	266.03								
0	265.78	**TOPSOIL** - 250 mm							
1		**SAND AND GRAVEL** - brown, coarse grained, trace to some silt, dense to very dense, damp to moist			SS	S1	250	45	
2					SS	S2	300	38	
3					SS	S3	400	51	
4					SS	S4	400	20	
4	261.61				AS	S5			
5		**SAND** - brown, coarse grained, trace gravel, compact, very moist to wet			SS	S6	450	27	
6	259.78								
6	259.48	**CLAYEY SILT TILL** - grey, some sand, very stiff, moist			SS	S7	450	17	
7		**End of Borehole at 6.6 m bgs.**							
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Triaxial Tests
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value × Dynamic Cone
10 20 30 40



NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON00017018-GE.
2) Borehole was open and dry upon completion of drilling.
3) bgs denotes below ground surface.
4) No significant methane gas concentration was detected upon completion of drilling.
5) Water Level Measurements

Date	Depth to Water (m bgs)	Water Level Elevation (mASL)
May 24, 2019	5.06	260.9

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

BOREHOLE LOG

BH5
Sheet 1 of 1

CLIENT **Drewlo Holdings Inc.** PROJECT NO. **LON-00017018-GE**

PROJECT **Edge Valley Subdivision Phase 2** DATUM **Assumed**

LOCATION **London, ON** DATES: Boring **April 25, 2019** Water Level

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	BULK DENSITY (kN/m3)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	N VALUE (blows)	MOISTURE CONTENT (%)	SHEAR STRENGTH / Atterberg Limits and Moisture
0	257.50									S Field Vane Test (#=Sensitivity); Penetrometer; Triaxial Tests; 40 80 kPa; W_P W W_L; SPT N Value; Dynamic Cone; 10 20 30 40
0	257.25	**TOPSOIL** - 250 mm								
1		**SAND** - brown, some gravel, trace silt, coarse grained, some fine sand layering, dense, damp to moist			SS	S1	200	30		
2					SS	S2	300	47		
3		- cobble encountered near 2.4 m bgs			SS	S3	150	50 *		
3		- becoming wet near 3.0 m bgs			SS	S4	300	37		
4	253.46									
4		**CLAYEY SILT TILL** - grey, some sand, some gravel, hard, moist								
5	252.47				SS	S5	450	30		
5		**End of Borehole at 5.0 m bgs.**								
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON00017018-GE.
2) Borehole was open to 3.1 m bgs and dry upon completion of drilling.
3) bgs denotes below ground surface.
4) No significant methane gas concentration was detected upon completion of drilling.
5) * denotes 50 blows for 100 mm split spoon sampler penetration.

SAMPLE LEGEND
AS Auger Sample; SS Split Spoon; ST Shelby Tube; Rock Core (eg. BQ, NQ, etc.); VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
Apparent; Measured; Artesian (see Notes)

BOREHOLE LOG

BH6/MW
Sheet 1 of 1

CLIENT **Drewlo Holdings Inc.** PROJECT NO. **LON-00017018-GE**

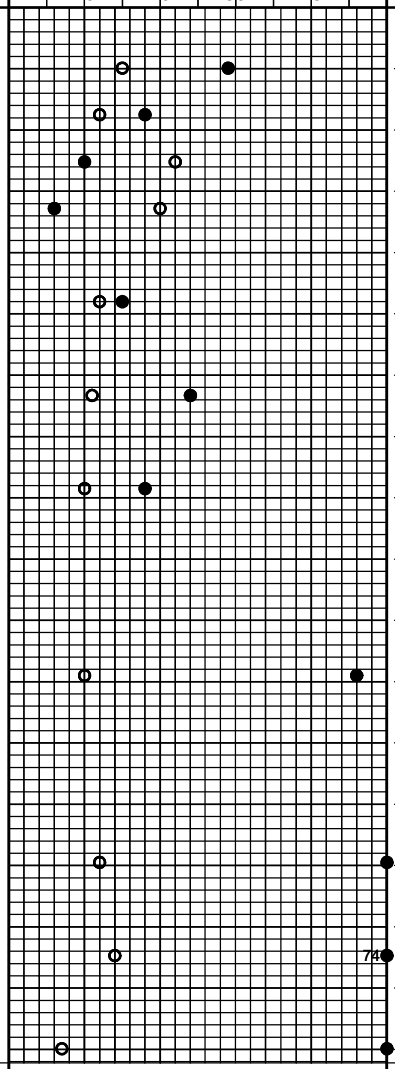
PROJECT **Edge Valley Subdivision Phase 2** DATUM **Geodetic**

