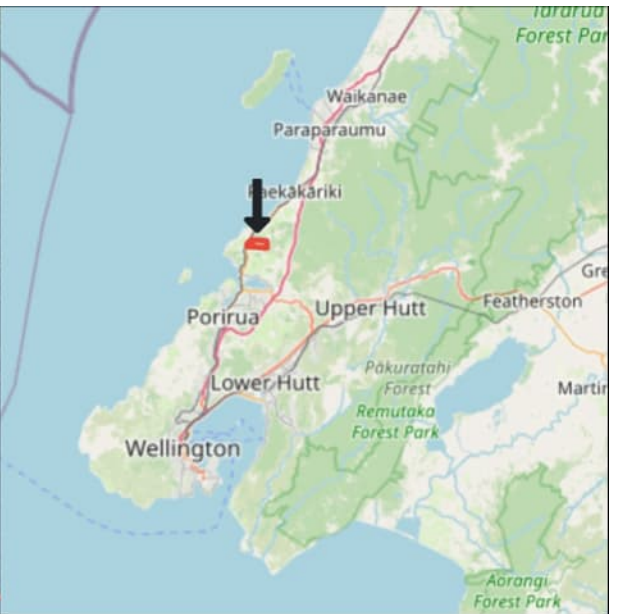
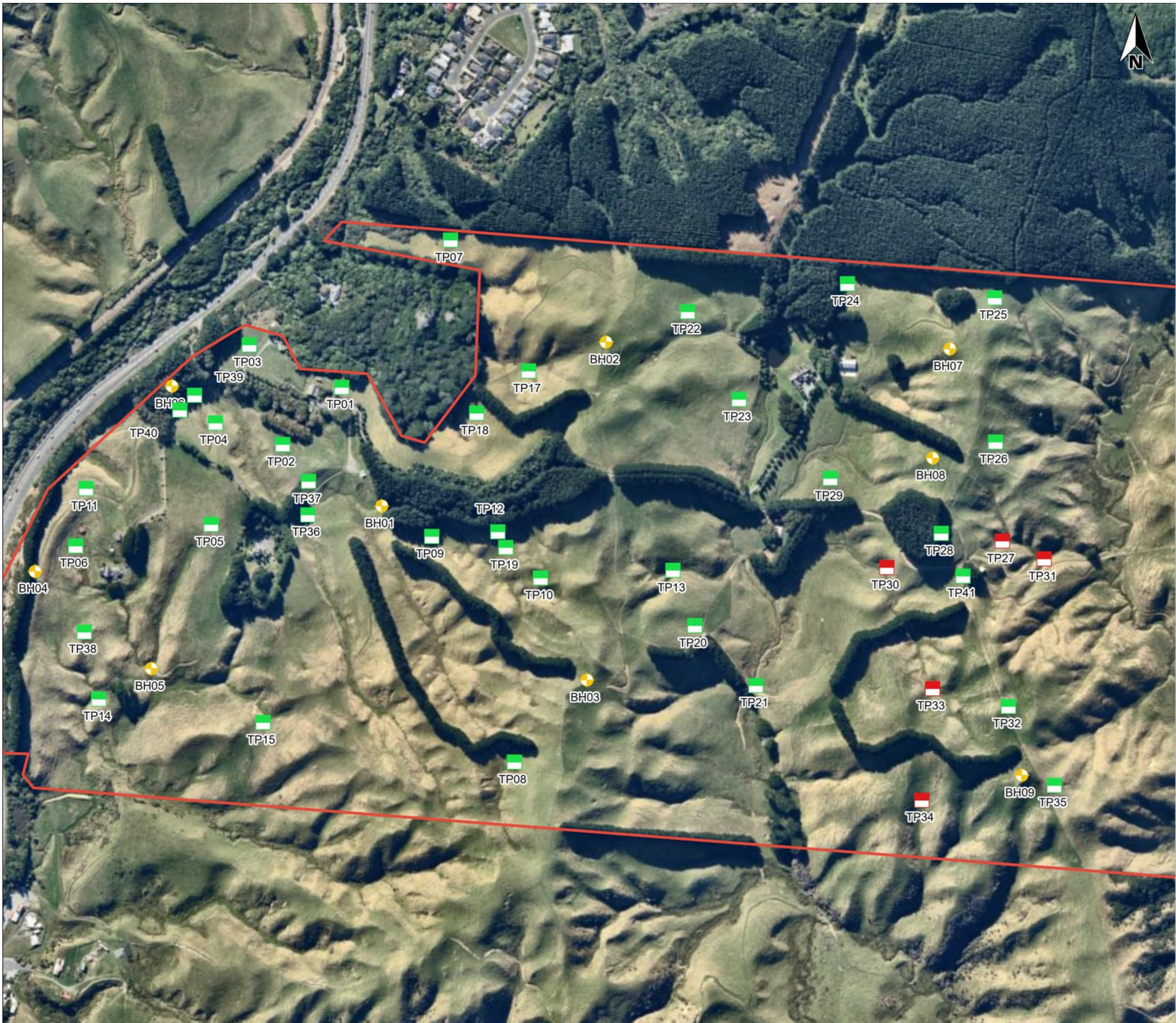




APPENDIX 3: Investigation Location Plan



Legend

- Locations not accessible by excavator and Test pits replaced by Scala penetrometer
- Test Pit location
- Machine Borehole Locations
- ▬ Site Boundary

0 50 m 100 m
© Nearmap

ENGEO

Produced by **Datanest.earth**

Title: 2025 Test Pit Investigation Plan

Client: Classic Developments Ltd		Size: A3
Project: Mt Welcome	Drawn: TV	Appendix No.: 3
Date: 02-09-2025	Checked: KJ	
Proj No: 19796	Scale: 1:5500	Version: Final



APPENDIX 4:

Borehole Logs



LOG OF BORING BH01

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : 83 mm/ HQ 63 mm
Date : 24-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 10.6 m Logged By/Reviewed By : CW / HB
Drilling Method : Sonic Dual Head Latitude : 5454106
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1758369

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
												25 50 75	
	FILL		SM	[FILL] Silty fine to coarse SAND with minor gravel and trace rootlets; brown. Well graded; gravel is medium to coarse, subangular to subrounded, moderately strong, moderately weathered, Greywacke sandstone.									
0.5			SW	Fine to coarse SAND with some silt and trace charcoal; light greyish brown mottled light brown-orange, speckled black. Well graded. 0.4 m - Silt content increases to silty for 100 mm.									
1.0			OL	Sandy organic SILT; greyish brown mottled grey. Low plasticity; sand is fine to medium. Organics are fibrous (rootlets and twigs) and amorphous; strong organic odour.		66							
1.5			SM	Silty fine to coarse SAND with minor gravel and trace organic material; brownish light grey speckled dark brown. Well graded; gravel is fine to medium, angular to subangular, weak, slightly weathered to unweathered, Greywacke. Organics are fibrous. 1.4 m - Gravel becomes fine to coarse.						0/0/0/1/1/0 N=2			
2.0				1.95 m - With minor silt and becomes grey.		65			Very Loose				
2.5				2.2 m - With some gravel.									
3.0			SP	Organic fine to medium SAND with minor silt; brown. Uniformly graded. Organics are fibrous.					N/A				
3.5			SW	Fine to medium SAND with minor silt; brownish dark grey. Poorly graded. 3.0 m - Sand is fine to coarse.		64				2/4/5/6/6/6 N=23			
4.0				4.0 m - With some silt and trace fine gravel (subrounded).		63			Medium Dense				
4.5			ML	SILT with some sand and trace gravel; light brownish light grey. Low plasticity; sand is fine to coarse; gravel is fine to medium, subangular to subrounded, very weak to weak, mudstone and sandstone.					Very Stiff	3/5/6/7/7/8 N=28			
5.0						62							

Borehole met target depth of 10.6 m.

Standing groundwater was not recorded during drilling.

Moisture content not recorded due to use of drilling fluid.

RS = Residual Soil

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH01

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : 83 mm/ HQ 63 mm
Date : 24-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 10.6 m Logged By/Reviewed By : CW / HB
Drilling Method : Sonic Dual Head Latitude : 5454106
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1758369

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
5.5			ML	SILT with some sand and trace gravel; light brownish light grey. Low plasticity; sand is fine to coarse; gravel is fine to medium, subangular to subrounded, very weak to weak, mudstone and sandstone. 5.5 m - With some gravel.					Very Stiff				
6.0			SM	Silty, gravelly fine to coarse SAND; light bluish grey. Well graded; gravel is fine to coarse, angular to subangular, weak to moderately strong, unweathered, Greywacke. Completely to highly weathered rock? 5.9 m - Becomes light bluish grey mottled brownish orange. Highly to moderately weathered; brownish orange stained black; GREYWACKE. Very weak to moderately strong; highly fractured. No recovery - core loss at end of run.		61				6/9//15/35 for 75 mm N=50+			Switched to HQ rotary drilling.
6.5													
7.0					NR	60							
7.5				Highly to moderately weathered; brownish orange stained black; GREYWACKE. Very weak to moderately strong; highly fractured.						22/28 for 65 mm N=50+			
8.0						59			N/A				
8.5													
9.0				Moderately to slightly weathered; dark brown-black mottled greenish orange-brown and light grey; GREYWACKE. Very weak to moderately strong; highly fractured.		58				32/18 for 25 mm N=50+			
9.5													
10.0						57							

Borehole met target depth of 10.6 m.

Standing groundwater was not recorded during drilling.

Moisture content not recorded due to use of drilling fluid.

RS = Residual Soil

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH01

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd **Core Diameter** : 83 mm/ HQ 63 mm
Date : 24-04-2024 **Energy Transfer Ratio** : 87 %
Hole Depth : 10.6 m **Logged By/Reviewed By** : CW / HB
Drilling Method : Sonic Dual Head **Latitude** : 5454106
Drilling Contractor : Griffiths Drilling Ltd **Longitude** : 1758369

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
10.5				Moderately to slightly weathered; dark brown-black mottled greenish orange-brown and light grey; GREYWACKE. Very weak to moderately strong; highly fractured.					N/A			25 50 75	

End of Hole Depth: 10.6 m
Termination: Target depth

Borehole met target depth of 10.6 m.

Standing groundwater was not recorded during drilling.

Moisture content not recorded due to use of drilling fluid.

RS = Residual Soil

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH02

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : HQ 63 mm
Date : 30-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 10 m Logged By/Reviewed By : CW/KAJJ / HB
Drilling Method : Sonic Dual Head Latitude : 5454346
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1758715

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
				No recovery - core loss during drilling.	NR				N/A				
0.5	NO RECOVERY												
1.0						-132							
1.5	RESIDUAL SOIL	SW		Fine to coarse SAND with some silt; light brownish grey mottled light orange-brown, speckled black. Well graded.						1/2/1/2/2/2/2 N=8			
2.0						-131			Loose				
2.5	GREYWACKE SANDSTONE	ML		Completely weathered GREYWACKE recovered as sandy SILT with minor gravel; light greyish brown mottled orange-brown speckled black. Low plasticity; sand is fine to coarse; gravel is fine, subangular to subrounded, weak.									
3.0				2.6 m - With some gravel and grey mottling.		-130				15/35 for 70 mm N=50+			
3.5				Highly to moderately weathered; light grey and dark orange-brown stained black and light red on fracture plains; GREYWACKE. Very weak; very closely spaced, tight, smooth undulating and stepped, orthogonal fractures.					N/A				
4.0				No recovery - core loss at end of run.	NR								
4.5													
5.0				Highly to moderately weathered; light grey and dark orange-brown stained black and light red on fracture plains; GREYWACKE. Very weak; very closely spaced, tight, smooth undulating and stepped, orthogonal fractures.		-128				18/32 for 65 mm N=50+			

Borehole met target depth of 10 m.

Standing groundwater was not recorded during drilling.

Moisture content not recorded due to use of drilling fluid.

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH02

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : HQ 63 mm
Date : 30-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 10 m Logged By/Reviewed By : CW/KAJJ / HB
Drilling Method : Sonic Dual Head Latitude : 5454346
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1758715

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
												25 50 75	
5.5				Moderately to slightly weathered; orange-brown and grey mottled white, stained black and orange along fractures; GREYWACKE. Weak to moderately strong; very closely spaced, tight, smooth undulating and stepped, moderately to very steeply inclined, orthogonal fractures.									
6.0				No recovery - core loss at end of run.	NR	127				33/17 for 15 mm N=50+			
6.5				Moderately to slightly weathered; orange-brown and grey mottled white, stained black and orange along fractures; GREYWACKE. Weak to moderately strong; very closely spaced, tight, smooth undulating and stepped, moderately to very steeply inclined, orthogonal fractures.									
7.0						126							
7.5									N/A				
8.0						125							
8.5													
9.0						124							
9.5													
10.0				End of Hole Depth: 10 m Termination: Target depth		123							

GEOTECH MACHINE BORING MT WELCOME BH LOGS.GPJ NZ DATA TEMPLATE 2.GDT 21/5/24

Borehole met target depth of 10 m.

Standing groundwater was not recorded during drilling.

Moisture content not recorded due to use of drilling fluid.

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH03

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : HQ 63 mm
Date : 29-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 9 m Logged By/Reviewed By : CW/KAJJ / HB
Drilling Method : Sonic Dual Head Latitude : 5453837
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1758675

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
												25 50 75	
0.5	NO RECOVERY			No recovery - core loss during run.	NR	136							
1.0													
1.5													
2.0	GREYWACKE SANDSTONE			Completely to highly weathered; brownish orange mottled light grey and dark brown; GREYWACKE SANDSTONE. Recovered as: gravelly, silty fine to coarse SAND. Well graded; gravel is fine to coarse, subangular to subrounded, extremely to very weak. 1.9 m - Becomes highly weathered, extremely to very weak, and highly fractured.		135			6/8//12/18/20 for 210 mm N=50+				
2.5													
3.0													
3.5													
4.0				2.7 m - Becomes light greenish grey mottled orange-brown and dark brown.		134			N/A				
4.5				Highly to moderately weathered; dark orange-brown mottled greenish grey and black; GREYWACKE. Very weak; highly fractured, very closely to closely spaced, tight to very narrow, rough to smooth undulating fractures.		133				8/12//22/28 for 105 mm N=50+			
5.0				Completely to highly weathered; brownish orange mottled light grey and dark brown; GREYWACKE SANDSTONE. Recovered as: gravelly, silty fine to coarse SAND. Well graded; gravel is fine to coarse, subangular to subrounded, extremely to very weak.		132				16/34 for 135 mm N=50+			

Borehole met target depth of 9 m.

Dip test showed standing water at

Moisture content not recorded due to use of drilling fluid.

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH03

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : HQ 63 mm
Date : 29-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 9 m Logged By/Reviewed By : CW/KAJJ / HB
Drilling Method : Sonic Dual Head Latitude : 5453837
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1758675

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
				Moderately weathered; dark orange-brown mottled greenish grey and black; GREYWACKE. Very weak; highly fractured, very closely to closely spaced, tight to very narrow, rough to smooth undulating fractures.								25 50 75	
5.5				No recovery - core loss during run.	NR								
6.0				Moderately weathered; dark orange-brown mottled greenish grey and black; GREYWACKE. Very weak; highly fractured, very closely to closely spaced, tight to very narrow, rough to smooth undulating fractures.		131							
6.5				6.5 m - Becomes extremely fractured and extremely weak for 100 mm.									
7.0						130							
7.5				7.3 m - Becomes weak.					N/A				
8.0						129							
8.5				8.2 m - Becomes very weak.									
9.0				End of Hole Depth: 9 m Termination: Target depth		128							

Borehole met target depth of 9 m.

Dip test showed standing water at

Moisture content not recorded due to use of drilling fluid.

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH04

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : 83 mm/ HQ 63 mm
Date : 22-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 15.15 m Logged By/Reviewed By : CW / HB
Drilling Method : Sonic Dual Head Latitude : 5454019
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1757841

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
	TOPSOIL		SM	[TOPSOIL] Silty fine to medium SAND; greyish brown. Well graded. Contains minor rootlets.								25 50 75	
0.5	NO RECOVERY			Poor recovery in first 1 m of borehole.	NR				N/A				
1.0	LOESS/COLLUVIUM		SP	Fine to medium SAND with some silt; light greyish brown mottled light orange-brown. Poorly graded.		76			Dense	5/6//8/9/9/10 N=36			
1.5													
2.0			SP	Completely weathered GREYWACKE recovered as: Fine to coarse SAND with minor silt; brown-orange speckled black. Poorly graded (fm).		75			N/A				
2.5													
3.0	GREYWACKE SANDSTONE		SW	Completely weathered GREYWACKE recovered as: Fine to coarse SAND with some silt; greyish brown-orange speckled black. Well graded.		74				3/4//6/9/7/8 N=30			
3.5									Medium Dense				
4.0						73							
4.5			ML	Completely weathered GREYWACKE recovered as: Sandy SILT; light greyish orange-brown mottled black. Low plasticity; sand is fine to medium.					Firm	1/1//1/1/2/4 N=8			
5.0						72							

Switched
to 63 mm
HQ rotary.

GEOTECH MACHINE BORING MT WELCOME BH LOGS.GPJ NZ DATA TEMPLATE 2.GDT 21/5/24

Borehole met target depth of 15.15 m.

Standing groundwater was not recorded during drilling.

Moisture content not recorded due to use of drilling fluid.

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH04

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : 83 mm/ HQ 63 mm
Date : 22-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 15.15 m Logged By/Reviewed By : CW / HB
Drilling Method : Sonic Dual Head Latitude : 5454019
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1757841

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
5.5			ML	Completely weathered GREYWACKE recovered as: Sandy SILT; light greyish orange-brown mottled black. Low plasticity; sand is fine to medium.									
				No recovery - core loss at end of run.	NR				Firm				
6.0			ML	Completely weathered GREYWACKE recovered as: Sandy SILT; light greyish orange-brown mottled black. Low plasticity; sand is fine to medium.		71				1/1/2/1/2/3 N=8			
6.5			SP	Completely weathered GREYWACKE recovered as: Fine to medium SAND with minor silt; greyish brown speckled light yellowish white. Uniformly graded (f).									
7.0						70							
7.5									Medium Dense				
8.0						69				3/3//4/6/6/7 N=23			
8.5													
9.0				Completely weathered GREYWACKE recovered as: Fine to coarse SAND with minor gravel and trace silt; brownish orange mottled blackish dark brown. Well graded; gravel is medium to coarse, subrounded, very weak, highly weathered, Greywacke sandstone.		68			N/A				
9.5				Completely weathered GREYWACKE recovered as: Sandy SILT with minor gravel and trace silt; brownish orange mottled blackish dark brown. Low plasticity; sand is fine to coarse; gravel is medium to coarse, subrounded, very weak, highly weathered, Greywacke sandstone.					Firm	1/1//1/1/1/1 N=4			
10.0						67							

Borehole met target depth of 15.15 m.

Standing groundwater was not recorded during drilling.

Moisture content not recorded due to use of drilling fluid.

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH04

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : 83 mm/ HQ 63 mm
Date : 22-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 15.15 m Logged By/Reviewed By : CW / HB
Drilling Method : Sonic Dual Head Latitude : 5454019
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1757841

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
10.5				Completely weathered GREYWACKE recovered as: Sandy SILT with minor gravel and trace silt; brownish orange mottled blackish dark brown. Low plasticity; sand is fine to coarse; gravel is medium to coarse, subrounded, very weak, highly weathered, Greywacke sandstone.		66			Firm	1/3//1/2/2/2 N=7			
11.0													
11.5				No recovery - core loss at end of run.	NR				N/A				
12.0						65							
12.5				Completely weathered GREYWACKE recovered as: SILT with some sand, minor gravel and trace silt; brownish orange mottled blackish dark brown. Low plasticity; sand is fine to coarse; gravel is medium to coarse, subrounded, very weak, highly weathered, Greywacke sandstone.					Firm	1/3//2/3/2/2 N=9			
13.0				Completely weathered GREYWACKE recovered as: CLAY with minor silt; orange mottled light grey and cream. Moderate plasticity.									
13.5				Highly weathered, brown orange mottled light grey and dark brown, GREYWACKE. Extremely weak. Recovered as SILT with some sand, minor gravel and minor clay. Low plasticity; sand is fine to coarse, gravel is fine to coarse (flat), angular to subangular.		64							
14.0						63							
14.5													
15.0						62							

GEOTECH MACHINE BORING MT WELCOME BH LOGS.GPJ NZ DATA TEMPLATE 2.GDT 21/5/24

Borehole met target depth of 15.15 m.

Standing groundwater was not recorded during drilling.

Moisture content not recorded due to use of drilling fluid.

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH04

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd **Core Diameter** : 83 mm/ HQ 63 mm
Date : 22-04-2024 **Energy Transfer Ratio** : 87 %
Hole Depth : 15.15 m **Logged By/Reviewed By** : CW / HB
Drilling Method : Sonic Dual Head **Latitude** : 5454019
Drilling Contractor : Griffiths Drilling Ltd **Longitude** : 1757841

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
				Highly to moderately weathered, light brownish orange mottled light grey with black staining, GREYWACKE SANDSTONE. Very weak; highly fractured. End of Hole Depth: 15.15 m Termination: Target depth					N/A	15/35 for 150 mm N=50+		25 50 75	

Borehole met target depth of 15.15 m.

Standing groundwater was not recorded during drilling.

Moisture content not recorded due to use of drilling fluid.

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH05

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : 83 mm/ HQ 63 mm
Date : 19-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 8 m Logged By/Reviewed By : CW/KAJJ / HB
Drilling Method : Sonic Dual Head Latitude : 5453867
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1758017

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
0.5	FILL		ML	[FILL] Sandy, gravelly SILT; brown mottled orange-brown. Low plasticity; sand is fine to coarse; gravel is fine to coarse, angular to subrounded, moderately strong to strong, slightly weathered, Greywacke sandstone. Very poor recovery from 0 m - 1.5 m. No recovery - core loss during run.									
1.0	NO RECOVERY				NR	41			N/A				
1.5			ML	Sandy SILT with minor gravel and trace rootlets and organics; brownish grey mottled light grey and dark brown. Low plasticity; sand is fine to coarse; gravel is fine to coarse, angular to subrounded, moderately strong, slightly weathered, Greywacke sandstone. 1.95 m - Becomes greyish brown.		40			Stiff	0/1/1/3/3/2/8 N=16			
2.0	L/A												
2.5			SM SW	Silty fine to coarse organic SAND with trace gravel and trace rootlets and organics; dark brown, mottled brownish grey. Well graded; gravel is fine, subangular to subrounded, Greywacke sandstone. Organics are fibrous.		39			N/A				
3.0	ALLUVIUM			Gravelly fine to coarse SAND with minor silt; light grey mottled dark orange-brown. Well graded; gravel is fine coarse, angular to subangular, strong to very strong, slightly weathered to unweathered, Greywacke sandstone.						4/9/1/18/32 for 150 mm N=50+			
3.5				Slightly weathered to unweathered; light bluish grey; massive, GREYWACKE SANDSTONE. Strong to very strong; very closely to closely spaced, rough to smooth undulating, steeply to very steeply inclined, orthogonal joints.		38			N/A				
4.0	GREYWACKE SANDSTONE			4.15 m - Becomes highly fractured for 250 mm. Recovered as: fine to coarse GRAVEL with some sand and minor silt; light bluish grey, well graded; sand is fine to coarse.									
4.5				4.8 m - Becomes highly fractured for 250 mm. Recovered as: fine to coarse GRAVEL with						20/30 for 135 mm N=50+			
5.0						37							

Borehole met target depth of 8 m.

Dip test showed standing water at

Moisture content not recorded due to use of drilling fluid.

L/A = Lacustrine/Alluvial Deposits

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH05

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : 83 mm/ HQ 63 mm
Date : 19-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 8 m Logged By/Reviewed By : CW/KAJJ / HB
Drilling Method : Sonic Dual Head Latitude : 5453867
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1758017

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
5.5	GREYWACKE SANDSTONE			some sand and minor silt; light bluish grey, well graded; sand is fine to coarse. Slightly weathered to unweathered; light bluish grey; massive, GREYWACKE SANDSTONE. Strong to very strong; very closely to closely spaced, rough to smooth undulating, steeply to very steeply inclined, orthogonal joints. 5.5 m - Becomes weak to strong and greenish blue-grey stained orange-brown.		36			N/A			25 50 75	
6.0				6.1 m - Becomes highly fractured for 250 mm; recovered as sandy, silty fine to coarse GRAVEL.									
6.5				7.0 m - Becomes moderately to slightly weathered; colour becomes orange-brown mottled light yellow and white grey, stained black.									
7.0				No recovery - core loss at end of run.									
7.5													
8.0				End of Hole Depth: 8 m Termination: Target depth	NR	34							

Borehole met target depth of 8 m.

Dip test showed standing water at

Moisture content not recorded due to use of drilling fluid.

L/A = Lacustrine/Alluvial Deposits

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH06

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : 83 mm/ HQ 63 mm
Date : 23-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 19.65 m Logged By/Reviewed By : CW / HB
Drilling Method : Sonic Dual Head Latitude : 5454294
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1758055

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
				No recovery - core loss during run.	NR								
0.5													
1.0						53							
1.5			SP	Fine to medium SAND with minor silt; light greenish grey. Poorly graded.									
2.0			SW	Fine to coarse SAND with some silt and minor gravel; light greenish grey mottled brownish orange. Well graded; gravel is coarse, subangular to subrounded, weak to moderately strong, slightly weathered, sandstone. Contains trace pockets of organic SILT.		52			Loose to Medium Dense	0/1/2/2/3/3 N=10			
2.5			SW	Fine to coarse SAND with some silt and minor organics; light grey mottled green-orange. Well graded. Organics are fibrous; with sparse pockets of organic silt and organic sand; organic odour noted. 2.5 m - Becomes brownish grey mottled dark brown.					N/A				
3.0			SW	Fine to coarse SAND with some silt and minor gravel; grey mottled brownish grey. Well graded; gravel is medium to coarse, angular to subangular, moderately strong, slightly weathered to unweathered, Greywacke sandstone.		51				1/1/1/2/3/3 N=9			
3.5													
4.0						50			Loose to Medium Dense				
4.5				4.5 m - Gravel becomes angular to subrounded.						1/6/1/4/4/4/5 N=17			Switched to 63 mm HQ rotary.
5.0						49							

GEOTECH MACHINE BORING MT WELCOME BH LOGS.GPJ NZ DATA TEMPLATE 2.GDT 21/5/24

Borehole met target depth of 19.65 m.

Dip test showed standing water at

Moisture content not recorded due to use of drilling fluid.

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH06

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : 83 mm/ HQ 63 mm
Date : 23-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 19.65 m Logged By/Reviewed By : CW / HB
Drilling Method : Sonic Dual Head Latitude : 5454294
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1758055

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
5.5			SW	Fine to coarse SAND with some silt and minor gravel; grey mottled brownish grey. Well graded; gravel is medium to coarse, angular to subangular, moderately strong, slightly weathered to unweathered, Greywacke sandstone.					Loose to Medium Dense				
6.0			SP	Fine to medium SAND with minor silt; grey. Poorly graded.		48				3/5//6/6/6/9 N=27			
6.5				6.6 m - Becomes silty with trace gravel and light grey speckled black and green. Gravel is fine, very weak, jarosite.					Medium Dense				
7.0			ML	SILT with some sand and trace gravel; grey speckled green and black. Low plasticity; sand is fine; gravel is fine, extremely weak, jarosite. 7.1 m - With trace sand and no gravels; becomes grey mottled greenish grey.		47							
7.5									Soft	1/1//1/1/1/1 N=4			
8.0				7.95 m - With minor sand and becomes light greenish grey mottled light grey.		46							
8.5			SM ML	Silty fine to coarse SAND; light grey mottled greenish grey. Well graded. SILT with some sand; light bluish grey mottled light greenish grey. Low plasticity; sand is fine.					N/A				
9.0			SW	Fine to medium SAND with some silt; grey. Well graded. 8.8 m - Sand is fine to coarse.									
9.5			SW	Fine to coarse SAND with minor silt and minor gravel; bluish grey mottled grey-green. Well graded; gravel is fine to coarse, angular to subangular, weak to moderately strong, slightly weathered to unweathered, Greywacke sandstone.		45				5/5//5/5/5/5 N=20			
9.7				9.7 m - Becomes silty.									
10.0			SW			44			N/A				

Borehole met target depth of 19.65 m.

Dip test showed standing water at

Moisture content not recorded due to use of drilling fluid.

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH06

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : 83 mm/ HQ 63 mm
Date : 23-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 19.65 m Logged By/Reviewed By : CW / HB
Drilling Method : Sonic Dual Head Latitude : 5454294
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1758055

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
											25 50 75		
10.5			SW	Organic fine to coarse SAND with some organic silt and trace organics; dark brownish grey. Well graded. Organics are amorphous; faint organic odour. 10.0 m - Becomes light brownish grey. 10.2 m - Becomes dark brownish grey.					N/A				
			SM	Silty fine to medium SAND with trace organics; grey mottled brown. Poorly graded (f). Organics are amorphous.					Medium Dense	2/1/3/3/4/4 N=14			
11.0			ML	SILT with some sand; grey. Low plasticity; sand is fine.		43							
			SM	Silty fine to medium SAND with trace organics; greyish brown. Poorly graded (f). Upward fining noted. Organics are amorphous.					N/A				
11.5			OL	Silty fine to medium SAND; grey. Poorly graded.									
			SW	Sandy organic SILT; greyish brown. Low plasticity; sand is fine. Organic odour noted.					Medium Dense				
12.0				Silty fine to coarse SAND; grey. Well graded. Noted cm-scale interbedded silty fine sand and medium sand.		42				1/2/2/2/3/4 N=11			
			OL	Sandy organic SILT with trace organics; greyish brown mottled dark brown. Low plasticity; sand is fine. Organics are amorphous.									
12.5			SW	Interbedded on 50 mm scale; SILT and gravelly fine to coarse SAND. SILT with some sand; greyish light brown. Low plasticity; sand is fine to coarse. Gravelly fine to coarse SAND; with minor silt; bluish grey. Well graded; gravel is fine to medium, angular to subangular, weak, slightly weathered, Greywacke.					N/A				
			ML	SILT with minor sand and trace organics; grey streaked dark brown. Low plasticity; sand is fine. Organics are amorphous laminations. 13.3 m - Becomes sandy with trace fibrous organics.		41							
13.5			SM	Silty fine to coarse SAND with trace organics; light grey. Well graded. Organics are fibrous.						2/2/3/3/7/8 N=21			
14.0						40			Medium Dense				
14.5				14.5 m - with trace gravel. Gravel is fine to medium, angular to subangular, weak to moderately strong, unweathered, Greywacke.									
15.0			SW	Gravelly fine to coarse SAND with minor silt; light bluish grey. Well graded; gravel is fine to					N/A				
			OL			39							

Borehole met target depth of 19.65 m.

Dip test showed standing water at

Moisture content not recorded due to use of drilling fluid.

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH06

Mt Welcome Development
422 State Highway 59
Pukerua Bay, Porirua
19796.000.002

Client : Classic Developments Ltd Core Diameter : 83 mm/ HQ 63 mm
Date : 23-04-2024 Energy Transfer Ratio : 87 %
Hole Depth : 19.65 m Logged By/Reviewed By : CW / HB
Drilling Method : Sonic Dual Head Latitude : 5454294
Drilling Contractor : Griffiths Drilling Ltd Longitude : 1758055

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
15.5	LACUSTRINE/ALLUVIAL DEPOSITS		SW	coarse, angular to subrounded, moderately strong to strong, unweathered, Greywacke. Sandy organic SILT; greyish dark brown. Low plasticity; sand is fine to medium. Gravelly fine to coarse SAND with some silt; light bluish grey. Well graded; gravel is fine to coarse, angular to subrounded, weak to strong, slightly weathered to unweathered, Greywacke. 15.0 m - 15.1 m - Organic SILT; greyish brown. Low plasticity.		38				5/7//10/20/20 for 215 mm N=50+			
16.0									Very Dense				
16.5													
17.0				Completely to highly weathered; GREYWACKE. Recovered as: gravelly, silty fine to coarse SAND; light grey mottled orange-brown. Well graded; gravel is fine to medium, angular, weak to moderately strong, slightly weathered to unweathered.		37				4/8//13/12/10/5 for 260 mm N=50+			
17.5				Highly to moderately weathered; grey and greenish grey; GREYWACKE. Recovered as fine to coarse GRAVEL with minor sand. Well graded; angular to subangular, weak to moderately strong, slightly weathered to unweathered.									
18.0	GREYWACKE SANDSTONE			No recovery - core loss at end of run.	NR	36			N/A	18/30//50 for 60 mm N=50+			
18.5				Highly weathered; GREYWACKE. Recovered as: silty fine to coarse GRAVEL with minor sand; grey mottled brownish orange. Well graded; angular to subangular, weak to moderately strong, moderately to slightly weathered; sand is fine to coarse. 18.3 m - Becomes brownish orange, moderately to highly weathered. Recovered as: fine to coarse GRAVEL. Well graded; angular to subangular, very weak to weak, moderately to slightly weathered.									
19.0				No recovery - core loss at end of run.	NR	35							
19.5										30/20 for 135 mm N=50+			
End of Hole Depth: 19.65 m Termination: Target depth													

GEOTECH MACHINE BORING MT WELCOME BH LOGS.GPJ NZ DATA TEMPLATE 2.GDT 21/5/24

Borehole met target depth of 19.65 m.

Dip test showed standing water at

Moisture content not recorded due to use of drilling fluid.

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF BORING BH07

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments Core Diameter : 83 mm/ 63 mm
Date : 12/09/2025 Hammer Efficiency : 88.2 %
Hole Depth : 15.075 m Logged By/Reviewed By : MC / TV
Drilling Method : Sonic/ HQ Diamond Latitude : 1759259
Drilling Contractor : Prodrill Ltd Longitude : 5454314

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
	TOPSOIL		ML	[TOPSOIL] SILT with some sand and some rootlets; dark brown. Low plasticity; sand is fine to medium.					*S			25 50 75	
0.5			ML	Sandy SILT; brown. Low plasticity; sand is fine to medium.					*S				
1.0			SP	Fine to medium SAND with minor silt; greyish brown. Uniformly graded.									
1.5	LOESS								VL	1/1//1/1/1/1 N=4			
2.0			-	Completely weathered, light brown, fine to coarse GREYWACKE SANDSTONE. Extremely weak, highly fractured, closely to very closely spaced, planar, rough to smooth, tight joints. Heavy iron staining along joints.									
2.5			-	Highly weathered, brown with black staining, fine to coarse GREYWACKE SANDSTONE. Very weak, moderately fractured, very closely to extremely closely spaced, planar, rough, tight joints. Heavy iron staining on joint faces.									
3.0			-	Moderately weathered, light brown with black staining, fine to coarse GREYWACKE SANDSTONE. Very weak, highly fractured to fragmented, very closely to extremely closely spaced, planar, rough to smooth, 70° to sub-vertical, tight joints.						4/6//10/10/12/10 N=42			
3.5			-	4.35 m to 4.5 m - No Recovery									
4.0	GREYWACKE SANDSTONE		-	Highly weathered, brown with black staining, fine to coarse GREYWACKE SANDSTONE. Very weak, moderately fractured, very closely to extremely closely spaced, planar, rough, tight joints. Heavy iron staining on joint faces.						7/8//10/14/14/12 N=50+ for 60 mm			
4.5			-										
5.0			-										
5.5			-										
6.0			-										

Borehole met target depth of 19.5m.

Standing ground water was not recorded during drilling.

Moisture content was not recorded due to use of drilling fluid

* Refers to inferred consistency based on diagnostic features and NZGS guidelines.

Switched
to HQ
rotary
drilling.



LOG OF BORING BH07

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments Core Diameter : 83 mm/ 63 mm
Date : 12/09/2025 Hammer Efficiency : 88.2 %
Hole Depth : 15.075 m Logged By/Reviewed By : MC / TV
Drilling Method : Sonic/ HQ Diamond Latitude : 1759259
Drilling Contractor : Prodrill Ltd Longitude : 5454314

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
6.5			-	Highly weathered, brown with black staining, fine to coarse GREYWACKE SANDSTONE. Very weak, moderately fractured, very closely to extremely closely spaced, planar, rough, tight joints. Heavy iron staining on joint faces.						5/5//8/8/10/11 N=37			
7.0			-	Moderately weathered, light brown with black staining, fine to coarse GREYWACKE SANDSTONE. Very weak, highly fractured to fragmented, very closely to extremely closely spaced, planar, rough to smooth, 70° to sub-vertical, tight joints.						4/16//50 N=50+ for 70 mm			
7.5				6.8 m - 80° joint with clay veneer and quartz on joint face. Becomes moderately strong to strong.									
8.0													
8.5				8.6 m - 8.78 m - Fracture zone; fragmented, extremely closely spaced, weak incipient joints.						20/30 N=50+ for 50 mm			
9.0													
9.5													
10.0				9.9 m - 10.1 m - Fracture zone; fragmented, extremely closely spaced, weak incipient joints.									
10.5				10.1 m - 10.5 m - Washed out from drilling; recovered as medium to coarse GRAVEL; brown, subangular, moderately strong, moderately weathered, Greywacke sandstone.						37/13 N=50+ for 10 mm			
11.0				10.6 m - up to 20 mm of weathering penetration.									
11.5													
12.0				11.7 m - 12.1 m - Fracture zone; fragmented, extremely closely spaced, weak incipient joints.						35/15			

Borehole met target depth of 19.5m.

Standing ground water was not recorded during drilling.

Moisture content was not recorded due to use of drilling fluid

* Refers to inferred consistency based on diagnostic features and NZGS guidelines.



LOG OF BORING BH07

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments Core Diameter : 83 mm/ 63 mm
Date : 12/09/2025 Hammer Efficiency : 88.2 %
Hole Depth : 15.075 m Logged By/Reviewed By : MC / TV
Drilling Method : Sonic/ HQ Diamond Latitude : 1759259
Drilling Contractor : Prodrill Ltd Longitude : 5454314

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
12.5	GREYWACKE SANDSTONE		-	Moderately weathered, light brown with black staining, fine to coarse GREYWACKE SANDSTONE. Very weak, highly fractured to fragmented, very closely to extremely closely spaced, planar, rough to smooth, 70° to sub-vertical, tight joints. 12.3 m - 12.5 m - Fracture zone; fragmented, extremely closely spaced, weak incipient joints.						N=50+ for 5 mm			
13.0													
13.5										40/10 N=50+ for 5 mm			
14.0													
14.5													
15.0										37/11 N=50+ for 0 mm			

End of Hole Depth: 15.1 m
Termination: Target depth

Borehole met target depth of 19.5m.

Standing ground water was not recorded during drilling.

Moisture content was not recorded due to use of drilling fluid

* Refers to inferred consistency based on diagnostic features and NZGS guidelines.



LOG OF BORING BH08

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments Core Diameter : 83 mm/ 63 mm
Date : 10/09/2025 Hammer Efficiency : 88.2 %
Hole Depth : 19.575 m Logged By/Reviewed By : MC / TV
Drilling Method : Sonic/ HQ Diamond Latitude : 1759204
Drilling Contractor : Prodrill Ltd Longitude : 5454160

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
	TS		ML	[TOPSOIL] SILT with some sand and some rootlets; dark brown. Low plasticity; sand is fine to medium.					*F			25 50 75	
0.5	RESIDUAL SOIL		ML	Sandy SILT with minor gravel; light brown with orange and grey mottles. Low plasticity; sand is fine to coarse; gravel is fine to medium, angular to subangular, very weak, highly weathered, Greywacke sandstone.					VSt				
1.0													
1.5			-	Completely weathered, light brown, fine to coarse GREYWACKE SANDSTONE. Extremely weak, highly fractured, closely to very closely spaced, planar, rough to smooth, tight joints. Heavy iron staining along joints.						4/8//10/12/13/11 N=46			
2.0	GREYWACKE SANDSTONE		-	Highly weathered, brown with black staining, fine to coarse GREYWACKE SANDSTONE. Very weak, moderately to highly fractured, closely spaced, planar, rough to smooth, tight joints. Jointing dominated by 45° and 70° with heavy iron staining on joint faces.									
2.5													
3.0										6/13//20/30 N=50+ for 75 mm			
3.5			-	Moderately weathered, light brown with black staining, fine to coarse GREYWACKE SANDSTONE. Weak, highly fractured to fragmented, very closely to extremely closely spaced, planar, rough to smooth, orthogonally jointed, tight joints.									
4.0													
4.5										50 N=50+ for 65 mm			
5.0				4.715 m - Sub vertical jointing with up to 10 mm of weathering penetration along joints.									
5.5													
6.0										10/40			

Switched to HQ rotary drilling.

GEOTECH MACHINE BORING BH LOGS.GPJ NZ DATA TEMPLATE 2.GDT 19/9/25

Borehole met target depth of 19.5m.

Standing ground water was not recorded during drilling.

Moisture content was not recorded due to use of drilling fluid

TS = TOPSOIL

* Refers to inferred consistency based on diagnostic features and NZGS guidelines.



LOG OF BORING BH08

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments Core Diameter : 83 mm/ 63 mm
Date : 10/09/2025 Hammer Efficiency : 88.2 %
Hole Depth : 19.575 m Logged By/Reviewed By : MC / TV
Drilling Method : Sonic/ HQ Diamond Latitude : 1759204
Drilling Contractor : Prodrill Ltd Longitude : 5454160

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
6.5			-	Moderately weathered, light brown with black staining, fine to coarse GREYWACKE SANDSTONE. Weak, highly fractured to fragmented, very closely to extremely closely spaced, planar, rough to smooth, orthogonally jointed, tight joints.						N=50+ for 5 mm			
7.0													
7.5			-	Completely weathered, light brown, fine to coarse GREYWACKE SANDSTONE. Extremely weak, highly fractured, closely to very closely spaced, planar, rough to smooth, tight joints. Heavy iron staining along joints.						20/30 N=50+ for 15 mm			
8.0			-	Moderately weathered, light brown with black staining, fine to coarse GREYWACKE SANDSTONE. Weak, highly fractured to fragmented, very closely to extremely closely spaced, planar, rough to smooth, orthogonally jointed, tight joints.									
8.5													
9.0				9.0 m - Becomes closely spaced.				-	-	25/25 N=50+ for 25 mm			
9.5													
10.0													
10.5										30/20 N=50+ for 20 mm			
11.0				10.86 m - planar, rough, 70°, narrow joint with clay infill (gouge?)									
11.5				11.08 m - 11.2 m - Fracture Zone; fragmented, extremely closely spaced, very weak. Controlled by 45° joints.									
12.0										No SPT			

Borehole met target depth of 19.5m.

Standing ground water was not recorded during drilling.

Moisture content was not recorded due to use of drilling fluid

TS = TOPSOIL

* Refers to inferred consistency based on diagnostic features and NZGS guidelines.



LOG OF BORING BH08

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments Core Diameter : 83 mm/ 63 mm
Date : 10/09/2025 Hammer Efficiency : 88.2 %
Hole Depth : 19.575 m Logged By/Reviewed By : MC / TV
Drilling Method : Sonic/ HQ Diamond Latitude : 1759204
Drilling Contractor : Prodrill Ltd Longitude : 5454160

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
12.5			-	Moderately weathered, light brown with black staining, fine to coarse GREYWACKE SANDSTONE. Weak, highly fractured to fragmented, very closely to extremely closely spaced, planar, rough to smooth, orthogonally jointed, tight joints. 12 m - Dominant joint angle 45°.						completed		25 50 75	
13.0													
13.5										23/30 N=50+ for 10 mm			
14.0													
14.5													
15.0								-	-	No SPT completed			
15.5			-	Completely weathered, light brown, fine to coarse GREYWACKE SANDSTONE. Extremely weak, highly fractured, closely to very closely spaced, planar, rough to smooth, tight joints. Heavy iron staining along joints. 15.5 m - up to 10 mm of weathering penetration along joints.									
16.0													
16.5										37/13 N=50+ for 5 mm			
17.0				16.8 m - 18.2 m - Dominant fracture angle 70°.									
17.5													
18.0										No SPT			

Borehole met target depth of 19.5m.

Standing ground water was not recorded during drilling.

Moisture content was not recorded due to use of drilling fluid

TS = TOPSOIL

* Refers to inferred consistency based on diagnostic features and NZGS guidelines.



LOG OF BORING BH08

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments Core Diameter : 83 mm/ 63 mm
Date : 10/09/2025 Hammer Efficiency : 88.2 %
Hole Depth : 19.575 m Logged By/Reviewed By : MC / TV
Drilling Method : Sonic/ HQ Diamond Latitude : 1759204
Drilling Contractor : Prodrill Ltd Longitude : 5454160

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
18.5	GREYWACKE SANDSTONE		-	Moderately weathered, light brown with black staining, fine to coarse GREYWACKE SANDSTONE. Weak, highly fractured to fragmented, very closely to extremely closely spaced, planar, rough to smooth, orthogonally jointed, tight joints.				-	-	completed		25 50 75	
19.0			-	Slightly weathered, bluish grey, fine to coarse GREYWACKE SANDSTONE. Moderately strong to strong, highly fractured, closely spaced, planar, rough to smooth, tight joints. Iron staining on joint faces with up to 4 mm of weathering penetration along joints.				42/8 N=50+ for 0 mm					
19.5													
End of Hole Depth: 19.6 m Termination: Target depth													

Borehole met target depth of 19.5m.

Standing ground water was not recorded during drilling.

Moisture content was not recorded due to use of drilling fluid

TS = TOPSOIL

* Refers to inferred consistency based on diagnostic features and NZGS guidelines.



LOG OF BORING BH09

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments Core Diameter : 83 mm/ 63 mm
Date : 16/09/2025 Hammer Efficiency : 88.2 %
Hole Depth : 15.08 m Logged By/Reviewed By : MC / TV
Drilling Method : Sonic/ HQ Diamond Latitude : 1759345
Drilling Contractor : Prodrill Ltd Longitude : 5453679

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
	TS		ML	[TOPSOIL] SILT with some sand and some rootlets; dark brown. Low plasticity; sand is fine to medium.					*F			25 50 75	
0.5			ML	SILT with some sand; orange brown. Low plasticity; sand is fine to medium.									
1.0													
1.5													
2.0		LOESS							F	0/1//1/2/2/1 N=6			
2.5													
3.0								-		1/1//1/1/1/1 N=4			
3.5													
4.0			ML	Sandy SILT with minor gravel; light brown with orange and grey mottles. Low plasticity; sand is fine to coarse; gravel is fine to medium, angular to subangular, extremely weak, highly weathered, Greywacke sandstone.									
4.5													
5.0		RESIDUAL SOIL							S	6/4//4/3/4/4 N=15			
5.5													
6.0													

Borehole met target depth of 19.5m.

Standing ground water was not recorded during drilling.

