

Delmore Fast Track Application

Appendix 8: A06 (Geotechnical) to Response to Comments letter

From: James Beaumont – Riley

Date: 5 June 2026

Re: Geotechnical Response Memorandum

1.1 Introduction

This memorandum responds to the Technical Specialist Memo prepared by Auckland Council (Geotechnical) in relation to the above fast-track application (as lodged). This response addresses:

- Further information requests / technical queries; and
- Recommended amendments to consent conditions.

The following attachments are included to this memorandum:

- **Attachment A: Stability Analysis outputs**
- **Attachment B: Remediation Plan**
- **Attachment C: Email correspondence with Council on conditions**

The rows within the table below that have been confirmed resolved are highlighted green.

1.2 Response to Further Information Requests / Technical Comments

Information Request from Council on the lodged material	Applicant Response	Information Request / Technical Comment from Council under section 53 FTAA	Applicant Response under Section 55 FTAA
Earthworks contours Appendix I (Riley Sketches) indicates that the earthworks cut and fill profiles were based on drawings prepared by McKenzie & Co dated 10 December 2025, whereas the latest earthworks plan package is dated 12 December 2025. Suggest confirmation whether the most recent plans have been adopted in the assessment be provided.	Review of the 12 December 2025 drawings prepared by McKenzie and Co indicates that the updates from the 10 December drawings are inconsequential to the proposed cuts/fills, and finished contours. Therefore, the stability analyses are considered to be appropriate and no updates are required.	Accepted and closed.	Resolved. In addition, review of the 3 June 2026 3D model prepared by McKenzie & Co indicates that there have been updates to the finished ground surface at various locations around the development. For most locations, these changes are inconsequential to the proposed cuts/fills and finished contours. At some locations the indicated changes imply the proposed stability enhancement measures may be overly conservative. At a few locations some re-configuration of the stability enhancement measures and their extent could be required. In any event, and as per normal geotechnical practice, the final design extent and configuration of the stability enhancement measures will be reviewed and re-assessed as part

			of detailed design inputs. Accordingly, we consider that the stability analyses are appropriate and no updates are required.
Slope stability output The stability analysis output pages do not include the soil parameters and support parameters adopted in the modelling (e.g. Sections H, O, AA, AB, AF, AG, AH, etc.). Suggest that these details be provided to support the analysis and verify model outputs.	Stability analysis outputs for these cross-sections showing the soil and support parameters are attached. No notable change to the output results. Recommendations in the GIR remain appropriate.	Accepted and closed.	Resolved and stability analysis is included in Attachment A for the Panel's reference.
Slope stability output For Section I (remedial option case), the search limits appear to be focused on the toe slope. Suggest that the model extend the search limits to include the upper development area.	Stability analysis outputs for this cross-section with the search limits extended are attached to this memo. No notable change to the output results. Recommendations in the GIR remain appropriate.	Accepted and closed.	Resolved and stability analysis is included in Attachment A for the Panel's reference.
Slope stability output For Section Z, no surcharge load appears to have been considered in the analysis. Suggest that this decision be clarified or the model revised.	Stability analysis outputs for this cross-section with the surcharge added are attached to this memo. No notable change to the output results. Recommendations in the GIR remain appropriate.	Accepted and closed.	Resolved and stability analysis is included in Attachment A for the Panel's reference.

Slope stability output The output page for Section AC is not legible for regulatory review. Suggest that a clearer output be provided.	Stability analysis outputs for this cross-section have been re-outputted to be clear and are attached to this memo. No change to the calculated FoS. Recommendations in the GIR remain appropriate.	Accepted and closed.	Resolved and stability analysis is included in Attachment A for the Panel's reference.
Remediation Plan It is noted that the remediation plan indicates the use of a reinforced earth batter (REB) to retain a cut slope. It appears that the REB may have been erroneously extended from Section AD where filling is proposed. A more practicable option in this instance may be appropriate. Suggest that confirmation that the notation on the remediation plan is correct or a revision provided to reflect intended works.	The remediation plan has been updated and is attached to this memo. The subject portion where cuts are proposed to be formed has been changed to soil nails (consistent with the nearby Section AC). The extent of each type of stability enhancement measure will need to be confirmed during detailed the design. See updated Riley sketch SK143 attached.	Accepted and closed.	Resolved and the remediation plan is included in Attachment B for the Panel's reference.

1.3 Response to Recommended / Amended Conditions

Condition Request from Council on the lodged condition document (Appendix 44 to the AEE)	Applicant Response	Council Specialist Response	Applicant Response
26. At least 10 working days prior to the commencement of works for any stage or sub-stage of the development, the consent holder must provide a detailed construction methodology endorsed by a chartered geo-professional who must provide written confirmation of the review. The methodology must include earthworks, boundary works and installation of slope protection measures in accordance with the recommendations provided within the Geotechnical Report, referenced in Condition 1 and submitted to Auckland Council. <u>No works onsite are permitted prior to written confirmation that the detailed construction methodology has been reviewed and accepted by the Council.</u> Advice note: The earthworks detailed construction methodology is required to ensure stability is maintained throughout the civil works stage of the development.	This condition is accepted and has been updated within the condition set (refer Section 2.1.10 of the conditions).	Accepted and closed on the premise of the applicant's response however we note that the updated conditions varies from what has agreed in the applicant response which is specific to bulk earthworks. We suggest that this be revised. <i>At least 10 working days prior to the commencement of works for any stage or sub-stage of the development, the consent holder must provide a detailed construction methodology endorsed by a chartered geo-professional who must provide written confirmation of the review. The methodology must include earthworks, boundary works and installation of slope protection measures in accordance with the recommendations provided within the Geotechnical Report, referenced in Condition 1 and submitted to Auckland Council. No bulk earthworks onsite are permitted prior to written confirmation that the detailed construction methodology has been</i>	Resolved based on further discussions with Council (refer to email correspondence in Attachment C): This has been further discussed with Council and is now resolved, subject to the wording within the condition being amended as per below. This is to ensure some enabling works can commence on site before the detailed construction methodology is signed off. Refer now to Condition 10 of the land use consent: <i>At least 10 working days prior to the commencement of works for any stage or sub-stage of the development, the consent holder must provide a detailed construction methodology endorsed by a chartered geo-professional who must provide written confirmation of the review. The methodology must include earthworks, boundary works and installation of slope protection measures in accordance with the recommendations provided within the Geotechnical Report, referenced in Condition 1 and submitted to Auckland Council. No bulk earthworks onsite</i>

		reviewed and accepted by the Council.	are permitted prior to written confirmation that the detailed construction methodology has been reviewed and accepted by the Council. <u>This does not apply to enabling works which are permitted under the Auckland Unitary Plan.</u> <u>Advice note: Typical enabling work activities may include the following:</u> • <u>Permitted vegetation clearance</u> • <u>Implementation or exercise of any management plans which will not adversely impact slope stability or geohazards for example, bat surveys etc</u> • <u>Installation of erosion and sediment control measures</u> • <u>Site establishment activities, including the setup of site offices and associated facilities.</u>
44. At least 20 working days prior to the commencement of bulk earthworks for any stage or sub-stage of the development, a Settlement Monitoring Plan (SeMP) prepared by a SQEP chartered geo-professional , must be submitted to Council for certification. Any later proposed amendment of the SeMP must also be submitted to Council for certification.	This condition is accepted and has been updated within the condition set (refer Section 2.1.17 of the conditions).	Accepted and closed.	Resolved. Refer now to Condition 11 of the land use consent.
45. The purpose of the SeMP is to set out the practices and procedures to be	This condition is accepted and has been updated within the	Accepted and closed.	Resolved. Refer now to Condition 11 of the land use consent.

adopted to ensure compliance with the consent conditions regarding earthworks fill settlement monitoring and shall-must include, at a minimum, the following information: a) A monitoring location plan, showing the location and type and construction detail of all settlement monitoring points; b) Details of the monitoring frequency; c) All monitoring data, the identification of services susceptible to damage and all building/service condition surveys undertaken to date; and d) Details of criteria to confirm that fill induced settlements have sufficiently attenuated. Settlement monitoring results must be presented in the Geotechnical Completion Report (refer Condition 46 and Condition 47).	condition set (refer Section 2.1.17 of the conditions).		
46. The placement and compaction of fill material, construction of geogrid reinforced slopes, shear piles, retaining and palisade walls, soil nails, shear keys, counterfort drains and subsoil drainage works must be supervised by a SQEP geo-professional. In supervising the works, the SQEP geo-professional must	This condition is accepted and has been updated within the condition set (refer Section 2.1.17 of the conditions).	Accepted and closed.	Resolved. Refer now to Condition 30 of the land use consent.

ensure that they are constructed and otherwise completed in accordance with the recommendations contained within the Geotechnical Report approved under Condition 1, relevant engineering code of practice, and the detailed plans forming part of the application and approved under Condition 1.			
47. Within 20 working days from the completion of earthworks, subsoil drainage and slope protection structures, a Geotechnical Completion Report (GCR) signed by the chartered geo-professional must be provided to the Council. The GCR must include (but not to be limited to): a) Earthworks operations (e.g. fill compaction, testing, inspections etc.); <u>b) Site inspections, observations, recommendations and photo evidence</u> c) Results of settlement monitoring; d) Statement of professional opinion (as per schedule 2A of NZS4404:2010); and e) Certified as-built plans for the implemented earthworks <u>including but not being limited to earthworks cut and fill, shear keys, reinforced earth batter</u>	This condition is accepted and has been updated within the condition set (refer Section 2.1.17 of the conditions).	Accepted and closed.	Resolved. Refer now to Condition 31 of the land use consent.

<u>slopes, soil nails, retaining and palisade walls, counterfort drains</u> and subsoil drainage.			
48. The GCR must also provide justification on soil expansivity, subsoil site class, foundation requirements, <u>geotechnical input of erosion protection measures for dispersal devices on each lot and</u> confirming that the works have been completed in accordance with the approved construction methodology as required by Condition 26 and evidence of settlement monitoring as required by Condition 4 7 5 have been met. The GCR must include results of settlement monitoring and demonstration that sufficient settlement attenuation has occurred and be provided to the satisfaction of the Council.	This condition is accepted and has been updated within the condition set (refer Section 2.1.17 of the conditions).	Please note that the condition relating to construction methodology is numbered 29 in the updated set, rather than 26. Further the Settlement Monitoring is no longer condition 45 but Condition 47. The finalised condition set should be amended to reference the correct condition number.	Resolved – minor error with condition referencing numbering which has now been updated. On further review of this condition, it has also been consolidated with the condition above. This has been discussed and agreed with Council as per the attached email correspondence (Attachment C). Refer now to Condition 31 of the land use consent.
49. All earthworks must be managed to ensure that they do not lead to any uncontrolled instability or collapse either affecting the site or adversely affecting any neighboring properties. In the event that such collapse or instability does occur, it <u>the consent holder</u> must immediately be rectified <u>the damage</u> .	This condition is accepted and has been updated within the condition set, subject to a minor amendment to fix the grammar (refer Section 2.1.17 of the conditions).	Accepted and closed.	Resolved. Refer now to Condition 32 of the land use consent.

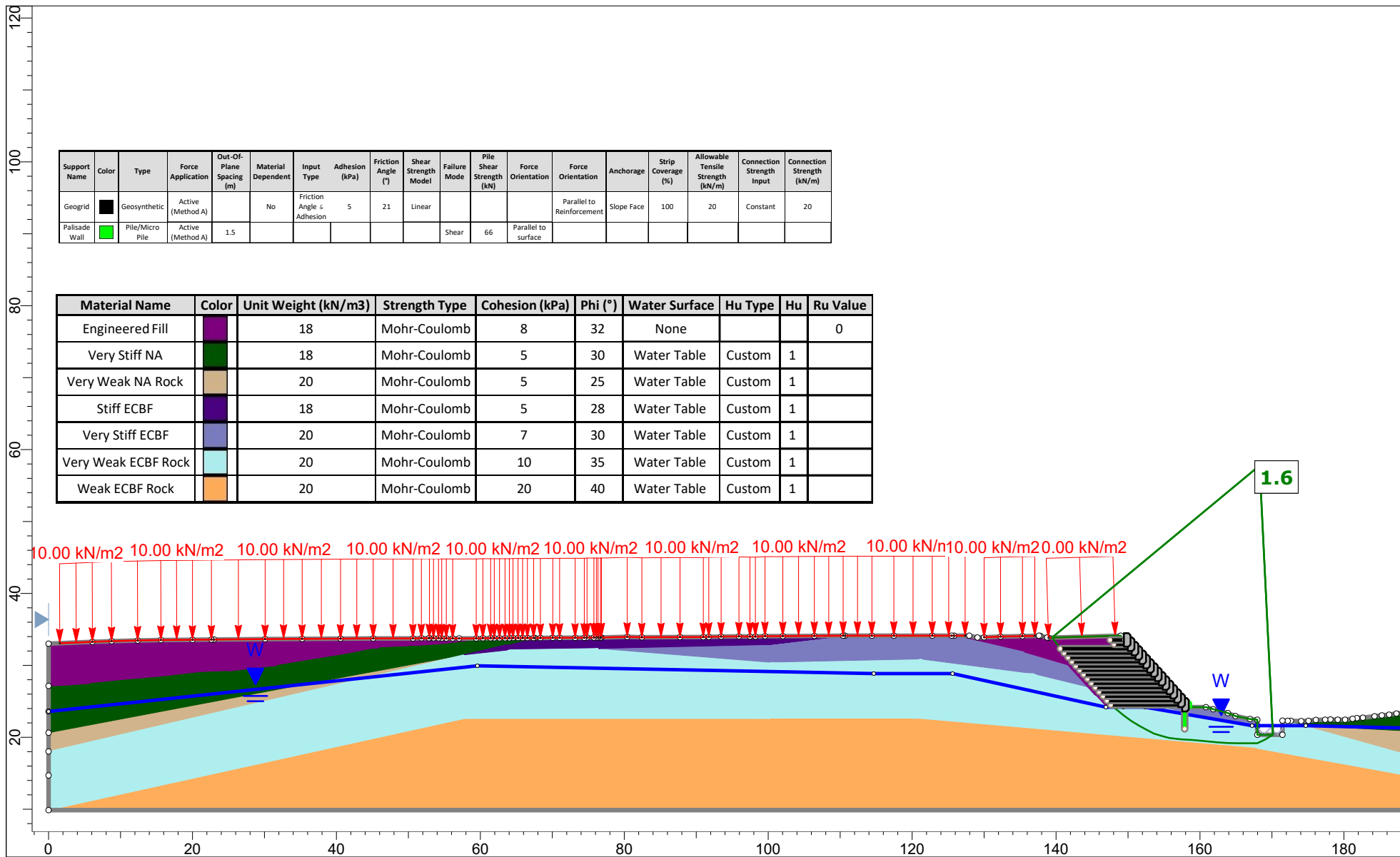
104. The consent holder must construct the earthworks, <u>geogrid reinforced earth batters, slopes, shear piles</u> , retaining <u>and palisade walls, soil nails, shear keys, counterfort drains</u> and subsoil drainage in accordance with the recommendations of the Riley Consultants Ltd Geotechnical Investigation Report approved under Condition 1 to ensure the site is stable and suitable for development.	This condition is accepted and has been updated within the condition set (refer Section 3.1.7 of the conditions).	Accepted and closed.	Resolved. Refer now to Condition 23 of the subdivision consent.
105. A Geotechnical Completion Report (GCR) from a suitably qualified and experienced chartered geo-professional must be prepared and submitted to Council to confirm that all residential <u>and commercial</u> lots are stable and suitable for development when applying for a certificate under section 224(c) for a subdivision stage (or sub-stage). The GCR must include a Building Restriction Zone plan that identifies specific design zones and no-build zones. Development must be undertaken in accordance with the recommendations of the GCR. The preceding paragraph must be registered as a consent notice on the records of title for all residential <u>and</u>	This condition is accepted and has been updated within the condition set (refer Section 3.1.7 of the conditions).	Accepted and closed.	Resolved. Refer now to Condition 24 of the subdivision consent.

<u>commercial</u> lots to ensure that it is complied with on a continuing basis. The specific name and date of the GCR provided must be referenced in the consent notice. Advice note: <u>The specific name and date of the GCR provided must be referenced in the consent notice.</u> Refer to Auckland Council Code of Practice 2023 (Chapter 2) which details expectations of a geotechnical completion report.			
106. <u>Certified</u> as-built details of installed counterfort drains shall <u>must</u> be included within the Geotechnical Completion Report, together with records of counterfort drain commissioning observations and flushing. Advice Note: The drain commissioning information will provide baseline data for the counterfort drain operation and maintenance plan. The as-built drawings shall <u>should</u> also include locations of the flushing ports and outlet structures.	This condition is accepted and has been updated within the condition set (refer Section 3.1.7 of the conditions).	Accepted and closed. Please note that there appears to be an error in the Advice note which should be rectified: <i>The drain commissioning information will provide baseline data for the counterfort drain operation and maintenance plan. The as-built drawings should also include locations of the flushing ports and outlet structures.</i>	Resolved – minor grammatical error now fixed. Resolved. Refer now to Condition 25 of the subdivision consent.
107. Where counterfort drains are installed within a stage of the development, a counterfort drain	This condition is accepted and has been updated within the	Accepted and closed.	Resolved. Resolved. Refer now to Condition 26 of the subdivision consent.

operation and maintenance plan (CDOMP) must shall be provided as an attachment to the Geotechnical Completion Report <u>to the Council for certification</u>, incorporating a staged maintenance approach. This shall must include the observations to be made, their frequency and any associated actions <u>to ensure their serviceability</u>. <u>Any subsequent revision of the CDOMP must also be submitted to the Council for certification. The consent holder must meet the costs of the production, certification, monitoring and review of the CDOMP.</u> <u>Advice Note:</u> • <u>The council acknowledges that the CDOMP is intended to provide flexibility both for the consent holder and the council for the management of the counterfort drainage and slope stability. Accordingly, the CDOMP may need to be reviewed over time. Any reviews should be in accordance with the stated objectives of the management plan and limited to the scope of this consent.</u>	condition set (refer Section 3.1.7 of the conditions).		
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• <u>Certification of the CDOMP by the council relates only to those aspects of the management plan that are relevant under the Resource Management Act 1991. The certification does not amount to an approval or acceptance of suitability by the council of any elements of the management plan that relate to other legislation, for example, but not limited to, the Building Act 2004, the Heritage New Zealand Pouhere Taonga Act 2014, or the Health and Safety in Employment Act 1992.</u>			
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Attachment A: Stability Analysis outputs



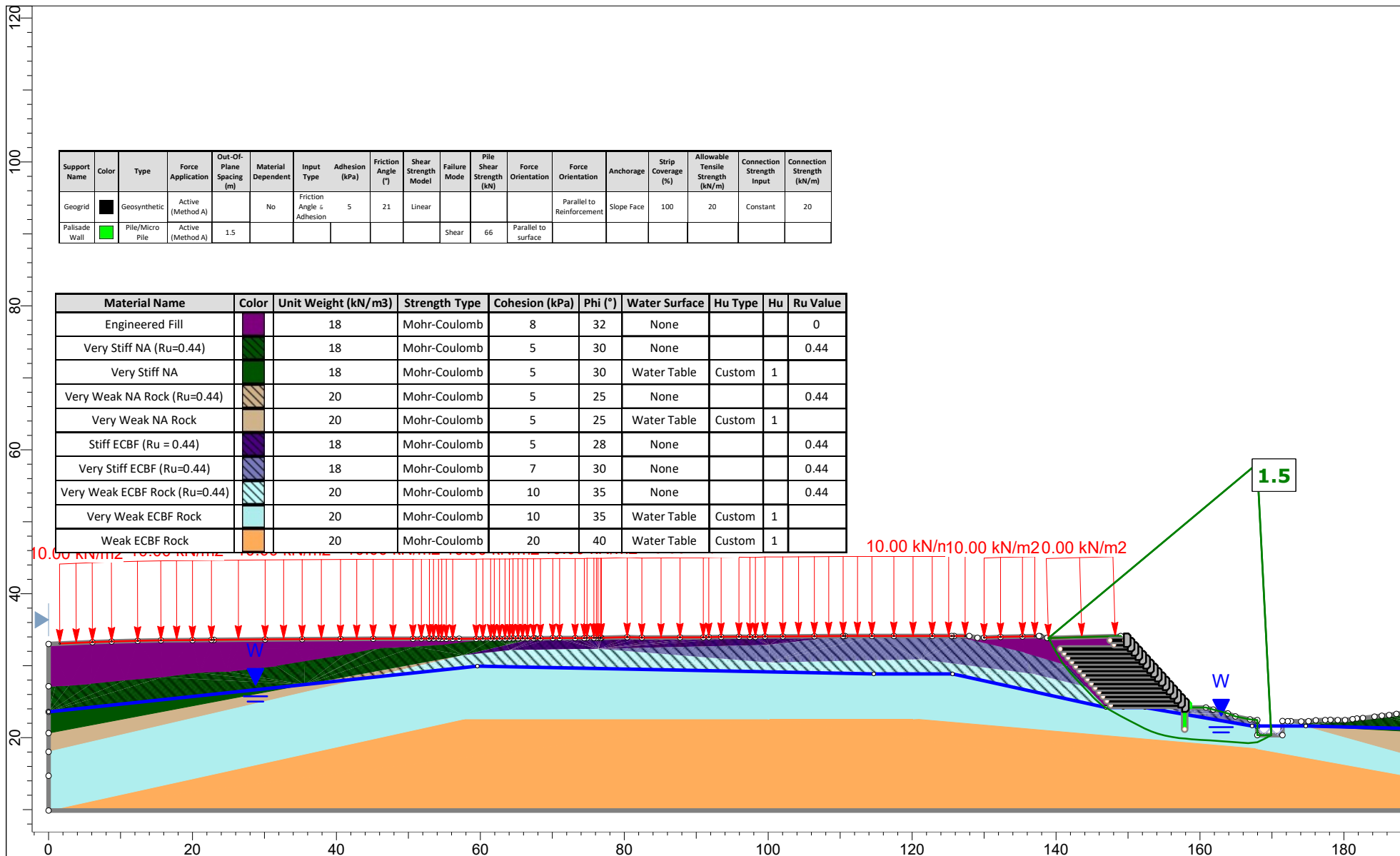
Support Name	Color	Type	Force Application	Out-Of-Plane Spacing (m)	Material Dependent	Input Type	Adhesion (kPa)	Friction Angle (°)	Shear Strength Model	Failure Mode	Pile Shear Strength (kN)	Force Orientation	Force Orientation	Anchorage	Strip Coverage (%)	Allowable Tensile Strength (kN/m)	Connection Strength Input	Connection Strength (kN/m)
Geogrid		Geosynthetic	Active (Method A)		No	Friction Angle & Adhesion	5	21	Linear			Parallel to Reinforcement	Slope Face	100	20	Constant	20	
Palisade Wall		Pile/Micro Pile	Active (Method A)	1.5					Shear	66	Parallel to surface							

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Engineered Fill		18	Mohr-Coulomb	8	32	None			0
Very Stiff NA		18	Mohr-Coulomb	5	30	Water Table	Custom	1	
Very Weak NA Rock		20	Mohr-Coulomb	5	25	Water Table	Custom	1	
Stiff ECBF		18	Mohr-Coulomb	5	28	Water Table	Custom	1	
Very Stiff ECBF		20	Mohr-Coulomb	7	30	Water Table	Custom	1	
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1	



SLIDEINTERPRET 9.040

Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section H - proposed GL & remedials	Scenario	Normal (Measured GW)
Drawn By	LKB	Company	Riley Consultants Ltd
Date	20/12/2024	File Name	Section H.sldm



Support Name	Color	Type	Force Application	Out-Of-Plane Spacing (m)	Material Dependent	Input Type	Adhesion (kPa)	Friction Angle (°)	Shear Strength Model	Failure Mode	Pile Shear Strength (kN)	Force Orientation	Force Orientation	Anchorage	Strip Coverage (%)	Allowable Tensile Strength (kN/m)	Connection Strength Input	Connection Strength (kN/m)
Geogrid		Geosynthetic	Active (Method A)		No	Friction Angle & Adhesion	5	21	Linear			Parallel to Reinforcement	Slope Face		100	20	Constant	20
Palisade Wall		Pile/Micro Pile	Active (Method A)	1.5						Shear	66	Parallel to surface						

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Engineered Fill		18	Mohr-Coulomb	8	32	None			0
Very Stiff NA (Ru=0.44)		18	Mohr-Coulomb	5	30	None			0.44
Very Stiff NA		18	Mohr-Coulomb	5	30	Water Table	Custom	1	
Very Weak NA Rock (Ru=0.44)		20	Mohr-Coulomb	5	25	None			0.44
Very Weak NA Rock		20	Mohr-Coulomb	5	25	Water Table	Custom	1	
Stiff ECBF (Ru = 0.44)		18	Mohr-Coulomb	5	28	None			0.44
Very Stiff ECBF (Ru=0.44)		18	Mohr-Coulomb	7	30	None			0.44
Very Weak ECBF Rock (Ru=0.44)		20	Mohr-Coulomb	10	35	None			0.44
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1	

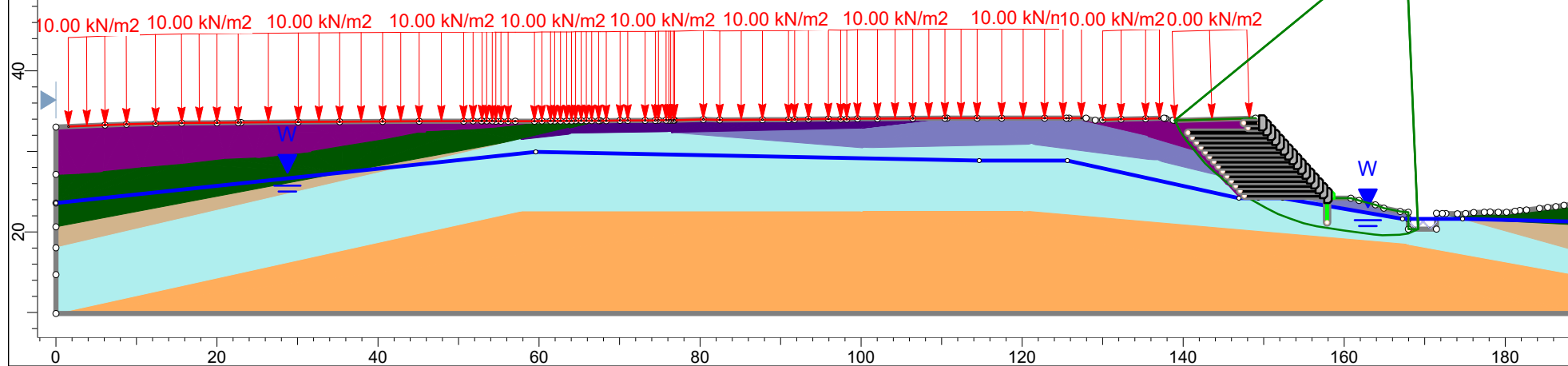


SLIDEINTERPRET 9.040

Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section H - proposed GL & remedials	Scenario	Extreme (Worst Credible GW)
Drawn By	LKB	Company	Riley Consultants Ltd
Date	20/12/2024	File Name	Section H.sldm



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Engineered Fill		18	Mohr-Coulomb	8	32	None			0
Very Stiff NA		18	Mohr-Coulomb	5	30	Water Table	Custom	1	
Very Weak NA Rock		20	Mohr-Coulomb	5	25	Water Table	Custom	1	
Stiff ECBF		18	Mohr-Coulomb	5	28	Water Table	Custom	1	
Very Stiff ECBF		20	Mohr-Coulomb	7	30	Water Table	Custom	1	
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1	

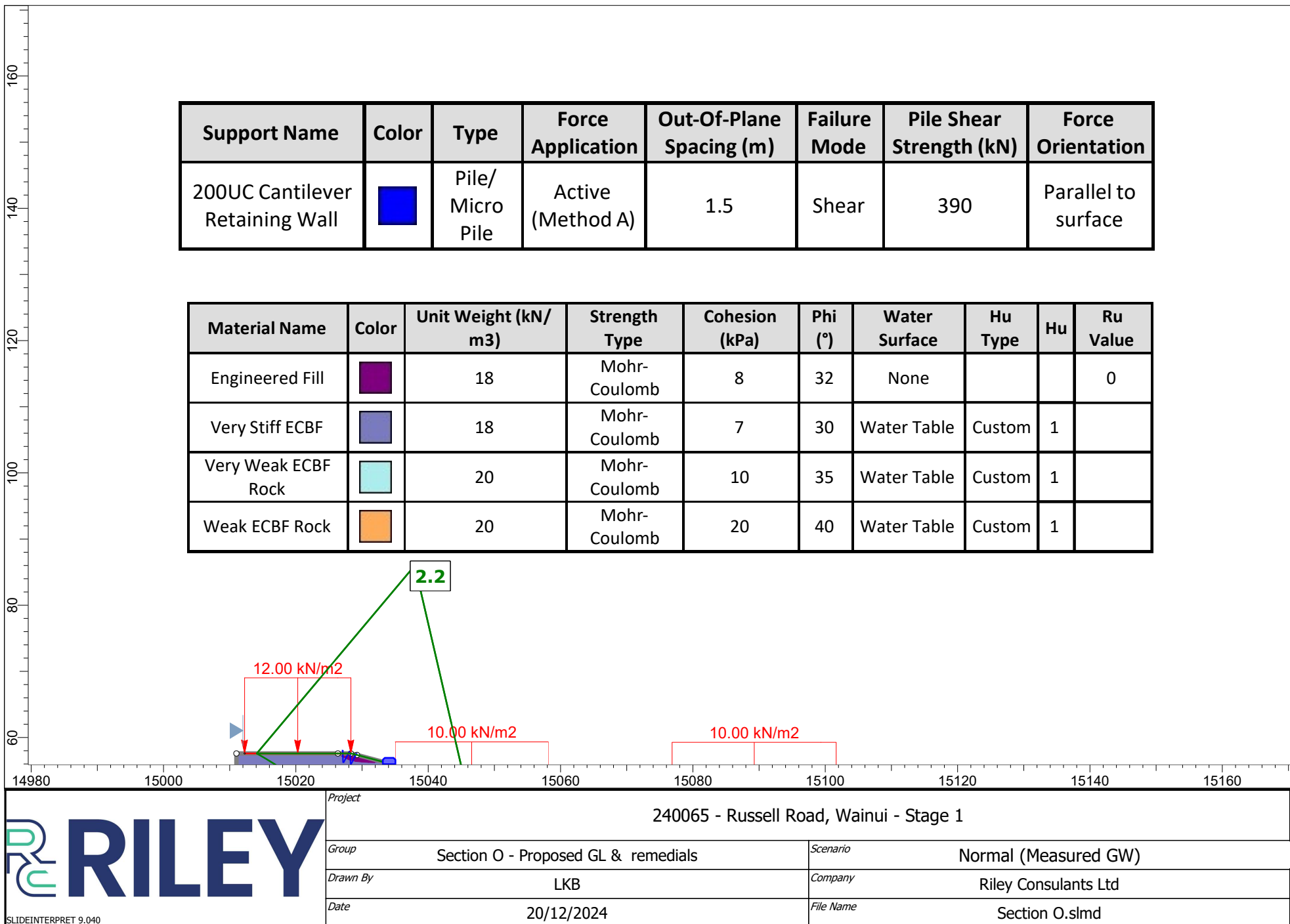


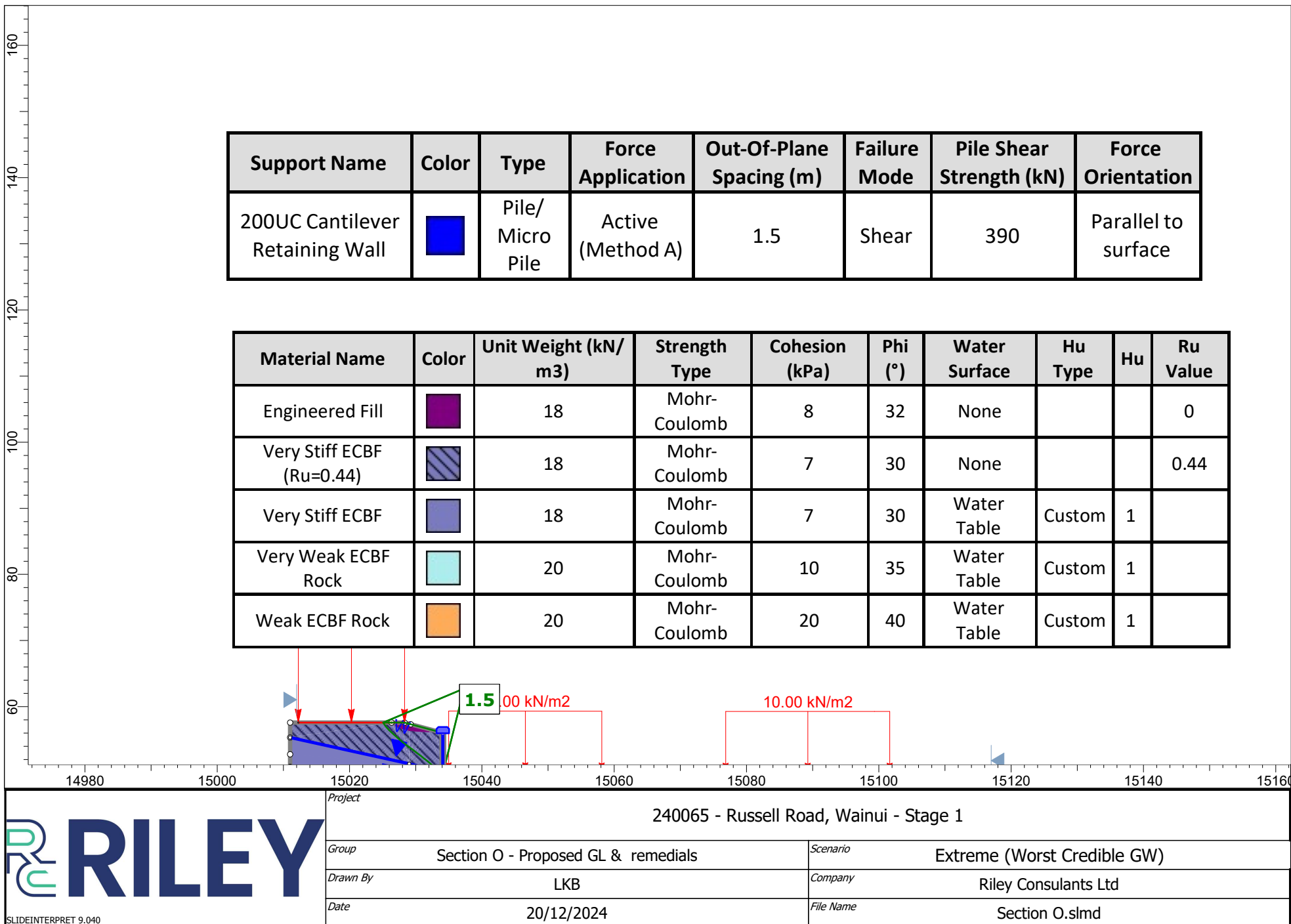


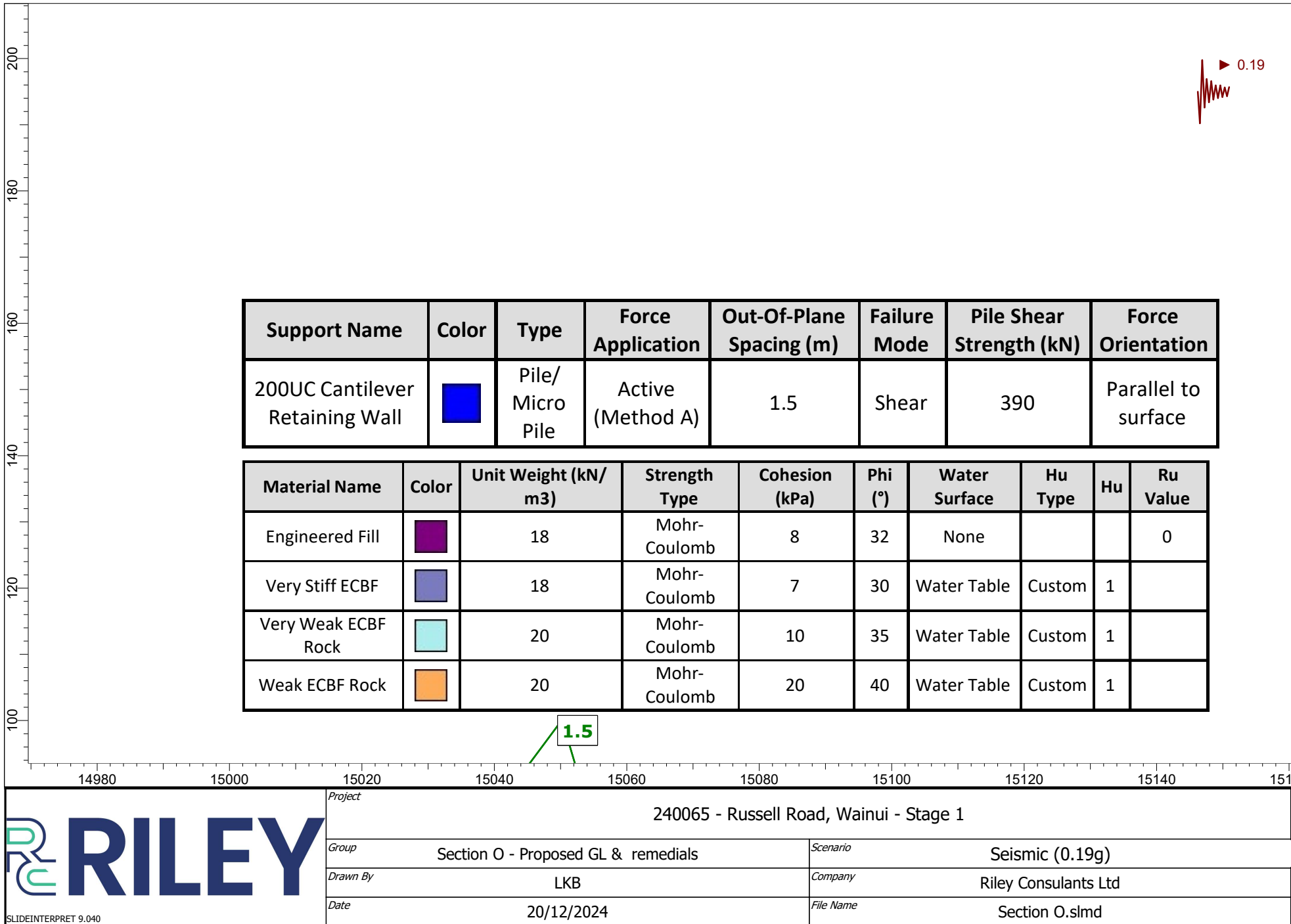
Project		240065 - Russell Road, Wainui - Stage 1	
Group	Section H - proposed GL & remedials	Scenario	Extreme (50% Fill Saturation)
Drawn By	LKB	Company	Riley Consultants Ltd
Date	20/12/2024	File Name	Section H.slmd

