GEO Group Northwest, Inc.
Geotechnical Engineers, Geologists
& Environmental Specialists

July 10, 2023 G-5713

Mr. Sam R. Franklin
4408 Thackeray Pl. NE
Seattle, Washington 98105

Subject: Addendum to Geotechnical Engineering Report, New Residence, 3064 – 68th Avenue SE, Mercer Island, Washington.

Reference: Geotechnical Engineering Investigation, New Residence, 3064 – 68th Avenue SE, Mercer Island, Washington. GEO Group Northwest, Inc., May 9, 2022.

Dear Mr. Franklin:

GEO Group Northwest, Inc. has prepared this addendum to our above-referenced geotechnical engineering report regarding the proposed construction of a new residence at the subject location in Mercer Island, Washington. This addendum was prepared to respond to the City of Mercer Island geotechnical review comments dated April 17, 2023, of the submitted project plans. The comments are referenced by plans page and comment number as noted in the summary of comments list that is provided in Attachment A to this addendum, and our responses are presented below.

Page 1 Comments #3, 5, 6

Updated Soil Unit Properties and Slope Stability Analysis

Soil Unit Properties

We have reviewed and updated the soil unit descriptions and parameters that were used for the slope stability analysis described in our geotechnical report. The distinction of the loose / soft to

medium stiff clayey silt soils and the underlying very stiff / medium dense silt and sandy silt soils is indicated in the site profiles used for our analysis, and these units are noted as exhibiting occasional fracturing.

We observed that the sheared zones and fracturing in the soil samples that were obtained from the borings did not exhibit slickensides. These features were not saturated in borings B-1 and B-3, but were locally wet in the soil sample collected a depth of approximately 10 feet in boring B-2. Also, we have noted that the standard penetration test data do not show significantly lower values for the samples exhibiting shear or fractures as compared to intact samples within similar soil types. Therefore, we interpret these features to have resulted from ancient landslide or mass wasting activity associated with the recession phase of the Vashon Glaciation and are not of recent or historical origin.

Based on these observations, we conclude that the strength of the soil units containing these features are adequately represented by the SPT data and that cohesion and internal friction values can be assigned per the standard values shown in the correlation table in the Soil Classification and Penetration Test Explanation sheet that is presented in Attachment A of our previous geotechnical report. We have, however, reduced the used cohesion values to account for the observed shear and fractures features observed in the soils. The updated soil units and their properties used for the supplemental slope stability analysis consist of the following:

	Soil Unit	**Observed Borings**	**Unit Weight (pcf)**	**Cohesion (psf)**	**Internal Friction (deg)**
IA	Soft to Medium Stiff Clayey Silt and Silt, occasional fracturing	B-2, B-3	115	600	0
IB	Soft to Medium Stiff Clayey Silt and Silt, intact	B-1	115	750	0
IIA	Very Stiff Clayey Silt and Silt, occasional fracturing	B-3	120	900	0
IIB	Very Stiff Clayey Silt and Silt, intact	B-3	120	1200	0
IIIA	Medium Dense to Dense Sandy Silt to Silty Sand, occasional fracturing	B-1, B-3	125	120	28
IIIB	Medium Dense and Dense Sandy Silt to Silty Sand, intact	B-2	125	150	30

IV	Granular Soil Backfill	N/A	125	0	33

Pseudo-static Coefficient for Ground Motion Analysis

We have reviewed technical literature regarding alternative procedures for the estimation of the pseudo-static coefficient value for the analysis of seismic ground motion on slope stability. We used the procedures described in Bray and Travasarou (2011)[1] to determine the value of the pseudo-static coefficient in relationship to soil displacement for our analysis.

Slope height was assigned using the topographic survey for the site. The average shear wave velocity for the slope mass was assigned a value of 180 m/s based on the value used for soils at the boundary between Site Class D and E soils in ASCE Standard 7 (2016), Chapter 20).

The value for the fundamental site period, T_s was determined per the method in Bray and Travasarou (2011). The value for the site spectral acceleration, S_a, for the period of $1.5T_s$ was assigned the value for S_{MS} for the site, obtained from the ASCE 7 Hazard Tool application (the application report is enclosed as Attachment B).

The value for D was assigned to be the mean seismic displacement value per the recommendations in Bray and Travasarou (2011). Determination of the numerical value for D was based on the proposed project consisting wood-frame construction of a two-story residence being designed consistent applicable design and construction codes. This value is below the value of 15 cm that has been recommended for use by the Association of Professional Engineers and Geologists of British Columbia (APEGBC) for projects of this type[2]. The earthquake moment magnitude was assigned a value of 7, with the nearest earthquake source represented as a buried crustal earthquake along the nearby Seattle Fault zone.

These parameters are presented below:

- Slope height: 7m
- Fundamental site period, T_s 0.156s

1 Bray, J.D., and T. Travasarou, Pseudostatic Slope Stability Procedure. 5th International Conference on Earthquake Geotechnical Engineering, 2011.
2 APEGBC, Guidelines for Legislated Landslide Assessments of Proposed Residential Development in British Columbia. May 2010.

- Degraded site period, $1.5T_s$ 0.233s
- Site spectral acceleration value, S_a, at $1.5T_s$ 1.408g
- Allowable soil displacement, D 10cm
- Average soil shear wave velocity 180m/s
- Earthquake moment magnitude 7

The calculation of the pseudo-static coefficient, k, was obtained from the equations below:

$k = \exp [(-a + b^{0.5})/ 0.665]$, where

$a = 2.83 – 0.566*\ln S_a$, and

$b = a^2 – 1.33[\ln D + 1.10 – 3.04*\ln S_a + 0.244*(\ln S_a)^2 – 1.5*T_s – 0.278*(M-7) – \varepsilon]$,

where $T_s > 0.05$. The value of $\varepsilon = 0$ for case where the median seismic displacement value is considered in the analysis (as is the case for this analysis).

The calculations are summarized below:

$a = 2.83 – 0.566*(\ln(1.408)) = \underline{2.636}$

$b = 6.950 – 1.33((\ln(10) + 1.1 – 3.04*\ln(1.408) + 0.244*(\ln(1.408))^2 – 0.233 – 0)$
$= 6.950 – 1.33(2.303 + 1.1 – 1.040 + 0.0286 – 0.233)$
$= 6.950 – 1.33(2.1586) = \underline{4.079}$

$k = \exp((-2.636 + (4.079)^{0.5})/0.665) = \exp(-0.927) = 0.\underline{396}$

Using the pseudo-static coefficient value calculated above multiplied by the PGA_M value of 0.663g for the site, the pseudo-static loading factor to be used for the stability analysis is calculated to be 0.262.

Supplemental Slope Stability Analysis Results

After completing the above-discussed calculations to determine the pseudo-static coefficient for use to evaluate dynamic slope stability, we updated our slope stability analysis for the project. A pseudo-static loading coefficient of 0.262g, was used for the supplemental analysis. The

proposed building has been designed to be supported entirely on a system of small-diameter pipe piles and concrete grade beams that will transfer the building load downward into the deeper soils instead of applying conventional footing loads to the excavation subgrade soils. The profiles and results from the updated analysis are presented in Attachment C to this letter.

The analysis results indicate acceptable factors of safety for the proposed temporary cuts and for the proposed post-construction configuration in our opinion. The proposed temporary cuts were found to have factors of safety of 1.90 in the east-west profile (profile C) and of 3.38 in the north-south profile (profile B). The post-construction configuration for the proposed project was found to have factors of safety of 1.93 under static conditions and of 1.23 under dynamic conditions.

Page 1 Comment #4

GEO Group Northwest, Inc. has reviewed the construction plans for the proposed project. The plans we reviewed consist of the building permit correction 1 plans by Workshop AD dated July 7, 2023, the revised structural plans dated June 24, 2023 and the revised structural calculations dated June 24, 2023 by Smith Lubke Structural Design.

In our opinion, the reviewed plans are consistent with the geotechnical recommendations presented in our geotechnical report for the project dated May 9, 2022 and this addendum. Provided that the recommendations in our report and addendum are properly implemented, it is our opinion the proposed development will not increase the potential for soil movement, and the risk of damage to the site or from the site to the adjacent properties from soil instability will be minimal.

We also have reviewed the project plans per MICC Section 19.07.160(B)(3) with regard to the risk to the project associated with geologically hazardous areas. In our opinion, construction practices are proposed for the alteration that would render the development as safe as if it were not located in a geologically hazardous area and do not adversely impact adjacent properties.

Page 13 Comments #2, 3

Updated Temporary Excavation Recommendations

Following our review of the Cycle 1 Correction Set of the proposed project plans and our completion of additional slope stability analysis for the project, we have developed the following revisions to the temporary excavation recommendations contained in our geotechnical report:

- Temporary excavations greater than 4 feet in depth should be sloped no steeper than 1.25H:1V, except where dense soils are present. In dense soils, these excavations can be sloped to 1H:1V.

- Following consideration of our supplemental slope stability analysis results, it is our opinion that our previous recommendation regarding temporary excavations in the eastern part of the site (on page 9 of our report) can be revised from 1.5H:1V to 1.25H:1V.

Temporary Excavation Shoring

We understand that a portion of the northeast corner of the temporary excavation for constructing the new residence will need to be supported because of the lack of available space on the property for an open cut consistent with our recommendations. The height of the supported portion of the cut is planned to be 5 feet, and the length of the supported cut is planned to be approximately 10 feet. For this situation, temporary support can be provided by using modular concrete blocks such as Ultrablocks or similar product. A section profile for the proposed cut with shoring is presented in Plate 2 – Temporary Block Wall Shoring Detail.

- The blocks should have minimum dimensions of 2.5 feet square ends by 5 feet length (for full-size blocks) and of 2.5 feet square ends by 2.5 feet length (for 'half-blocks' where used). The blocks should have interlocking top and bottom keys for improved stability when stacked. The blocks should be on site and ready for use when cuts steeper than 1.25H:1V are initiated.

- The wall can be constructed to have a maximum height of three blocks with a rising backslope that does not exceed an inclination of 1.25H:1V and a height of 4 feet.

- The blocks should be stacked in an interlocking, running bond pattern. Half-length blocks should be used where appropriate to form vertical ends to wall lengths where needed to retain soil.

- The wall can be constructed with a vertical face. An embedment of 6 inches is recommended for providing a measure of supplemental stability.

- The bottom row of blocks should be set on a smooth, competent subgrade surface. A crushed rock base course, such as 5/8"-minus crushed rock, can be placed on the subgrade if desired to provide an even surface for stacking the blocks.

- The geotechnical engineer should be present on site full-time during wall installation to monitor the conditions and provide consultation if unanticipated conditions are encountered. If indications of imminent ground loss beyond the property are observed during work, the activities should be suspended and the excavation should be backfilled as directed to provide lateral support while the situation is evaluated and revised recommendations are developed.

- The wall should be constructed in a single pass, beginning at one end and progressing to the opposite end, with excavation and block placement being performed in short intervals. We recommend that the length of unsupported excavation be limited to 10 feet (the equivalent of two block lengths) while the work proceeds. Excavation of slopes to inclinations steeper than 1.25H:1V should not begin until the blocks are present on site.

