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Peterborough, Ontario K9H 1E7  
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www.ghd.com



Our ref: 12662438

27 February 2026

Vargas P Inc.  
c/o Michael Testaguzza  
The Biglieri Group Ltd.  
2472 Kingston Road  
Toronto, Ontario M1N 1V3

**Re: Erosion Hazard Limit Assessment – 963 County Road 10, Cavan-Monaghan, Ontario**

Dear Mr. Testaguzza:

## 1. Introduction

GHD Limited (GHD) was retained by Vargas P Inc. (the Client), represented by you, to conduct an Erosion Hazard Limit Assessment (EHLA) at the property located at 963 County Road 10, Cavan-Monaghan, Ontario (the Site). The Site location is illustrated on the attached **Site Location Plan, Figure 1**. GHD previously completed the following reports for proposed residential and commercial development at this Site:

- Hydrogeological and Geotechnical Assessment – Proposed Residential and Commercial Development, Fallis Line, Millbrook, Ontario, dated June 24, 2025.
- Phase One Environmental Site Assessment, Proposed Development, Fallis Line, Township of Cavan-Monaghan, Ontario.

This assessment has been performed to evaluate the location of developmental setbacks based on potential erosion hazards associated with the slopes located along the north and south side of the tributary of Baxter Creek (the Creek) located in the central portion of the Site. This report has been prepared to summarize the results of the EHLA performed for the property lands north and south of the Creek on Site.

## 2. Project Background

GHD received a topographic survey plan from IBW Surveyors (File Name: A-025649-Topo\_V2.dwg, dated February 19, 2021). The Draft Plan of Subdivision (Drawing No. DP-01, dated June 18, 2025) is currently available.

An Erosion Hazard Assessment study is required to assess the potential for loss of land due to erosion at a site, where a development is proposed, and which abuts a natural water body. The purpose of this assessment was to determine the appropriate setback limits for future development on the Site that will protect the development from the erosion hazard along its boundary in proximity of the slope. An erosion setback is a sum of the results of the following three (3) components:

- a. Stable top of slope.
- b. Toe erosion.
- c. Emergency access (determined by the local Conservation Authority).

The opinions described herein are based on an assessment performed in accordance with the ORCA's "Watershed Planning & Regulation Policy & Procedures Manual", 2025, and the Ontario Ministry of Natural Resources (MNR's) "Technical Guide - River & Stream Systems: Erosion Hazard Limit", 2002 (hereafter referred to as the Guidelines).

### 3. Geology

The Site is situated in the physiographic region known as the Peterborough Drumlin Field (Chapman and Putnam, 1984). Locally, the Site is identified to be within a sand plain.

The surficial geology indicates the Site consists of stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain. Quaternary geology of this area is defined as organic deposits, consisting of peat, muck and marl.

GHD's earlier geotechnical studies near the Creek suggest that till material may extend down to the elevation of the Creek. For this assessment, soil profile at the Site is composed of native sandy silt till material.

### 4. Setback Evaluation

The setback evaluation consisted of an initial Site visit, and a stable top of slope evaluation, as discussed in the following sections.

#### 4.1 Visual Inspection and Slope Stability Rating

A GHD geotechnical engineer visited the Site and visually inspected the slope conditions on November 19, 2025. Site photographs taken during the Site inspection are included as **Attachment 1**.

A total of six locations were inspected as part of the Site inspection. The locations are identified as Section A-A', Section B-B', Section C-C', Section D-D', Section E-E', and Section F-F'. The locations of these sections are identified on the attached **Cross-Section Location Plan, Figure 2**.

The slope inclinations were visually assessed during the slope inspection and verified using the topographic information provided by the Client. All of the slopes inspected were measured to be 3 Horizontal (H): 1 Vertical (V) or flatter. The slope heights were measured to range from between 2.1 to 5 m in Section B-B' and Section D-D' to 5.1 to 10 m in the remaining Sections.

Based on the previously completed geotechnical investigation, the Site Soils at the slopes are expected to consist of compact silty sand overlying stiff to very stiff cohesive till. There was no observed seepage from any of the slope faces.

According to the visual slope inspection, the distance between the water channel and the slope toe varies across the Site, measuring less than 15 meters at all six (6) cross-section locations. The slope crest and face are typically well vegetated containing various mature trees and bushes. The channel did not show signs of active erosion. No signs of mass slope instability were observed during the Site visit, such as slope bulging, mass sloughing or tension cracks within or above the slope.

Based on the results of the Site inspection and the geological conditions from the background information available for the Site, GHD conducted a Slope Stability Rating for the slopes along the six (6) cross-section

locations. The slope stability rating was conducted in accordance with the requirements of the Guideline. The rating chart for these slopes are provided in **Attachment 2**. A rating value of 19 was obtained for Section B-B' and Section D-D', and a rating value of 21 was obtained for the remaining four (4) slopes.

According to the MNR Guidelines, a slope with a rating of less than 24 has a low instability potential, and no further study is required. According to the guidelines a slope stability component and a toe erosion component for the setback is not required. For this assignment, GHD carried out a slope stability assessment of the most critical slope at the Site (cross-section A-A) to verify the stability of the current slope conditions and to determine the stable slope inclination for the Site.

## 4.2 Stable Top of Slope Evaluation

### 4.2.1 Global Stability Evaluation

In order to determine the global stability of the slope at the selected cross-section locations, a global stability analysis was carried out. Global stability refers to the potential of a slope to undergo a relatively deep-seated circular failure. The subsurface stratigraphy was selected based on background information reviewed including the Hydrogeological and Geotechnical Assessment report previously completed by GHD.

### 4.2.2 Analysis Methodology and Software

The static slope stability analysis was performed with the Morgenstern & Price Method using the module Slope/W of the computer software Geo-Studio, developed and distributed by Geo Slope International Ltd.

### 4.2.3 Material Properties

The properties required for the slope stability analysis are the bulk densities and shear strength parameters of the materials identified at the Site. Based on background information reviewed, the soil profile at the Site is composed of native sandy silt till material.

The material parameters assigned to the soils in the slope stability analysis are provided on the slope stability models presented in **Attachment 3**. The selected parameters are considered conservative while realistic based on the expected soils, published technical literature and our experience with similar materials.

### 4.2.4 Piezometric Conditions

Piezometric groundwater surfaces can affect the results of the slope stability analyses if they pass through the soil mass above the critical slip circle / plane. For the purpose of this analysis, the groundwater was reasonably assumed to follow the dashed blue line shown on the slope stability models, matching the water level recorded for Creek.

### 4.2.5 Minimum Factors of Safety

A factor of safety (FS) in slope stability analysis can be defined as the ratio of the available shear strength to that of the applied stresses along a potential failure plane. A factor of safety of 1.0 or greater indicates stable conditions and a value of less than 1.0 represents unstable conditions. Typically, a target factor of safety between 1.3 and 1.5 is considered reasonable for natural slopes, under static conditions. For the purposes of this study a minimum factor of safety of 1.5 was targeted.