LOCATION **London, ON** DATES: Boring **April 18, 2019** Water Level **May 24/19**

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	BULK DENSITY (kN/m3)	SAMPLES TYPE	NUMBER	RECOVERY (mm)	N VALUE (blows)	MOISTURE CONTENT (%)
	261.45								
0	261.35	**TOPSOIL** - lightly vegetated, 100 mm							
		FILL - sandy silt, dark brown, some clay, trace organics, compact, moist			SS	S1	200	29	15
1	260.08								
	259.77	**CLAYEY SILT** - brown, some sand, very stiff			SS	S2	300	18	12
2		**SILTY SAND** - brown, fine grained, dilatant, loose to compact, moist to wet			SS	S3	300	10	22
3	258.20				SS	S4	400	6	20
		CLAYEY SILT - grey, firm, wet							
4	257.41								
		CLAYEY SILT TILL - grey, some sand, trace fine gravel, very stiff to hard, damp to very moist			SS	S5	450	15	12
5									
6					SS	S6	450	24	11
7									
8					SS	S7	450	18	10
9		- cobbles encountered from 9.1 m bgs to 15.2 m bgs							
10									
11					SS	S8	400	46	10
12									
13									
14					SS	S9	350	50*	12
15		- coarse grained, wet sand layering encountered from 15.2 m bgs to 16.8 m bgs			SS	S10	300	74	14
16									
17	244.23				SS	S11		50**	7
		End of Borehole at 17.2 m bgs.							
18									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Triaxial Tests
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value × Dynamic Cone
10 20 30 40



NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON00017018GE.
2) Borehole was open and dry upon completion of drilling.
3) bgs denotes below ground surface.
4) No significant methane gas concentration was detected upon completion of drilling.
5) * denotes 50 blows for 130 mm split spoon sampler penetration.
6) ** denotes 50 blows for 100 mm split spoon sampler penetration.
7) Water Level Measurements

Date	Depth to Water (m bgs)	Water Level Elevation (mASL)
May 24, 2019	8.30	253.1

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

BOREHOLE LOG

BH7
Sheet 1 of 1

CLIENT **Drewlo Holdings Inc.** PROJECT NO. **LON-00017018-GE**

PROJECT **Edge Valley Subdivision Phase 2** DATUM **Assumed**

LOCATION **London, ON** DATES: Boring **April 25, 2019** Water Level

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	BULK DENSITY (kN/m3)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)	SHEAR STRENGTH / Atterberg Limits and Moisture
	259.80									♣ S Field Vane Test (#=Sensitivity) ▲ Penetrometer ■ Triaxial Tests; 40 80 kPa; W_P W W_L; ● SPT N Value × Dynamic Cone; 10 20 30 40
0	259.55	**TOPSOIL** - 250 mm								
1		**FILL** - clayey silt, black/brown, trace sand, trace organics, loose, very moist			SS	S1	300	4		
2	257.67	- cobble or boulder encountered near 1.5 m bgs			SS	S2	50	50*		
3		**CLAYEY SILT TILL** - grey, some sand, trace fine gravel, very stiff, moist			SS	S3	450	21		
4				▽	SS	S4	450	26		
5	254.77				SS	S5	450	28		
		End of Borehole at 5.0 m bgs.								
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON00017018-GE.
2) Borehole was open to 4.6 m bgs and groundwater encountered near 4.3 m bgs upon completion of drilling.
3) bgs denotes below ground surface.
4) No significant methane gas concentration was detected upon completion of drilling.
5) * denotes 50 blows for 50 mm split spoon sampler penetration.

SAMPLE LEGEND
☒ AS Auger Sample ▨ SS Split Spoon ■ ST Shelby Tube
▯ Rock Core (eg. BQ, NQ, etc.) ▯ VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
▽ Apparent ▼ Measured ▲ Artesian (see Notes)

BOREHOLE LOG

BH8/MW
Sheet 1 of 1

CLIENT **Drewlo Holdings Inc.** PROJECT NO. **LON-00017018-GE**

PROJECT **Edge Valley Subdivision Phase 2** DATUM **Geodetic**

LOCATION **London, ON** DATES: Boring **April 17, 2019** Water Level **May 24/19**