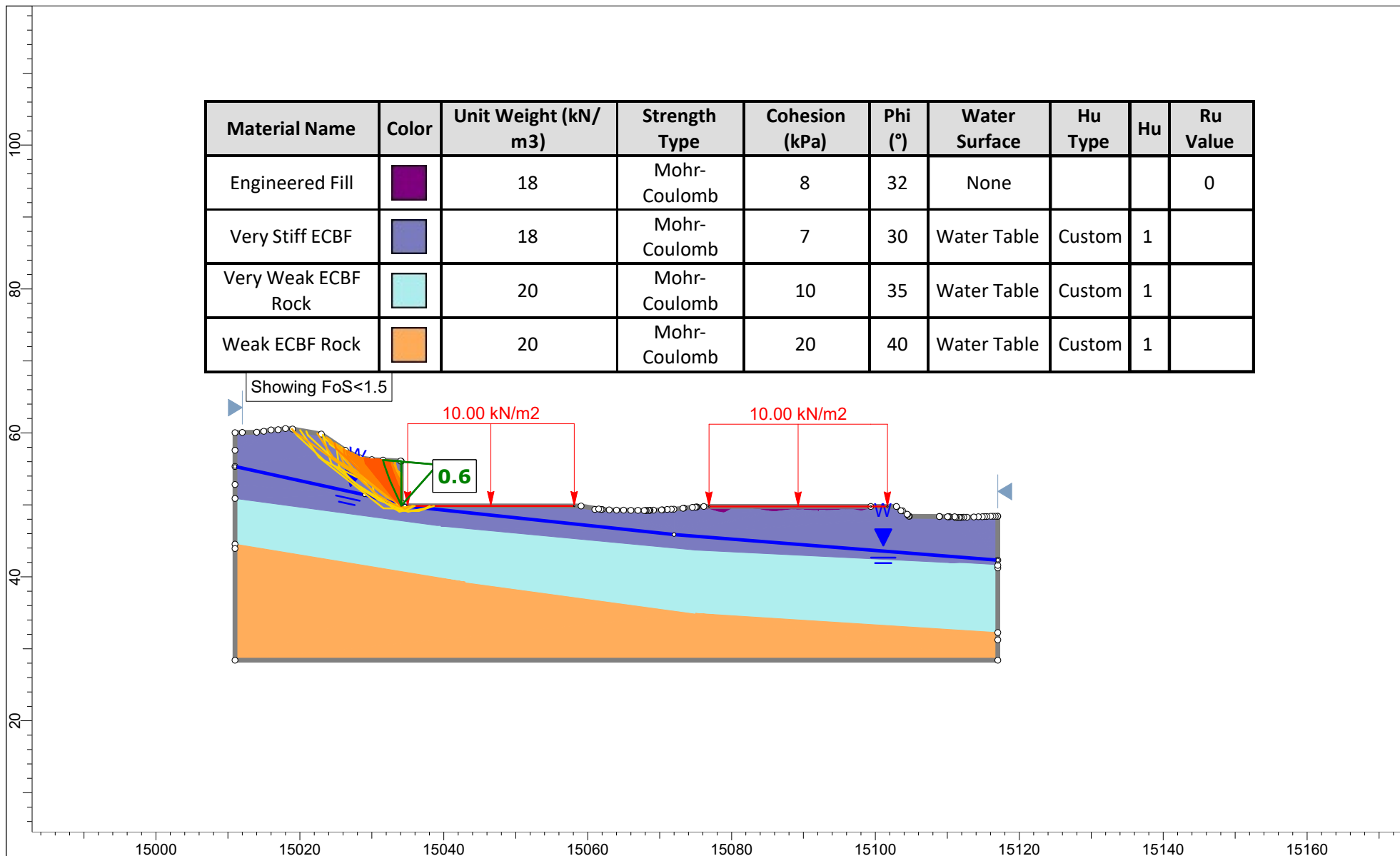


Section H.slmd







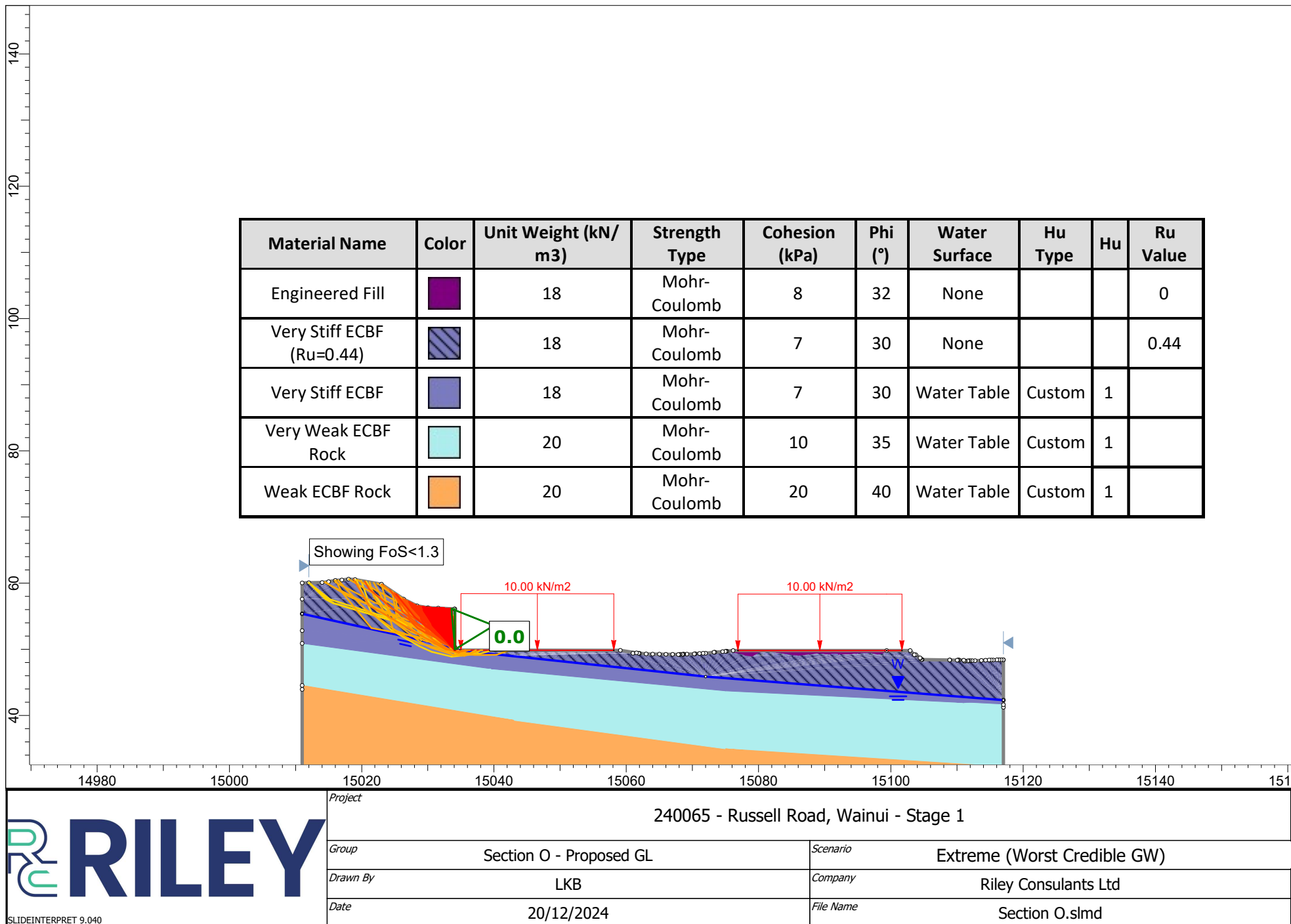


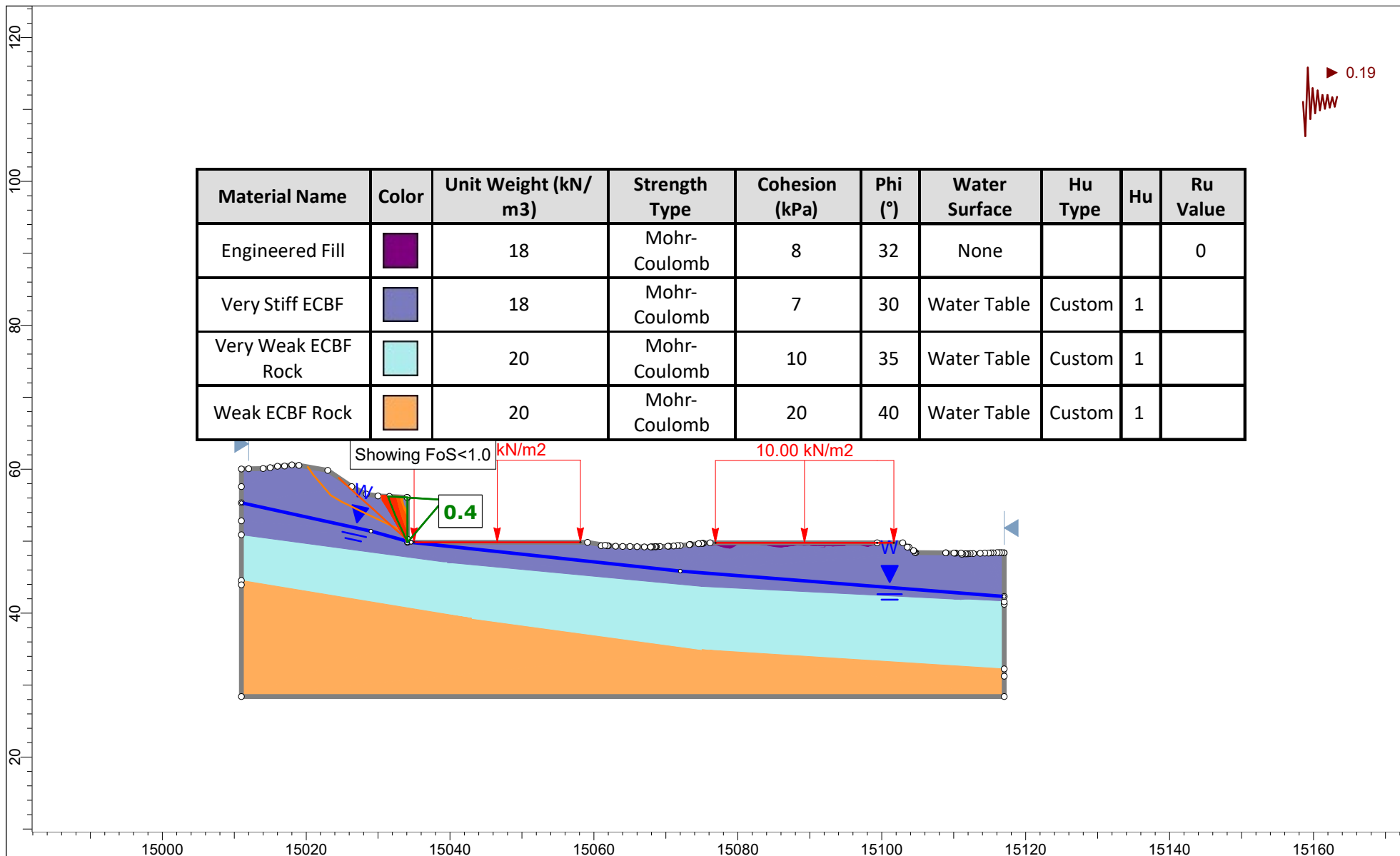
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Engineered Fill		18	Mohr-Coulomb	8	32	None			0
Very Stiff ECBF		18	Mohr-Coulomb	7	30	Water Table	Custom	1	
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1	



SLIDEINTERPRET 9.040

Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section O - Proposed GL	Scenario	Normal (Measured GW)
Drawn By	LKB	Company	Riley Consultants Ltd
Date	20/12/2024	File Name	Section O.sldm



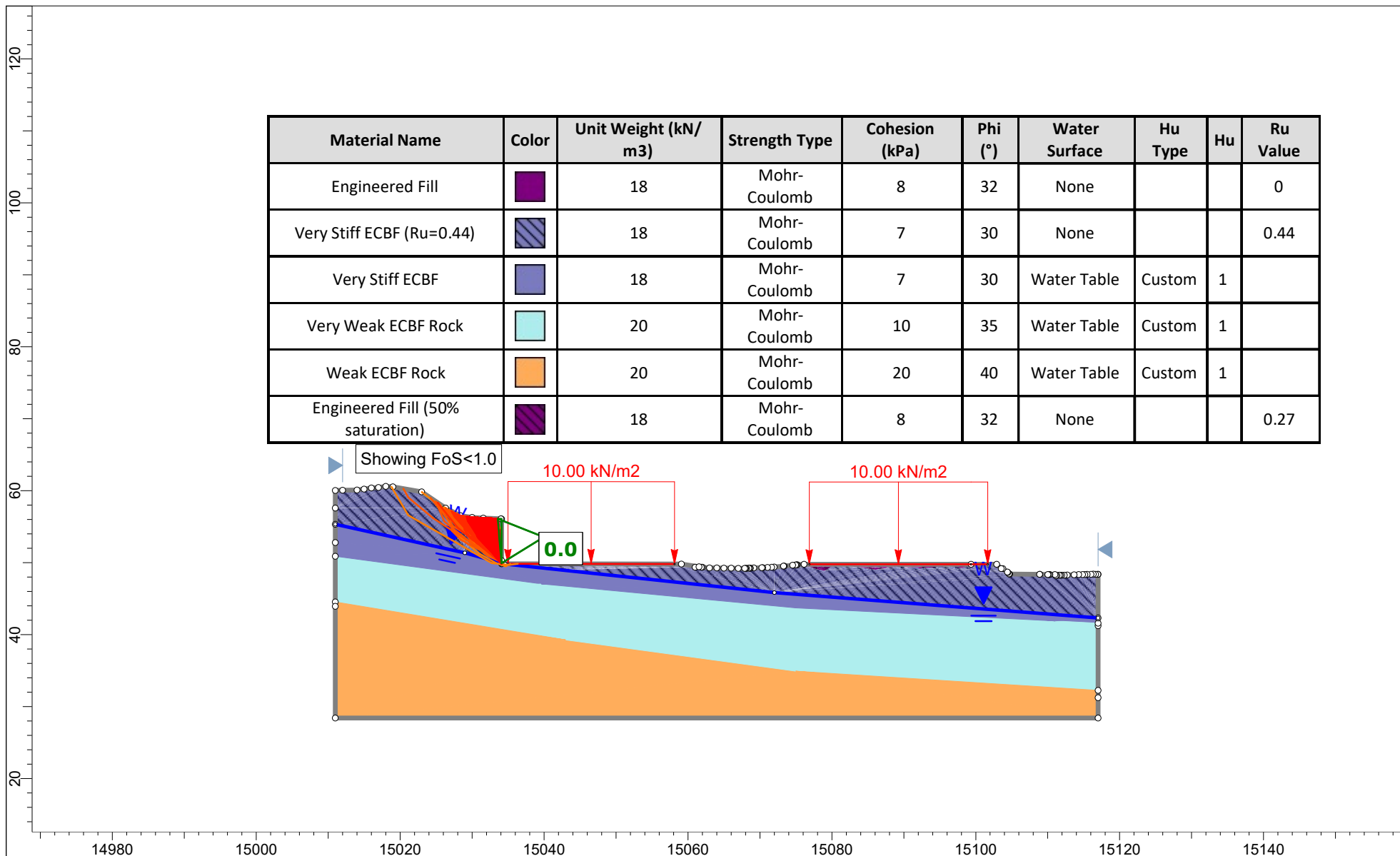


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Engineered Fill		18	Mohr-Coulomb	8	32	None			0
Very Stiff ECBF		18	Mohr-Coulomb	7	30	Water Table	Custom	1	
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1	



SLIDEINTERPRET 9.040

Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section O - Proposed GL	Scenario	Seismic (0.19g)
Drawn By	LKB	Company	Riley Consultants Ltd
Date	20/12/2024	File Name	Section O.sldm



Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Engineered Fill		18	Mohr-Coulomb	8	32	None			0
Very Stiff ECBF (Ru=0.44)		18	Mohr-Coulomb	7	30	None			0.44
Very Stiff ECBF		18	Mohr-Coulomb	7	30	Water Table	Custom	1	
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1	
Engineered Fill (50% saturation)		18	Mohr-Coulomb	8	32	None			0.27

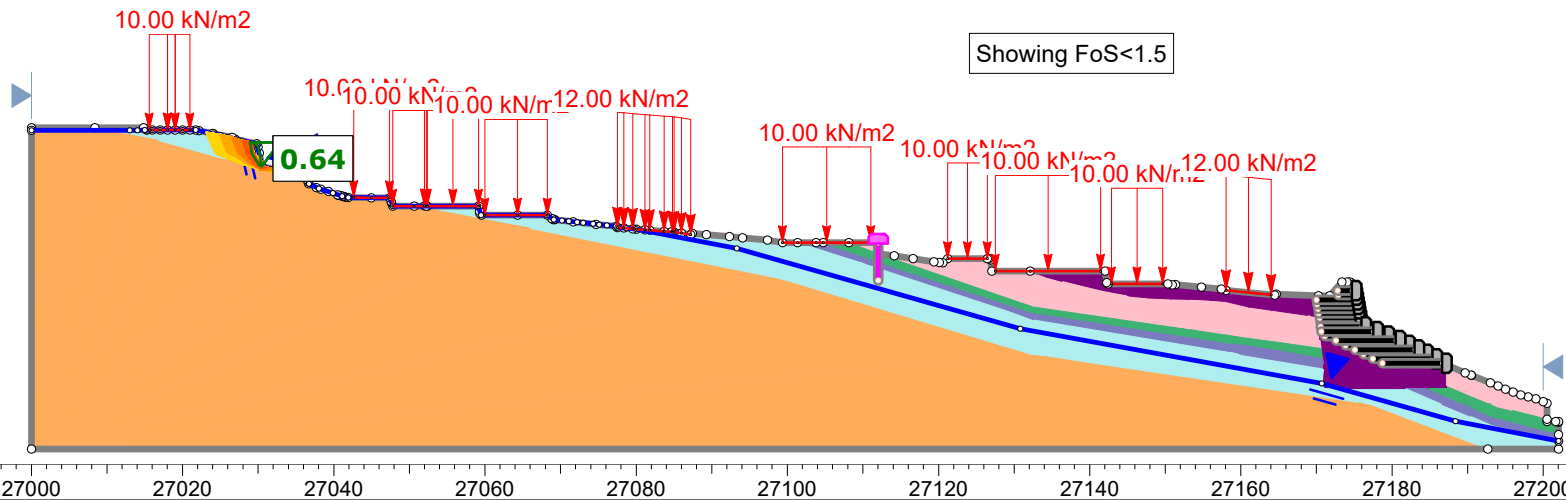


SLIDEINTERPRET 9.040

Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section O - Proposed GL	Scenario	Extreme (50% fill saturation)
Drawn By	LKB	Company	Riley Consultants Ltd
Date	20/12/2024	File Name	Section O.sldm

Support Name	Color	Type	Force Application	Out-Of-Plane Spacing (m)	Material Dependent	Input Type	Adhesion (kPa)	Friction Angle (°)	Shear Strength Model	Failure Mode	Pile Shear Strength (kN)	Force Orientation	Force Orientation	Anchorage	Strip Coverage (%)	Allowable Tensile Strength (kN/m)	Connection Strength Input	Connection Strength (kN/m)
Geogrid		Geosynthetic	Active (Method A)		No	Friction Angle & Adhesion	5	21	Linear				Parallel to Reinforcement	Slope Face	100	40	Constant	40
Retaining wall		Pile/Micro Pile	Active (Method A)	1.5						Shear	100	Parallel to surface						

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Engineered Fill		18	Mohr-Coulomb	8	32	Water Table	Custom	1
Colluvium		17	Mohr-Coulomb	2	25	Water Table	Custom	1
Stiff ECBF		18	Mohr-Coulomb	5	28	Water Table	Custom	1
Very Stiff ECBF		18	Mohr-Coulomb	7	30	Water Table	Custom	1
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1

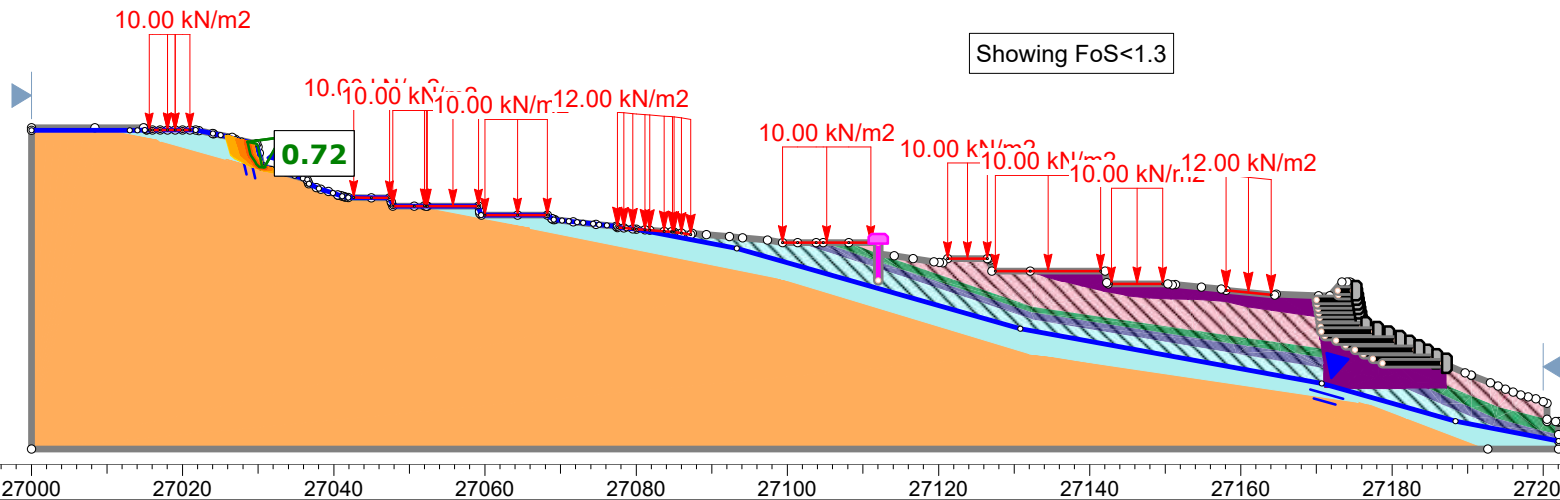


SLIDEINTERPRET 9.040

Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section AA - erosion & remedials	Scenario	Normal (Measured GW)
Drawn By	RS	Company	Riley Consultants Ltd
Date	10/12/2024	File Name	Section AA.slm

Support Name	Color	Type	Force Application	Out-Of-Plane Spacing (m)	Material Dependent	Input Type	Adhesion (kPa)	Friction Angle (°)	Shear Strength Model	Failure Mode	Pile Shear Strength (kN)	Force Orientation	Force Orientation	Anchorage	Strip Coverage (%)	Allowable Tensile Strength (kN/m)	Connection Strength Input	Connection Strength (kN/m)
Geogrid	Black	Geosynthetic	Active (Method A)		No	Friction Angle & Adhesion	5	21	Linear				Parallel to Reinforcement	Slope Face	100	40	Constant	40
Retaining wall	Pink	Pile/Micro Pile	Active (Method A)	1.5						Shear	100	Parallel to surface						

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Engineered Fill	Dark Purple	18	Mohr-Coulomb	8	32	Water Table	Custom	1	
Colluvium	Light Pink	17	Mohr-Coulomb	2	25	Water Table	Custom	1	
Colluvium (Ru=0.44)	Diagonal Hatched	17	Mohr-Coulomb	2	25	None			0.44
Stiff ECBF (Ru=0.44)	Green Hatched	18	Mohr-Coulomb	5	28	None			0.44
Very Stiff ECBF (Ru=0.44)	Blue Hatched	18	Mohr-Coulomb	7	30	None			0.44
Very Weak ECBF Rock	Light Blue	20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Weak ECBF Rock	Orange	20	Mohr-Coulomb	20	40	Water Table	Custom	1	
Very Weak ECBF Rock (Ru=0.44)	Blue Hatched	20	Mohr-Coulomb	10	35	None			0.44

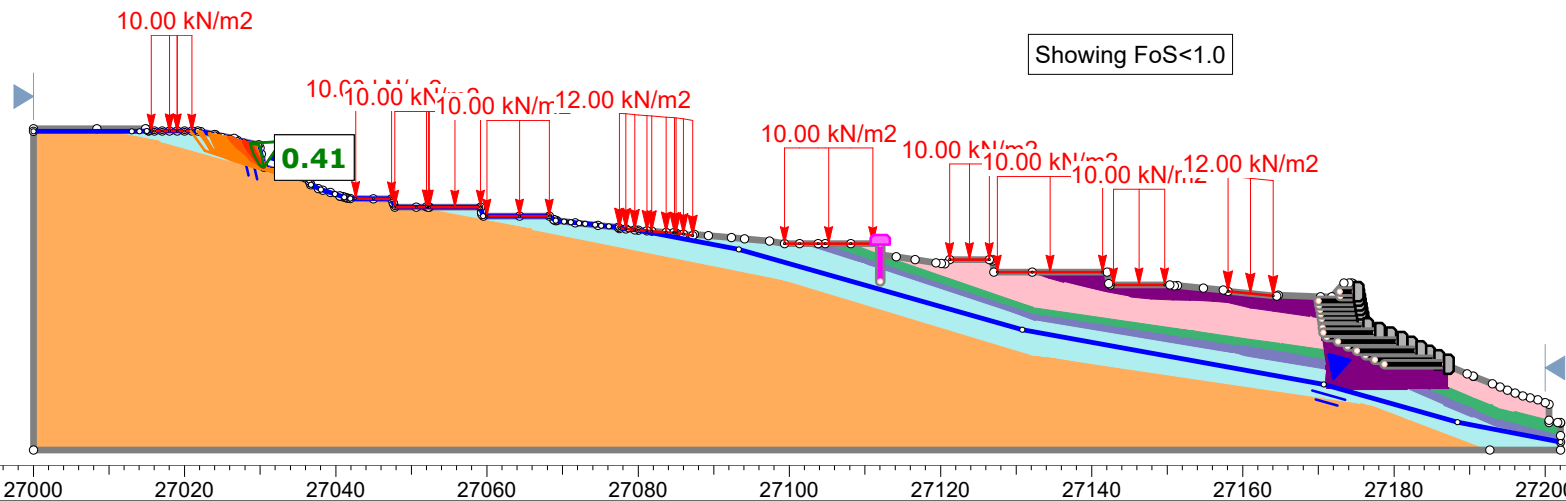


SLIDEINTERPRET 9.040

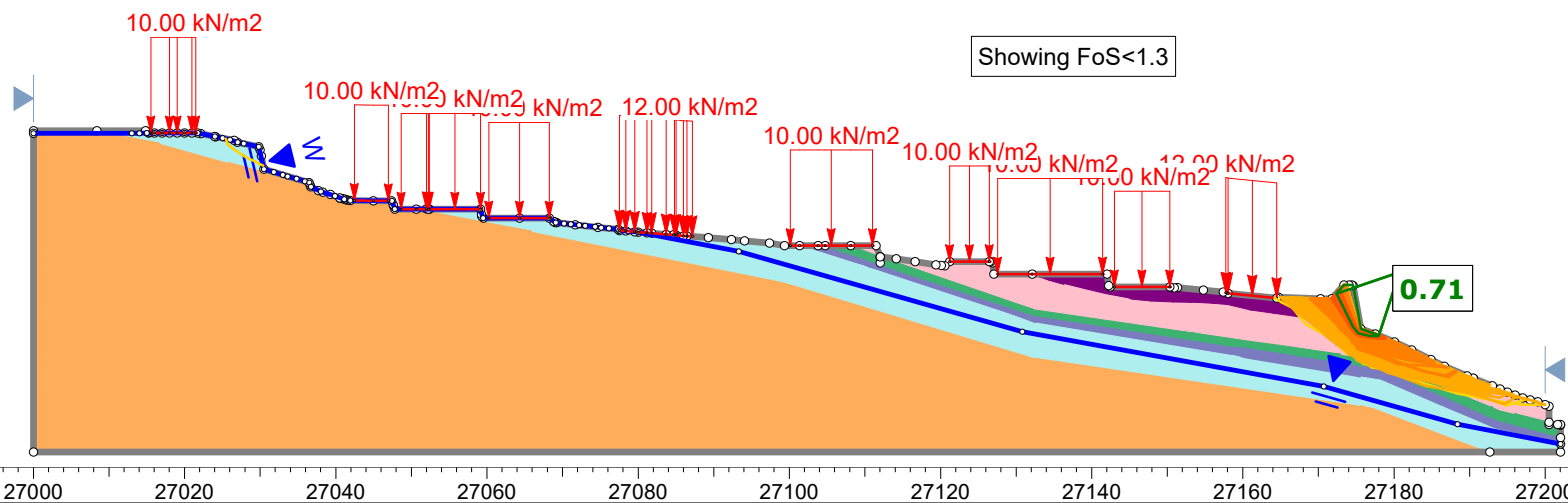
Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section AA - erosion & remedials	Scenario	Extreme (Worst Credible GW)
Drawn By	RS	Company	Riley Consultants Ltd
Date	10/12/2024	File Name	Section AA.slm

Support Name	Color	Type	Force Application	Out-Of-Plane Spacing (m)	Material Dependent	Input Type	Adhesion (kPa)	Friction Angle (°)	Shear Strength Model	Failure Mode	Pile Shear Strength (kN)	Force Orientation	Force Orientation	Anchorage	Strip Coverage (%)	Allowable Tensile Strength (kN/m)	Connection Strength Input	Connection Strength (kN/m)
Geogrid		Geosynthetic	Active (Method A)		No	Friction Angle & Adhesion	5	21	Linear				Parallel to Reinforcement	Slope Face	100	40	Constant	40
Retaining wall		Pile/Micro Pile	Active (Method A)	1.5						Shear	100	Parallel to surface						

Material Name	Color	Unit Weight (kN/ m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Engineered Fill		18	Mohr-Coulomb	8	32	Water Table	Custom	1
Colluvium		17	Mohr-Coulomb	2	25	Water Table	Custom	1
Stiff ECBF		18	Mohr-Coulomb	5	28	Water Table	Custom	1
Very Stiff ECBF		18	Mohr-Coulomb	7	30	Water Table	Custom	1
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1