### 4.2.6 Slope Stability Evaluation Results

Cross-section A-A with rating value of 21 is considered the most critical for the Site and was selected for the slope stability evaluation. The location for cross-sections A-A' and is shown on **Figure 2**. The graphical output

of the slope stability analysis is provided on **Attachment C**. The minimum factor of safety (FS) obtained for the modelled cross sections A-A' at its existing conditions is 2.1 (**Attachment 3.1**). The minimum FS yielded by this analysis indicates that the existing slope is stable, with an actual FS greater than the targeted factor of safety of 1.5. Additionally, a theoretical slope with inclination of 2 Horizontal (H) to 1 Vertical (V) was modeled (**Attachment 3.2**) and meets the targeted minimum 1.5 FS.

Based on the analytical results of these cross-sections, it is concluded that a slope with an inclination of 2H:1V or flatter can be considered stable from a global stability perspective. For planning purposes, it is recommended that a slope with an inclination of 2H:1V should be considered globally stable, and the top of such slope should be considered the stable top of a slope for planning purposes.

### 4.3 Toe Erosion Allowance

The erosion allowance was determined in accordance with the MNR Guidelines, that apply if the channel is within 15 m of a slope toe, which is the case on the Site. The applicable MNR Guideline table is reproduced below:

Table 1 Minimum Toe Erosion Allowance – Where River is Within of Slope Toe

Type of Material Native Soil Structure	Evidence of Active Erosion or Where the Bankfull Velocity is Greater than Competent Flow Velocity	No Evidence of Active Erosion Bankfull Width		
		<5 m	5 – 30 m	> 30 m
Hard Rock (e.g. granite)	0 – 2 m	0 m	0 m	1 m
Soft Rock (Shale, limestone), cobbles, boulders	2 – 5 m	0 m	1 m	2 m
Clays, Clay-Silt, Gravels	5 – 8 m	1 m	2 m	4 m
Sand, Silt and Fill	8 – 15 m	1 – 2 m	5 m	7 m

The slopes inspected are comprised of silty sand overlying glacial till, and no evidence of active erosion was observed during the Site visit. Based on the topographic survey and other available information, the bankfull width is between 5 and 30 m. Using this data, the toe erosion allowance is set at 5 m (from the above table).

### 4.4 Emergency Access Allowance

In accordance with the Guidelines, an erosion access allowance of 6 m *could* be applied in addition to the toe erosion and the stable top of slope allowances. A 6 m emergency access allowance can be added to the line identified as the LTSTOS on **Figure 2** should this be required by ORCA.

GHD believes the 6 m Emergency Access Allowance can be reduced or removed, given the low instability risk of the current slopes and because access for equipment and crews can be provided via the storm water management pond proposed to the south of the Creek.

## 5. Recommendations and Conclusions

The following summarizes GHD's overall conclusions and recommendations for this project based on GHD's analyses:

1. No signs of mass global slope stability issues were identified in the visual inspection of the Site slopes.
2. A rating value of 19 was obtained for Section B-B' and Section D-D', and a rating value of 21 was obtained for the remaining four (4) slopes. According to the MNR's Guideline, a slope with a rating of less than 24 has a low instability potential, and no further study (i.e., further geotechnical investigation including boreholes, lab testing and detailed report) is required.
3. The existing site grades are considered stable based on the completed modelling and stability evaluation completed for cross-section A-A'. An inclination of 2H:1V is considered globally stable based on the targeted 1.5 FS, and the top of such slope should be considered the stable top of a slope.
4. A toe erosion allowance of 5 m is recommended based on information available.
5. Using the erosion allowance of 5 m and the stable slope inclination of 2H:1V, the LTSTOS along the cross-sections are illustrated on **Figure 3** and **Figure 4**. The corresponding LTSTOS setback is plotted on the Cross Section Location Plan, **Figure 2**.
6. In accordance with the MNR and ORCA guideline, an erosion access allowance of up to 6 m could be applied in addition to the LTSTOS allowance at the discretion of ORCA. GHD believes the 6 m Emergency Access Allowance can be reduced or removed, given the low instability risk of the current slopes and because access for equipment and crews can be provided via the storm water management pond proposed to the south of the Creek.

It is further recommended that the proposed development consider the following to maintain stable slope conditions:

- Slope faces must be protected from surficial erosional forces through maintenance or application of appropriate surface erosion protection features.
- Any disturbances to the existing vegetative cover must be minimized or avoided and should be reinstated appropriately following any such disturbances.
- Storm water should not be directed to flow over the crest and / or face of the slopes. Any stormwater directed over the slopes crest and face must be controlled within a defined channel that is suitably protected from such stormwater flow erosion.
- The slopes must be inspected at regular intervals for signs of erosion / instability, and any remedial measures should be performed in consultation with a geotechnical engineer.

## 6. Limitations

This report: has been prepared by GHD for Vargas P Inc. and may only be used and relied on by Vargas P Inc. for the purpose agreed between GHD and Vargas P Inc.

GHD otherwise disclaims responsibility to any person other than Vargas P Inc. arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

We trust that the information provided in this report is satisfactory for your requirements at this time. Please contact us if you have any questions or concerns.

GHD



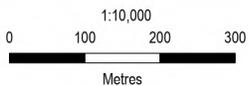
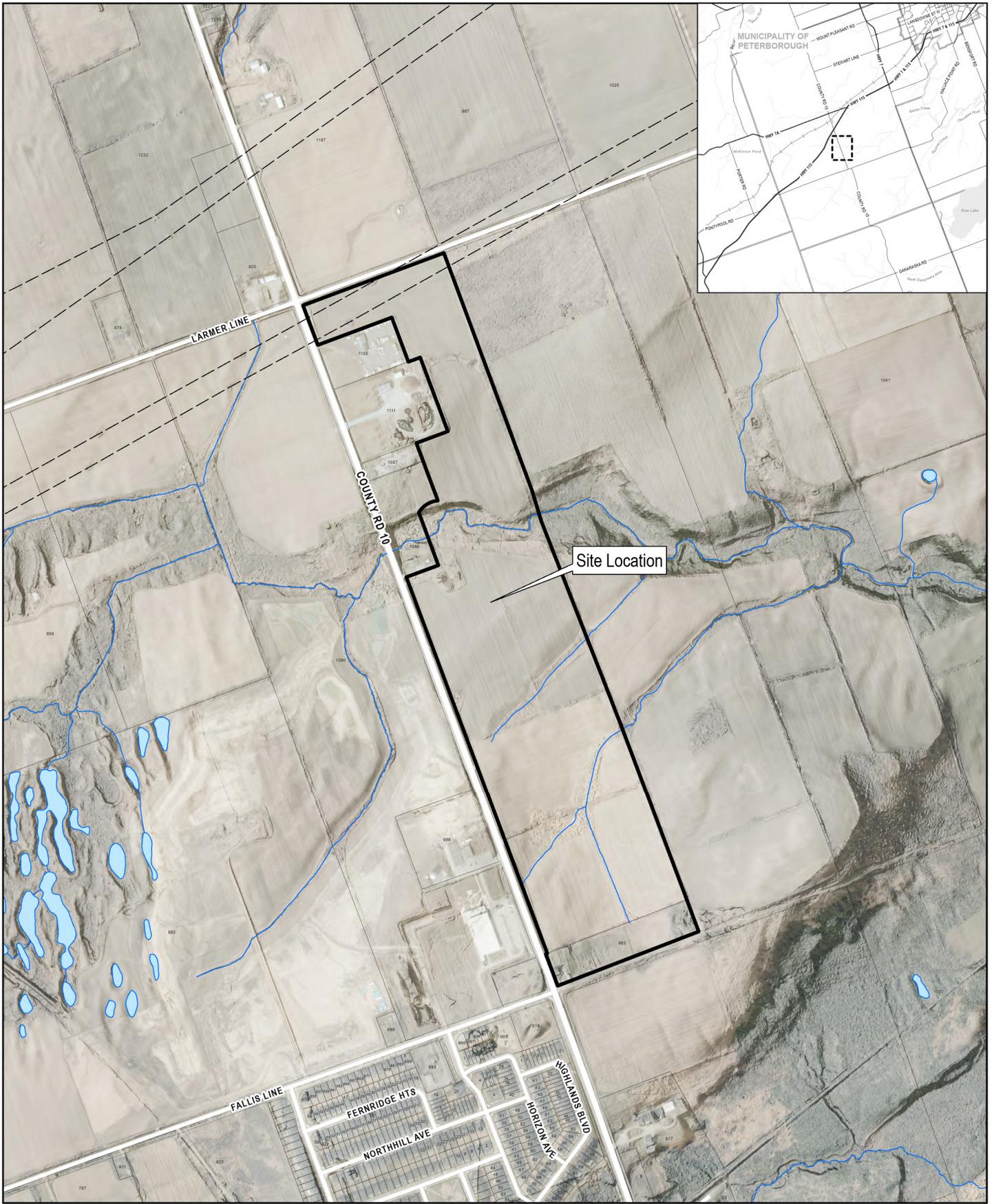
**Michael Nieu Kirk, P.Eng.**  
Geotechnical Engineer