Moisture content was not recorded due to use of drilling fluid

TS = TOPSOIL

* Refers to inferred consistency based on diagnostic features and NZGS guidelines.



LOG OF BORING BH09

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments Core Diameter : 83 mm/ 63 mm
Date : 16/09/2025 Hammer Efficiency : 88.2 %
Hole Depth : 15.08 m Logged By/Reviewed By : MC / TV
Drilling Method : Sonic/ HQ Diamond Latitude : 1759345
Drilling Contractor : Prodrill Ltd Longitude : 5453679

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
6.5			-	Completely weathered, light brown, fine to coarse GREYWACKE SANDSTONE. Extremely weak, highly fractured, closely to very closely spaced, planar, rough to smooth, tight joints. Heavy iron staining along joints.						4/6//10/10/11/10 N=41			Switched to HQ rotary drilling.
7.0			-	Highly to moderately weathered, brown with black staining, fine to coarse GREYWACKE SANDSTONE. Very weak, moderately to highly fractured, closely spaced, planar, rough to smooth, tight joints. Heavy iron staining on joint faces. 6.7 m - Becomes fragmented, extremely weak.									
7.5			-	Completely weathered, light brown, fine to coarse GREYWACKE SANDSTONE. Extremely weak, highly fractured, closely to very closely spaced, planar, rough to smooth, tight joints. Heavy iron staining along joints.						2/2//3/4/6/5 N=18			
8.0			-										
8.5			-	8.4 m to 9.0 m - No Recovery	NR								
9.0			-	Highly weathered, brown with black staining, fine to coarse GREYWACKE SANDSTONE. Very weak, moderately to highly fractured, closely spaced, planar, rough to smooth, tight joints. Heavy iron staining on joint faces.						4/4//7/7/9/10 N=33			
9.5			-	Moderately weathered, light brown with black staining, fine to coarse GREYWACKE SANDSTONE. Very weak, highly fractured to fragmented, very closely spaced, planar, rough to smooth, orthogonally jointed, tight joints.									
10.0			-										
10.5			-	Completely weathered, light brown, fine to coarse GREYWACKE SANDSTONE. Extremely weak, highly fractured, closely to very closely spaced, planar, rough to smooth, tight joints. Heavy iron staining along joints.						1/2//2/2/4/4 N=12			
11.0			-										
11.5			-	Moderately weathered, light brown with black staining, fine to coarse GREYWACKE SANDSTONE. Weak, highly fractured to fragmented, very closely spaced, planar, rough to smooth, orthogonally jointed, tight joints.									
12.0			-	11.7 m to 12.0 m - No Recovery	NR								

Borehole met target depth of 19.5m.

Standing ground water was not recorded during drilling.

Moisture content was not recorded due to use of drilling fluid

TS = TOPSOIL

* Refers to inferred consistency based on diagnostic features and NZGS guidelines.



LOG OF BORING BH09

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments Core Diameter : 83 mm/ 63 mm
Date : 16/09/2025 Hammer Efficiency : 88.2 %
Hole Depth : 15.08 m Logged By/Reviewed By : MC / TV
Drilling Method : Sonic/ HQ Diamond Latitude : 1759345
Drilling Contractor : Prodrill Ltd Longitude : 5453679

Depth (m BGL)	Material	Sample Type	USCS Symbol	DESCRIPTION	Log Symbol	Elevation (mRL)	Water Level	Moisture	Consistency/ Density Index	SPT N-Value	Torvane Shear (kPa)	Total Core Recovery (%)	Notes
12.5	GREYWACKE SANDSTONE		-	Moderately weathered, light brown with black staining, fine to coarse GREYWACKE SANDSTONE. Weak to moderately strong, highly fractured to fragmented, very closely spaced, planar to undulating, rough to smooth, tight joints.						8/14/20/25/5 N=50+ for 5 mm		25 50 75	
13.0													
13.5				13.4 m - becomes strong.						50 N=50+ for 70 mm			
14.0				14.0 m - Dominant joint angles 25° - 45°									
14.5													
15.0										42/8 N=50+ for 80 mm			

End of Hole Depth: 15.08 m
Termination: Target depth

Borehole met target depth of 19.5m.

Standing ground water was not recorded during drilling.

Moisture content was not recorded due to use of drilling fluid

TS = TOPSOIL

* Refers to inferred consistency based on diagnostic features and NZGS guidelines.



APPENDIX 5:

Test Pit Logs



LOG OF TEST PIT TP01

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 23/04/24
Max Test Pit Depth : 4.2 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454287
Longitude : 1758313

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remoulded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.5	T		SM	[TOPSOIL] Silty fine to coarse SAND with minor rootlets; light orange brown. Uniformly Graded.					Very loose to loose		
1.0			SP	Fine to medium SAND with some silt; brownish orange. Uniformly Graded.							
1.5			SP	Fine to medium SAND with some silt; brownish orange, mottled pale grey. Poorly graded (f).		73		M			
2.0			SP			72			Loose to medium dense		
2.5			SP	Fine to medium SAND with minor silt; orange. Uniformly Graded.		71			Medium dense to dense		
3.0			SP						Dense		
3.5			SP	Fine to medium SAND with minor silt and trace organics; grey, some orange brown mottling, speckled black. Poorly graded (f). Organics are fibrous.		70		W	N/A		
4.0											
4.5				Depth of Excavation: 4.2 m Termination Condition: Target depth							
5.0											



Bucket excavator met target depth at 4.2 m.
Scala Penetrometer met practical refusal at 2.7 m depth.
Standing groundwater was not encountered.
T = Topsoil, M = Moist, W = Wet

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP02

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 29/04/24
Max Test Pit Depth : 5.1 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454203
Longitude : 1758238

Depth (m BGL)	Material	Excavatability (Relative Scale)	Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remoulded (kPa)	Scala Penetrometer Blows per 100mm
												2 4 6 8 10 12
	TS			ML	[TOPSOIL] SILT with some sand with trace rootlets; dark brown. Low plasticity; sand is fine.				D	Firm		
0.5	LOESS			SW	Fine to coarse SAND with some silt; light brown, mottled light grey, speckled red brown. Well graded.		70		M	Medium dense		
1.0												
1.5	L/A			SM	Silty fine to medium SAND; light grey, mottled light reddish brown, speckled white. Well graded.							
2.0							69					
2.5				SW	Fine to coarse SAND with some silt; light bluish grey, mottled reddish brown, speckled black. Well graded.					Medium dense		
3.0					2.4 m - becomes dark bluish grey.							
3.5							68					
4.0									W	Medium Dense to Dense		
4.5							67					
5.0				-	Completely weathered, light bluish grey, mottled dark orange brown, speckled black, GREYWACKE SANDSTONE recovered as: Gravelly fine to coarse SAND with some silt and minor cobbles. Well graded; gravel and cobbles are fine to coarse, extremely weak to very weak, subangular to subrounded.		66			N/A		



Bucket excavator met target depth at 5.1 m.
Scala Penetrometer met practical refusal at 3.5 m depth.
Standing groundwater was not encountered.

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.

TS = Topsoil, GWS = Greywacke Sandstone, L/A = Lacustrine/Alluvium, D = Dry, M = Moist, W = Wet



LOG OF TEST PIT TP02

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 29/04/24
Max Test Pit Depth : 5.1 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454203
Longitude : 1758238

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
	Easier	Harder									2 4 6 8 10 12
5.5				Depth of Excavation: 5.1 m Termination Condition: Target depth							
6.0											
6.5											
7.0											
7.5											
8.0											
8.5											
9.0											
9.5											
10.0											



Bucket excavator met target depth at 5.1 m.
Scala Penetrometer met practical refusal at 3.5 m depth.
Standing groundwater was not encountered.

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.

TS = Topsoil, GWS = Greywacke Sandstone, L/A = Lacustrine/Alluvium, D = Dry, M = Moist, W = Wet



LOG OF TEST PIT TP03

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 23/04/24
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454358
Longitude : 1758171

Depth (m BGL)	Material	Excavatability (Relative Scale)	Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
												2 4 6 8 10 12
	T			SP	[TOPSOIL] Silty fine to medium SAND with trace rootlets; orange brown. Poorly graded (f).					Very loose		
0.5				SP	Fine to coarse SAND with some silt and trace organics; brownish orange. Uniformly graded (fm).					Medium dense		
1.0				SM	Silty fine SAND; light grey, mottled light brownish orange. Poorly graded.		70			Medium dense		
1.5												
2.0					Fine to medium SAND with some silt; light brownish orange. Poorly graded.		69		M			
2.5												
3.0				SP			68			Medium dense to dense		
3.5												
4.0					Depth of Excavation: 4 m Termination Condition: Target depth		67					
4.5												
5.0												



Bucket excavator met target depth at 4 m.
Scala Penetrometer met practical refusal at 3.3 m depth.
Standing groundwater was not encountered.
T = Topsoil, M = Moist

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP04

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 23/04/24
Max Test Pit Depth : 4.3 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454238
Longitude : 1758119

Depth (m BGL)	Material	Excavatability (Relative Scale)	Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
												2 4 6 8 10 12
0.5	T			SP	[TOPSOIL] Fine to medium SAND with some silt and trace rootlets; brown, mottled brownish orange. Poorly graded.					Loose		
1.0	LOESS			SP	Fine to medium SAND with minor silt; brownish orange. Poorly graded. 0.7 m - Becomes light greyish brown.		61			Medium dense		
1.5					1.5 m - Becomes silty with brownish orange mottling				M			
2.0				-	Completely weathered, brownish orange, GREYWACKE SANDSTONE recovered as: Gravelly fine to coarse SAND. Well graded; gravel is fine to coarse, subangular to rounded, extremely weak to weak, moderately weathered.		60			Medium dense to dense		
2.5	GREYWACKE SANDSTONE			-	2 m - With some gravel and becomes light grey, mottled brown orange.							
3.0					Completely weathered, light grey, mottled greenish grey, GREYWACKE SANDSTONE recovered as: Fine to medium SAND with some silt.		59					
3.5				-	Well-graded. 3.5 m - With trace silt and grey mottled brownish orange.		58		W	N/A		
4.0												
4.5					Depth of Excavation: 4.3 m Termination Condition: Target depth							
5.0												



Bucket excavator met target depth at 4.3 m.
Scala Penetrometer met practical refusal at 2.8 m depth.
Standing groundwater was not encountered.
T = Topsoil, M = Moist, W = Wet

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP05

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 23/04/24
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454078
Longitude : 1758108

Depth (m BGL)	Material	Excavatability (Relative Scale)	Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remoulded (kPa)	Scala Penetrometer Blows per 100mm
		Easier										2 4 6 8 10 12
0.5	TS			SM	[TOPSOIL] Silty fine to coarse SAND with trace rootlets; dark pinkish brown. Well graded.				D	Loose		
1.0				SM	Silty fine SAND; light grey, mottled pinkish brown, stained orange. Uniformly graded.		71					
1.5	LOESS			SM	Silty fine to medium SAND; light orange brown, speckled black and white. Poorly graded.					Medium dense		
2.0				SM	Silty fine SAND; light grey, mottled orange brown. Uniformly graded.		70		M	Dense		
2.5					Completely weathered, light brownish orange, speckled black, GREYWACKE SANDSTONE recovered as: Fine to coarse SAND. Poorly graded (fm).		69					
3.0	GREYWACKE SANDSTONE			-						N/A		
3.5												
4.0							68					
4.5					Depth of Excavation: 4 m Termination Condition: Target depth							
5.0												



Bucket excavator met target depth at 4 m.
Scala Penetrometer met practical refusal at 2.5 m depth.
Standing groundwater was not encountered.
TS = Topsoil, M = Moist, D = Dry

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP06

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 23/04/24
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454056
Longitude : 1757903

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.5	TS		SM	[TOPSOIL] Silty fine to medium SAND with trace rootlets; dark brown. Poorly graded.					Loose		
1.0			SM	Completely weathered, greyish orange brown, GREYWACKE SANDSTONE recovered as: Silty fine to medium SAND with trace gravels. Well graded; gravel is fine to medium, angular to subangular, extremely weak.		60			Medium dense		
1.5			-	Completely to highly weathered, orange-brown, mottled light grey, speckled dark brown, GREYWACKE recovered as: Sandy SILT with some gravel. Low plasticity; sand is fine to coarse; gravel is fine to coarse, angular to subangular, extremely weak to very weak.		59			Stiff to Very Stiff		
2.0				1.3 m - Becomes orange-brown mottled pinkish grey.				M			
2.5				Highly to moderately weathered, orange-brown, mottled light grey and dark brown, GREYWACKE SANDSTONE. Very weak to weak; smooth, undulating and rough fractures.		58			N/A		
3.0				2.4 m - Becomes moderately weathered.		57					
4.0				Depth of Excavation: 4 m Termination Condition: Target depth							
4.5											
5.0											



Bucket excavator met target depth at 4 m.
Scala Penetrometer met practical refusal at 1.8 m depth.
Standing groundwater was not encountered.
TS = Topsoil, M = Moist

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP07

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 29/04/24
Max Test Pit Depth : 4.5 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454502
Longitude : 1758480

Depth (m BGL)	Material	Excavatability (Relative Scale)	Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
	TS			ML	[TOPSOIL] SILT with some sand and trace rootlets; dark brown. Low plasticity; sand is fine.				D	Firm		
0.5					Fine to coarse SAND with some silt; light brown, mottled light brownish grey. Well graded. Minor red staining noted.		96			Medium Dense		
1.0												
1.5												
2.0				SW	2 m - Becomes greenish brown mottled light grey.		95		M			
2.5												
3.0							94			Dense		
3.5												
4.0							93					
4.5					Depth of Excavation: 4.5 m Termination Condition: Target depth							
5.0												



Bucket excavator met target depth at 4.5 m.
Scala Penetrometer met practical refusal at 2.5 m depth.
Standing groundwater was not encountered.
TS = Topsoil, D = Dry, M = Moist

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP08

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 29/04/24
Max Test Pit Depth : 2.6 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5453715
Longitude : 1758561

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.5	TS		ML	[TOPSOIL] SILT with some sand; dark brown. Low plasticity; sand is fine.				D	Firm		
1.0	LOESS		SM	Silty fine to medium SAND; light brown, mottled dark brown. Well graded.		135			Medium dense		
1.5			-	Completely to highly weathered, orange-brown, mottled light grey, speckled black, GREYWACKE				M	Medium dense		
2.0	GWS		-	SANDSTONE recovered as: Fine to coarse SAND with some silt and minor gravel. Well graded; gravel is fine to coarse, angular to subrounded.		134			N/A		
2.5			-	Highly to moderately weathered, light greyish brown mottled yellow brown, GREYWACKE SANDSTONE. Weak to moderately strong, highly fractured. Stained black along fractures.							
3.0				Depth of Excavation: 2.6 m Termination Condition: Practical refusal							
3.5											
4.0											
4.5											
5.0											



Bucket excavator met target depth at 2.6 m depth on rock.
Scala Penetrometer met practical refusal at 2.6 m depth.
Standing groundwater was not encountered.

TS = Topsoil, GWS = Greywacke Sandstone, D = Dry, M = Moist

Coordinates NZTM (accuracy +/- 1m).

Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP09

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 24/03/24
Max Test Pit Depth : 5.1 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454061
Longitude : 1758445

Depth (m BGL)	Material	Excavatability (Relative Scale)	Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier										2 4 6 8 10 12
0.5	TS			ML	[TOPSOIL] Sandy SILT with trace gravel; dark brown. Low plasticity; sand is fine to coarse; gravel is fine, subangular to subrounded, weak, moderately weathered, Greywacke sandstone.				D	Firm		
1.0	C			SW	Fine to coarse SAND with some silt and trace gravel; light brown orange. Well graded; gravel is fine, extremely weak.		81					
1.5	LOESS			SP	Fine to medium SAND with some silt; light brownish grey, mottled orange. Poorly graded (f).					Medium dense		
2.0					1.8 m - Becomes light grey, mottled light greyish orange.		80	W				
2.5	LOESS			SM	Silty fine to medium SAND; light brownish orange, mottled dark grey. Well graded.		79			Medium dense to dense		
3.0												
3.5	C			SM	Silty fine to medium SAND with trace gravel; brown-orange, stained black. Well graded; gravel is fine to medium, extremely weak, highly weathered, Greywacke sandstone.		78			Medium Dense		
4.0					3.5 m - Becomes light grey, mottled brown orange, speckled black and brown.							
4.5	L/A			SP	Fine to medium SAND with some silt and trace organics; bluish grey. Poorly graded (f). Organics are fibrous (sticks).		77	W		Dense		
5.0												



Bucket excavator met target depth at 5.1 m.
Scala Penetrometer met practical refusal at 3.9 m depth.
Standing groundwater was not encountered.
TS = Topsoil, GWS = Greywacke Sandstone, L/A = Lacustrine/Alluvium, C = Colluvium D = Dry, M = Moist, W = Wet

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP09

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 24/03/24
Max Test Pit Depth : 5.1 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454061
Longitude : 1758445

Depth (m BGL)	Excavatability (Relative Scale)			USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer					
	Material	Easier	Harder									Blows per 100mm					
												2	4	6	8	10	12
5.5				-	Completely weathered, light brownish orange, mottled brown, GREYWACKE SANDSTONE recovered as: Medium to coarse SAND. Uniformly graded. Depth of Excavation: 5.1 m Termination Condition: Target depth					N/A							
6.0																	
6.5																	
7.0																	
7.5																	
8.0																	
8.5																	
9.0																	
9.5																	
10.0																	



Bucket excavator met target depth at 5.1 m.
Scala Penetrometer met practical refusal at 3.9 m depth.
Standing groundwater was not encountered.
TS = Topsoil, GWS = Greywacke Sandstone, L/A = Lacustrine/Alluvium, C = Colluvium D = Dry, M = Moist, W = Wet

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP10

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 24/03/24
Max Test Pit Depth : 2.9 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5453993
Longitude : 1758609

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.5	TS		ML	[TOPSOIL] SILT with some sand and trace rootlets; dark brown. Low plasticity; sand is fine.				D	Stiff		
1.0	LOESS/COLLUVIUM		SW	Fine to medium SAND with some silt and trace gravel; light orange brown, speckled yellowish white. Well graded; gravel is fine to medium, angular to subrounded, extremely weak to weak, Greywacke sandstone.		114		M	Medium dense		
1.5				1.0 m - Becomes fine to coarse sand and light greenish grey, mottled orange brown, speckled black.					Medium Dense to dense		
2.0	GWS		-	Completely to highly weathered, light orange brown, mottled grey, GREYWACKE SANDSTONE recovered as: Fine to coarse SAND. Poorly graded (fm).		113			N/A		
2.5			-	Moderately weathered, light orange-grey, mottled light brown, GREYWACKE SANDSTONE. Very weak to moderately strong, smooth and rough undulating, orthogonal fractures.							
3.0				Depth of Excavation: 2.9 m Termination Condition: Practical refusal							
3.5											
4.0											
4.5											
5.0											



Bucket excavator met target depth at 2.9 m depth on rock.
Scala Penetrometer met practical refusal at 1.6 m depth.
Standing groundwater was not encountered.

TS = Topsoil, GWS = Greywacke Sandstone, D = Dry, M = Moist

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP11

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 23/04/24
Max Test Pit Depth : 4.3 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454140
Longitude : 1757919

Depth (m BGL)	Material	Excavatability (Relative Scale)	Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remoulded (kPa)	Scala Penetrometer Blows per 100mm
		Easier										2 4 6 8 10 12
0.5	TS			SM	[TOPSOIL] Silty fine to medium SAND with trace rootlets; orange-brown. Poorly graded (f).					Loose		
	L			SW	Fine to coarse SAND with minor silt and trace rootlets; brown orange. Well graded.					Medium dense		
1.0					Silty fine to medium SAND; greyish brown-orange. Poorly graded (f).		67					
1.5										Medium Dense		
2.0	LOESS			SM			66		M			
2.5										Dense		
3.0					Completely weathered, brownish orange, GREYWACKE SANDSTONE recovered as: Fine to coarse SAND with some gravel and minor cobbles. Well graded; gravels are fine to coarse, subangular to subrounded, extremely weak; maximum cobble size is 200 mm x 150 mm, subangular. Noted black and dark brown staining along fractures.		65			N/A		
3.5	GWS			-			64					
4.0												
4.5					Depth of Excavation: 4.3 m Termination Condition: Target depth							
5.0												



Bucket excavator met target depth at 4.3 m.
Scala Penetrometer met practical refusal at 2.7 m depth.
Standing groundwater was not encountered.

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.

TS = Topsoil, L = Loess, GWS = Greywacke Sandstone, M = Moist



LOG OF TEST PIT TP12

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 24/03/24
Max Test Pit Depth : 0.3 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454062
Longitude : 1758546

Depth (m BGL)	Material	Excavatability (Relative Scale)		USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer					
		Easier	Harder									Blows per 100mm					
	T			ML	[TOPSOIL] Sandy SILT with trace rootlets; dark brown. Low plasticity; sand is fine to coarse.					N/A		2	4	6	8	10	12
0.5	G			-	Moderately weathered, light brown, speckled black, GREYWACKE SANDSTONE. Very weak to moderately strong; rough and smooth, undulating, fractures.				D								
1.0					Depth of Excavation: 0.3 m Termination Condition: Practical refusal												
1.5																	
2.0																	
2.5																	
3.0																	
3.5																	
4.0																	
4.5																	
5.0																	



Bucket excavator met target depth at 0.3 m depth on rock.

Standing groundwater was not encountered.
T = Topsoil, G = Greywacke Sandstone, D = Dry

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP13

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 29/04/24
Max Test Pit Depth : 2.8 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5453999
Longitude : 1758809

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remoulded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.5	TS		ML	[TOPSOIL] SILT with some sand and trace rootlets; dark brown. Low plasticity; sand is fine.				D	Firm		
1.0	LOESS		ML	Sandy SILT; light bluish grey, mottled light orange-brown. Low plasticity; sand is fine.				M	Stiff to very stiff		
1.5	A		ML	Sandy SILT; light bluish grey. Low plasticity; sand is fine to medium.					Dense		
2.0	GWS		-	Completely weathered, light grey, mottled brownish orange, speckled black, GREYWACKE SANDSTONE recovered as: Fine to medium SAND with some silt. Poorly graded (f).							
2.5			-	Completely weathered, light grey, mottled orange-brown, speckled black, GREYWACKE SANDSTONE recovered as: Fine to medium SAND with some silt and trace organics. Poorly graded (f).				W	N/A		
3.0				Moderately weathered, light grey, speckled black, GREYWACKE SANDSTONE. Weak to moderately strong, highly fractured.							
3.5				Depth of Excavation: 2.8 m Termination Condition: Practical refusal							
4.0											
4.5											
5.0											



Bucket excavator met target depth at 2.8 m depth on rock.
Scala Penetrometer met practical refusal at 1.7 m depth.
Standing groundwater was not encountered.

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.

T = Topsoil, GWS = Greywacke Sandstone, A = Alluvium, L = Loess, D = Dry, M = Moist, W = Wet



LOG OF TEST PIT TP14

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 24/03/24
Max Test Pit Depth : 2.8 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5453824
Longitude : 1757933

Depth (m BGL)	Material	Excavatability (Relative Scale)	Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remoulded (kPa)	Scala Penetrometer Blows per 100mm
		Easier										2 4 6 8 10 12
0.5	TS			ML	[TOPSOIL] Sandy SILT with minor gravel and trace rootlets; dark brown. Low plasticity; sand is fine to coarse; gravel is fine to coarse, subangular to subrounded, very weak, highly to moderately weathered, Greywacke sandstone.				D	Firm		
	C			ML					M	Stiff		
1.0	L/C			SW	Sandy SILT with minor gravel; light brownish grey, speckled black. Low plasticity; sand is fine to coarse; gravel is fine to coarse, subangular to subrounded, very weak, highly to moderately weathered, Greywacke sandstone		43			Loose to Medium Dense		
1.5	A			SM	Fine to medium SAND with some silt and trace gravel; light grey, mottled brownish orange. Well graded; gravel is fine to medium, extremely weak, highly to moderately weathered.				W	Dense		
2.0	GWS			-	Silty fine SAND with trace gravels; light greenish grey, mottled orange-brown. Uniformly graded; gravel is fine, angular to subangular.		42			N/A		
2.5					Highly to moderately weathered, brown-orange, mottled grey, GREYWACKE SANDSTONE. Very weak to moderately strong; highly fractured. 2.1 m - Becomes moderately weathered and light grey mottled orange-brown.							
3.0					Depth of Excavation: 2.8 m Termination Condition: Practical refusal							
3.5												
4.0												
4.5												
5.0												



Bucket excavator met target depth at 2.8 m depth on rock.
Scala Penetrometer met practical refusal at 2.5 m depth.
Standing groundwater was not encountered.

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.

TS = Topsoil, GWS = Greywacke sandstone, A = Alluvium, C = Colluvium, L = Loess, D = Dry, M = Moist, W = Wet



LOG OF TEST PIT TP15

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 24/03/24
Max Test Pit Depth : 2.9 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5453785
Longitude : 1758180

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.5	TS		ML	[TOPSOIL] Sandy SILT with trace gravels; dark brown. Low plasticity; sand is fine to coarse; gravel is fine, subangular to subrounded, moderately strong, moderately weathered, Greywacke sandstone.					Soft to firm		
1.0	LOESS		SP	Fine to medium SAND with some silt; light brown, mottled light greyish brown. Poorly graded (f).		62		M	Loose to Medium Dense		
1.5			SP	Fine to medium SAND with some silt; dark brown, mottled light brown and grey. Poorly graded (fm).					Medium dense		
2.0			-	Completely weathered, light grey, mottled orange-brown, GREYWACKE SANDSTONE recovered as: Fine to medium SAND with minor silt and trace gravel. Well graded; gravel is fine, angular to subangular, extremely weak to weak, highly to moderately weathered.		61			Medium dense		
2.5	GWS		-	Moderately weathered, brown-orange, mottled grey, stained black, GREYWACKE SANDSTONE. Very weak to moderately strong; smooth undulating fractures.				W	N/A		
3.0				Depth of Excavation: 2.9 m Termination Condition: Practical refusal							
3.5											
4.0											
4.5											
5.0											



Bucket excavator met target depth at 2.9 m depth on rock.
Scala Penetrometer met practical refusal at 2.7 m depth.
Standing groundwater was not encountered.

TS = Topsoil, GWS = Greywacke Sandstone, M = Moist, W = Wet

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP17

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 29/04/24
Max Test Pit Depth : 2.5 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454307
Longitude : 1758596

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.5	TS		ML	[TOPSOIL] SILT with some sand and trace rootlets; dark brown. Low plasticity; sand is fine.				D	Firm		
1.0	L/A		ML	Sandy SILT with trace organics; light grey, mottled dark grey and dark brown. Low plasticity; sand is fine to medium.					Firm to stiff		
1.5			-	Completely weathered, grey, mottled orange-brown, GREYWACKE SANDSTONE recovered as: Sandy SILT. Low plasticity; sand is fine to medium.		95		M	Stiff		
2.0	GWS		-	Highly to moderately weathered, light bluish grey, mottled orange-brown, speckled black, GREYWACKE SANDSTONE. Weak to moderately strong; smooth and rough, undulating, fractures.		94			N/A		
2.5				Depth of Excavation: 2.5 m Termination Condition: Practical refusal							
3.0											
3.5											
4.0											
4.5											
5.0											



Bucket excavator met target depth at 2.5 m depth on rock.
Scala Penetrometer met practical refusal at 2.8 m depth.
Standing groundwater was not encountered.

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.

TS = Topsoil, GWS = Greywacke Sandstone, L/A = Lacustrine/Alluvial D = Dry, M = Moist



LOG OF TEST PIT TP18

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 29/04/24
Max Test Pit Depth : 4.7 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454244
Longitude : 1758515

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remoulded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.5	TS		ML	[TOPSOIL] SILT with some sand and trace organics; dark brown. Low plasticity; sand is fine.				D	Firm		
1.0			SW	Fine to coarse SAND with some silt; light brown, mottled light brownish grey. Well graded.		96			Loose to medium dense		
1.5	LOESS										
2.0			ML	Sandy SILT; light grey, mottled brown. Low plasticity; sand is fine.		95			Stiff		
2.5								M			
3.0			-	Completely weathered, light greyish brown, mottled light brown, GREYWACKE recovered as: SILT with some sand. Low plasticity; sand is fine.		94			Hard		
3.5	GWS										
4.0			-	Highly to moderately weathered, light grey, mottled orange-brown, speckled black, GREYWACKE SANDSTONE. Weak to moderately strong; rough and smooth, undulating, orthogonal fractures.		93			N/A		
4.5											
5.0				Depth of Excavation: 4.7 m Termination Condition: Target depth							



Bucket excavator met target depth at 4.7 m.
Scala Penetrometer met practical refusal at 2.8 m depth.
Standing groundwater was not encountered.
TS = Topsoil, GWS = Greywacke Sandstone, D = Dry, M = Moist

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP19

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay, Porirua
19796.000.001

Client : Classic Developments NZ
Date : 24/03/24
Max Test Pit Depth : 2 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 900 mm

Shear Vane No : N/A
Logged By : KAJJ + CW
Reviewed By : HB
Latitude : 5454039
Longitude : 1758555

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.5	TS		ML	[TOPSOIL] SILT with some sand and trace rootlets; dark brown. Low plasticity; sand is fine.					Firm		
1.0	LOESS		SW	Fine to medium SAND with some silt; light greyish brown, mottled orange-brown, speckled black. Well graded.		96		D	Medium Dense to Dense		
1.5	GWS		-	Highly to moderately weathered, light greyish brown, mottled orange-brown, GREYWACKE SANDSTONE. Very weak to weak; rough and smooth, undulating, orthogonal fractures.		95			N/A		
2.0				Depth of Excavation: 2 m Termination Condition: Practical refusal							
2.5											
3.0											
3.5											
4.0											
4.5											
5.0											



Bucket excavator met target depth at 2 m depth on rock.
Scala Penetrometer met practical refusal at 2.1 m depth.
Standing groundwater was not encountered.
TS = Topsoil, GWS = Greywacke Sandstone, D = Dry

Coordinates NZTM (accuracy +/- 1m).
Elevation datum NZVD2016 sourced from 2023 Porirua LiDAR, LINZ.



LOG OF TEST PIT TP20

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.050489
Longitude : 174.890069

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
	TOPSOIL		ML	Sandy SILT, dark brown. Low plasticity; sand is fine to medium. Rootlets.							
0.5			SM	Silty fine to medium SAND, light yellowish brown. Poorly graded.							
1.0	LOESS/COLLUVIUM		SP	Fine to medium SAND with minor silt, light yellowish brown. Poorly graded. Contains some silt lenses up to 50 mm thick			M		Loose		
1.5											
2.0									Medium dense		

Testpit met target depth at 4 m.
Scala Penetrometer met target depth at 3.9 m.

LOG OF TEST PIT TP20

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.050489
Longitude : 174.890069

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
2.5											
3.0											
3.5											
4.0											



Depth of Excavation: 4 m
Termination Condition: Target depth



Testpit met target depth at 4 m.
Scala Penetrometer met target depth at 3.9 m.



LOG OF TEST PIT TP21a

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 2.4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0513337
Longitude : 174.8911917

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.5	TOPSOIL		ML	Sandy SILT, dark brown. Low plasticity; sand is fine. Rootlets.				M			
			ML	Sandy SILT, light grey. Low plasticity; sand is fine to medium.				Very soft			
1.0	ALLUVIUM		GM	Sandy silty fine to medium GRAVEL, light grey and dark grey. Poorly graded; subangular to subrounded, Greywacke sandstone; sand is fine to coarse. High organic content, At 1.2 m depth a buried tree with trunk thickness of 200 mm.				W	Very loose		
1.5									Medium dense		
2.0	GS			Highly weathered, light yellowish brown, massive, Greywacke SANDSTONE, very weak, very closely spaced tight defects.				M			
2.5	Depth of Excavation: 2.4 m Termination Condition: Target depth										
3.0											



Testpit met target depth at 2.4 m.
Scala Penetrometer met practical refusal at 1.9 m depth.
GS - Greywacke sandstone
West most side of TP

West most side of TP



LOG OF TEST PIT TP21b

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 2.4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0513337
Longitude : 174.8911917

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.0	TOPSOIL		ML	Sandy SILT, dark brown. Low plasticity; sand is fine. Rootlets.							
0.5			ML	Sandy SILT with some gravel, light brown. Low plasticity; sand is fine to coarse; gravel is fine to medium, angular to subangular, Greywacke sandstone				M	Very soft		
1.0	ALLUVIUM COLLUVIUM		GW	Fine to coarse GRAVEL with some sand and silt, light yellowish brown. Well graded, angular to subangular Greywacke sandstone; sand is fine to coarse.					Very loose		
1.5								W	Medium dense		
2.0									Dense		
2.5	GS			Highly weathered, light yellowish brown, massive, Greywacke SANDSTONE, very weak, very closely spaced tight defects. Depth of Excavation: 2.4 m Termination Condition: Target depth				M			
3.0											



Testpit met target depth at 2.4 m.
Scala Penetrometer met practical refusal at 1.9 m depth.
GS - Greywacke sandstone
East most side of TP

East most side of TP

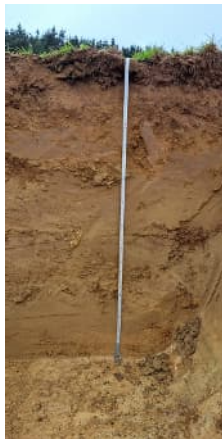
LOG OF TEST PIT TP22

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 1.4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0462408
Longitude : 174.8898959

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.0	TOPSOIL		ML	Sandy SILT, dark brown. Low plasticity; sand is fine to medium. Rootlets.					Soft		
0.5	LOESS/COLLUVIUM		ML	Sandy SILT, brown. Low plasticity; sand is fine to medium.					Firm		
1.0			ML	SILT with some sand, greyish brown. Low plasticity; sand is fine to medium.				M	Very stiff	182	
1.5	GS			Highly weathered, light yellowish brown, massive, Greywacke SANDSTONE, very weak, very closely spaced tight defects.							
2.0				Depth of Excavation: 1.4 m Termination Condition: Target depth							



Testpit met target depth at 1.4 m.
Scala Penetrometer met practical refusal at 1.2 m depth.
GS - Greywacke sandstone



LOG OF TEST PIT TP23

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0474123
Longitude : 174.8908813

Depth (m BGL)	Material	Excavatability (Relative Scale)	Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm 2 4 6 8 10 12
	TOP SOIL			ML	Sandy SILT, dark brown. Low plasticity; sand is fine to medium. Rootlets.					Very soft		
0.5				SM	Silty fine to medium SAND, light yellowish brown. Poorly graded.					Loose		
1.0	LOESS/ COLLUVIUM			ML	Sandy SILT, light brown. Low plasticity; sand is fine to medium.							
1.5				SP	Fine to medium SAND with some silt, light yellowish brown. Poorly graded.					Medium dense		
2.0												

Testpit met target depth at 4 m.
Scala Penetrometer met practical refusal at 3.5 m depth.



LOG OF TEST PIT TP23

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0474123
Longitude : 174.8908813

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
2.5	LOESS/ COLLUVIUM		SP	Fine to medium SAND with some silt, light yellowish brown. Poorly graded.					Medium dense		
3.0				Fine to medium SAND with some silt and gravel, light brown. Poorly graded; gravel is fine to medium, angular to subangular.				M			
3.5	COLLUVIUM		SP						Dense		
4.0											>>



Depth of Excavation: 4 m
Termination Condition: Target depth



Testpit met target depth at 4 m.
Scala Penetrometer met practical refusal at 3.5 m depth.

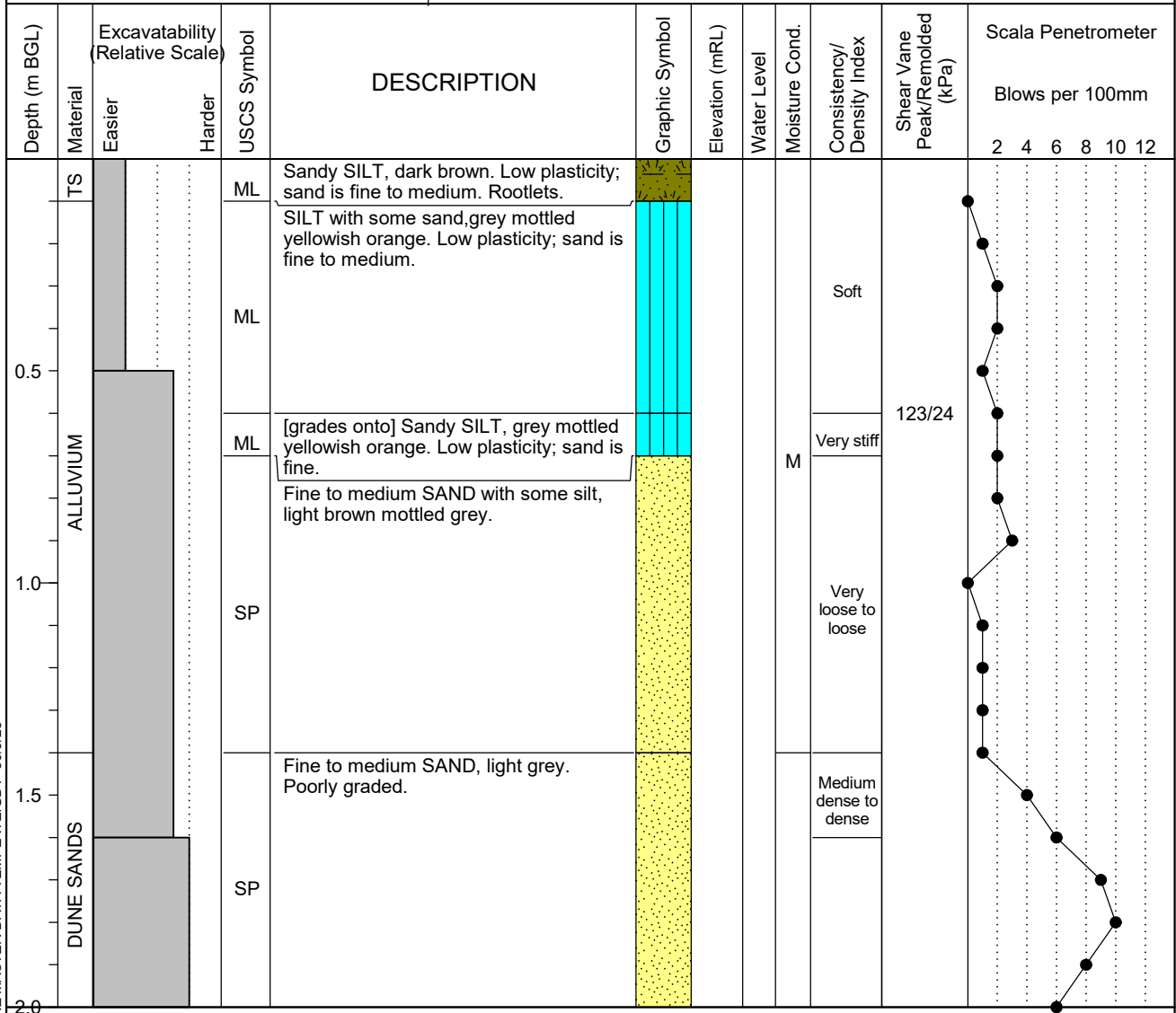


LOG OF TEST PIT TP24

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0458456
Longitude : 174.8927872



Testpit met target depth at 4 m.
Scala Penetrometer met target depth at 3.9 m.
TS = Topsoil, DS = Dune sands



LOG OF TEST PIT TP24

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0458456
Longitude : 174.8927872

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
	DUNE SANDS		SP	Fine to medium SAND, light grey. Poorly graded.							
2.5											
	COLLUVIUM		SM	Silty gravelly fine to coarse SAND, light yellowish brown. Well graded; gravel is fine to coarse, angular, Greywacke sandstone. At 3.2 m becomes light grey; gravel is fine, poorly graded.							
3.0											
3.5											
	DS		SP	Fine to medium SAND, dark grey. Poorly graded.							
4.0											



Depth of Excavation: 4 m
Termination Condition: Target depth



Testpit met target depth at 4 m.
Scala Penetrometer met target depth at 3.9 m.
TS = Topsoil, DS = Dune sands

LOG OF TEST PIT TP25

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 1.4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0460158
Longitude : 174.8954784

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.0	TOP SOIL			Sandy SILT, dark brown. Low plasticity; sand is fine. Rootlets.					Soft		
0.5	LOESS/COLLUVIUM		ML	Sandy SILT, light yellowish brown. Low plasticity; sand is fine.					Firm		
1.0			ML	SILT with some sand, light yellowish brown. Low plasticity; sand is fine.				M	Very Stiff	110	
1.5	GW		>>	Highly weathered, light yellowish brown, massive, Greywacke SANDSTONE, very weak, very closely spaced tight defects.							
2.0	Depth of Excavation: 1.4 m Termination Condition: Target depth										



Testpit met target depth at 1.4 m.
Scala Penetrometer met practical refusal at 1.1 m depth.
GS - Greywacke sandstone



LOG OF TEST PIT TP26

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 3.4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.048008
Longitude : 174.8955083

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
	TOPSOIL			Sandy SILT, dark brown. Low plasticity; sand is fine. Rootlets.					Soft		
0.5				Sandy SILT, light yellowish brown. Low plasticity; sand is fine to medium.					Firm		
1.0	LOESS/COLLUVIUM							M		91/24	
1.5				Sandy SILT, light brown. Low plasticity; sand is fine to coarse.					Firm to stiff		
2.0											

Testpit met target depth at 3.4 m.
Scala Penetrometer met practical refusal at 3.2 m depth.
GS - Greywacke sandstone

LOG OF TEST PIT TP26

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 3.4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.048008
Longitude : 174.8955083

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
	LOESS/COLLUVIUM		ML	Sandy SILT, light brown. Low plasticity; sand is fine to coarse.					Firm to stiff		
2.5			ML	Sandy SILT with some gravel, light yellowish brown. Low plasticity; sand is fine to coarse; gravel is fine to medium, angular to subangular, Greywacke sandstone				M	Hard		
3.0	GW		>>	Highly weathered, light yellowish brown, massive, Greywacke SANDSTONE, very weak, very closely spaced tight defects.				D			
3.5	Depth of Excavation: 3.4 m Termination Condition: Target depth										
4.0											



Testpit met target depth at 3.4 m.
Scala Penetrometer met practical refusal at 3.2 m depth.
GS - Greywacke sandstone



LOG OF TEST PIT TP27

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 2.5 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0493399
Longitude : 174.8956281

Depth (m BGL)	Material	Excavatability (Relative Scale)		USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer					
		Easier	Harder									Blows per 100mm					
												2	4	6	8	10	12
0.5																	
1.0																	
1.5																	
2.0																	
2.5																	
3.0																	



Scala Penetrometer met practical refusal at 2.5 m depth.



LOG OF TEST PIT TP28

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0492526
Longitude : 174.894509

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
	TOP SOIL							M	Firm		
0.5			ML	Sandy SILT, dark brown. Low plasticity; sand is fine. Rootlets.							
			ML	Sandy SILT, light yellowish brown. Low plasticity; sand is fine.							
1.0	LOESS/COLLUVIUM		ML	SILT with some sand, light yellowish brown. Low plasticity; sand is fine.				D	Very stiff to hard	159/32	
1.5			ML	SILT, light yellowish brown. Low plasticity.					Firm		
2.0			ML	Sandy SILT, light yellowish brown. Low plasticity; sand is fine.					Stiff to very stiff		

Testpit met target depth at 4 m.
Scala Penetrometer met practical refusal at 3.2 m depth.
RS = Residual soil



LOG OF TEST PIT TP28

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0492526
Longitude : 174.894509

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
2.5	LOESS/COLLUVIUM			Sandy SILT, light yellowish brown. Low plasticity; sand is fine.					Stiff to very stiff		
3.0									Hard		
3.5	RS			SILT with some sand, light yellowish brown. Low plasticity; sand is fine.				M			
4.0											

Depth of Excavation: 4 m
Termination Condition: Target depth



Testpit met target depth at 4 m.
Scala Penetrometer met practical refusal at 3.2 m depth.
RS = Residual soil



LOG OF TEST PIT TP29

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0485182
Longitude : 174.8924923

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
	TS		ML	Sandy SILT, dark brown. Low plasticity; sand is fine to medium. Rootlets.					Soft		
0.5			SP	Fine to medium SAND, light yellowish brown. Poorly graded.							
1.0	ALLUVIUM		SM	Silty fine to medium SAND, light yellowish brown. Poorly graded.				M	Loose		
1.5											
2.0			GW	Sandy fine to coarse GRAVEL with some silt, light yellowish brown. Well graded, angular, Greywacke sandstone; sand is fine to coarse.					Loose to medium dense		

Testpit met target depth at 4 m.
Scala Penetrometer met practical refusal at 3.7 m depth.
TS = Topsoil

LOG OF TEST PIT TP29

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0485182
Longitude : 174.8924923

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
2.5	ALLUVIUM/COLLUVIUM		GW	Sandy fine to coarse GRAVEL with some silt, light yellowish brown. Well graded, angular, Greywacke sandstone; sand is fine to coarse.				M	Loose to medium dense		
			ML	Sandy SILT, light brown. Low plasticity; sand is fine.					Firm to very stiff		
3.0			GW	Sandy fine to coarse GRAVEL with some silt, light yellowish brown. Well graded, angular, Greywacke sandstone; sand is fine to coarse.					Medium dense		
3.5			MH	SILT with some sand and clay with trace gravel; reddish orange. High plasticity; sand is fine to medium, gravel is fine, angular, Greywacke sandstone					Very Stiff		
4.0											>>



Depth of Excavation: 4 m
Termination Condition: Target depth



Testpit met target depth at 4 m.
Scala Penetrometer met practical refusal at 3.7 m depth.
TS = Topsoil



LOG OF TEST PIT TP30

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 1.2 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0497028
Longitude : 174.8934838

Depth (m BGL)	Material	Excavatability (Relative Scale)		USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer					
		Easier	Harder									Blows per 100mm					
												2	4	6	8	10	12
0.5																	
1.0																	
1.5																	
2.0																	



Scala Penetrometer met practical refusal at 1.2 m depth.



LOG OF TEST PIT TP31

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 2.9 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0495791
Longitude : 174.8963623

Depth (m BGL)	Material	Excavatability (Relative Scale)		USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm					
		Easier	Harder									2	4	6	8	10	12
0.5																	
1.0																	
1.5																	
2.0																	
2.5																	
3.0																	



Scala Penetrometer met practical refusal at 2.9 m depth.