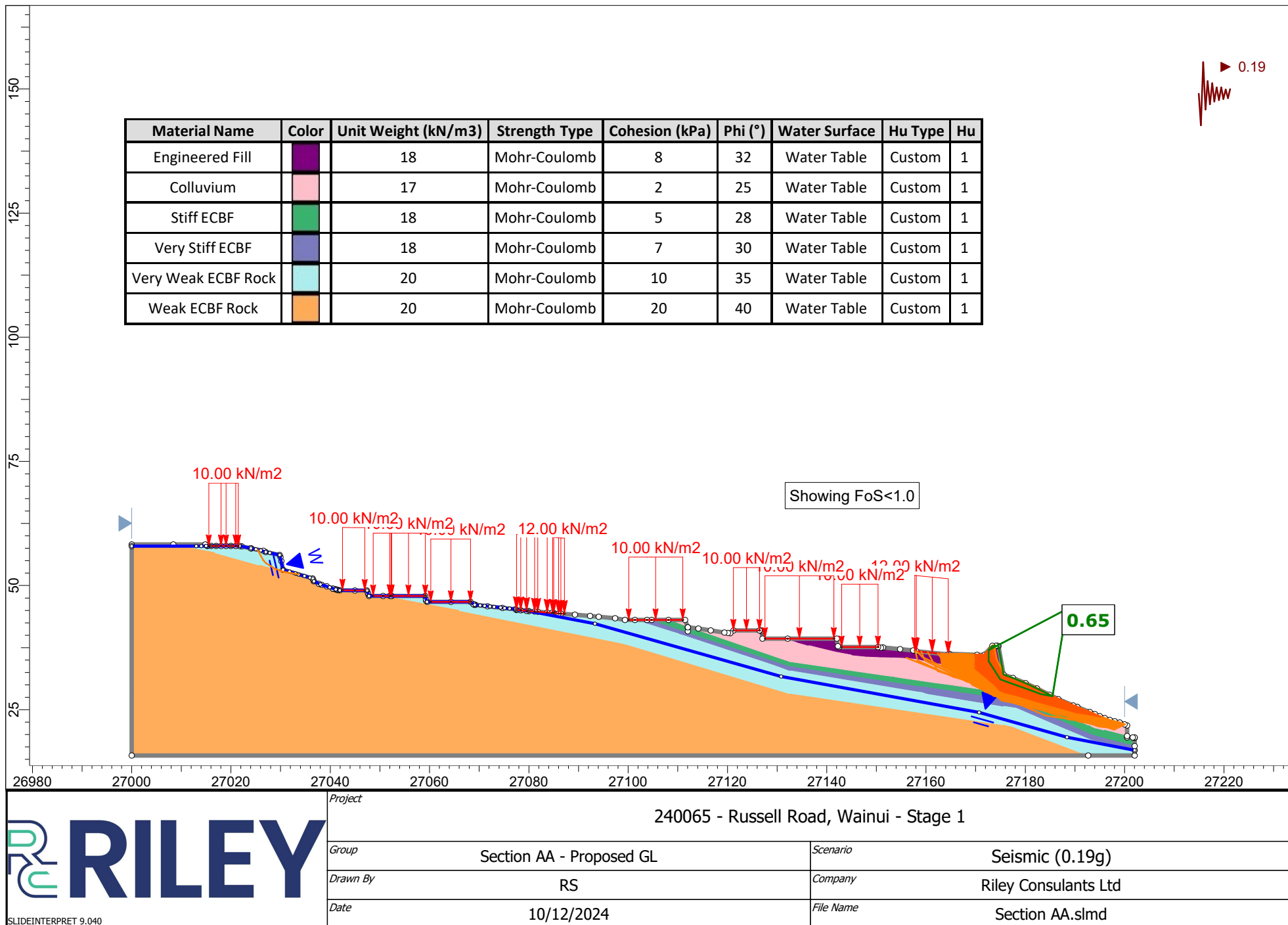


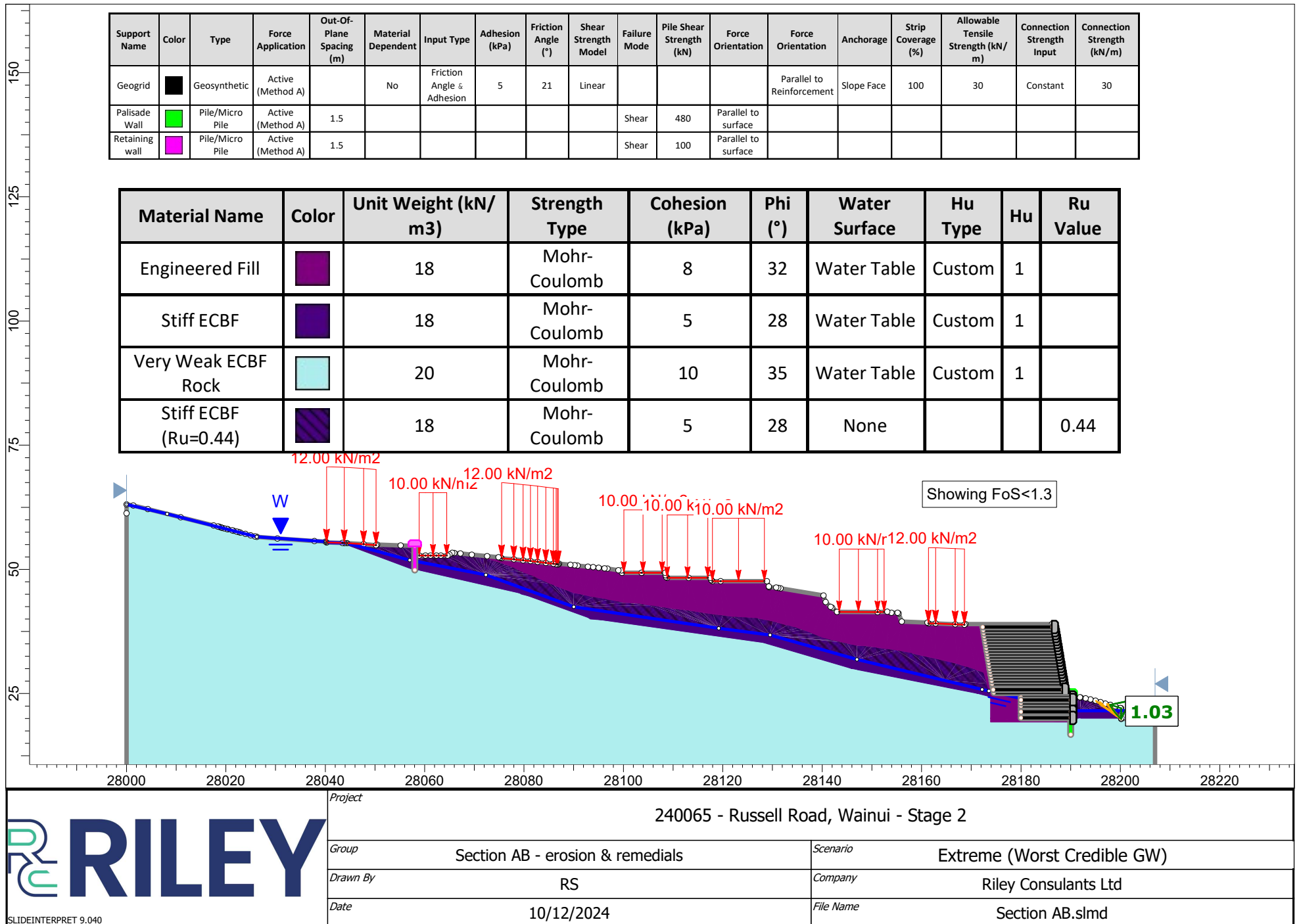
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Engineered Fill		18	Mohr-Coulomb	8	32	Water Table	Custom	1
Colluvium		17	Mohr-Coulomb	2	25	Water Table	Custom	1
Stiff ECBF		18	Mohr-Coulomb	5	28	Water Table	Custom	1
Very Stiff ECBF		18	Mohr-Coulomb	7	30	Water Table	Custom	1
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1

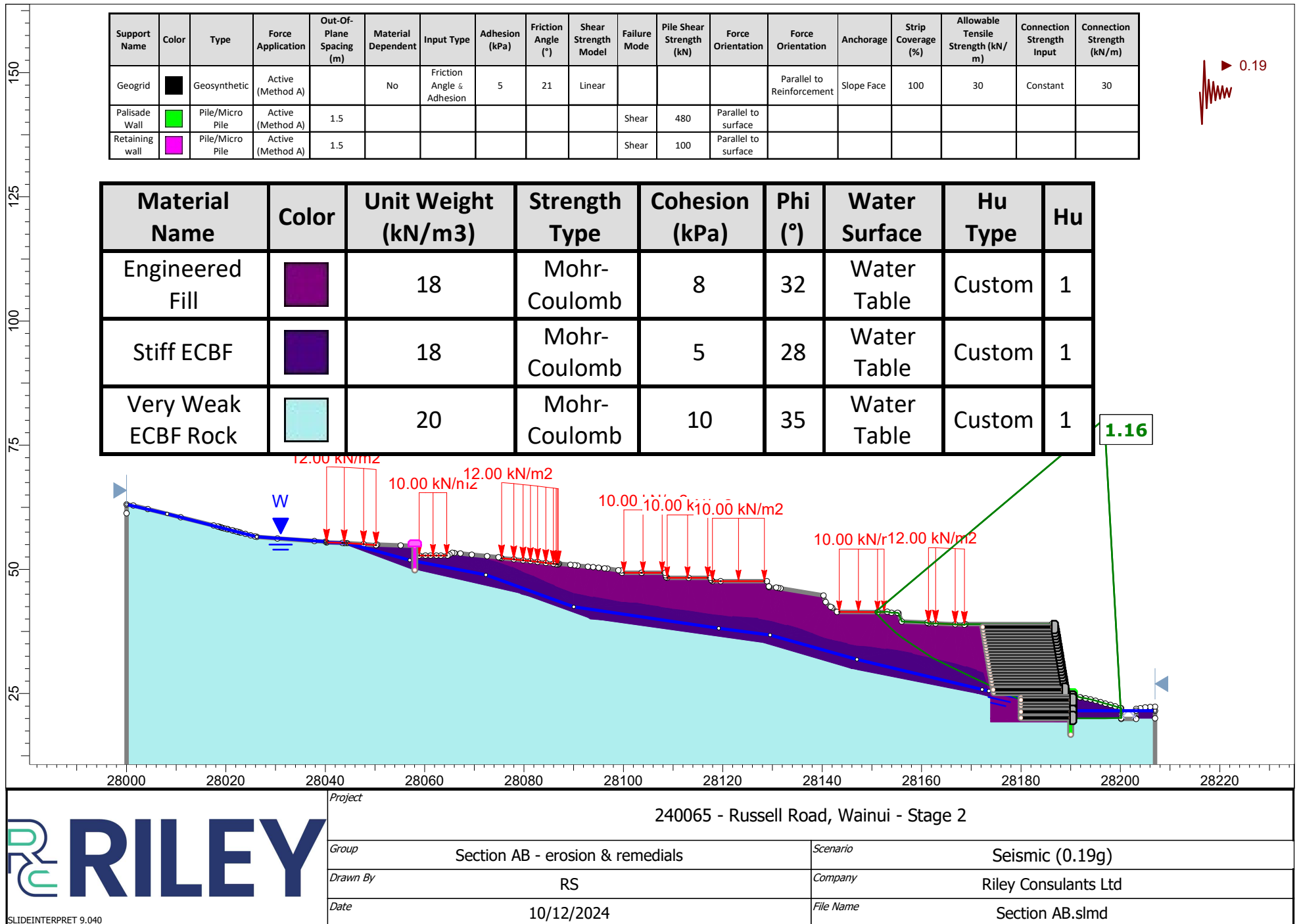


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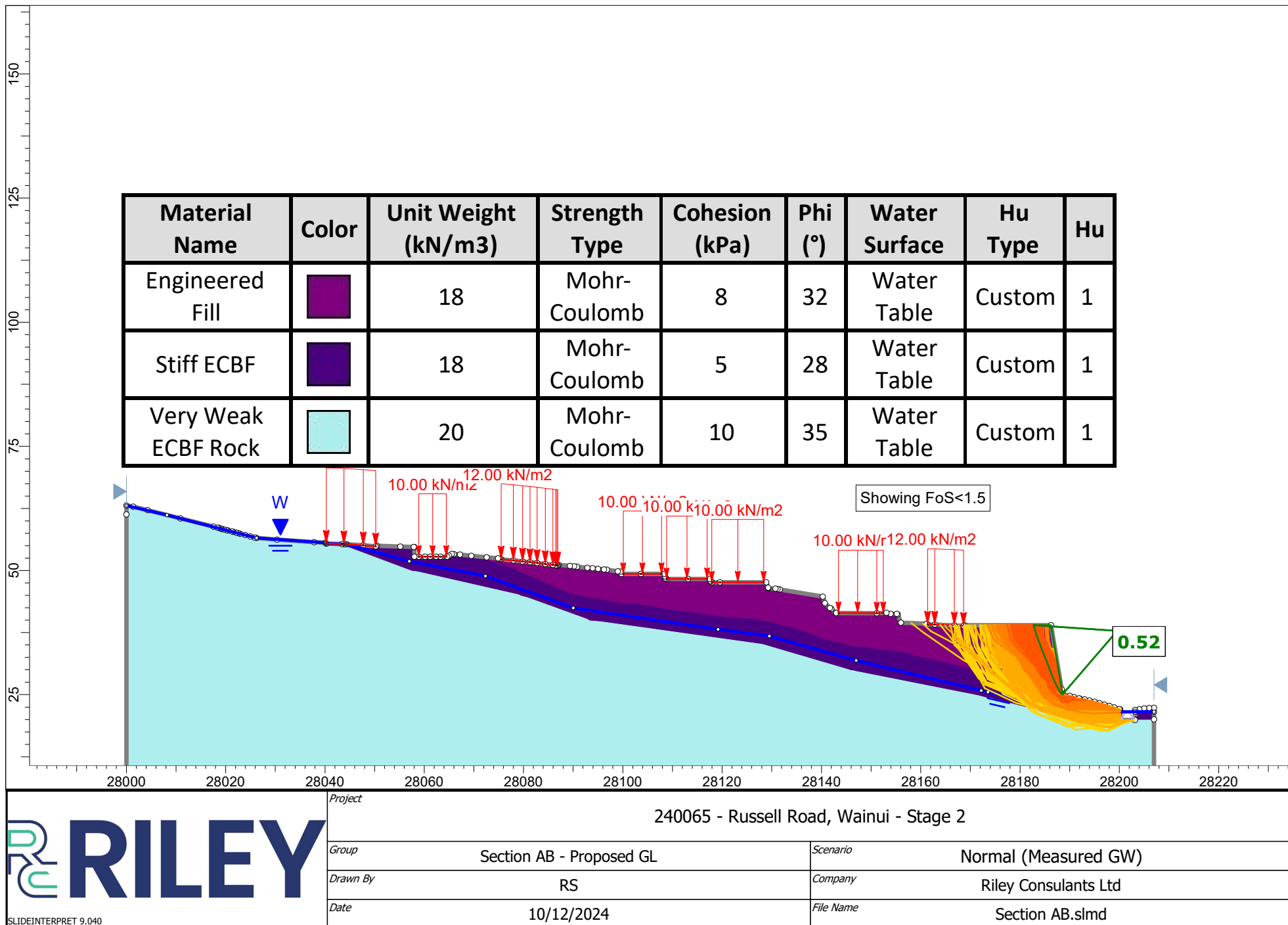
Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section AA - Proposed GL	Scenario	Extreme (Worst Credible GW)
Drawn By	RS	Company	Riley Consultants Ltd
Date	10/12/2024	File Name	Section AA.slm



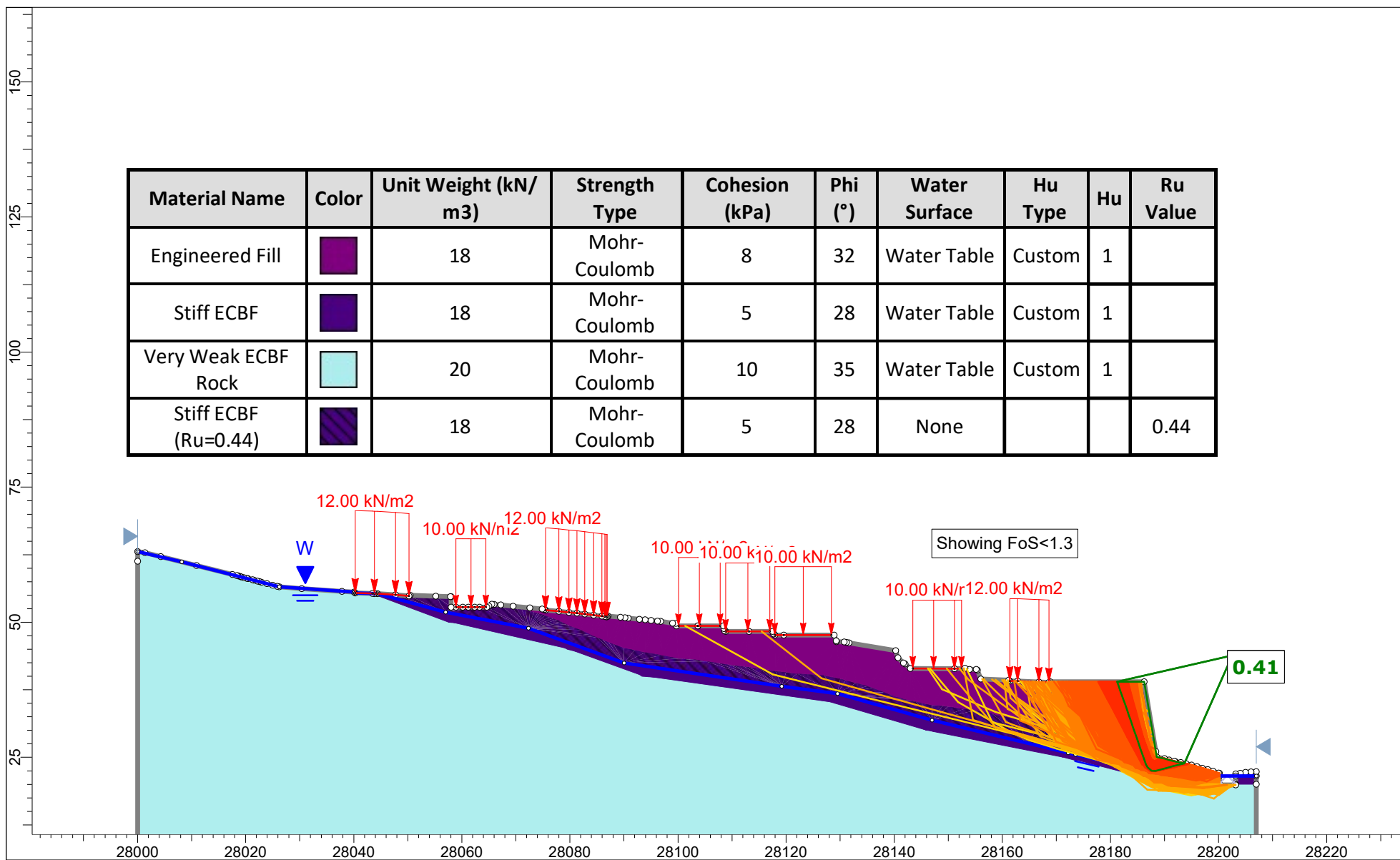




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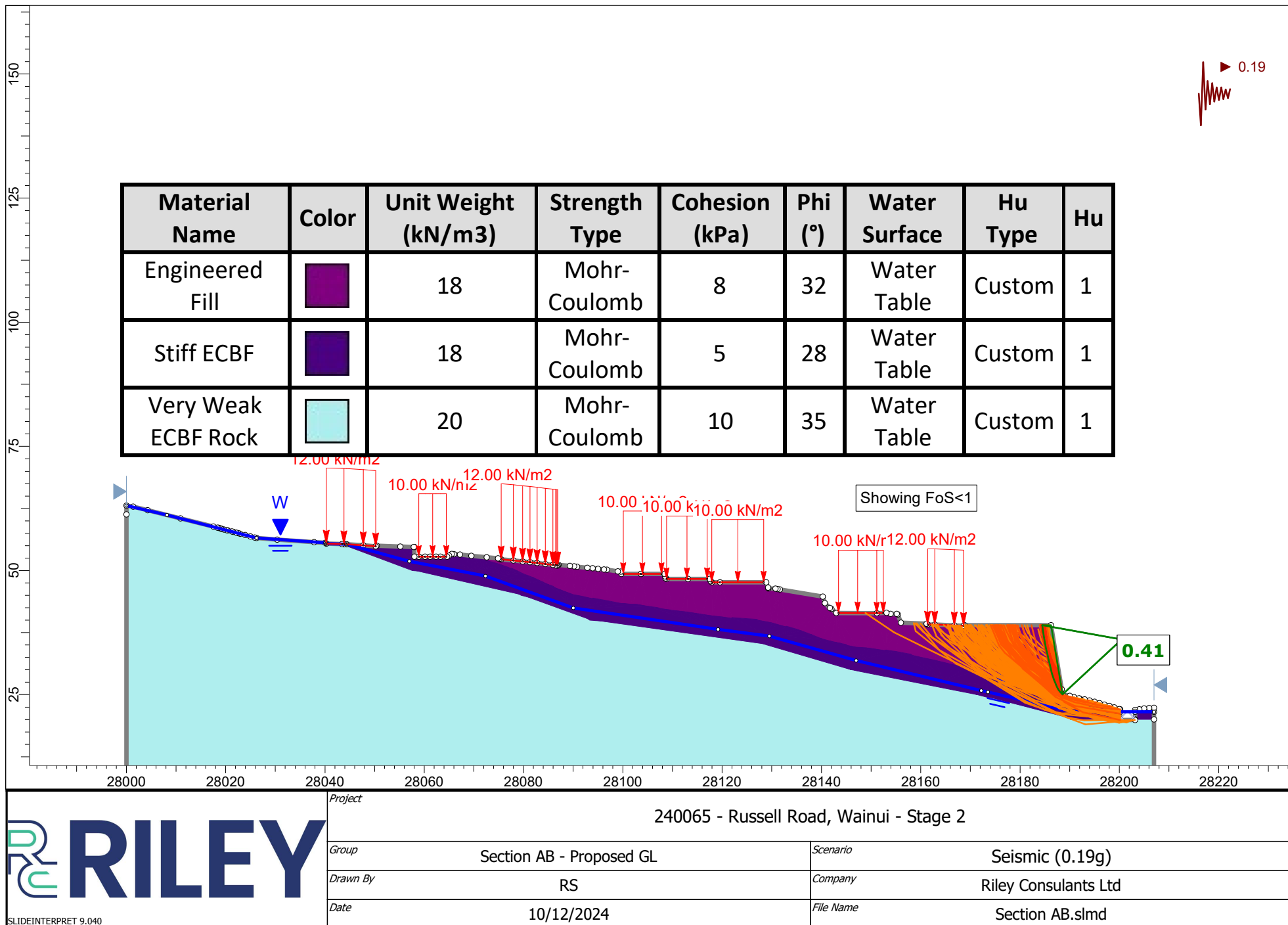


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Engineered Fill		18	Mohr-Coulomb	8	32	Water Table	Custom	1	
Stiff ECBF		18	Mohr-Coulomb	5	28	Water Table	Custom	1	
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Stiff ECBF (Ru=0.44)		18	Mohr-Coulomb	5	28	None			0.44

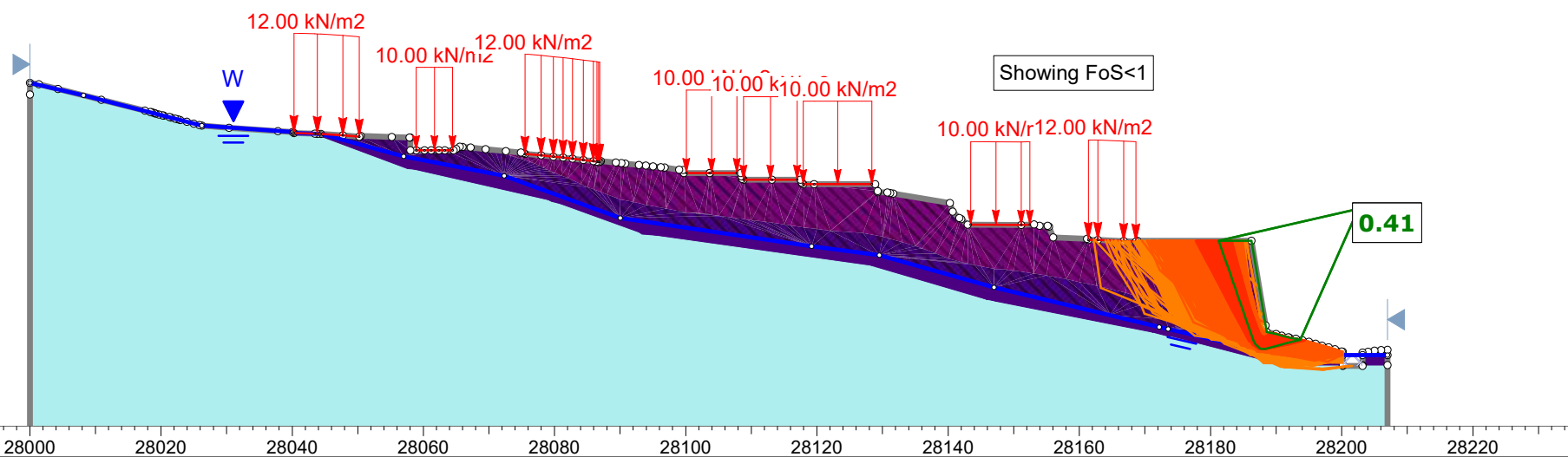


SLIDEINTERPRET 9.040

Project	240065 - Russell Road, Wainui - Stage 2		
Group	Section AB - Proposed GL	Scenario	Extreme (Worst Credible GW)
Drawn By	RS	Company	Riley Consultants Ltd
Date	10/12/2024	File Name	Section AB.slm

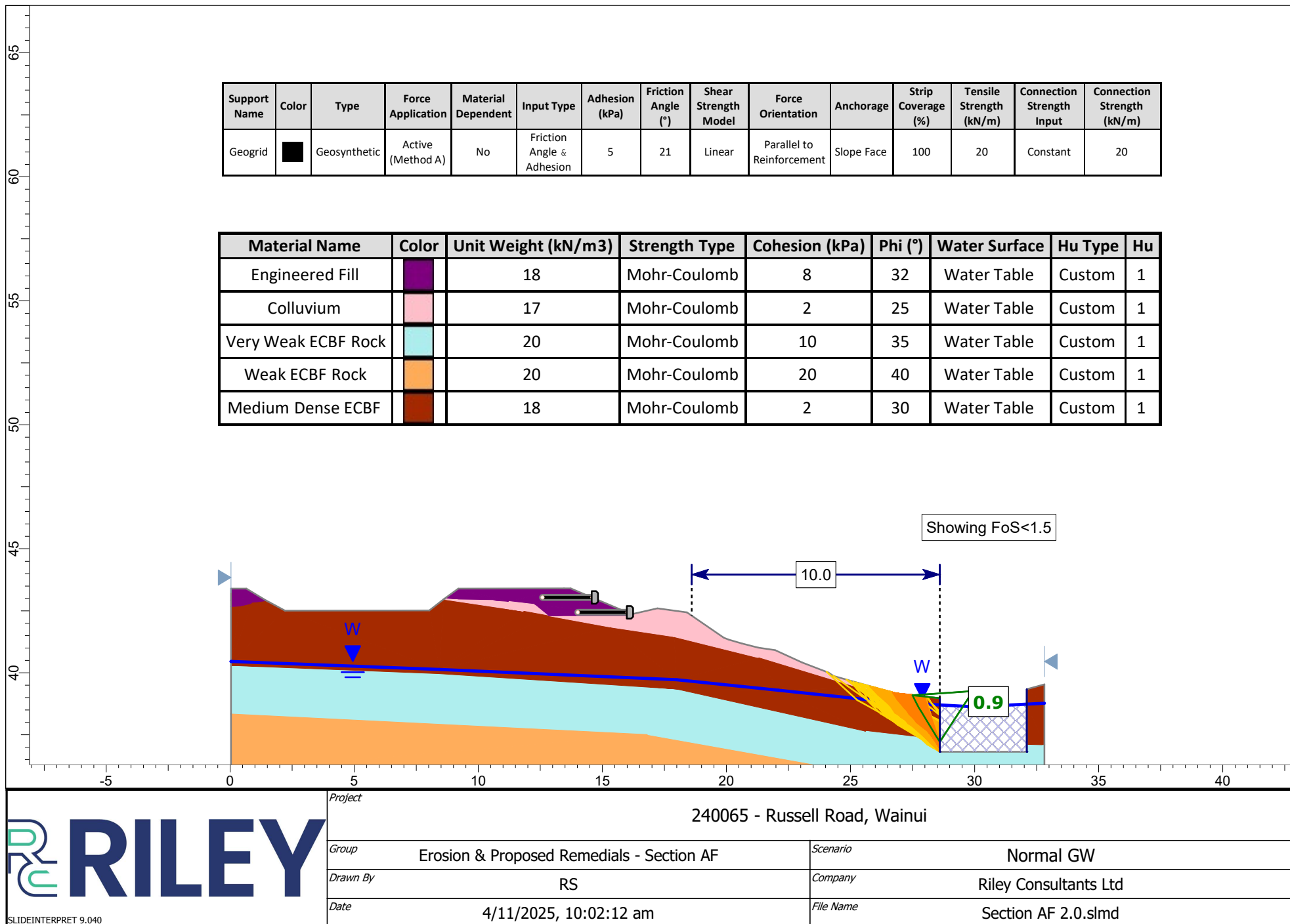


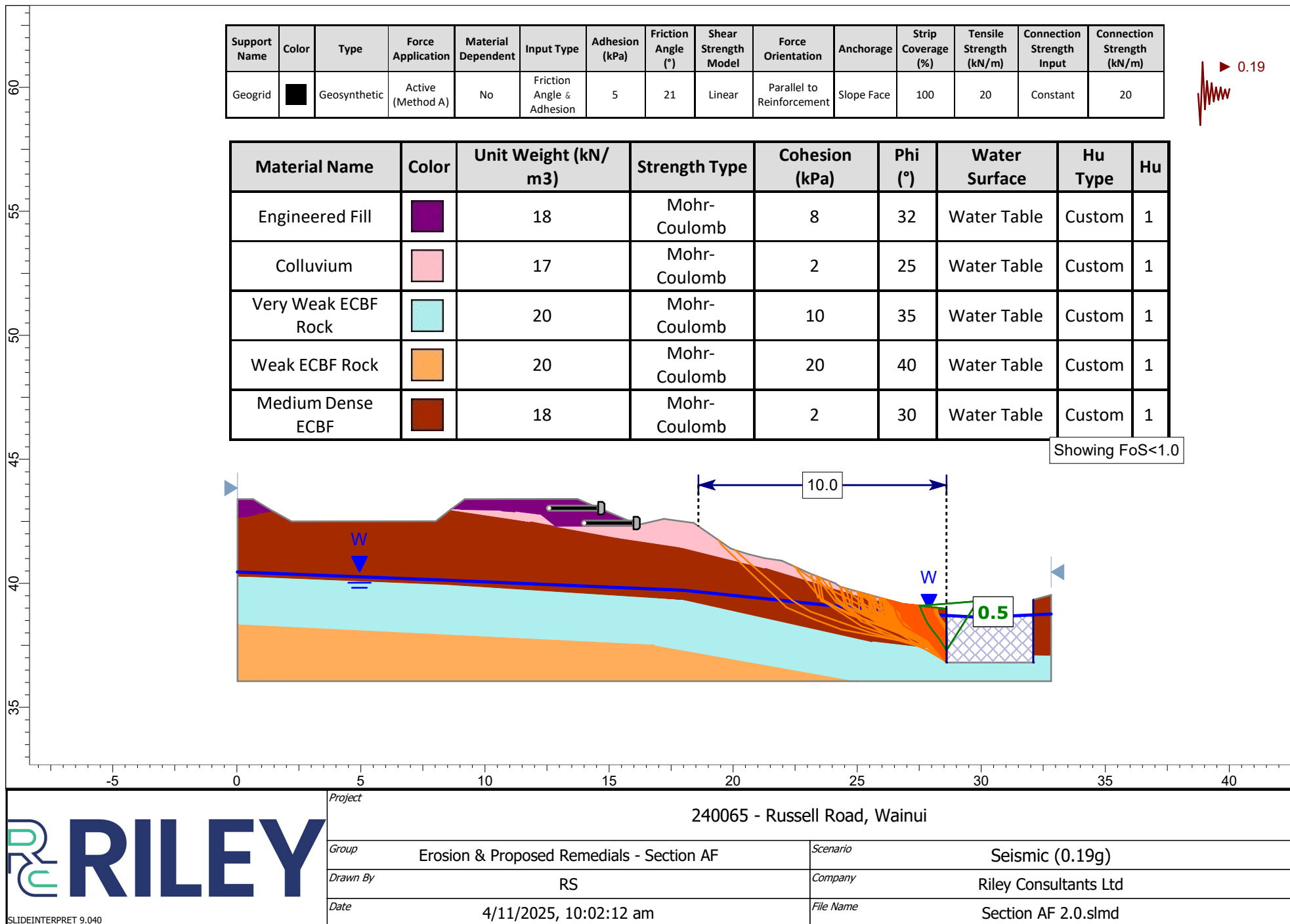
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Stiff ECBF		18	Mohr-Coulomb	5	28	Water Table	Custom	1	
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Stiff ECBF (Ru=0.44)		18	Mohr-Coulomb	5	28	None			0.44
50% Sat. Engineered Fill (Ru=0.27)		18	Mohr-Coulomb	8	32	Water Table	Custom	1	