**Leandro Ramos, P.Eng.**  
Senior Geotechnical Engineer

- Encl.    Figure 1 – Site Location Map  
          Figure 2 – Cross-Section Location Plan  
          Figure 3 – Cross-Section A-A', B-B' and C-C'  
          Figure 4 – Cross-Section D-D', E-E' and F-F'  
          Attachment 1 – Site Photographs  
          Attachment 2 – Slope Inspection Rating Charts  
          Attachment 3 – Slope Stability Analysis

# Figures



Map Projection: Transverse Mercator  
Horizontal Datum: North American 1983  
Grid: NAD 1983 UTM Zone 17N

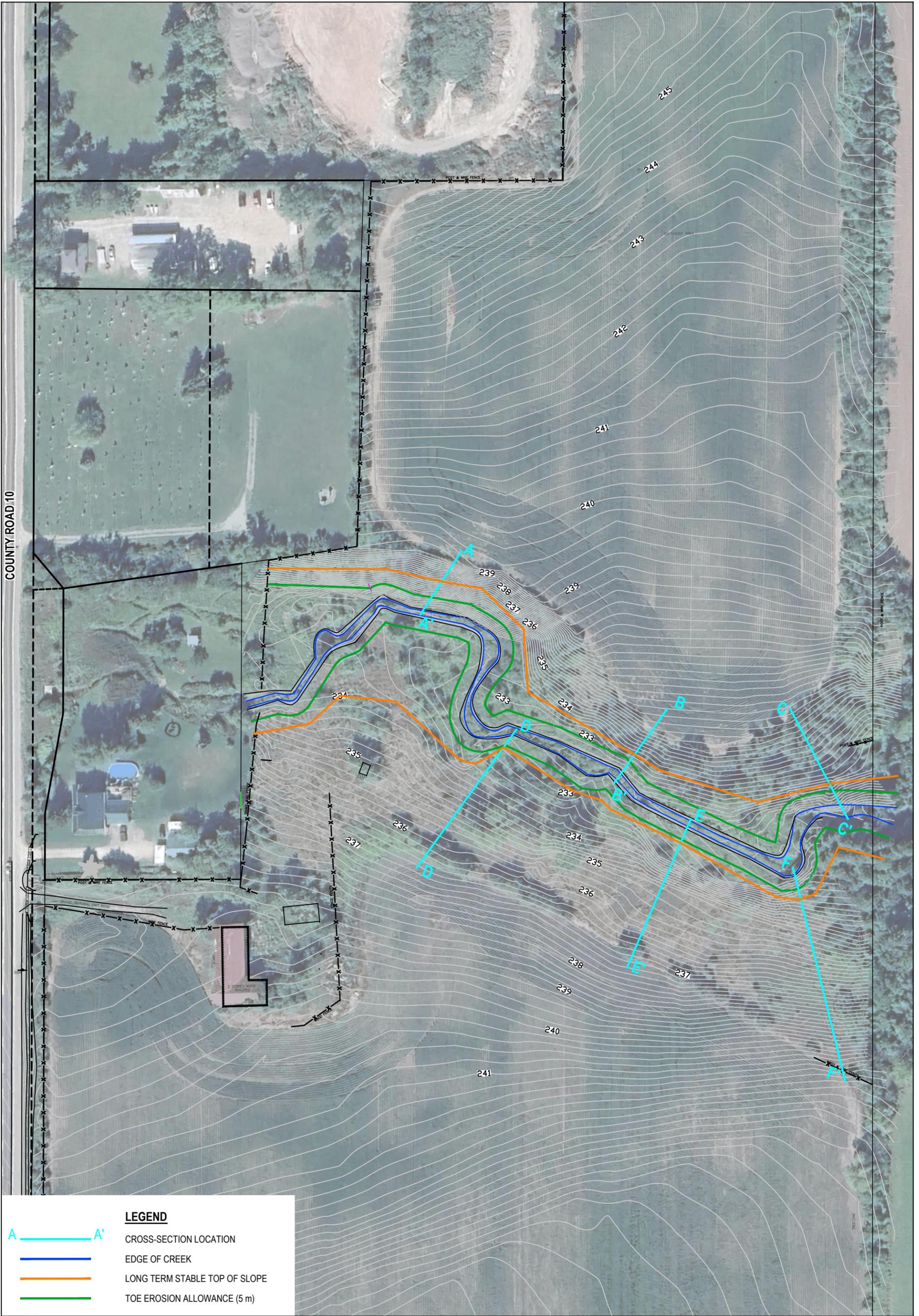


Vargas P Inc.  
North of Fallis Line, Lot 13, Concession 6  
Township of Cavan-Monaghan, Ontario

Project No. 12662348  
Revision No.  
Date Apr 29, 2025

Hydrogeological and Geotechnical Investigation Report  
**Site Location Plan**

**Figure 1**



**LEGEND**

- A — A' CROSS-SECTION LOCATION
- EDGE OF CREEK
- LONG TERM STABLE TOP OF SLOPE
- TOE EROSION ALLOWANCE (5 m)