LOG OF TEST PIT TP32

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 0.9 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0515658
Longitude : 174.8957004

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
	TS		ML	Sandy SILT, dark brown. Low plasticity; sand is fine. Rootlets.					Soft		
	LOESS/COLLUVIUM		ML	Sandy SILT, light yellowish brown. Low plasticity; sand is fine to medium.				M	Hard	182	
0.5	RS		ML	Sandy SILT with minor gravel, light yellowish brown. Low plasticity; sand is fine to coarse; gravel is fine angular, Greywacke Sandstone.							
	GW			Highly weathered, light yellowish brown, massive, Greywacke SANDSTONE, very weak, very closely spaced tight defects.							
1.0				Depth of Excavation: 0.9 m Termination Condition: Target depth							
1.5											
2.0											



Testpit met target depth at 0.9 m.
 Scala Penetrometer met practical refusal at 1.8 m depth.
 TS = Topsoil, RS = Residual Soil, GS = Greywacke sandstone



LOG OF TEST PIT TP33

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 1 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0513523
Longitude : 174.8943747

Depth (m BGL)	Material	Excavatability (Relative Scale)		USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm					
		Easier	Harder									2	4	6	8	10	12
0.5																	
1.0																	
1.5																	
2.0																	
Scala Penetrometer met practical refusal at 1 m depth.																	

GEOTECH TEST PIT LOG - LUCUS BLOCK AND DAM INVESTIGATION.GPJ - NZ MASTER DATA TEMPLATE.GDT - 30/9/25



LOG OF TEST PIT TP34

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 2.6 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0528847
Longitude : 174.8941794

Depth (m BGL)	Material	Excavatability (Relative Scale)		USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm					
		Easier	Harder									2	4	6	8	10	12
0.5																	
1.0																	
1.5																	
2.0																	
2.5																	
3.0																	

Scala Penetrometer met practical refusal at 2.6 m depth.



LOG OF TEST PIT TP35

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 2.5 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0526745
Longitude : 174.8965455

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.0	TOP SOIL		ML	Sandy SILT, dark brown. Low plasticity; sand is fine. Rootlets.					Soft		
0.5	LOESS/COLLUVIUM		ML	Sandy SILT, light yellowish brown. Low plasticity; sand is fine to medium.						68/15	
1.0			ML						Very stiff		
1.5			ML	SILT with some sand, light yellowish brown. Low plasticity; sand is fine.				M		182+	
2.0	GS			Completely weathered Greywacke SANDSTONE recovered as: Silty fine to coarse SAND, light yellowish brown with black striations. Well graded.							
2.5				Depth of Excavation: 2.5 m Termination Condition: Target depth							
3.0											



Testpit met target depth at 2.5 m.
Scala Penetrometer met practical refusal at 2.5 m depth.
GS - Greywacke sandstone



LOG OF TEST PIT TP36

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 2.5 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0489584
Longitude : 174.8830466

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.5	TOPSOIL		ML	Sandy SILT, dark brown. Low plasticity; sand is fine to medium. Rootlets.					Very soft		
			ML	SILT with some sand and minor gravel, light grey mottled light yellowish brown. Sand is fine to coarse; gravel is fine, angular to subangular. Rootlets.					Soft		
1.0	COLLUVIUM		SP	Fine to medium SAND with minor silt, grey. Poorly graded. Organic fragments.				M	Firm	102/23	
1.5			GW	Sandy fine to coarse GRAVEL with minor silt and cobble, blue grey. Well graded; angular, greywacke sandstone; sand is fine to coarse; Cobble angular, Greywacke Sandstone. Organic Fragments.					Medium dense		
2.0	GS		>>	Highly weathered, light yellowish brown, massive, Greywacke SANDSTONE, very weak, very closely spaced tight defects.					Dense to very dense		

Hand auger met practical refusal at 2.5 m.
Scala Penetrometer met practical refusal at 1.6 m depth.
GS - Greywacke sandstone



LOG OF TEST PIT TP36

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 2.5 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0489584
Longitude : 174.8830466

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
2.5	GS			Highly weathered, light yellowish brown, massive, Greywacke SANDSTONE, very weak, very closely spaced tight defects.				M			
3.0											
3.5											
4.0											



Hand auger met practical refusal at 2.5 m.
Scala Penetrometer met practical refusal at 1.6 m depth.
GS - Greywacke sandstone



LOG OF TEST PIT TP37

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0485754
Longitude : 174.8831176

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
	TOPSOIL								Soft		
0.5			ML	Sandy SILT, light yellowish brown. Low plasticity; sand is fine to medium.					Firm		
1.0	LOESS/COLLUVIUM							M	Very loose		
1.5			SM	Silty fine to medium SAND, light yellowish brown. Poorly graded.					Medium dense		
2.0											

Testpit met target depth at 4 m.
Scala Penetrometer met target depth at 3.9 m.



LOG OF TEST PIT TP37

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0485754
Longitude : 174.8831176

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
2.5	LOESS/COLLUVIUM			Silty fine to medium SAND, light yellowish brown. Poorly graded.					Medium dense		
3.0											
3.5									Dense		
4.0											

Depth of Excavation: 4 m
Termination Condition: Target depth



Testpit met target depth at 4 m.
Scala Penetrometer met target depth at 3.9 m.



LOG OF TEST PIT TP38

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0505919
Longitude : 174.8790253

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
	TOPSOIL		ML	Sandy SILT, dark brown. Low plasticity; sand is fine to medium. Rootlets.					Firm		
0.5											
	LOESS/COLLUVIUM		SM	Silty fine to medium SAND, light brown, well graded.				M	Medium dense		
1.0											
1.5											
2.0			ML	Sandy SILT, light brown. Low plasticity; sand is fine to medium.					Stiff to		

Hand auger met target depth at 4 m.
Scala Penetrometer met practical refusal at 3.8 m depth.
GS - Greywacke sandstone



LOG OF TEST PIT TP38

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0505919
Longitude : 174.8790253

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
2.5	LOESS/COLLUVIUM			Sandy SILT, light brown. Low plasticity; sand is fine to medium.					very stiff		
3.0											
3.5											
4.0	GS			Highly weathered, light yellowish brown, massive, Greywacke SANDSTONE, very weak, very closely spaced tight defects.							>>
				Depth of Excavation: 4 m Termination Condition: Target depth							



Hand auger met target depth at 4 m.
Scala Penetrometer met practical refusal at 3.8 m depth.
GS - Greywacke sandstone



LOG OF TEST PIT TP39

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4.2 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0473599
Longitude : 174.8810142

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
0.5	FILL		ML	Silty fine to medium SAND, light brown, well graded. Fill is sourced from adjacent stream.					Soft to firm		
1.0	BTS		ML	SILT with some sand dark brown. Low plasticity; sand is fine to course.					Very soft		
1.5	ALLUVIUM		ML	Sandy SILT, grey. Low plasticity; sand is fine to medium.				M	Soft		
2.0			SM	Fine to medium SAND with minor silt, bluish grey, poorly graded. Lenses of organic silt.					Loose		

Testpit met target depth at 4.2 m.
Scala Penetrometer met target depth at 3.9 m.
BTS = Buried topsoil

LOG OF TEST PIT TP39

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4.2 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0473599
Longitude : 174.8810142

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
2.5	ALLUVIUM		SM	Sandy SILT, light grey. Low plasticity; sand is fine to medium.					Loose		
									Firm		
3.0			ML								
3.5									Stiff to very stiff		
4.0			ML	SILT with trace sand, light grey. Low plasticity; sand is fine.							
4.5	Depth of Excavation: 4.2 m Termination Condition: Target depth										



Testpit met target depth at 4.2 m.
Scala Penetrometer met target depth at 3.9 m.
BTS = Buried topsoil



LOG OF TEST PIT TP40

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0475449
Longitude : 174.8807843

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
	TOPSOIL								Soft		
0.5			ML	Sandy SILT, dark brown. Low plasticity; sand is fine to medium. Rootlets.							
			SM	Silty fine to medium SAND, light yellowish brown. Poorly graded.							
1.0									Loose		
1.5	ALLUVIUM		SM	Silty fine to medium SAND, brownish grey mottled orange. Poorly graded.				M			
2.0									Medium dense		
									Dense		

Testpit met target depth at 4 m.
Scala Penetrometer met practical refusal at 2.8 m depth.

LOG OF TEST PIT TP40

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 4 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0475449
Longitude : 174.8807843

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
		Easier	Harder								2 4 6 8 10 12
2.5	ALLUVIUM		SM	Silty fine to medium SAND, brownish grey mottled orange. Poorly graded. At 2.2m becomes grey At 2.6 becomes brownish greg.					Dense		
3.0	ASH		SP	[ASH] recovered as fine SAND, white, poorly graded.							
3.5	ALLUVIUM		SW	Fine to medium SAND, grey mottled orange. well graded.							
4.0			SM	Silty fine to medium SAND, brownish grey mottled orange. Poorly graded.							
Depth of Excavation: 4 m Termination Condition: Target depth											



Testpit met target depth at 4 m.
Scala Penetrometer met practical refusal at 2.8 m depth.

LOG OF TEST PIT TP41

Geotechnical Investigation
Mt Welcome Station
Pukerua Bay
19796.000.001

Client : Classic Developments
Date : 10/09/2025
Max Test Pit Depth : 0.8 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 1m

Shear Vane No : 3065
Logged By : TV
Reviewed By : HB
Latitude : -41.0498195
Longitude : 174.8948879

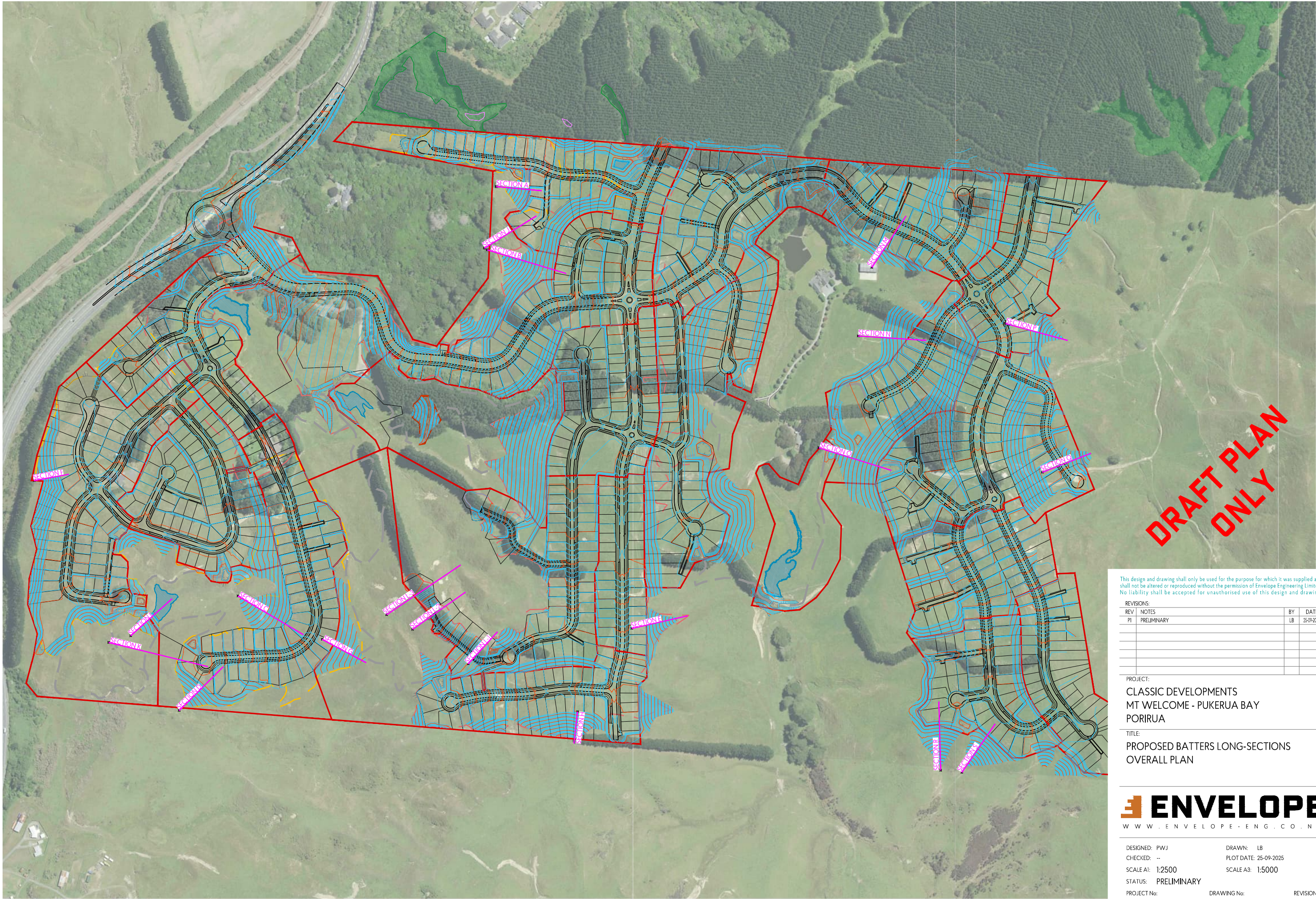
Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm 2 4 6 8 10 12
	TS		ML	Sandy SILT, dark brown. Low plasticity; sand is fine. Rootlets.					Firm		
	L/C		ML	Sandy SILT, light yellowish brown. Low plasticity; sand is fine.					Very stiff		
0.5	GS		SM	Completely weathered Greywacke SANDSTONE recovered as: Silty fine to coarse SAND, light yellowish brown. Well graded.				D	Dense		
				Highly weathered, light yellowish brown, massive, Greywacke SANDSTONE, very weak, very closely spaced tight defects.							
1.0				Depth of Excavation: 0.8 m Termination Condition: Target depth							
1.5											
2.0											



Testpit met target depth at 0.8 m.
Scala Penetrometer met practical refusal at 0.6 m depth.
TS = Topsoil, L/C = Loess/colluvium. GS - Greywacke sandstone

APPENDIX 6:

Slope Stability Sections and Location Plan



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REVISIONS:			
REV	NOTES	BY	DATE
P1	PRELIMINARY	LB	25-09-2025

PROJECT:
CLASSIC DEVELOPMENTS
MT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED BATTERS LONG-SECTIONS
OVERALL PLAN

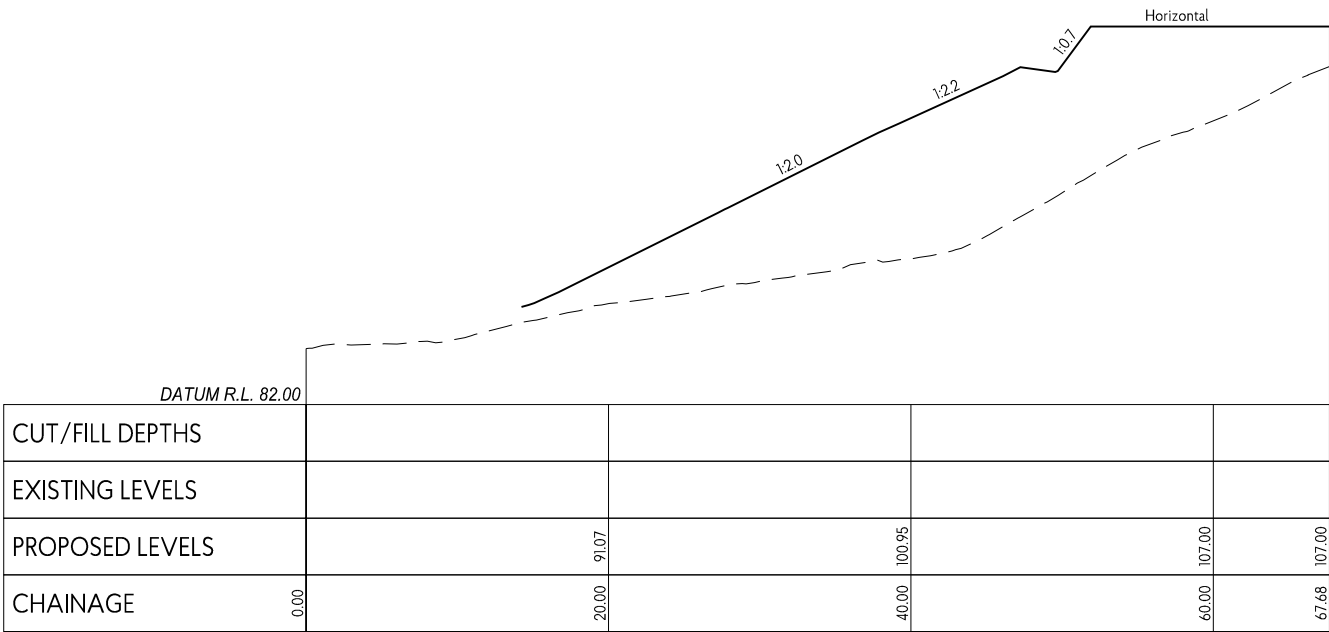


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CHECKED: --	PLOT DATE: 25-09-2025
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STATUS: PRELIMINARY	
PROJECT No: 1753-02	DRAWING No: 800
	REVISION: P1

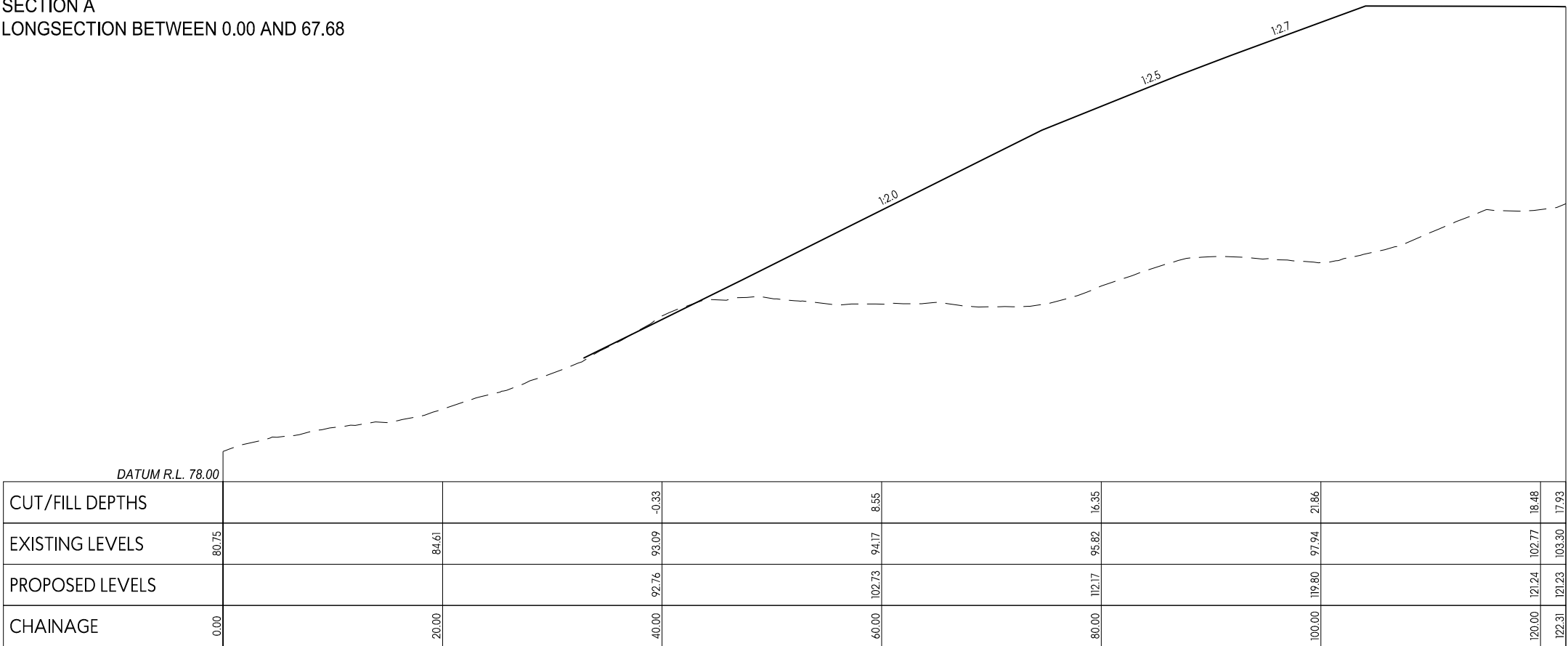
- NOTES:
1. LONG SECTIONS ARE SHOWN WITH NO VERTICAL EXAGGERATION.

2. — — — INDICATES EXISTING GROUND LEVELS.

3. ——— INDICATES PROPOSED GROUND LEVELS.



SECTION A
LONGSECTION BETWEEN 0.00 AND 67.68



SECTION B
LONGSECTION BETWEEN 0.00 AND 122.31

DRAFT PLAN
ONLY

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REVISIONS:			
REV	NOTES	BY	DATE
P1	PRELIMINARY	LB	25-09-2025

PROJECT:

CLASSIC DEVELOPMENTS
MT WELCOME - PUKERUA BAY
PORIRUA

TITLE:

PROPOSED BATTERS
LONG-SECTIONS
SHEET 1 OF 10



DESIGNED: PWJ

CHECKED: --

SCALE A1: 1:250

STATUS: PRELIMINARY

PROJECT No: 1753-02

DRAWN: LB

PLOT DATE: 25-09-2025

SCALE A3: 1:500

DRAWING No: 801

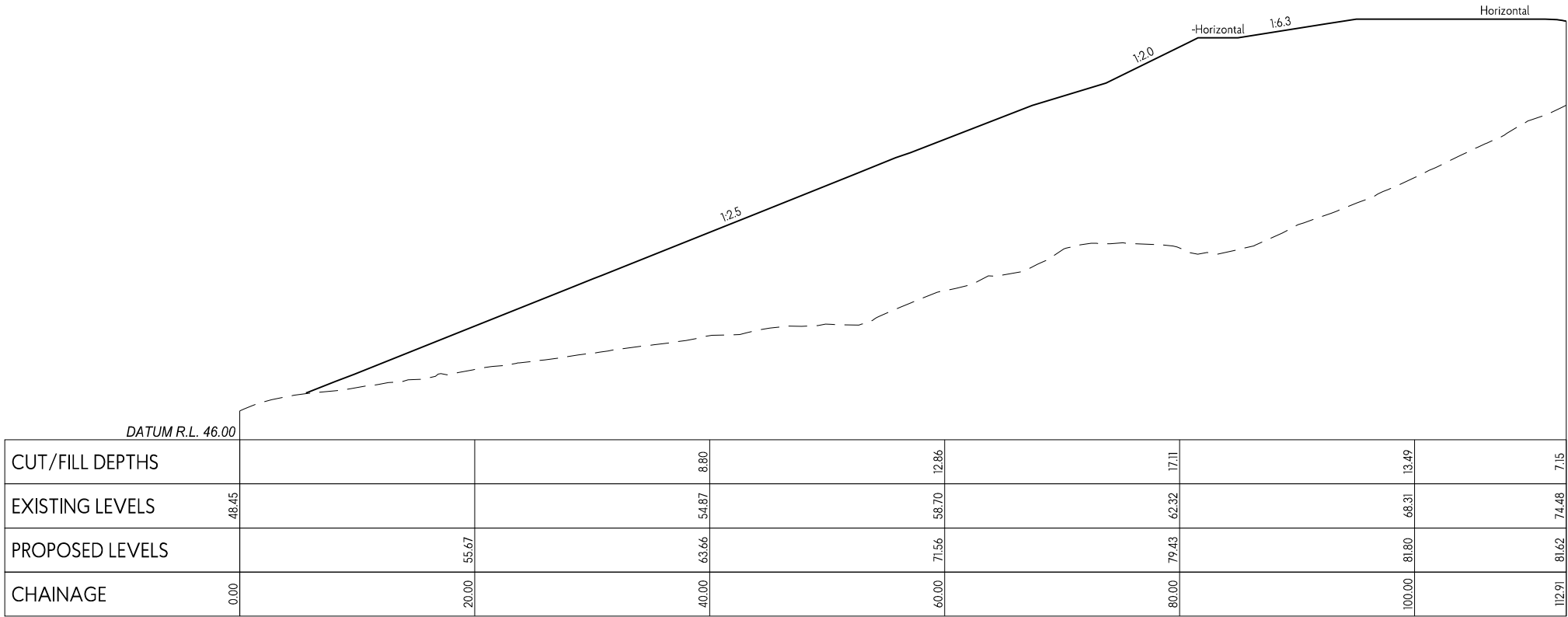
REVISION: P1

- NOTES:
1.

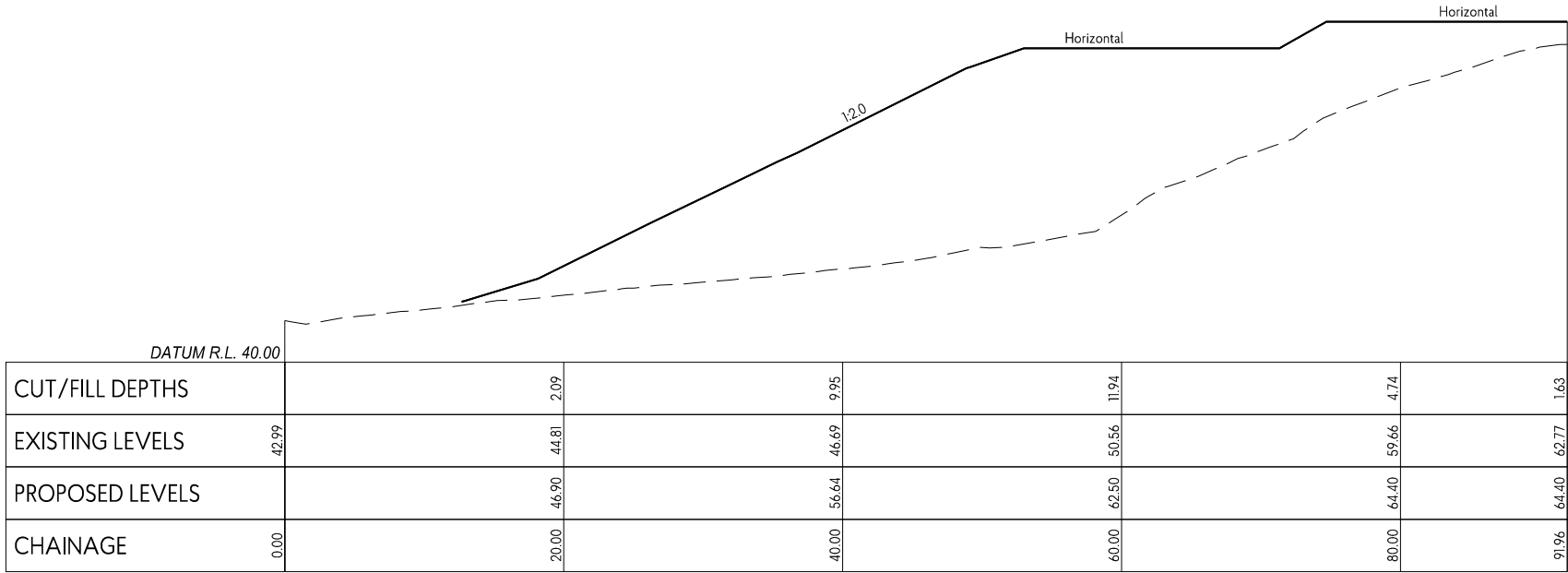
LONG SECTIONS ARE SHOWN WITH NO VERTICAL EXAGGERATION.
2.

— — — INDICATES EXISTING GROUND LEVELS.
3.

————— INDICATES PROPOSED GROUND LEVELS.



SECTION C
LONGSECTION BETWEEN 0.00 AND 112.91



SECTION D
LONGSECTION BETWEEN 0.00 AND 91.96

DRAFT PLAN
ONLY

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REVISIONS:			
REV	NOTES	BY	DATE
P1	PRELIMINARY	LB	25-09-2025

PROJECT:
CLASSIC DEVELOPMENTS
MT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED BATTERS
LONG-SECTIONS
SHEET 2 OF 10



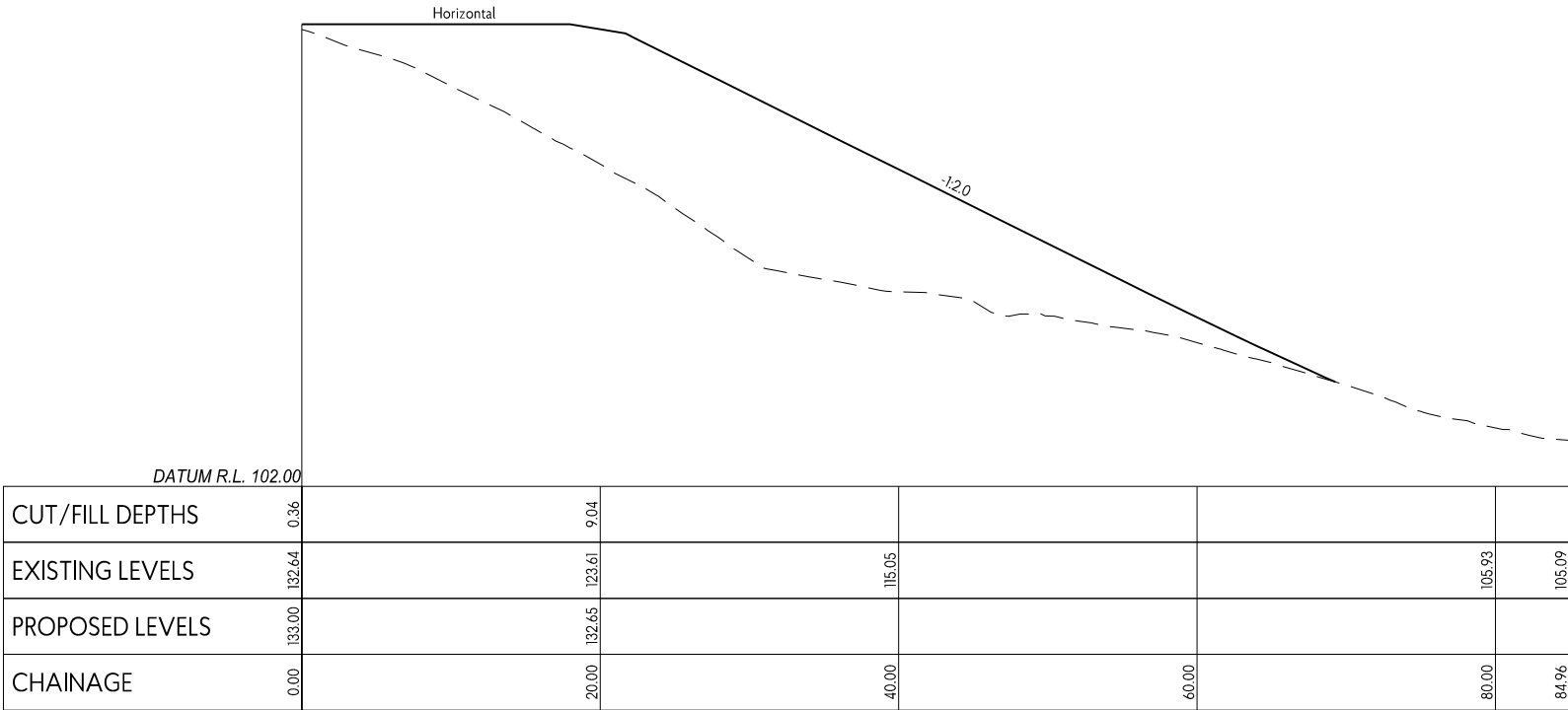
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STATUS: PRELIMINARY	
PROJECT No: 1753-02	DRAWING No: 802
	REVISION: P1

- NOTES:
1.

LONG SECTIONS ARE SHOWN WITH NO VERTICAL EXAGGERATION.
2.

— — — INDICATES EXISTING GROUND LEVELS.
3.

————— INDICATES PROPOSED GROUND LEVELS.

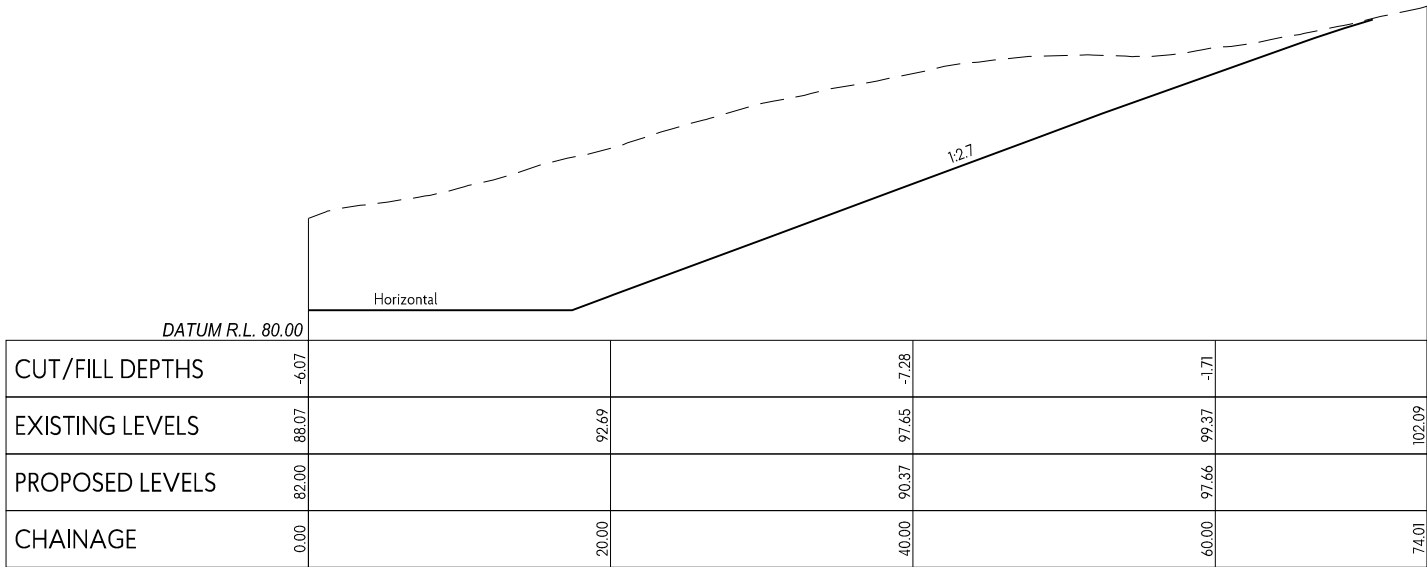


SECTION E
LONGSECTION BETWEEN 0.00 AND 84.96



SECTION F
LONGSECTION BETWEEN 0.00 AND 52.07

DRAFT PLAN
ONLY



SECTION G
LONGSECTION BETWEEN 0.00 AND 74.01

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REVISIONS:			
REV	NOTES	BY	DATE
P1	PRELIMINARY	LB	25-09-2025

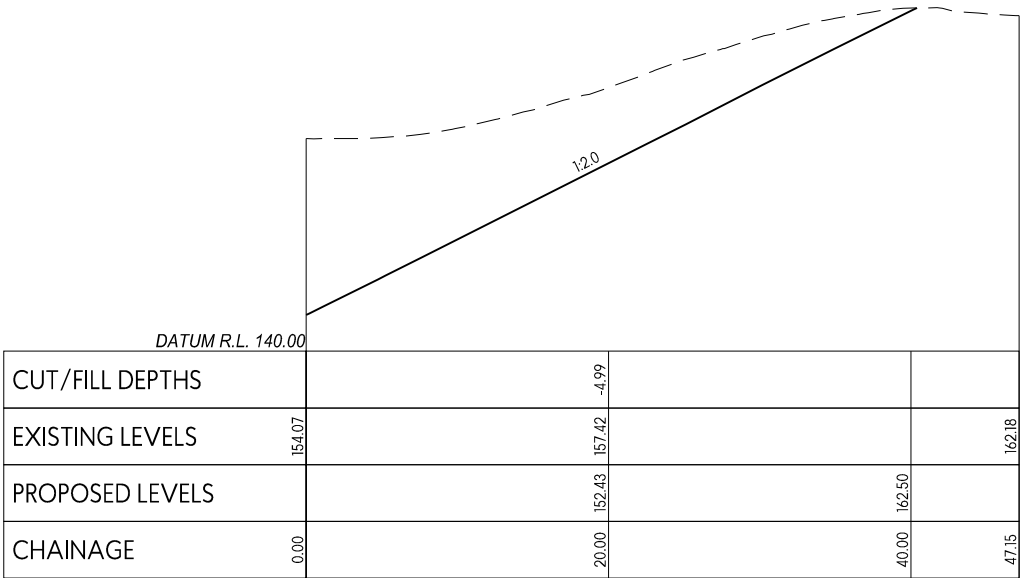
PROJECT:
CLASSIC DEVELOPMENTS
MT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED BATTERS
LONG-SECTIONS
SHEET 3 OF 10

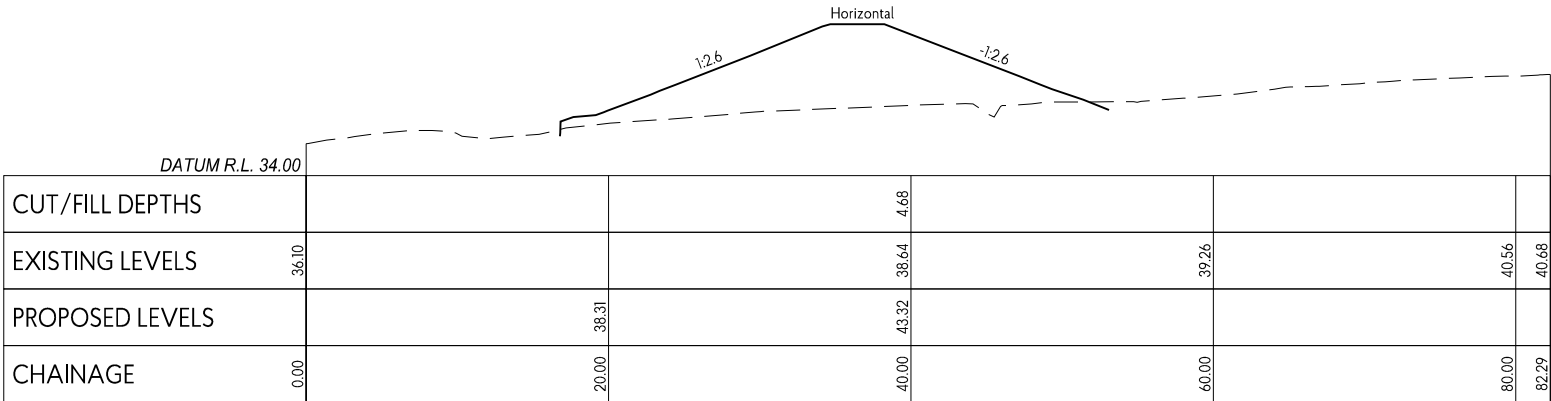


DESIGNED: PWJ	DRAWN: LB
CHECKED: --	PLOT DATE: 25-09-2025
SCALE A1: 1:250	SCALE A3: 1:500
STATUS: PRELIMINARY	
PROJECT No: 1753-02	DRAWING No: 803
	REVISION: P1

- NOTES:
- LONG SECTIONS ARE SHOWN WITH NO VERTICAL EXAGGERATION.
 - — — INDICATES EXISTING GROUND LEVELS.
 - INDICATES PROPOSED GROUND LEVELS.



SECTION H
LONGSECTION BETWEEN 0.00 AND 47.15



SECTION I
LONGSECTION BETWEEN 0.00 AND 82.29

DRAFT PLAN
ONLY

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REVISIONS:			
REV	NOTES	BY	DATE
P1	PRELIMINARY	LB	25-09-2025

PROJECT:
CLASSIC DEVELOPMENTS
MT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED BATTERS
LONG-SECTIONS
SHEET 4 OF 10



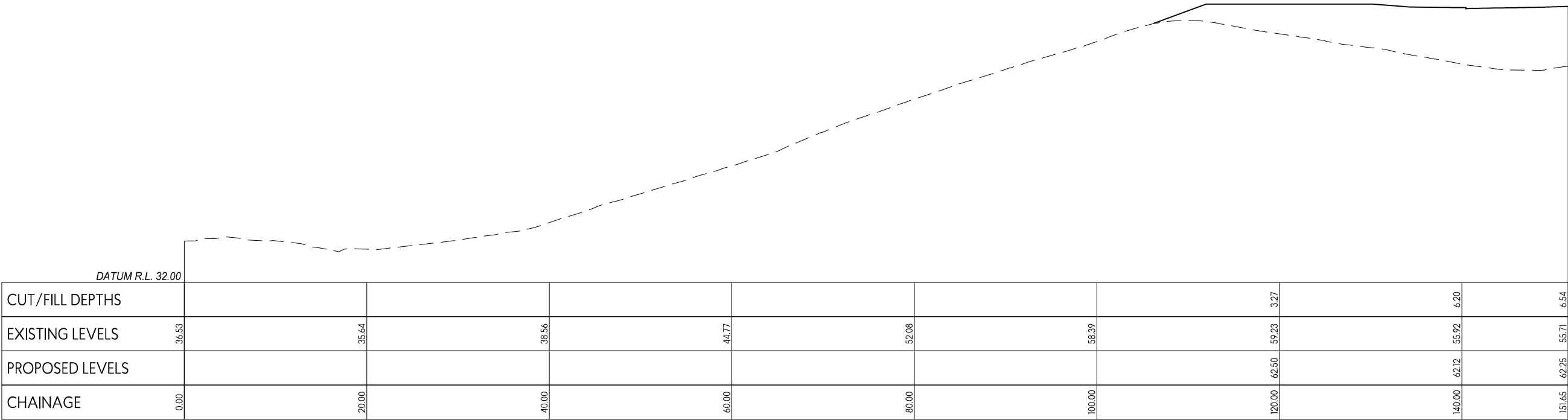
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CHECKED: --	PLOT DATE: 25-09-2025
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STATUS: PRELIMINARY	
PROJECT No: 1753-02	DRAWING No: 804
	REVISION: P1

NOTES:

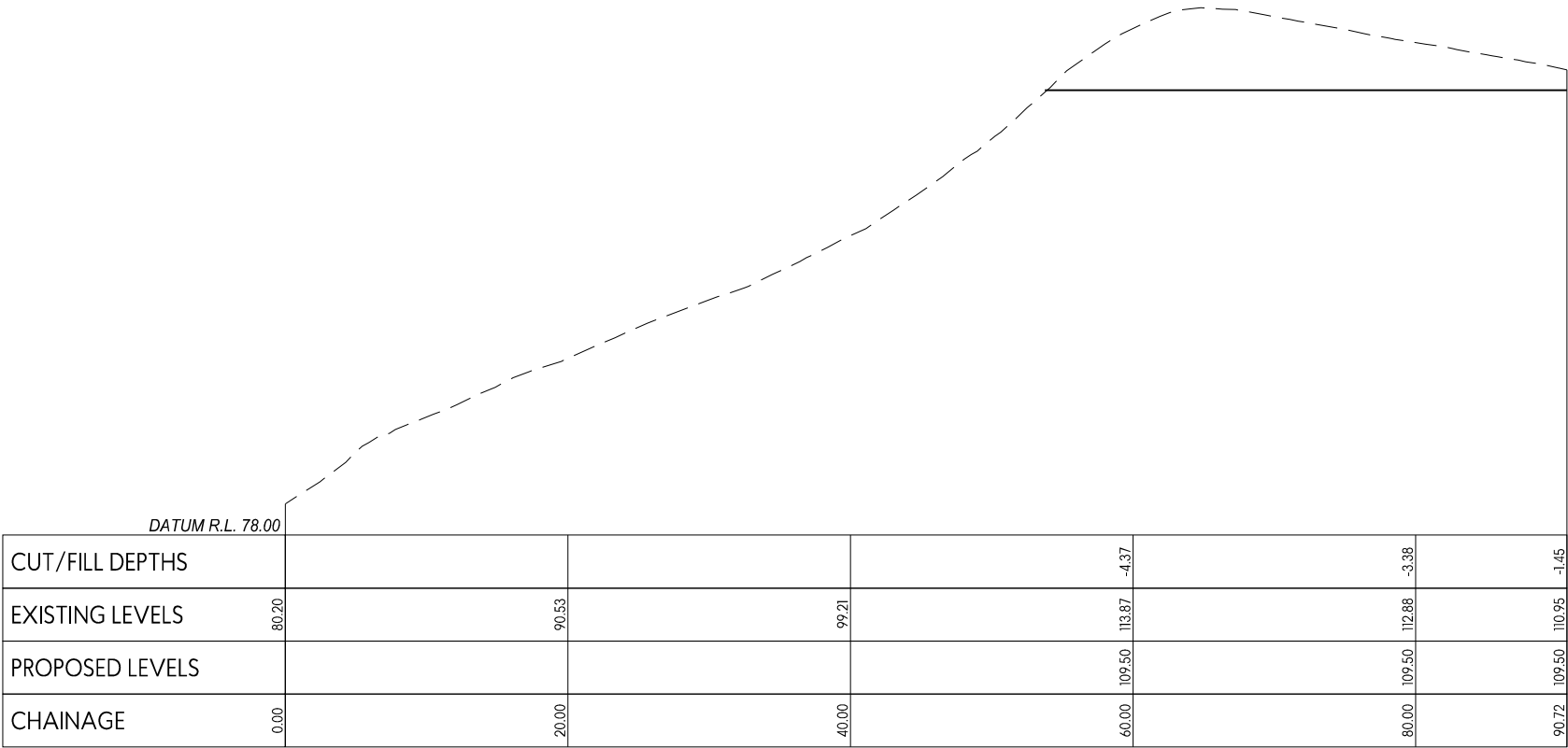
1. LONG SECTIONS ARE SHOWN WITH NO VERTICAL EXAGGERATION.

2. — — — — — INDICATES EXISTING GROUND LEVELS.

3. ————— INDICATES PROPOSED GROUND LEVELS.