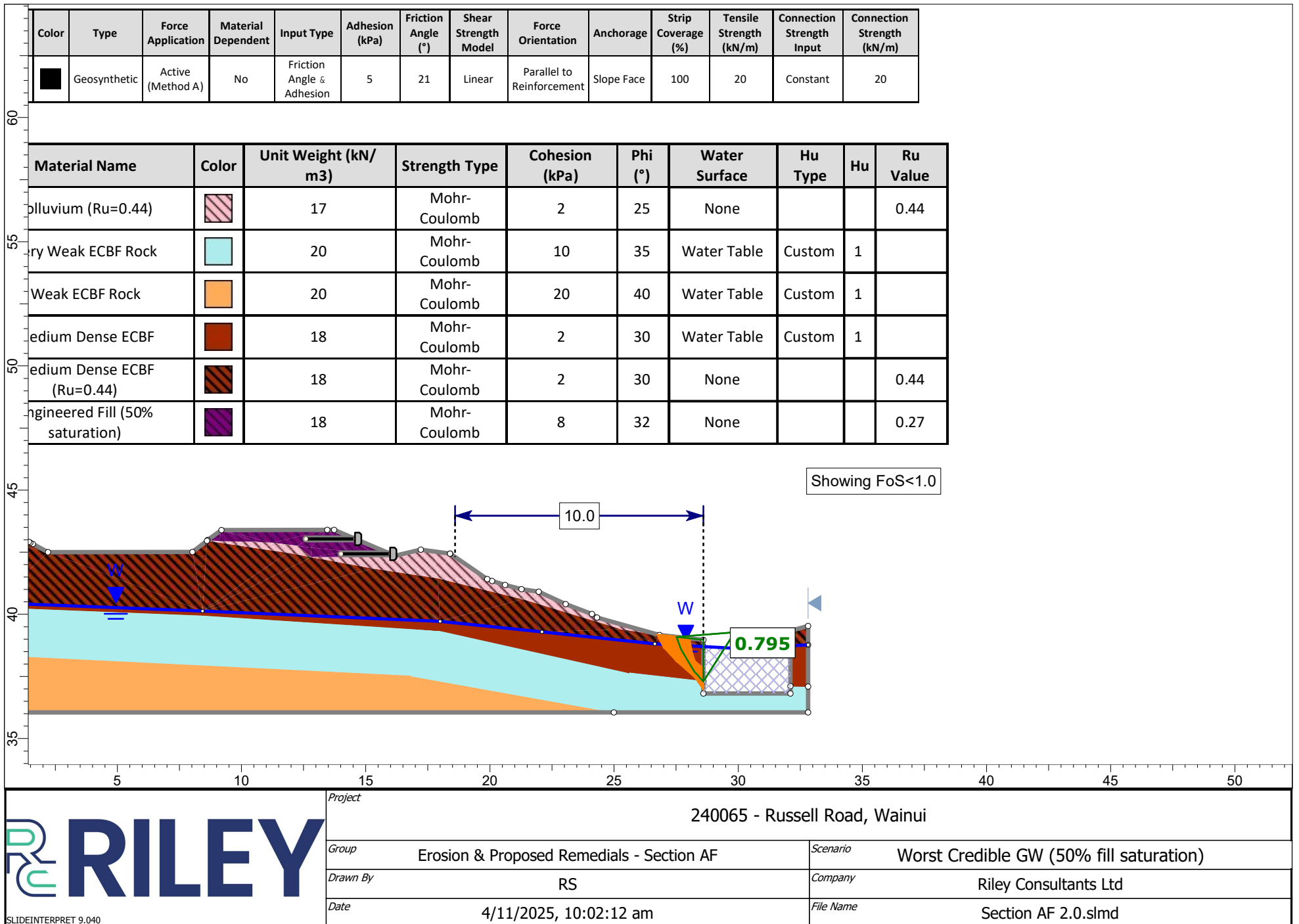


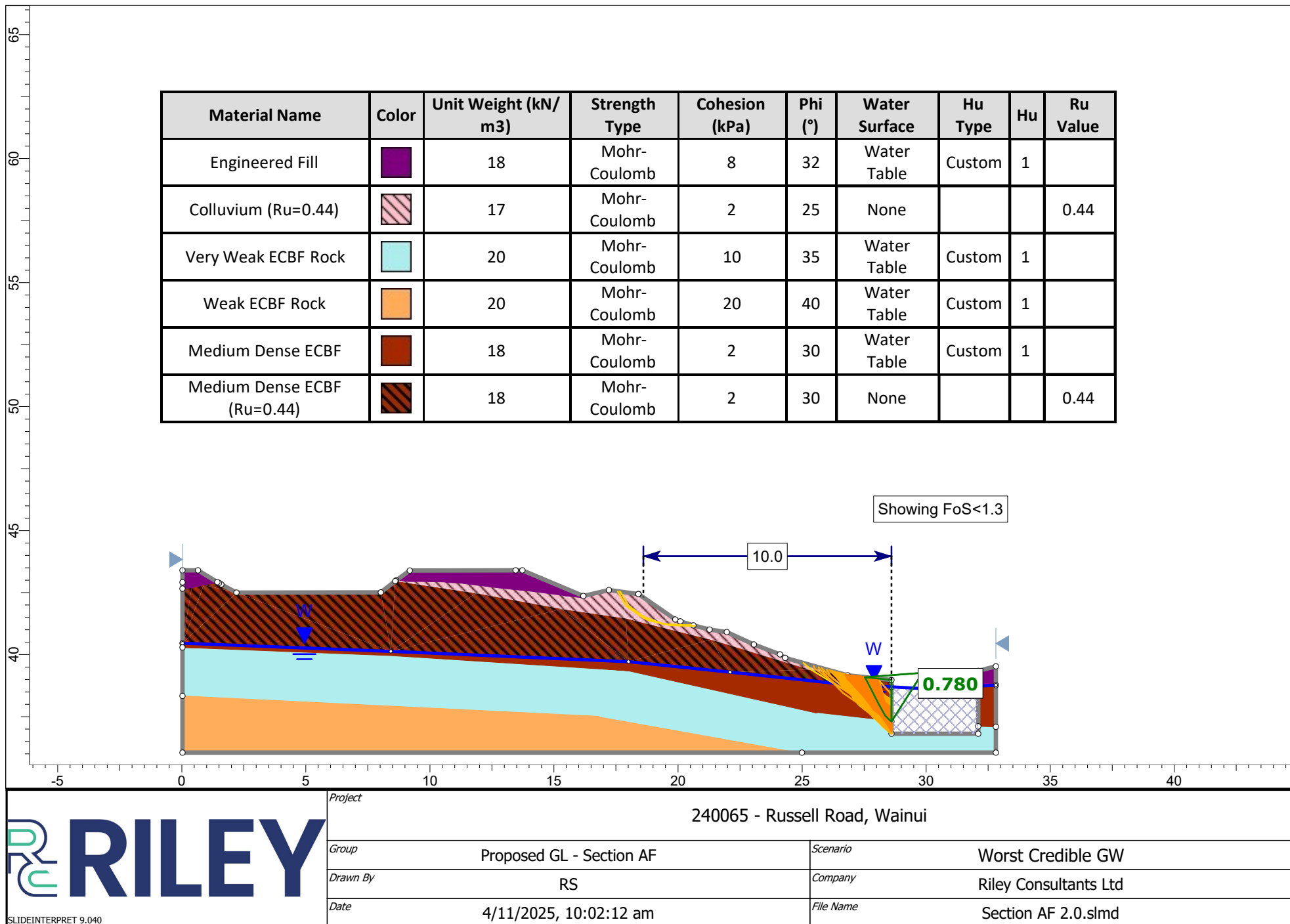
SLIDEINTERPRET 9.040

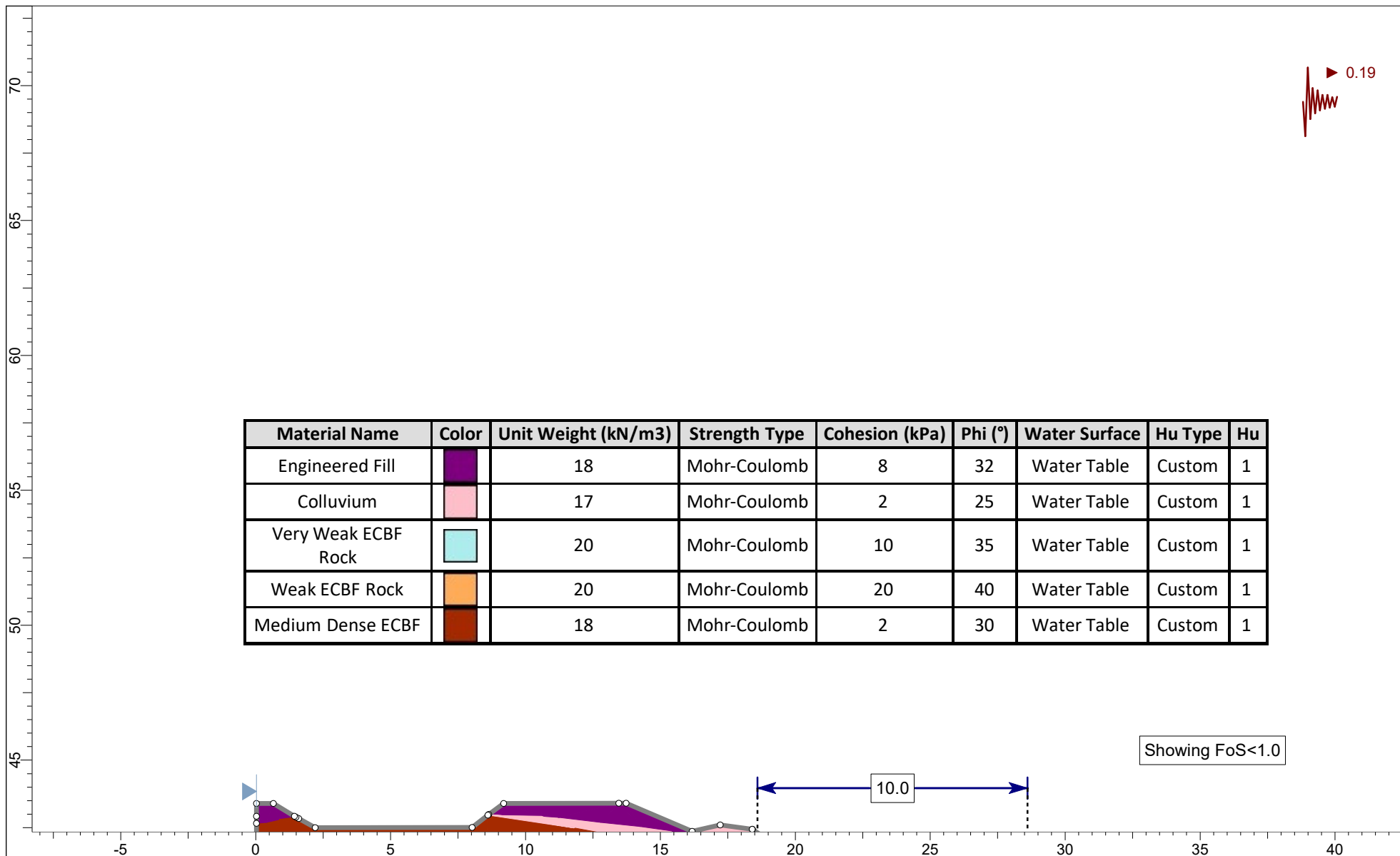
Project	240065 - Russell Road, Wainui - Stage 2		
Group	Section AB - Proposed GL	Scenario	Extreme (50% fill saturation)
Drawn By	RS	Company	Riley Consultants Ltd
Date	10/12/2024	File Name	Section AB.slm



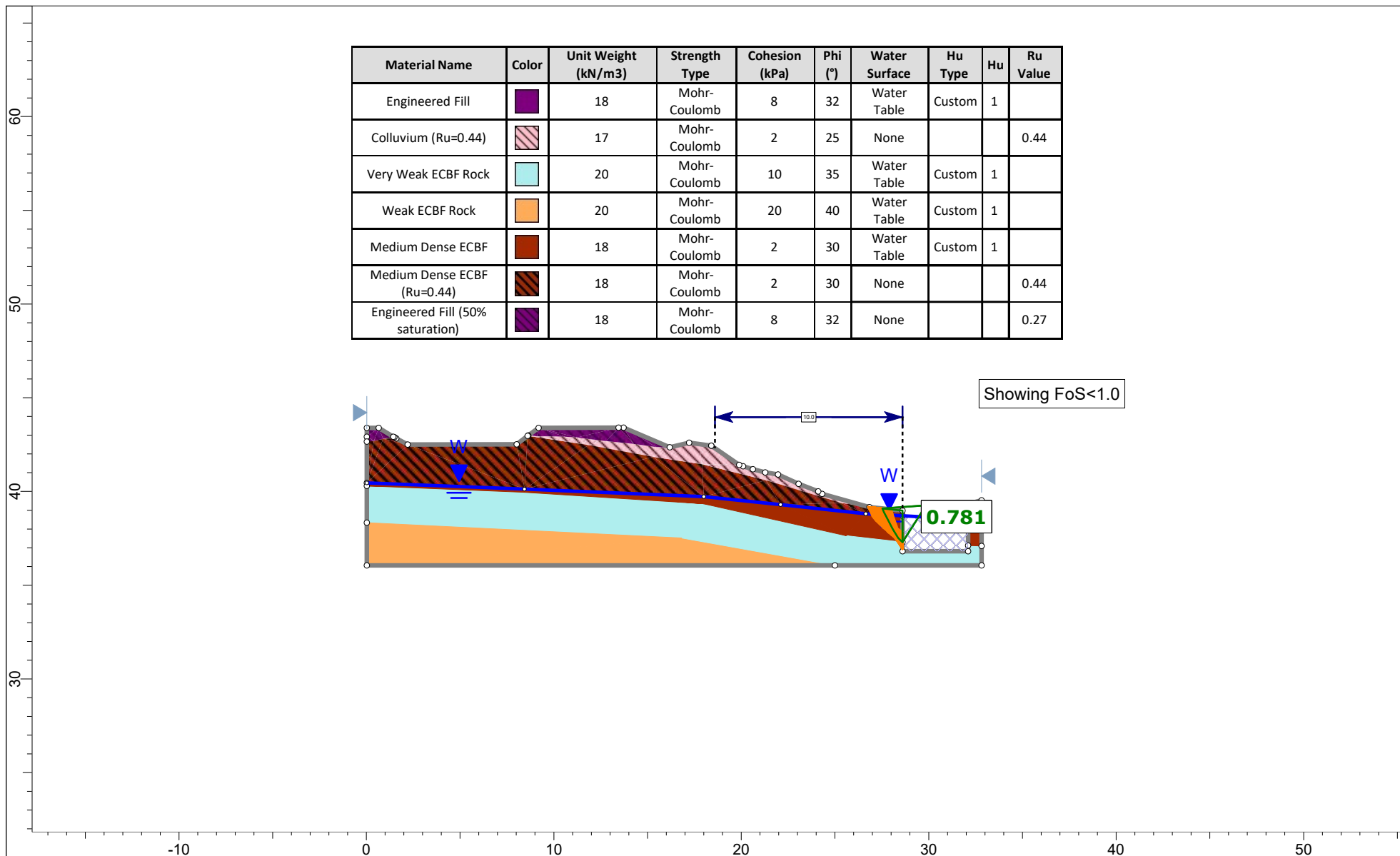








Project	240065 - Russell Road, Wainui		
Group	Proposed GL - Section AF	Scenario	Seismic (0.19g)
Drawn By	RS	Company	Riley Consultants Ltd
Date	4/11/2025, 10:02:12 am	File Name	Section AF 2.0.slmd

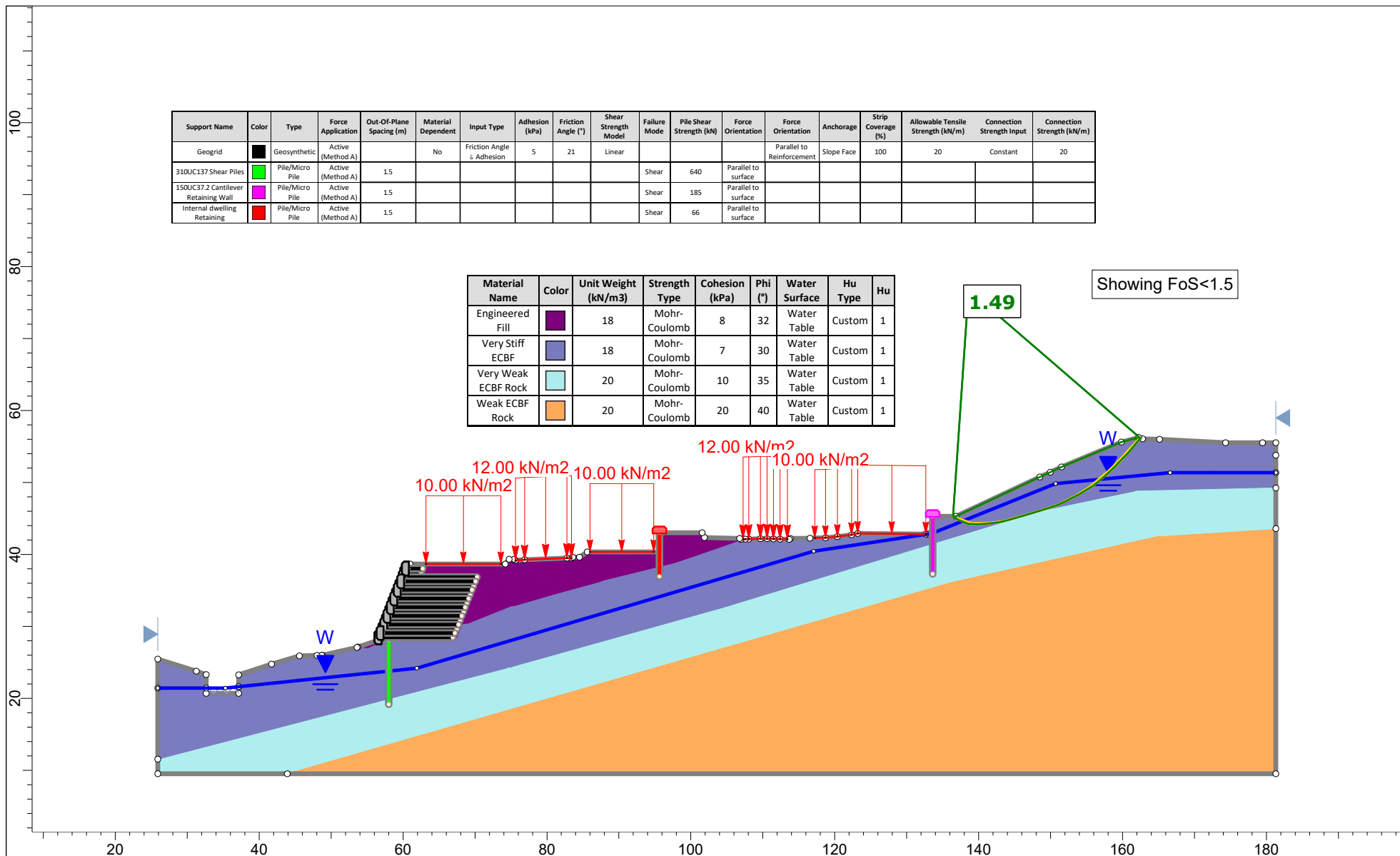


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Engineered Fill		18	Mohr-Coulomb	8	32	Water Table	Custom	1	
Colluvium (Ru=0.44)		17	Mohr-Coulomb	2	25	None			0.44
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1	
Medium Dense ECBF		18	Mohr-Coulomb	2	30	Water Table	Custom	1	
Medium Dense ECBF (Ru=0.44)		18	Mohr-Coulomb	2	30	None			0.44
Engineered Fill (50% saturation)		18	Mohr-Coulomb	8	32	None			0.27



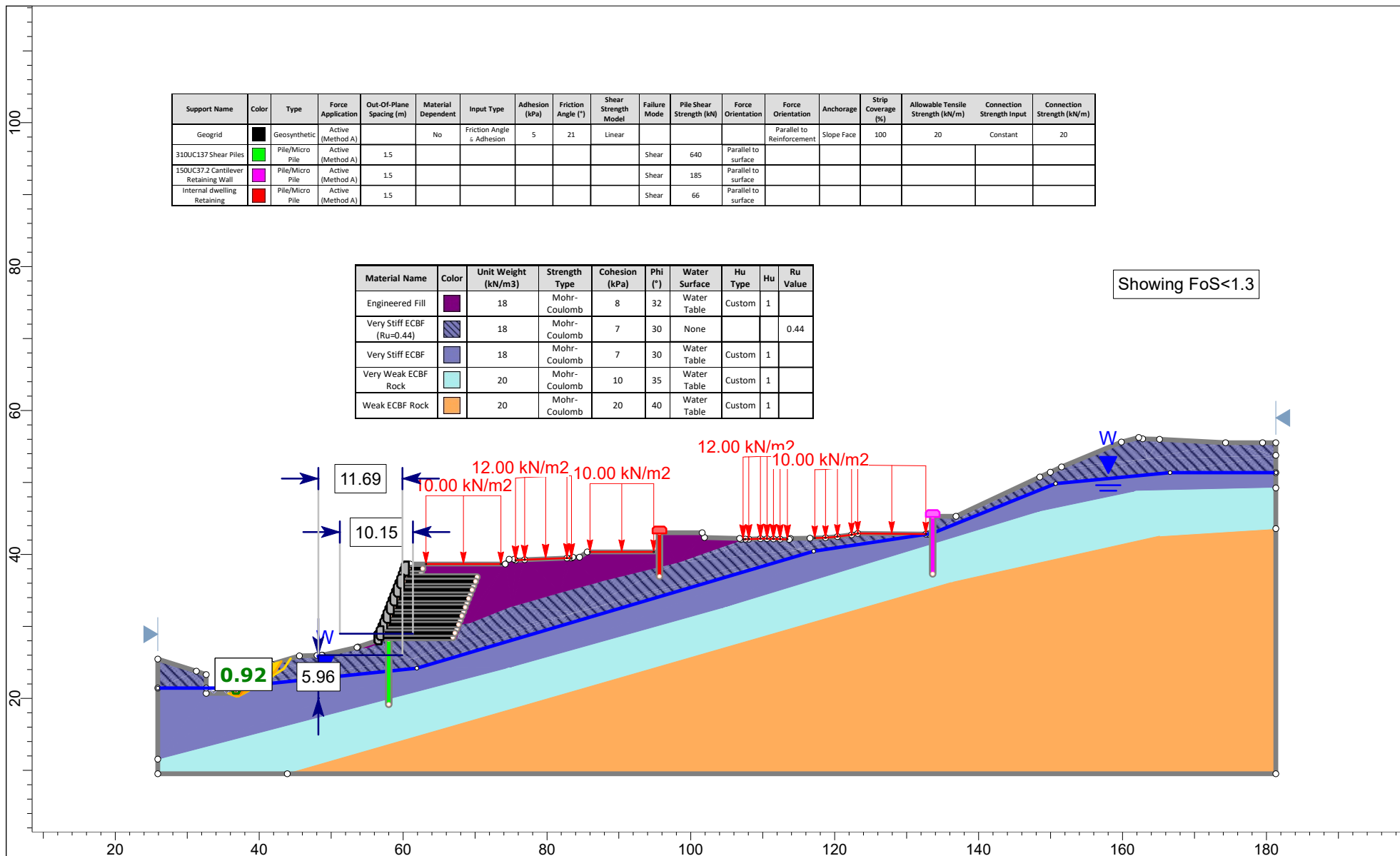
SLIDEINTERPRET 9.040

Project	240065 - Russell Road, Wainui		
Group	Proposed GL - Section AF	Scenario	Worst Credible GW (50% fill saturation)
Drawn By	RS	Company	Riley Consultants Ltd
Date	4/11/2025, 10:02:12 am	File Name	Section AF 2.0.slmd



SLIDEINTERPRET 9.040

Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section AG - design, erosion	Scenario	Normal
Drawn By	RS	Company	Riley Consultants Ltd
Date	12/12/2024, 8:28:52 am	File Name	Section AG.slm



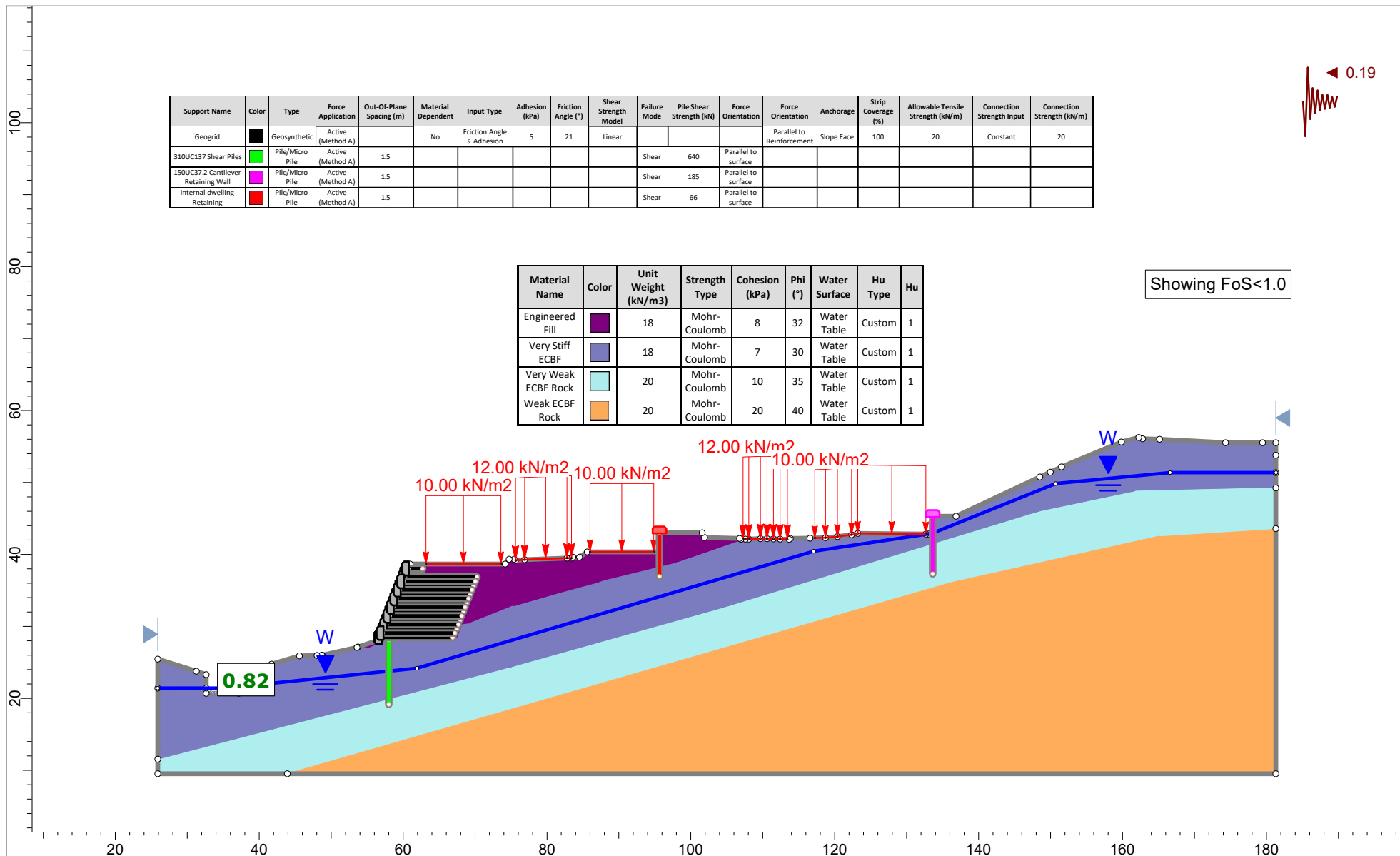
Support Name	Color	Type	Force Application	Out-Of-Plane Spacing (m)	Material Dependent	Input Type	Adhesion (kPa)	Friction Angle (°)	Shear Strength Model	Failure Mode	Pile Shear Strength (kN)	Force Orientation	Force Orientation	Anchorage	Strip Coverage (%)	Allowable Tensile Strength (kN/m)	Connection Strength Input	Connection Strength (kN/m)
Geogrid		Geosynthetic	Active (Method A)		No	Friction Angle & Adhesion	5	21	Linear				Parallel to Reinforcement	Slope Face	100	20	Constant	20
310UC137 Shear Piles		Pile/Micro Pile	Active (Method A)	1.5						Shear	640	Parallel to surface						
150UC37.2 Cantilever Retaining Wall		Pile/Micro Pile	Active (Method A)	1.5						Shear	185	Parallel to surface						
Internal dwelling Retaining		Pile/Micro Pile	Active (Method A)	1.5						Shear	66	Parallel to surface						

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Engineered Fill		18	Mohr-Coulomb	8	32	Water Table	Custom	1	
Very Stiff ECBF (Ru=0.44)		18	Mohr-Coulomb	7	30	None			0.44
Very Stiff ECBF		18	Mohr-Coulomb	7	30	Water Table	Custom	1	
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1	

Showing FoS<1.3

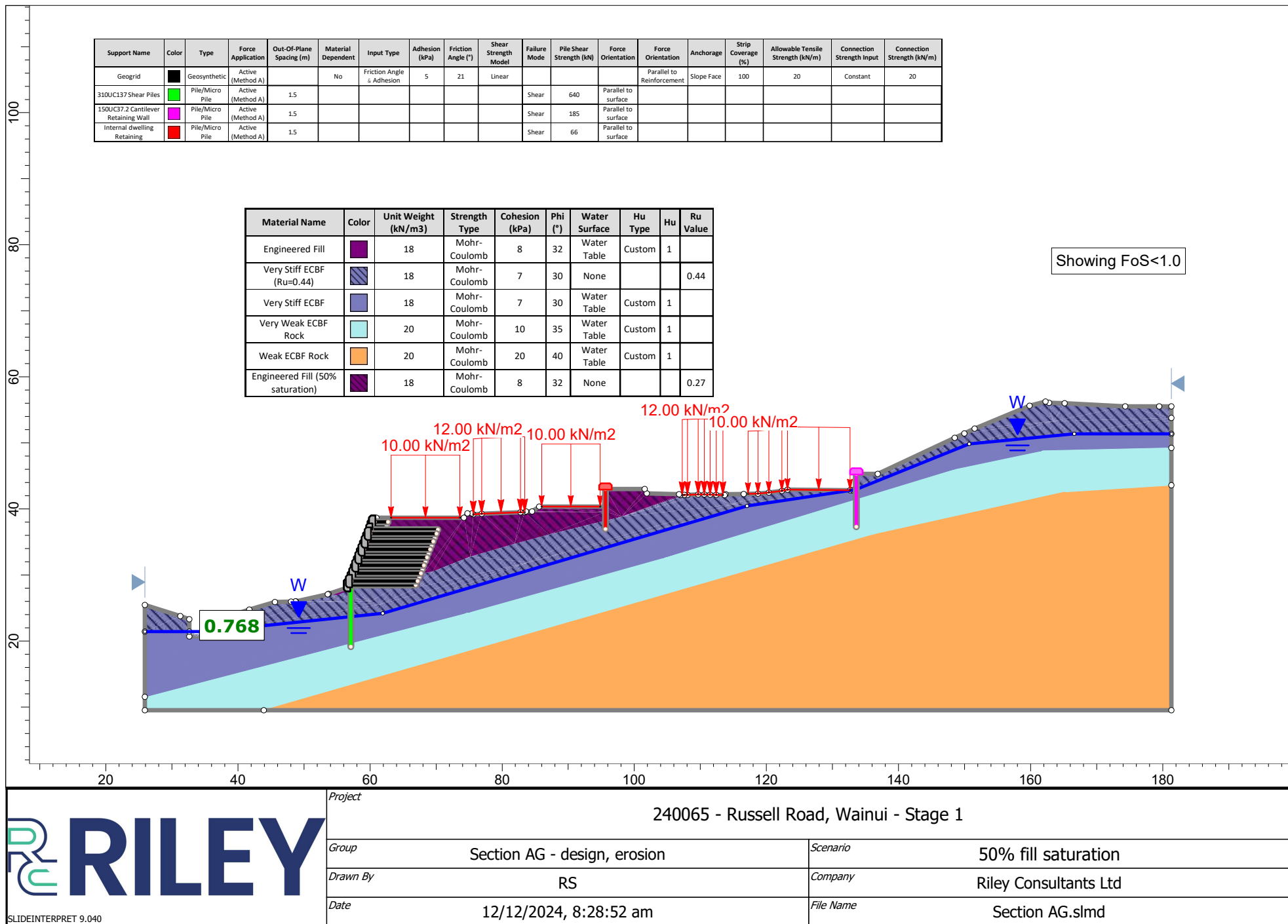


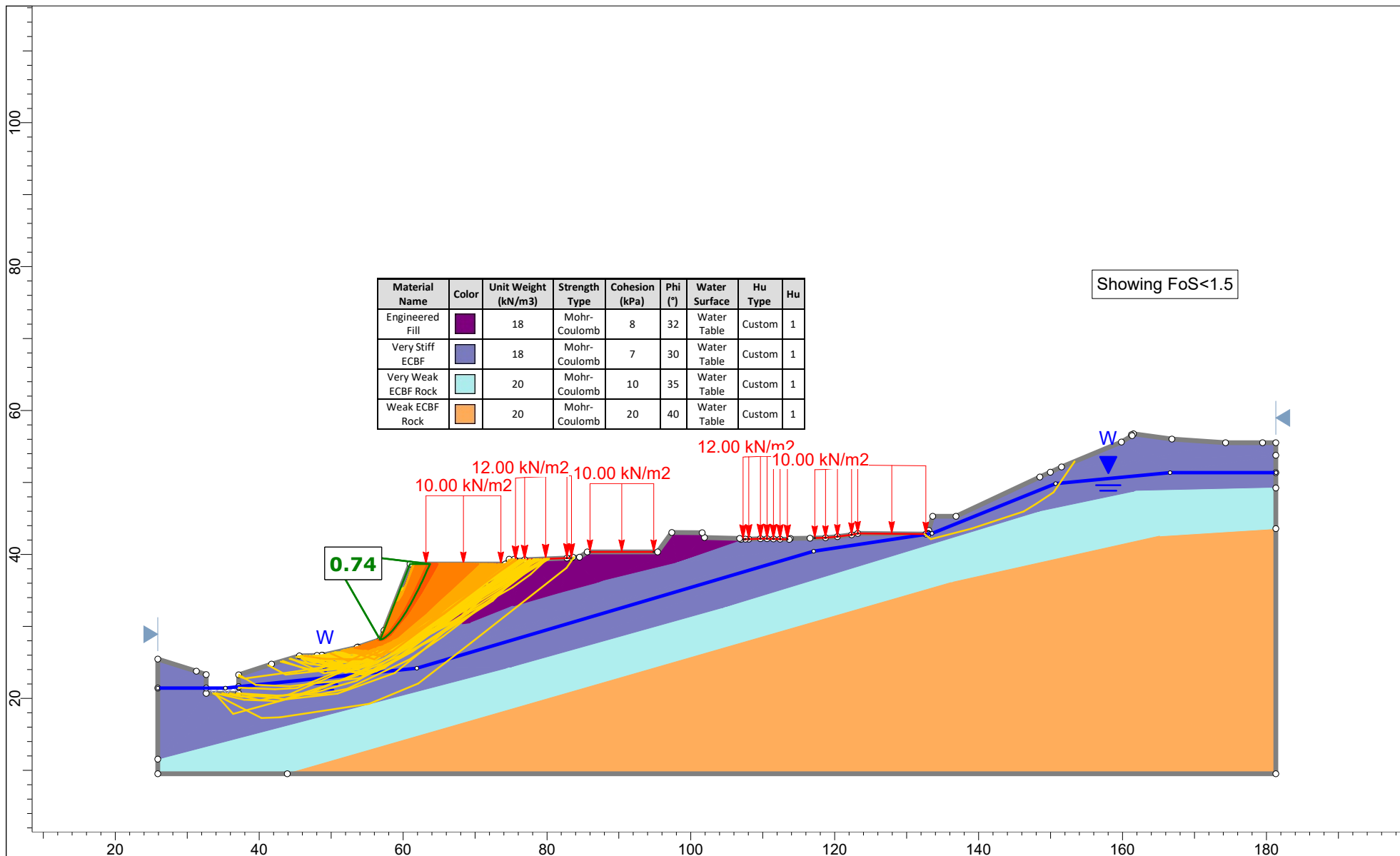
Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section AG - design, erosion	Scenario	Worst Credible GW
Drawn By	RS	Company	Riley Consultants Ltd
Date	12/12/2024, 8:28:52 am	File Name	Section AG.slm