0 12 24 36m

1:1200

Coordinate System:  
UTM83-17

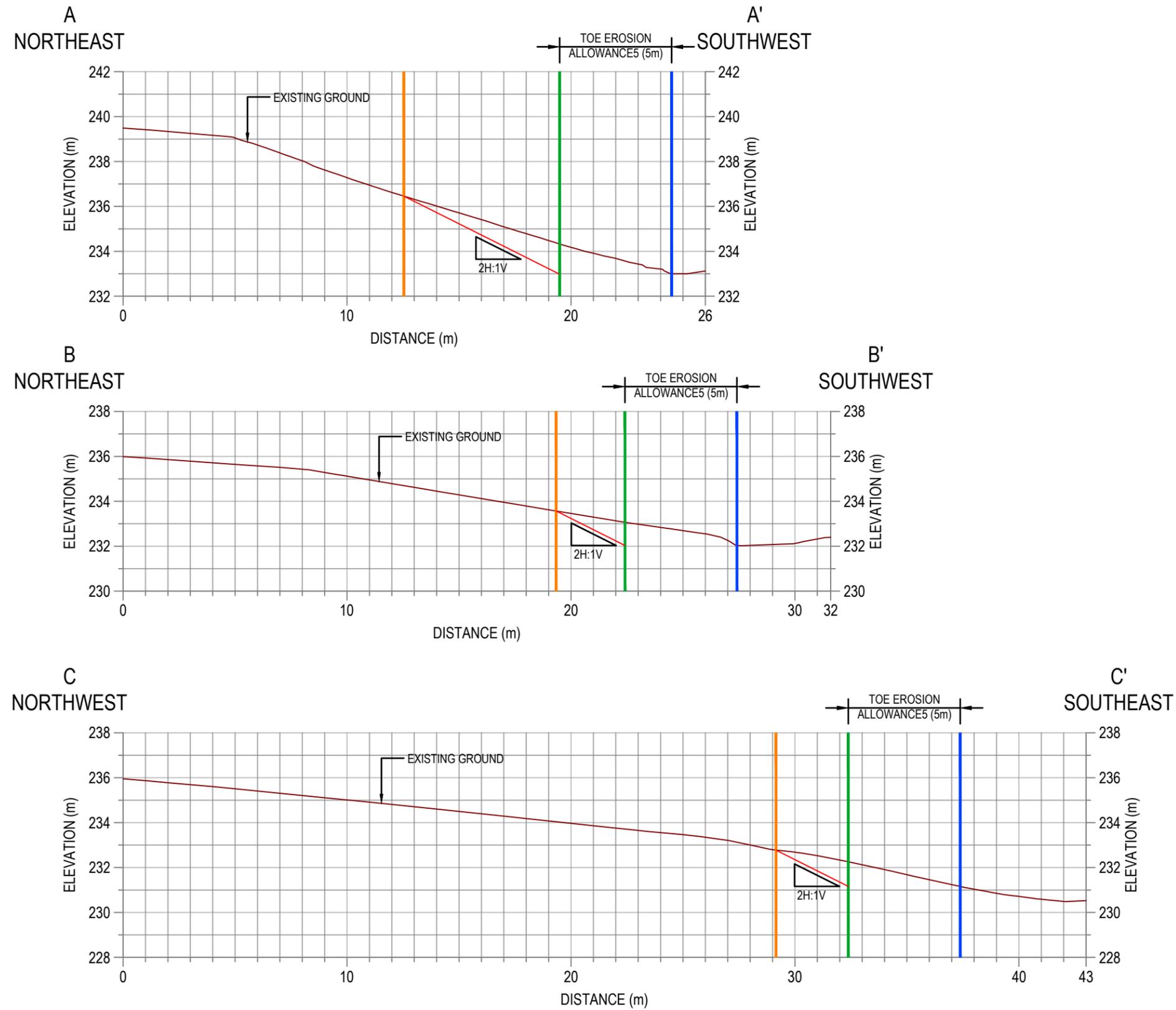


VARGAS P INC.  
963 COUNTY ROAD 10, CAVAN-MONAGHAN, ONTARIO  
FALLS LINE DEVELOPMENT - EHL ASSESSMENT

Project No. 12662438  
Date February 2026

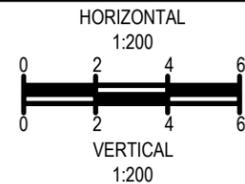
CROSS-SECTION LOCATION MAP

FIGURE 2



**LEGEND**

- EDGE OF CREEK
- LONG TERM STABLE TOP OF SLOPE
- TOE EROSION ALLOWANCE (5 m)