SECTION K
LONGSECTION BETWEEN 0.00 AND 151.65



SECTION J
LONGSECTION BETWEEN 0.00 AND 90.72

DRAFT PLAN
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REVISIONS:			
REV	NOTES	BY	DATE
P1	PRELIMINARY	LB	25-09-2025

PROJECT:
CLASSIC DEVELOPMENTS
MT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED BATTERS
LONG-SECTIONS
SHEET 5 OF 10



DESIGNED: PWJ

CHECKED: --

SCALE A1: 1:250

STATUS: PRELIMINARY

PROJECT No: 1753-02

DRAWN: LB

PLOT DATE: 25-09-2025

SCALE A3: 1:500

DRAWING No: 805

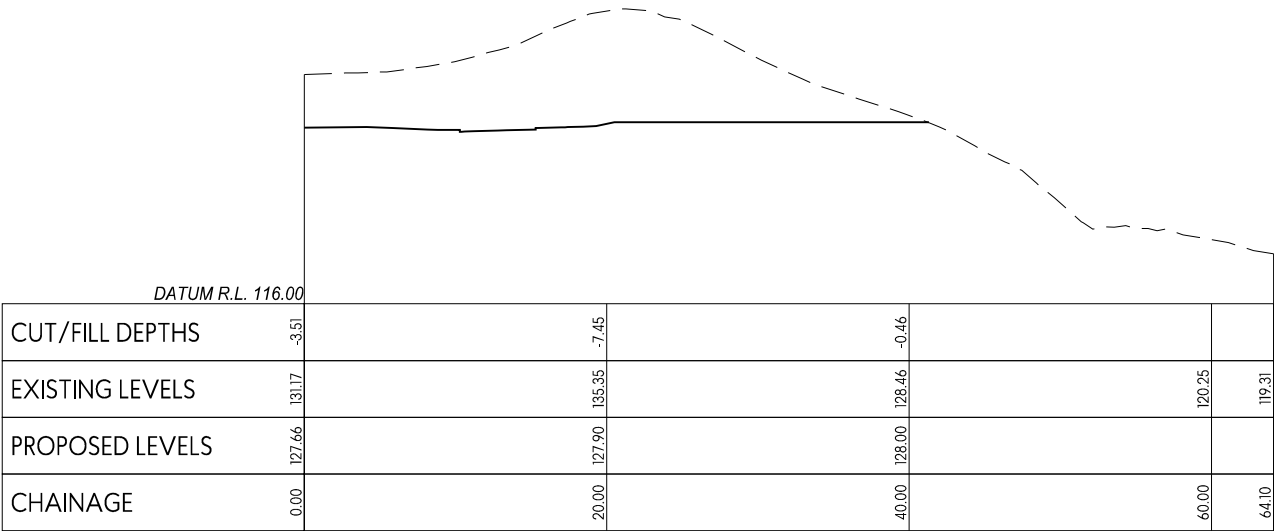
REVISION: P1

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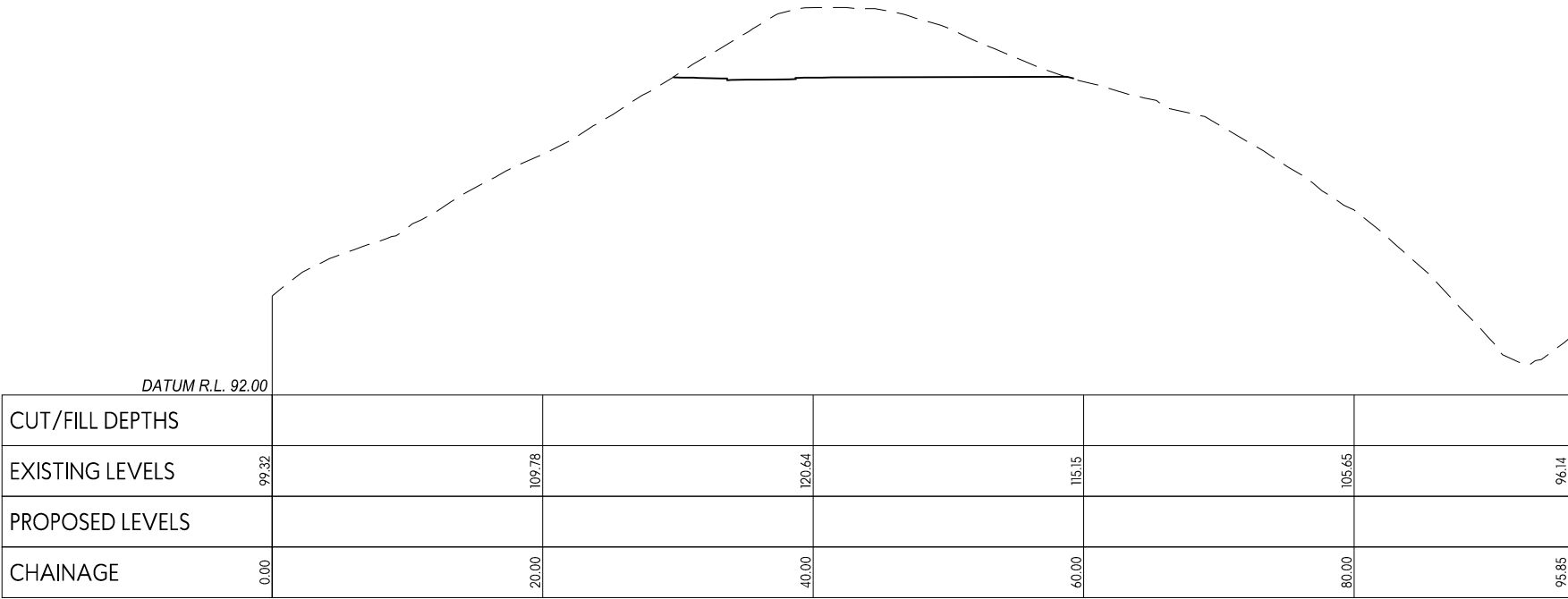
1. LONG SECTIONS ARE SHOWN WITH NO VERTICAL EXAGGERATION.

2. — — — INDICATES EXISTING GROUND LEVELS.

3. ——— INDICATES PROPOSED GROUND LEVELS.



SECTION L-1
LONGSECTION BETWEEN 0.00 AND 64.10



SECTION L-2
LONGSECTION BETWEEN 0.00 AND 95.85

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REVISIONS:			
REV	NOTES	BY	DATE
P1	PRELIMINARY	LB	25-09-2025

PROJECT:
CLASSIC DEVELOPMENTS
MT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED BATTERS
LONG-SECTIONS
SHEET 6 OF 10



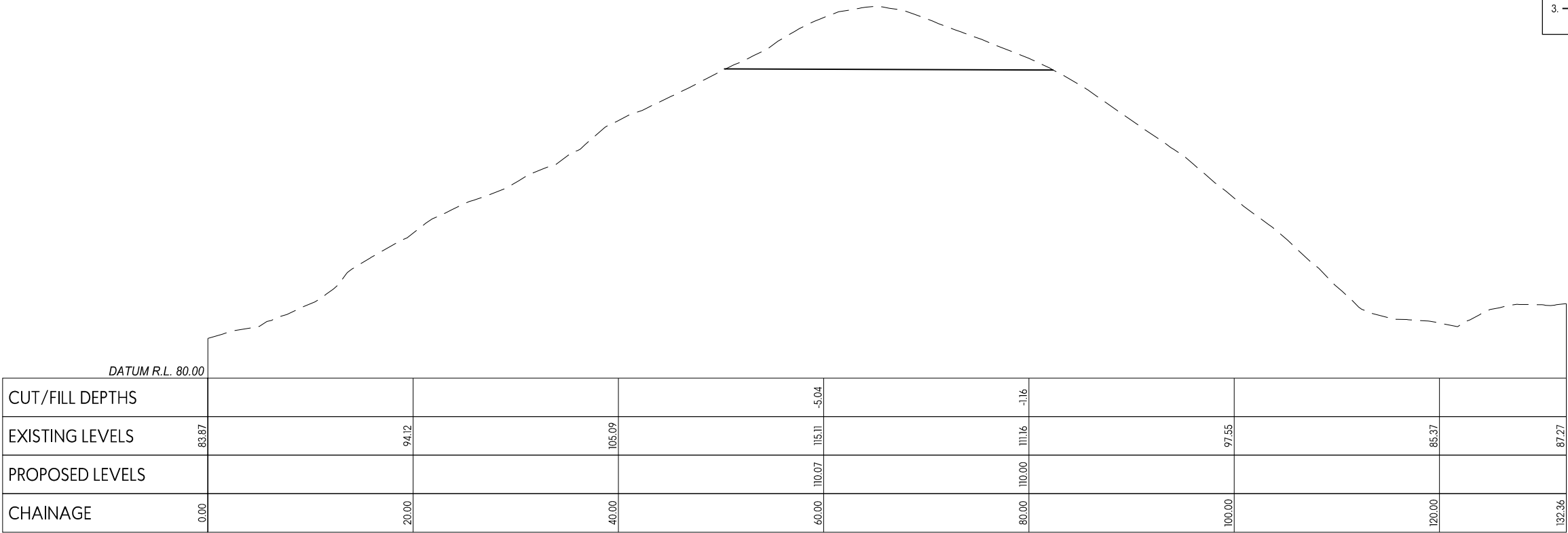
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CHECKED: --	PLOT DATE: 25-09-2025
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STATUS: PRELIMINARY	
PROJECT No: 1753-02	DRAWING No: 806
	REVISION: P1

- NOTES:
1.

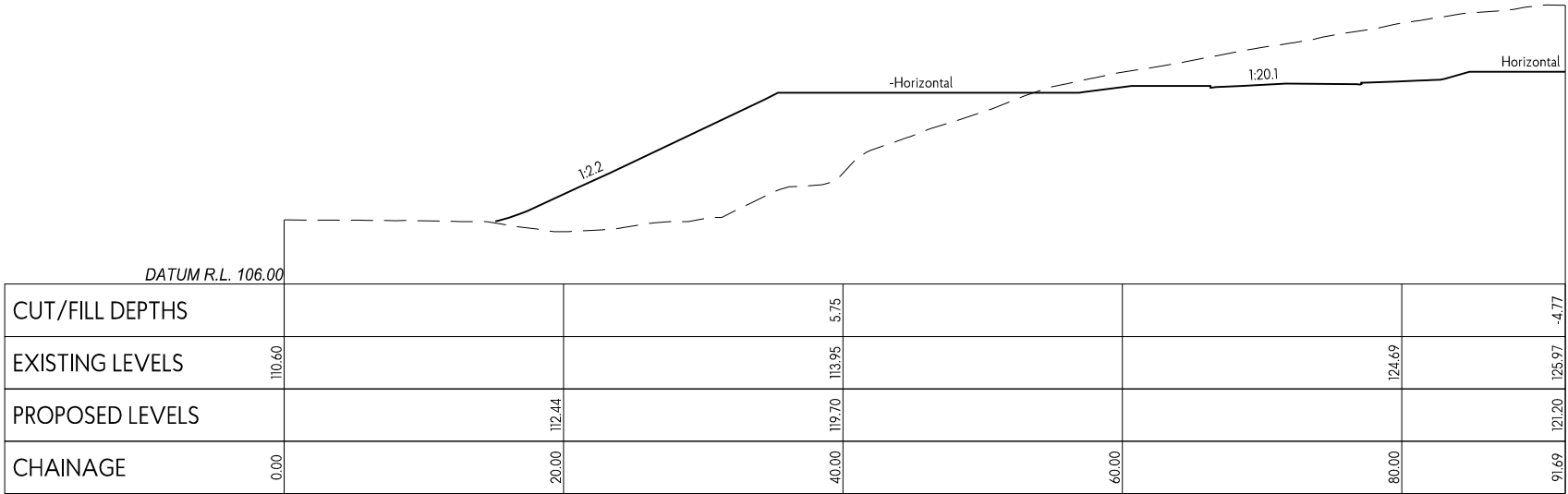
LONG SECTIONS ARE SHOWN WITH NO VERTICAL EXAGGERATION.
2.

— — — INDICATES EXISTING GROUND LEVELS.
3.

———— INDICATES PROPOSED GROUND LEVELS.



SECTION L-3
LONGSECTION BETWEEN 0.00 AND 132.36



SECTION M
LONGSECTION BETWEEN 0.00 AND 91.69

DRAFT PLAN
ONLY

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REVISIONS:			
REV	NOTES	BY	DATE
P1	PRELIMINARY	LB	25-09-2025

PROJECT:
CLASSIC DEVELOPMENTS
MT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED BATTERS
LONG-SECTIONS
SHEET 7 OF 10



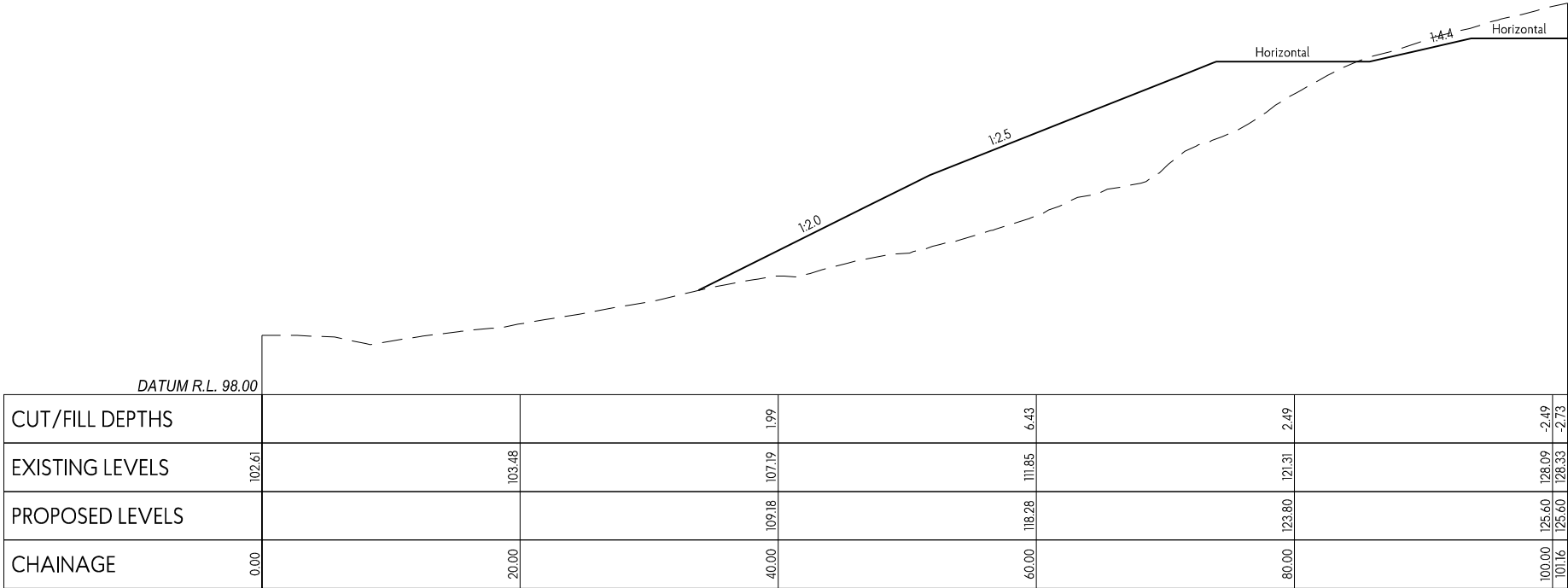
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CHECKED: --	PLOT DATE: 25-09-2025	
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STATUS: PRELIMINARY		
PROJECT No: 1753-02	DRAWING No: 807	REVISION: P1

NOTES:

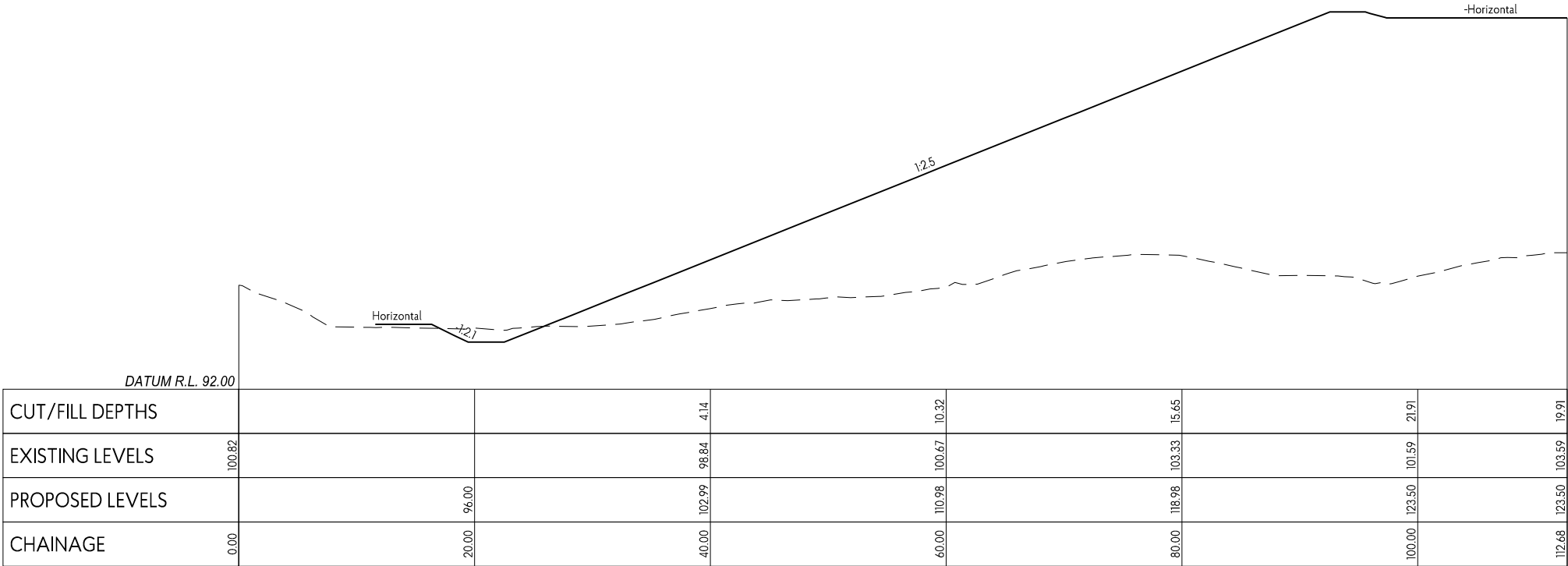
1. LONG SECTIONS ARE SHOWN WITH NO VERTICAL EXAGGERATION.

2. — — — INDICATES EXISTING GROUND LEVELS.

3. ————— INDICATES PROPOSED GROUND LEVELS.



SECTION N
LONGSECTION BETWEEN 0.00 AND 101.16



SECTION O
LONGSECTION BETWEEN 0.00 AND 112.68

DRAFT PLAN
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REVISIONS:			
REV	NOTES	BY	DATE
P1	PRELIMINARY	LB	25-09-2025

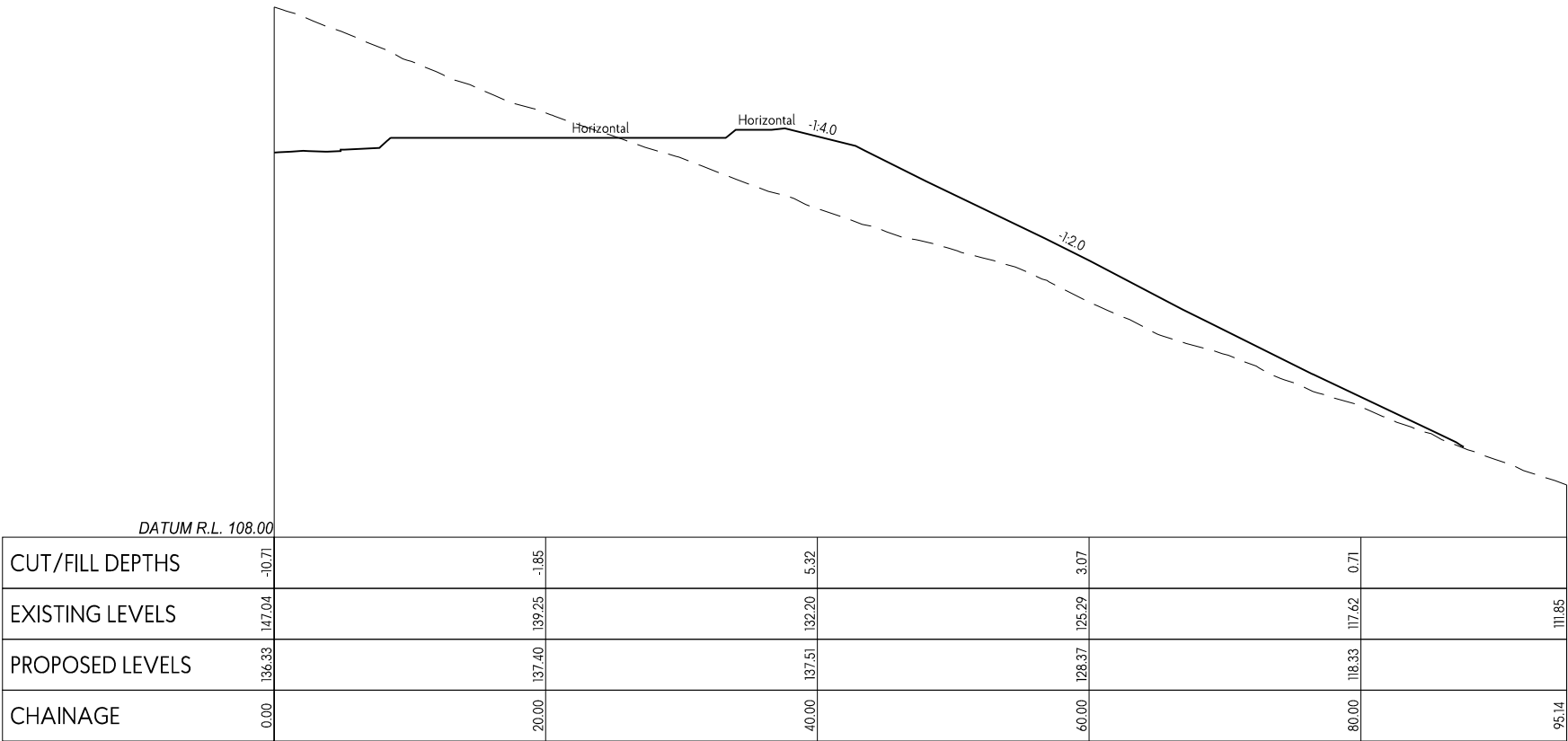
PROJECT:
CLASSIC DEVELOPMENTS
MT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED BATTERS
LONG-SECTIONS
SHEET 8 OF 10

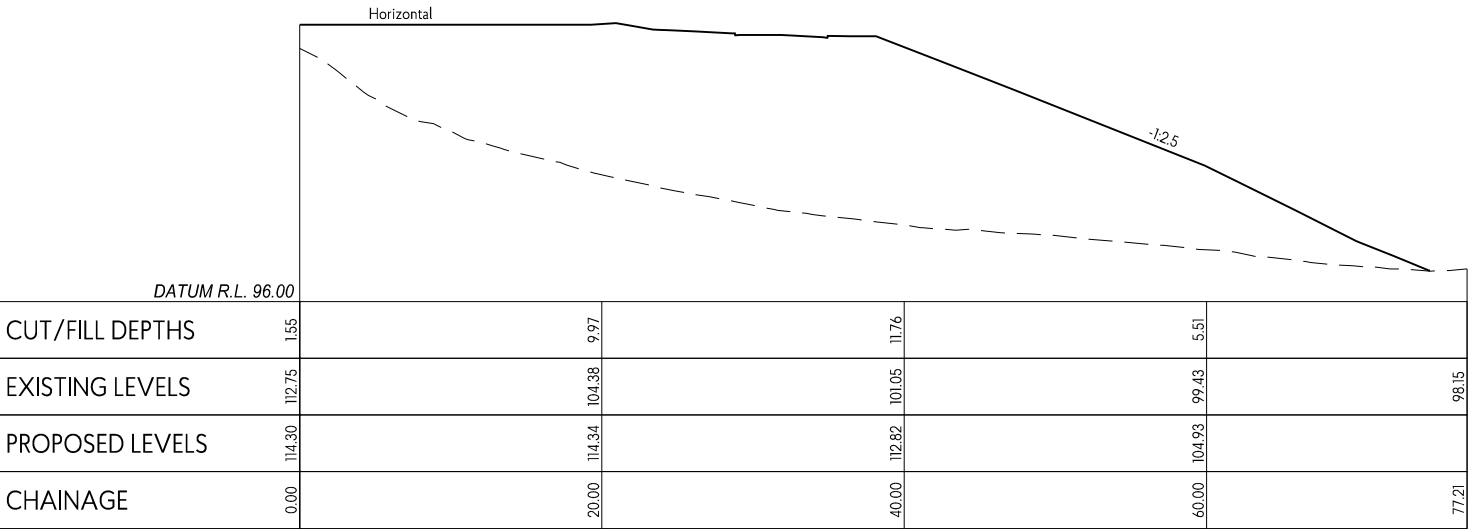


DESIGNED: PWJ	DRAWN: LB
CHECKED: --	PLOT DATE: 25-09-2025
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STATUS: PRELIMINARY	
PROJECT No: 1753-02	DRAWING No: 808
	REVISION: P1

- NOTES:
- 1. LONG SECTIONS ARE SHOWN WITH NO VERTICAL EXAGGERATION.
 - 2. — — — INDICATES EXISTING GROUND LEVELS.
 - 3. ——— INDICATES PROPOSED GROUND LEVELS.



SECTION P
LONGSECTION BETWEEN 0.00 AND 95.14



SECTION Q
LONGSECTION BETWEEN 0.00 AND 77.21

DRAFT PLAN
ONLY

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REVISIONS:			
REV	NOTES	BY	DATE
P1	PRELIMINARY	LB	25-09-2025

PROJECT:
CLASSIC DEVELOPMENTS
MT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED BATTERS
LONG-SECTIONS
SHEET 9 OF 10



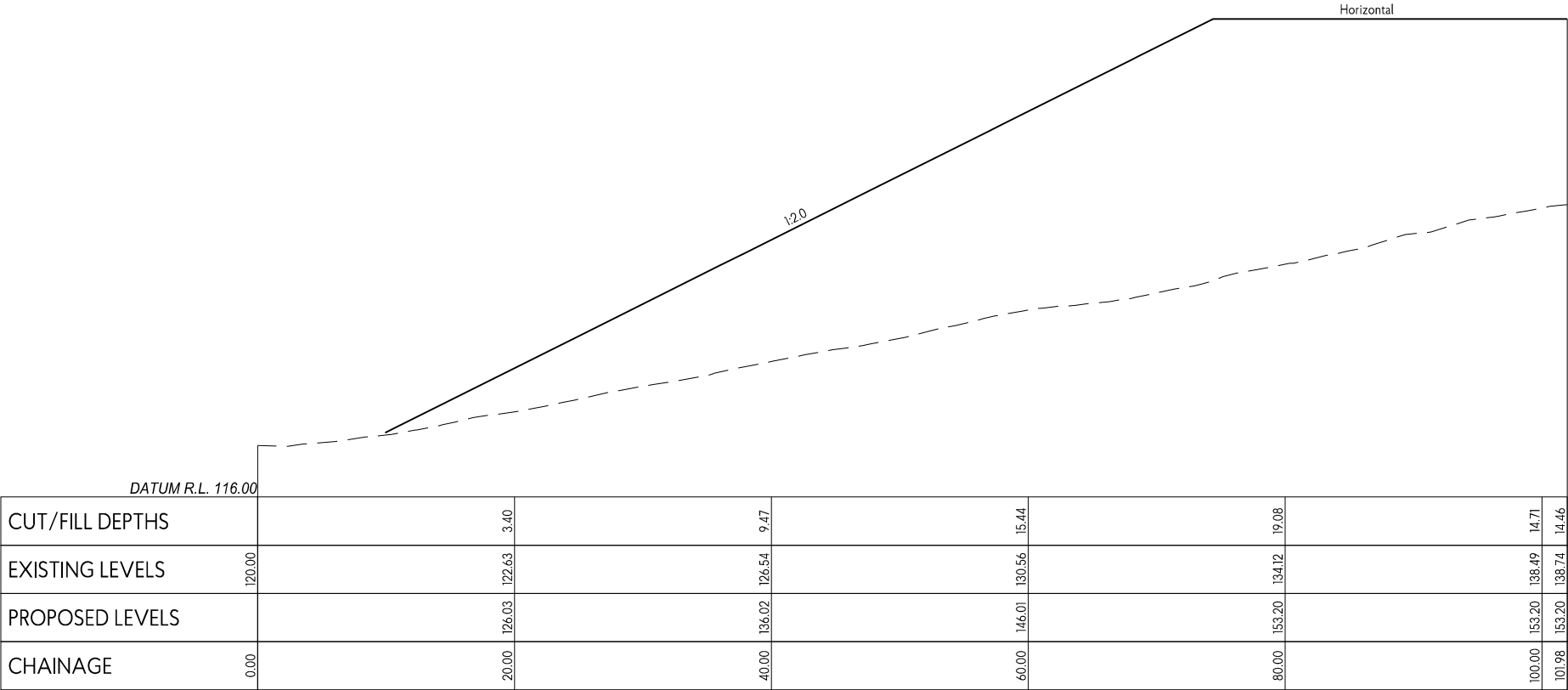
DESIGNED: PWJ	DRAWN: LB
CHECKED: --	PLOT DATE: 25-09-2025
SCALE A1: 1:250	SCALE A3: 1:500
STATUS: PRELIMINARY	
PROJECT No: 1753-02	DRAWING No: 809
	REVISION: P1

NOTES:

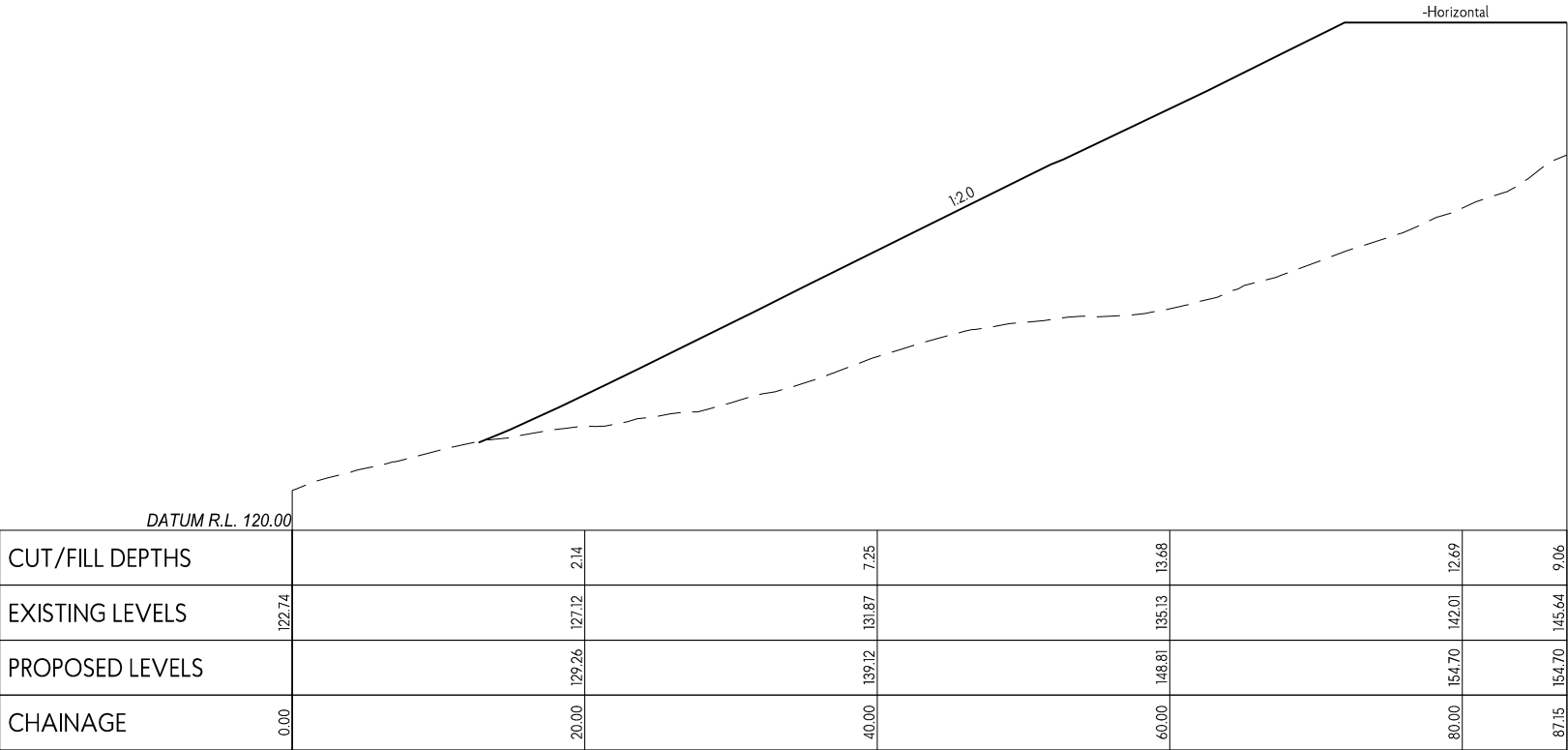
1. LONG SECTIONS ARE SHOWN WITH NO VERTICAL EXAGGERATION.

2. — — — INDICATES EXISTING GROUND LEVELS.

3. ——— INDICATES PROPOSED GROUND LEVELS.



SECTION R
LONGSECTION BETWEEN 0.00 AND 101.98



SECTION S
LONGSECTION BETWEEN 0.00 AND 87.15

DRAFT PLAN
ONLY

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REVISIONS:			
REV	NOTES	BY	DATE
P1	PRELIMINARY	LB	25-09-2025

PROJECT:
CLASSIC DEVELOPMENTS
MT WELCOME - PUKERUA BAY
PORIRUA

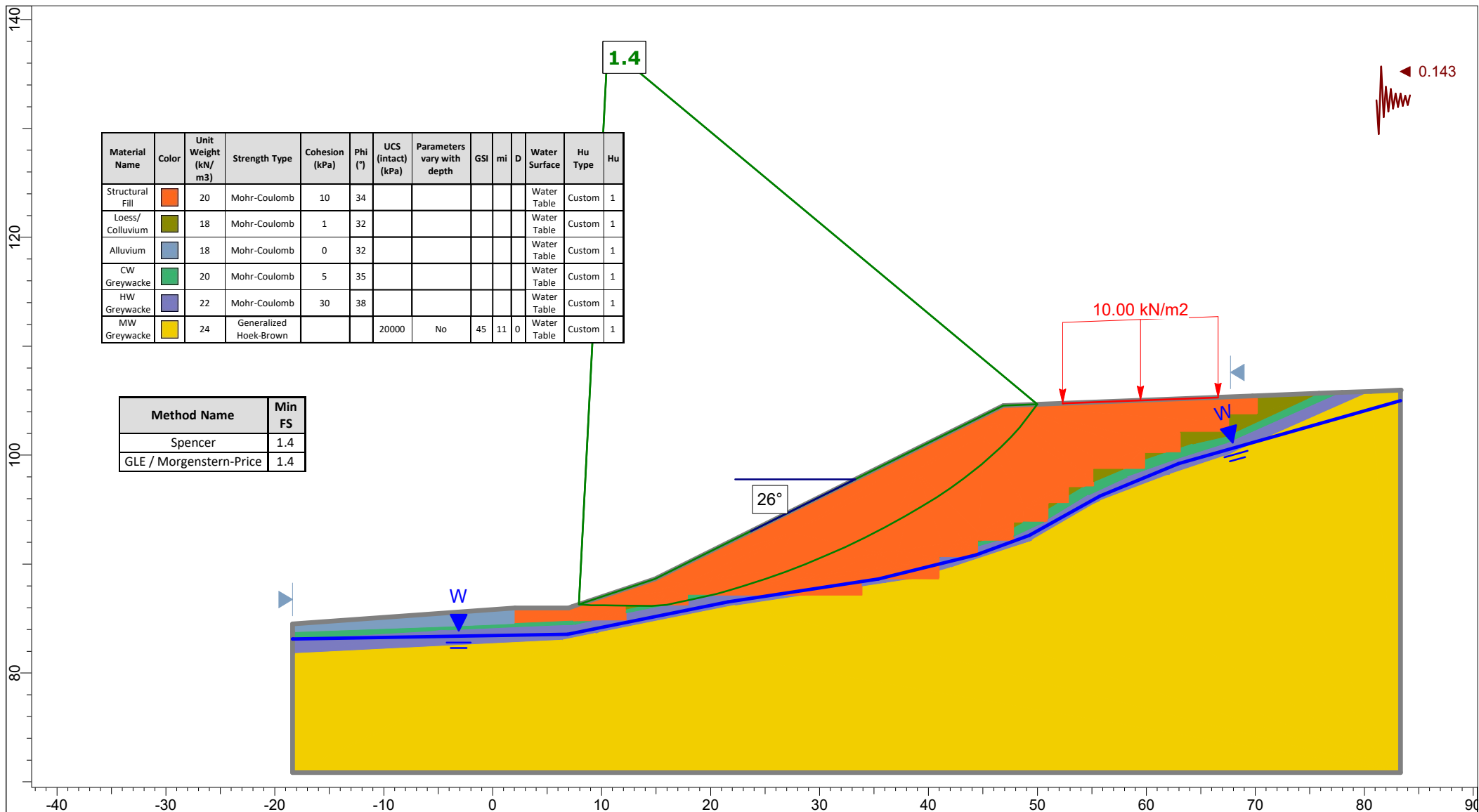
TITLE:
PROPOSED BATTERS
LONG-SECTIONS
SHEET 10 OF 10



DESIGNED: PWJ	DRAWN: LB	REVISION:
CHECKED: --	PLOT DATE: 25-09-2025	P1
SCALE A1: 1:250	SCALE A3: 1:500	
STATUS: PRELIMINARY		
PROJECT No: 1753-02	DRAWING No: 810	

APPENDIX 7:

Proposed Batter and Natural Slopes Stability Analysis



ENGEO

SLIDEINTERPRET 9.034

Project

Mt Welcome Development

Analysis Description

Section A (Fill)

Drawn By

CW

Scenario

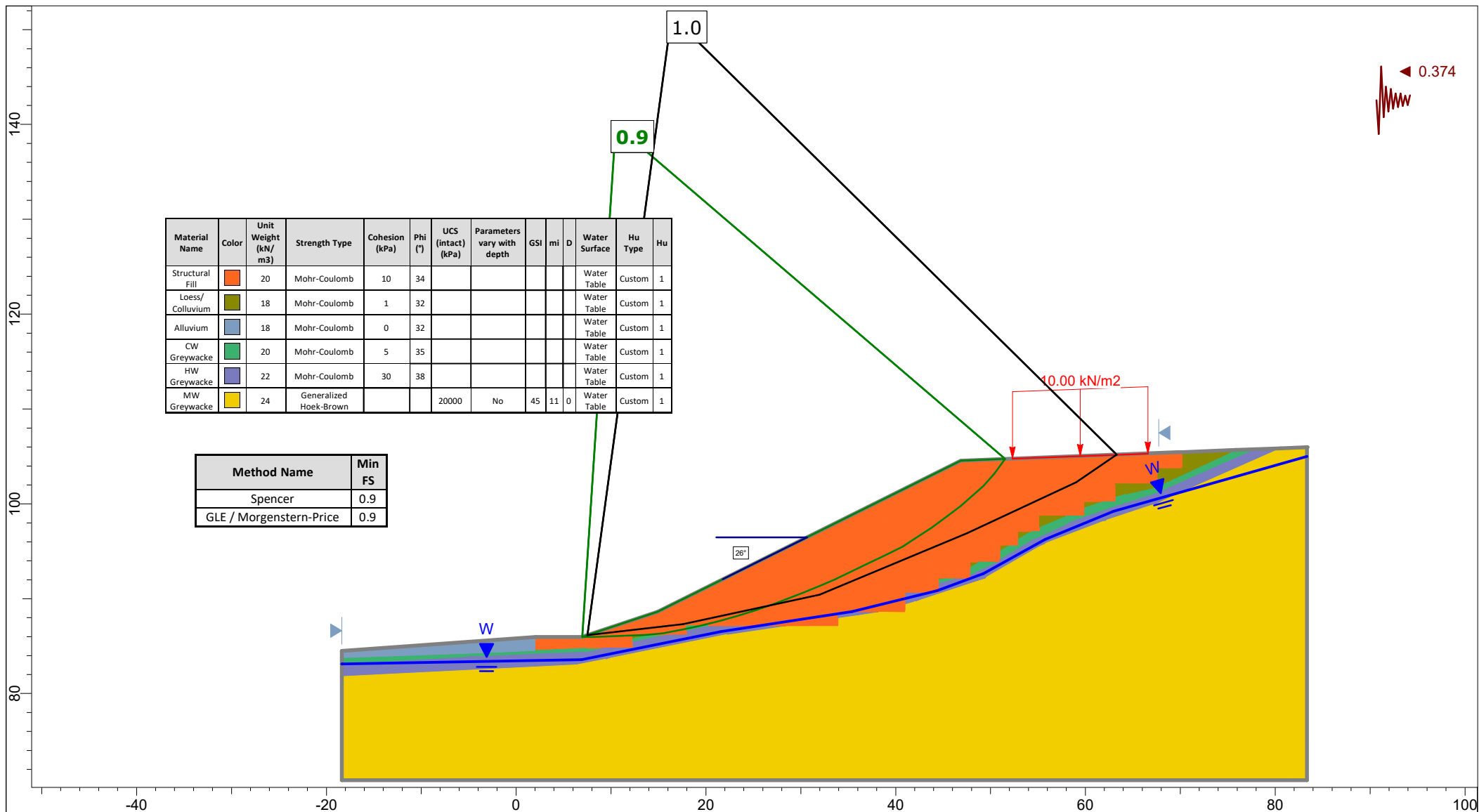
SLS Seismic

Date

26/06/2024

Client

Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

Project

Mt Welcome Development

Analysis Description

Section A (Fill)

Drawn By

CW

Scenario

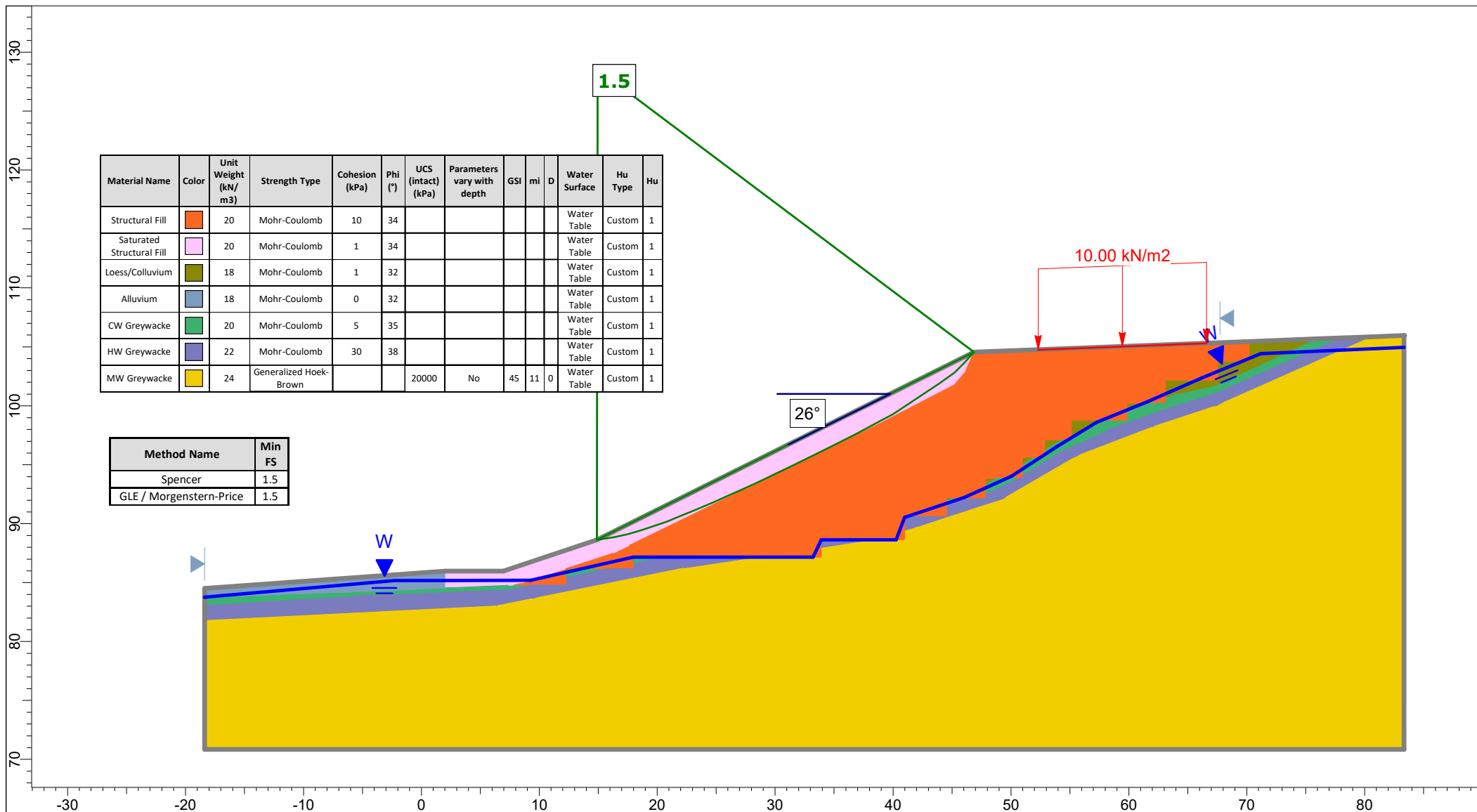
ULS Seismic

Date

26/06/2024

Client

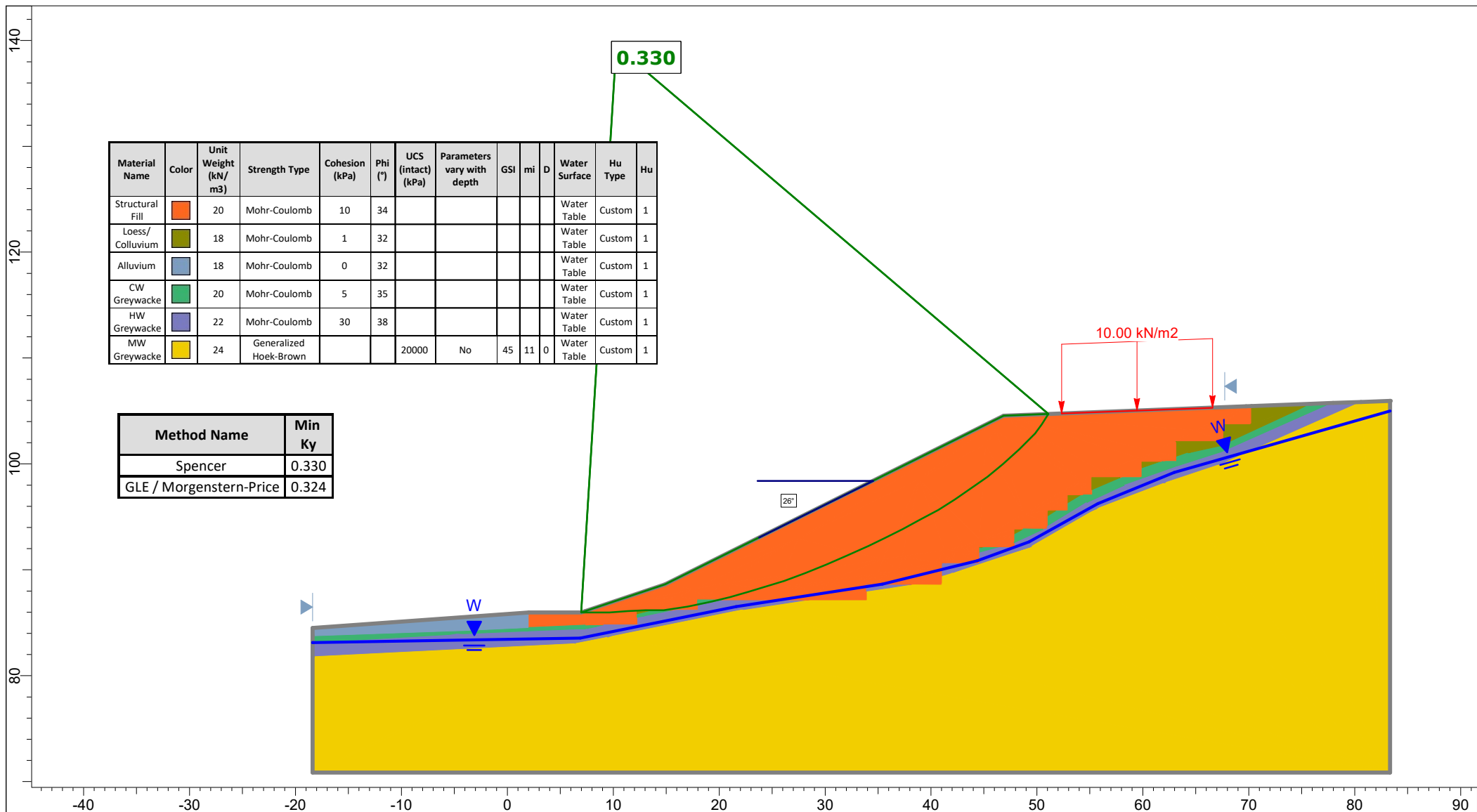
Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