SLIDEINTERPRET 9.040

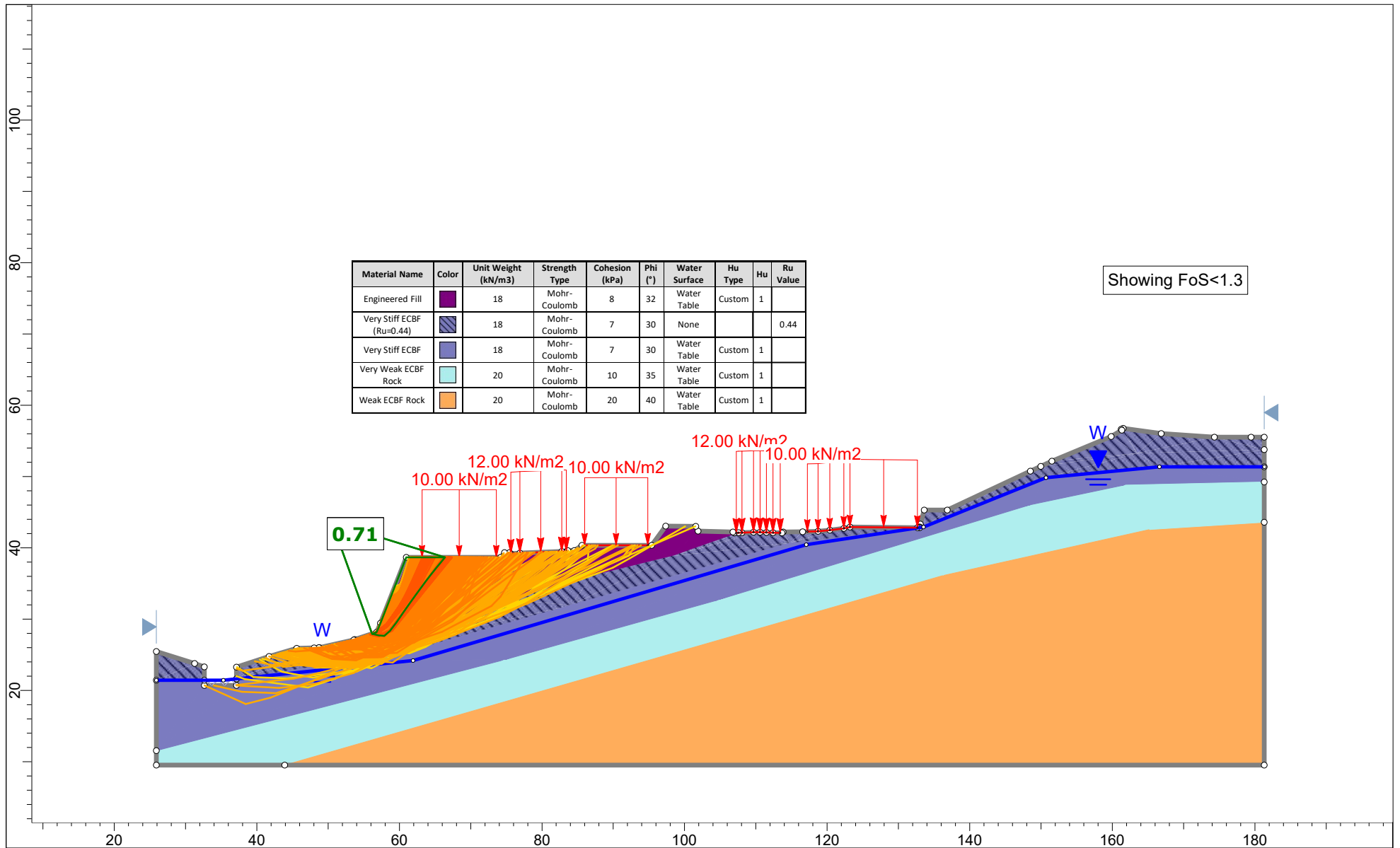
Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section AG - design, erosion	Scenario	Seismic (0.19g)
Drawn By	RS	Company	Riley Consultants Ltd
Date	12/12/2024, 8:28:52 am	File Name	Section AG.slm



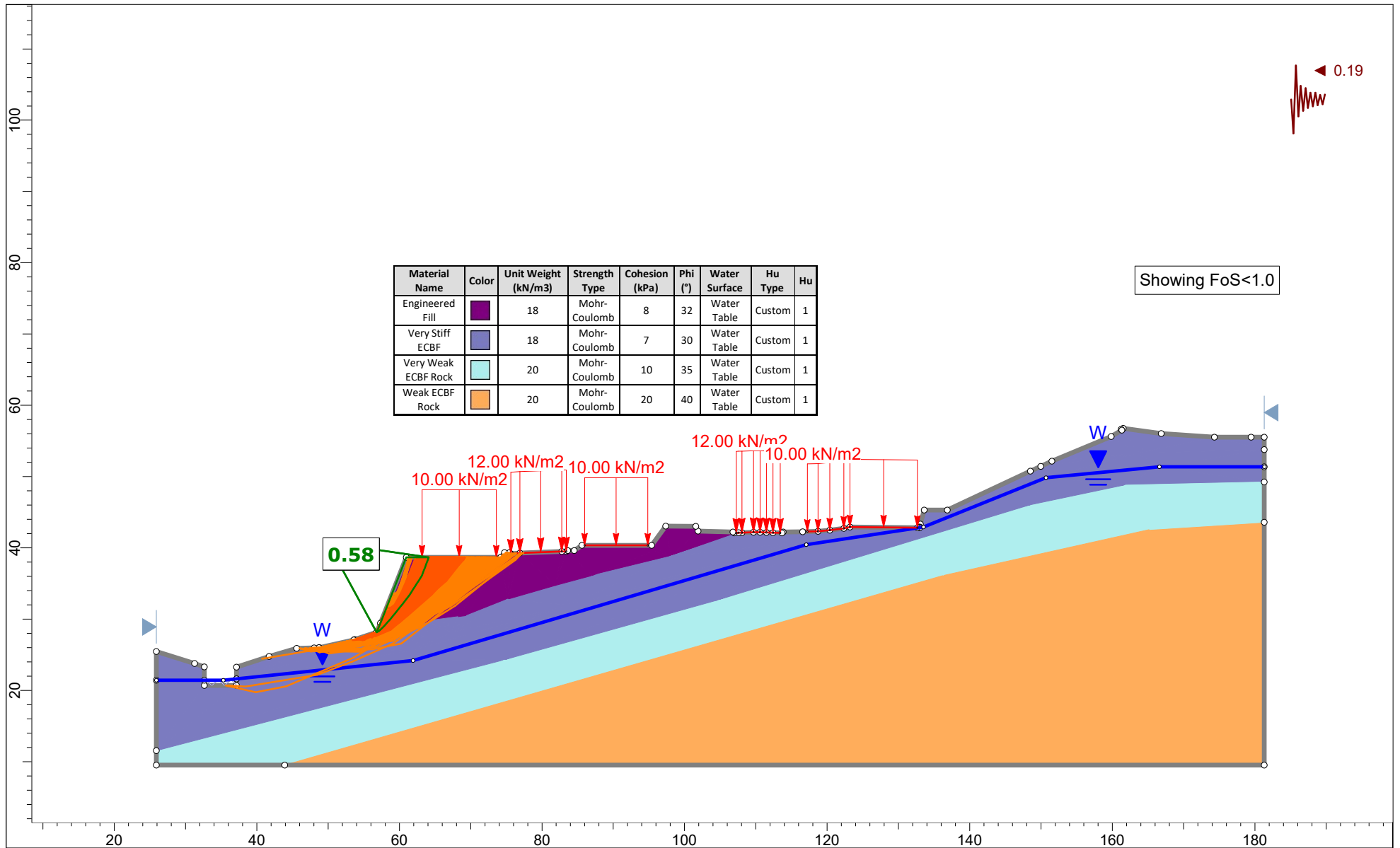


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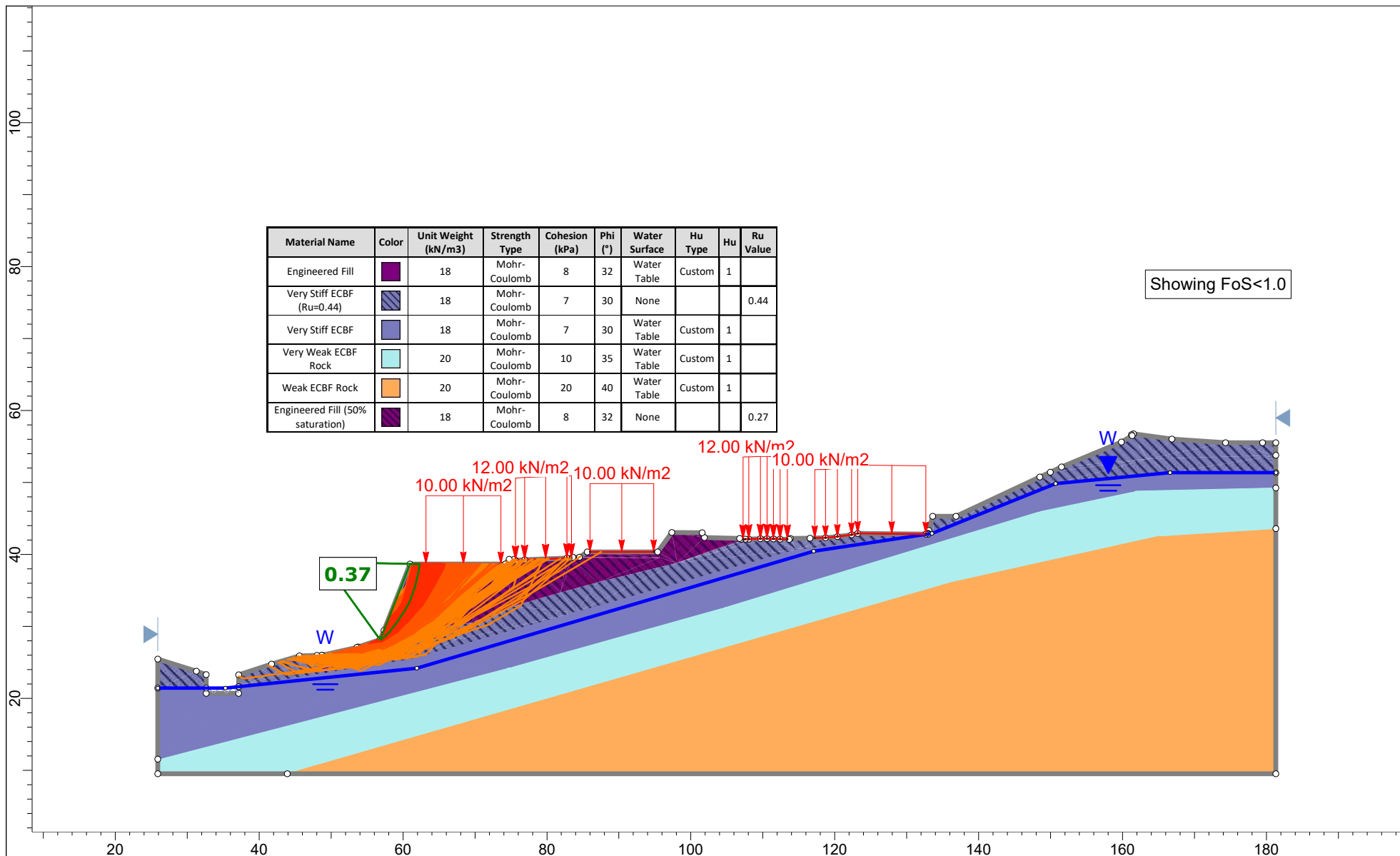
Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section AG - Proposed GL	Scenario	Normal
Drawn By	RS	Company	Riley Consultants Ltd
Date	12/12/2024, 8:28:52 am	File Name	Section AG.slm



	Project		240065 - Russell Road, Wainui - Stage 1	
	Group	Section AG - Proposed GL	Scenario	Worst Credible GW
	Drawn By	RS	Company	Riley Consultants Ltd
	Date	12/12/2024, 8:28:52 am	File Name	Section AG.slm

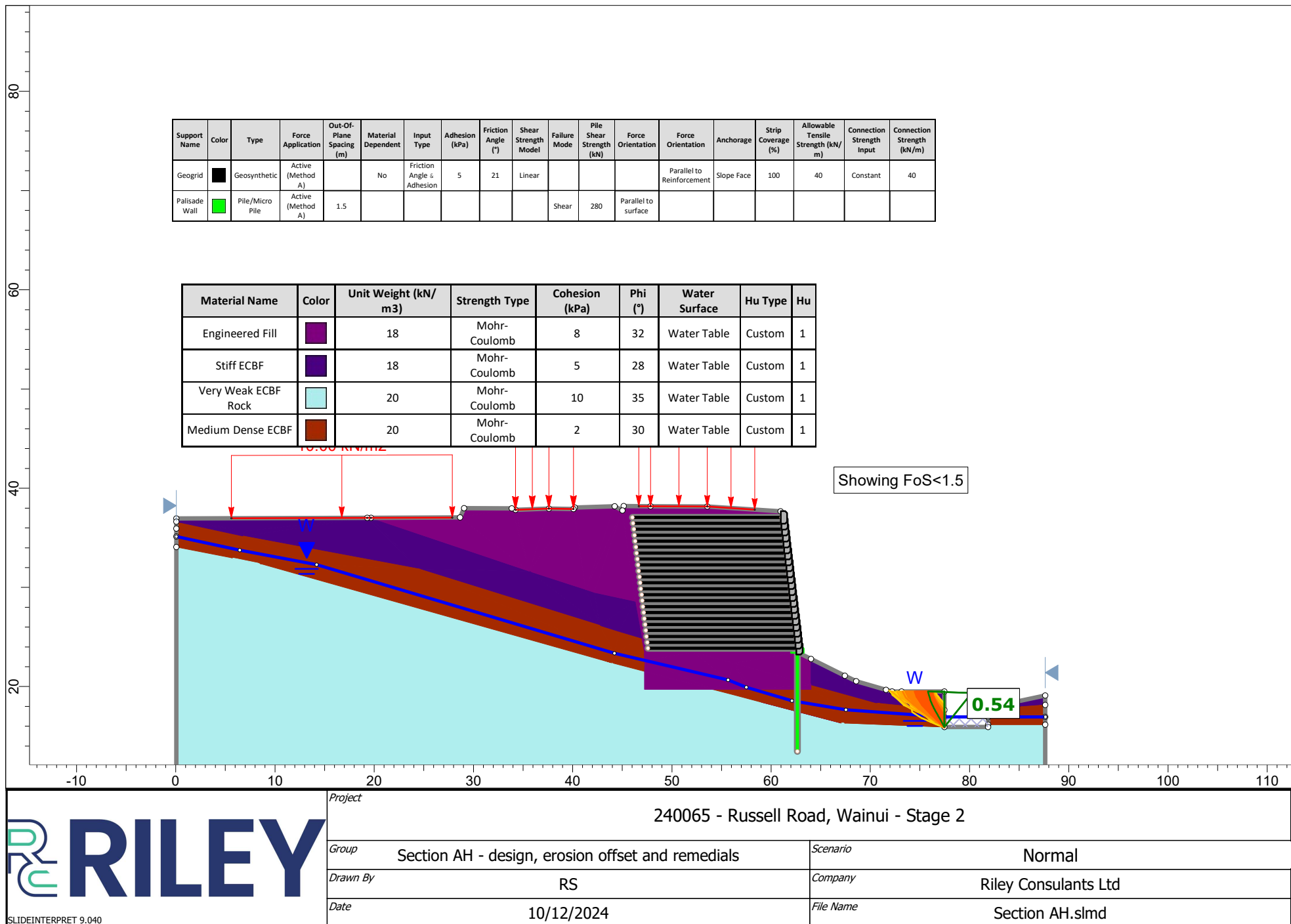


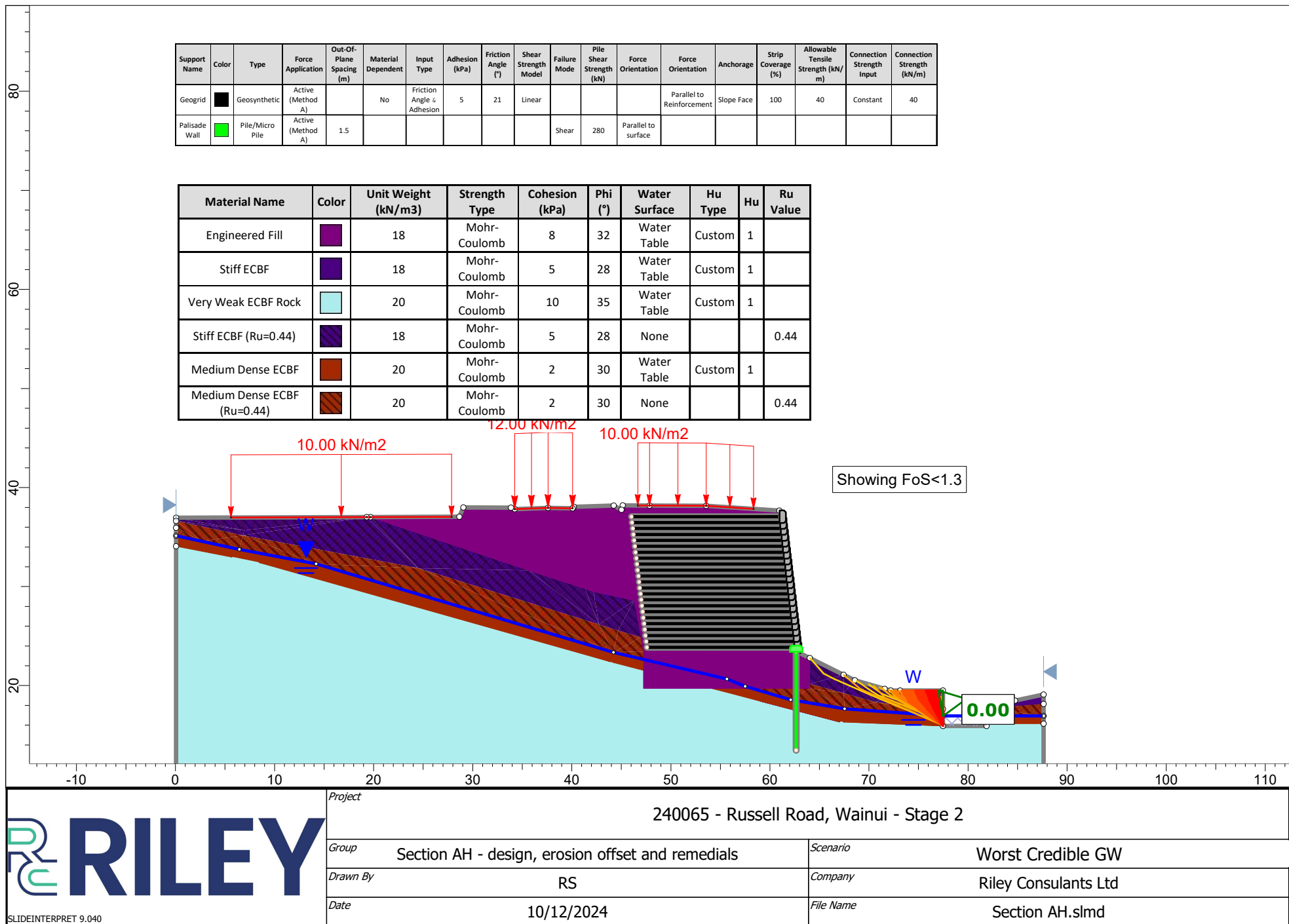
	Project		240065 - Russell Road, Wainui - Stage 1	
	Group	Section AG - Proposed GL	Scenario	Seismic (0.19g)
	Drawn By	RS	Company	Riley Consultants Ltd
	Date	12/12/2024, 8:28:52 am	File Name	Section AG.slm

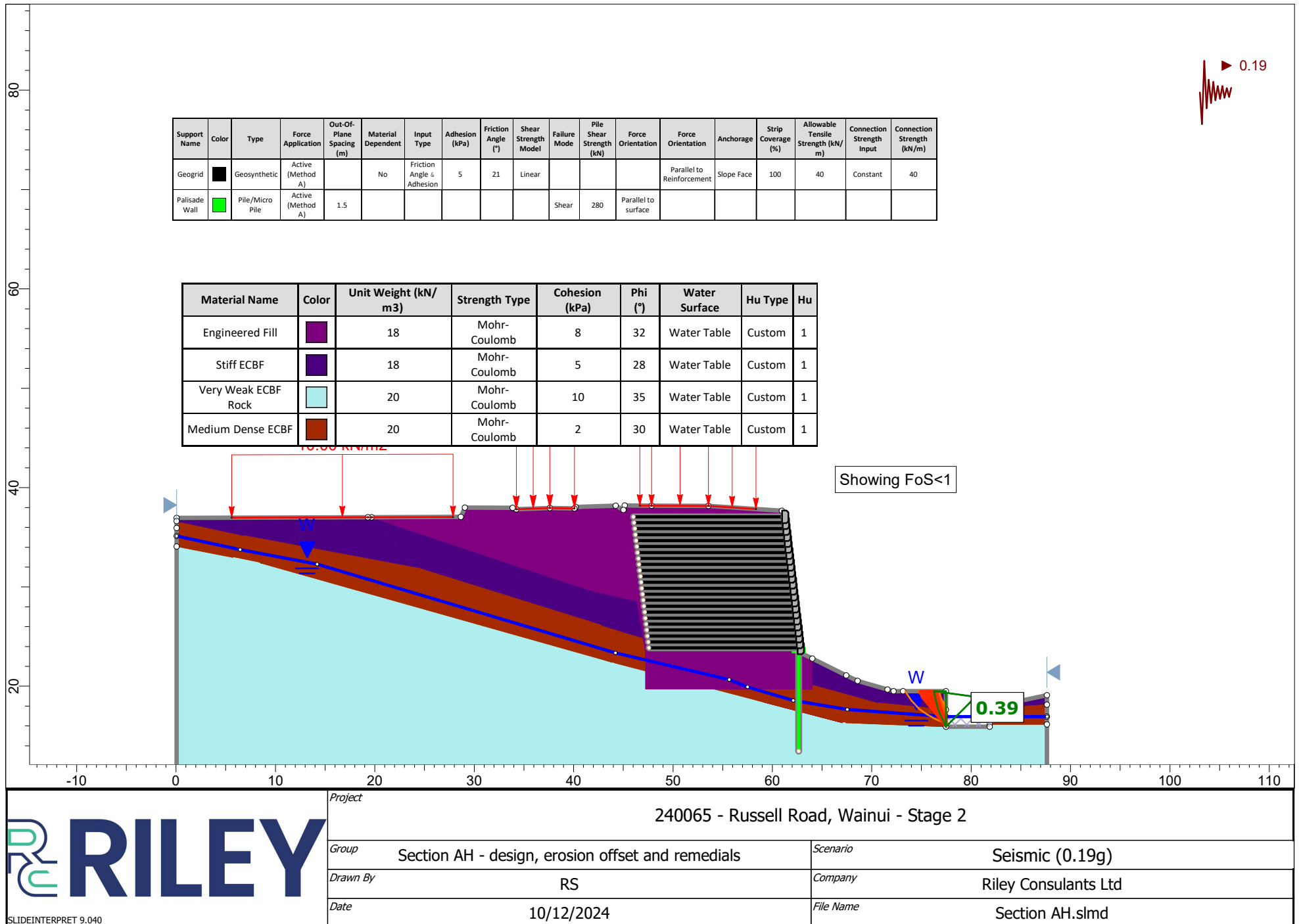


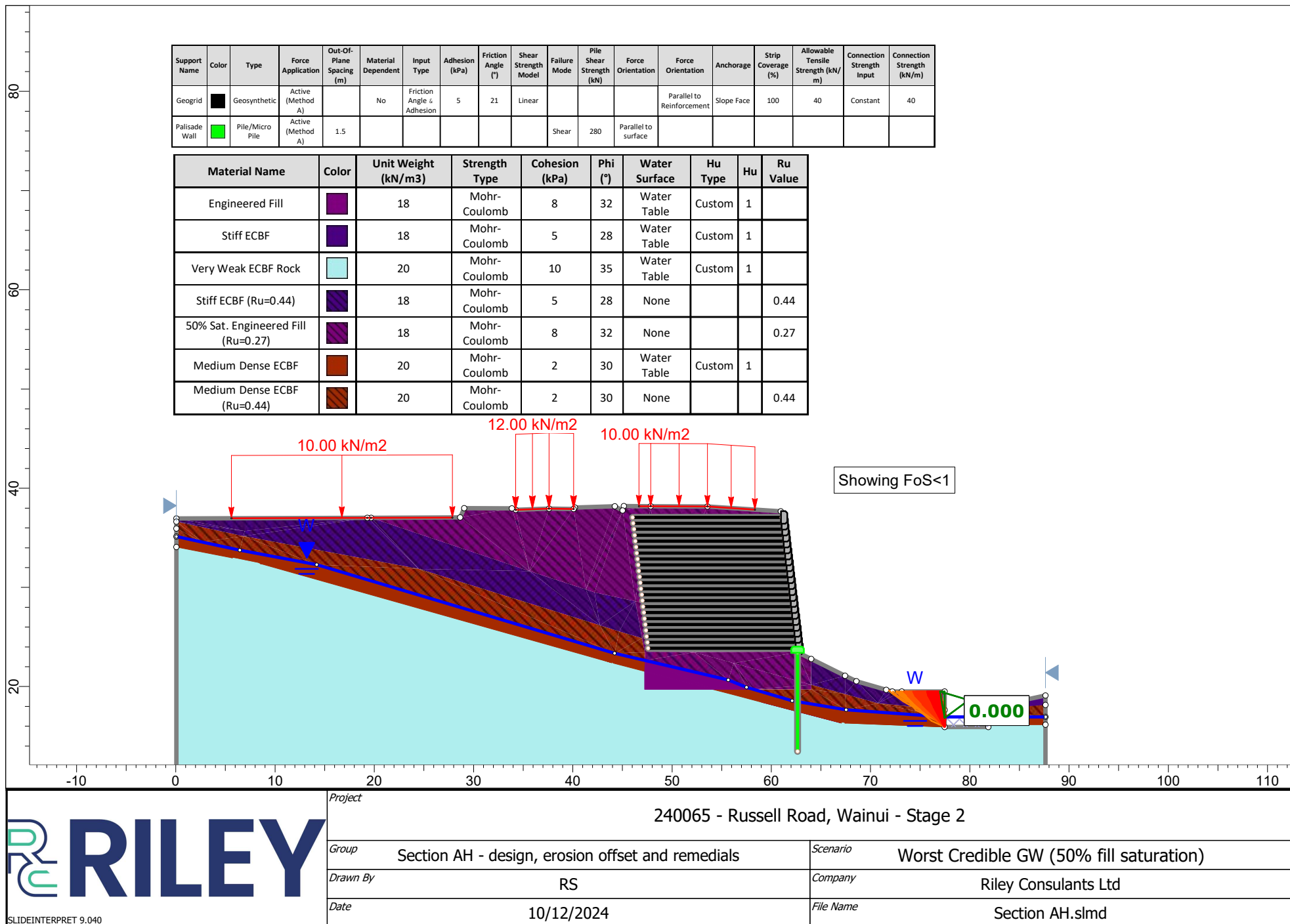
SLIDEINTERPRET 9.040

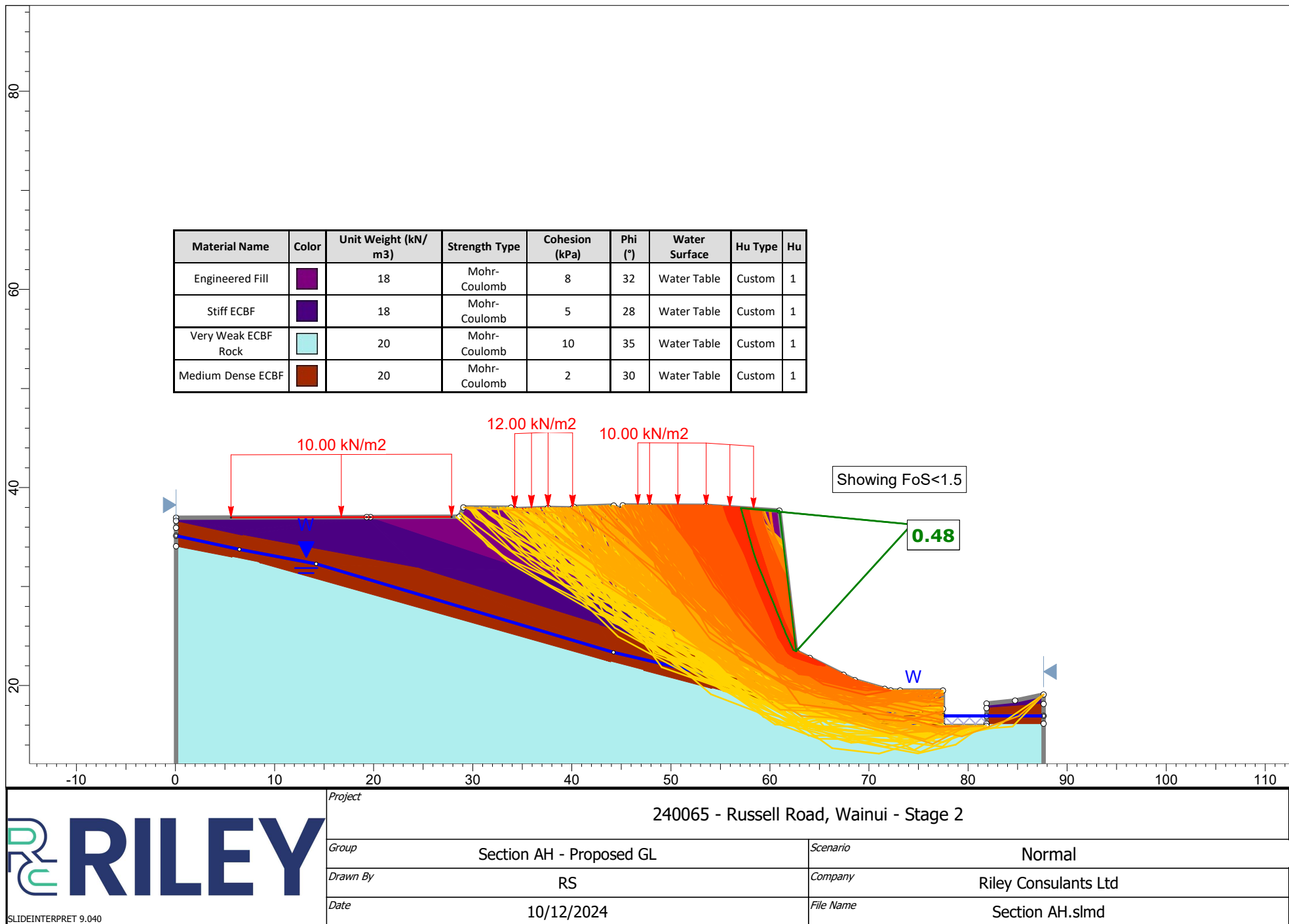
Project	240065 - Russell Road, Wainui - Stage 1		
Group	Section AG - Proposed GL	Scenario	50% fill saturation
Drawn By	RS	Company	Riley Consultants Ltd
Date	12/12/2024, 8:28:52 am	File Name	Section AG.slm