- Void areas behind the wall should be filled during installation to provide wall and ground stability. The backfill should consist of granular material that is free of clumps or deleterious materials (e.g., debris, organics, etc.). We anticipate that an imported material, such as a sand and gravel pit-run will need to be used as backfill instead of the site soils (subject to the review of the geotechnical engineer).

- Unsupported excavations steeper than 1.25H:1V should not be exposed longer than necessary to promptly place the blocks and should not be left exposed overnight.

Provided that the above recommendations and on-site recommendations of the geotechnical engineer during work are properly followed, it is our opinion that installation of the proposed temporary excavation shoring will have minimal risk of adversely affecting the stability of the project site or of the north adjacent property.

Page 14 Comments #1, 2

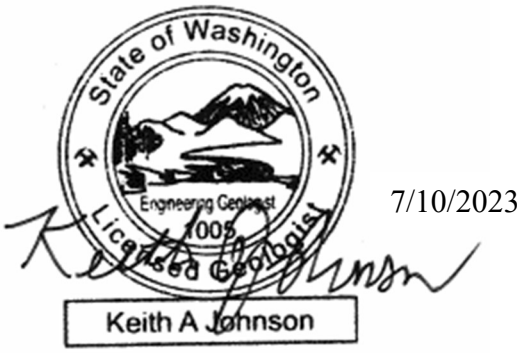
The project has been revised to use 3”-diameter pipe piles instead of 2”-diameter to accommodate the potential that some pile lengths may exceed 30 feet. Load testing of at least 3 percent of the piles (up to a maximum of 5 piles tested) should be performed during the project per the quick-load test method described in ASTM D1143.

Closing

Please feel welcome to contact us if you have any questions.

Sincerely,

GEO Group Northwest, Inc.



7/10/2023

Keith Johnson
Project Geologist

7/10/2023

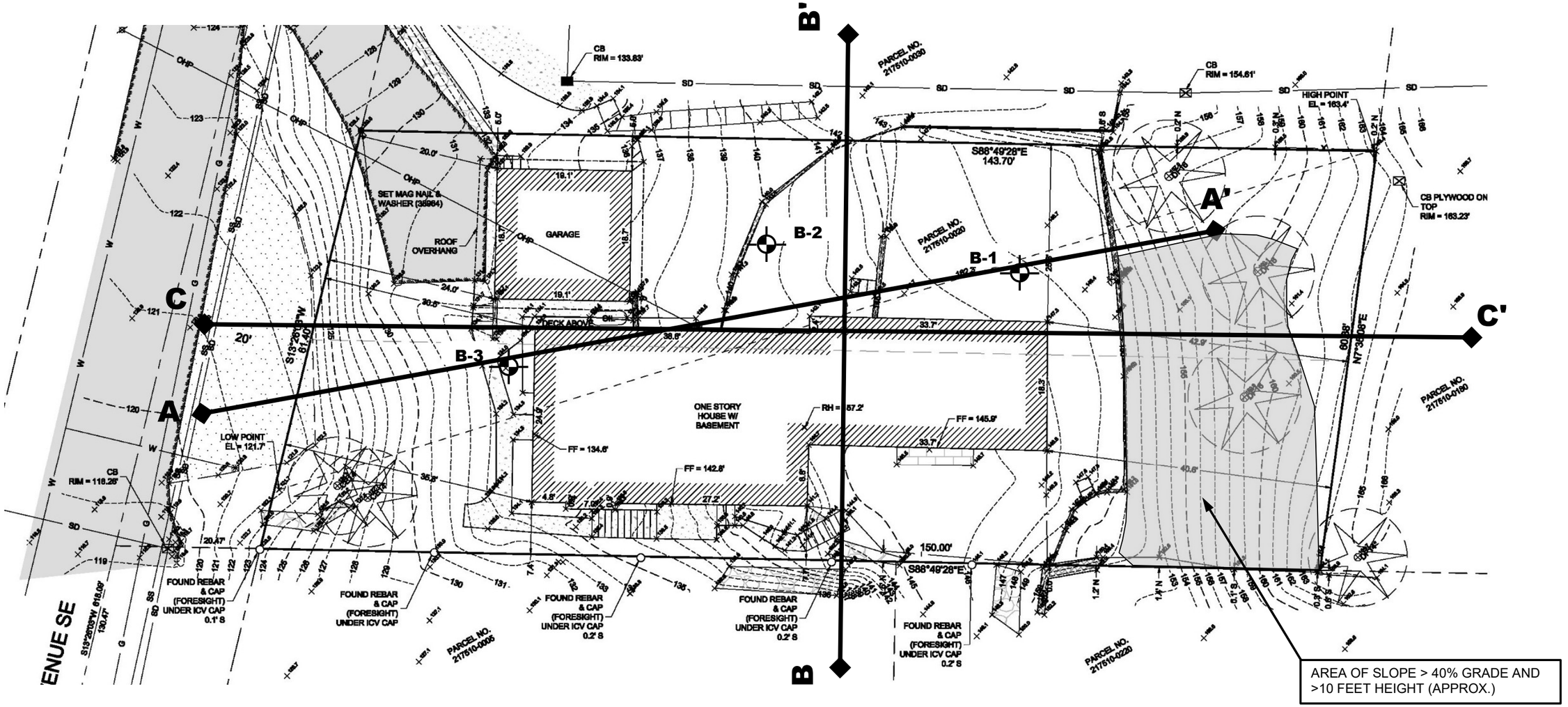
William Chang, PE
Principal Engineer

Plates and Attachments:

Plate 1A – Slope Profile Locations – Existing Plan
Plate 1B – Slope Profile Locations – Proposed Plan
Plate 2 – Temporary Block Wall Shoring Detail
Attachment A – Summary of Geotechnical Review Comments
Attachment B – ASCE 7 Hazard Tool Report
Attachment C – Supplemental Slope Stability Analysis Results

PLATES

G-5713



LEGEND

B-1 — EXPLORATORY BORING LOCATION (APPROXIMATE)

A — A' — LINE OF SITE PROFILE FOR

0 15 30

SCALE: 1 INCH = 15 FEET

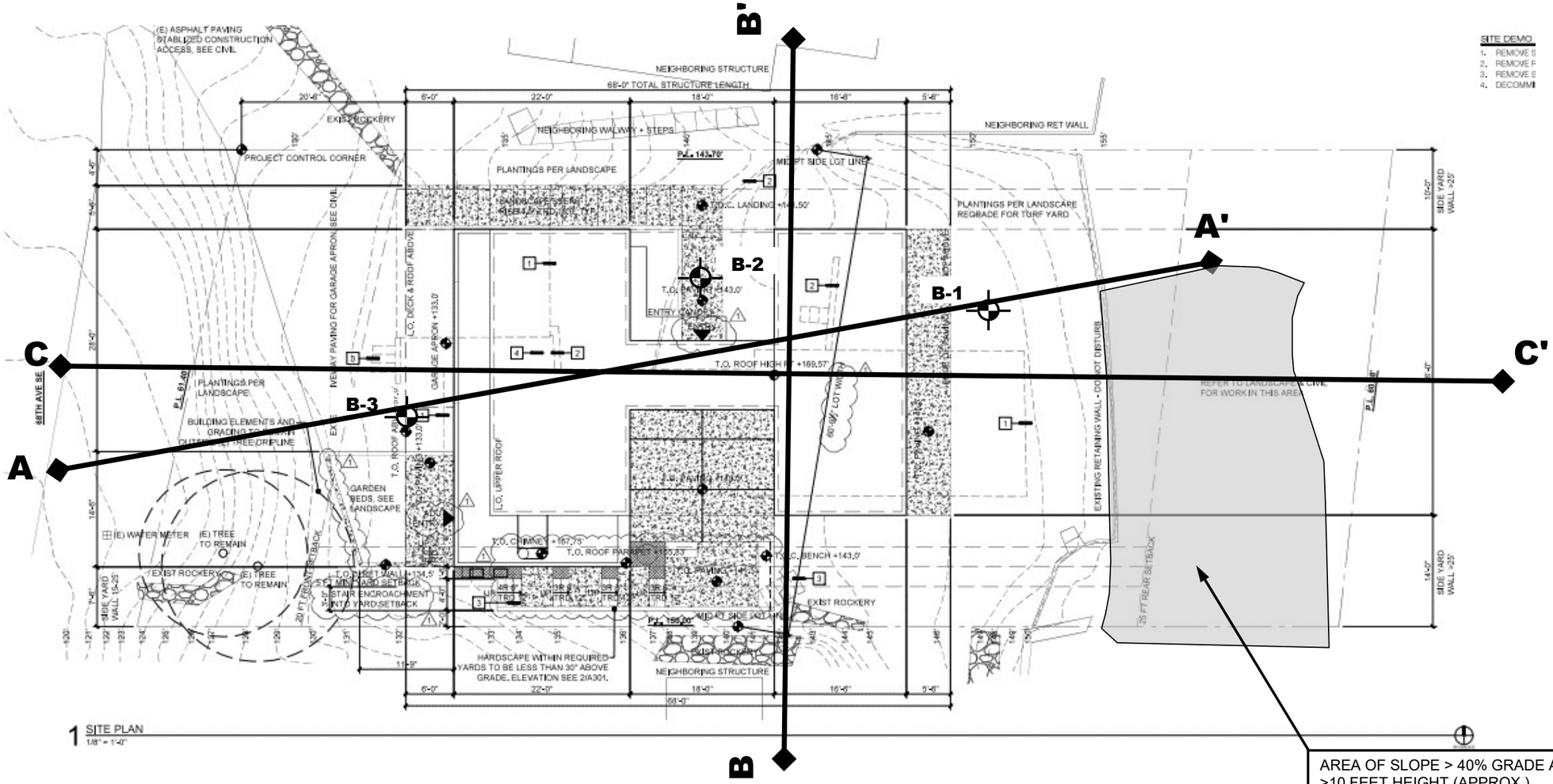
Source: Topographic Survey for Sam Franklin, by Site Surveying, Inc., dated 5/4/2022.

GEO Group Northwest, Inc.
Geotechnical Engineers, Geologists, & Environmental Scientists

SITE PROFILE LOCATIONS - EXISTING PLAN

PROPOSED RESIDENCE
3064 - 68TH AVENUE SE
MERCER ISLAND, WASHINGTON

SCALE	1" = 15'	DRAWN BY	KJ	CHECKED BY	WC	DATE	7/6/2023	PROJECT NO.	G-5713	PLATE	1A



1 SITE PLAN
1/8" = 1'-0"

AREA OF SLOPE > 40% GRADE AND >10 FEET HEIGHT (APPROX.)