Project		Mt Welcome Development	
Analysis Description		Section A (Fill)	
Drawn By		CW	Scenario
Date		26/06/2024	Client
		Raised Groundwater	
		Classic Developments Ltd	



ENGEO

SLIDEINTERPRET 9.034

Project

Mt Welcome Development

Analysis Description

Section A (Fill)

Drawn By

CW

Scenario

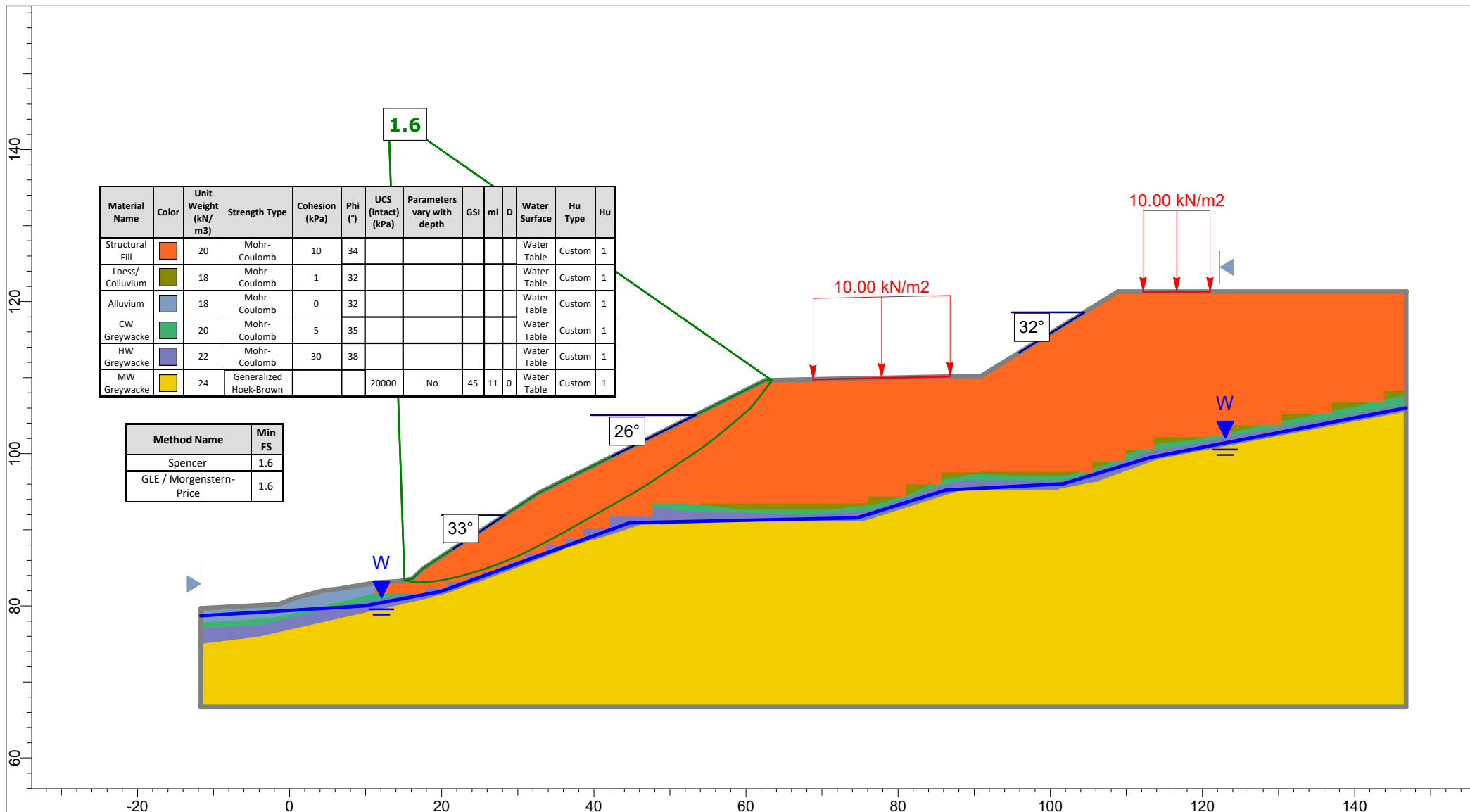
Yield Acceleration

Date

26/06/2024

Client

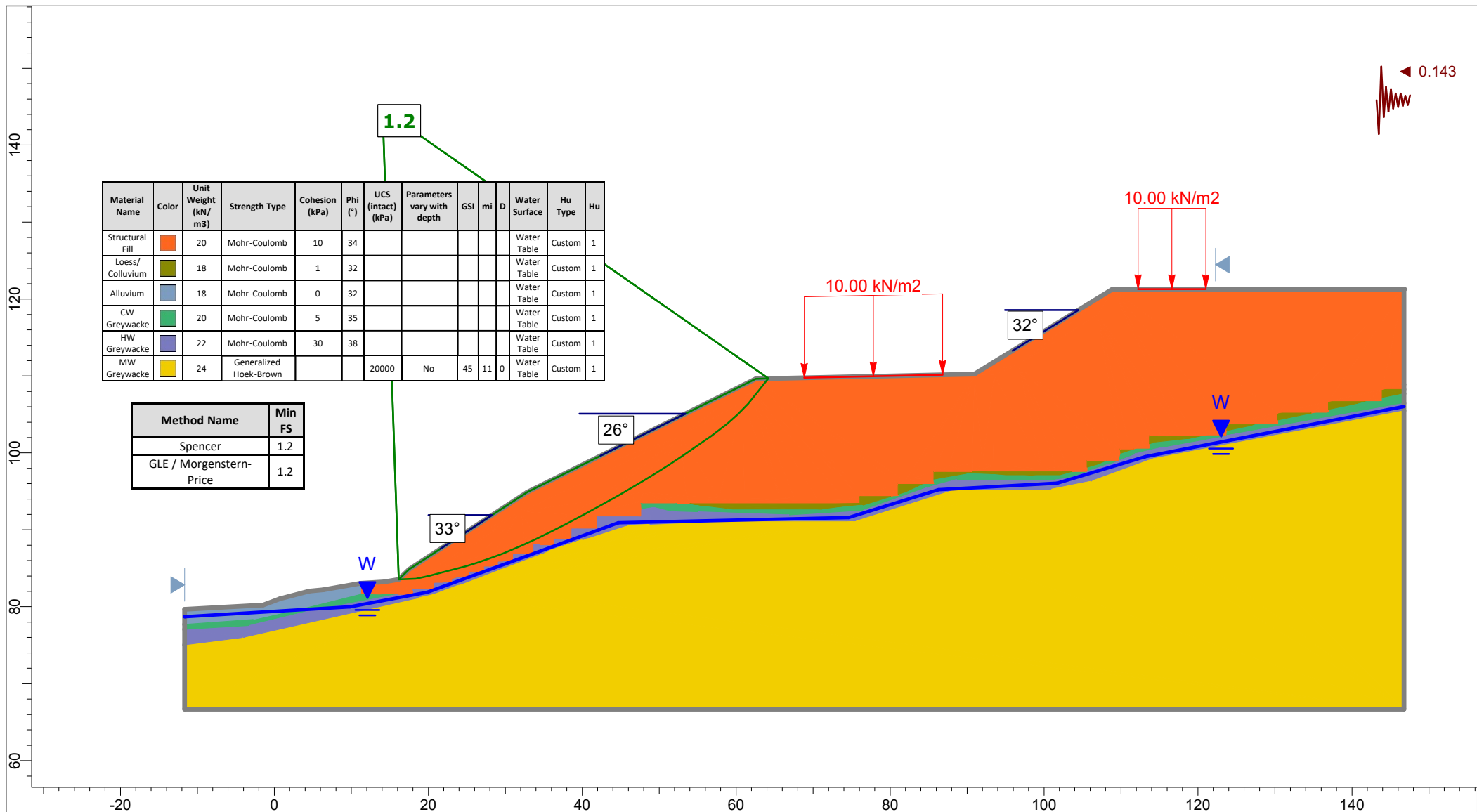
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ENGEO

SLIDEINTERPRET 9.034

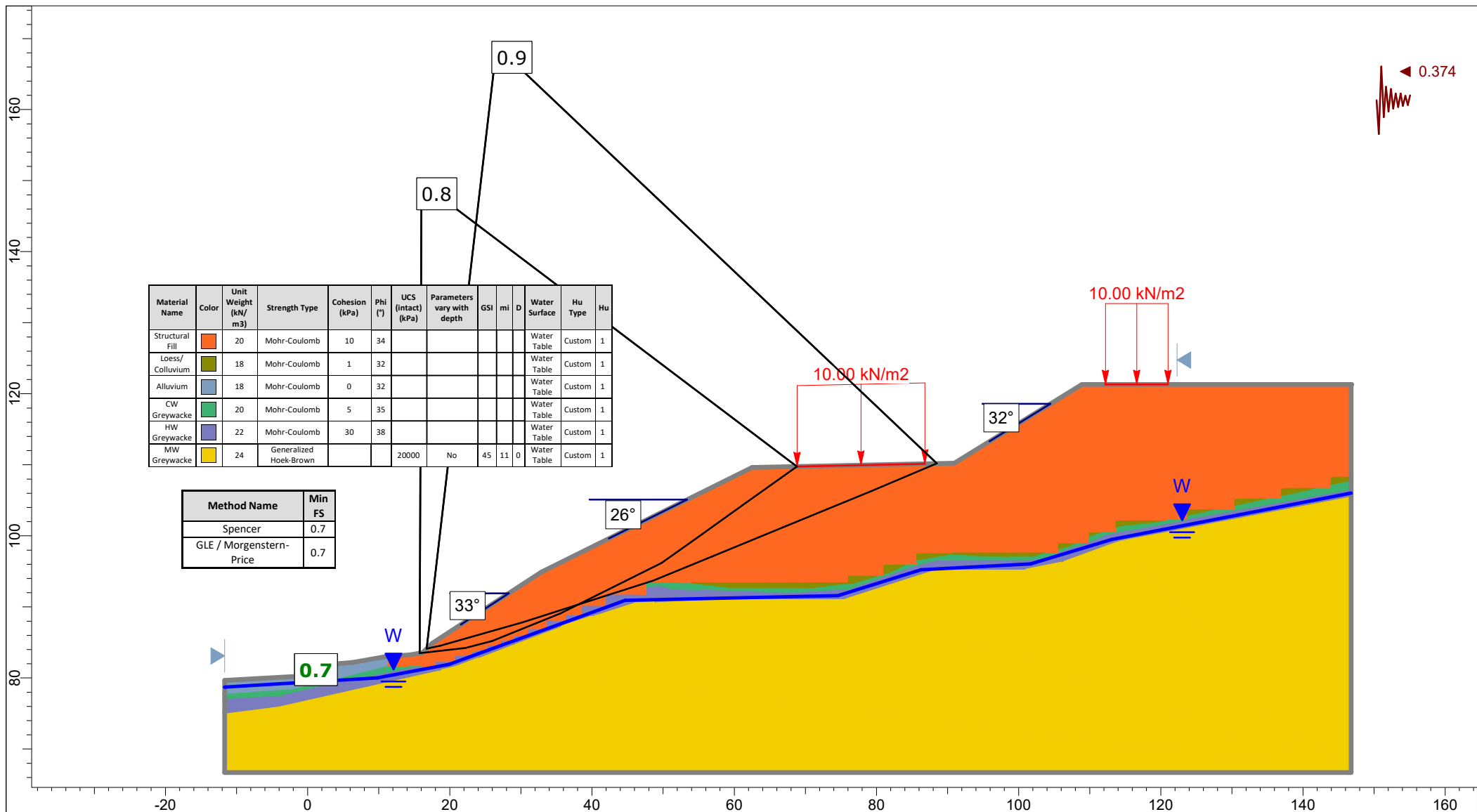
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Drawn By	CW	Scenario	Static
Date	26/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

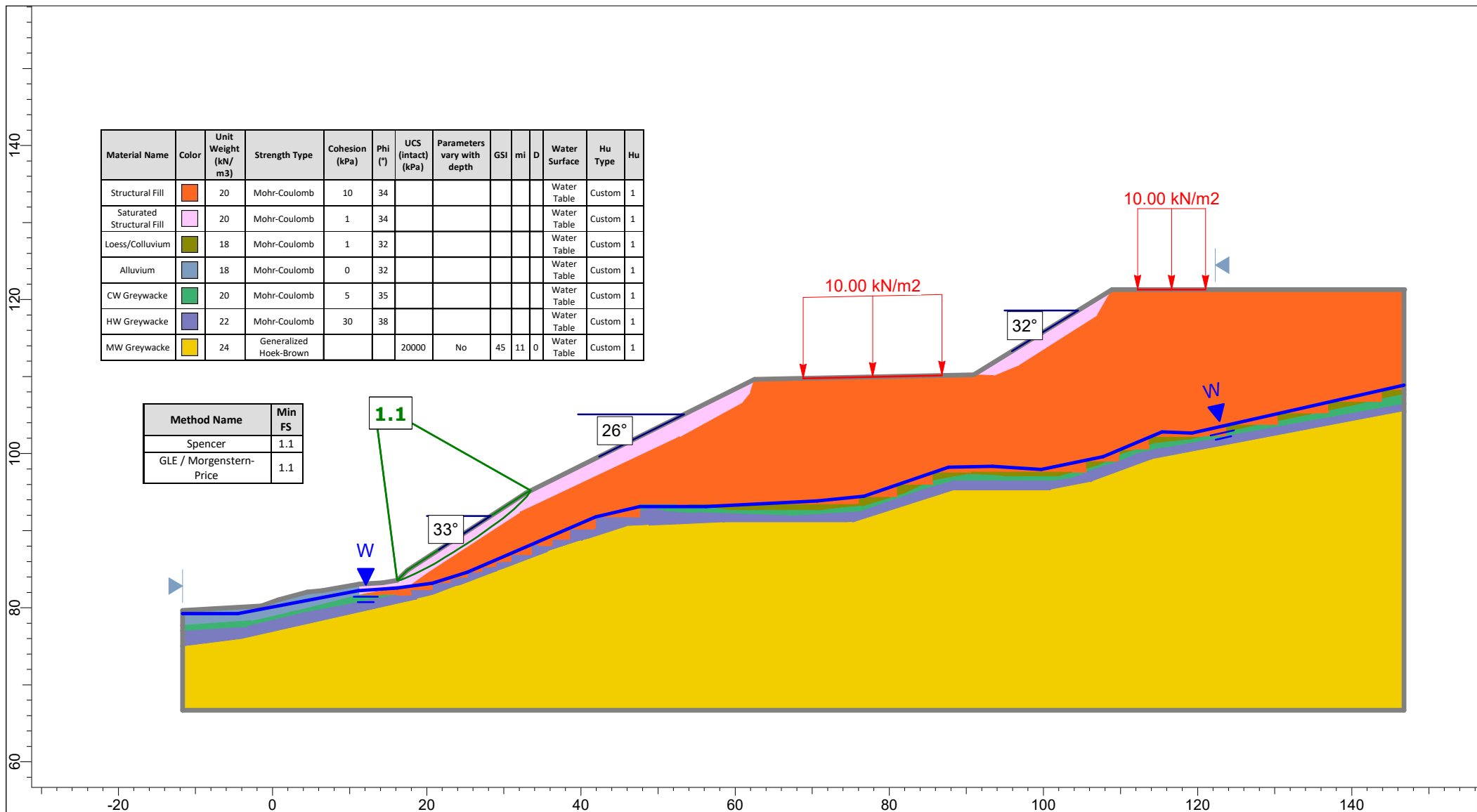
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Analysis Description		Section B (Fill)	
Drawn By	CW	Scenario	SLS Seismic
Date	26/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

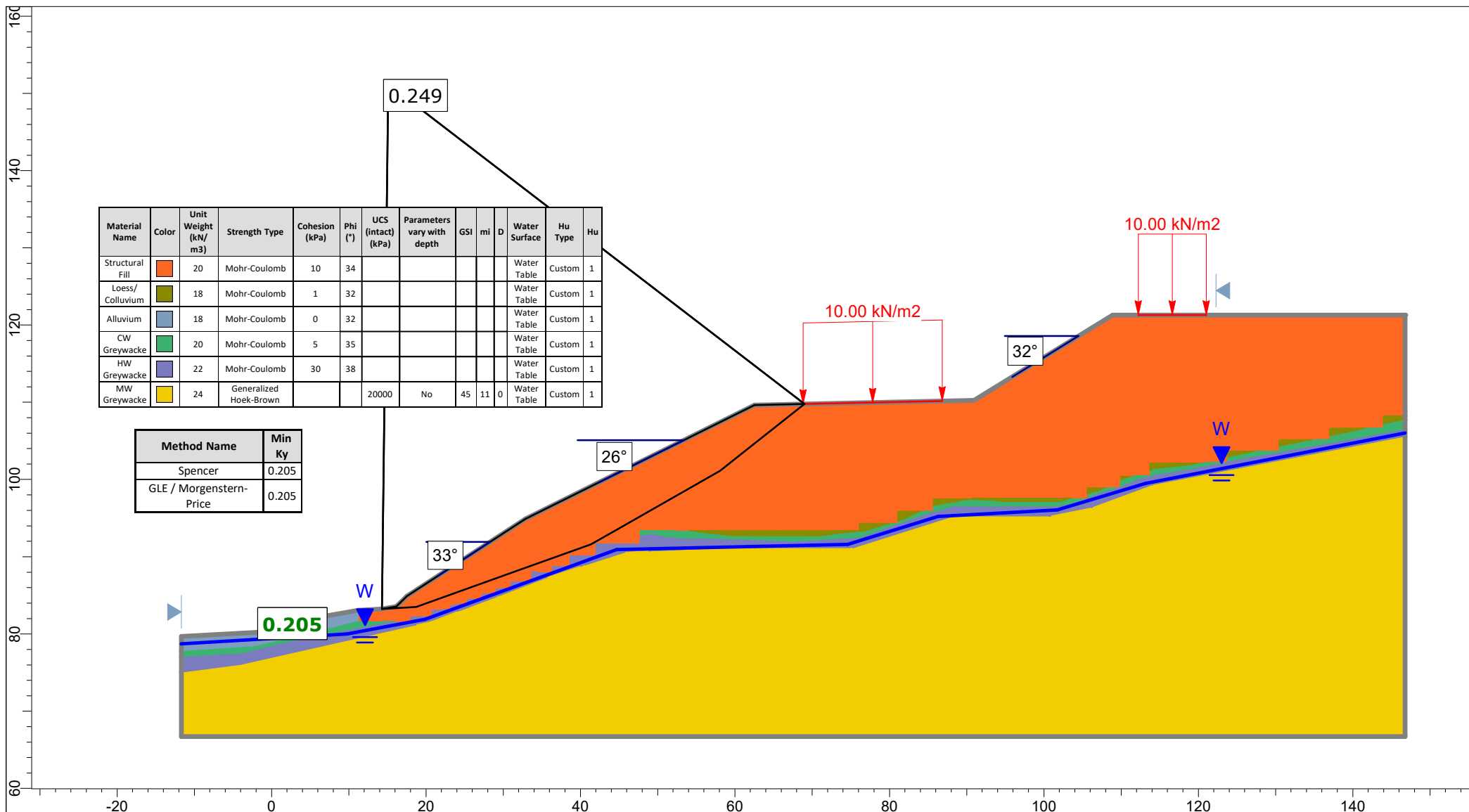
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Analysis Description		Section B (Fill)	
Drawn By	CW	Scenario	ULS Seismic
Date	26/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

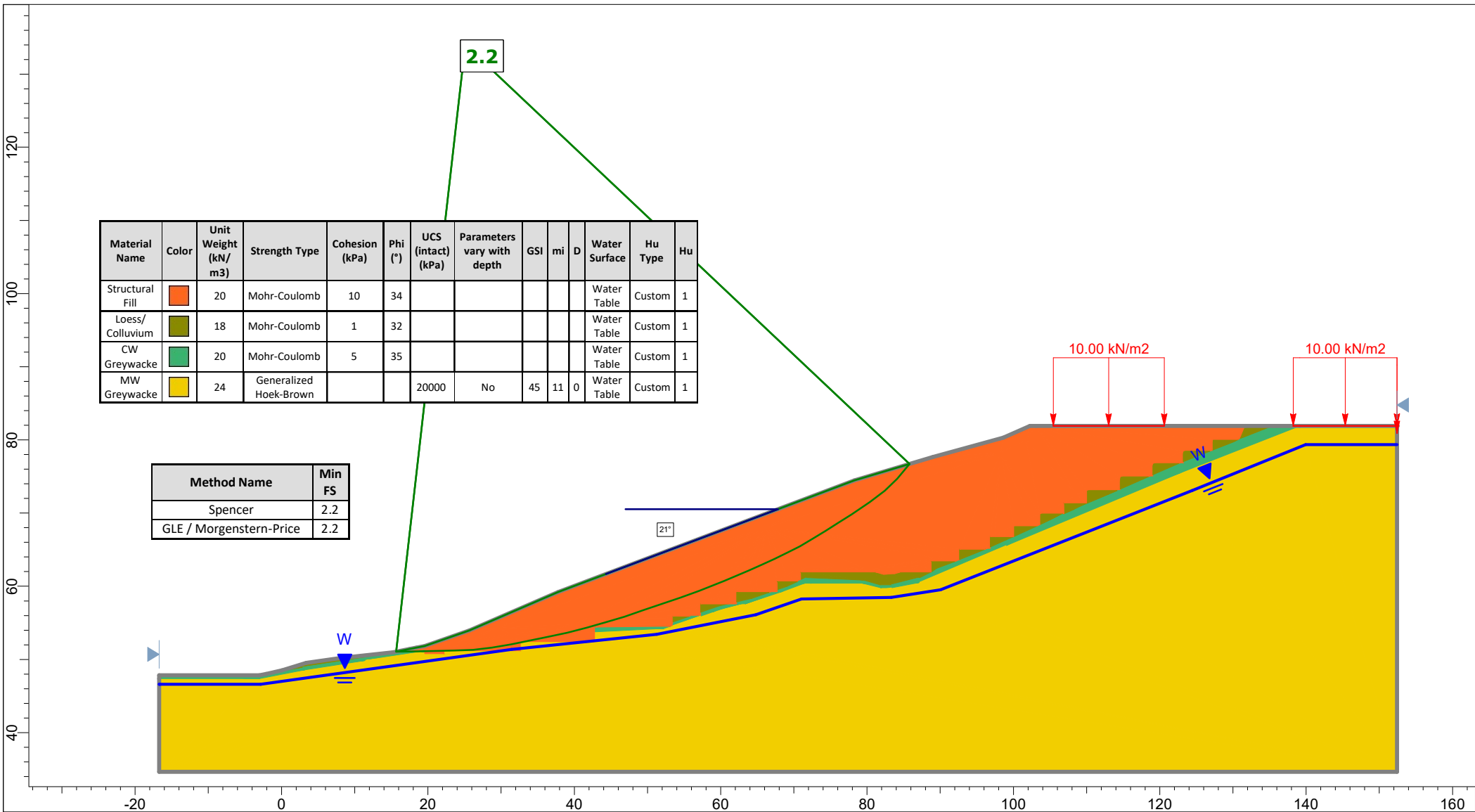
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Analysis Description		Section B (Fill)	
Drawn By	CW	Scenario	Raised Groundwater
Date	26/06/2024	Client	Classic Developments Ltd



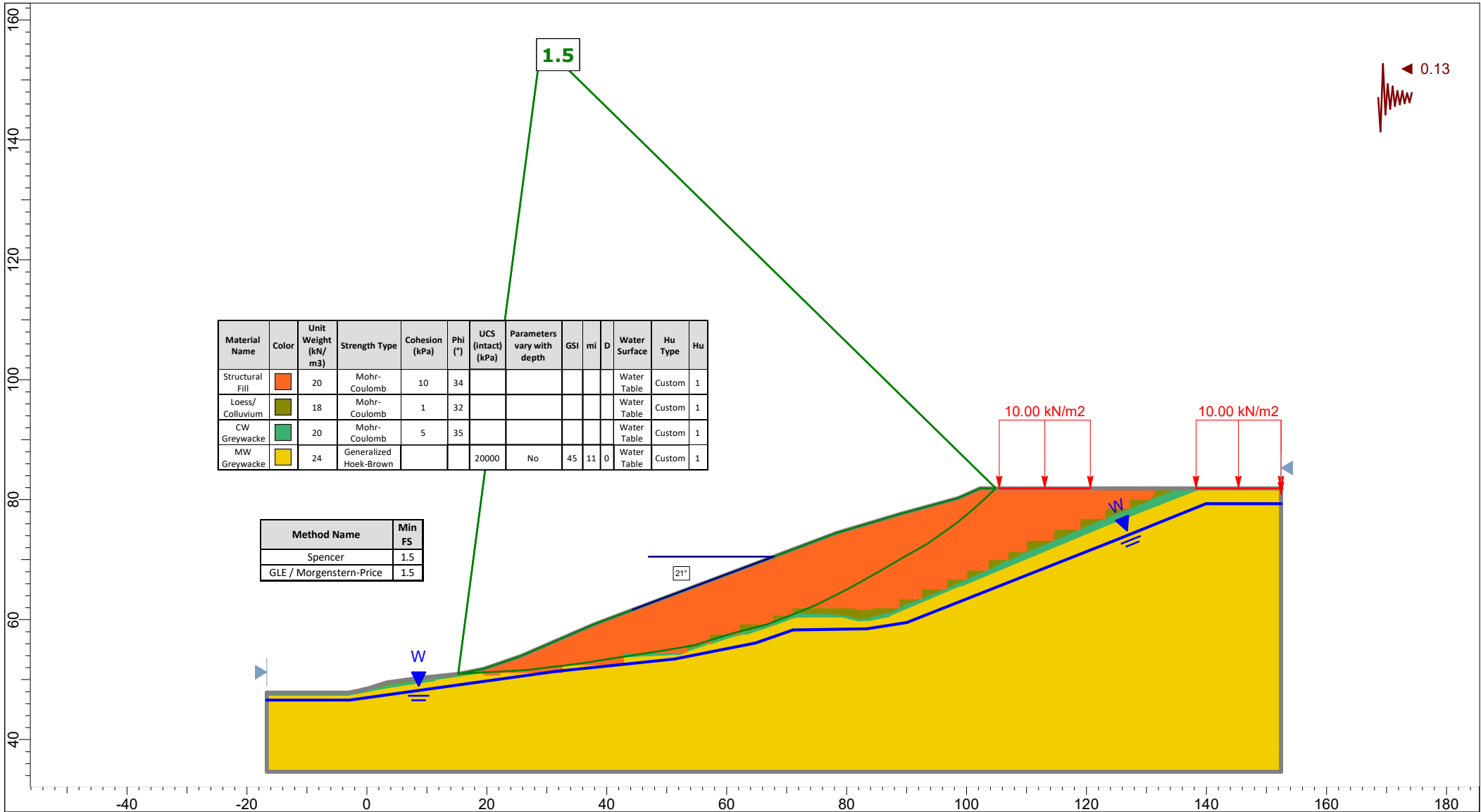
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SLIDEINTERPRET 9.034

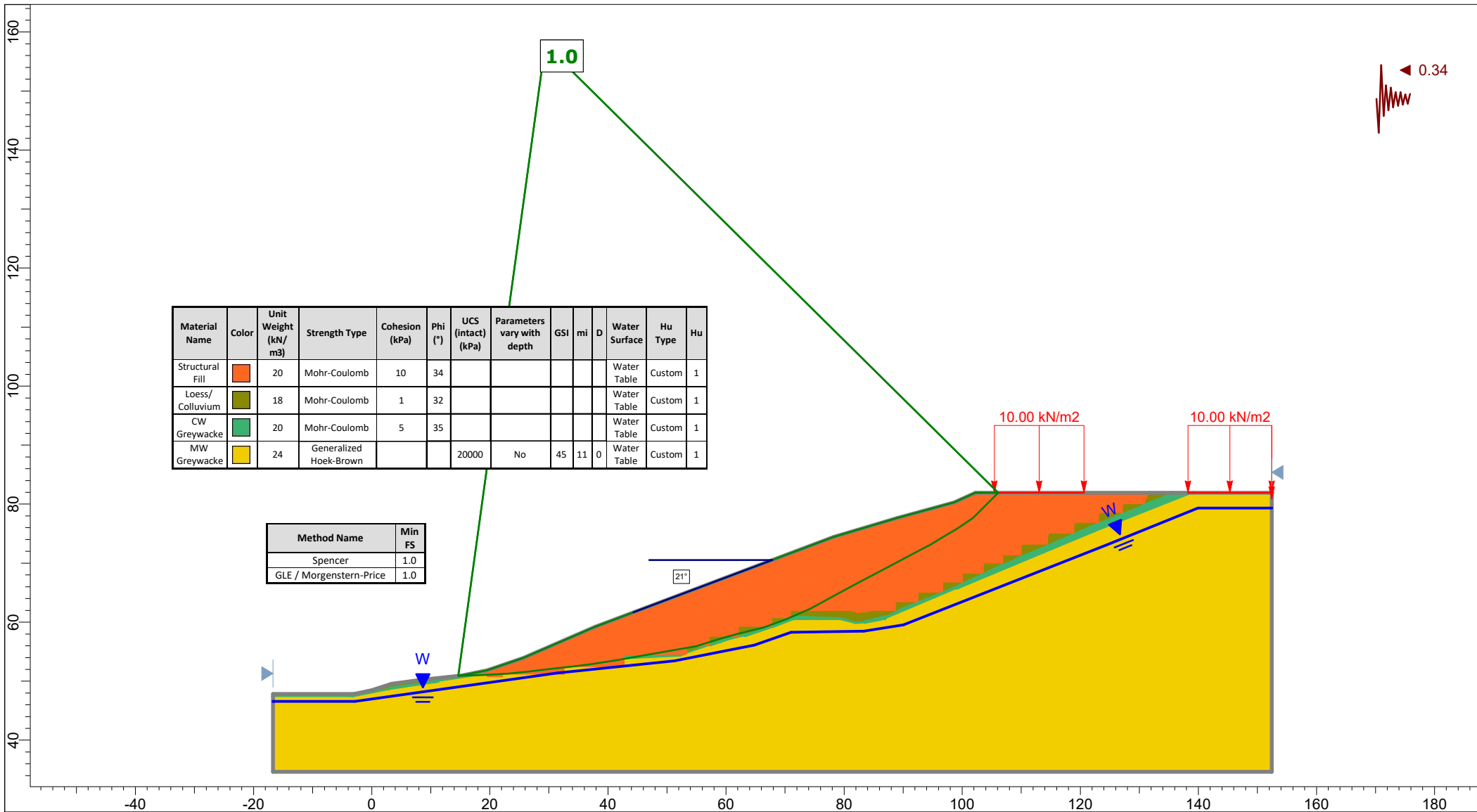
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Analysis Description	Section B (Fill)		
Drawn By	CW	Scenario	Yield Acceleration
Date	26/06/2024	Client	Classic Developments Ltd



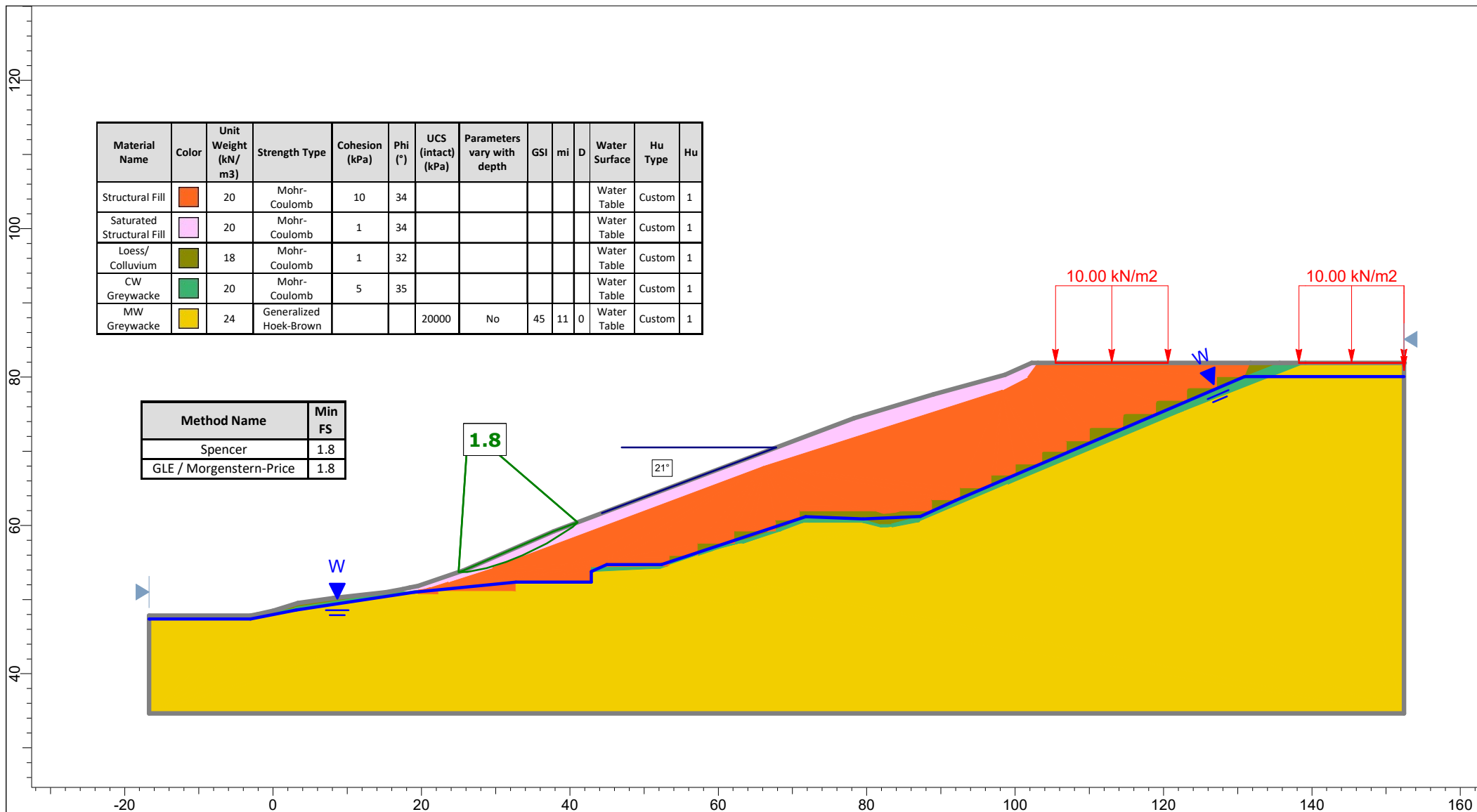
	Project		Mt Welcome Development	
	Analysis Description		Section C (Fill)	
	Drawn By		CW	Scenario
	Date		24/06/2024	Client
		Static		Classic Developments Ltd



ENG GEO SLIDEINTERPRET 9.034	Project	Mt Welcome Development	
	Analysis Description	Section C (Fill)	
	Drawn By	CW	ScenarioSLS Seismic
	Date	24/06/2024	ClientClassic Developments Ltd



ENGEO SLIDEINTERPRET 9.034	Project	Mt Welcome Development	
	Analysis Description	Section C (Fill)	
	Drawn By	CW	Scenario
	Date	24/06/2024	Client
			ULS Seismic
			Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

Project

Mt Welcome Development

Analysis Description

Section C (Fill)

Drawn By

CW

Scenario

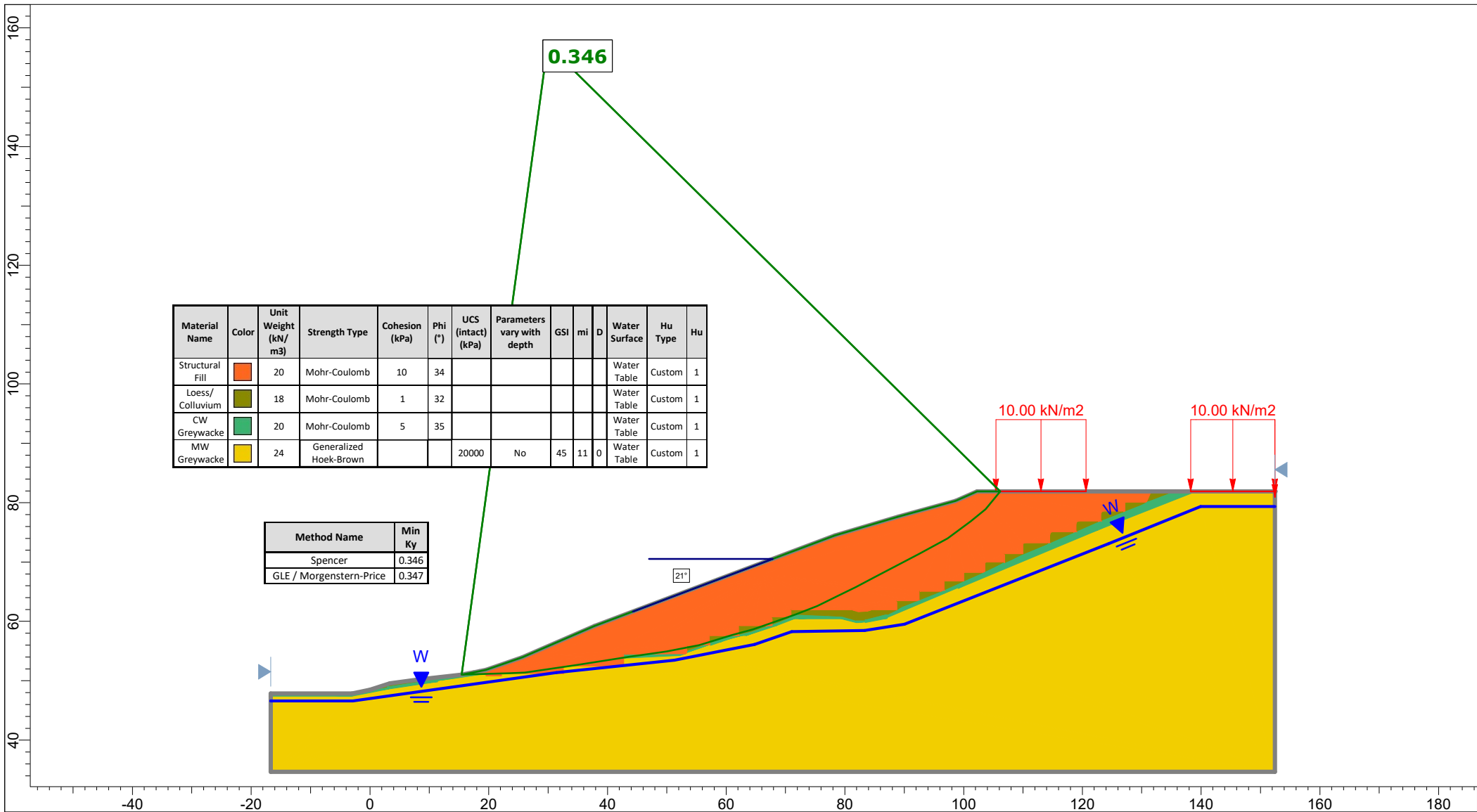
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Date

24/06/2024

Client

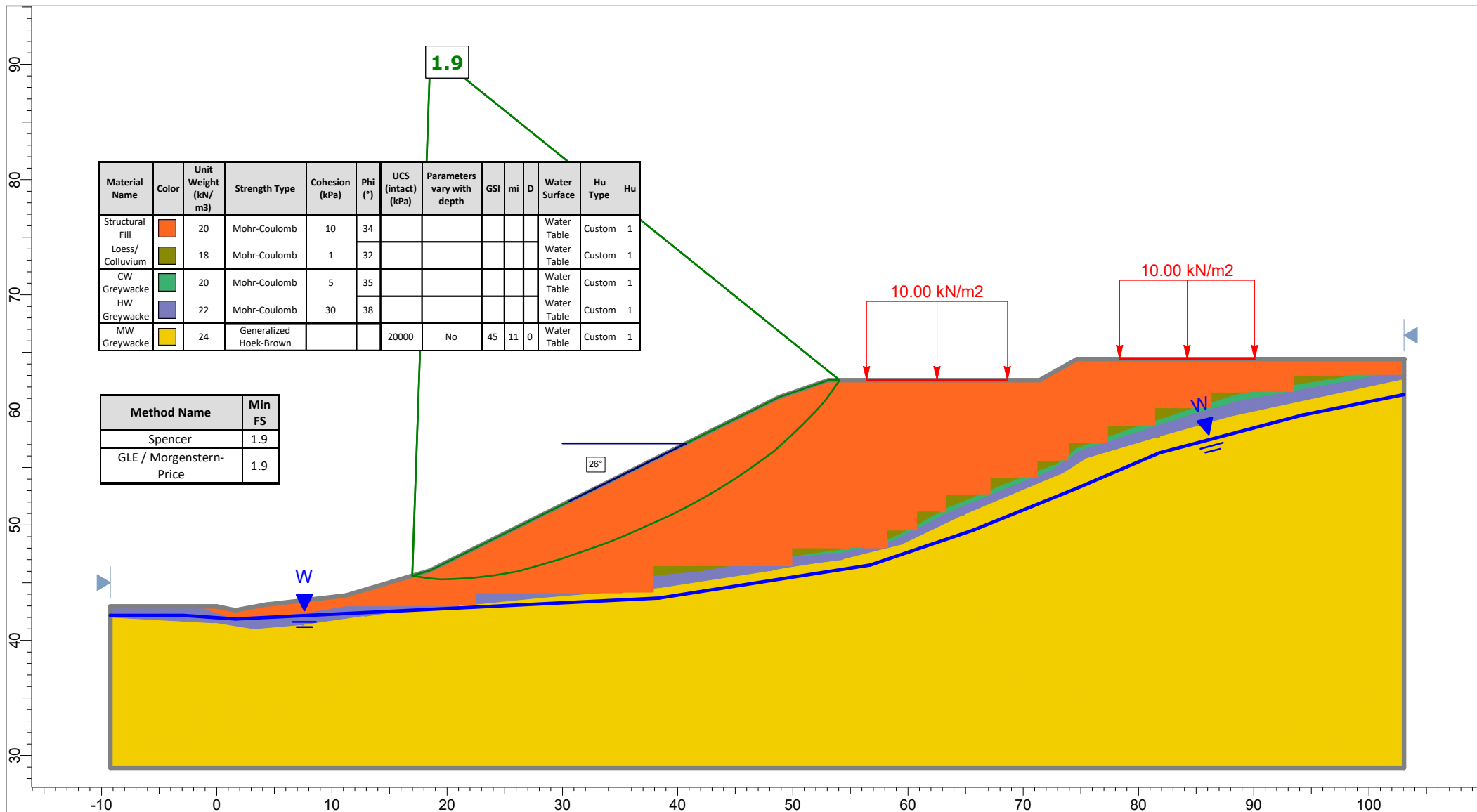
Classic Developments Ltd



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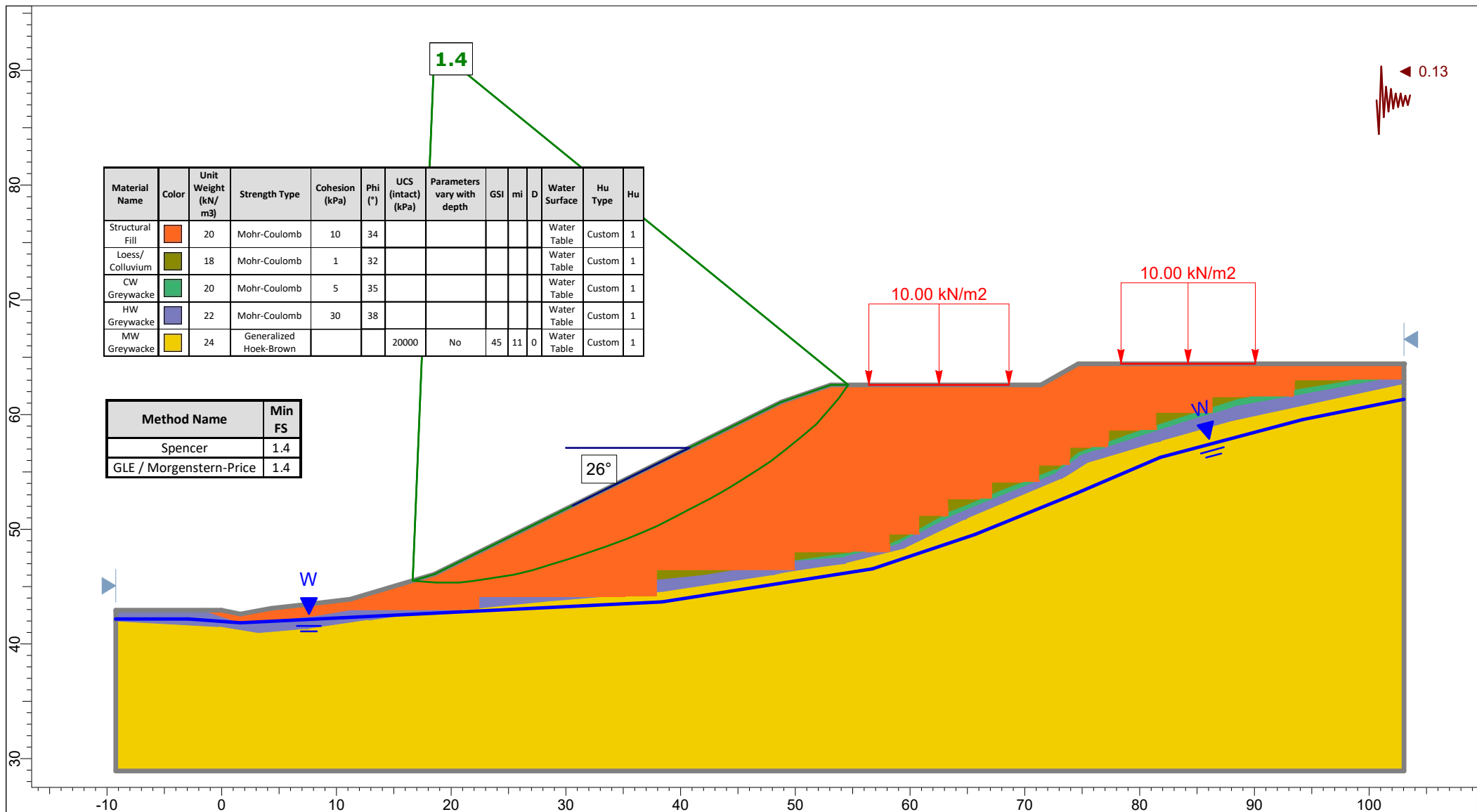
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Date	24/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