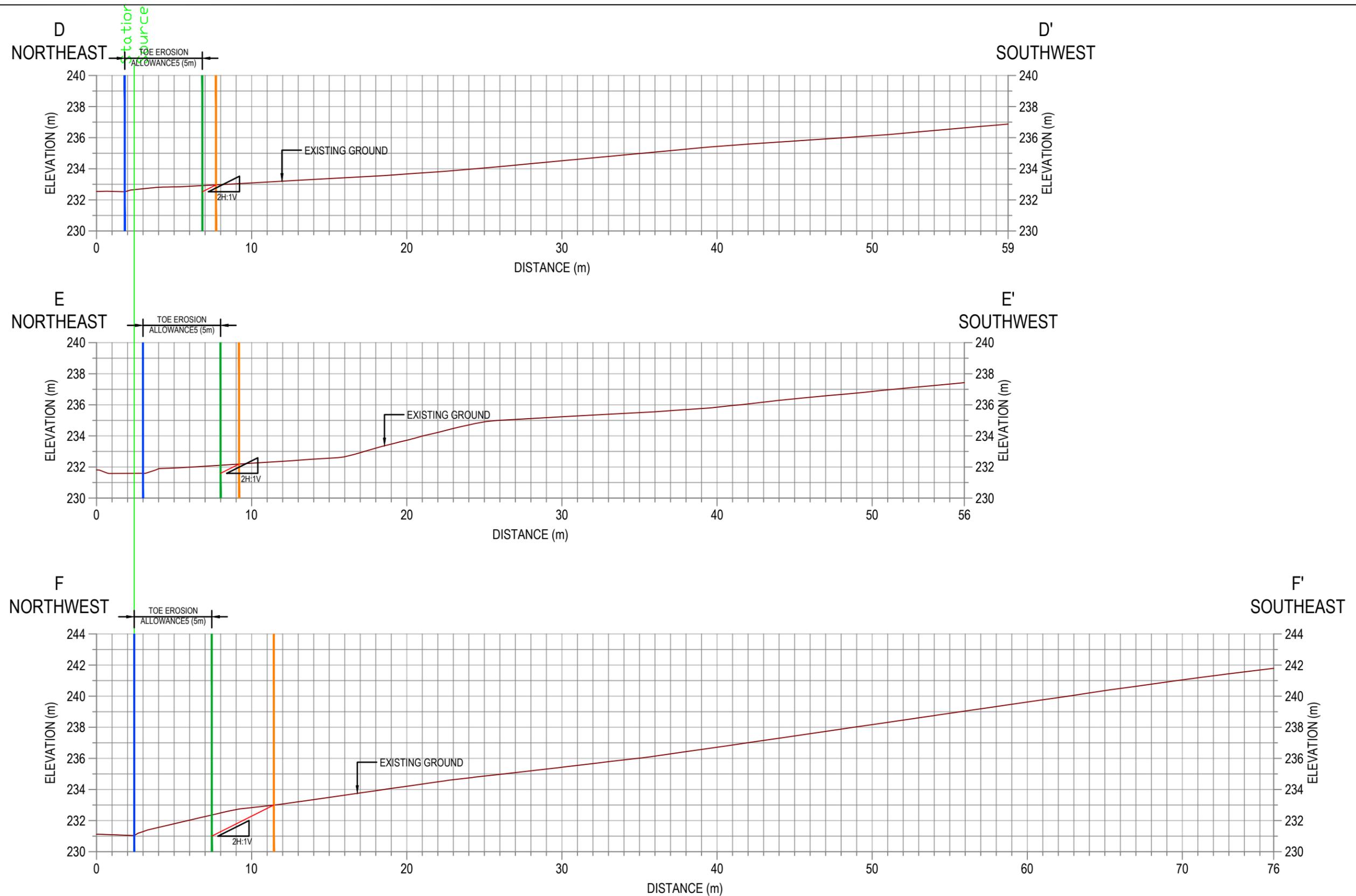


VARGAS P INC.  
 963 COUNTY ROAD 10, CAVAN-MONAGHAN, ONTARIO  
 FALLIS LINE DEVELOPMENT - EHL ASSESSMENT

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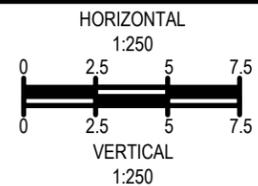
**CROSS-SECTION  
 A-A', B-B' AND C-C'**

**FIGURE 3**



**LEGEND**

- EDGE OF CREEK
- LONG TERM STABLE TOP OF SLOPE
- TOE EROSION ALLOWANCE (5 m)



VARGAS P INC.  
963 COUNTY ROAD 10, CAVAN-MONAGHAN, ONTARIO  
FALLIS LINE DEVELOPMENT - EHL ASSESSMENT

**CROSS-SECTION  
D-D', E-E' AND F-F'**

Project No. 12662438  
Date February 2026

**FIGURE 4**

# Attachments

# **Attachment 1**

**Site Photographs**



*Figure 1 Section A-A', top of slope, facing south*



## Site Photographs



*Figure 2 Section A-A', top portion of slope face, facing north*



## Site Photographs



*Figure 3 Section A-A', toe of slope, facing south*



## Site Photographs



*Figure 4 Section B-B', top of slope, facing south*



## Site Photographs



*Figure 5 Section B-B', looking up slope, facing north*



## Site Photographs



*Figure 6 Section C-C', looking up slope, facing north*



## Site Photographs



*Figure 7 Section C-C', looking down slope, facing south*



## Site Photographs



*Figure 8 Section D-D', looking up slope, facing south*



## Site Photographs



*Figure 9 Section D-D', looking up slope, facing north*



## Site Photographs



*Figure 10 Section E-E', profile of slope, facing southwest*



## Site Photographs



*Figure 11 Section E-E', toe of slope, facing northeast*



## Site Photographs



*Figure 12 Section F-F', looking up slope, facing south*



## Site Photographs



*Figure 13 Section F-F', toe of slope, facing north*



## Site Photographs

# **Attachment 2**

## **Slope Stability Rating Charts**

**SLOPE STABILITY RATING CHART - CROSS SECTION A-A'**

Site Location:	Fallis Line Development, Milbrook, Ontario	File No.	12662438
Property Owner:	Vargas P Inc.	Inspection Date:	November 19, 2025
Inspected By:	Michael Nieukirk	Weather:	Overcast 4C
Inspection Task		Rating Options	Assigned Rating
<b>1. SLOPE INCLINATION</b>			
<b>Degrees</b>	<b>Horizontal:Vertical</b>		
a) 18 or less	3:1 or flatter	0	<b>0</b>
b) 18 to 26	2:1 to more than 3:1	6	
c) more than 26	Steeper than 2:1	16	
<b>2. SOIL STRATIGRAPHY</b>			
a) Shale, Limestone, Granite (Bedrock)		0	<b>9</b>
b) Sand, Gravel		6	
c) Glacial Till		9	
d) Clay, Silt		12	
e) Fill		16	
f) Leda Clay		24	
<b>3. SEEPAGE FROM SLOPE FACE</b>			
a) None or near bottom only		0	<b>0</b>
b) Near mid-slope only		6	
c) Near crest only or from several levels		12	
<b>4. SLOPE HEIGHT</b>			
a) 2 m or less		0	<b>4</b>
b) 2.1 to 5 m		2	
c) 5.1 to 10 m		4	
d) more than 10 m		8	
<b>5. VEGETATION COVER ON SLOPE FACE</b>			
a) Well vegetated, heavy shrubs or forested with mature trees		0	<b>0</b>
b) Light Vegetation; Mostly grass, weeds, occasional trees, shrubs		4	
c) No vegetaion, bare		8	
<b>6. TABLE LAND DRAINAGE</b>			
a) Table land flat, no apparent drainage over slope		0	<b>2</b>
b) Minor drainage over slope, no active erosion		2	
c) Drainage over slope, active erosion, gullies		4	
<b>7. PROXIMITY OF WATERCOURSE TO SLOPE TOE</b>			
a) 15 m or more from slope toe		0	<b>6</b>
b) Less than 15 m from slope toe		6	
<b>8. PREVIOUS LANDSLIDE ACTIVITY</b>			
a) No		0	<b>0</b>
b) Yes		6	
<b>RATING VALUES TOTAL</b>			<b>21</b>
SLOPE INSTABILITY RATING		INVESTIGATION REQUIREMENTS	
1. Low Potential	<24	Site inspection only, confirmation, report letter	
2. Slight Potential	25 - 35	Site inspection and surveying, preliminary study, detailed report	
3. Moderate Potential	>35	Boreholes, piezometers, lab tests, surveying detailed report	
<b>Notes:</b>			
a) Choose only one rating value from each category; compare total rating value with above requirements			
b) If there is a waterbody (stream, creek, river, pond, bay, lake) at the slope toe, the potential for toe erosion and undercutting should be evaluated in detail and protection provided if required.			
c) For leda clay and rock slopes, additional evaluation must be carried out			