LEGEND

B-1 — EXPLORATORY BORING LOCATION (APPROXIMATE)

A — A' — LINE OF SITE PROFILE FOR

0 15 30

SCALE: 1 INCH = 15 FEET

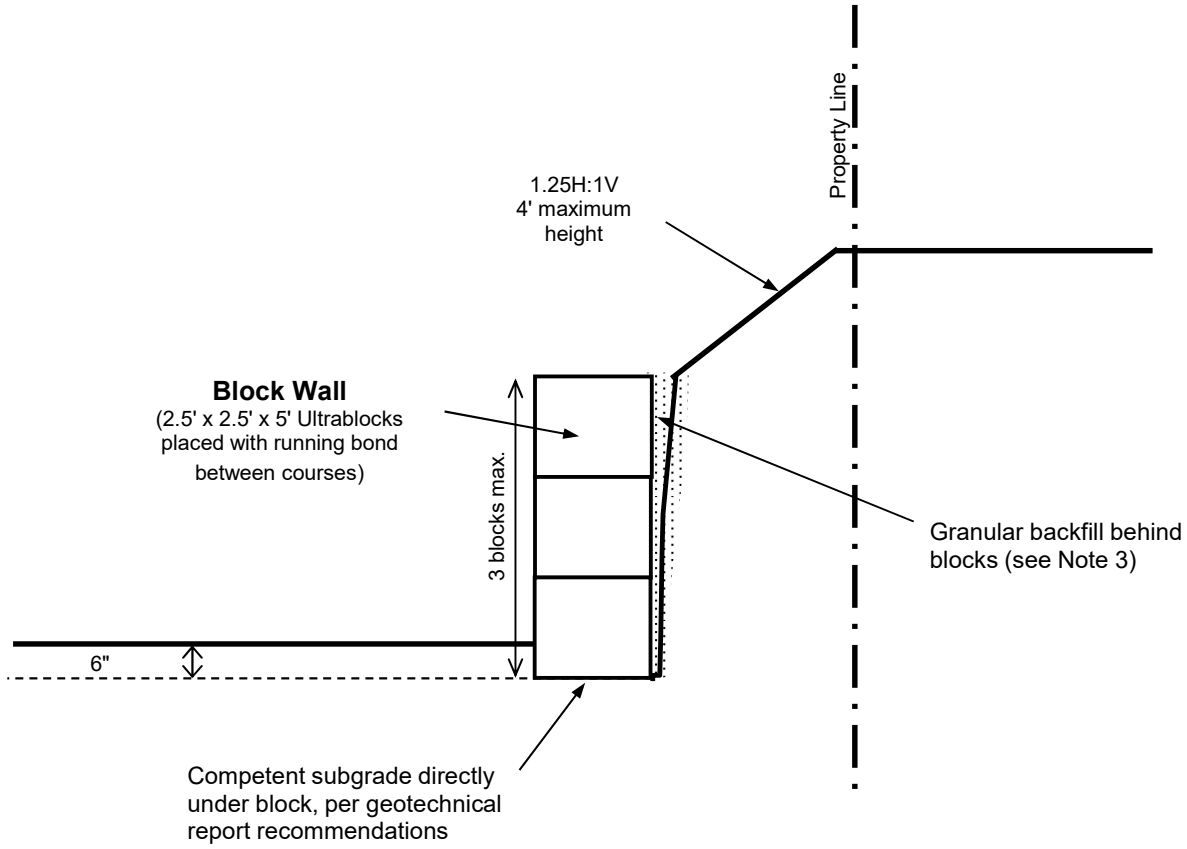
Source: Site Plan, Sheet A100, by Workshop AD, dated Jan 18, 2023.

GEO Group Northwest, Inc.
Geotechnical Engineers, Geologists, & Environmental Scientists

SITE PROFILE LOCATIONS - PROPOSED PLAN

PROPOSED RESIDENCE
3064 - 68TH AVENUE SE
MERCER ISLAND, WASHINGTON

SCALE	1" = 15'	DRAWN BY	KJ	CHECKED BY	WC	DATE	7/6/2023	PROJECT NO.	G-5713	PLATE	1B



NOT TO SCALE

NOTES:

1.) Excavation of near-vertical cuts and block placement for the wall should be performed under the observation of the geotechnical engineer.

2.) The wall can be constructed with a vertical batter; the indicated embedment is acceptable for temporary support.

3.) The wall backfill should consist of granular material that will not be susceptible to bridging when placed. Please refer to the attached addendum letter for further details.

4.) Refer to attached addendum letter for additional recommendations regarding construction sequence, etc.

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Geotechnical Engineers, Geologists, & Environmental Scientists

TEMPORARY BLOCK WALL SHORING DETAIL

PROPOSED RESIDENCE
3064 - 68TH AVENUE SE
MERCER ISLAND, WASHINGTON

SCALE:	As Shown	DATE:	7/6/2023	MADE:	KJ	CHKD:	WC	JOB NO:	G-5713	PLATE	2

ATTACHMENT A

G-5713

SUMMARY OF GEOTECHNICAL REVIEW COMMENTS

GEO Group Northwest, Inc.

Summary of Comments on A900

Page: [1] 2209_Franklin MI_G000-G000

Number: 1 Author: Planning Review (molly.mcguire@mercerisland.gov) Subject: Sticky Note Date: 5/31/2023 2:37:07 PM

Provide Notice on Title per MICC 19.07.070 for work within critical areas.

Number: 2 Author: Planning Review (molly.mcguire@mercerisland.gov) Subject: Sticky Note Date: 5/31/2023 3:14:10 PM

Add noxious weed note per MICC 19.02.020(F)(3)(d)

Number: 3 Author: Geotechnical Peer Review (michele.lorilla@mercergov.org) Subject: Comment Date: 4/18/2023 7:56:23 AM

Please provide slope stability analyses of maximum proposed temporary open cuts, e.g., as required to construct sections 1/A301, 2/A301 and 1/A401. Provide alternate means to support the excavation if slope stability analyses indicate marginally stable or unstable open cut conditions.

Provide cross section and slope stability results in a report addendum.

Number: 4 Author: Geotechnical Peer Review (michele.lorilla@mercergov.org) Subject: Comment Date: 4/17/2023 7:01:27 AM

The geotechnical engineer of record should review the project plans and upon final approval of the plans, please provide a letter indicating whether the planset conforms to their geotechnical recommendations provided in their report and provide a verbatim statement of risk in accordance with MICC 19.07.160.B.3.

Number: 5 Author: Geotechnical Peer Review (michele.lorilla@mercergov.org) Subject: Comment Date: 4/18/2023 7:55:45 AM

Please provide supporting documentation for the use of a seismic coefficient of 0.2 in the seismic slope stability analyses. IBC requires the use of MCE loading in determining the seismic coefficient as opposed to a design earthquake loading. Using 1/2 of the MCE acceleration to determine the seismic coefficient would result in a value higher than 0.2. Please revise analyses accordingly or provide supporting documentation and calculations for an alternative determination of the seismic coefficient in order to use 0.2.

Provide revised stability analyses as a report addendum.

Number: 6 Author: Geotechnical Peer Review (michele.lorilla@mercergov.org) Subject: Comment Date: 4/18/2023 7:04:29 AM

In the slope stability cross section, please indicate how the sheared texture/fracturing and variable SPT values noted in the soil units on the soil boring logs is taken into account in determining the stratigraphy and soil strength values.

Please indicate what is interpreted to be the elevation of the top of the intact, undisturbed (not mass wastage) native soil.

Number: 7 Author: Jeromy Hicks (jeromy.hicks@mercergov.org) Subject: Sticky Note Date: 4/11/2023 12:13:38 PM

Add:

1. NFPA 13R Fire Sprinkler System to be installed. A Separate FIRE permit is required. Install per NFPA 13r and CoMi standards.

2. NFPA 72 Monitored Fire Alarm System 'Chapter 29" is required to be installed. A separate FIRE permit is required and must be installed per CoMI and NFPA 72 standards.

See intake notes and email to applicant on 1/23/23

Page: [13] 2209_Franklin MI_A400_sections-A401

Number: 1 Author: Building Plan Review (jacob.halverson@mercerisland.gov) Subject: Sticky Note Date: 6/20/2023 11:25:01 AM

Provide notes if custom fabricated steel stair to be deferred submittal if not designed by structural engineer. Or provide specifications in sub2 if product.

Number: 2 Author: Geotechnical Peer Review (michele.lorilla@mercergov.org) Subject: Comment Date: 4/18/2023 7:57:31 AM

This temporary cut slope angle is steeper than recommended by the geotechnical engineer (p.9 of report). Geotechnical engineer to provide slope stability analyses of proposed open cut to verify that adequate FS exists. Alternatively, provide temporary shoring recommendations.

Provide stability cross section and results and/or shoring recommendations in a report addendum.

Number: 3 Author: Geotechnical Peer Review (michele.lorilla@mercergov.org) Subject: Comment Date: 4/18/2023 7:57:46 AM

Geotechnical engineer to review proposed temporary open cut and provide assessment as to whether this cut can be made as shown given anticipated subsurface conditions. Alternatively provide temporary shoring recommendations in a report addendum that does not encroach on the adjacent property.

Page: [14] 2209_Franklin MI_A900_schedules-A900

Number: 1 Author: Geotechnical Peer Review (michele.lorilla@mercergov.org) Subject: Comment Date: 4/17/2023 7:12:03 AM

If larger diameter pin piles are used due to potential lengths exceeding 30 feet for 2-inch diameter pin piles, please include pin pile load testing requirements.

ASTM quick test (D1143) required on minimum 3% of piles up to 5 piles maximum (1 minimum).

Number: 2 Author: Geotechnical Peer Review (michele.lorilla@mercergov.org) Subject: Comment Date: 4/17/2023 7:28:50 AM

The geotechnical engineer should provide an estimated pile length or minimum pile tip elevation given the variable SPT values indicated in the soil boring logs. Are the pile lengths anticipated to exceed the 30-foot maximum length for 2-inch pin piles according to the local geotechnical engineering standard of practice?

Please revise pin piles and structural design accordingly if the 30-ft length may be exceeded.