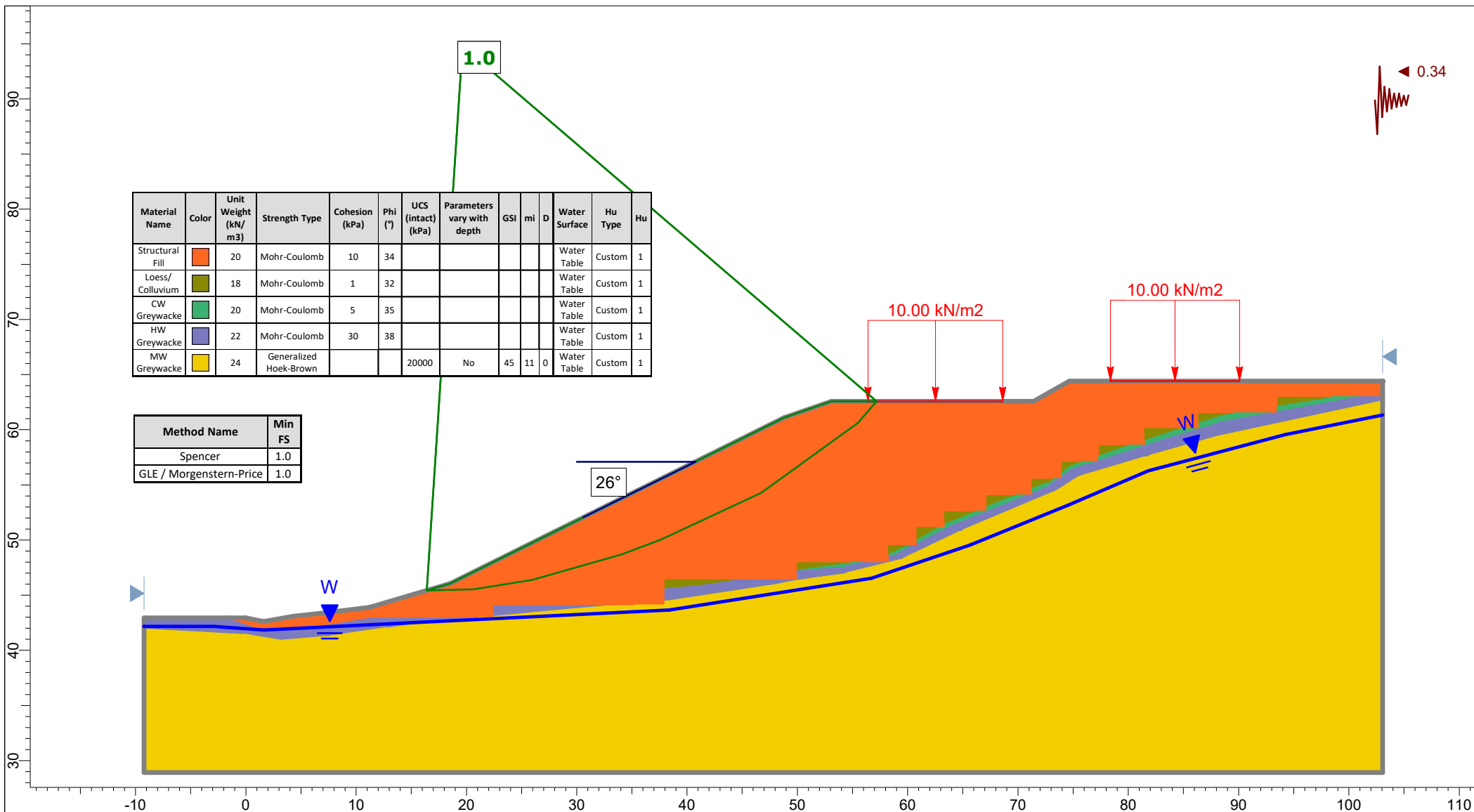
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Analysis Description		Section D (Fill)	
Drawn By	CW	Scenario	Static
Date	24/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

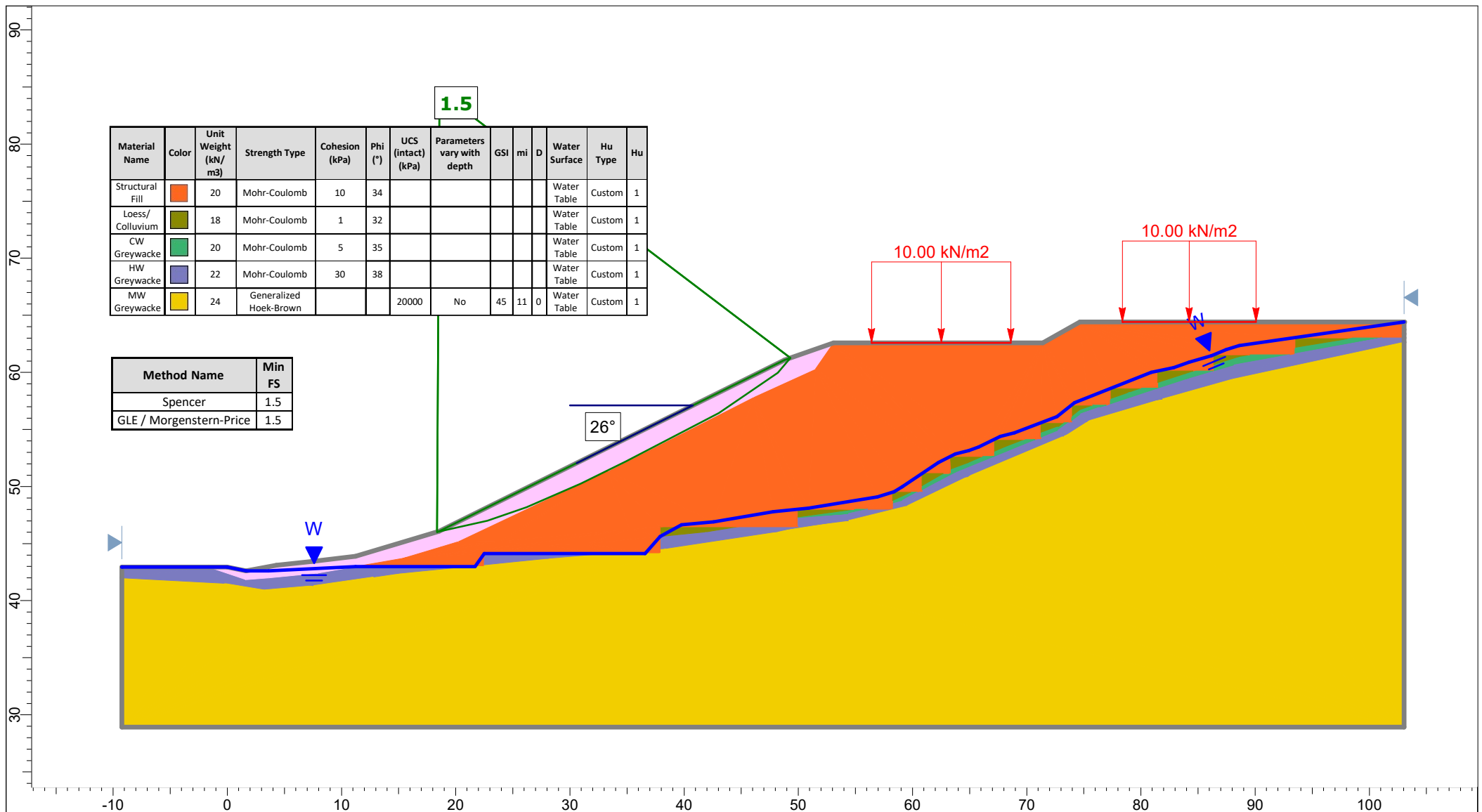
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Analysis Description	Section D (Fill)		
Drawn By	CW	Scenario	SLS Seismic
Date	24/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

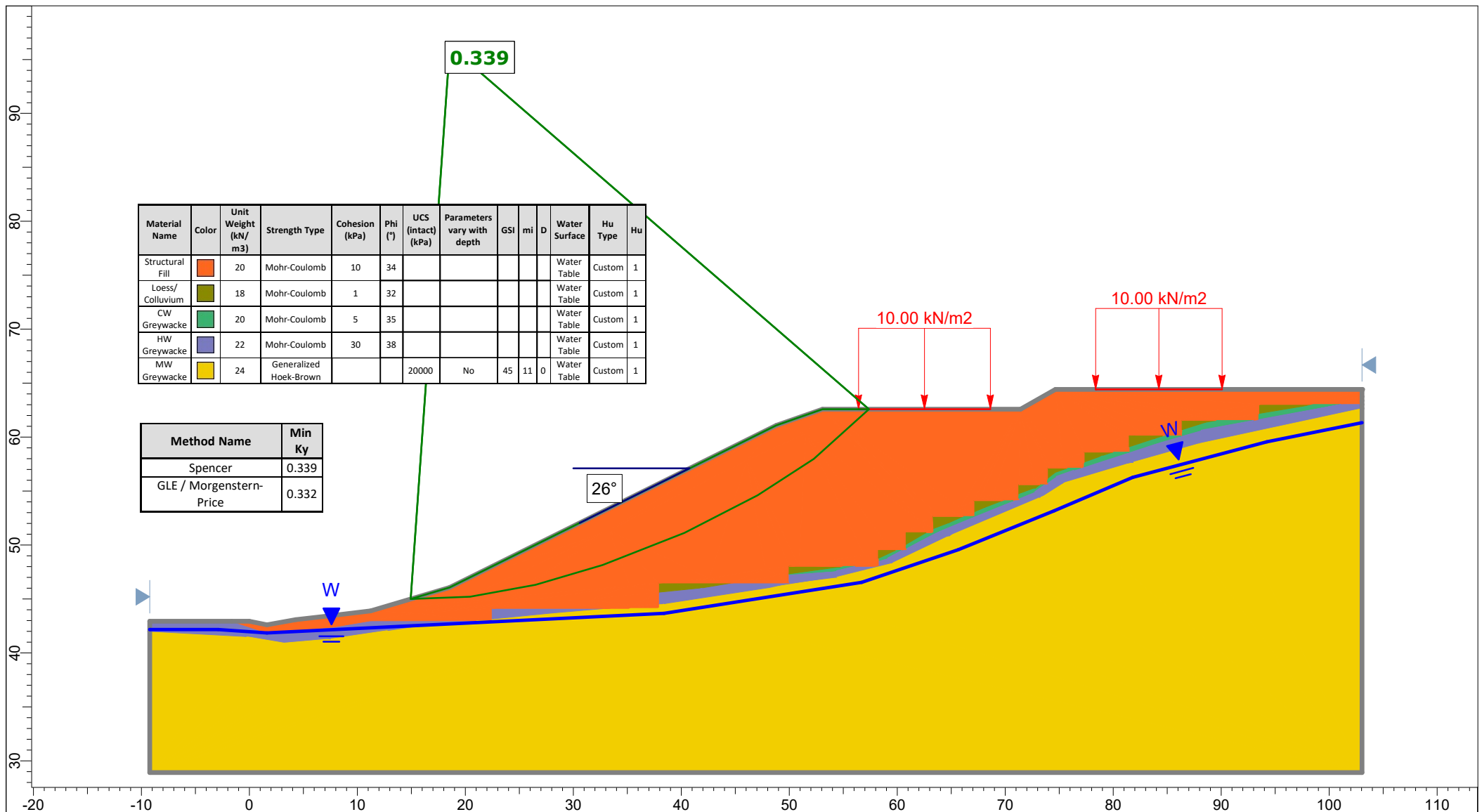
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Analysis Description		Section D (Fill)	
Drawn By		CW	Scenario
Date		24/06/2024	Client
		ULS Seismic	
		Classic Developments Ltd	



ENGEO

SLIDEINTERPRET 9.034

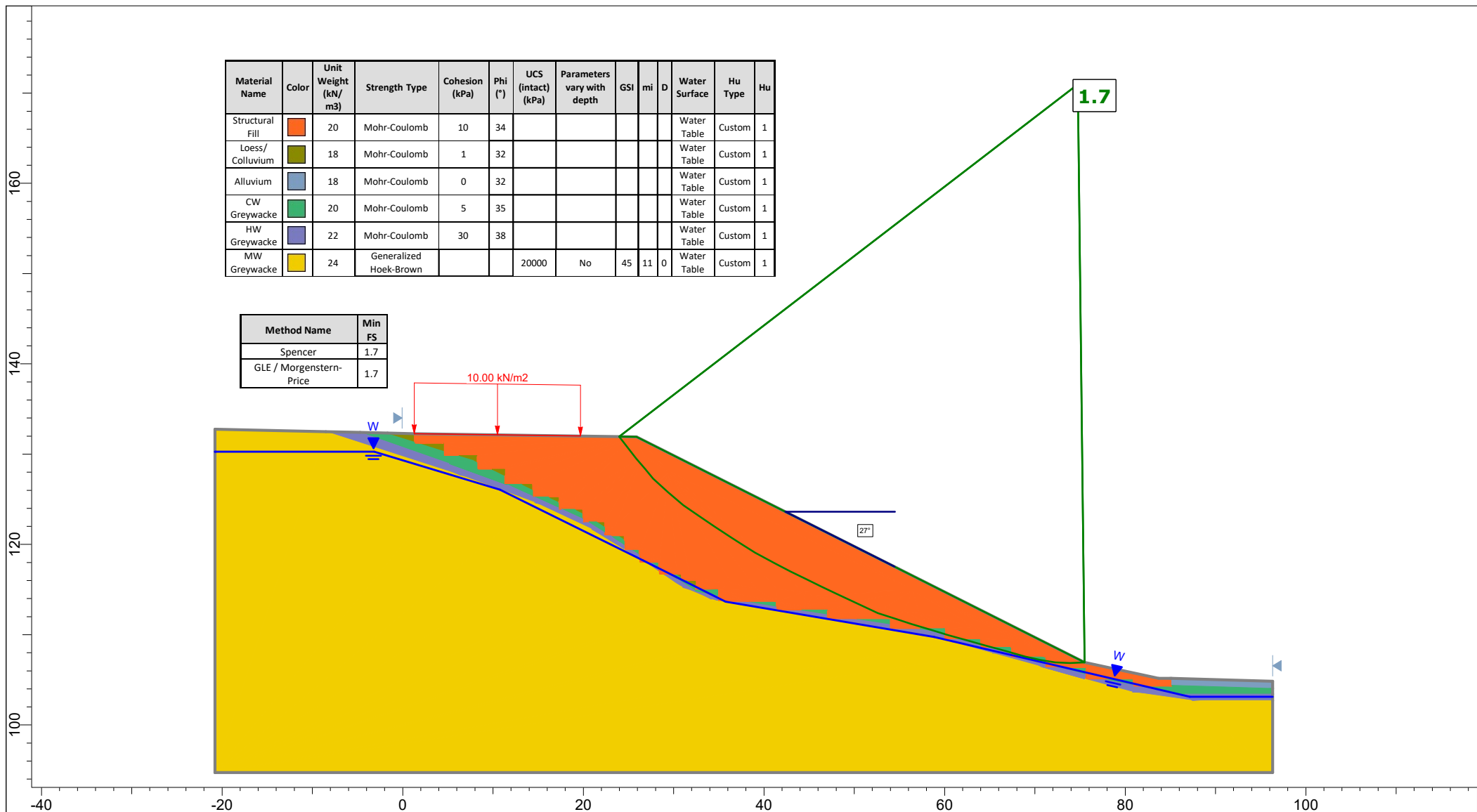
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Analysis Description		Section D (Fill)	
Drawn By		CW	Scenario
Date		24/06/2024	Client
		Raised Groundwater	
		Classic Developments Ltd	



ENGEO

SLIDEINTERPRET 9.034

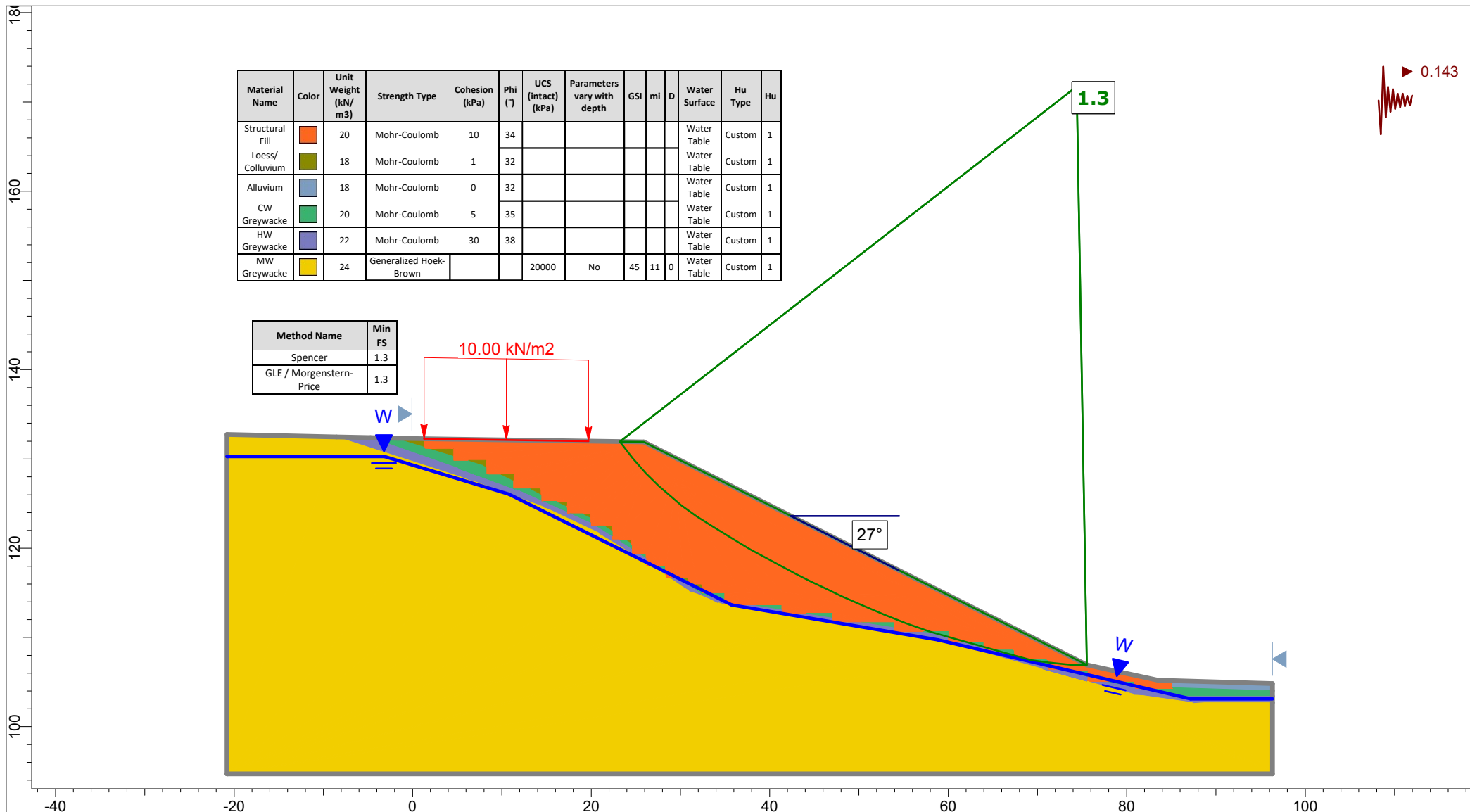
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Analysis Description		Section D (Fill)	
Drawn By	CW	Scenario	Yield Acceleration
Date	24/06/2024	Client	Classic Developments Ltd



ENGEO

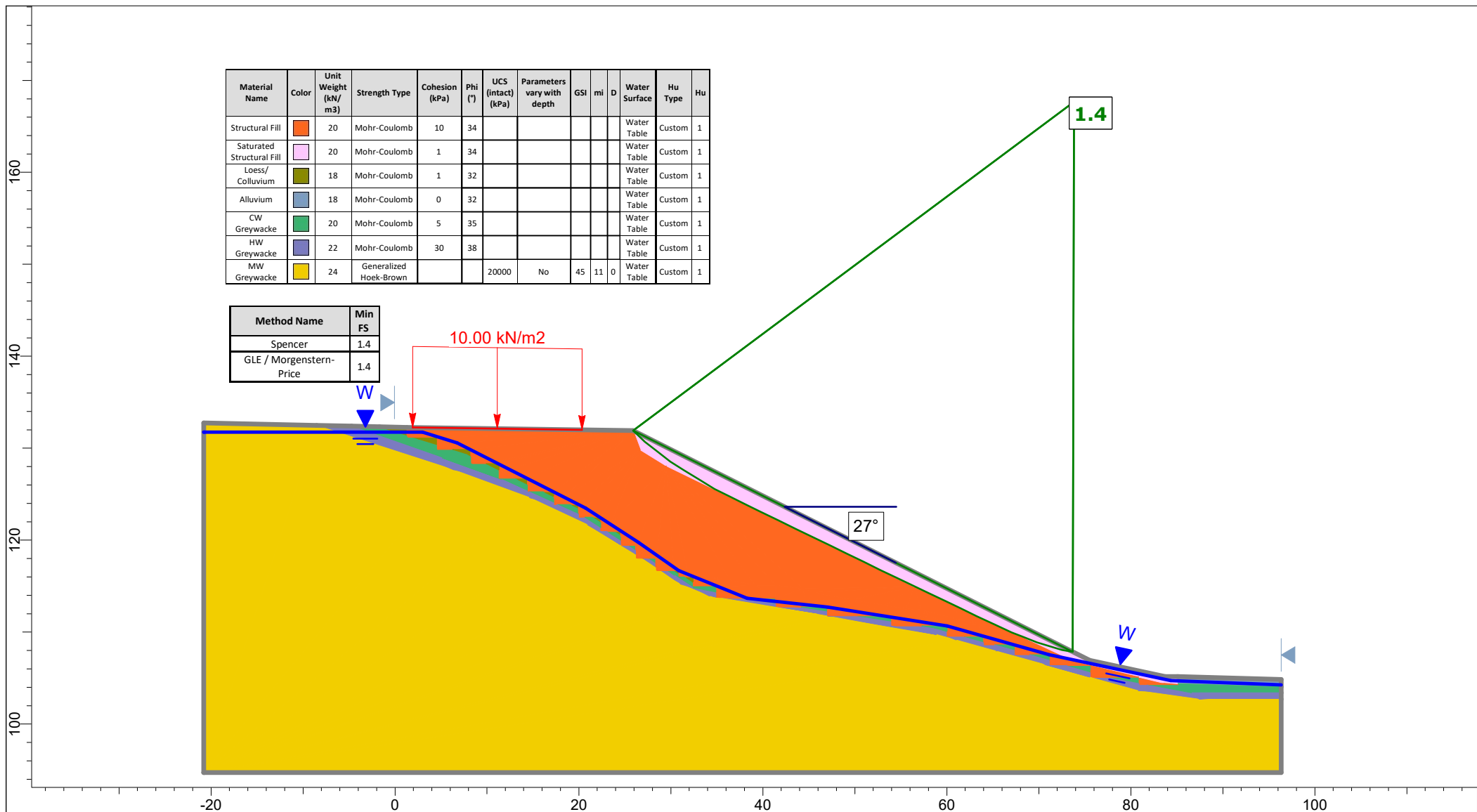
SLIDEINTERPRET 9.034

Project		Mt Welcome Development	
Analysis Description		Section E (Fill)	
Drawn By	CW	Scenario	Static
Date	26/06/2024	Client	Classic Developments Ltd



ENGEO

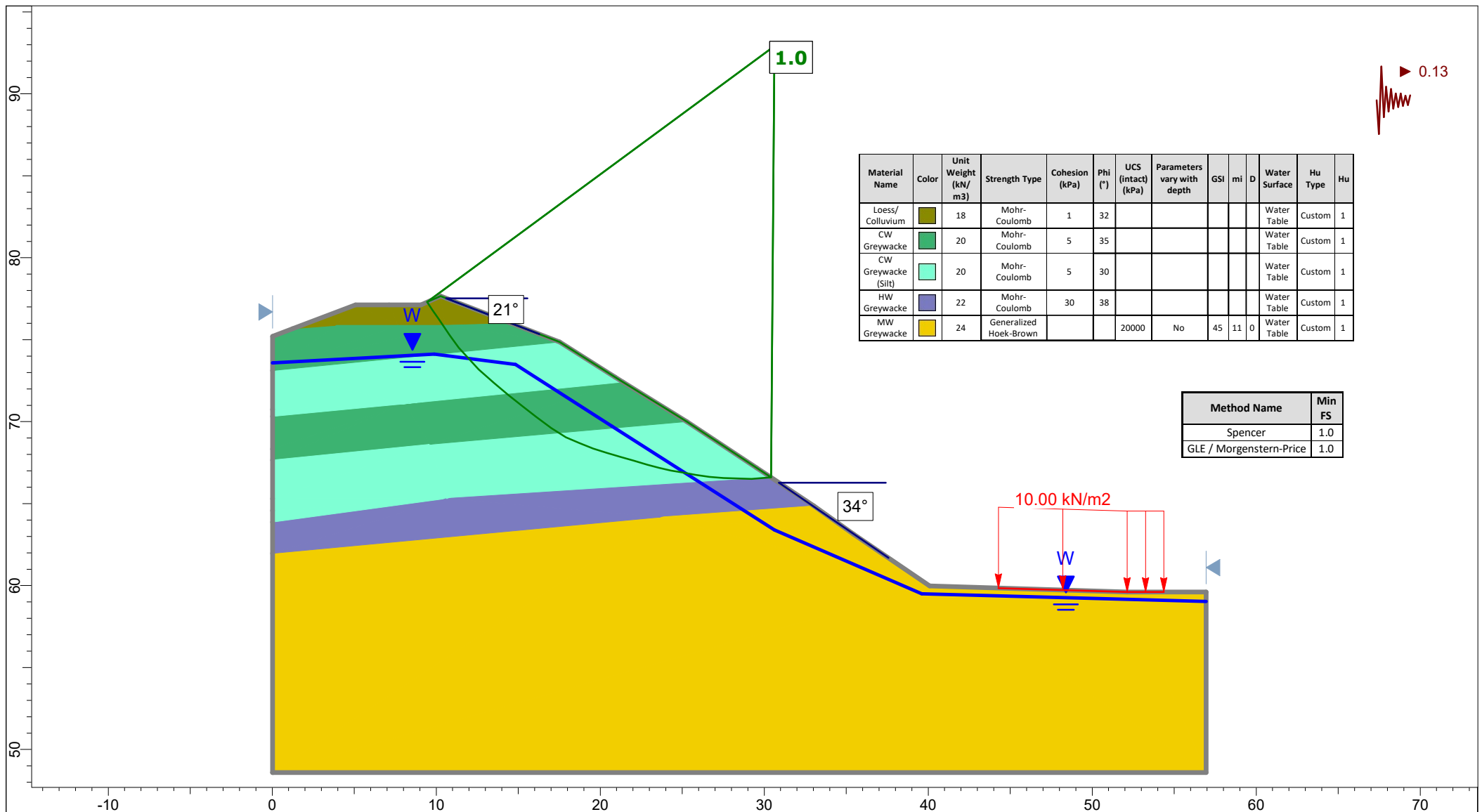
Project		Mt Welcome Development	
Analysis Description		Section E (Fill)	
Drawn By	CW	Scenario	SLS Seismic
Date	26/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

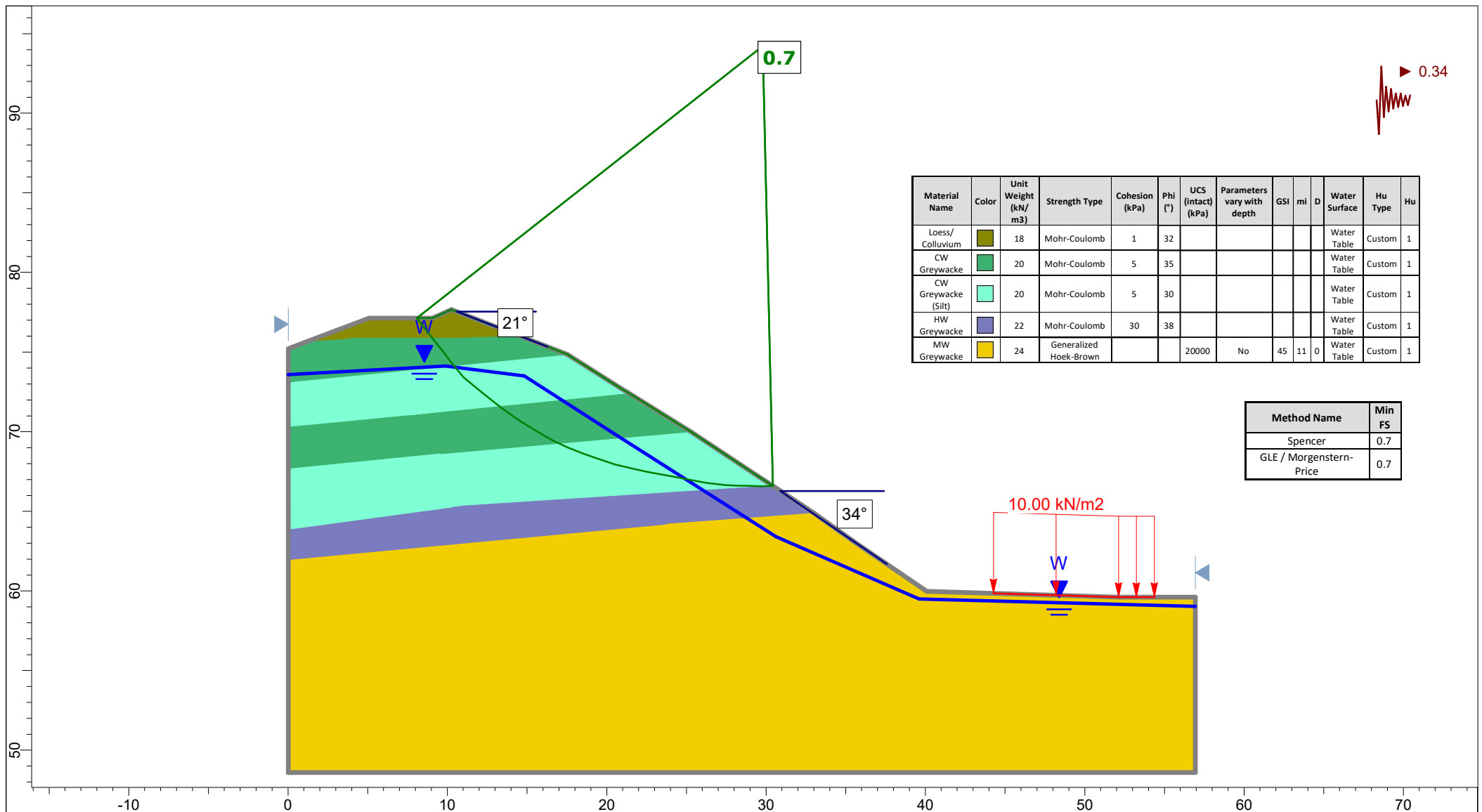
Project		Mt Welcome Development	
Analysis Description		Section E (Fill)	
Drawn By		CW	Scenario Raised Groundwater
Date		26/06/2024	Client Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

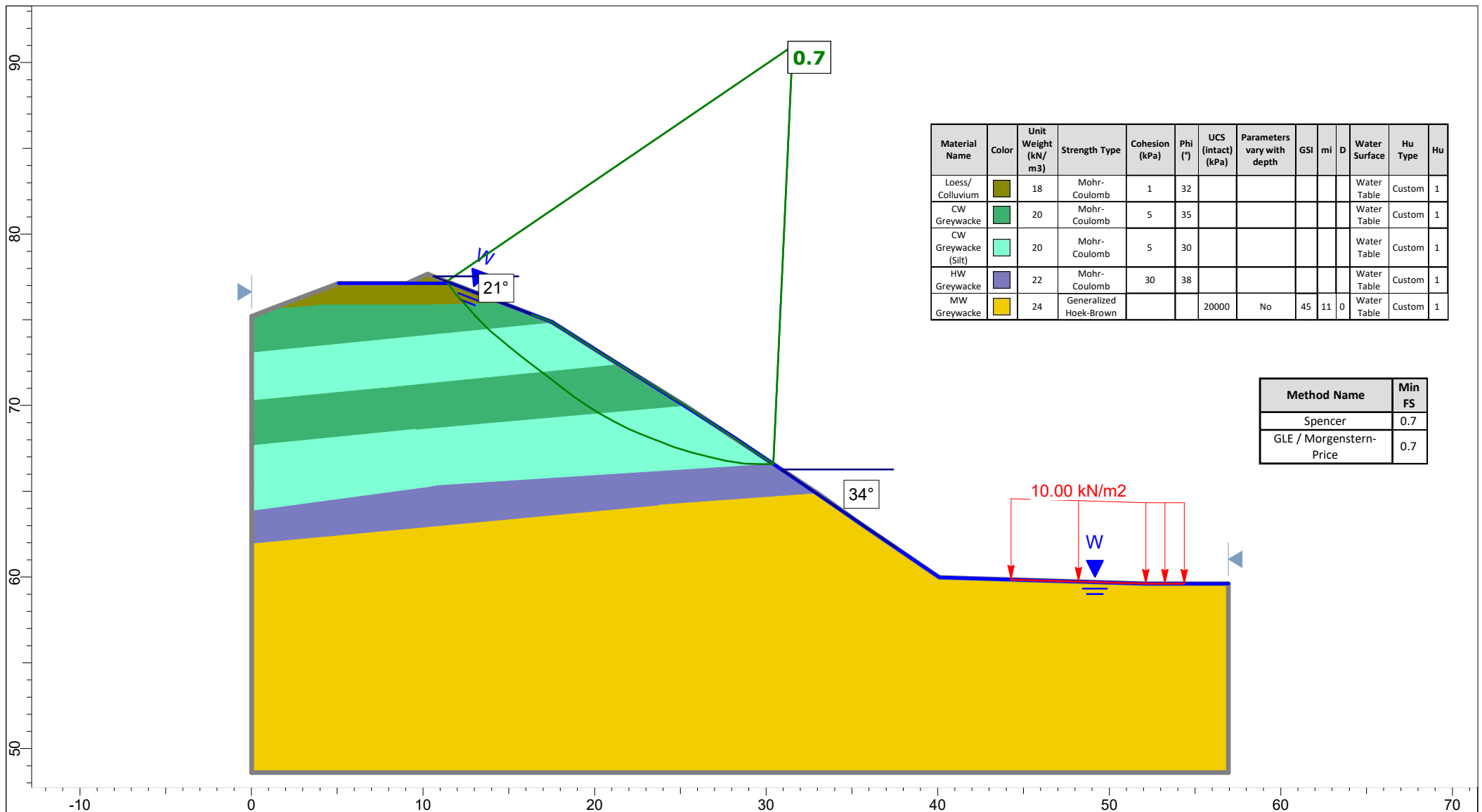
Project	Mt Welcome Development		
Analysis Description	Section F (Cut)		
Drawn By	CW	Scenario	SLS Seismic
Date	24/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

Project	Mt Welcome Development		
Analysis Description	Section F (Cut)		
Drawn By	CW	Scenario	ULS Seismic
Date	24/06/2024	Client	Classic Developments Ltd

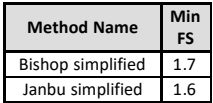


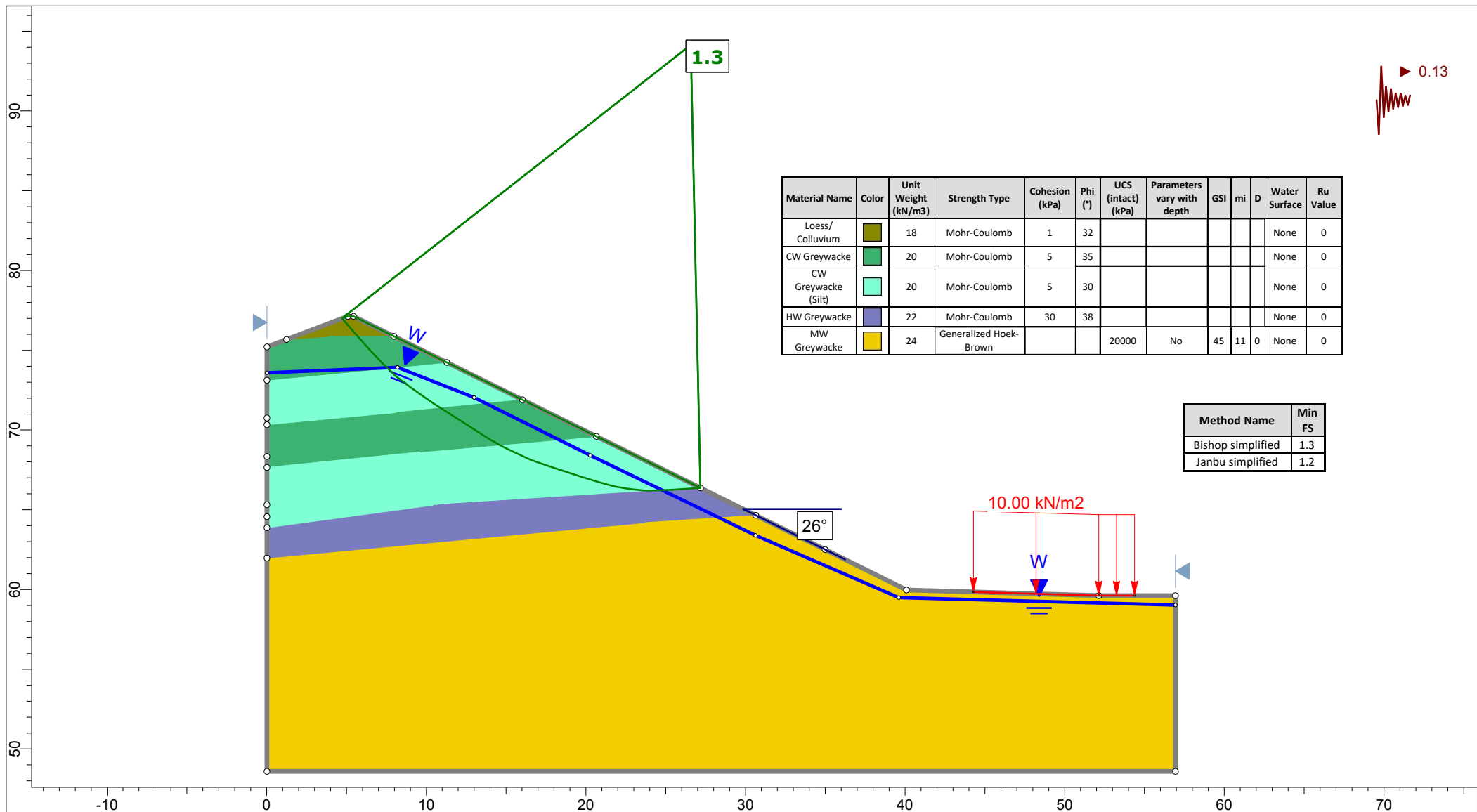
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	UCS (intact) (kPa)	Parameters vary with depth	GSI	mi	D	Water Surface	Hu Type	Hu
Loess/ Colluvium		18	Mohr-Coulomb	1	32						Water Table	Custom	1
CW Greywacke		20	Mohr-Coulomb	5	35						Water Table	Custom	1
CW Greywacke (Silt)		20	Mohr-Coulomb	5	30						Water Table	Custom	1
HW Greywacke		22	Mohr-Coulomb	30	38						Water Table	Custom	1
MW Greywacke		24	Generalized Hoek-Brown			20000	No	45	11	0	Water Table	Custom	1

Method Name	Min FS
Spencer	0.7
GLE / Morgenstern-Price	0.7

ENGEO

Project	Mt Welcome Development		
Analysis Description	Section F (Cut)		
Drawn By	CW	Scenario	Raised Groundwater
Date	24/06/2024	Client	Classic Developments Ltd





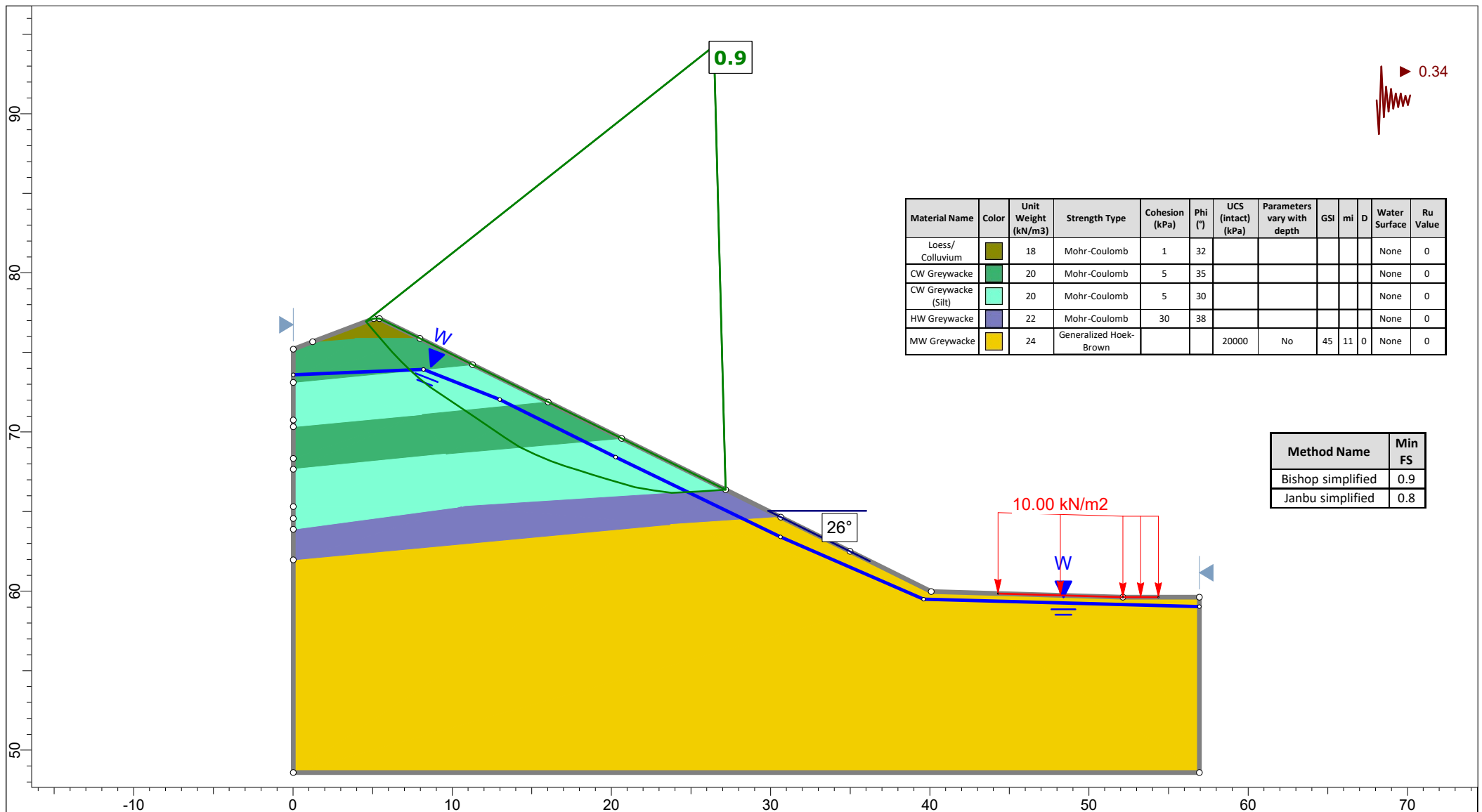
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	UCS (intact) (kPa)	Parameters vary with depth	GSI	mi	D	Water Surface	Ru Value
Loess/ Colluvium		18	Mohr-Coulomb	1	32						None	0
CW Greywacke		20	Mohr-Coulomb	5	35						None	0
CW Greywacke (Silt)		20	Mohr-Coulomb	5	30						None	0
HW Greywacke		22	Mohr-Coulomb	30	38						None	0
MW Greywacke		24	Generalized Hoek-Brown			20000	No	45	11	0	None	0