**SLOPE STABILITY RATING CHART - CROSS SECTION B-B'**

Site Location:	Fallis Line Development, Milbrook, Ontario	File No.	12662438
Property Owner:	Vargas P Inc.	Inspection Date:	November 19, 2025
Inspected By:	Michael Nieukirk	Weather:	Overcast 4C
Inspection Task		Rating Options	Assigned Rating
<b>1. SLOPE INCLINATION</b>			
<b>Degrees</b>	<b>Horizontal:Vertical</b>		
a) 18 or less	3:1 or flatter	0	<b>0</b>
b) 18 to 26	2:1 to more than 3:1	6	
c) more than 26	Steeper than 2:1	16	
<b>2. SOIL STRATIGRAPHY</b>			
a) Shale, Limestone, Granite (Bedrock)		0	<b>9</b>
b) Sand, Gravel		6	
c) Glacial Till		9	
d) Clay, Silt		12	
e) Fill		16	
f) Leda Clay		24	
<b>3. SEEPAGE FROM SLOPE FACE</b>			
a) None or near bottom only		0	<b>0</b>
b) Near mid-slope only		6	
c) Near crest only or from several levels		12	
<b>4. SLOPE HEIGHT</b>			
a) 2 m or less		0	<b>2</b>
b) 2.1 to 5 m		2	
c) 5.1 to 10 m		4	
d) more than 10 m		8	
<b>5. VEGETATION COVER ON SLOPE FACE</b>			
a) Well vegetated, heavy shrubs or forested with mature trees		0	<b>0</b>
b) Light Vegetation; Mostly grass, weeds, occasional trees, shrubs		4	
c) No vegetaion, bare		8	
<b>6. TABLE LAND DRAINAGE</b>			
a) Table land flat, no apparent drainage over slope		0	<b>2</b>
b) Minor drainage over slope, no active erosion		2	
c) Drainage over slope, active erosion, gullies		4	
<b>7. PROXIMITY OF WATERCOURSE TO SLOPE TOE</b>			
a) 15 m or more from slope toe		0	<b>6</b>
b) Less than 15 m from slope toe		6	
<b>8. PREVIOUS LANDSLIDE ACTIVITY</b>			
a) No		0	<b>0</b>
b) Yes		6	
<b>RATING VALUES TOTAL</b>			<b>19</b>
SLOPE INSTABILITY RATING		INVESTIGATION REQUIREMENTS	
1. Low Potential	<24	Site inspection only, confirmation, report letter	
2. Slight Potential	25 - 35	Site inspection and surveying, preliminary study, detailed report	
3. Moderate Potential	>35	Boreholes, piezometers, lab tests, surveying detailed report	
<b>Notes:</b>			
a) Choose only one rating value from each category; compare total rating value with above requirements			
b) If there is a waterbody (stream, creek, river, pond, bay, lake) at the slope toe, the potential for toe erosion and undercutting should be evaluated in detail and protection provided if required.			
c) For leda clay and rock slopes, additional evaluation must be carried out			

**SLOPE STABILITY RATING CHART - CROSS SECTION C-C'**

Site Location:	Fallis Line Development, Milbrook, Ontario	File No.	12662438
Property Owner:	Vargas P Inc.	Inspection Date:	November 19, 2025
Inspected By:	Michael Nieukirk	Weather:	Overcast 4C
Inspection Task		Rating Options	Assigned Rating
<b>1. SLOPE INCLINATION</b>			
<b>Degrees</b>	<b>Horizontal:Vertical</b>		
a) 18 or less	3:1 or flatter	0	<b>0</b>
b) 18 to 26	2:1 to more than 3:1	6	
c) more than 26	Steeper than 2:1	16	
<b>2. SOIL STRATIGRAPHY</b>			
a) Shale, Limestone, Granite (Bedrock)		0	<b>9</b>
b) Sand, Gravel		6	
c) Glacial Till		9	
d) Clay, Silt		12	
e) Fill		16	
f) Leda Clay		24	
<b>3. SEEPAGE FROM SLOPE FACE</b>			
a) None or near bottom only		0	<b>0</b>
b) Near mid-slope only		6	
c) Near crest only or from several levels		12	
<b>4. SLOPE HEIGHT</b>			
a) 2 m or less		0	<b>4</b>
b) 2.1 to 5 m		2	
c) 5.1 to 10 m		4	
d) more than 10 m		8	
<b>5. VEGETATION COVER ON SLOPE FACE</b>			
a) Well vegetated, heavy shrubs or forested with mature trees		0	<b>0</b>
b) Light Vegetation; Mostly grass, weeds, occasional trees, shrubs		4	
c) No vegetaion, bare		8	
<b>6. TABLE LAND DRAINAGE</b>			
a) Table land flat, no apparent drainage over slope		0	<b>2</b>
b) Minor drainage over slope, no active erosion		2	
c) Drainage over slope, active erosion, gullies		4	
<b>7. PROXIMITY OF WATERCOURSE TO SLOPE TOE</b>			
a) 15 m or more from slope toe		0	<b>6</b>
b) Less than 15 m from slope toe		6	
<b>8. PREVIOUS LANDSLIDE ACTIVITY</b>			
a) No		0	<b>0</b>
b) Yes		6	
<b>RATING VALUES TOTAL</b>			<b>21</b>
SLOPE INSTABILITY RATING		INVESTIGATION REQUIREMENTS	
1. Low Potential	<24	Site inspection only, confirmation, report letter	
2. Slight Potential	25 - 35	Site inspection and surveying, preliminary study, detailed report	
3. Moderate Potential	>35	Boreholes, piezometers, lab tests, surveying detailed report	
<b>Notes:</b>			
a) Choose only one rating value from each category; compare total rating value with above requirements			
b) If there is a waterbody (stream, creek, river, pond, bay, lake) at the slope toe, the potential for toe erosion and undercutting should be evaluated in detail and protection provided if required.			
c) For leda clay and rock slopes, additional evaluation must be carried out			

**SLOPE STABILITY RATING CHART - CROSS SECTION D-D'**

Site Location:	Fallis Line Development, Milbrook, Ontario	File No.	12662438
Property Owner:	Vargas P Inc.	Inspection Date:	November 19, 2025
Inspected By:	Michael Nieukirk	Weather:	Overcast 4C
Inspection Task		Rating Options	Assigned Rating
<b>1. SLOPE INCLINATION</b>			
<b>Degrees</b>	<b>Horizontal:Vertical</b>		
a) 18 or less	3:1 or flatter	0	<b>0</b>
b) 18 to 26	2:1 to more than 3:1	6	
c) more than 26	Steeper than 2:1	16	
<b>2. SOIL STRATIGRAPHY</b>			
a) Shale, Limestone, Granite (Bedrock)		0	<b>9</b>
b) Sand, Gravel		6	
c) Glacial Till		9	
d) Clay, Silt		12	
e) Fill		16	
f) Leda Clay		24	
<b>3. SEEPAGE FROM SLOPE FACE</b>			
a) None or near bottom only		0	<b>0</b>
b) Near mid-slope only		6	
c) Near crest only or from several levels		12	
<b>4. SLOPE HEIGHT</b>			
a) 2 m or less		0	<b>2</b>
b) 2.1 to 5 m		2	
c) 5.1 to 10 m		4	
d) more than 10 m		8	
<b>5. VEGETATION COVER ON SLOPE FACE</b>			
a) Well vegetated, heavy shrubs or forested with mature trees		0	<b>0</b>
b) Light Vegetation; Mostly grass, weeds, occasional trees, shrubs		4	
c) No vegetaion, bare		8	
<b>6. TABLE LAND DRAINAGE</b>			
a) Table land flat, no apparent drainage over slope		0	<b>2</b>
b) Minor drainage over slope, no active erosion		2	
c) Drainage over slope, active erosion, gullies		4	
<b>7. PROXIMITY OF WATERCOURSE TO SLOPE TOE</b>			
a) 15 m or more from slope toe		0	<b>6</b>
b) Less than 15 m from slope toe		6	
<b>8. PREVIOUS LANDSLIDE ACTIVITY</b>			
a) No		0	<b>0</b>
b) Yes		6	
<b>RATING VALUES TOTAL</b>			<b>19</b>
SLOPE INSTABILITY RATING		INVESTIGATION REQUIREMENTS	
1. Low Potential	<24	Site inspection only, confirmation, report letter	
2. Slight Potential	25 - 35	Site inspection and surveying, preliminary study, detailed report	
3. Moderate Potential	>35	Boreholes, piezometers, lab tests, surveying detailed report	
<b>Notes:</b>			
a) Choose only one rating value from each category; compare total rating value with above requirements			
b) If there is a waterbody (stream, creek, river, pond, bay, lake) at the slope toe, the potential for toe erosion and undercutting should be evaluated in detail and protection provided if required.			
c) For leda clay and rock slopes, additional evaluation must be carried out			