ATTACHMENT B

G-5713

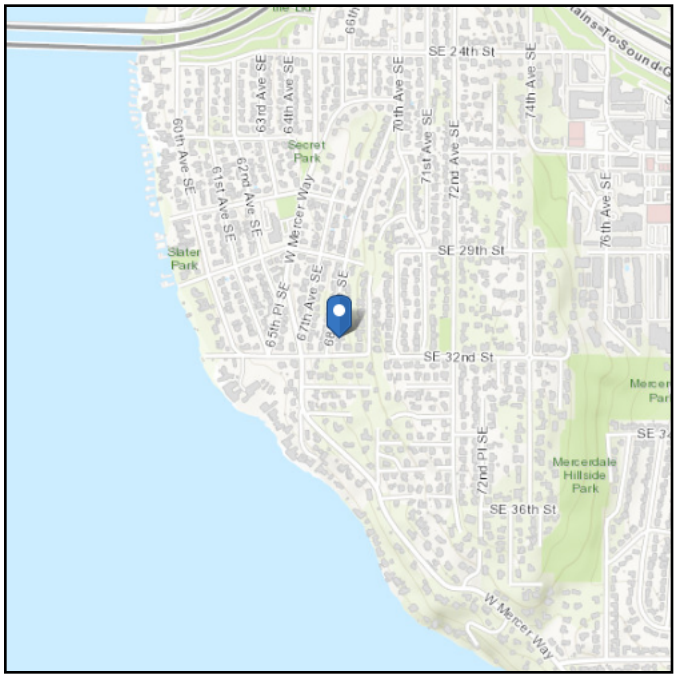
ASCE 7 HAZARD TOOL REPORT

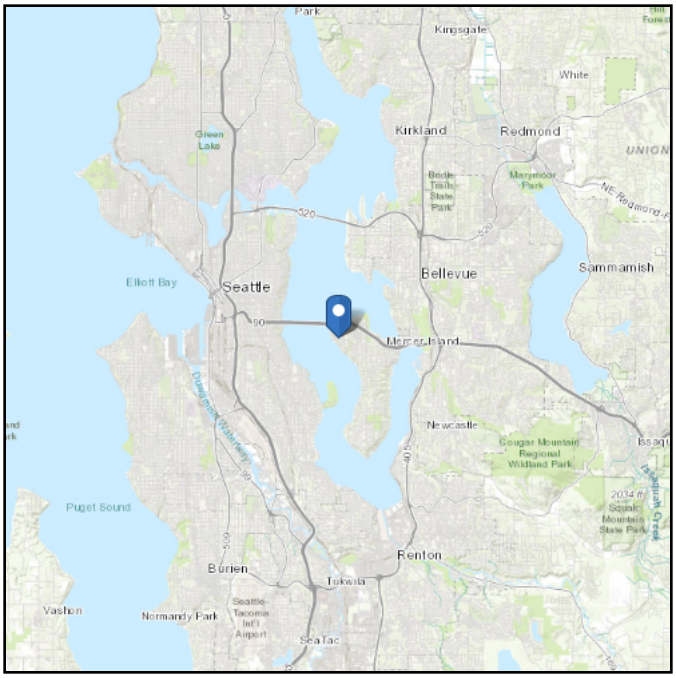
GEO Group Northwest, Inc.

ASCE 7 Hazards Report

Address:
3064 68th Ave SE
Mercer Island, Washington
98040

Standard:	ASCE/SEI 7-16	**Latitude:**	47.582269
Risk Category:	II	**Longitude:**	-122.247248
Soil Class:	D - Stiff Soil	**Elevation:**	140.58546581107072 ft (NAVD 88)





Seismic

Site Soil Class: D - Stiff Soil

Results:

S_S :	1.408	S_{D1} :	N/A
S_1 :	0.49	T_L :	6
F_a :	1	PGA :	0.603
F_v :	N/A	PGA_M :	0.663
S_{MS} :	1.408	F_{PGA} :	1.1
S_{M1} :	N/A	I_e :	1
S_{DS} :	0.939	C_v :	1.382

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Tue Jun 27 2023

Date Source: USGS Seismic Design Maps

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

ATTACHMENT C

G-5713

SUPPLEMENTAL SLOPE STABILITY ANALYSIS RESULTS

GEO Group Northwest, Inc.

ATTACHMENT C

G-5713

SUPPLEMENTAL SLOPE STABILITY ANALYSIS RESULTS

GEO Group Northwest, Inc.

Slide Analysis Information

New Residence, 3064 - 68th Ave SE, Mercer Island, WA

Project Summary

File Name:	G-5713 A2 existing
Last saved with Slide version:	7.038
Project Title:	New Residence, 3064 - 68th Ave SE, Mercer Island, WA
Analysis:	Existing Condtion Profile A
Author:	KJ
Company:	GEO Group Northwest, Inc.

Comments

Comm 1
Comm 2
Comm 3
Comm 4
Comm 5

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	inches/hour
Failure Direction:	Right to Left
Data Output:	Standard
Maximum Material Properties:	25
Maximum Support Properties:	25

Analysis Options

Slices Type:	Vertical

Analysis Methods Used

Bishop simplified

Number of slices:	75
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Circular
Search Method:	Grid Search
Radius Increment:	10
Composite Surfaces:	Disabled
Reverse Curvature:	Invalid Surfaces
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Material Properties

Property	IA - Med Stiff ML-CL, occas fract	IIA - Very Stiff CL- ML, occas fract	IIIA - Med Dense to Dense sandy ML to SM, occas fract	IIIB - Med Dense to Dense sandy ML to SM, intact	Concrete	IIB - Very stiff CL-ML, intact	IB - Med Stiff CL-ML, intact
Color							
Strength Type	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb	Infinite strength	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [lbs/ft3]	115	120	120	120	150	120	115
Cohesion [psf]	600	900	120	150		1200	750
Friction Angle [deg]	0	0	28	30		0	0
Water Surface	None	None	None	None	None	None	None
Ru Value	0	0	0	0	0	0	0

List Of Coordinates

External Boundary

X	Y
150	100
150	116
150	118
150	120
150	130
150	131
150	141
150	143
150	144
150	150
150	153
150	160
146	158
143	157
141	156
135.5	153
133.5	152.5
132.5	152.5
132.5	150.614
132.5	148.5
132	148.48
125.634	148.225
120	148
107	147
99.5	146.5
99	144
89.5	142.5
87.5	142
85	141.5
77.5	141
77	139
68	138
64.5	137.5
63.5	137.5
63.5	134
63	134
50	134
46	134
43.5	134
40	133
34.5	131
30	129
23.5	126
21.5	125
20	124
18.5773	123.052

18.5	123
15	122
5	121
0	120.5
0	114.51
0	112
0	110
0	100

Material Boundary

X	Y
18.5773	123.052
46	127
85	129
100.623	138.832
120	144
132	147

Material Boundary

X	Y
15	122
27.315	122
38	121
39.5165	120.863
46	116
52.755	120.863
85	126.5
120	135
150	141

Material Boundary

X	Y
132	148.48
132	147
133.5	147
133.5	149
133.5	150.75
133.5	152.5

Material Boundary

X	Y
63	134
63	133
64.5	133
64.5	137.5

Material Boundary

X	Y
133.5	149
150	153

Material Boundary

X	Y
100.623	138.832
107	147

Material Boundary

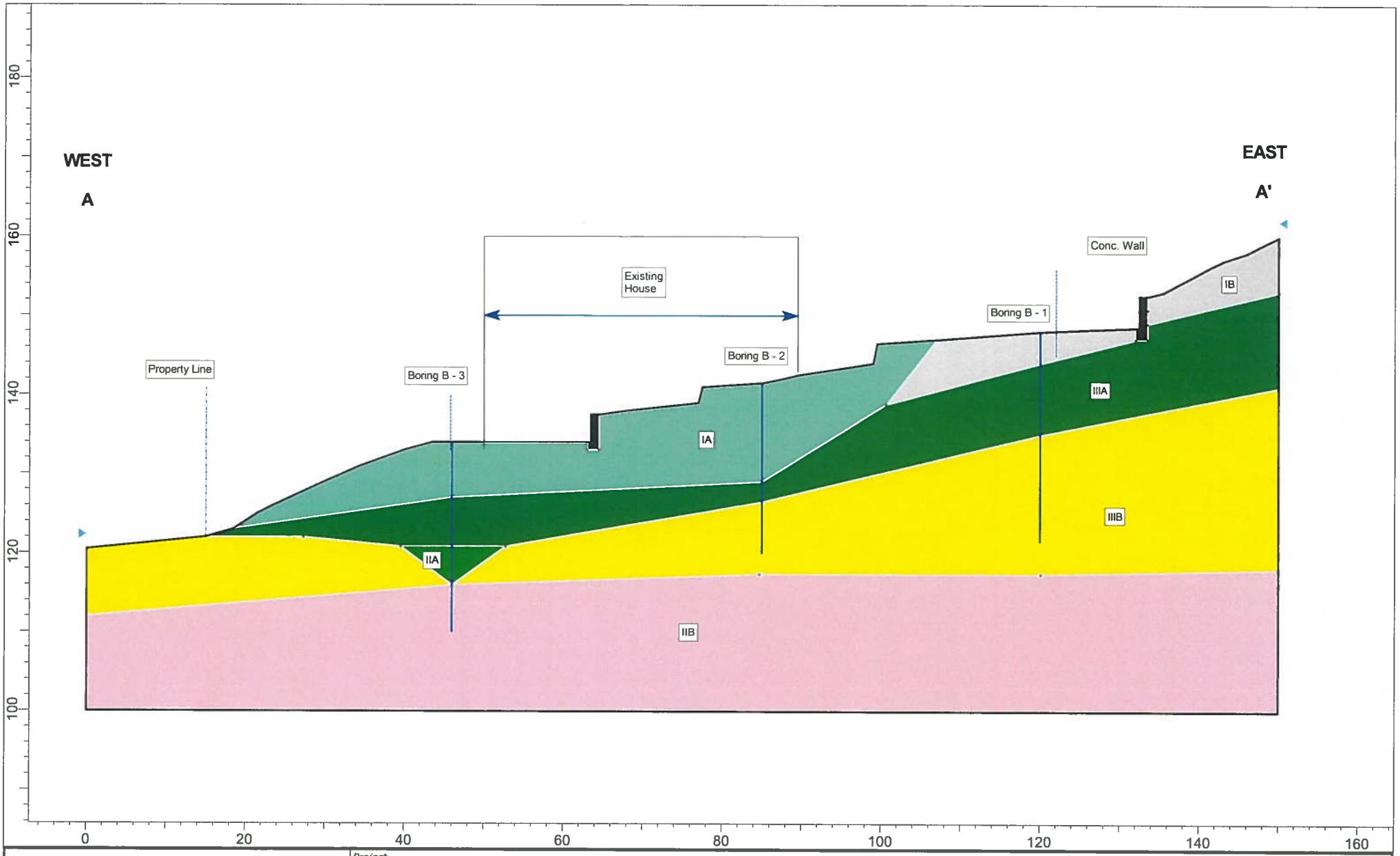
X	Y
27.315	122
39.5165	120.863
52.755	120.863