Method Name	Min FS
Bishop simplified	1.3
Janbu simplified	1.2

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SLIDEINTERPRET 9.034

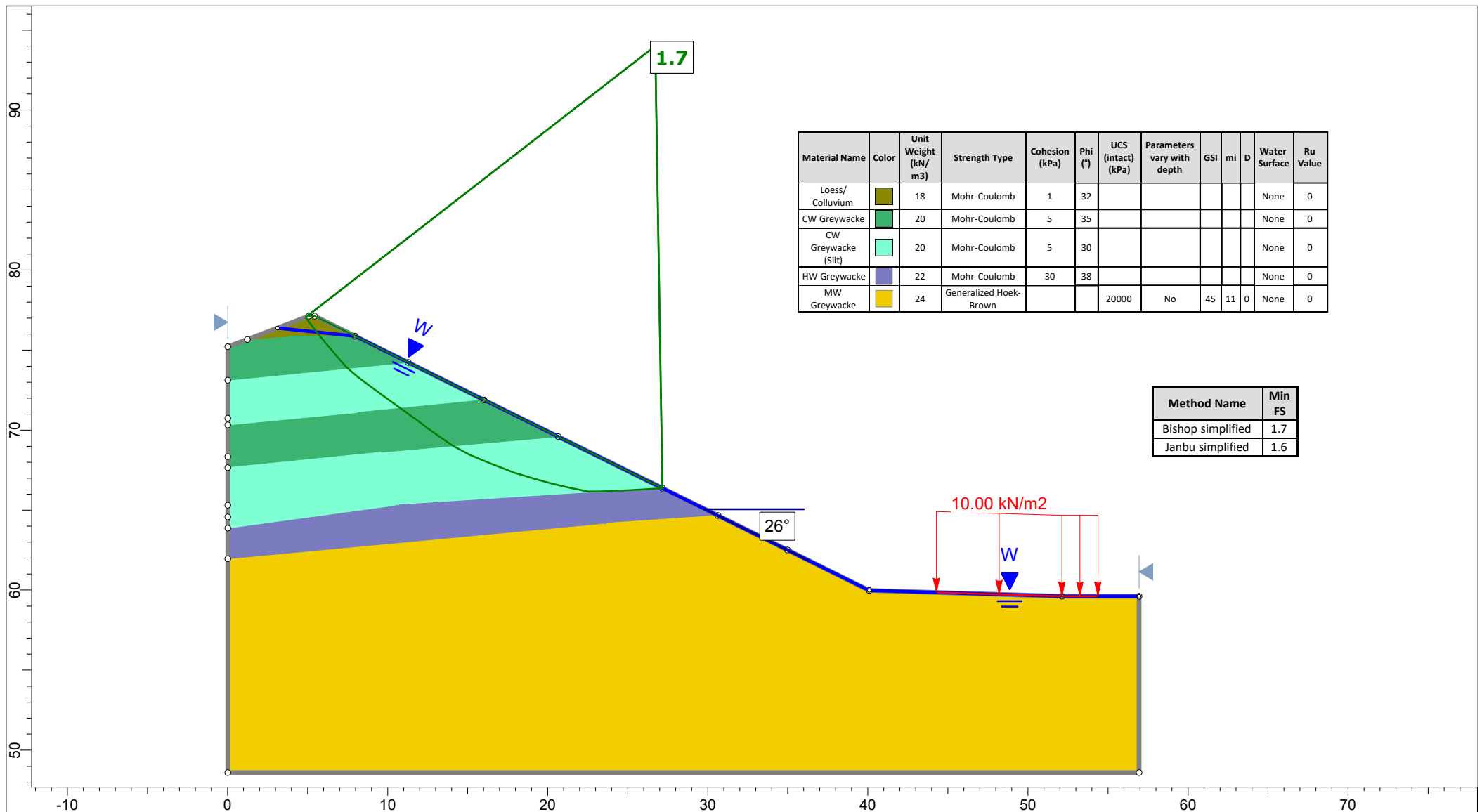
Project	Mt Welcome Development	
Analysis Description	Section F at 1:2 (Cut)	
Drawn By	CW	Scenario
Date	24/06/2024	SLS Seismic
		Client
		Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

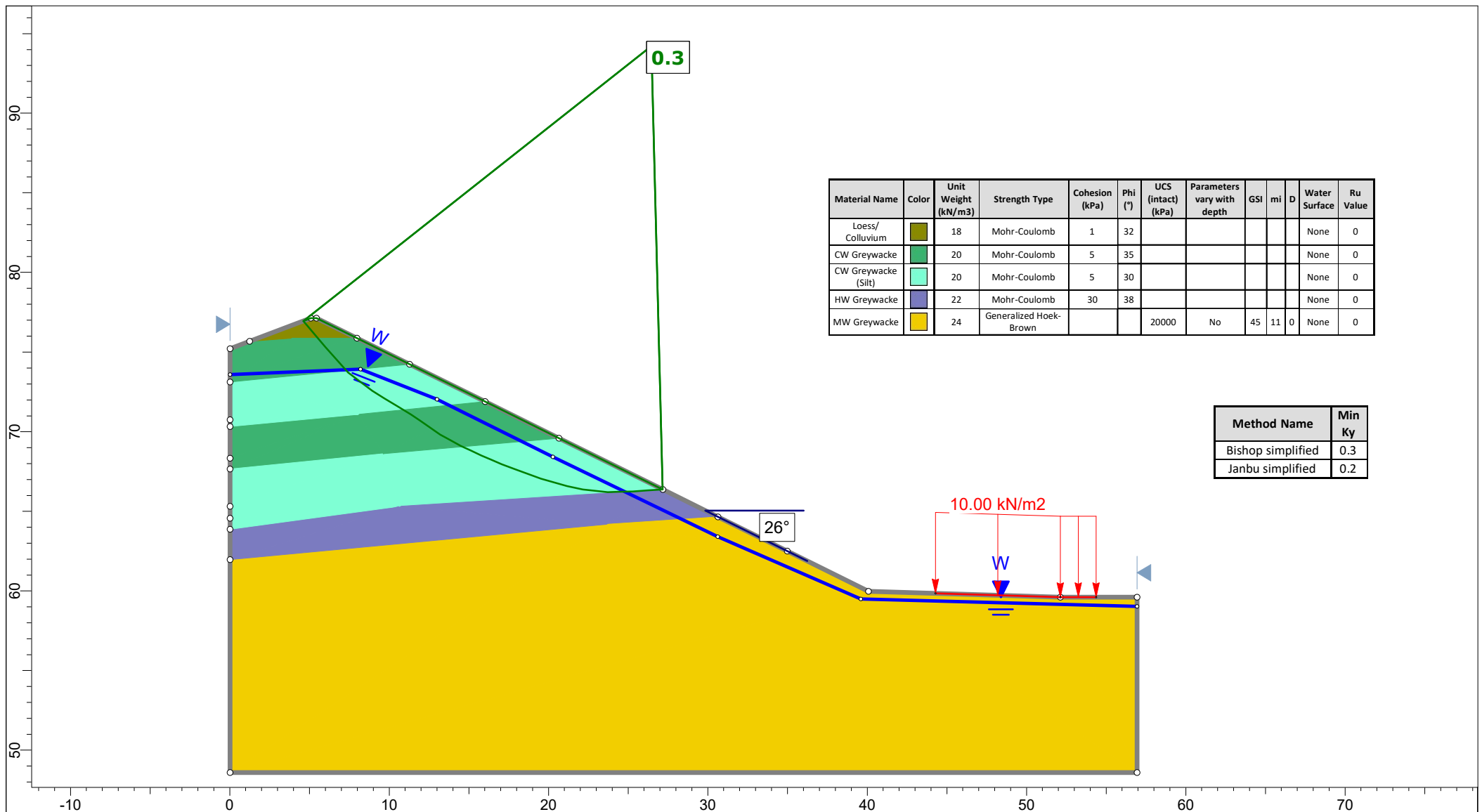
Project	Mt Welcome Development	
Analysis Description	Section F at 1:2 (Cut)	
Drawn By	CW	Scenario
Date	24/06/2024	Client
		Uls Seismic
		Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

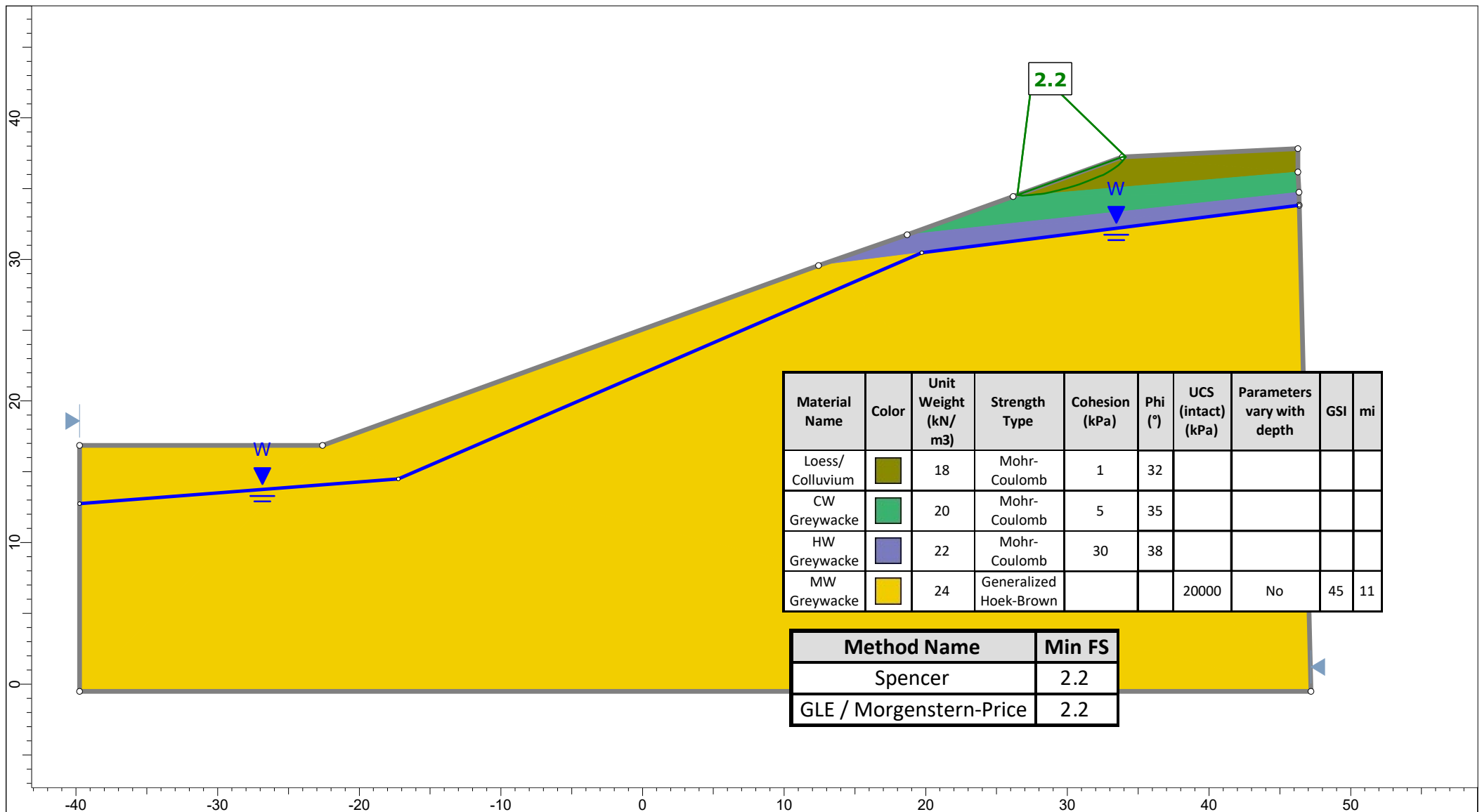
Project	Mt Welcome Development		
Analysis Description	Section F at 1:2 (Cut)		
Drawn By	CW	Scenario	Raised Groundwater
Date	24/06/2024	Client	Classic Developments Ltd



ENGEO

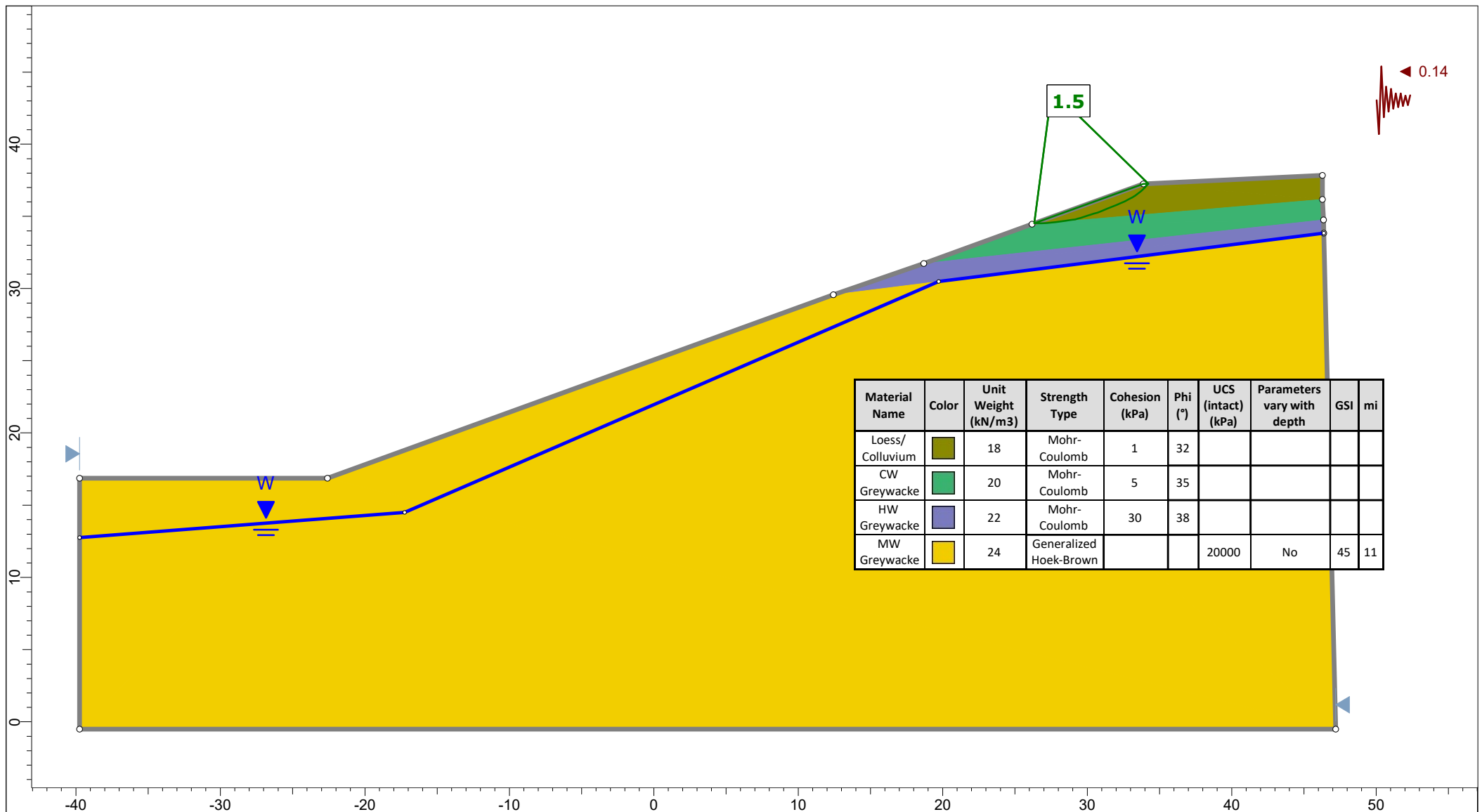
SLIDEINTERPRET 9.034

Project	Mt Welcome Development		
Analysis Description	Section F at 1:2 (Cut)		
Drawn By	CW	Scenario	Yield Acceleration
Date	24/06/2024	Client	Classic Developments Ltd



SLIDEINTERPRET 9.034

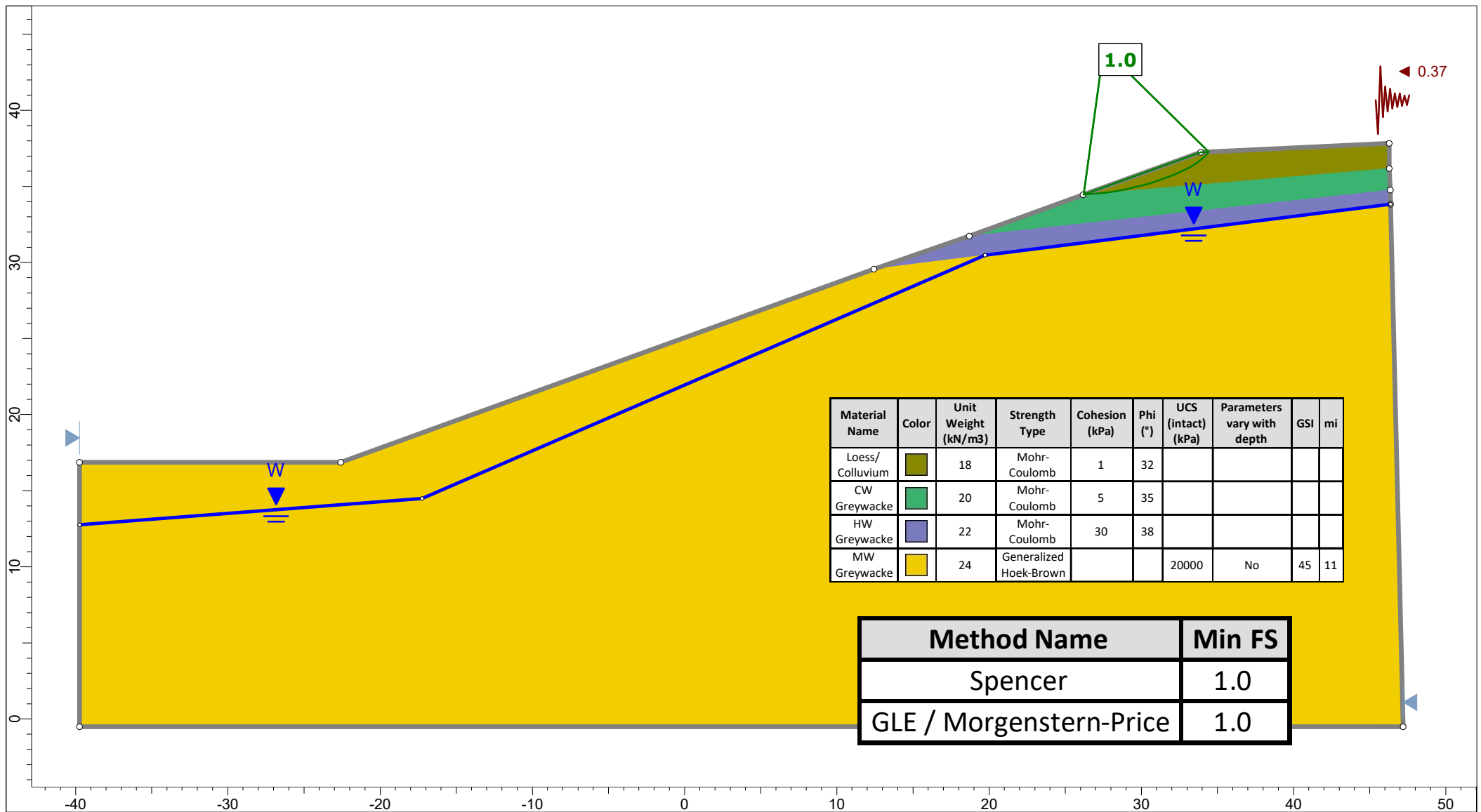
Project		Mt Welcome Development	
Group	Section G (Cut)	Scenario	Static
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



ENGEO

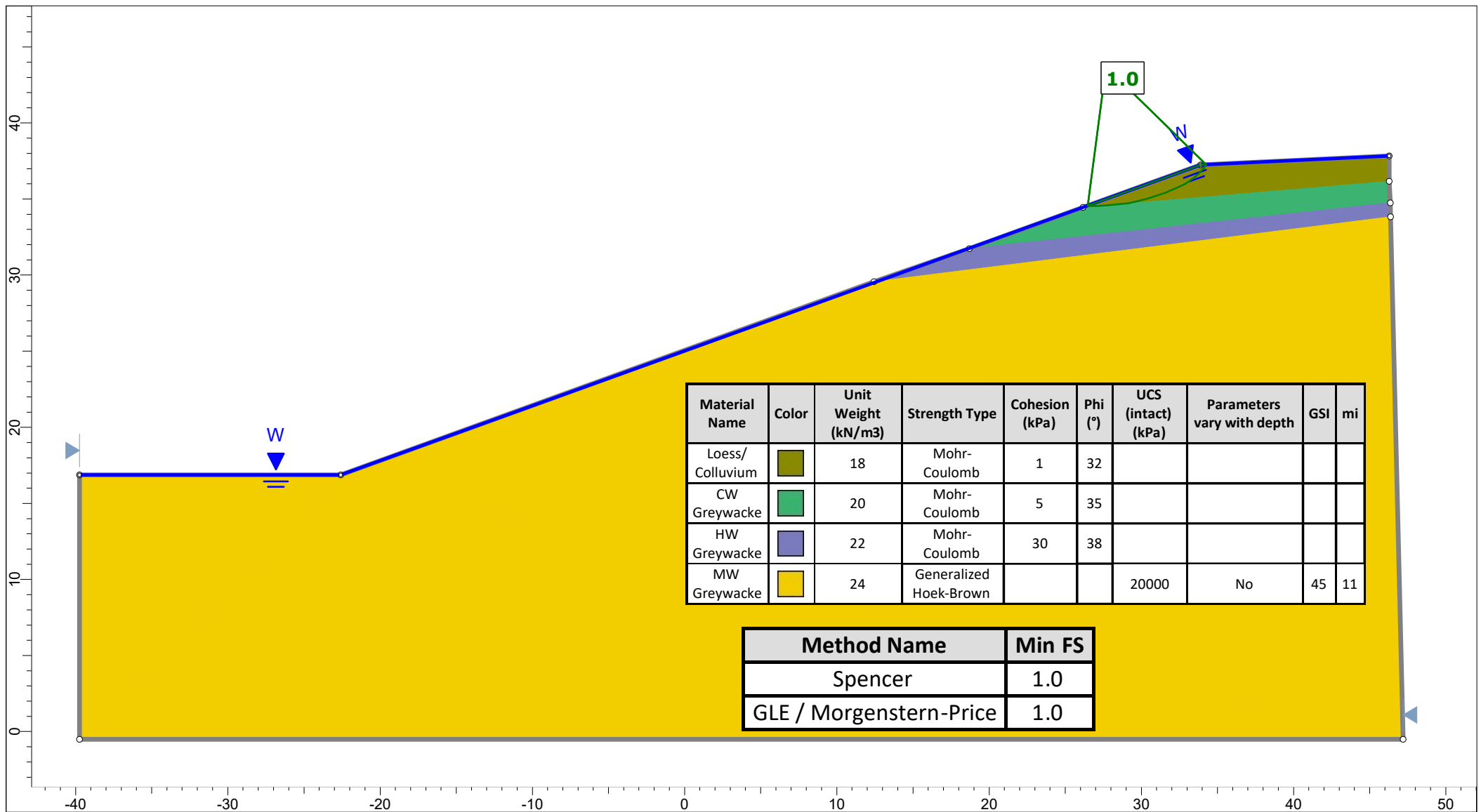
SLIDEINTERPRET 9.034

Project			Mt Welcome Development		
Group		Section G (Cut)		Scenario	SLS
Drawn By		TV		Company	
Date		26/09/2025		File Name	Mt Welcome



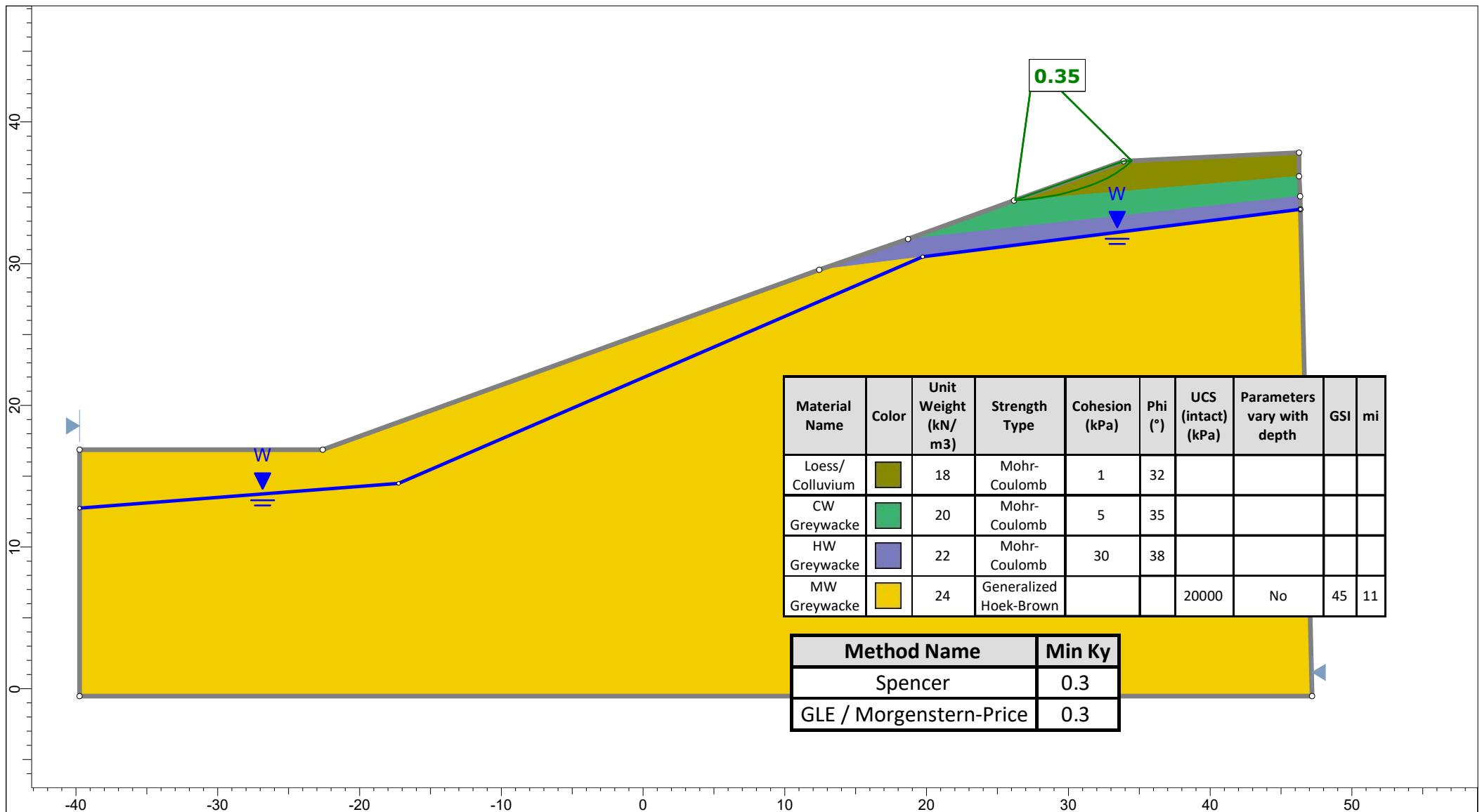
SLIDEINTERPRET 9.034

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Group	Section G (Cut)	Scenario	ULS
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



SLIDEINTERPRET 9.034

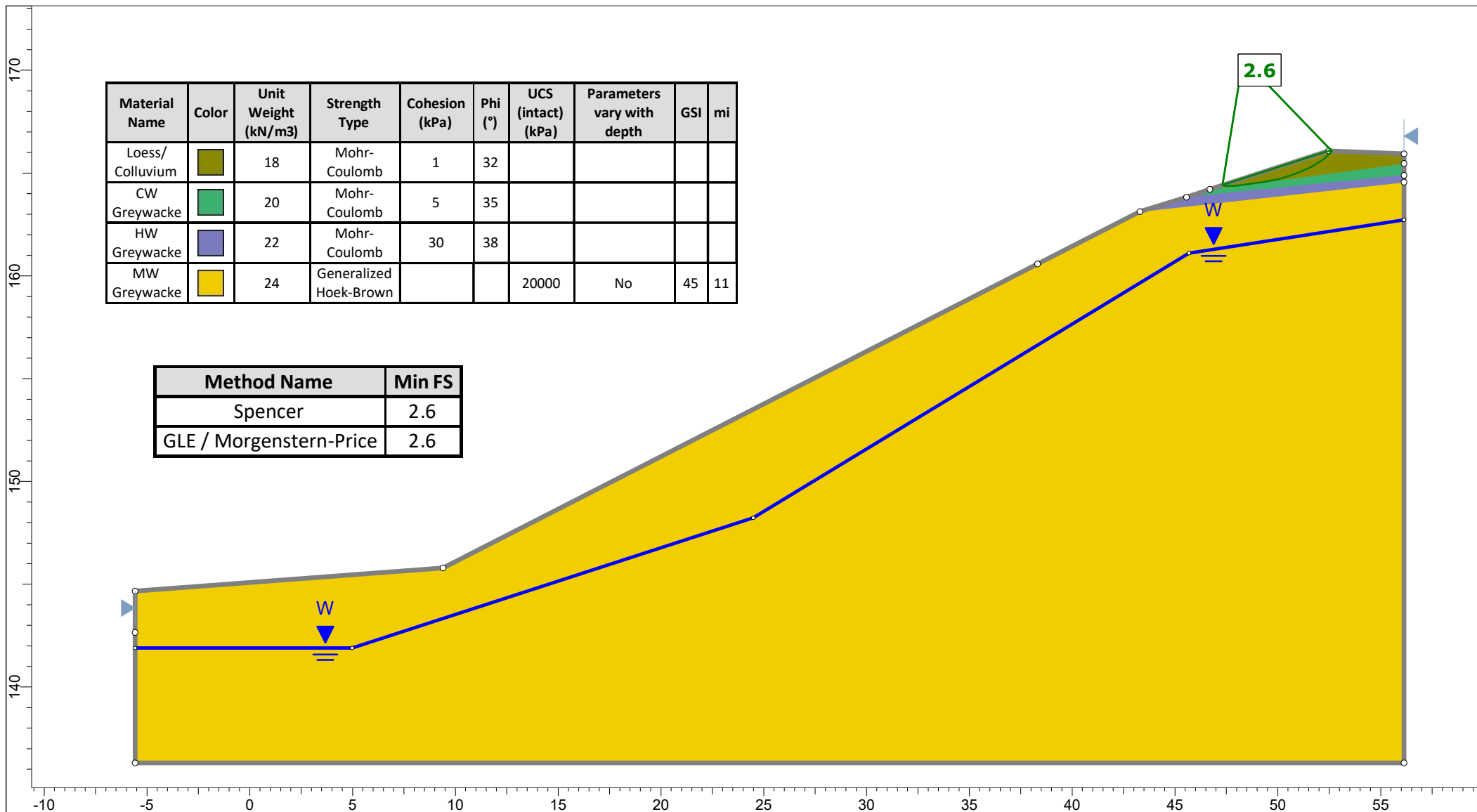
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Group	Section G (Cut)	Scenario	Raised GW
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



ENGEO

SLIDEINTERPRET 9.034

Project		Mt Welcome Development	
Group	Section G (Cut)	Scenario	Yield acceleration
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



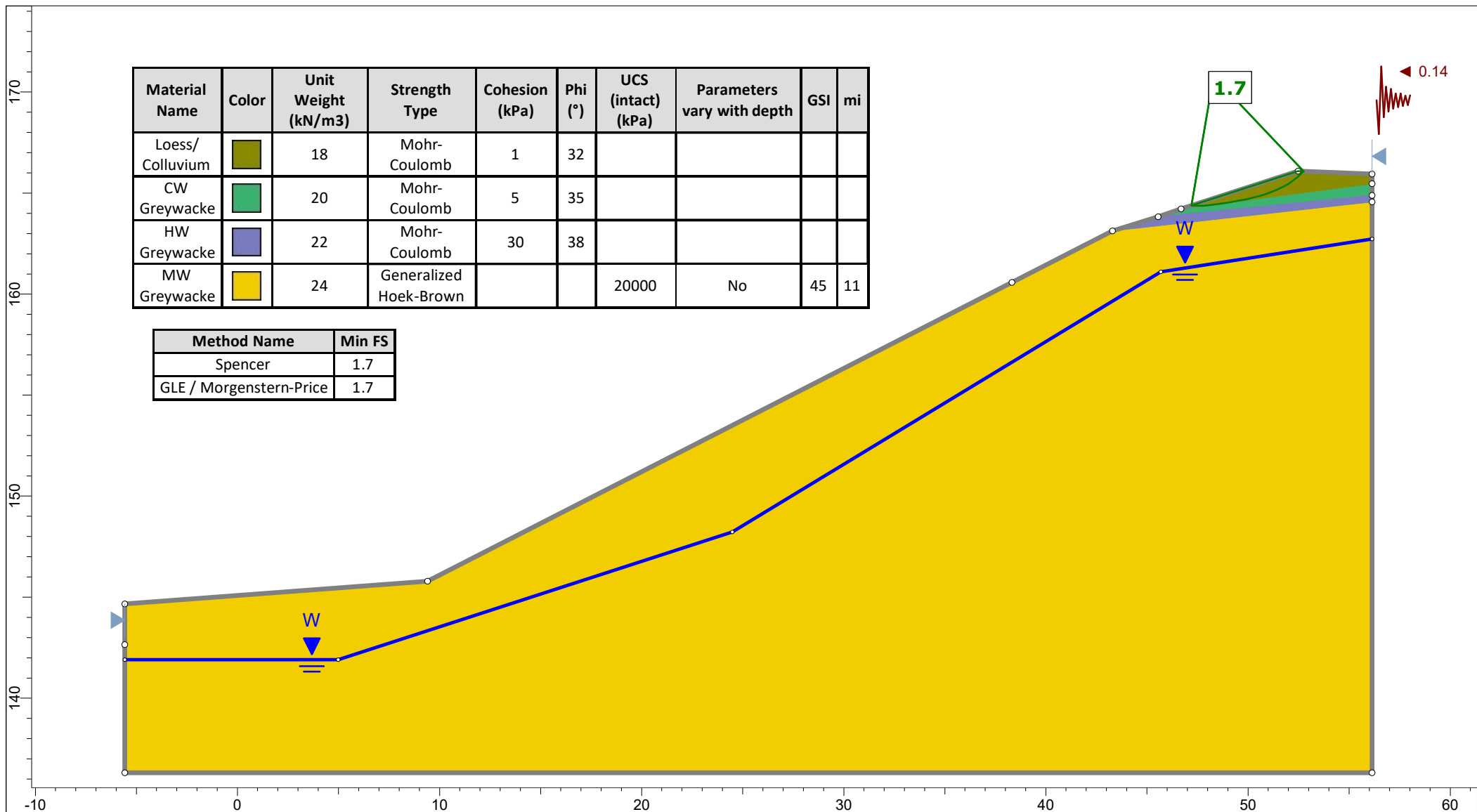
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	UCS (intact) (kPa)	Parameters vary with depth	GSI	mi
Loess/ Colluvium		18	Mohr-Coulomb	1	32				
CW Greywacke		20	Mohr-Coulomb	5	35				
HW Greywacke		22	Mohr-Coulomb	30	38				
MW Greywacke		24	Generalized Hoek-Brown			20000	No	45	11

Method Name	Min FS
Spencer	2.6
GLE / Morgenstern-Price	2.6

ENGEO

SLIDEINTERPRET 9.034

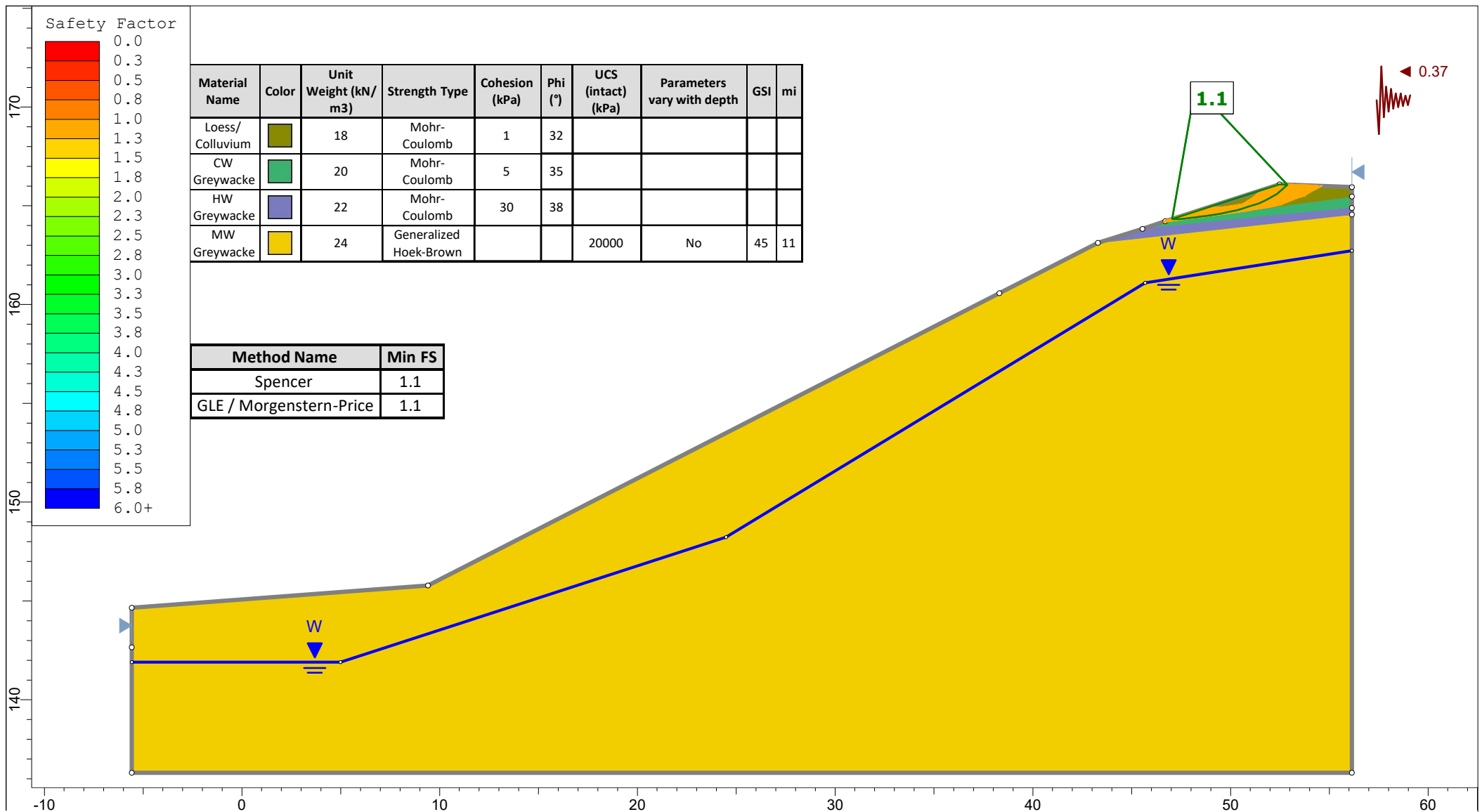
Project		Mt Welcome Development	
Group	Section H (Cut)	Scenario	Static
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



ENGGEO

SLIDEINTERPRET 9.034

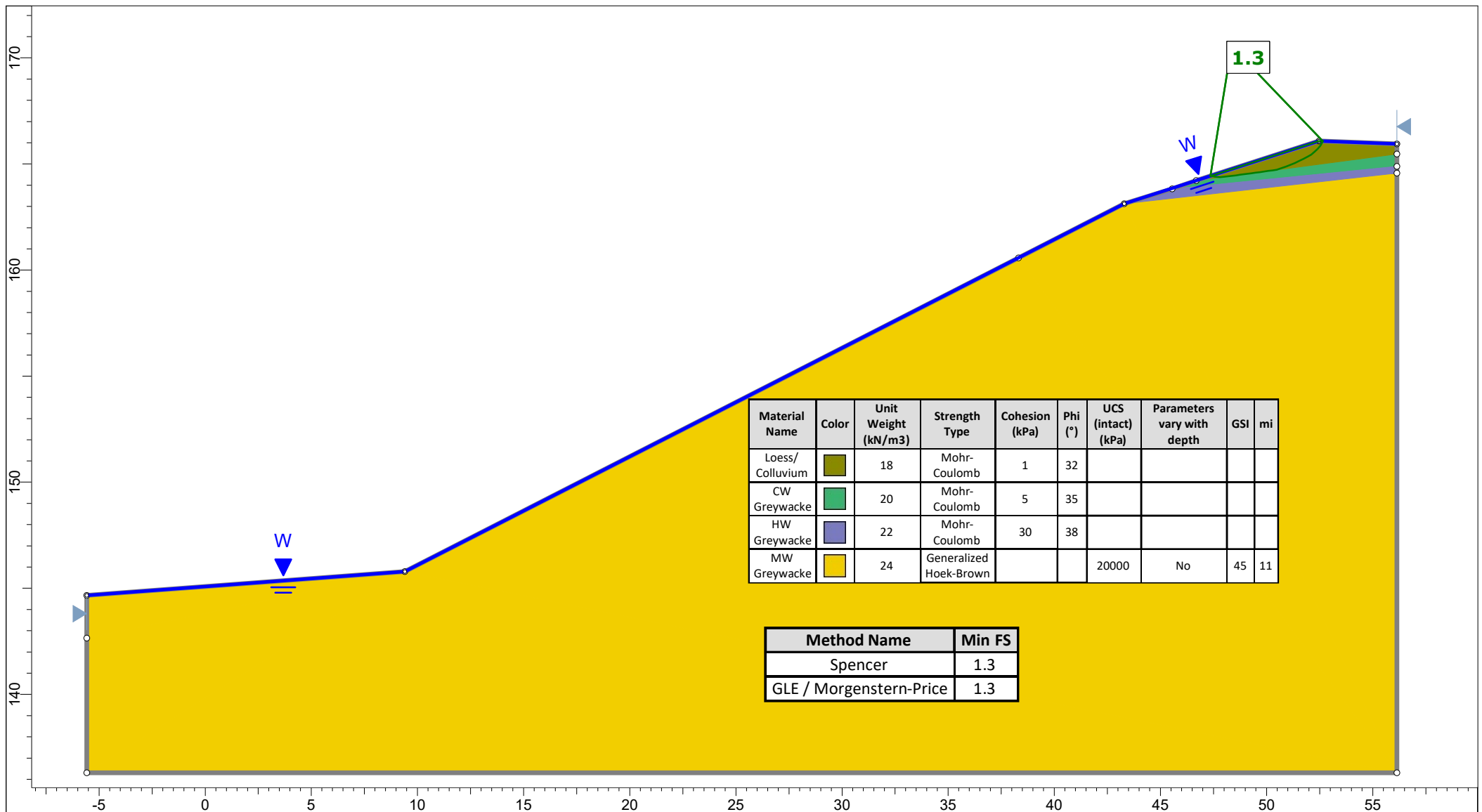
Project			Mt Welcome Development		
Group		Section H (Cut)		Scenario	
				SLS	
Drawn By		TV		Company	
Date		26/09/2025		File Name	
				Mt Welcome	



ENGEO

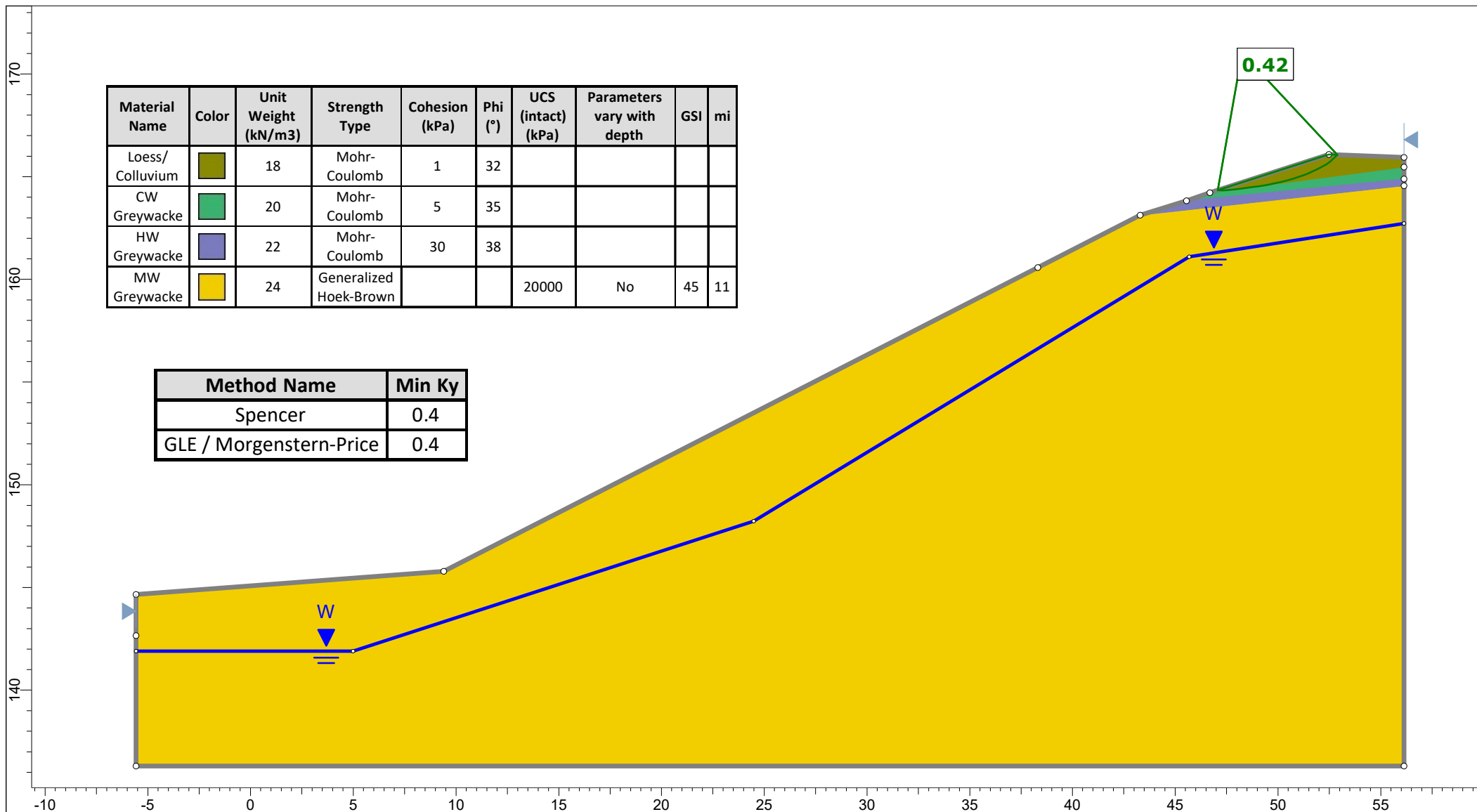
SLIDEINTERPRET 9.034

Project		Mt Welcome Development	
Group	Section H (Cut)	Scenario	ULS
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