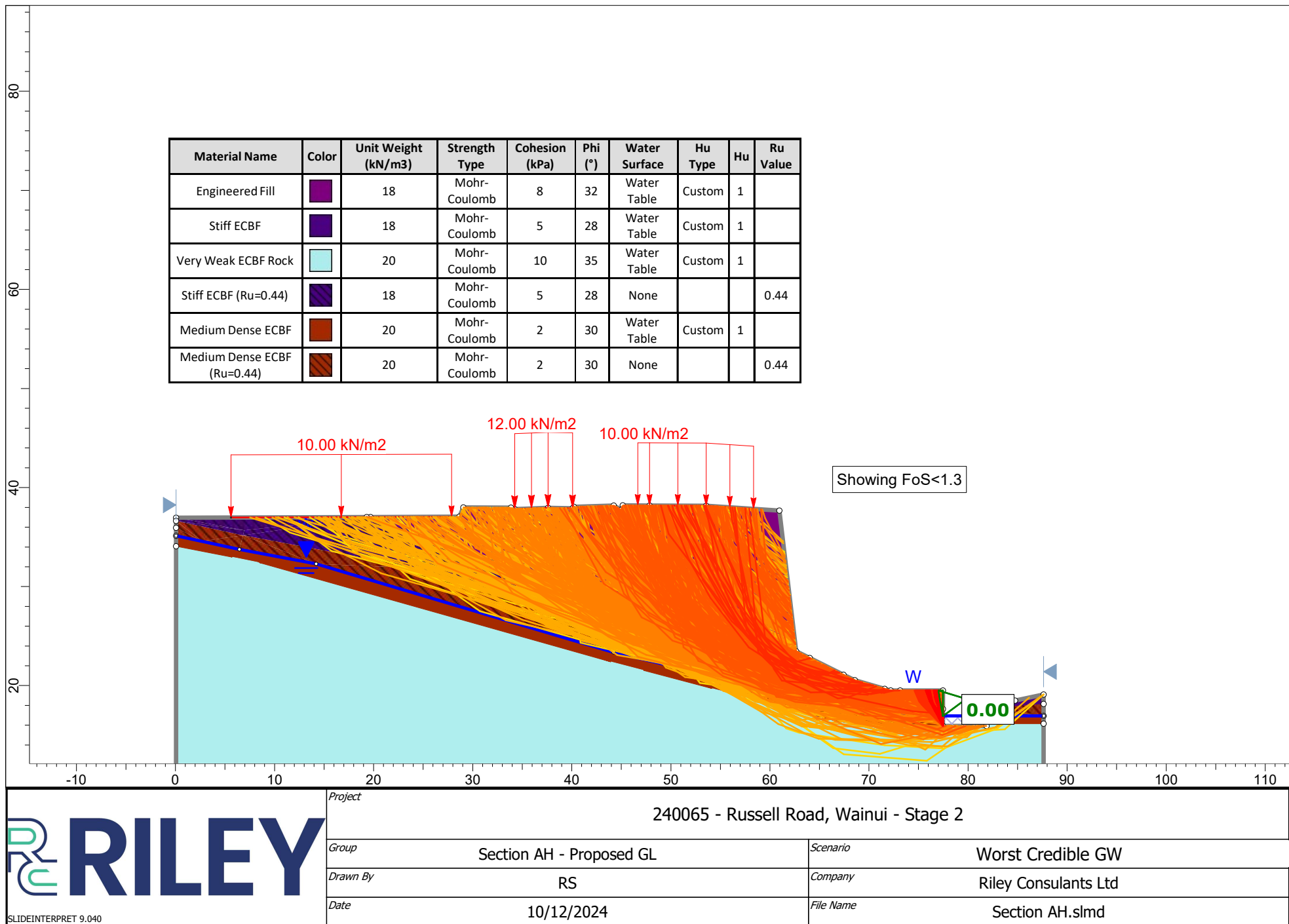


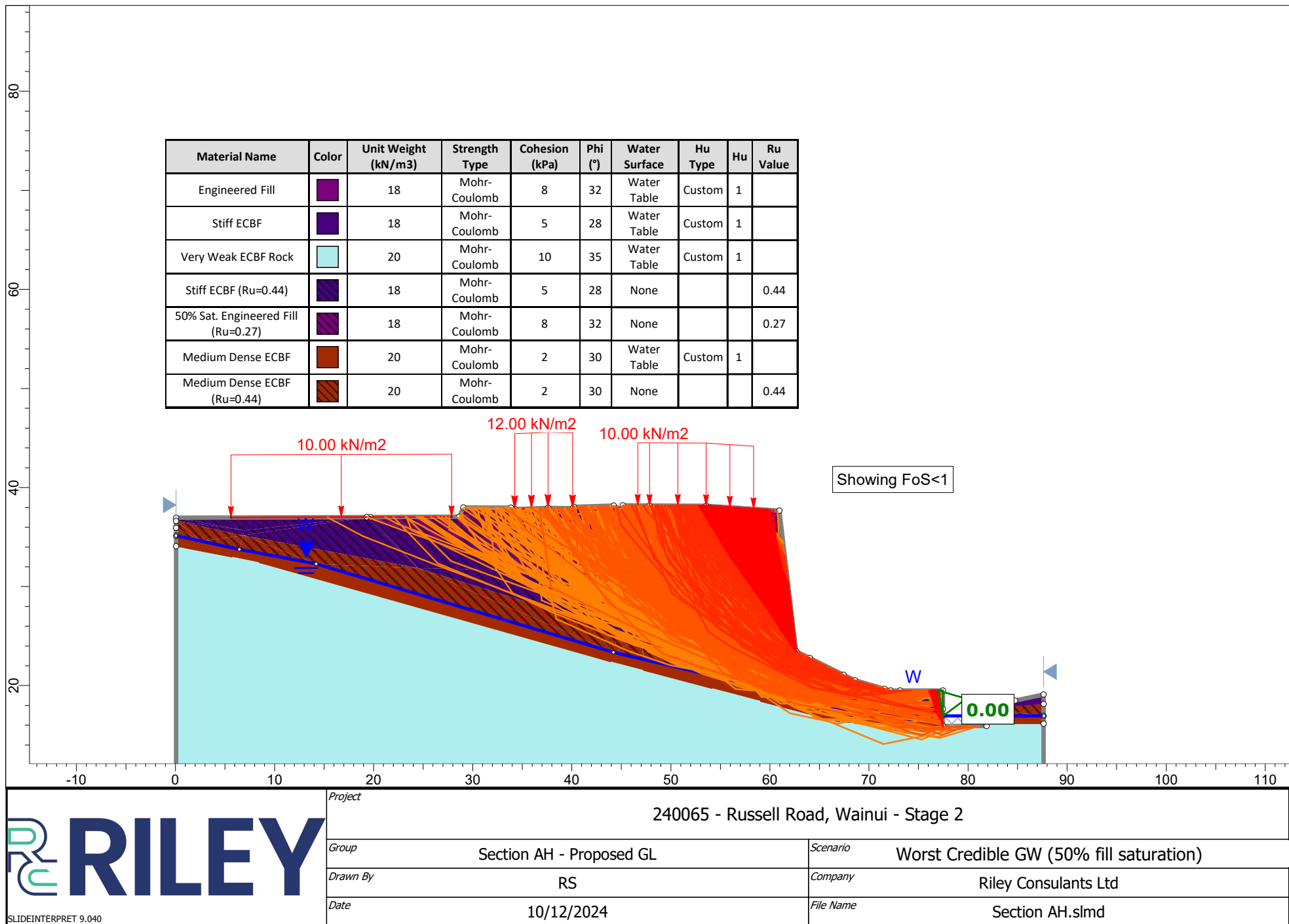








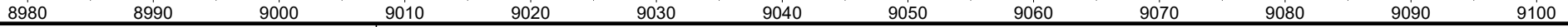


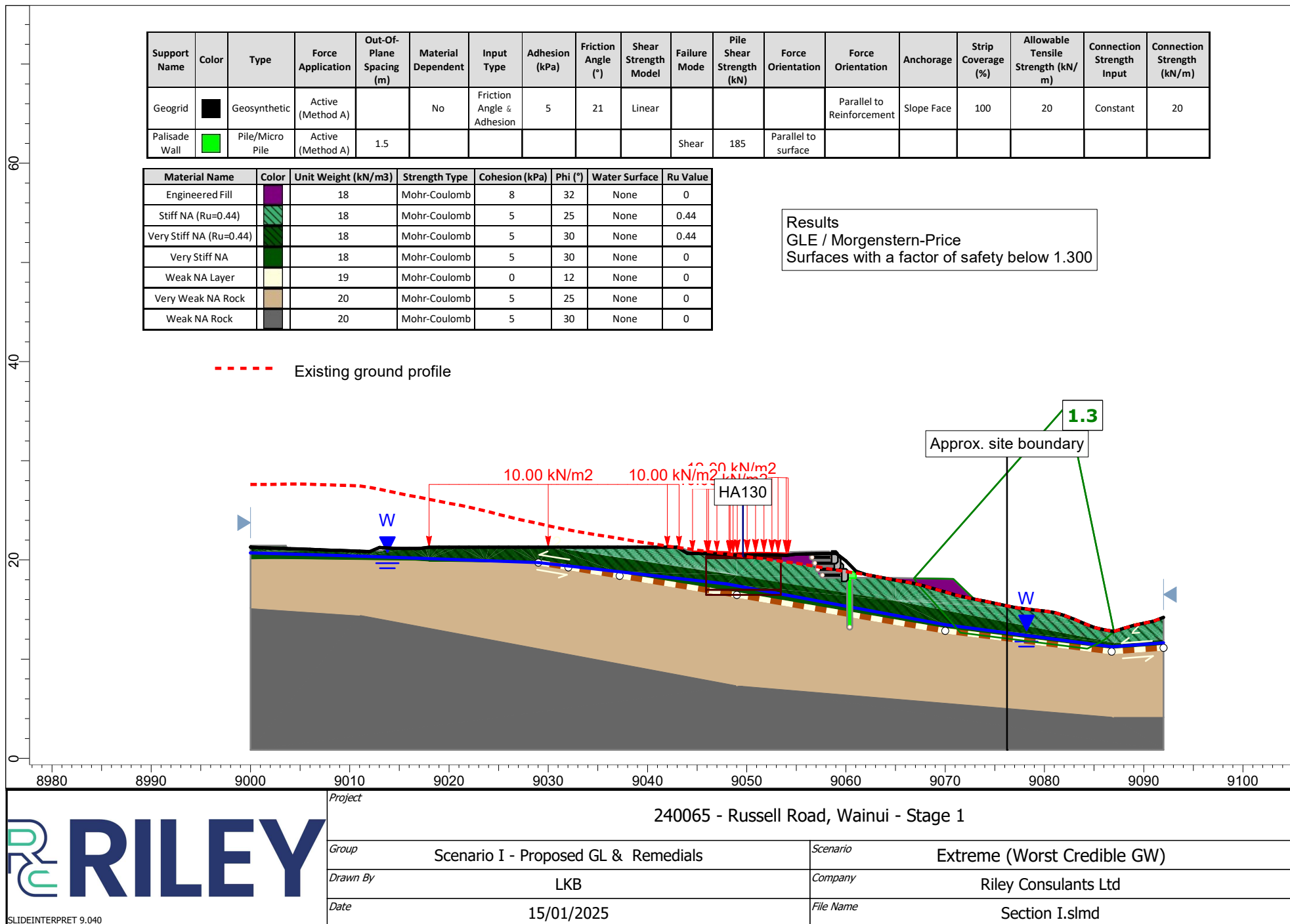


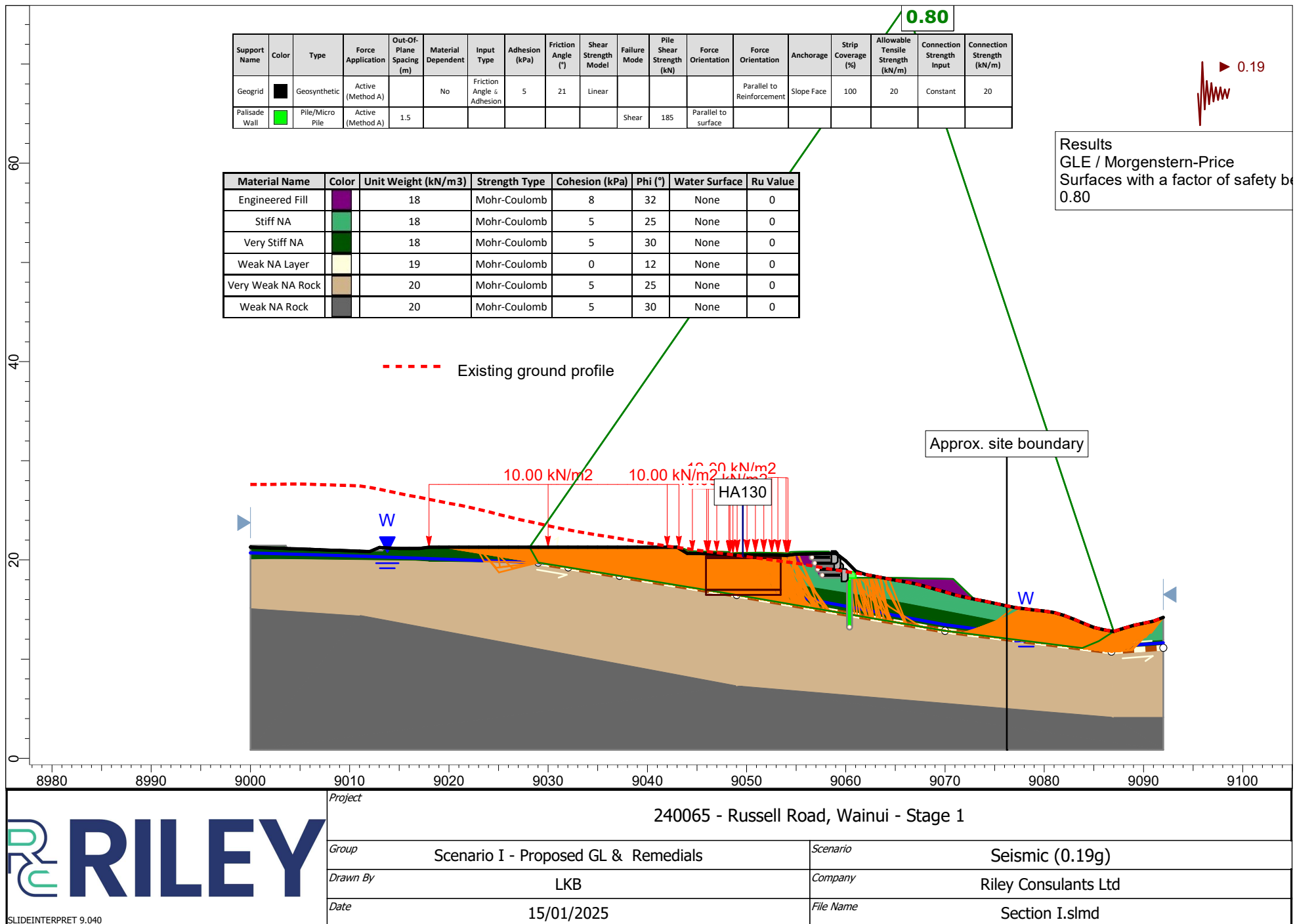
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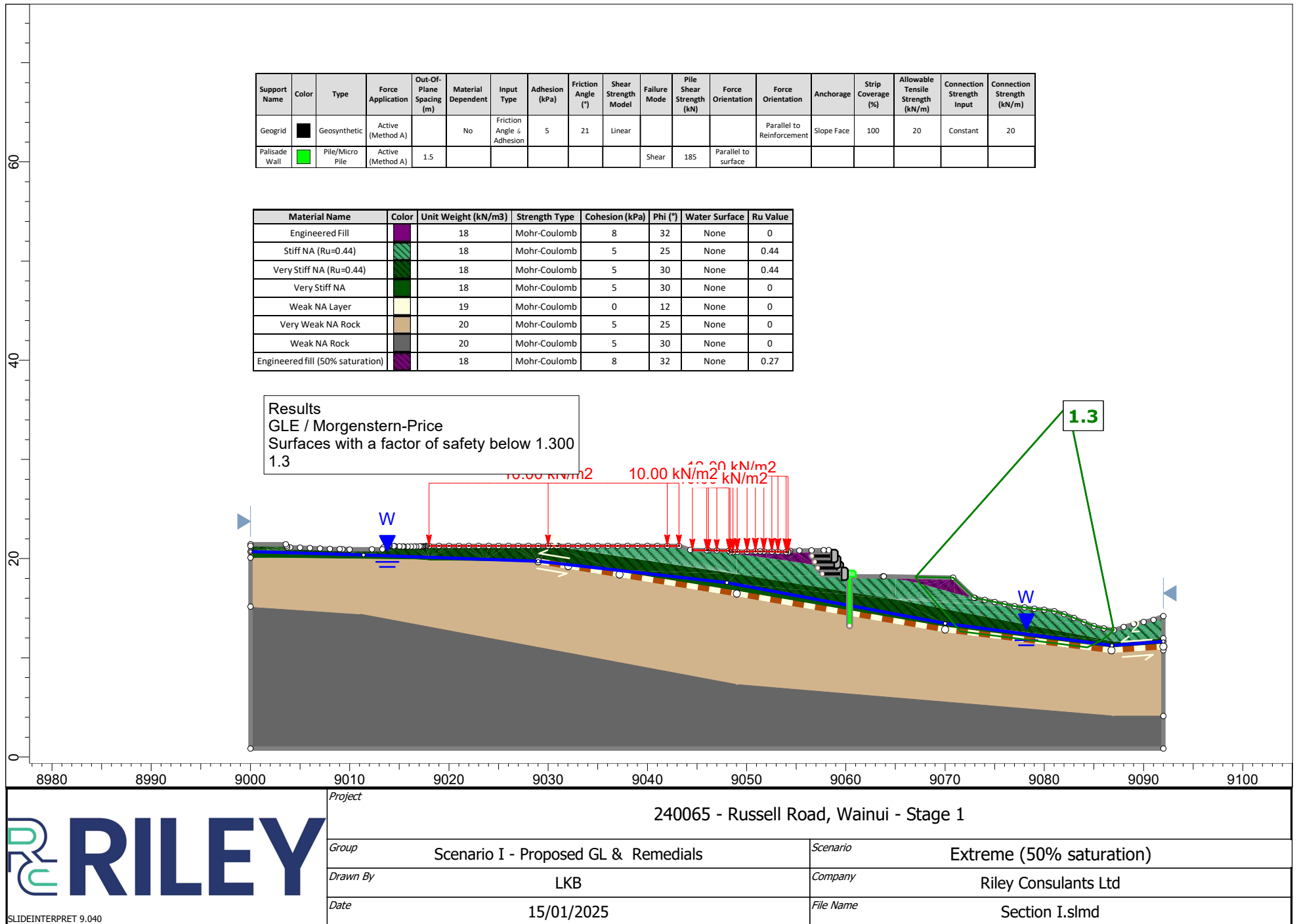
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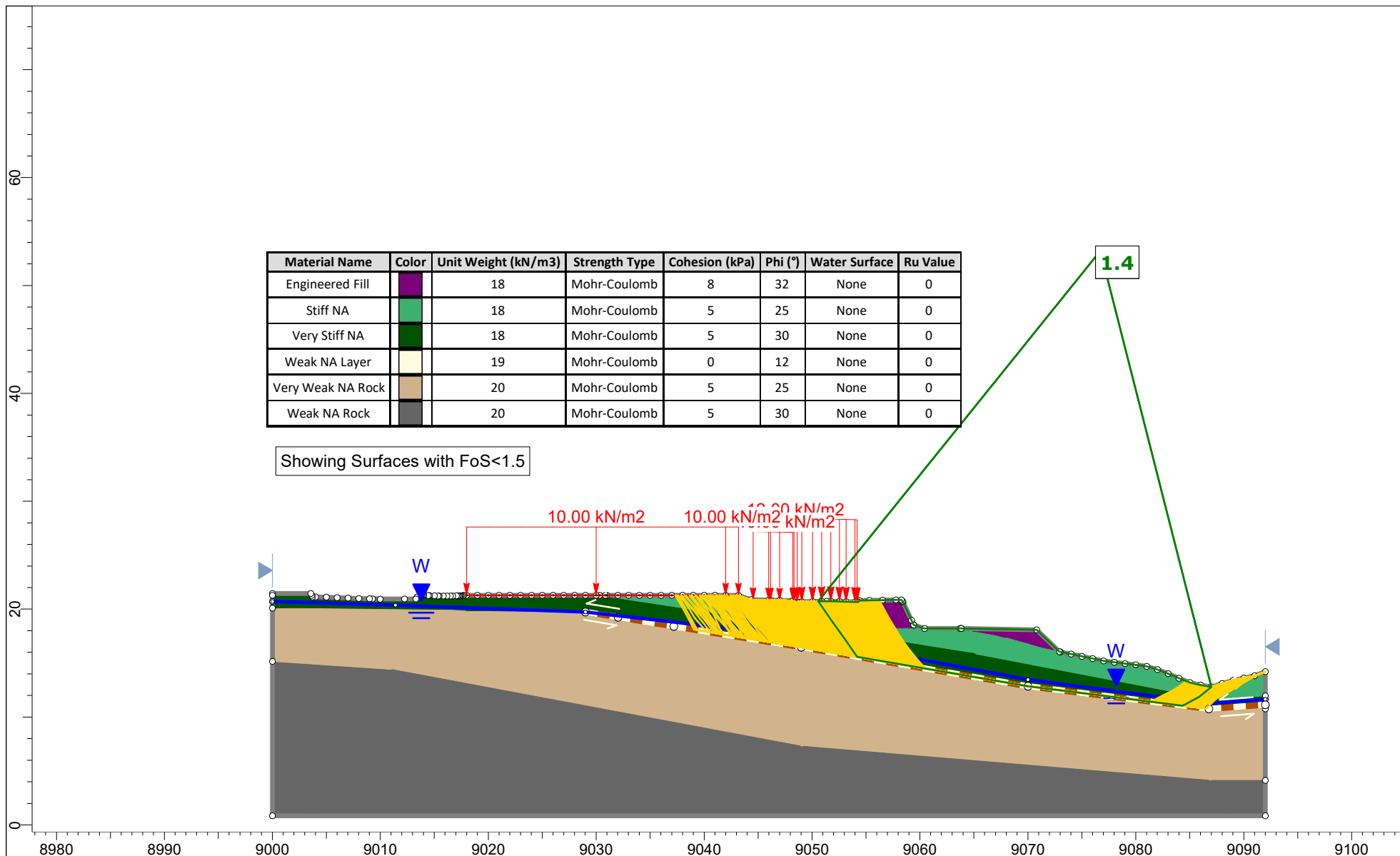
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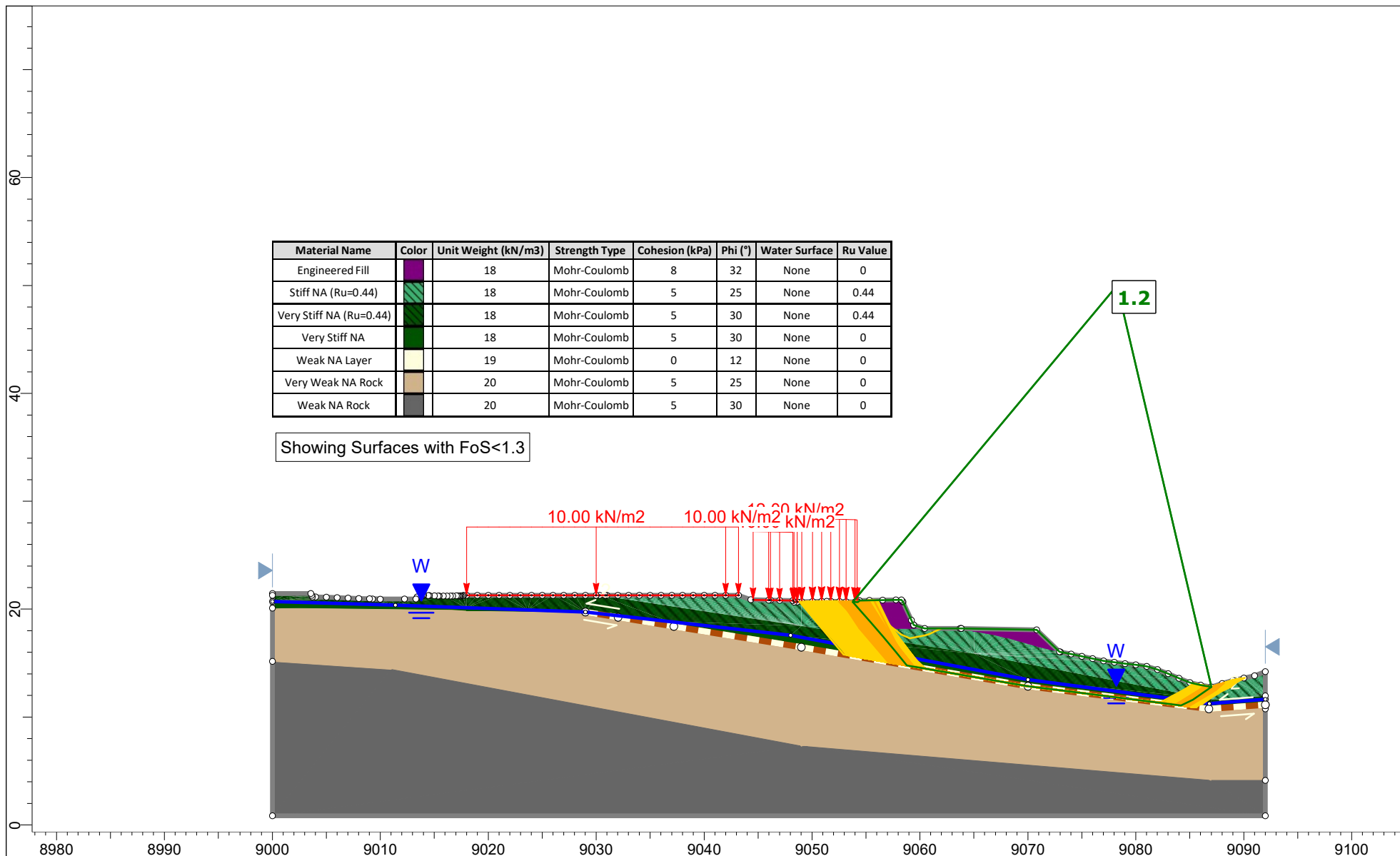


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Ru Value
Engineered Fill		18	Mohr-Coulomb	8	32	None	0
Stiff NA		18	Mohr-Coulomb	5	25	None	0
Very Stiff NA		18	Mohr-Coulomb	5	30	None	0
Weak NA Layer		19	Mohr-Coulomb	0	12	None	0
Very Weak NA Rock		20	Mohr-Coulomb	5	25	None	0
Weak NA Rock		20	Mohr-Coulomb	5	30	None	0



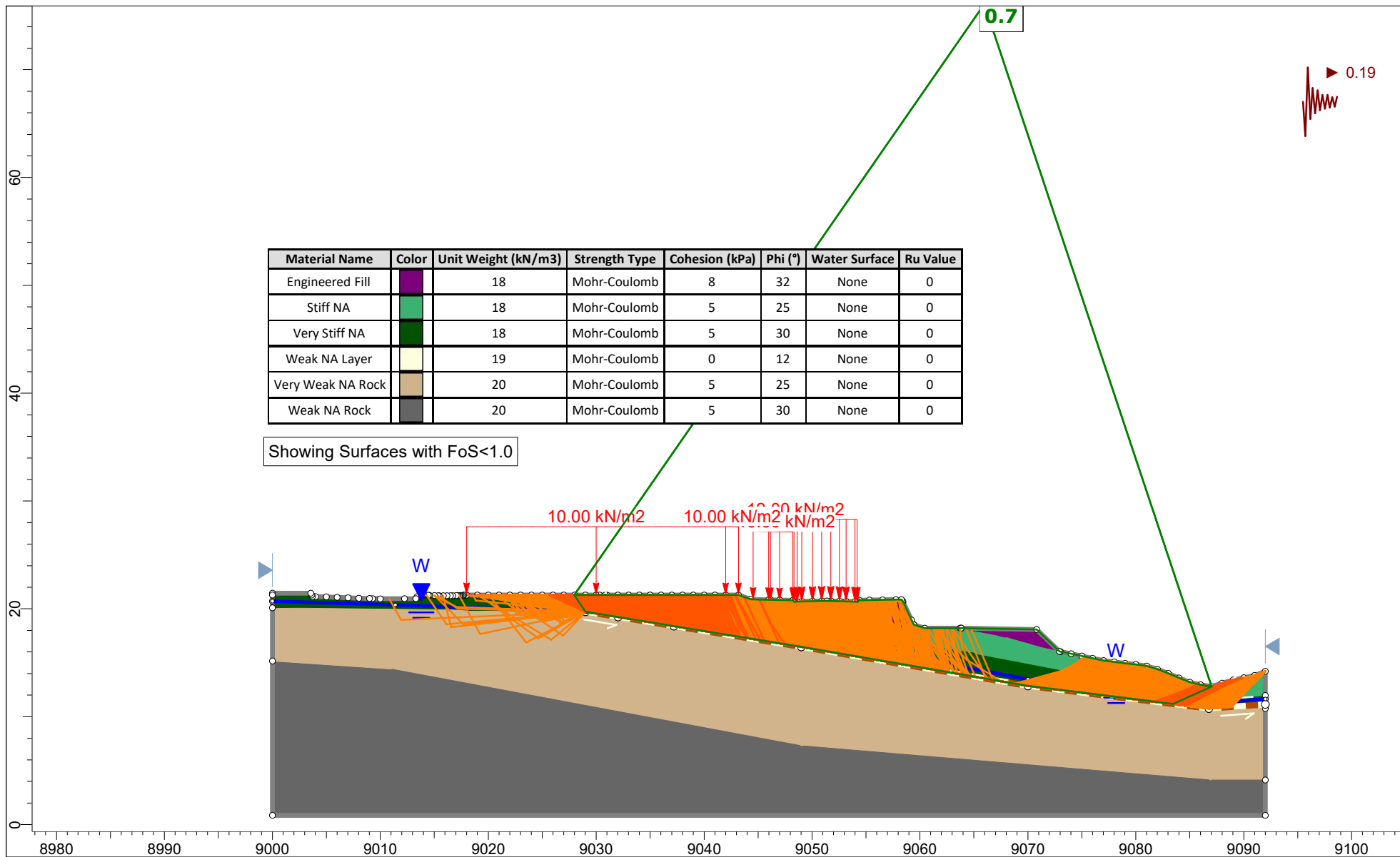
SLIDEINTERPRET 9.040

Project	240065 - Russell Road, Wainui - Stage 1		
Group	Scenario I - Proposed GL	Scenario	Normal (Measured GW)
Drawn By	LKB	Company	Riley Consultants Ltd
Date	15/01/2025	File Name	Section I.sldm



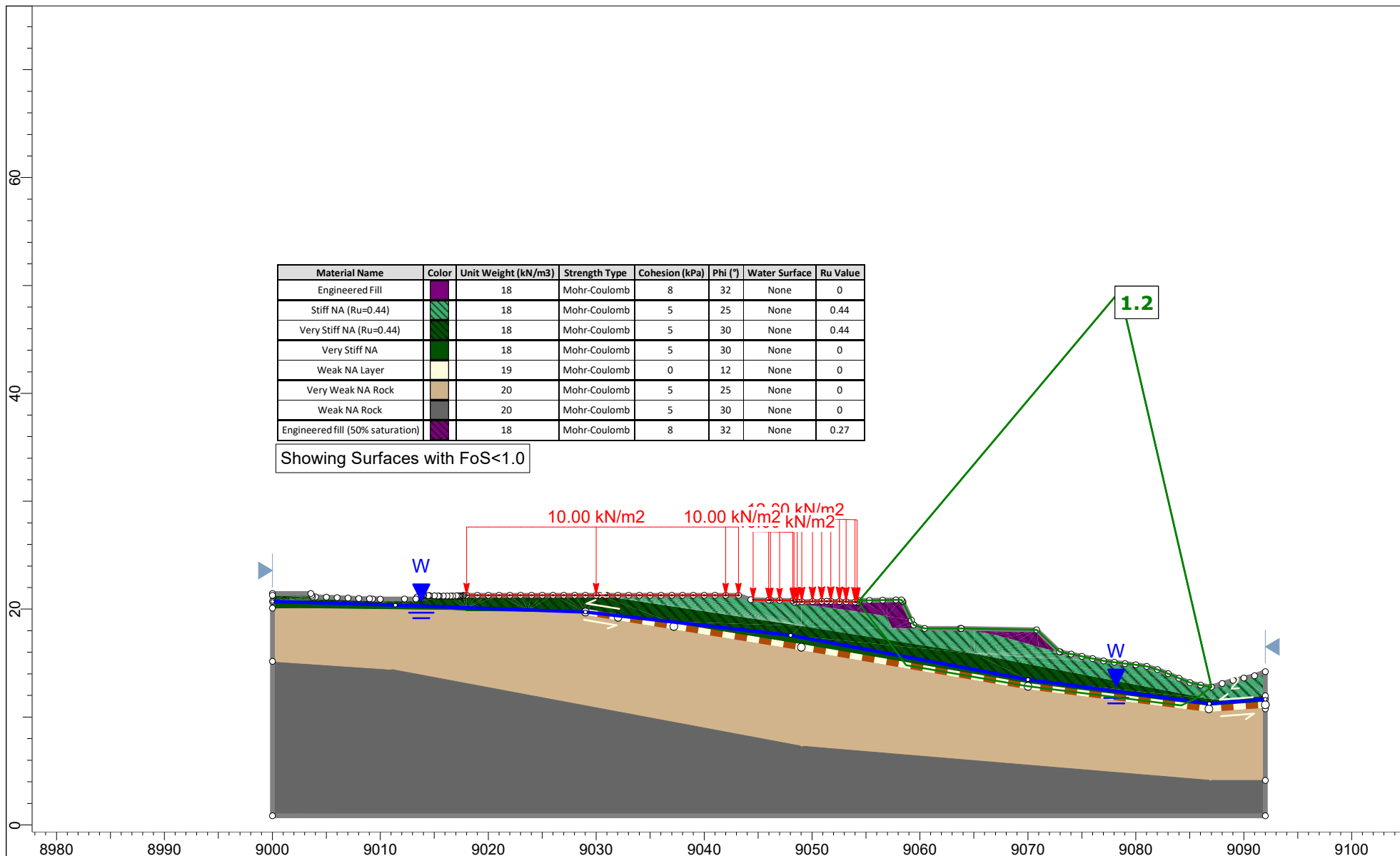
SLIDEINTERPRET 9.040

Project	240065 - Russell Road, Wainui - Stage 1		
Group	Scenario I - Proposed GL	Scenario	Extreme (Worst Credible GW)
Drawn By	LKB	Company	Riley Consultants Ltd
Date	15/01/2025	File Name	Section I.sldm



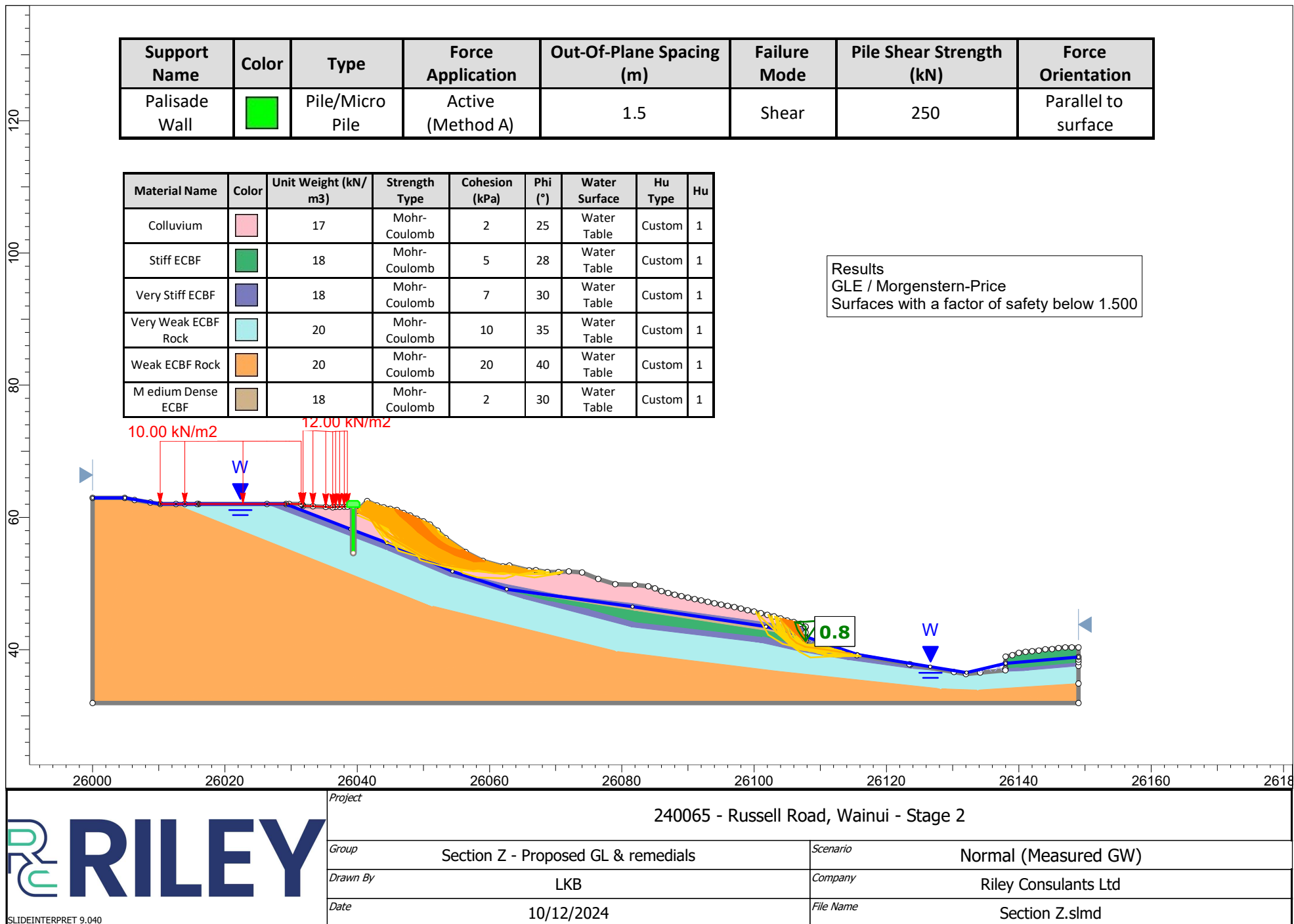
SLIDEINTERPRET 9.040

Project		240065 - Russell Road, Wainui - Stage 1	
Group	Scenario I - Proposed GL	Scenario	Seismic (0.19g)
Drawn By	LKB	Company	Riley Consultants Ltd
Date	15/01/2025	File Name	Section I.sldm