**SLOPE STABILITY RATING CHART - CROSS SECTION E-E'**

Site Location:	Fallis Line Development, Milbrook, Ontario	File No.	12662438
Property Owner:	Vargas P Inc.	Inspection Date:	November 19, 2025
Inspected By:	Michael Nieukirk	Weather:	Overcast 4C
Inspection Task		Rating Options	Assigned Rating
<b>1. SLOPE INCLINATION</b>			
<b>Degrees</b>	<b>Horizontal:Vertical</b>		
a) 18 or less	3:1 or flatter	0	<b>0</b>
b) 18 to 26	2:1 to more than 3:1	6	
c) more than 26	Steeper than 2:1	16	
<b>2. SOIL STRATIGRAPHY</b>			
a) Shale, Limestone, Granite (Bedrock)		0	<b>9</b>
b) Sand, Gravel		6	
c) Glacial Till		9	
d) Clay, Silt		12	
e) Fill		16	
f) Leda Clay		24	
<b>3. SEEPAGE FROM SLOPE FACE</b>			
a) None or near bottom only		0	<b>0</b>
b) Near mid-slope only		6	
c) Near crest only or from several levels		12	
<b>4. SLOPE HEIGHT</b>			
a) 2 m or less		0	<b>4</b>
b) 2.1 to 5 m		2	
c) 5.1 to 10 m		4	
d) more than 10 m		8	
<b>5. VEGETATION COVER ON SLOPE FACE</b>			
a) Well vegetated, heavy shrubs or forested with mature trees		0	<b>0</b>
b) Light Vegetation; Mostly grass, weeds, occasional trees, shrubs		4	
c) No vegetaion, bare		8	
<b>6. TABLE LAND DRAINAGE</b>			
a) Table land flat, no apparent drainage over slope		0	<b>2</b>
b) Minor drainage over slope, no active erosion		2	
c) Drainage over slope, active erosion, gullies		4	
<b>7. PROXIMITY OF WATERCOURSE TO SLOPE TOE</b>			
a) 15 m or more from slope toe		0	<b>6</b>
b) Less than 15 m from slope toe		6	
<b>8. PREVIOUS LANDSLIDE ACTIVITY</b>			
a) No		0	<b>0</b>
b) Yes		6	
<b>RATING VALUES TOTAL</b>			<b>21</b>
<b>SLOPE INSTABILITY RATING</b>		<b>INVESTIGATION REQUIREMENTS</b>	
1. Low Potential	<24	Site inspection only, confirmation, report letter	
2. Slight Potential	25 - 35	Site inspection and surveying, preliminary study, detailed report	
3. Moderate Potential	>35	Boreholes, piezometers, lab tests, surveying detailed report	
<b>Notes:</b>			
a) Choose only one rating value from each category; compare total rating value with above requirements			
b) If there is a waterbody (stream, creek, river, pond, bay, lake) at the slope toe, the potential for toe erosion and undercutting should be evaluated in detail and protection provided if required.			
c) For leda clay and rock slopes, additional evaluation must be carried out			

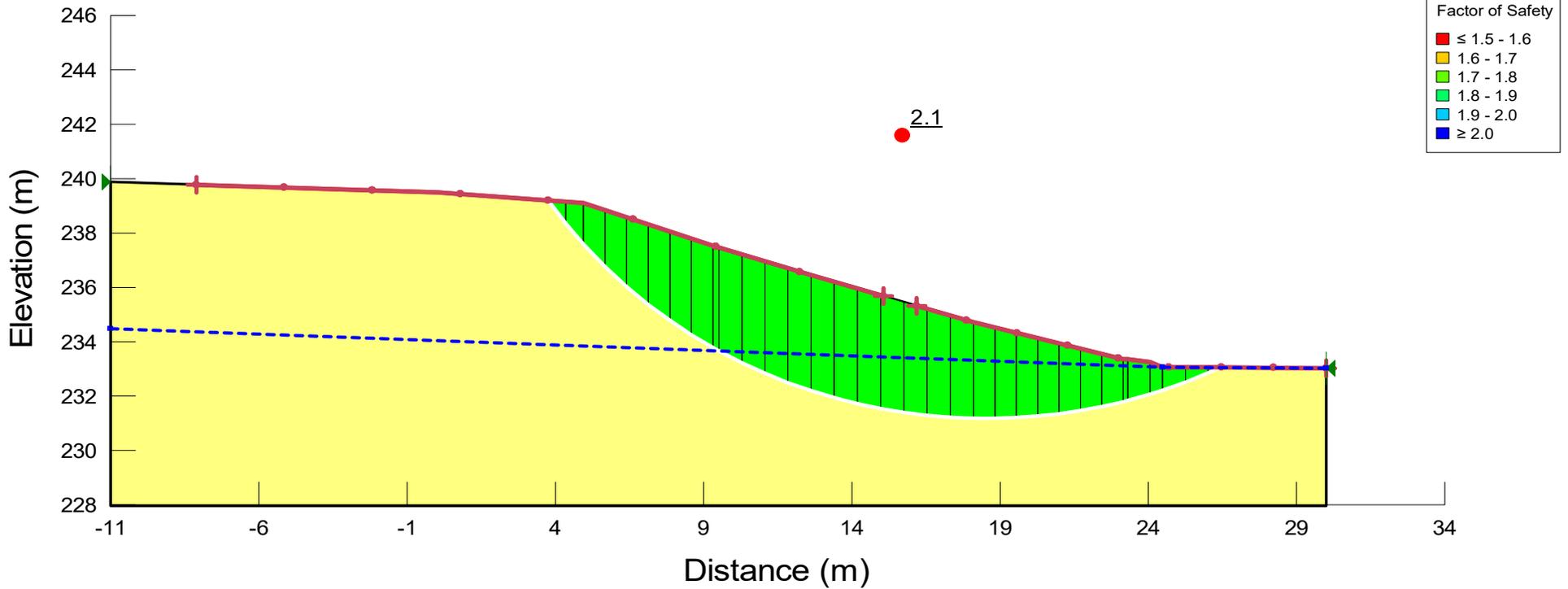
**SLOPE STABILITY RATING CHART - CROSS SECTION F-F'**