Material Boundary

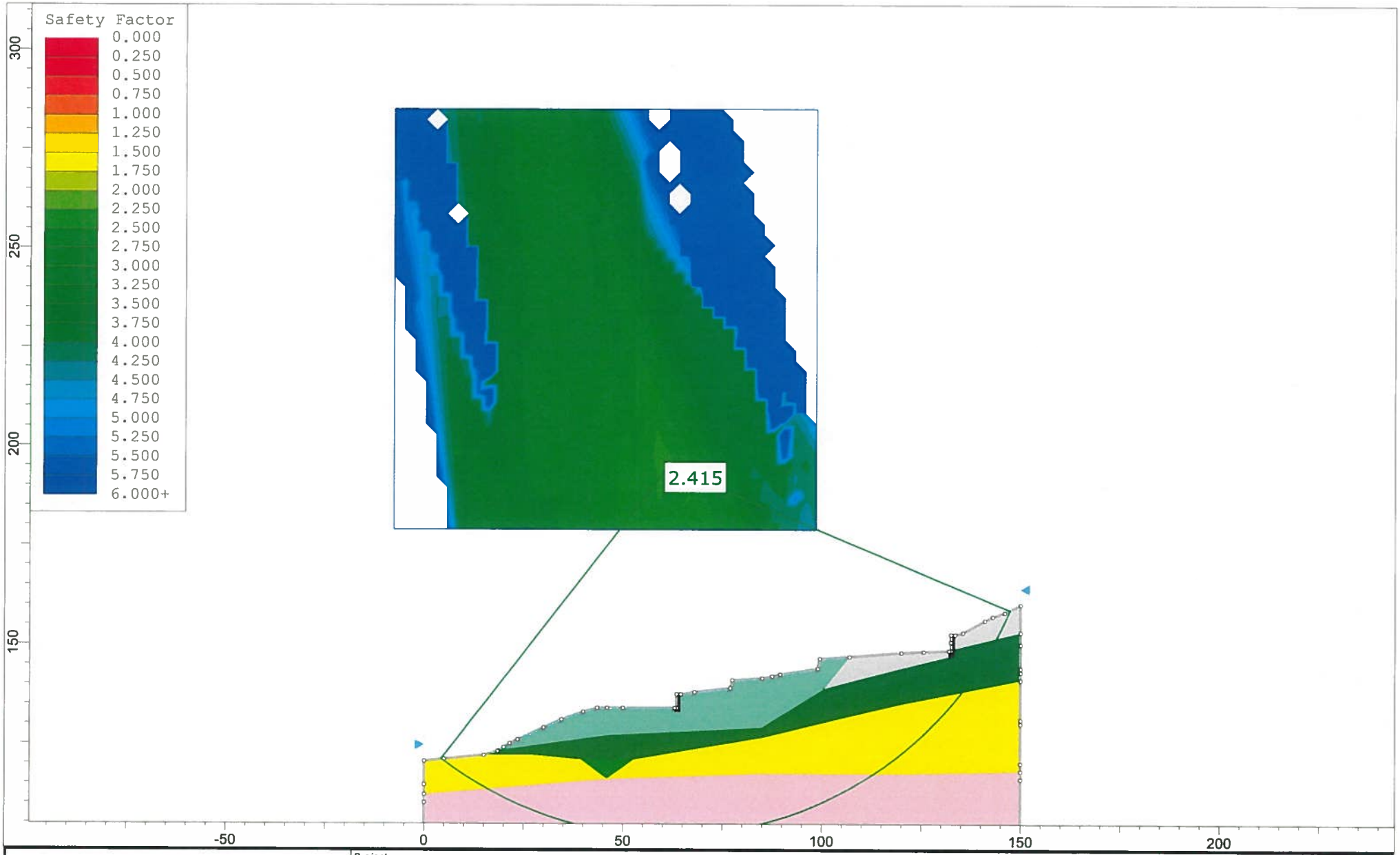
X	Y
46	116
84.701	117.383
120.123	117.383
150	118

Material Boundary

X	Y
0	112
46	116

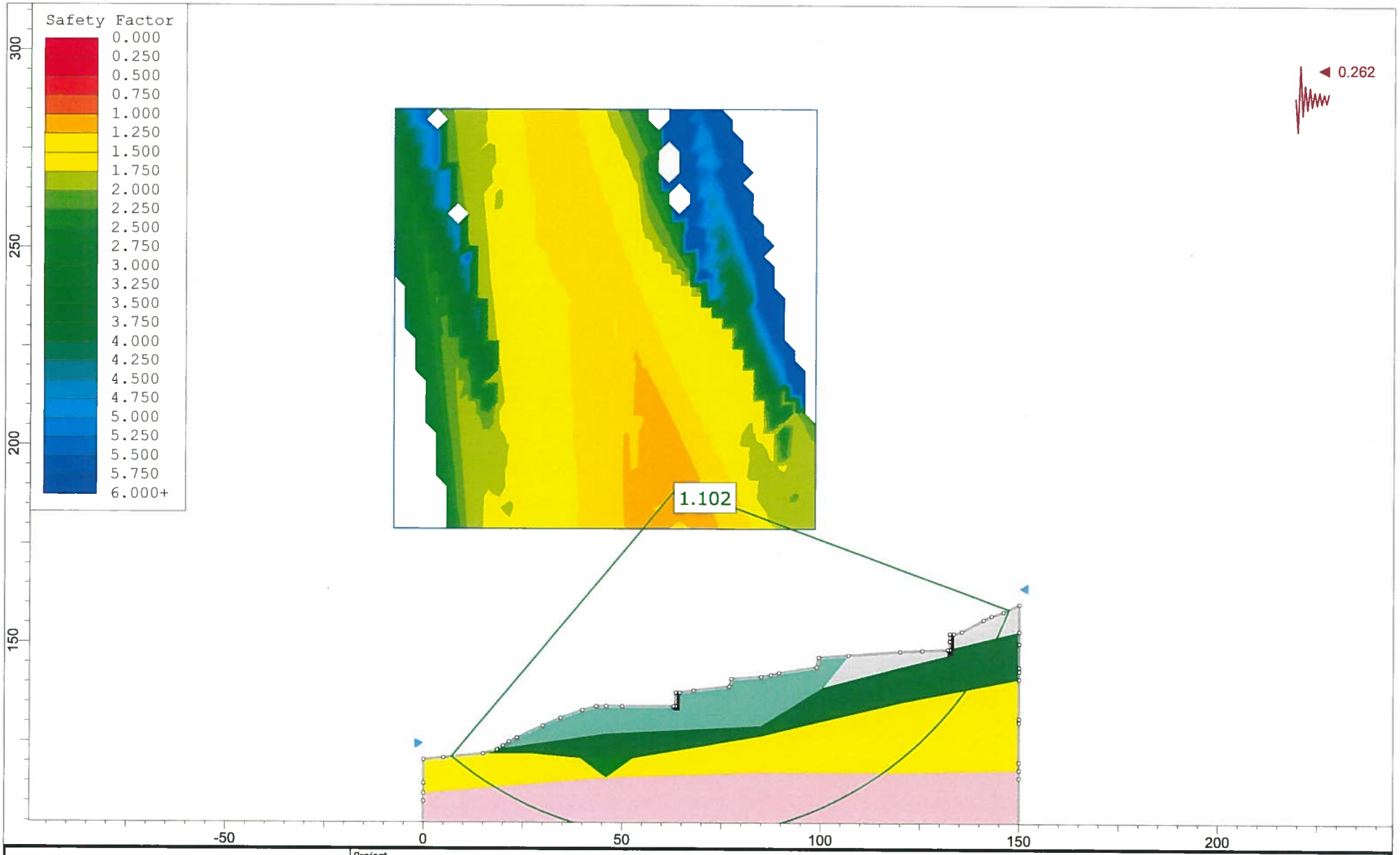


Project	New Residence, 3064 - 68th Ave SE, Mercer Island, WA			
Analysis Description	Existing Condtion Profile A			
Drawn By	KJ	Scale	1:200	Company GEO Group Northwest, Inc.
Date				File Name G-5713 A2 existing.slim



rocscience	Project	New Residence, 3064 - 68th Ave SE, Mercer Island, WA		
	Analysis Description	Existing Condtion Profile A		
	Drawn By	KJ	Scale 1:400	Company GEO Group Northwest, Inc.
	Date			File Name G-5713 A2 existing static.slim