SLIDEINTERPRET 9.040

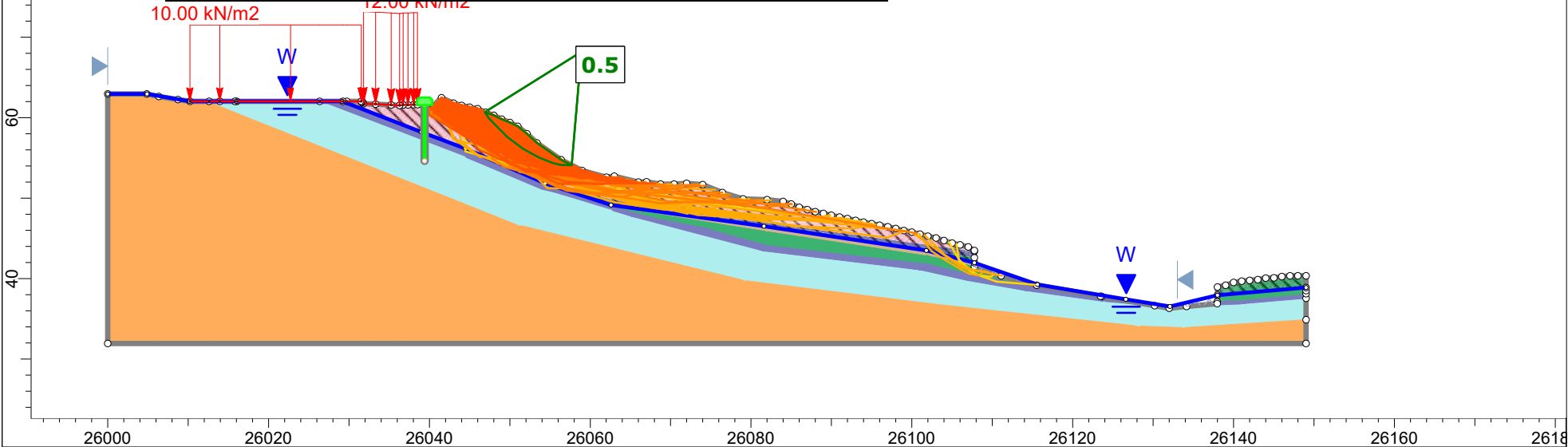
Project	240065 - Russell Road, Wainui - Stage 1		
Group	Scenario I - Proposed GL	Scenario	Extreme (50% saturation)
Drawn By	LKB	Company	Riley Consultants Ltd
Date	15/01/2025	File Name	Section I.slm



Support Name	Color	Type	Force Application	Out-Of-Plane Spacing (m)	Failure Mode	Pile Shear Strength (kN)	Force Orientation
Palisade Wall		Pile/Micro Pile	Active (Method A)	1.5	Shear	250	Parallel to surface

Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Stiff ECBF		18	Mohr-Coulomb	5	28	Water Table	Custom	1	
Very Stiff ECBF		18	Mohr-Coulomb	7	30	Water Table	Custom	1	
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1	
Medium Dense ECBF		18	Mohr-Coulomb	2	30	Water Table	Custom	1	
Colluvium (Ru=0.44)		17	Mohr-Coulomb	2	25	None			0.44
Stiff ECBF (Ru=0.44)		18	Mohr-Coulomb	5	28	None			0.44
Very Stiff ECBF (Ru=0.44)		18	Mohr-Coulomb	7	30	None			0.44

Results
GLE / Morgenstern-Price
Surfaces with a factor of safety below 1.300



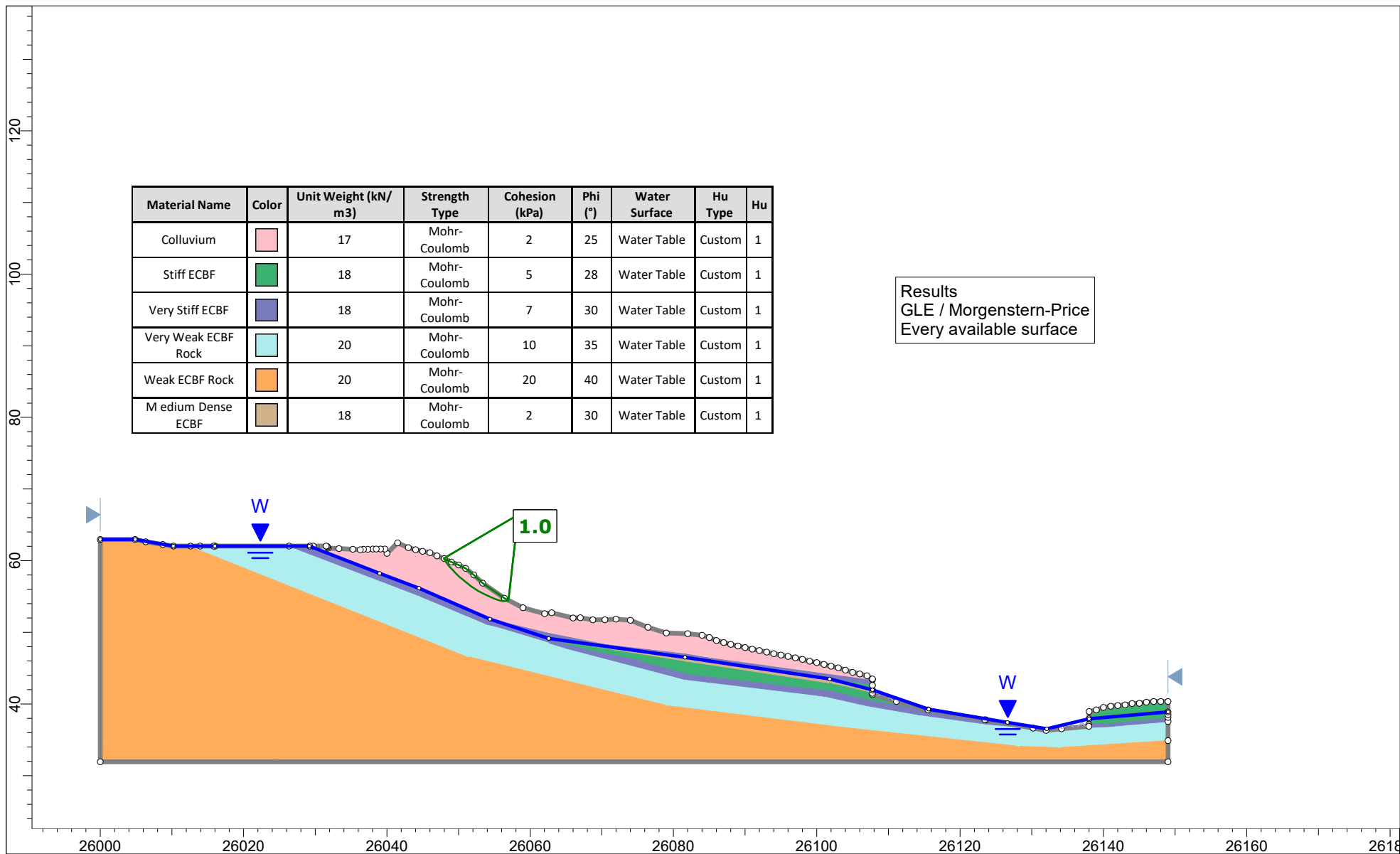
	Project	240065 - Russell Road, Wainui - Stage 2	
	Group	Section Z - Proposed GL & remedials	Scenario Extreme (Worst Credible GW)
	Drawn By	LKB	Company Riley Consultants Ltd
	Date	10/12/2024	File Name Section Z.sldm
	SLIDEINTERPRET 9.040		

0.19

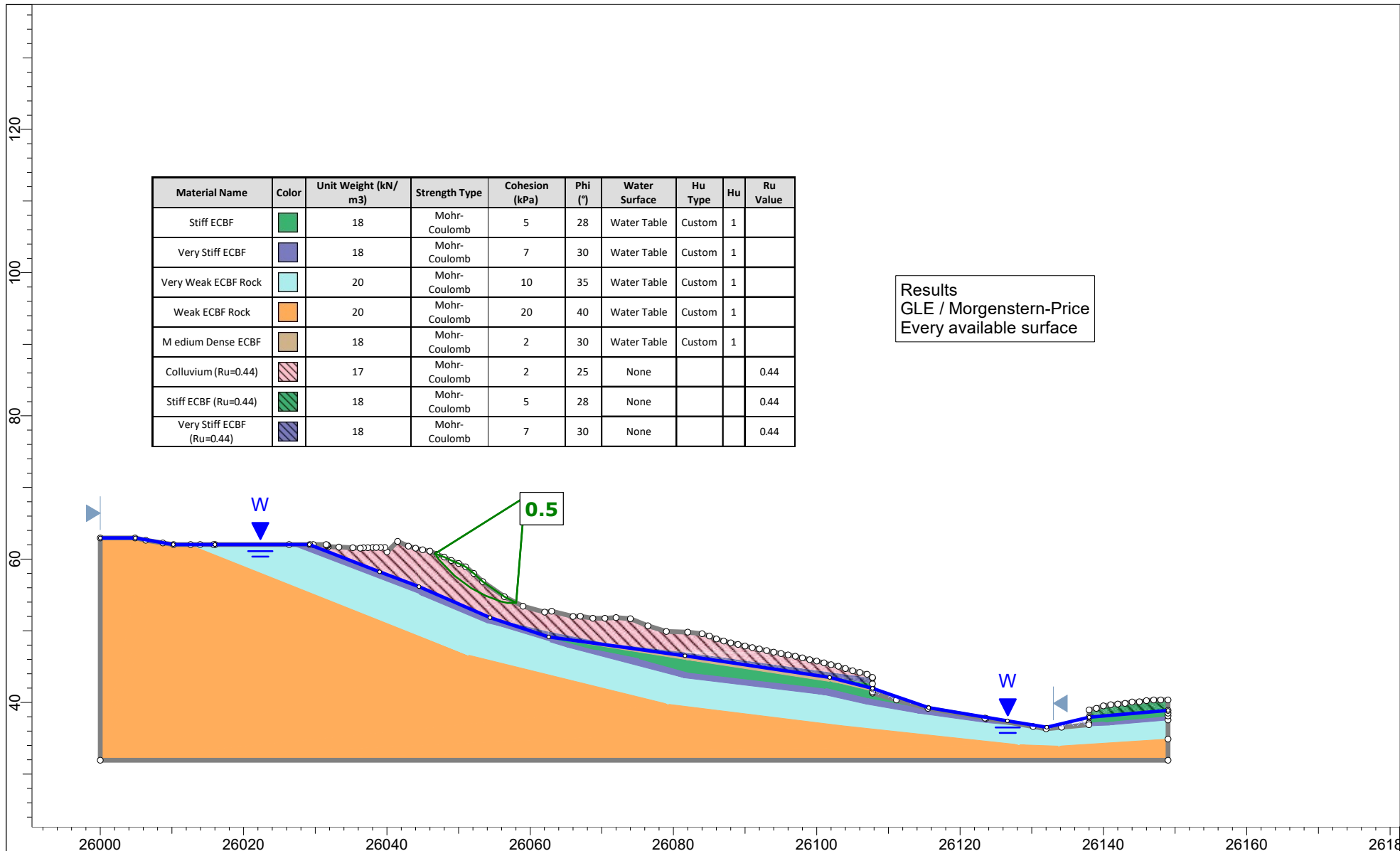
Results
GLE / Morgenstern-Price
Surfaces with a factor of safety below 1.000



Project		240065 - Russell Road, Wainui - Stage 2	
Group	Section Z - Proposed GL & remedials	Scenario	Seismic (0.19g)
Drawn By	LKB	Company	Riley Consultants Ltd
Date	10/12/2024	File Name	Section Z.slmd

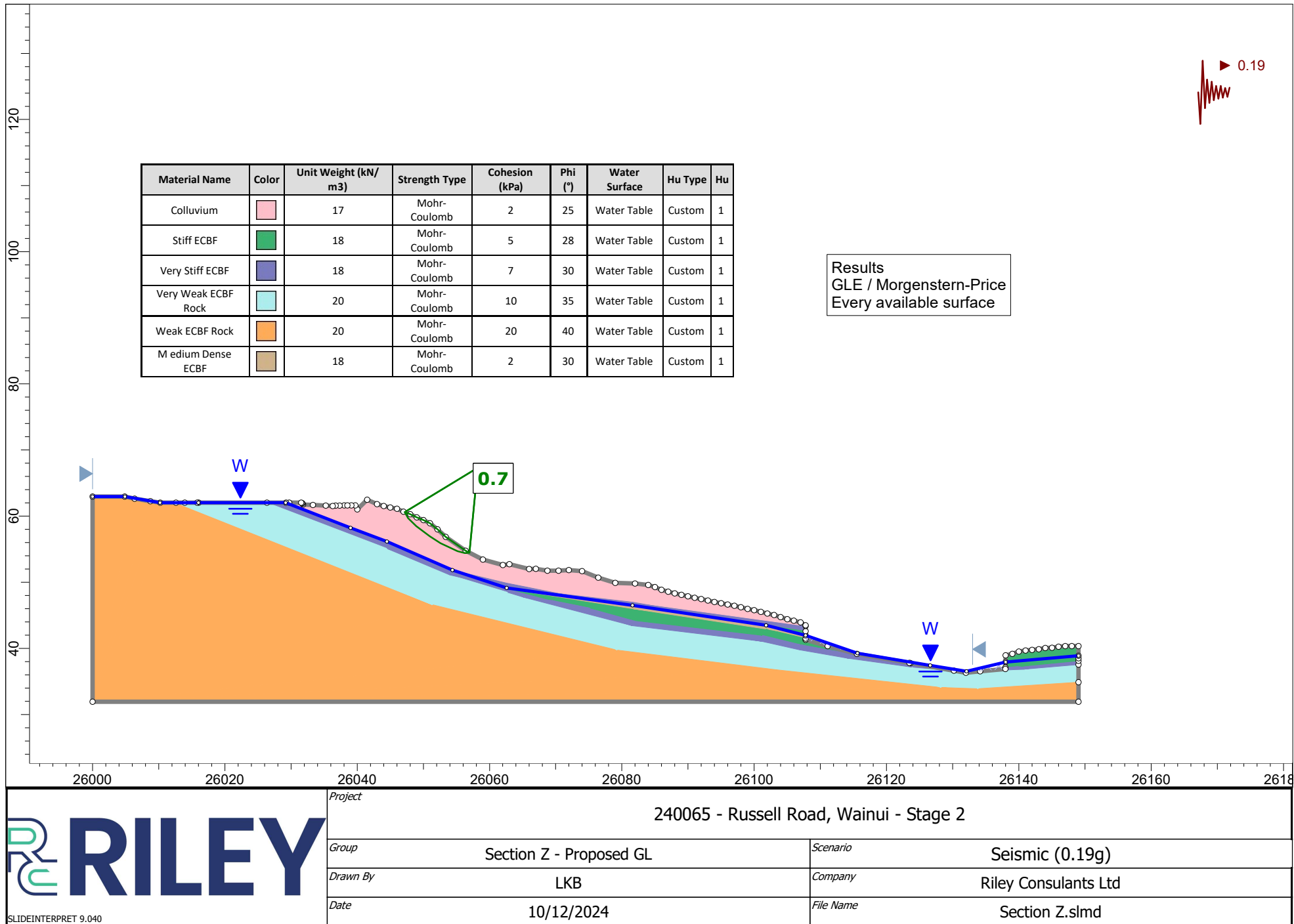


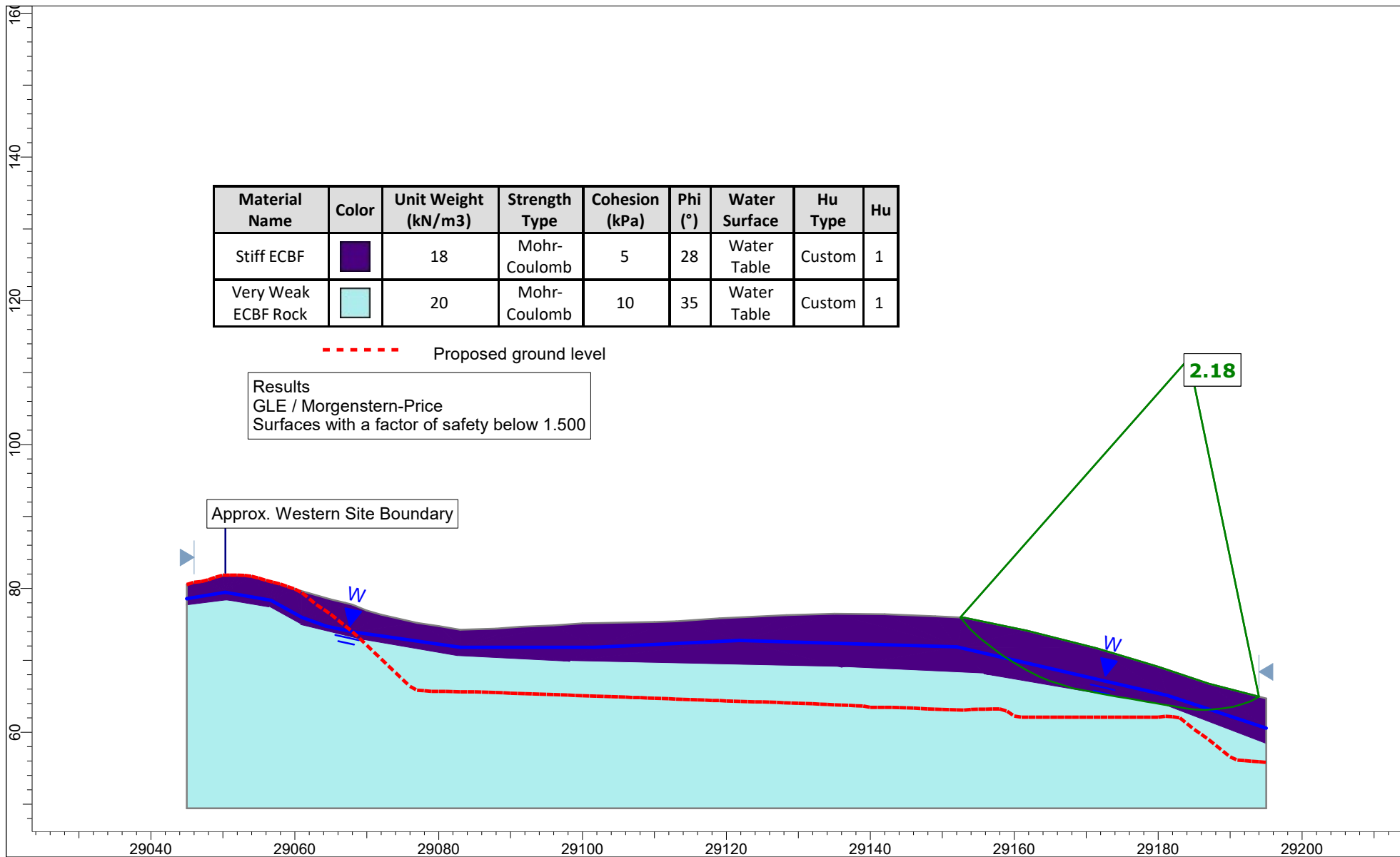
	Project		240065 - Russell Road, Wainui - Stage 2	
	Group	Section Z - Proposed GL	Scenario	Normal (Measured GW)
	Drawn By	LKB	Company	Riley Consultants Ltd
	Date	10/12/2024	File Name	Section Z.sldm
	SLIDEINTERPRET 9.040			



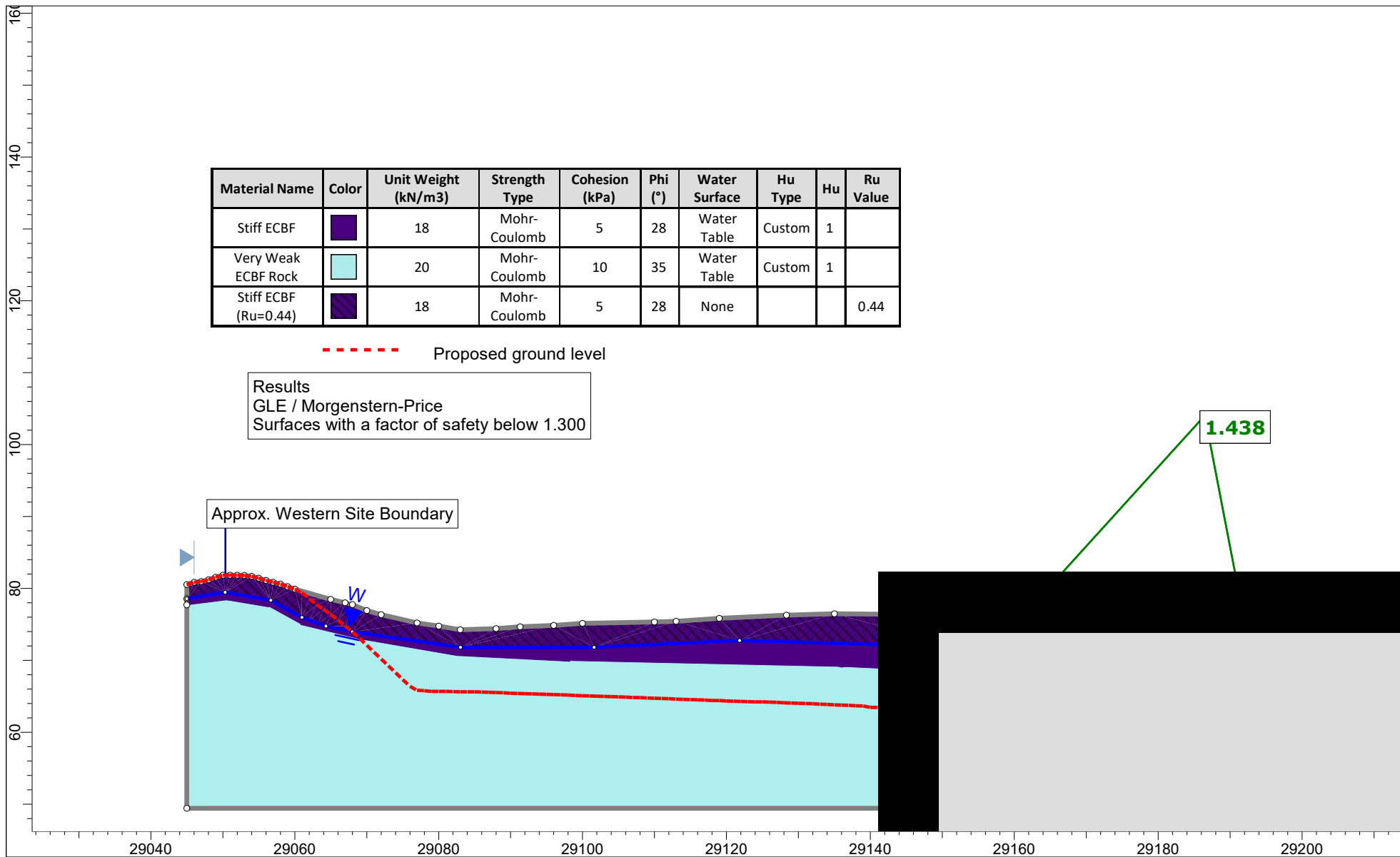
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Stiff ECBF		18	Mohr-Coulomb	5	28	Water Table	Custom	1	
Very Stiff ECBF		18	Mohr-Coulomb	7	30	Water Table	Custom	1	
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Weak ECBF Rock		20	Mohr-Coulomb	20	40	Water Table	Custom	1	
M edium Dense ECBF		18	Mohr-Coulomb	2	30	Water Table	Custom	1	
Colluvium (Ru=0.44)		17	Mohr-Coulomb	2	25	None			0.44
Stiff ECBF (Ru=0.44)		18	Mohr-Coulomb	5	28	None			0.44
Very Stiff ECBF (Ru=0.44)		18	Mohr-Coulomb	7	30	None			0.44

	Project	240065 - Russell Road, Wainui - Stage 2	
	Group	Section Z - Proposed GL	Scenario Extreme (Worst Credible GW)
	Drawn By	LKB	Company Riley Consultants Ltd
	Date	10/12/2024	File Name Section Z.sldm
	SLIDEINTERPRET 9.040		

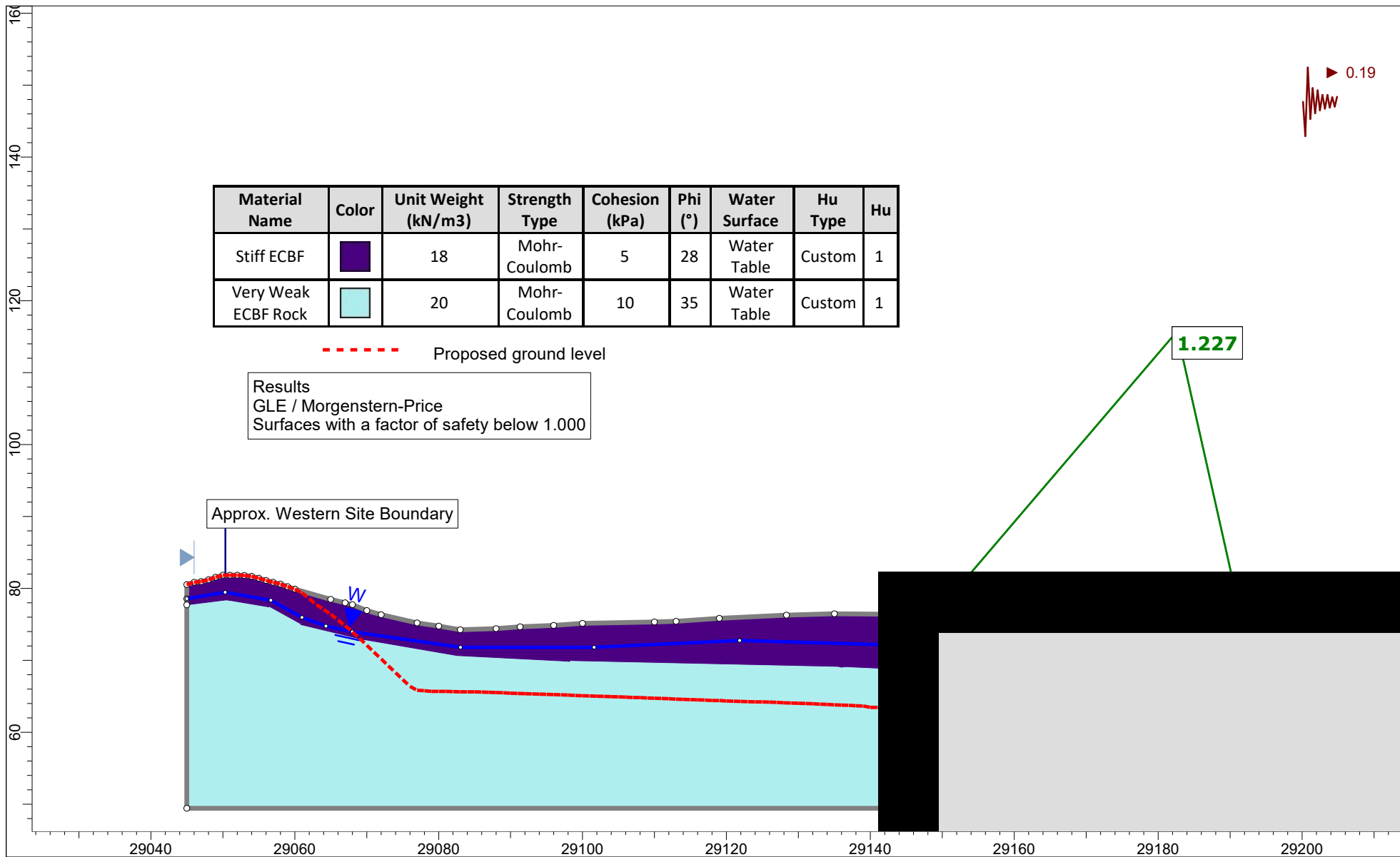




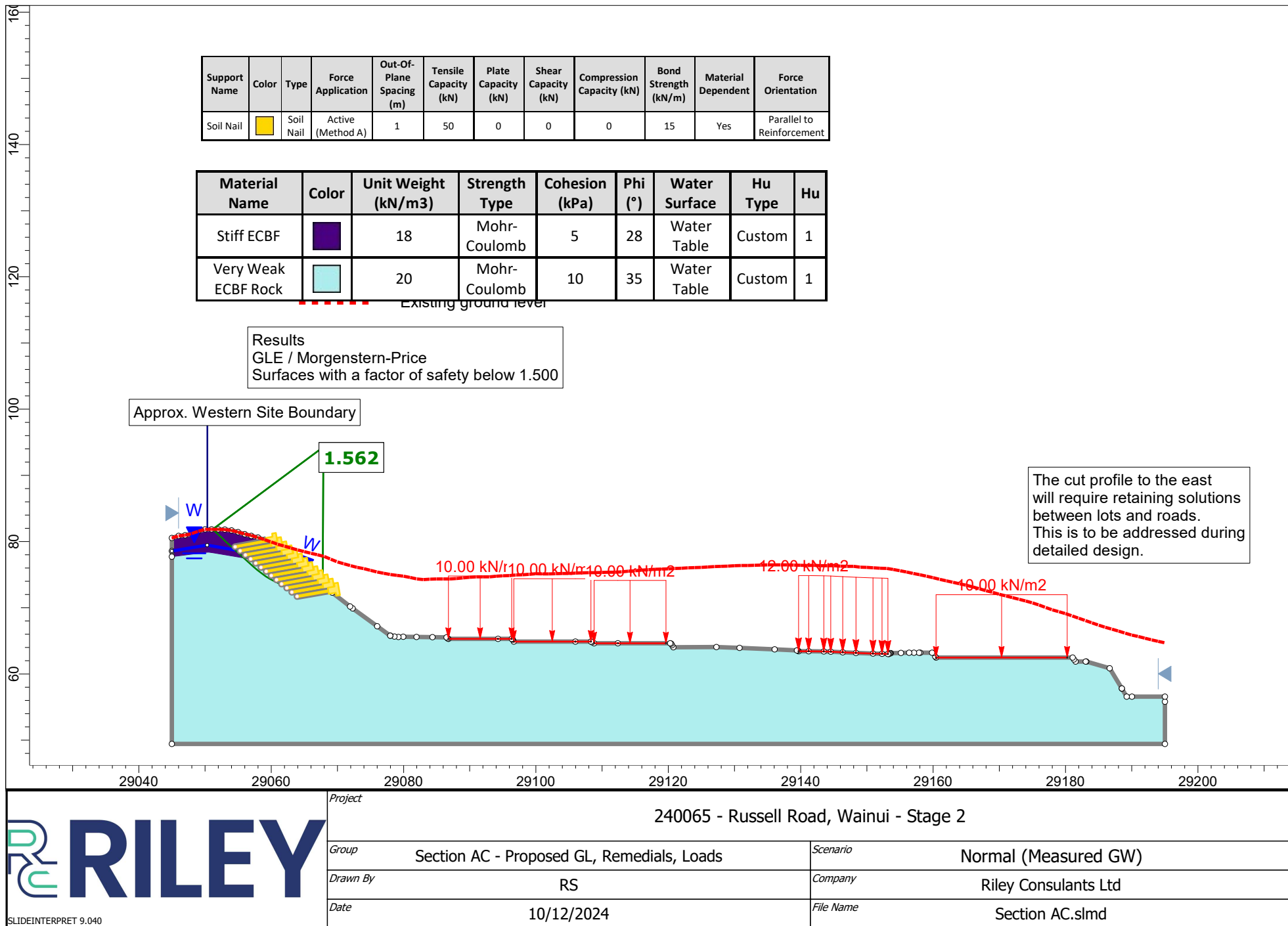
	Project		240065 - Russell Road, Wainui - Stage 2	
	Group	Section AC - Existing GL	Scenario	Normal (Measured GW)
	Drawn By	RS	Company	Riley Consultants Ltd
	Date	10/12/2024	File Name	Section AC.slmd

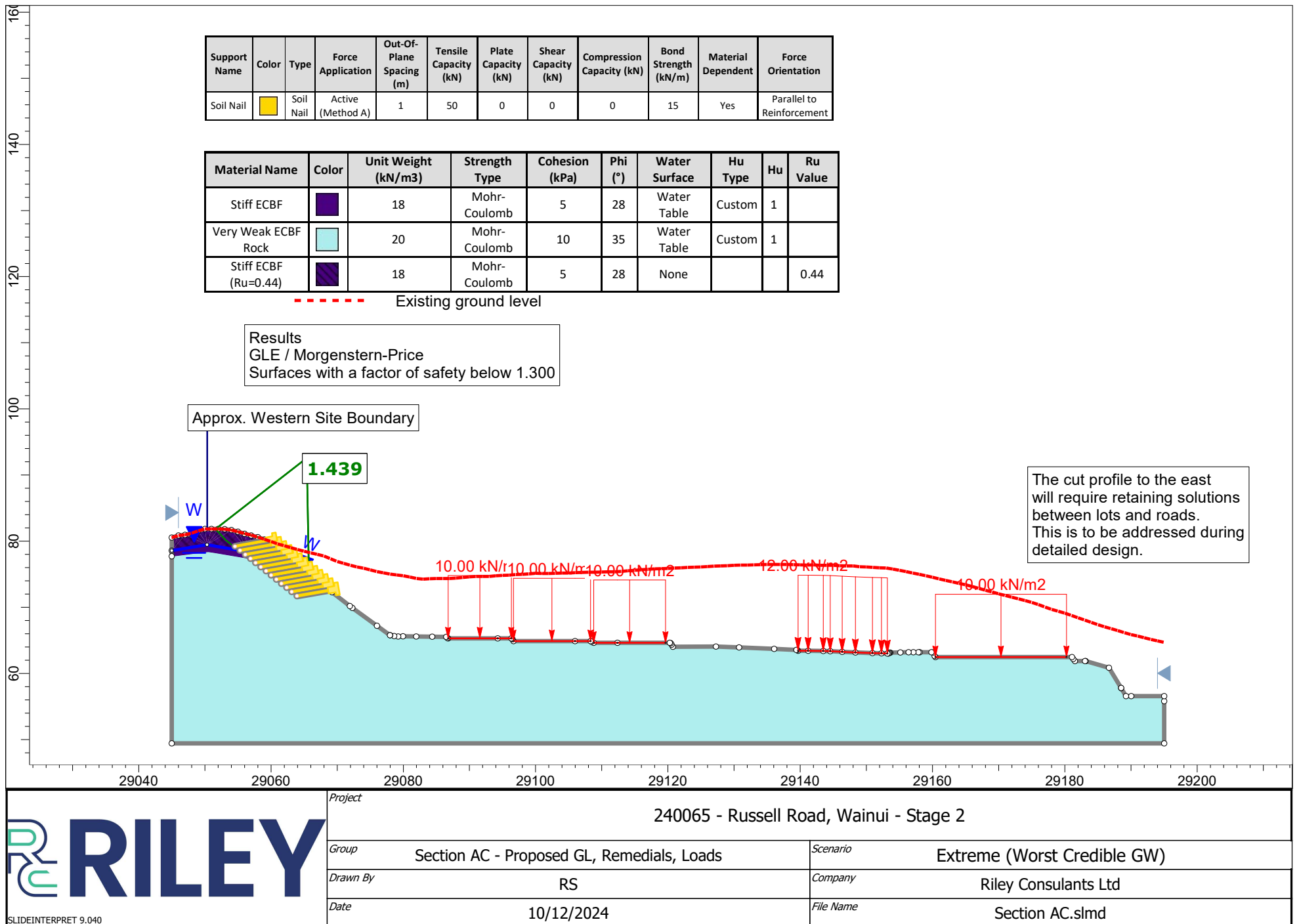


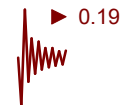
 SLIDEINTERPRET 9.040	Project		240065 - Russell Road, Wainui - Stage 2		
	Group		Section AC - Existing GL	Scenario	Extreme (Worst Credible GW)
	Drawn By		RS	Company	Riley Consultants Ltd
	Date		10/12/2024	File Name	Section AC.slm



	Project		240065 - Russell Road, Wainui - Stage 2	
	Group	Section AC - Existing GL	Scenario	Seismic (0.19g)
	Drawn By	RS	Company	Riley Consultants Ltd
	Date	10/12/2024	File Name	Section AC.slmd







Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Stiff ECBF		18	Mohr-Coulomb	5	28	Water Table	Custom	1
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1

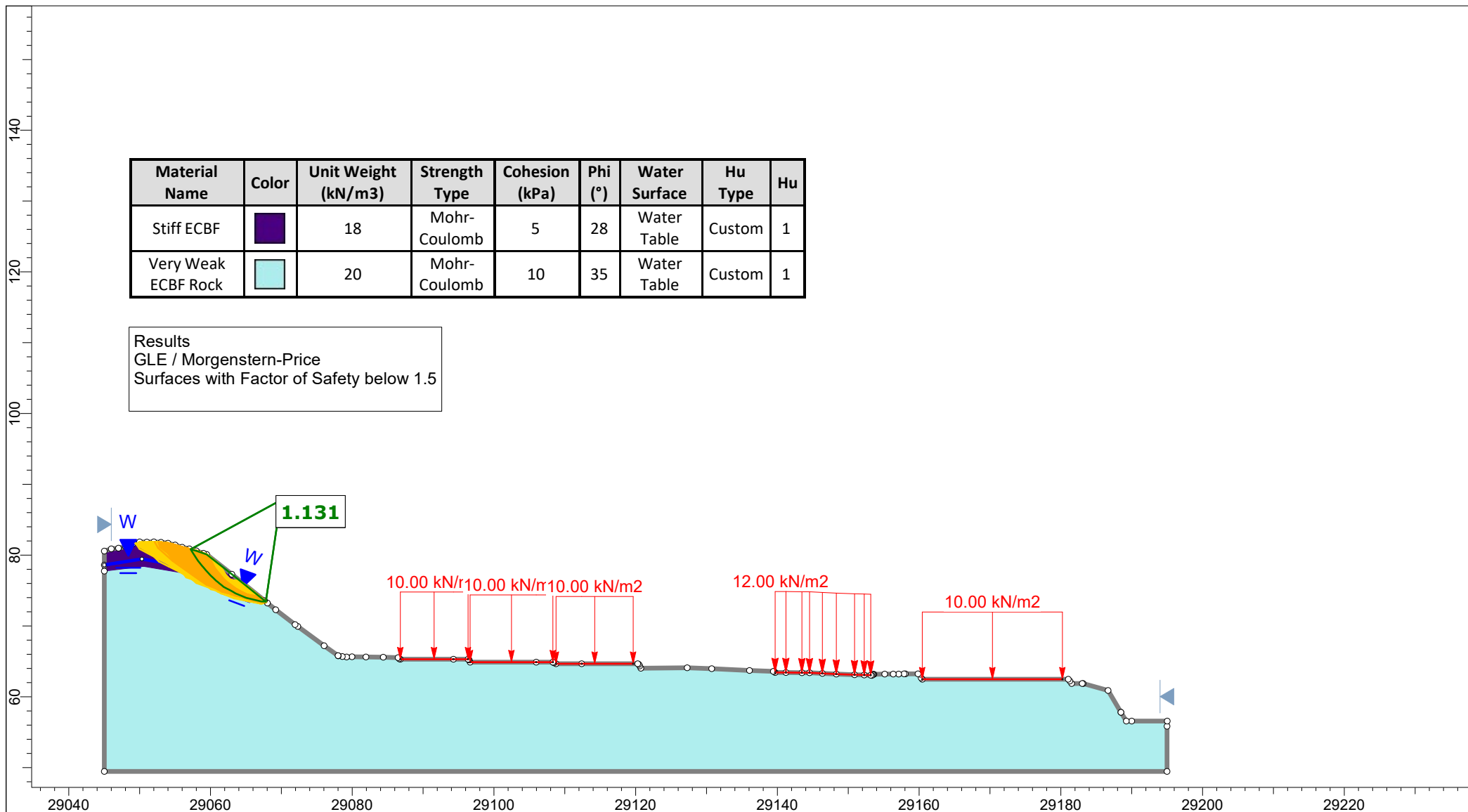
Existing ground level

Results
GLE / Morgenstern-Price
Surfaces with a factor of safety below 1.000

Approx. Western Site Boundary

1.071

The cut profile to the east will require retaining solutions between lots and roads. This is to be addressed during detailed design.