Site Location:	Fallis Line Development, Milbrook, Ontario	File No.	12662438
Property Owner:	Vargas P Inc.	Inspection Date:	November 19, 2025
Inspected By:	Michael Nieukirk	Weather:	Overcast 4C
Inspection Task		Rating Options	Assigned Rating
<b>1. SLOPE INCLINATION</b>			
<b>Degrees</b>	<b>Horizontal:Vertical</b>		
a) 18 or less	3:1 or flatter	0	<b>0</b>
b) 18 to 26	2:1 to more than 3:1	6	
c) more than 26	Steeper than 2:1	16	
<b>2. SOIL STRATIGRAPHY</b>			
a) Shale, Limestone, Granite (Bedrock)		0	<b>9</b>
b) Sand, Gravel		6	
c) Glacial Till		9	
d) Clay, Silt		12	
e) Fill		16	
f) Leda Clay		24	
<b>3. SEEPAGE FROM SLOPE FACE</b>			
a) None or near bottom only		0	<b>0</b>
b) Near mid-slope only		6	
c) Near crest only or from several levels		12	
<b>4. SLOPE HEIGHT</b>			
a) 2 m or less		0	<b>4</b>
b) 2.1 to 5 m		2	
c) 5.1 to 10 m		4	
d) more than 10 m		8	
<b>5. VEGETATION COVER ON SLOPE FACE</b>			
a) Well vegetated, heavy shrubs or forested with mature trees		0	<b>0</b>
b) Light Vegetation; Mostly grass, weeds, occasional trees, shrubs		4	
c) No vegetaion, bare		8	
<b>6. TABLE LAND DRAINAGE</b>			
a) Table land flat, no apparent drainage over slope		0	<b>2</b>
b) Minor drainage over slope, no active erosion		2	
c) Drainage over slope, active erosion, gullies		4	
<b>7. PROXIMITY OF WATERCOURSE TO SLOPE TOE</b>			
a) 15 m or more from slope toe		0	<b>6</b>
b) Less than 15 m from slope toe		6	
<b>8. PREVIOUS LANDSLIDE ACTIVITY</b>			
a) No		0	<b>0</b>
b) Yes		6	
<b>RATING VALUES TOTAL</b>			<b>21</b>
SLOPE INSTABILITY RATING		INVESTIGATION REQUIREMENTS	
1. Low Potential	<24	Site inspection only, confirmation, report letter	
2. Slight Potential	25 - 35	Site inspection and surveying, preliminary study, detailed report	
3. Moderate Potential	>35	Boreholes, piezometers, lab tests, surveying detailed report	
<b>Notes:</b>			
a) Choose only one rating value from each category; compare total rating value with above requirements			
b) If there is a waterbody (stream, creek, river, pond, bay, lake) at the slope toe, the potential for toe erosion and undercutting should be evaluated in detail and protection provided if required.			
c) For leda clay and rock slopes, additional evaluation must be carried out			

# Attachment 3

## Slope Stability Analysis

Color	Name	Unit Weight (kN/m <sup>3</sup> )	Effective Cohesion (kPa)	Effective Friction Angle (°)	Phi-B (°)	Piezometric Surface
Yellow	Native Sandy Silt Till	19	1	32	0	1



**Scale:**  
As Shown Above



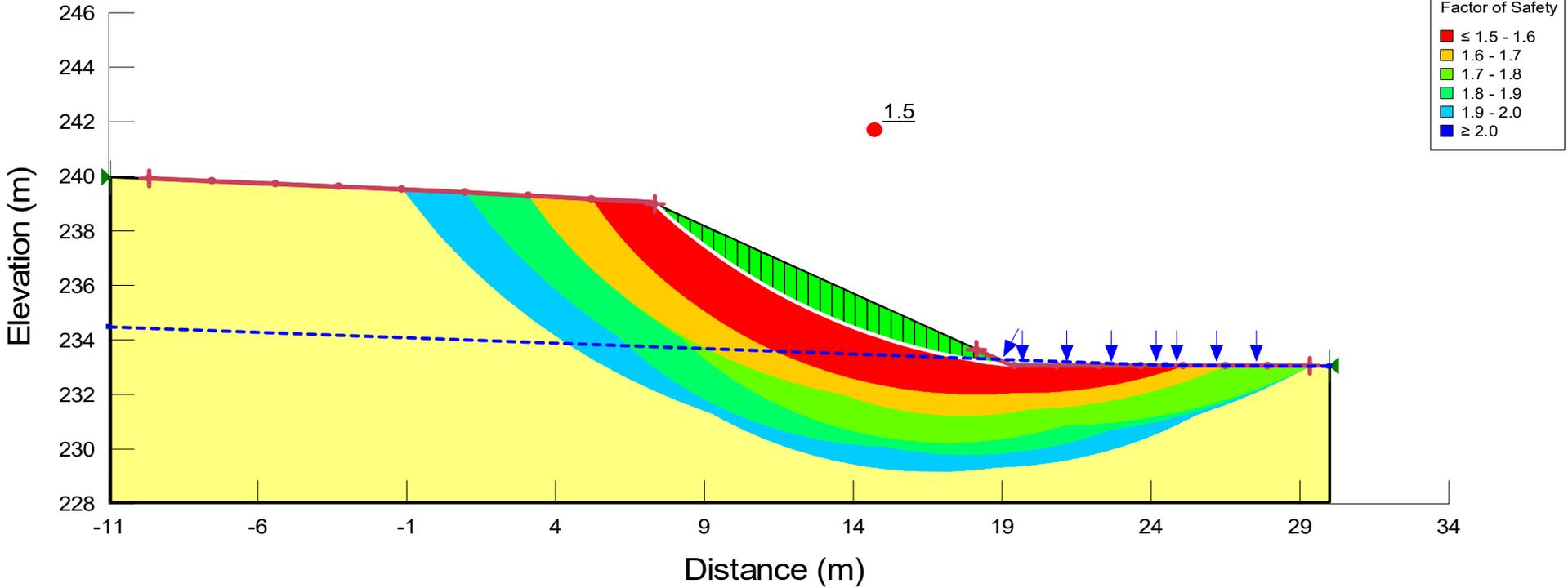
Vargas P Inc.  
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Erosion Hazard Limit Assessment

SLOPE STABILITY MODEL - CROSS SECTION A-A' - EXISTING CONDITION

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Attachment 3.1

Color	Name	Unit Weight (kN/m <sup>3</sup> )	Effective Cohesion (kPa)	Effective Friction Angle (°)	Phi-B (°)	Piezometric Surface
	Native Sandy Silt Till	19	1	32	0	1



**Scale:**  
As Shown Above



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963 County Road 10, Cavan-Monaghan, Ontario  
Erosion Hazard Limit Assessment

SLOPE STABILITY MODEL - CROSS SECTION A-A' - THEORETICAL 2H:1V SLOPE

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Attachment 3.2



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