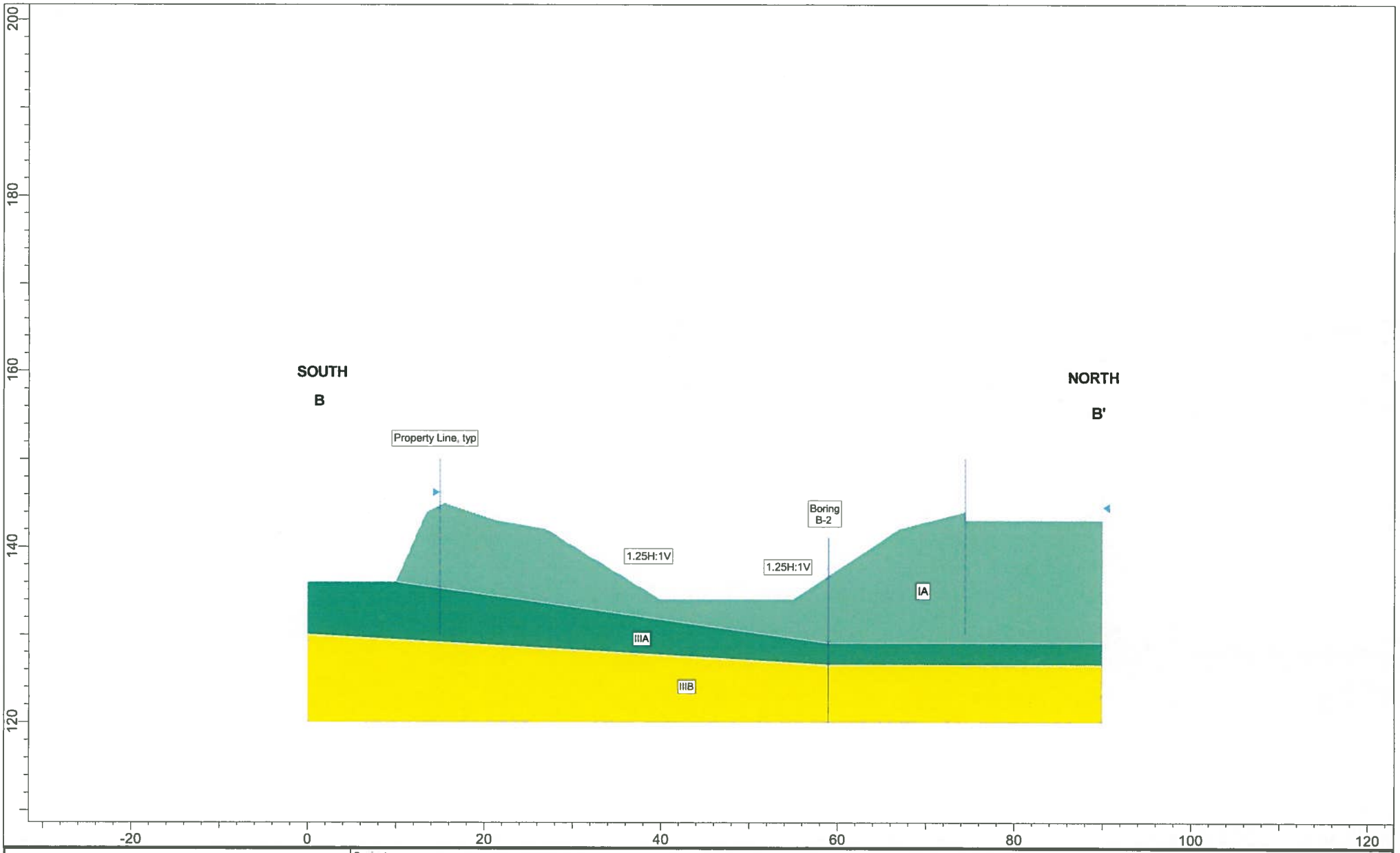
SLIDEINTERPRET 7.038



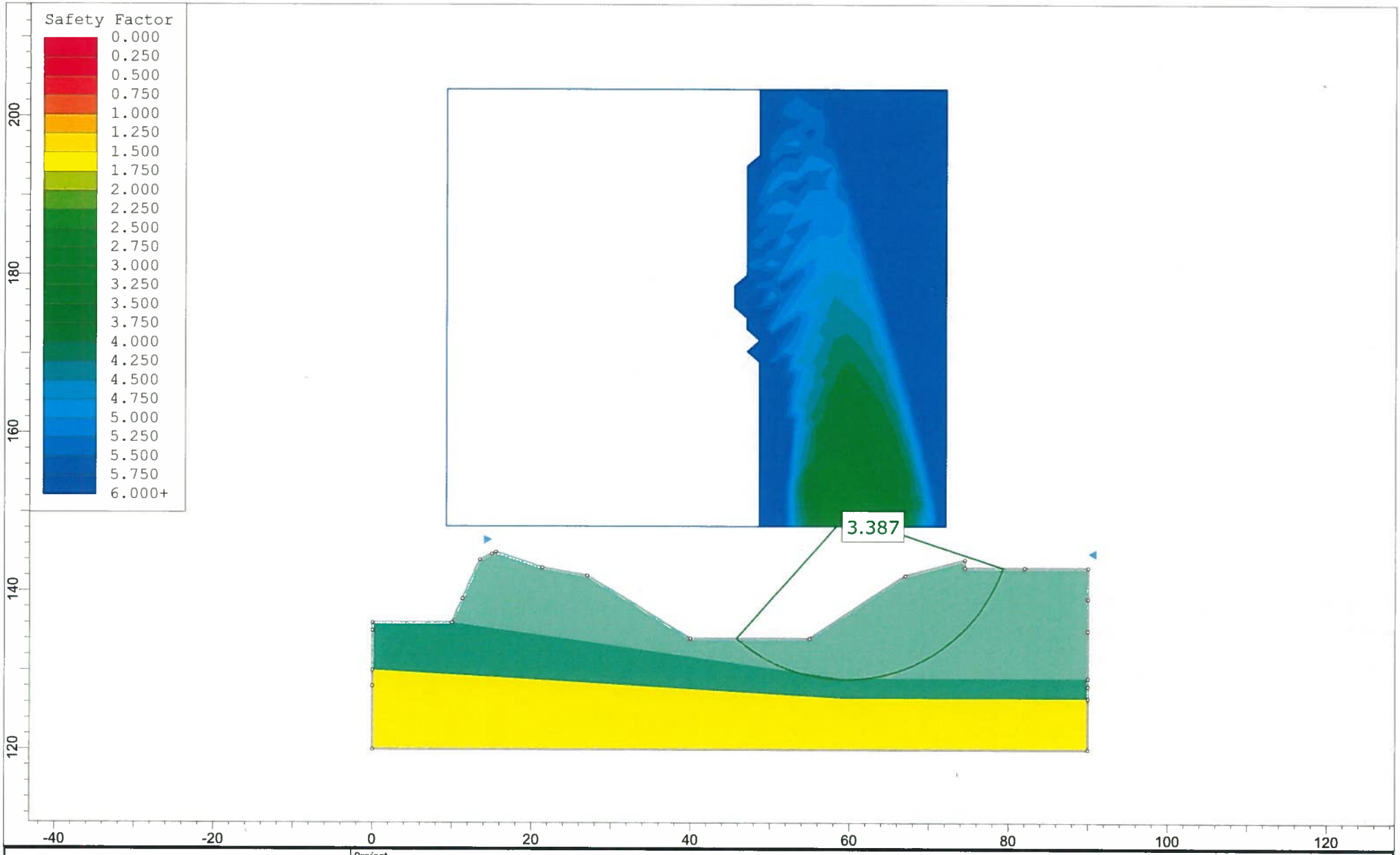
rocscience

SLIDEINTERPRET 7.038

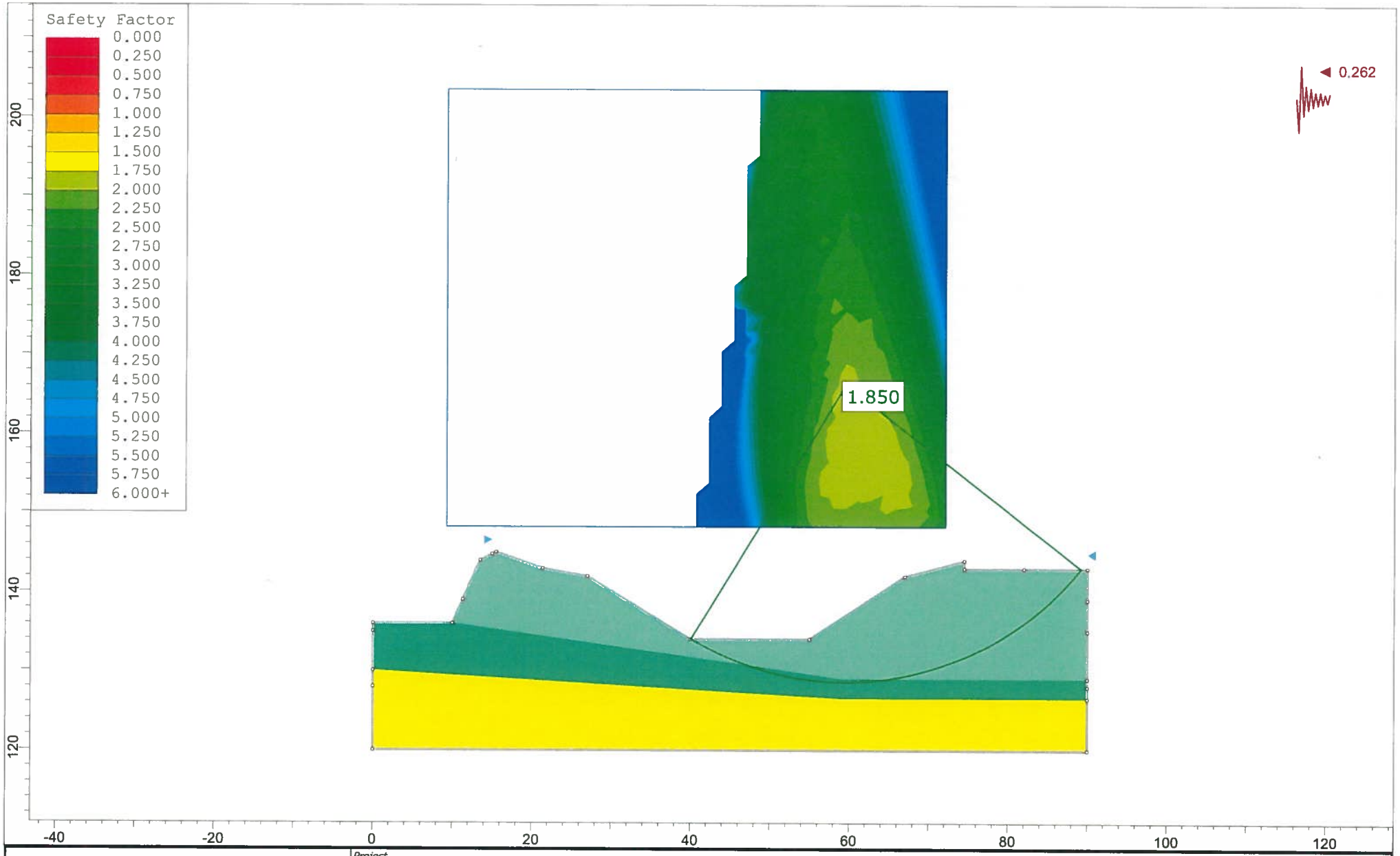
Project	New Residence, 3064 - 68th Ave SE, Mercer Island, WA				
Analysis Description	Existing Condtion Profile A				
Drawn By	KJ	Scale	1:400	Company	GEO Group Northwest, Inc.
Date				File Name	G-5713 A2 existing seismic.slim



Project	Proposed Residence		
Analysis Description	Temp Excavation Profile B		
Drawn By	KJ	Scale 1:180	Company
Date			File Name G-5713 B temp cuts.slim



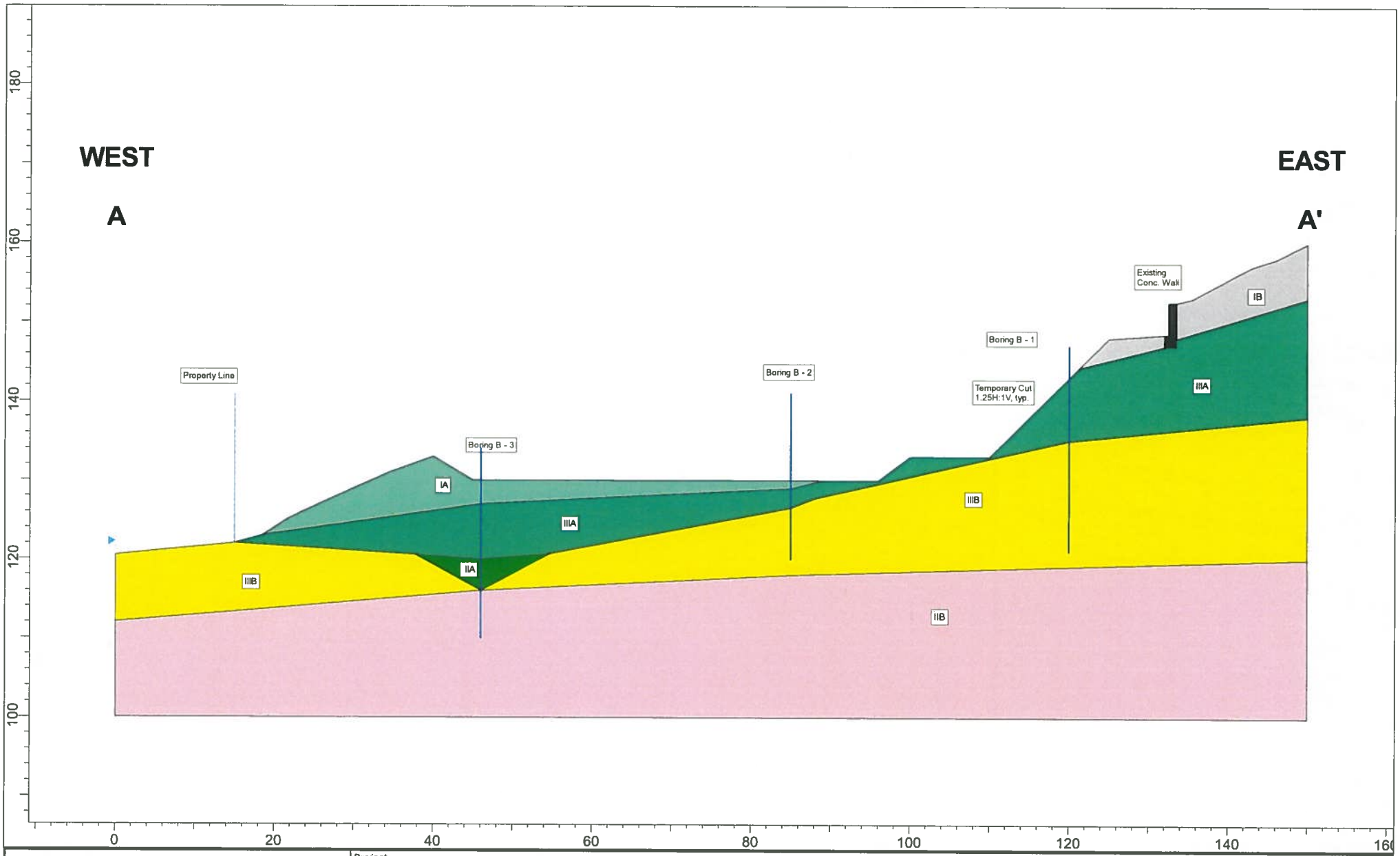
rocscience	Project: Proposed Residence		
	Analysis Description: Temp Excavation Profile B		
	Drawn By: KJ	Scale: 1:200	Company:
SLIDEINTERPRET 7.038	Date:		File Name: G-5713 B temp cuts static.slim