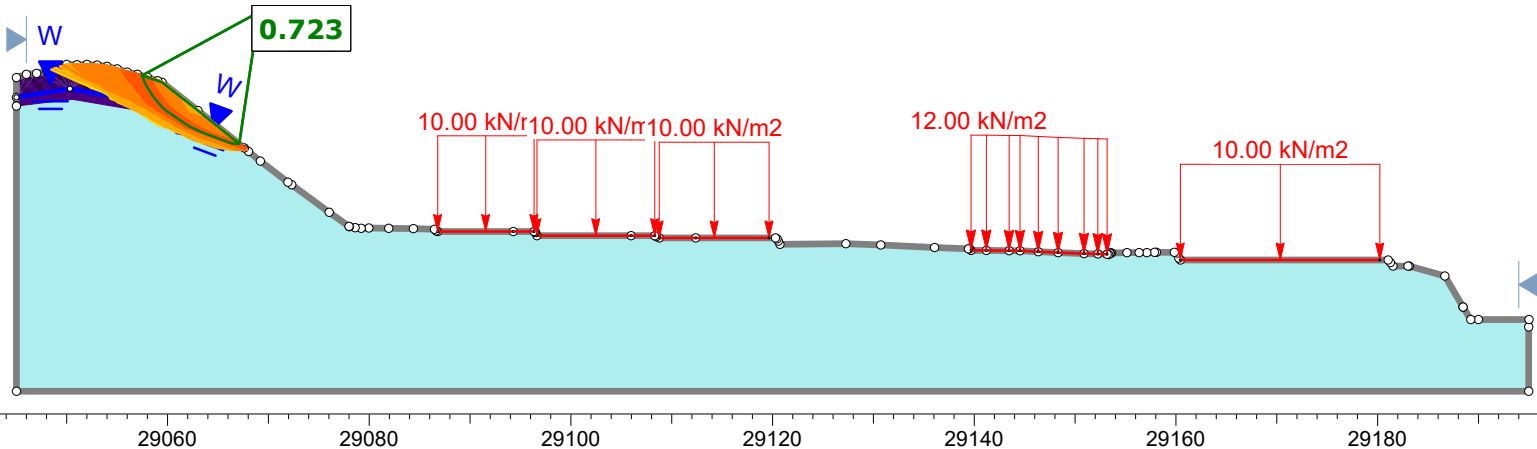


SLIDEINTERPRET 9.040

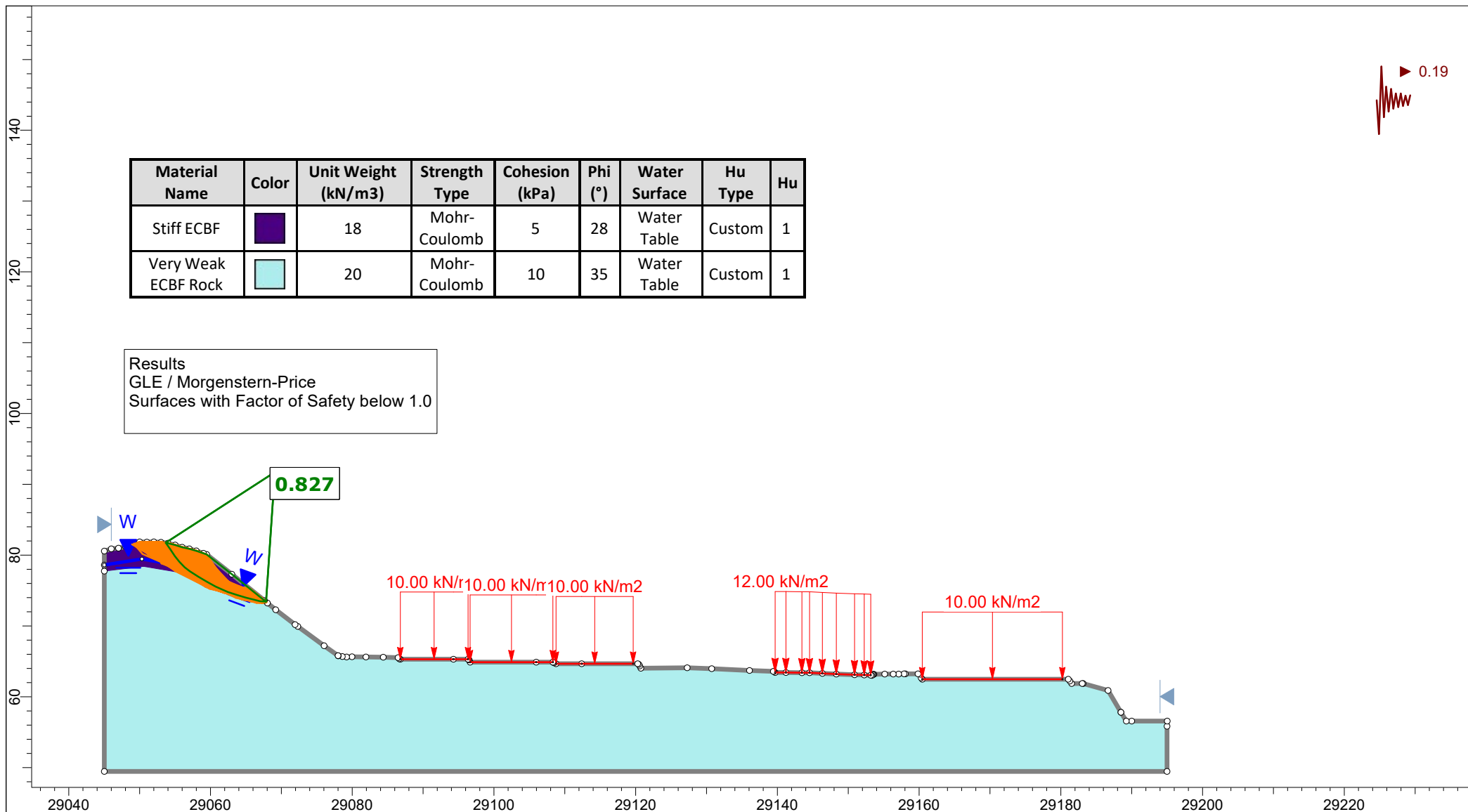
Project		240065 - Russell Road, Wainui - Stage 2	
Group	Section AC - Proposed GL	Scenario	Normal (Measured GW)
Drawn By	RS	Company	Riley Consultants Ltd
Date	10/12/2024	File Name	Section AC.slm

Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Ru Value
Stiff ECBF		18	Mohr-Coulomb	5	28	Water Table	Custom	1	
Very Weak ECBF Rock		20	Mohr-Coulomb	10	35	Water Table	Custom	1	
Stiff ECBF (Ru=0.44)		18	Mohr-Coulomb	5	28	None			0.44

Results
GLE / Morgenstern-Price
Surfaces with Factor of Safety below 1.3

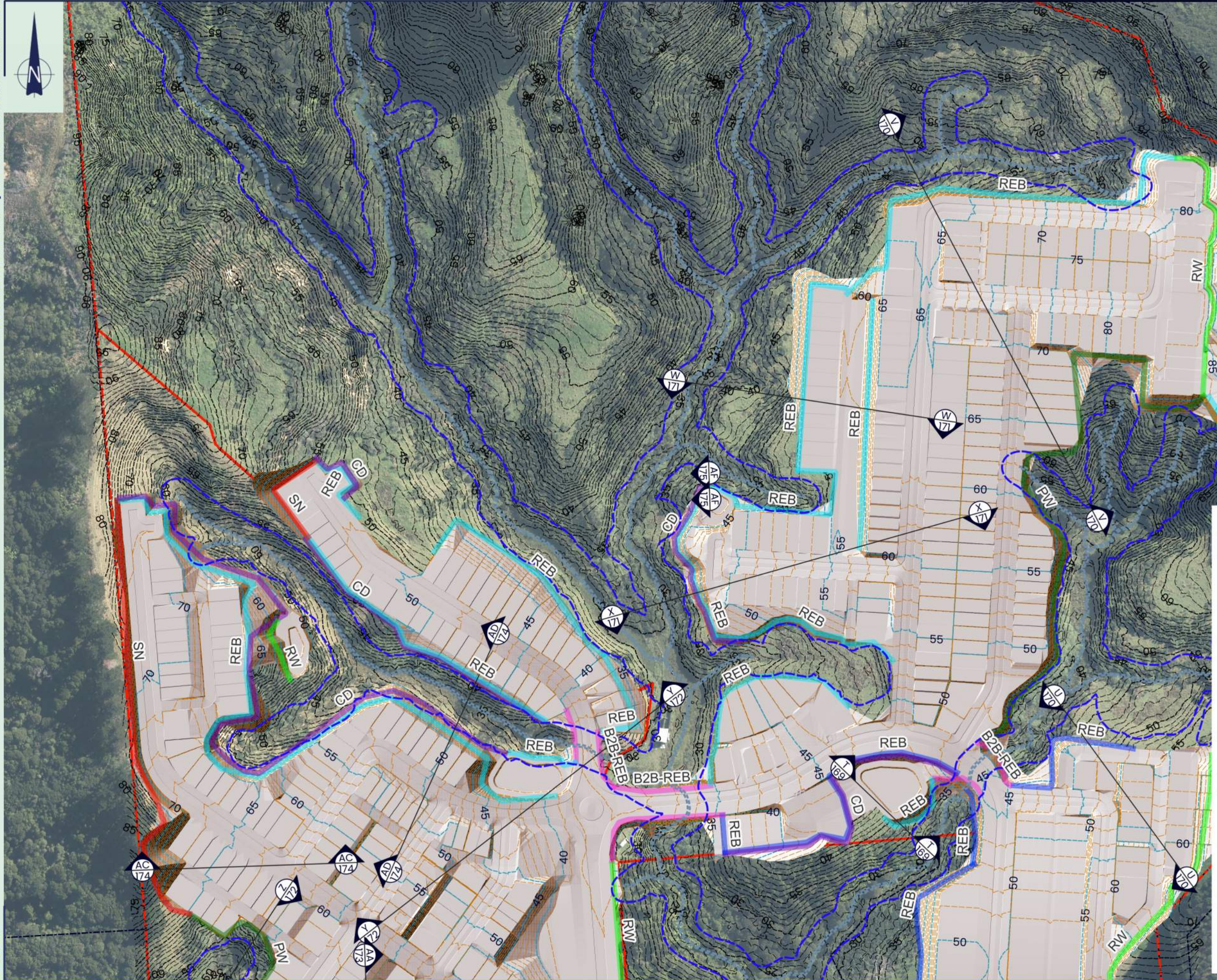


 SLIDEINTERPRET 9.040	<i>Project</i> 240065 - Russell Road, Wainui - Stage 2	
	<i>Group</i> Section AC - Proposed GL	<i>Scenario</i> Extreme (Worst Credible GW)
	<i>Drawn By</i> RS	<i>Company</i> Riley Consultants Ltd
	<i>Date</i> 10/12/2024	<i>File Name</i> Section AC.slmd



	Project		240065 - Russell Road, Wainui - Stage 2	
	Group		Section AC - Proposed GL	Scenario
	Drawn By		RS	Company
	Date		10/12/2024	File Name
				Seismic (0.19g)
				Riley Consultants Ltd
				Section AC.slmd

Attachment A: Remediation Plan



Legend

- Site Boundary
 - Proposed Major Contours (5m Interval)
 - Proposed Minor Contours (1m Interval)
 - Existing Major Contours (5m Interval)
 - Existing Minor Contours (1m Interval)
 - Estimated Riparian Margin
 - Waterways
- Indicative Remedial Measures**
- Retaining wall
 - Tiered Retaining wall
 - Palisade wall
 - REB
 - Back-to-back REB
 - REB slope + shear pile
 - Soil nails
 - Shear key
 - Counterfort drains

Notes:

1. This sketch shows the indicative extent of proposed stabilisation enhancement measures. Final extent and configuration subject to detailed design and confirmation on site. For further details, refer to Riley report ref. 240065-Q and corresponding appendices.
2. For details on stability enhancement measures required between platforms, refer to 240065-Q.
3. The maximum gradient of the ground upslope of a proposed retaining wall is 18°.
4. Existing ground surface taken from drone survey provided by McKenzie & Co. on 6 December 2024.
5. Existing ground surface outside of the site boundary taken from LINZ DEM 2016-2018.
6. Earthworks cut and fill profile provided by McKenzie & Co., dated 10 December 2025.
7. Aerial imagery taken from LINZ Basemaps.
8. Property data taken from LINZ Data Service.

Attachment A: Email correspondence with Council on conditions

From: [Frank Zhou](#)
To: [Charlotte MacDonald](#)
Cc: [Dylan Pope](#); [Carly Hinde](#)
Subject: RE: Delmore FT geotechnical response
Date: Tuesday, 12 May 2026 3:54:02 pm
Attachments: [image005.png](#)
[image006.png](#)
[image007.png](#)
[image008.png](#)
[image009.png](#)

Hi Charlotte,

Thank you for the quick turnaround. I can confirm that the responses to the geotechnical comments are generally satisfactory in principle. However, final confirmation remains subject to review of the complete set of final draft consent conditions.

Regards

Frank

From: Charlotte MacDonald <CharlotteM@barker.co.nz>
Sent: Tuesday, 12 May 2026 11:30 am
To: Frank Zhou <frank.zhou@aucklandcouncil.govt.nz>
Cc: Dylan Pope <dylan@dcg.gen.nz>; Carly Hinde <carly.hinde@aucklandcouncil.govt.nz>
Subject: RE: Delmore FT geotechnical response

Thank you Frank. That change is accepted and has been updated as per below. On that basis, I understand that there are no remaining geotechnical comments.

49. Within 20 working days from the completion of earthworks, subsoil drainage and slope protection structures, a Geotechnical Completion Report (GCR) signed by the chartered geo-professional must be provided to the satisfaction of the Council. The GCR must include (but not to be limited to):
- (a) Earthworks operations (e.g. fill compaction, testing, inspections etc.);
 - (b) Site inspections, observations, recommendations and photo evidence;
 - (c) Results of settlement monitoring required by the Settlement Monitoring Plan (Condition 47) and demonstration that sufficient settlement attenuation has occurred;
 - (d) Statement of professional opinion (as per schedule 2A of NZS4404:2010);
 - (e) Certified as-built plans for the implemented works including but not limited to earthworks cut and fill, shear keys, reinforced earth batter slopes, soil nails, retaining and palisade walls, counterfort drains and subsoil drainage;
 - (f) Justification on soil expansivity, subsoil site class, foundation requirements, geotechnical input of erosion protection measures for dispersal devices on each lot and confirming that the works have been completed in accordance with the approved construction methodology as required by Condition 29.

Ngā mihi | Kind regards,

CHARLOTTE MACDONALD
Associate
027 296 5383
CharlotteM@barker.co.nz

barker.co.nz 

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From: Frank Zhou <frank.zhou@aucklandcouncil.govt.nz>
Sent: Tuesday, 12 May 2026 9:17 am
To: Charlotte MacDonald <CharlotteM@barker.co.nz>
Cc: Dylan Pope <dylan@dcg.gen.nz>; Carly Hinde <carly.hinde@aucklandcouncil.govt.nz>
Subject: RE: Delmore FT geotechnical response

Hi Charlotte,

Thank you for your email. Please see my [comments](#) below for your information.

The full set of conditions is not ready for Council review – note that we are updating many conditions in response to Council comments. The

ones that you requested to amend are included below:

1. Construction methodology (as per emails below)

Geotechnical Earthworks Review

At least 10 working days prior to the commencement of works for any stage or sub-stage of the development, the consent holder must provide a detailed construction methodology endorsed by a chartered geo-professional who must provide written confirmation of the review. The methodology must include earthworks, boundary works and installation of slope protection measures in accordance with the recommendations provided within the Geotechnical Report, referenced in Condition 1 and submitted to Auckland Council. No works onsite are permitted prior to written confirmation that the detailed construction methodology has been reviewed and accepted by the Council. This does not apply to enabling works which are permitted under the Auckland Unitary Plan.

Advice notes:

- The earthworks-detailed construction methodology is required to ensure stability is maintained throughout the civil works stage of the development.
- Typical enabling work activities may include the following:
 - Permitted vegetation clearance
 - Implementation or exercise of any management plans which will not adversely impact slope stability or geohazards for example, bat surveys etc
 - Installation of erosion and sediment control measures
 - Site establishment activities, including the setup of site offices and associated facilities.

Accepted and no further comments.

2. Condition 106 – spelling error on counterfort drain

Certified as-built details of installed counterfort drains ~~shall~~ must be included within the Geotechnical Completion Report, together with records of counterfort drain commissioning observations and flushing.

Advice Note: The drain commissioning information will provide baseline data for the ~~countertfort~~ counterfort drain operation and maintenance plan. The as-built drawings ~~should~~ also include locations of the flushing ports and outlet structures.

Accepted and no further comments.

3. Condition numbering – note that these numbers are cross-referenced throughout the whole document. New conditions are being added and so they are constantly being updated. Will be subject to a final check once issued.

Accepted and no further comments.

However on reflection – it looks like Condition 50 and Condition 51 are repeating the same thing (ie. information to be provided in the GCR). Can we combine this into one condition as per below:

Within 20 working days from the completion of earthworks, subsoil drainage and slope protection structures, a Geotechnical Completion Report (GCR) signed by the chartered geo-professional must be provided to the satisfaction of the Council. The GCR must include (but not be limited to):

- Earthworks operations (e.g. fill compaction, testing, inspections etc.);*
- Site inspections, observations, recommendations and photo evidence;*
- Results of settlement monitoring required by the Settlement Monitoring Plan (Condition 47) and demonstration that sufficient settlement attenuation has occurred;*
- Statement of professional opinion (as per schedule 2A of NZS4404:2010);*
- Certified as-built plans for the implemented earthworks including but not limited to earthworks cut and fill, shear keys, reinforced earth batter slopes, soil nails, retaining and palisade walls, counterfort drains and subsoil drainage; and*
- Justification on soil expansivity, subsoil site class, foundation requirements, geotechnical input of erosion protection measures for dispersal devices on each lot and confirming that the works have been completed in accordance with the approved construction methodology as required by Condition 29.*

Minor suggestion as above.

See screenshot of original conditions below:

46.50. Within 20 working days from the completion of earthworks, subsoil drainage and slope protection structures, a Geotechnical Completion Report (GCR) signed by the chartered geo-professional must be provided to the Council. The GCR must include (but not to be limited to):

(a) Earthworks operations (e.g. fill compaction, testing, inspections etc.);

~~(a)~~(b) Site inspections, observations, recommendations and photo evidence;

~~(b)~~(c) Results of settlement monitoring;

~~(e)~~(d) Statement of professional opinion (as per schedule 2A of NZS4404:2010); and

~~(d)~~(e) Certified as-built plans for the implemented earthworks including but not limited to earthworks cut and fill, shear keys, reinforced earth batter slopes, soil nails, retaining and palisade walls, counterfort drains and ~~and~~ subsoil drainage.

47.51. The GCR must ~~also~~ provide justification on soil expansivity, subsoil site class, foundation requirements, ~~geotechnical input of erosion protection measures for dispersal devices on each lot and~~ confirming that the works have been completed in accordance with the approved construction methodology as required by Condition 2926 and evidence of settlement monitoring as required by Condition 5047 have been met. The GCR must include results of settlement monitoring and demonstration that sufficient settlement attenuation has occurred and be provided to the satisfaction of the Council.

Regards

Frank

From: Charlotte MacDonald <CharlotteM@barker.co.nz>

Sent: Monday, 11 May 2026 12:12 pm

To: Frank Zhou <frank.zhou@aucklandcouncil.govt.nz>

Cc: Dylan Pope <dylan@dcs.gen.nz>; Carly Hinde <carly.hinde@aucklandcouncil.govt.nz>

Subject: RE: Delmore FT geotechnical response

Hi Frank,

The full set of conditions is not ready for Council review – note that we are updating many conditions in response to Council comments. The ones that you requested to amend are included below:

1. Construction methodology (as per emails below)

Geotechnical Earthworks Review

~~At least 10 working days prior to the commencement of works for any stage or sub-stage of the development, the consent holder must provide a detailed construction methodology endorsed by a chartered geo-professional who must provide written confirmation of the review. The methodology must include earthworks, boundary works and installation of slope protection measures in accordance with the recommendations provided within the Geotechnical Report, referenced in Condition 1 and submitted to Auckland Council. No works onsite are permitted prior to written confirmation that the detailed construction methodology has been reviewed and accepted by the Council. This does not apply to enabling works which are permitted under the Auckland Unitary Plan.~~

Advice notes:

- ~~The earthworks-detailed construction methodology is required to ensure stability is maintained throughout the civil works stage of the development.~~
- ~~Typical enabling work activities may include the following:~~
 - ~~Permitted vegetation clearance~~
 - ~~Implementation or exercise of any management plans which will not adversely impact slope stability or geohazards for example, bat surveys etc~~
 - ~~Installation of erosion and sediment control measures~~
 - ~~Site establishment activities, including the setup of site offices and associated facilities.~~

2. Condition 106 – spelling error on counterfort drain

~~Certified as-built~~ details of installed counterfort drains ~~shall must~~ be included within the Geotechnical Completion Report, together with records of counterfort drain commissioning observations and flushing.

Advice Note: The drain commissioning information will provide baseline data for the ~~counterfort~~ counterfort drain operation and maintenance plan. The as-built drawings ~~should~~ also include locations of the flushing ports and outlet structures.

3. Condition numbering – note that these numbers are cross-referenced throughout the whole document. New conditions are being added and so they are constantly being updated. Will be subject to a final check once issued. However on reflection – it looks like Condition 50 and Condition 51 are repeating the same thing (ie. information to be provided in the GCR). Can we combine this into one condition as per below:

Within 20 working days from the completion of earthworks, subsoil drainage and slope protection structures, a Geotechnical Completion Report (GCR) signed by the chartered geo-professional must be provided to the Council. The GCR must include (but not be limited to):

- (a) Earthworks operations (e.g. fill compaction, testing, inspections etc.);
- (b) Site inspections, observations, recommendations and photo evidence;
- (c) Results of settlement monitoring required by the Settlement Monitoring Plan (Condition 47) and demonstration that sufficient settlement attenuation has occurred;
- (d) Statement of professional opinion (as per schedule 2A of NZS4404:2010);
- (e) Certified as-built plans for the implemented earthworks including but not limited to earthworks cut and fill, shear keys, reinforced earth batter slopes, soil nails, retaining and palisade walls, counterfort drains and subsoil drainage; and
- (f) Justification on soil expansivity, subsoil site class, foundation requirements, geotechnical input of erosion protection measures for dispersal devices on each lot and confirming that the works have been completed in accordance with the approved construction methodology as required by Condition 29.

See screenshot of original conditions below:

46.50. Within 20 working days from the completion of earthworks, subsoil drainage and slope protection structures, a Geotechnical Completion Report (GCR) signed by the chartered geo-professional must be provided to the Council. The GCR must include (but not to be limited to):

(a) Earthworks operations (e.g. fill compaction, testing, inspections etc.);

~~(a)~~(b) Site inspections, observations, recommendations and photo evidence;

~~(b)~~(c) Results of settlement monitoring;

~~(c)~~(d) Statement of professional opinion (as per schedule 2A of NZS4404:2010); and

~~(d)~~(e) Certified as-built plans for the implemented earthworks including but not limited to earthworks cut and fill, shear keys, reinforced earth batter slopes, soil nails, retaining and palisade walls, counterfort drains and ~~and~~ subsoil drainage.

47.51. The GCR must ~~also~~ provide justification on soil expansivity, subsoil site class, foundation requirements, geotechnical input of erosion protection measures for dispersal devices on each lot and confirming that the works have been completed in accordance with the approved construction methodology as required by Condition ~~29~~26 and evidence of settlement monitoring as required by Condition ~~50~~47 have been met. The GCR must include results of settlement monitoring and demonstration that sufficient settlement attenuation has occurred and be provided to the satisfaction of the Council.

Ngā mihi | Kind regards,

CHARLOTTE MACDONALD
Associate
027 296 5383
CharlotteM@barker.co.nz

barker.co.nz

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From: Frank Zhou <frank.zhou@aucklandcouncil.govt.nz>

Sent: Monday, 11 May 2026 10:54 am

To: Charlotte MacDonald <CharlotteM@barker.co.nz>

Cc: Dylan Pope <dylan@dcs.gen.nz>; Carly Hinde <carly.hinde@aucklandcouncil.govt.nz>

Subject: RE: Delmore FT geotechnical response

Hi Charlotte,

Could you please send me a copy of revised conditions to incorporate all these changes.

Regards

Frank

From: Charlotte MacDonald <CharlotteM@barker.co.nz>

Sent: Monday, 11 May 2026 10:35 am

To: Carly Hinde <carly.hinde@aucklandcouncil.govt.nz>; Frank Zhou <frank.zhou@aucklandcouncil.govt.nz>

Cc: Dylan Pope <dylan@dcs.gen.nz>

Subject: RE: Delmore FT geotechnical response

Morning Carly,

I can confirm that the changes below are generally accepted. I will just amend the last bullet point, so it is more suitable for an advice note:

"Site establishment activities, including the setup of site offices and associated facilities."

-

We have also amended the minor grammatical errors in the conditions relating to condition numbering and spelling. On that basis, can Council please confirm that all geotechnical queries have now been resolved?

Ngā mihi | Kind regards,

CHARLOTTE MACDONALD
Associate
027 296 5383
CharlotteM@barker.co.nz

barker.co.nz 

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From: Carly Hinde <carly.hinde@aucklandcouncil.govt.nz>

Sent: Monday, 11 May 2026 10:06 am

To: Charlotte MacDonald <CharlotteM@barker.co.nz>; Frank Zhou <frank.zhou@aucklandcouncil.govt.nz>

Cc: Dylan Pope <dylan@dcs.gen.nz>

Subject: RE: Delmore FT geotechnical response

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Hi Charlotte,

Please see the final Delmore Geotech condition below which corporates both applicant proposed changes and Frank's suggestions – can you please review and confirm the applicant team's acceptance?

At least 10 working days prior to the commencement of works for any stage or sub-stage of the development, the consent holder must provide a detailed construction methodology endorsed by a chartered geo-professional who must provide written confirmation of the review. The methodology must include earthworks, boundary works and installation of slope protection measures in accordance with the recommendations provided within the Geotechnical Report, referenced in Condition 1 and submitted to Auckland Council. No bulk earthworks onsite are permitted prior to written confirmation that the detailed construction methodology has been reviewed and accepted by the Council. This does not apply to enabling works which are permitted under the Auckland Unitary Plan.

Advice note: typical enabling work activities may include the following

- Permitted vegetation clearance
- Implementation or exercise of any management plans which will not adversely impact slope stability or geohazards for example, bat surveys etc
- Installation of erosion and sediment control measures
- Establishment on-site – site offices and set up, etc

If the above is accepted, do you have an up-to-date conditions tracker which we can add this directly too? Is it the one saved within the Draft Conditions Folder from the Barkers link:  [Delmore Responses](#)

Kind regards,

Carly Hinde | Principal Project Lead – Premium Unit
Planning & Resource Consents

Auckland Council

Mobile: 027 238 1132

Address: Level 6, 135 Albert Street, Auckland

Visit our website: aucklandcouncil.govt.nz

From: Charlotte MacDonald <CharlotteM@barker.co.nz>**Sent:** Thursday, 7 May 2026 3:26 pm**To:** Frank Zhou <frank.zhou@aucklandcouncil.govt.nz>**Cc:** Carly Hinde <carly.hinde@aucklandcouncil.govt.nz>**Subject:** RE: Delmore geotechnical response

Hi Frank,

I spoke to the applicant and they have advised the following:

- Permitted vegetation clearance
- Implementation or exercise of any management plans for example, bat surveys etc
- Installation of erosion and sediment control measures
- Establishment on-site – site offices and set up, etc

Could we add in the following:

At least 10 working days prior to the commencement of works for any stage or sub-stage of the development, the consent holder must provide a detailed construction methodology endorsed by a chartered geo-professional who must provide written confirmation of the review. The methodology must include earthworks, boundary works and installation of slope protection measures in accordance with the recommendations provided within the Geotechnical Report, referenced in Condition 1 and submitted to Auckland Council. No ~~bulk~~ earthworks onsite are permitted prior to written confirmation that the detailed construction methodology has been reviewed and accepted by the Council. This does not apply to enabling works which are permitted under the Auckland Unitary Plan.

Ngā mihi | Kind regards,

CHARLOTTE MACDONALD

Associate

027 296 5383

CharlotteM@barker.co.nzbarker.co.nz

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From: Frank Zhou <frank.zhou@aucklandcouncil.govt.nz>**Sent:** Thursday, 7 May 2026 1:53 pm**To:** Charlotte MacDonald <CharlotteM@barker.co.nz>**Cc:** Carly Hinde <carly.hinde@aucklandcouncil.govt.nz>**Subject:** RE: Delmore geotechnical response

Hi Charlotte,

Thank you for the email. I understand your intention now.

In that case, could you please discuss with the project team and provide more detail on the proposed minor enabling works, such as topsoil stripping, initial site clean-up, site establishment, or similar activities?

I will discuss this with my internal peer reviewer to see whether we could include an advice note under this condition as supplementary information, to provide some flexibility for minor enabling works that may not require consent.

Regards

Frank

From: Charlotte MacDonald <CharlotteM@barker.co.nz>**Sent:** Thursday, 7 May 2026 1:37 pm**To:** Frank Zhou <frank.zhou@aucklandcouncil.govt.nz>**Cc:** Carly Hinde <carly.hinde@aucklandcouncil.govt.nz>**Subject:** Delmore geotechnical response

Hi Frank,

Thank you for preparing your response memo on the Delmore application. It appears that the majority of the responses have been closed out, subject to some minor condition errors which we are updating. With regard to the comment below, the intention of adding in “bulk earthworks” rather than just “works” is to allow for minor enabling works that don’t require consent.

Is there a way that we can make that clear in the condition that you would be comfortable with?

“Accepted and closed on the premise of the applicant’s response however we note that the updated conditions varies from what has agreed in the applicant response which is specific to bulk earthworks. We suggest that this be revised.
At least 10 working days prior to the commencement of works for any stage or sub-stage of the development, the consent holder must provide a detailed construction methodology endorsed by a chartered geo-professional who must provide written confirmation of the review. The methodology must include earthworks, boundary works and installation of slope protection measures in accordance with the recommendations provided within the Geotechnical Report, referenced in Condition 1 and submitted to Auckland Council. No ~~bulk~~ earthworks onsite are permitted prior to written confirmation that the detailed construction methodology has been reviewed and accepted by the Council.”

Nga mihi | Kind regards,

**CHARLOTTE
MACDONALD**
Associate
027 296 5383
CharlotteM@barker.co.nz

100 First Avenue,
Tauranga 3110

barker.co.nz

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Christchurch | Wanaka & Queenstown

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