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	BULK DENSITY (kN/m3)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)
0	258.60								
	258.47	**GRAVEL** - 130 mm							
1		**CLAYEY SILT TILL** - grey, trace to some sand, some fine gravel, trace cobbles, stiff to very stiff, moist to very moist			SS	S1	300	15	12
2					SS	S2	450	21	12
3					SS	S3	400	24	12
4					SS	S4	450	17	12
5					SS	S5	400	25	11
6					SS	S6	100	47	11
7									
8		- wet sand layering encountered from 7.9 m bgs to 11.6 m bgs			SS	S7	400	24	8
9									
10					SS	S8	300	14	10
11					SS	S9	250	19	10
12									
	245.95				SS	S10	300	28	11
13		**End of Borehole at 12.7 m bgs.**							
14									
15									
16									
17									
18									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Triaxial Tests
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value × Dynamic Cone
10 20 30 40

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON00017018-GE.
2) Borehole was open and dry upon completion of drilling.
3) bgs denotes below ground surface.
4) No significant methane gas concentration was detected upon completion of drilling.
5) Water Level Measurements

Date	Depth to Water (m bgs)	Water Level Elevation (mASL)
May 24, 2019	2.78	256.4

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

BOREHOLE LOG

BH9
Sheet 1 of 1

CLIENT **Drewlo Holdings Inc.** PROJECT NO. **LON-00017018-GE**

PROJECT **Edge Valley Subdivision Phase 2** DATUM **Assumed**

LOCATION **London, ON** DATES: Boring **April 25, 2019** Water Level

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	BULK DENSITY (kN/m3)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	N VALUE (blows)	MOISTURE CONTENT (%)
0	261.40								
	261.05	**TOPSOIL** - 350 mm							
1		**CLAYEY SILT TILL** - grey, some clay, some gravel, some silt layering, very stiff to hard, moist to very moist			SS	S1	450	22	
2					SS	S2	400	33	
3		- possible cobble encountered near 2.4 m bgs			SS	S3	200	50 *	
					SS	S4	450	39	
4		- possible cobble encountered near 4.0 m bgs							
	256.37				SS	S5	450	48	
5		**End of Borehole at 5.0 m bgs.**							
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Triaxial Tests
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON00017018-GE.
2) Borehole was open to 4.6 m bgs and dry upon completion of drilling.
3) bgs denotes below ground surface.
4) No significant methane gas concentration was detected upon completion of drilling.
5) * denotes 50 blows for 80 mm split spoon sampler penetration.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

BOREHOLE LOG

BH10
Sheet 1 of 1

CLIENT **Drewlo Holdings Inc.** PROJECT NO. **LON-00017018-GE**

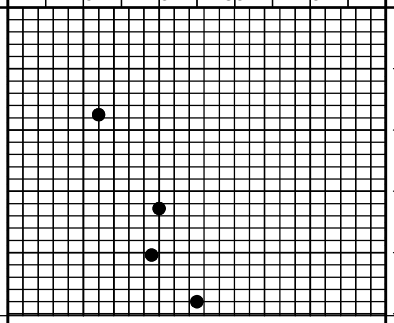
PROJECT **Edge Valley Subdivision Phase 2** DATUM **Assumed**

LOCATION **London, ON** DATES: Boring **April 25, 2019** Water Level

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	BULK DENSITY (kN/m3)	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	N VALUE (blows)	MOISTURE CONTENT (%)
0	265.50	**FILL** - clayey silt, black/grey, trace gravel, some organics, lightly vegetated, stripped surface, loose to compact, very moist			AS	S1			
1									
2				▽	SS	S2		12	
3	262.45								
	262.25	**SAND AND GRAVEL** - brown, coarse grained, compact, wet			SS	S3	300	20	
	261.84	**CLAYEY SILT** - brown, some sand, very stiff, moist							
4					SS	S4	450	19	
5	260.47	**CLAYEY SILT TILL** - grey, some sand, very stiff, moist			SS	S5	450	25	
		End of Borehole at 5.0 m bgs.							
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									

SHEAR STRENGTH
✤ S Field Vane Test (#=Sensitivity)
▲ Penetrometer ■ Triaxial Tests
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
● SPT N Value × Dynamic Cone
10 20 30 40



NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON00017018-GE.
2) Borehole was open to 3.4 m bgs and groundwater encountered near 2.4 m bgs upon completion of drilling.
3) bgs denotes below ground surface.
4) No significant methane gas concentration was detected upon completion of drilling.

SAMPLE LEGEND
☒ AS Auger Sample ▨ SS Split Spoon ■ ST Shelby Tube
▯ Rock Core (eg. BQ, NQ, etc.) ▯ VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
▽ Apparent ▼ Measured ▲ Artesian (see Notes)