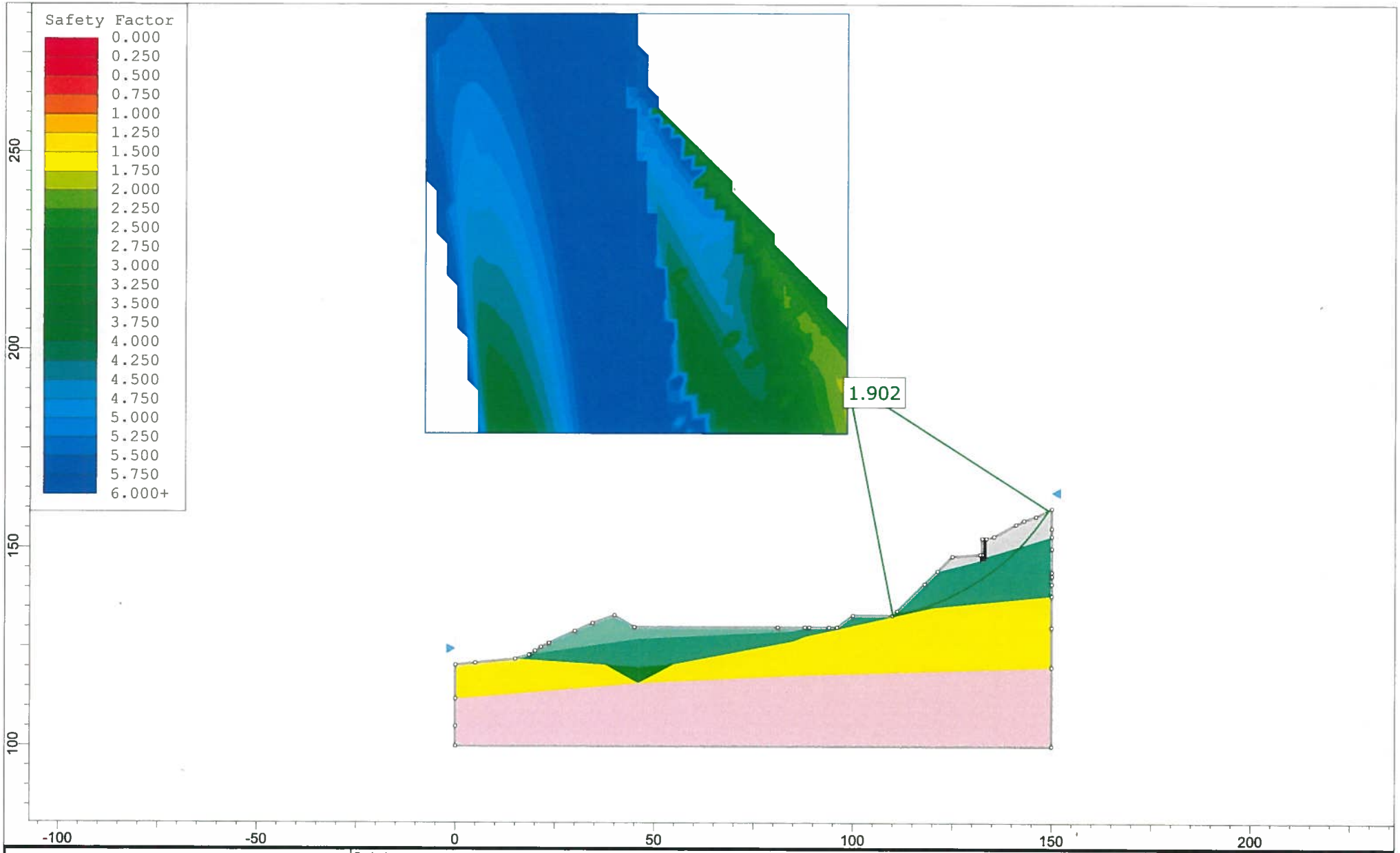
rocscience

SLIDEINTERPRET 7.038

Project	Proposed Residence		
Analysis Description	Temp Excavation Profile B		
Drawn By	KJ	Scale 1:200	Company
Date			File Name G-5713 B temp cuts seismic.slim



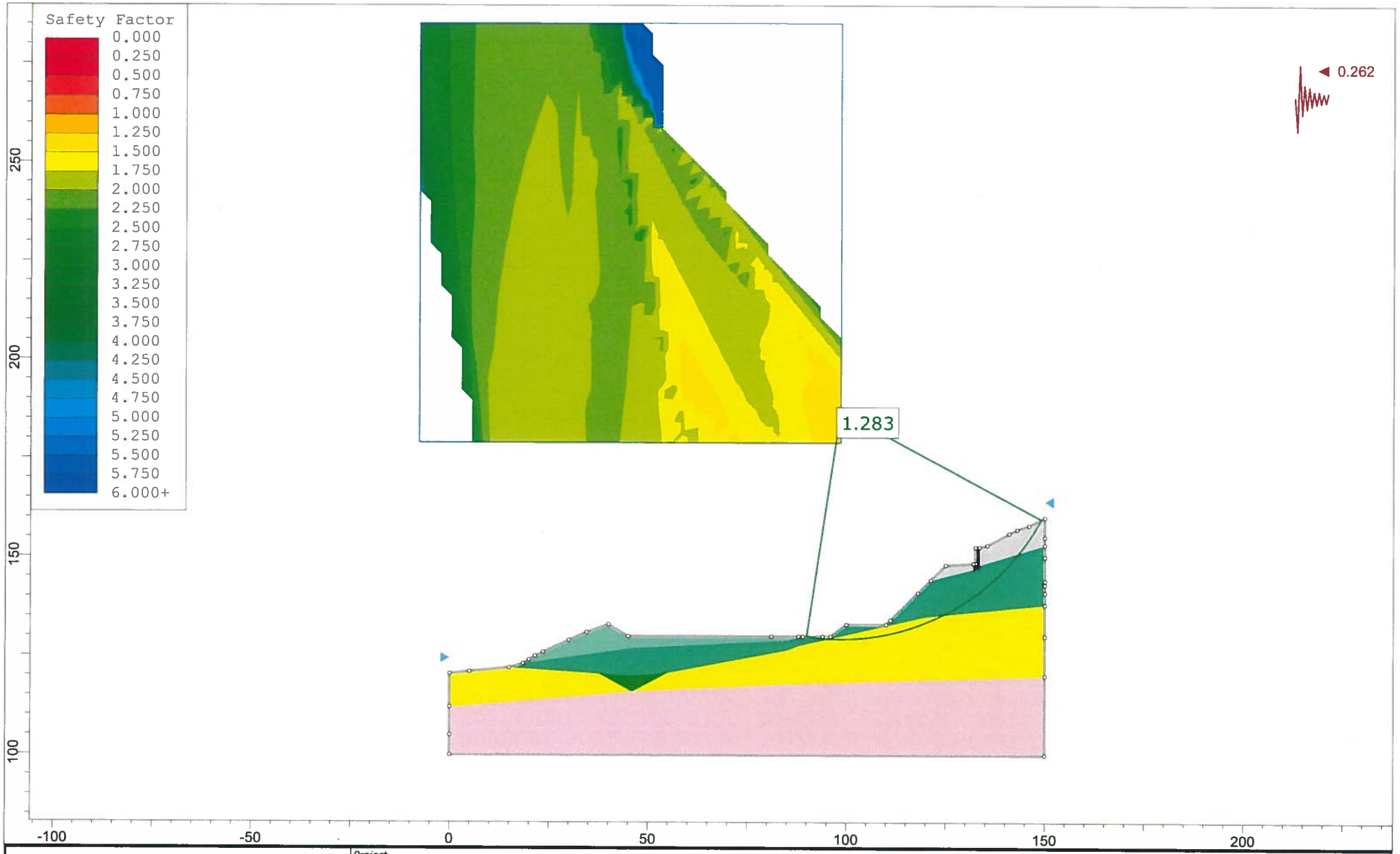
Project	New Residence, 3064 - 68th Ave SE, Mercer Island, WA			
Analysis Description	Existing Condtion			
Drawn By	KJ	Scale	1:200	Company GEO Group Northwest, Inc.
Date				File Name G-5713 C temp cuts.slim



rocscience

SLIDEINTERPRET 7.038

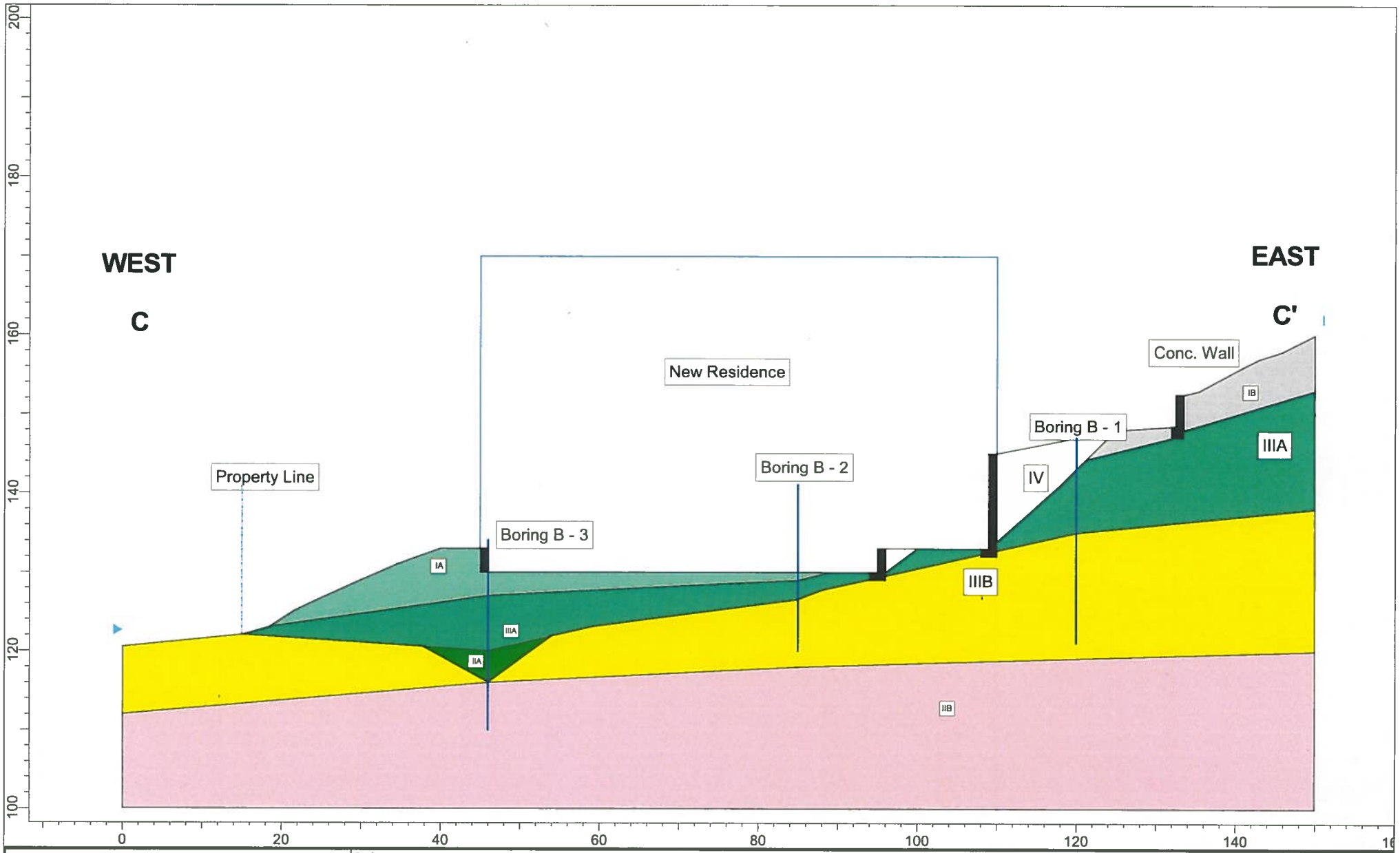
Project	New Residence, 3064 - 68th Ave SE, Mercer Island, WA		
Analysis Description	Existing Condtion		
Drawn By	KJ	Scale 1:400	Company GEO Group Northwest, Inc.
Date			File Name G-5713 C temp cuts static.slim



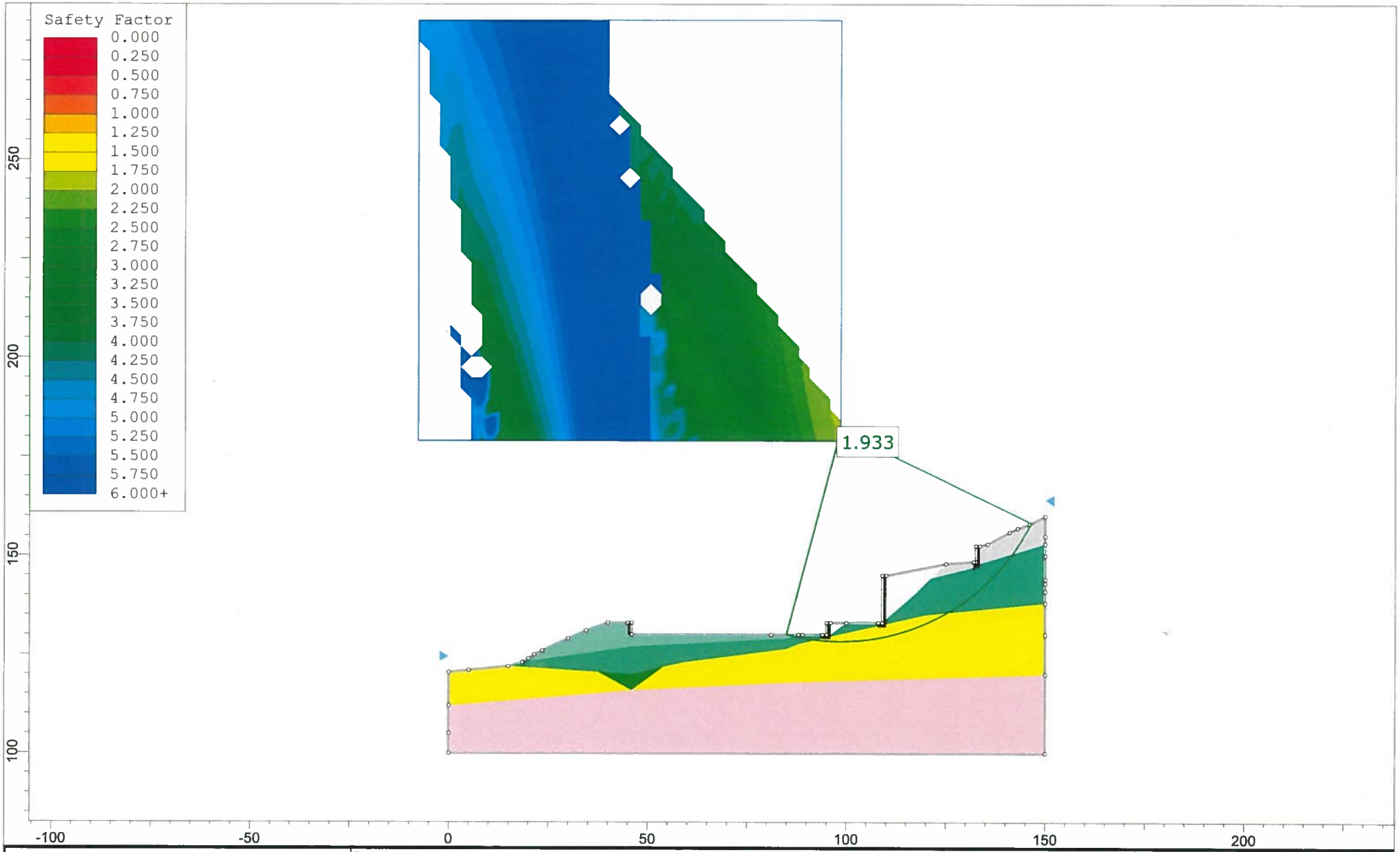
rocscience

SLIDEINTERPRET 7.038

Project	New Residence, 3064 - 68th Ave SE, Mercer Island, WA			
Analysis Description	Existing Condtion			
Drawn By	KJ	Scale	1:400	Company: GEO Group Northwest, Inc.
Date				File Name: G-5713 C temp cuts seismic.slim



Project	New Residence, 3064 - 68th Ave SE, Mercer Island, WA		
Analysis Description	Existing Condtion		
Drawn By	KJ	Scale 1:200	Company GEO Group Northwest, Inc.
Date			File Name G-5713 C post construction.slim



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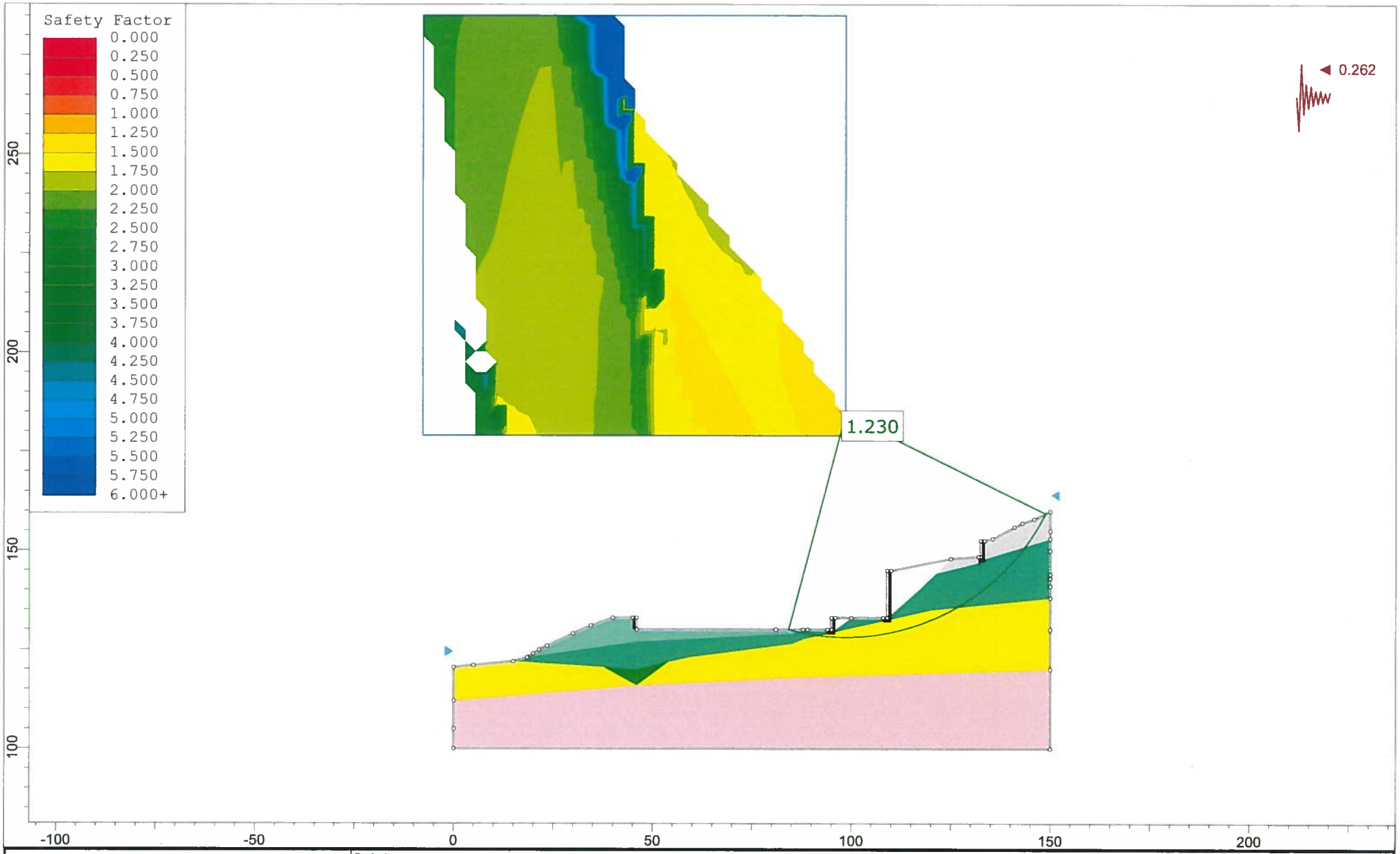
SLIDEINTERPRET 7.038

Project	New Residence, 3064 - 68th Ave SE, Mercer Island, WA				
Analysis Description	Existing Condtion				
Drawn By	KJ	*Scale*	1:400	*Company*	GEO Group Northwest, Inc.
Date				*File Name*	G-5713 C post construction static.slim



rocscience

SLIDEINTERPRET 7.038

Project	New Residence, 3064 - 68th Ave SE, Mercer Island, WA			
Analysis Description	Existing Condtion			
Drawn By	KJ	Scale	1:400	Company GEO Group Northwest, Inc.
Date				File Name G-5713 C post construction seismic.slim