SLIDEINTERPRET 9.034

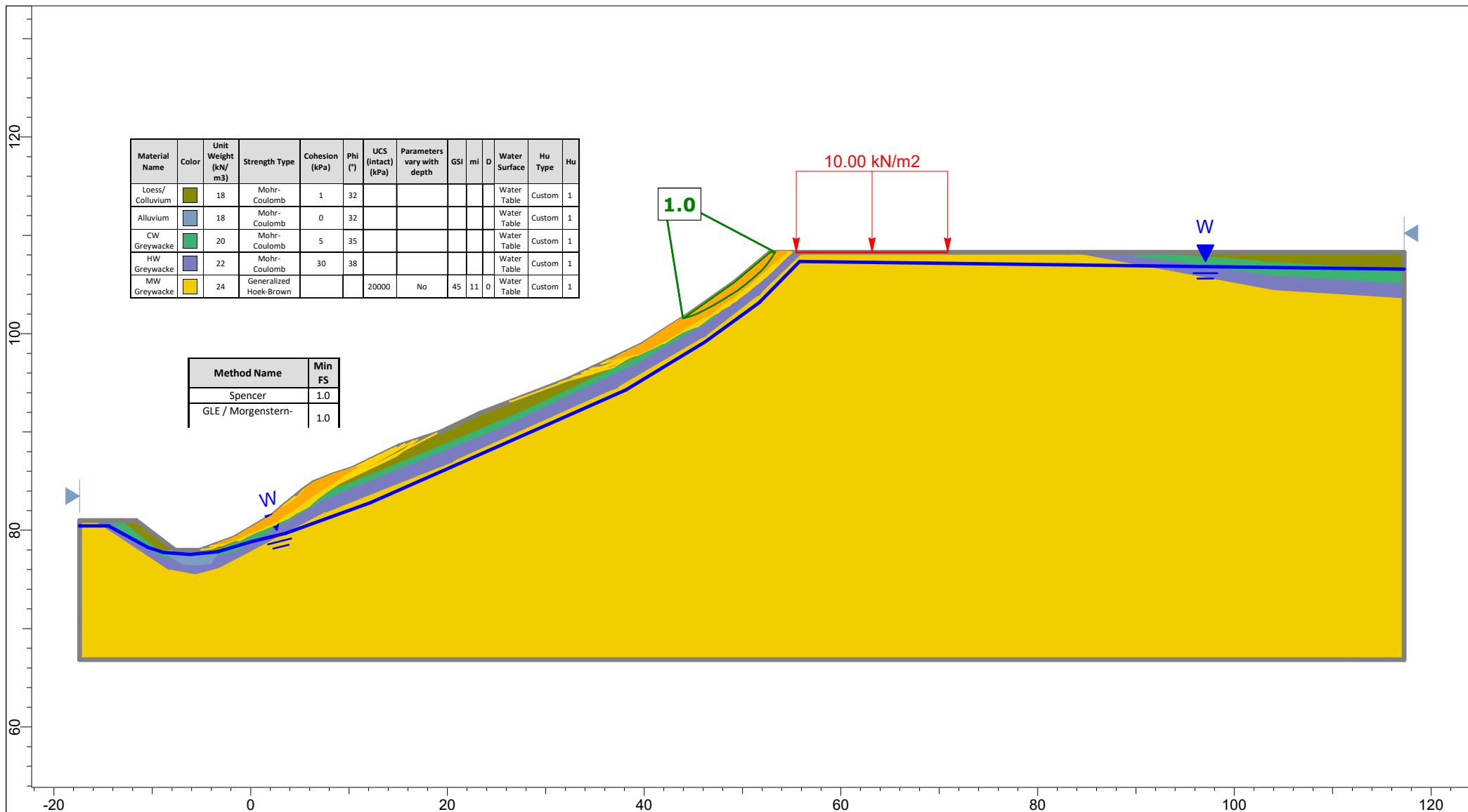
Project		Mt Welcome Development	
Group	Section H (Cut)	Scenario	Raised GW
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



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SLIDEINTERPRET 9.034

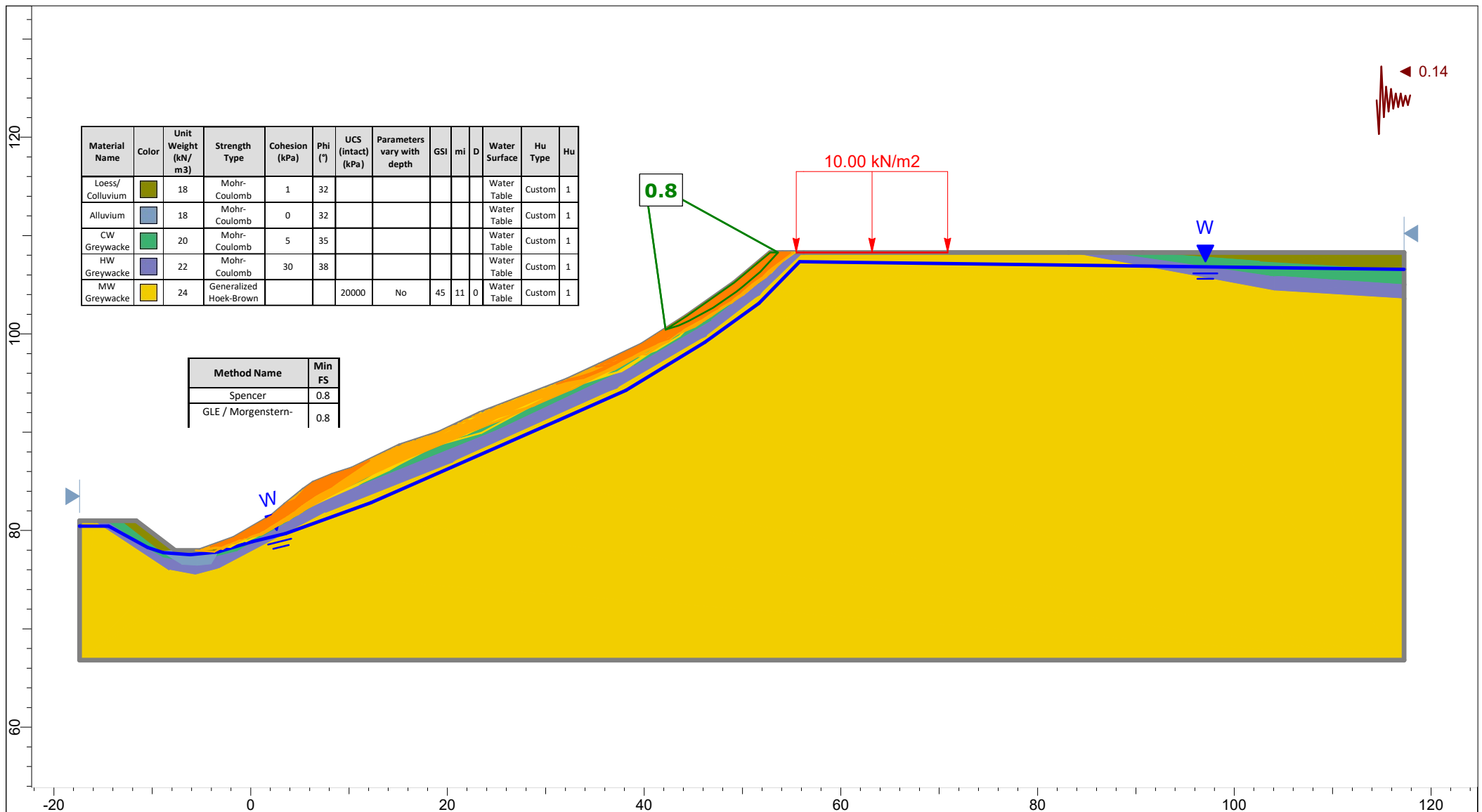
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Group	Section H (Cut)	Scenario	Yield acceleration
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



ENGEO

SLIDEINTERPRET 9.034

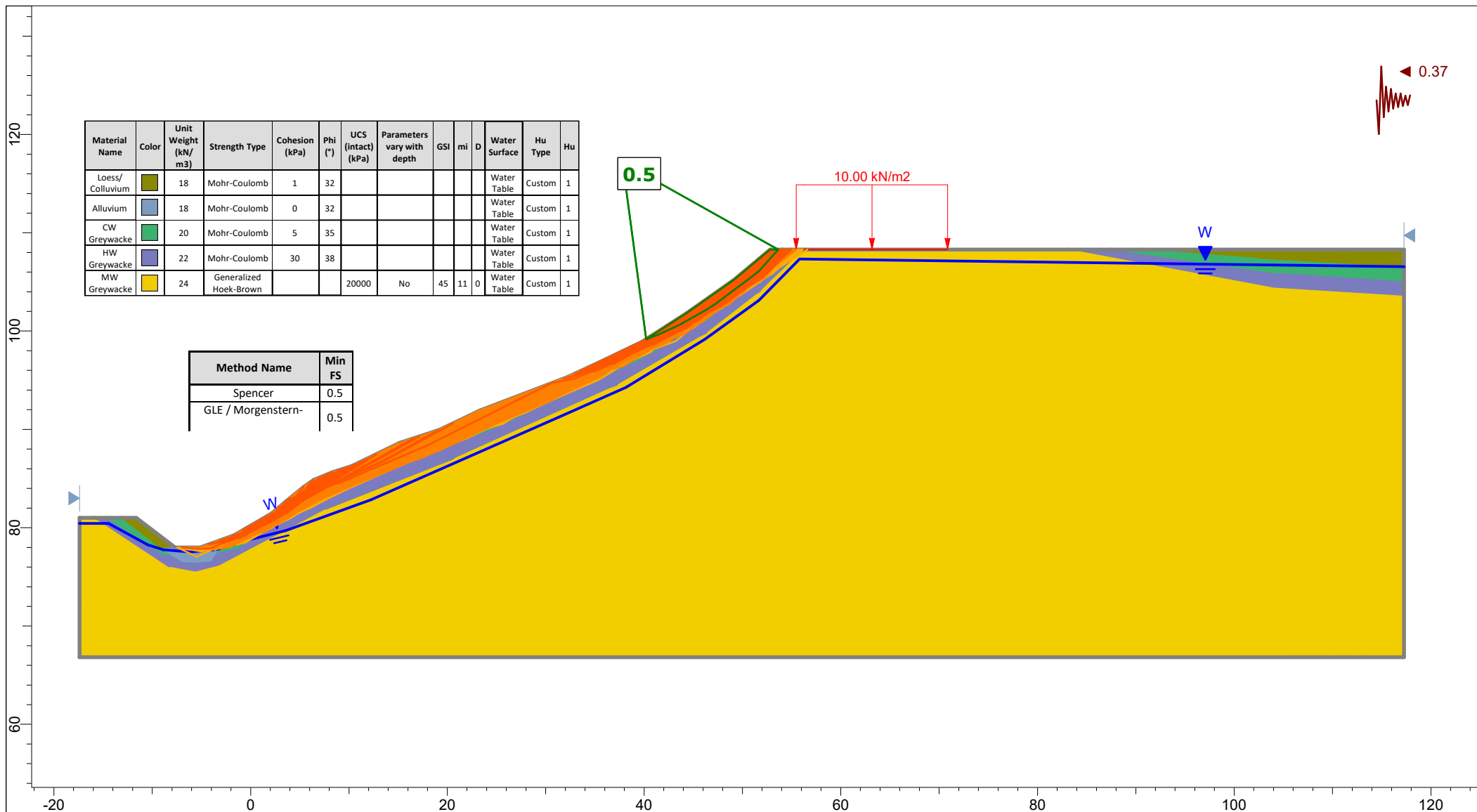
Project		Mt Welcome Development	
Analysis Description		Section J	
Drawn By		CW	Scenario Static
Date		24/06/2024	Client Classic Developments Ltd



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SLIDEINTERPRET 9.034

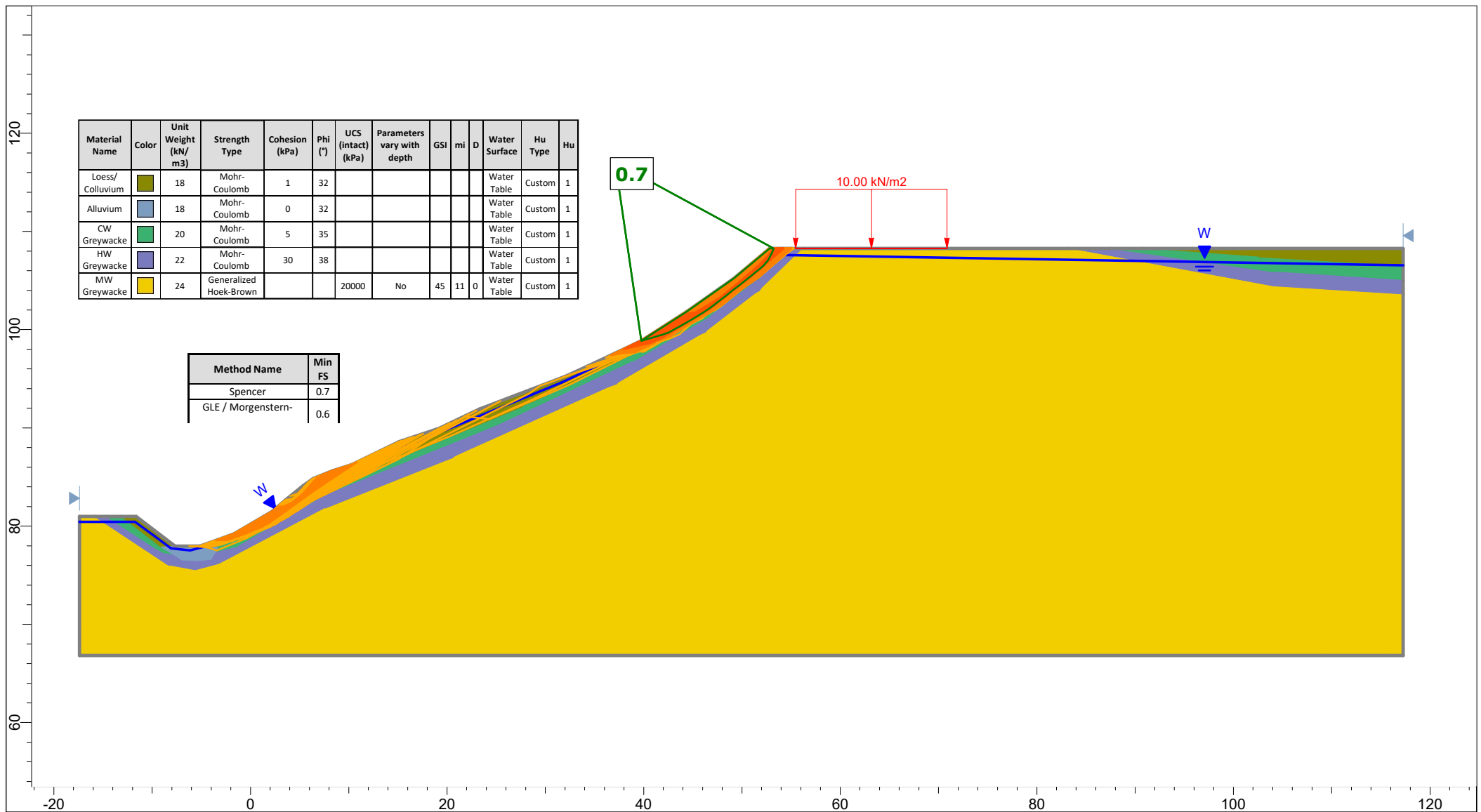
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Analysis Description		Section J	
Drawn By		CW	Scenario SLS Seismic
Date		24/06/2024	Client Classic Developments Ltd



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SLIDEINTERPRET 9.034

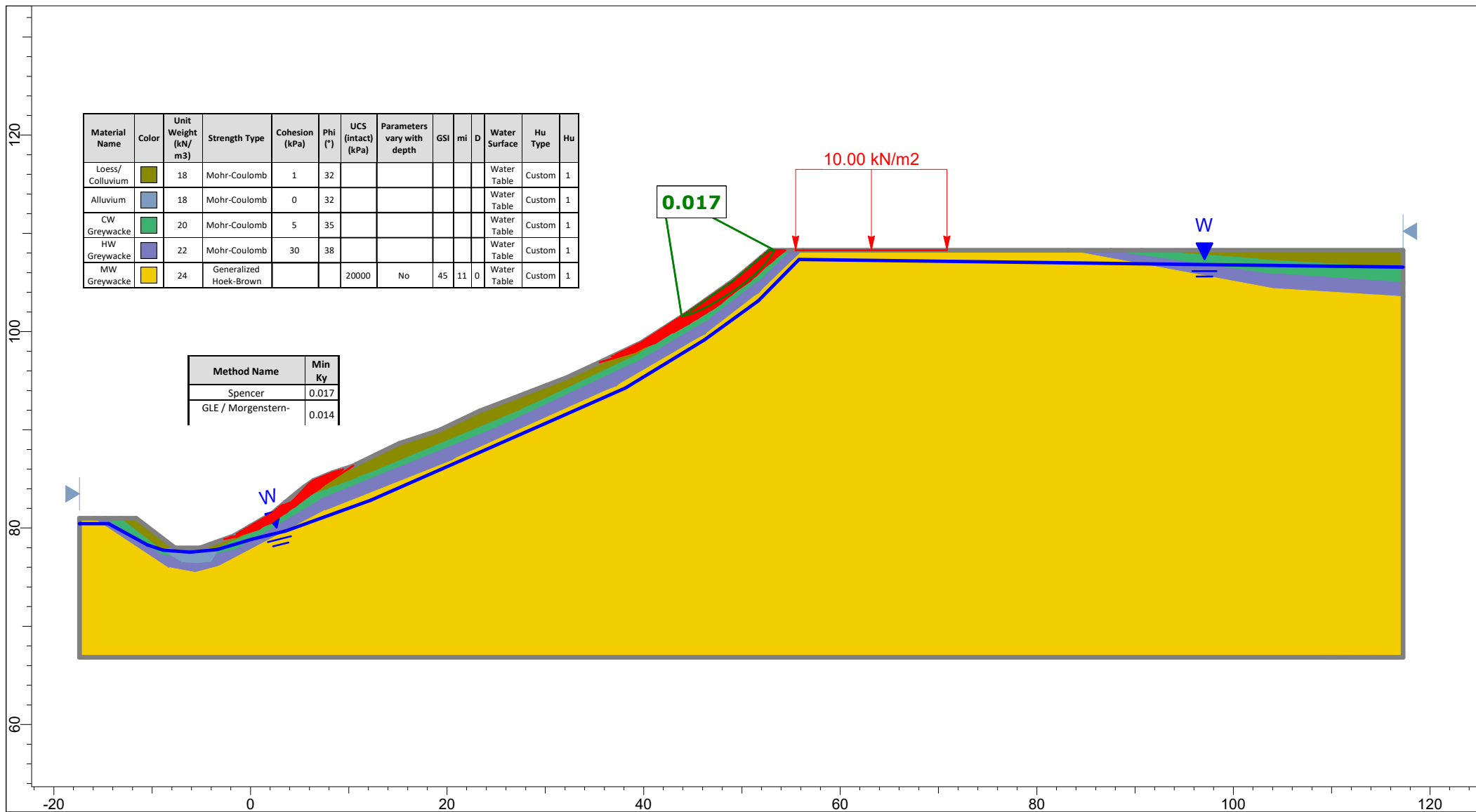
Project		Mt Welcome Development	
Analysis Description		Section J	
Drawn By		CW	Scenario
Date		24/06/2024	Client
		ULS Seismic	
		Classic Developments Ltd	



ENGEO

SLIDEINTERPRET 9.034

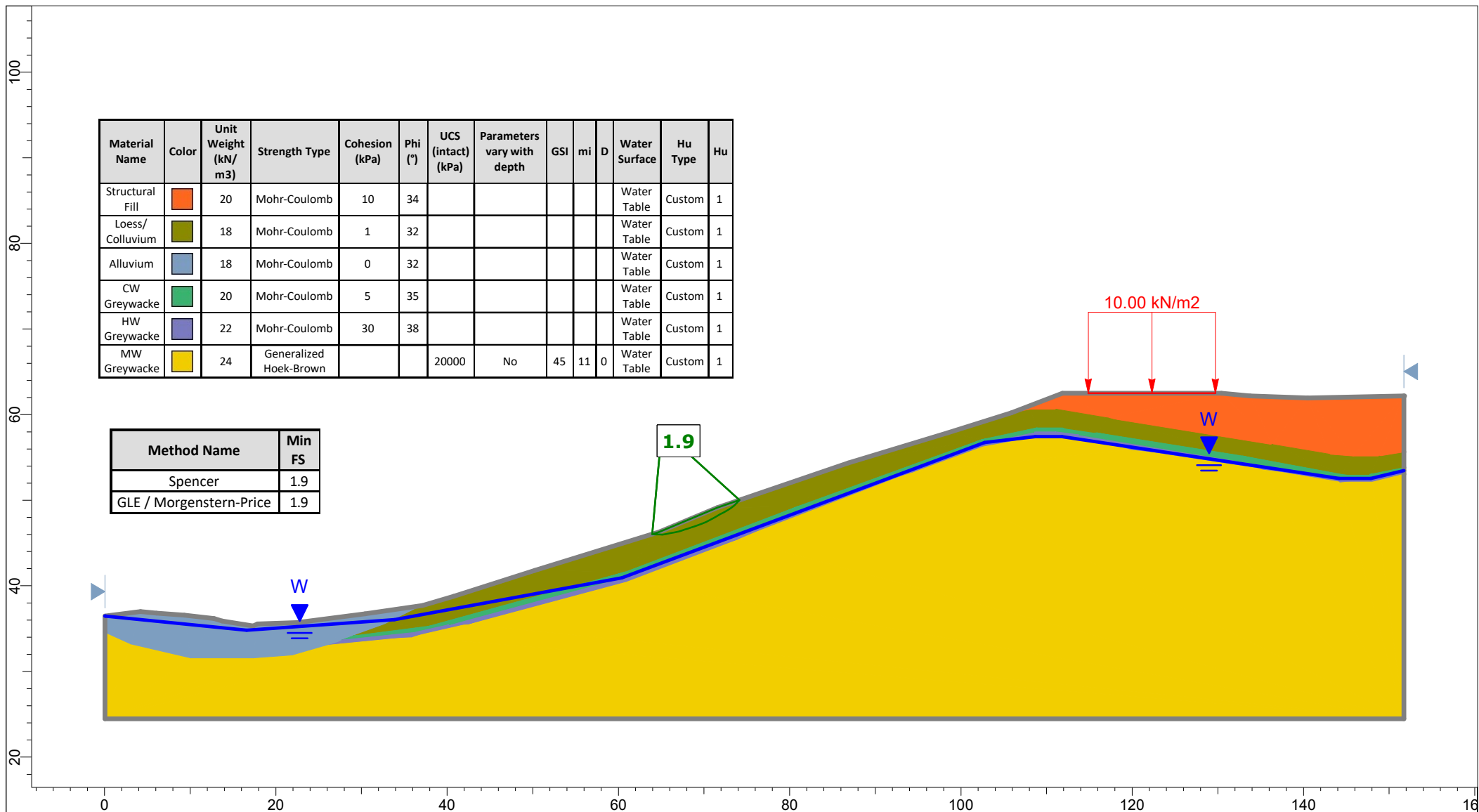
Project		Mt Welcome Development	
Analysis Description		Section J	
Drawn By		CW	Scenario
Date		24/06/2024	Client
		Raised Groundwater	
		Classic Developments Ltd	



ENGEO

SLIDEINTERPRET 9.034

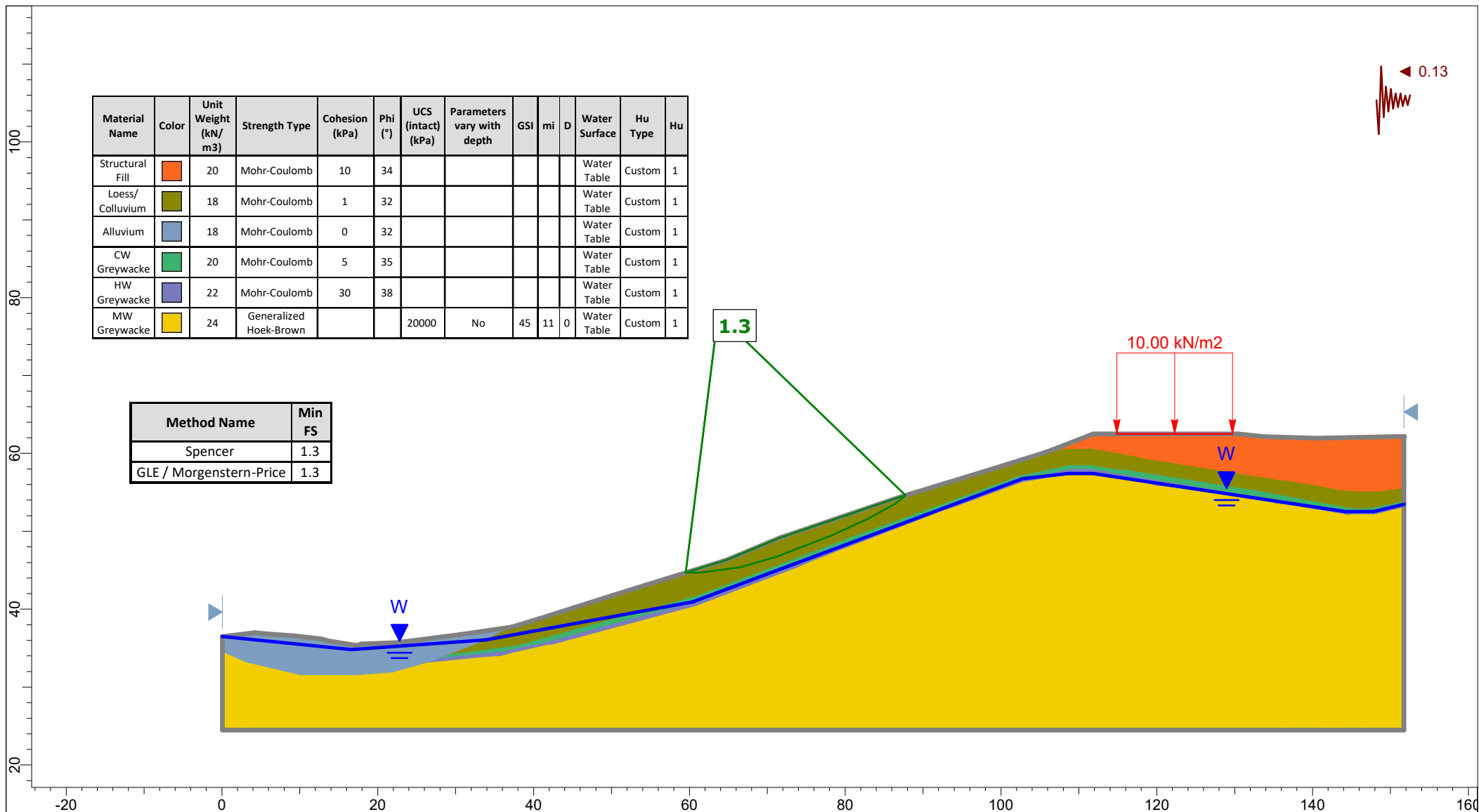
Project		Mt Welcome Development	
Analysis Description		Section J	
Drawn By	CW	Scenario	Yield Acceleration
Date	24/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

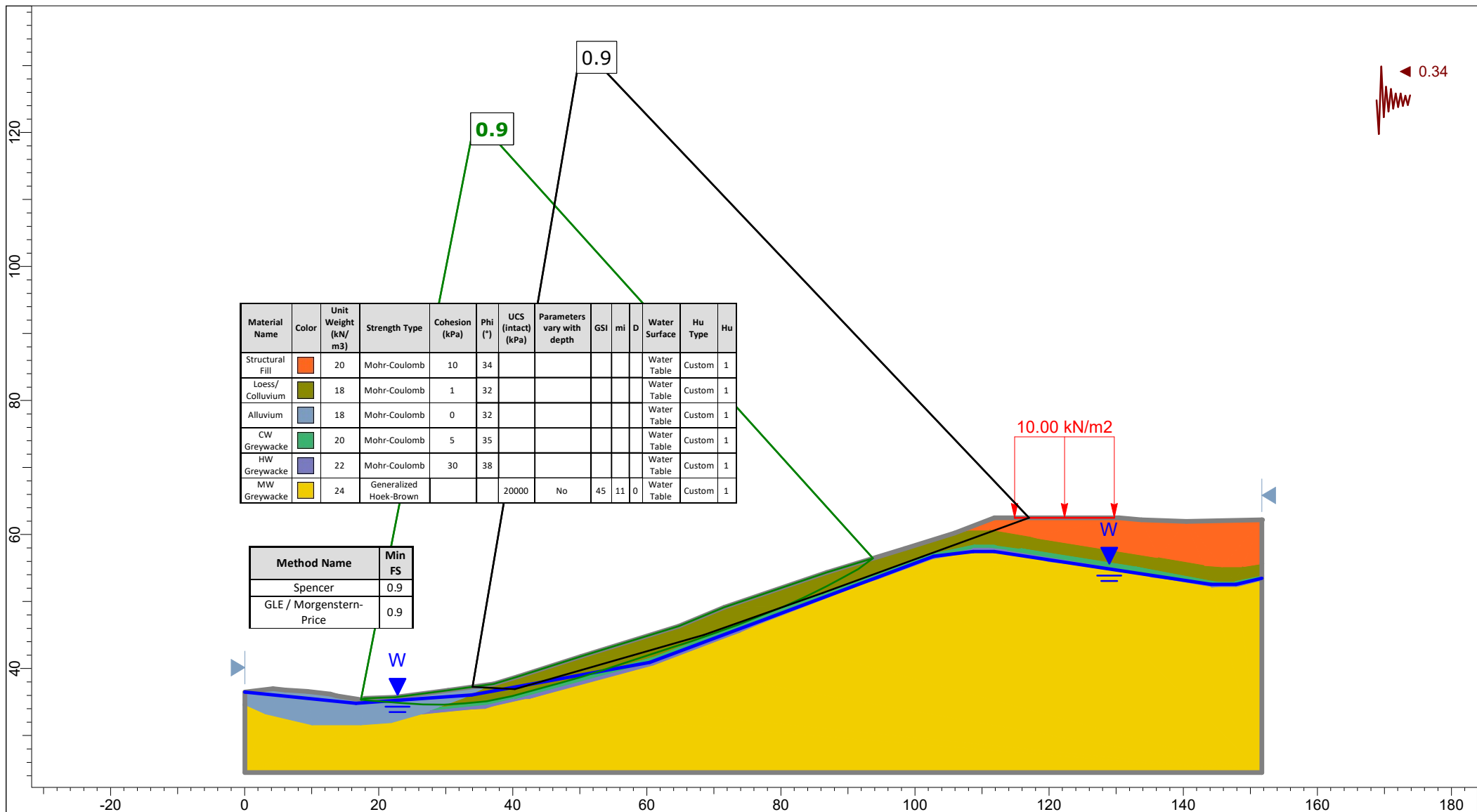
Project	Mt Welcome Development		
Analysis Description	Section K		
Drawn By	CW	Scenario	Static
Date	26/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

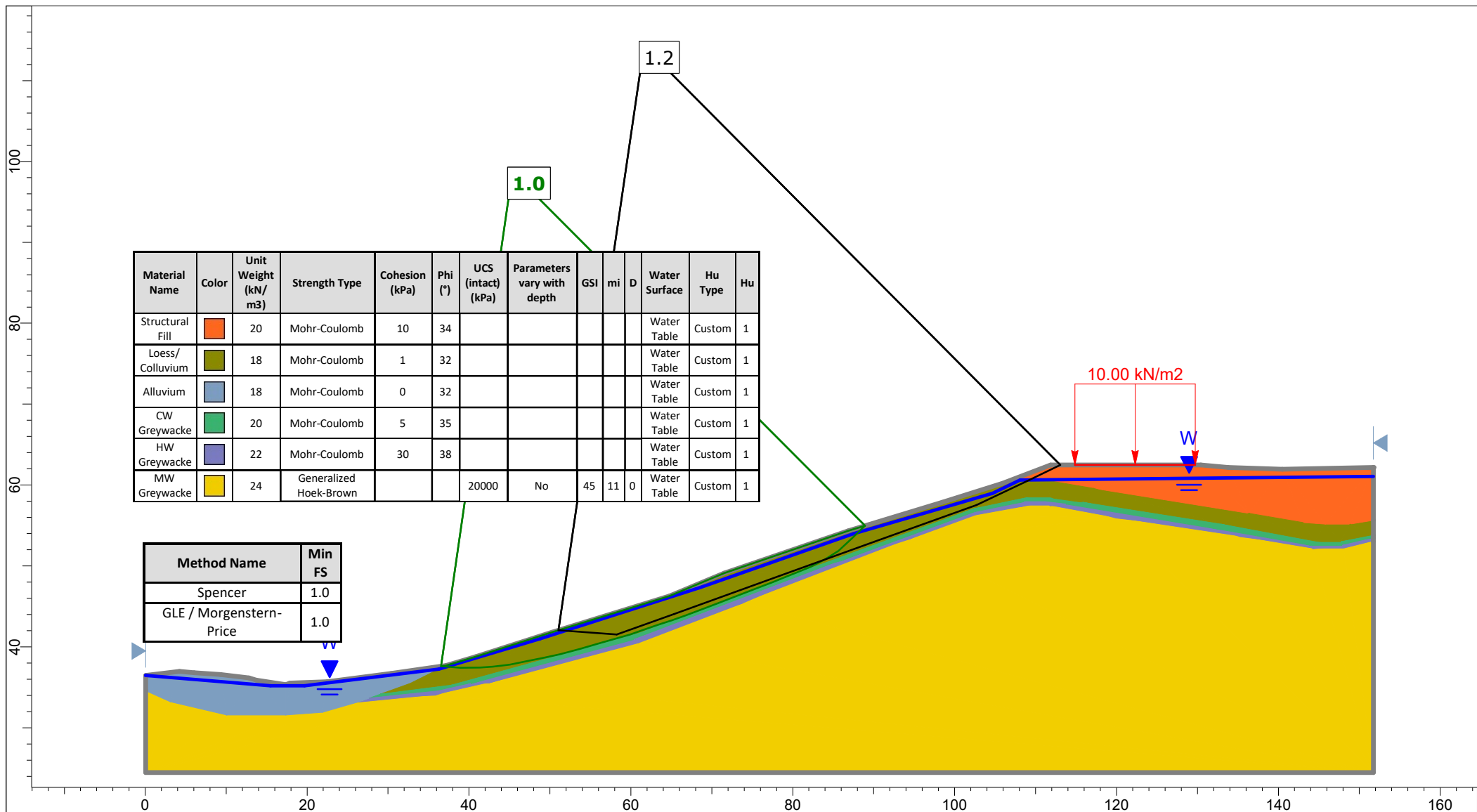
Project		Mt Welcome Development	
Analysis Description		Section K	
Drawn By		CW	Scenario
Date		26/06/2024	SLS Seismic
		Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

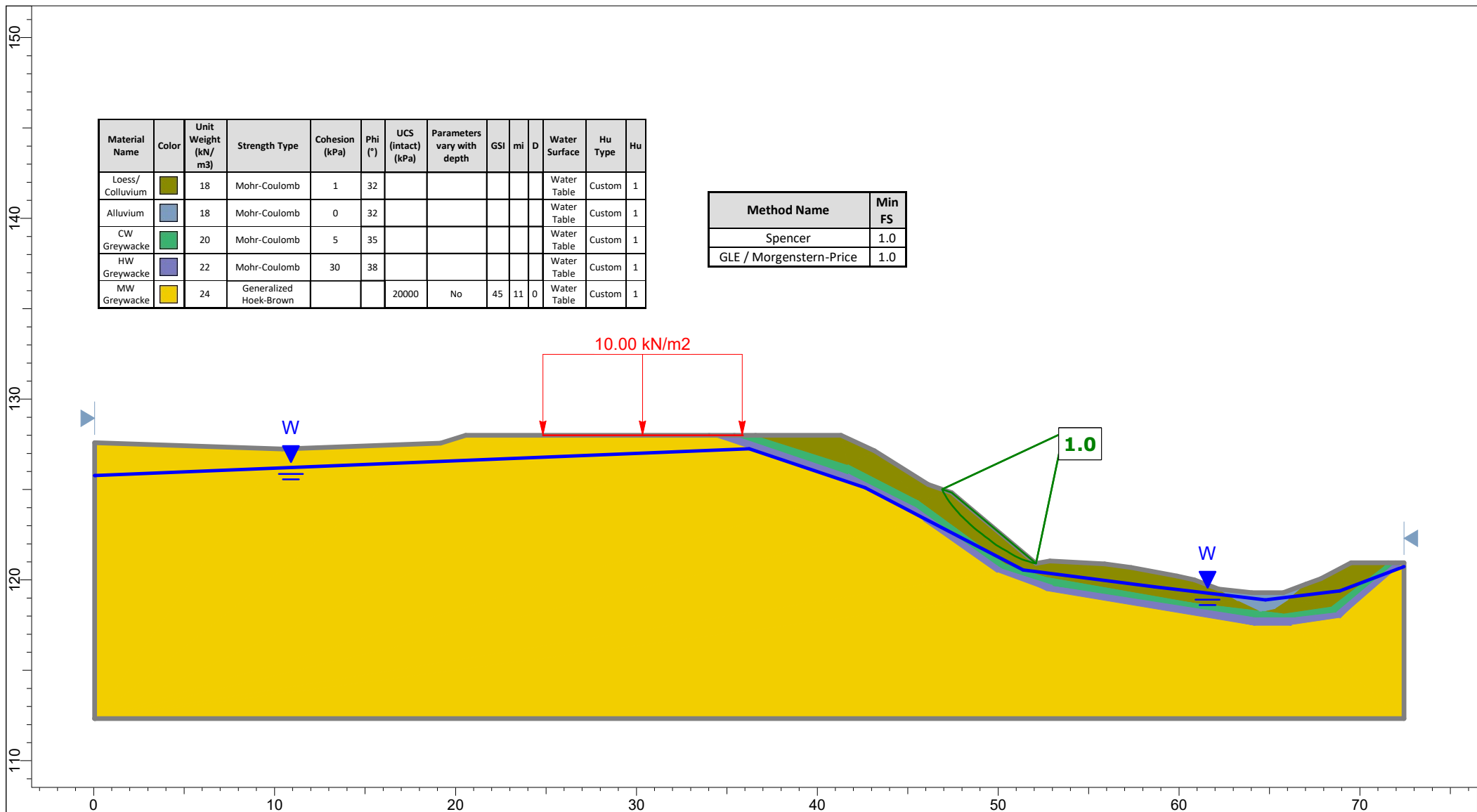
Project		Mt Welcome Development	
Analysis Description		Section K	
Drawn By		CW	Scenario
Date		26/06/2024	Client
			ULS Seismic
			Classic Developments Ltd



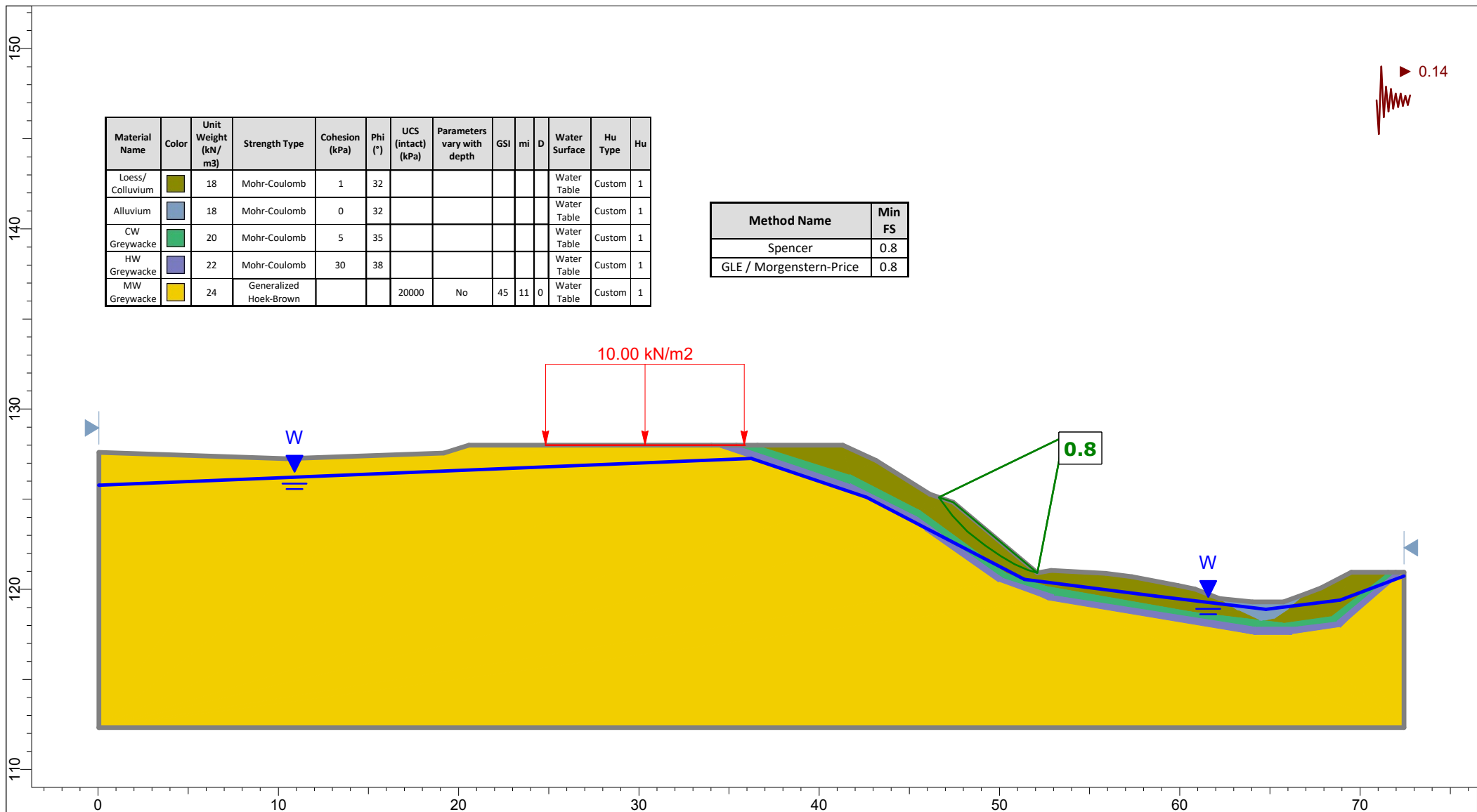
ENGEO

SLIDEINTERPRET 9.034

Project		Mt Welcome Development	
Analysis Description		Section K	
Drawn By		CW	Scenario Raised Groundwater
Date		26/06/2024	Client Classic Developments Ltd



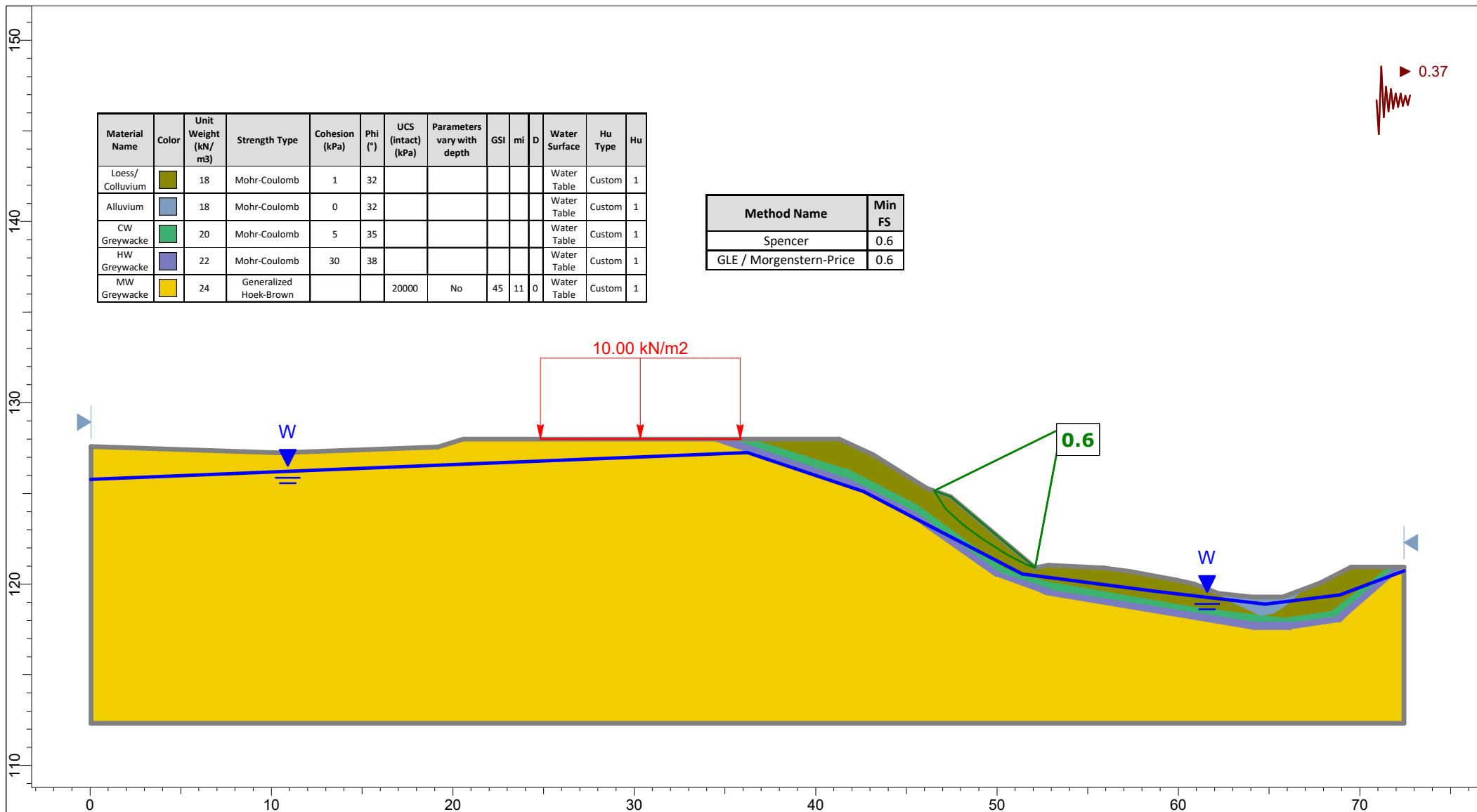
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	Analysis Description	Section L-1	
	Drawn By	CW	Scenario Static
	Date	26/06/2024	Client Classic Developments Ltd



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SLIDEINTERPRET 9.034

Project	Mt Welcome Development		
Analysis Description	Section L-1		
Drawn By	CW	Scenario	SLS Seismic
Date	26/06/2024	Client	Classic Developments Ltd



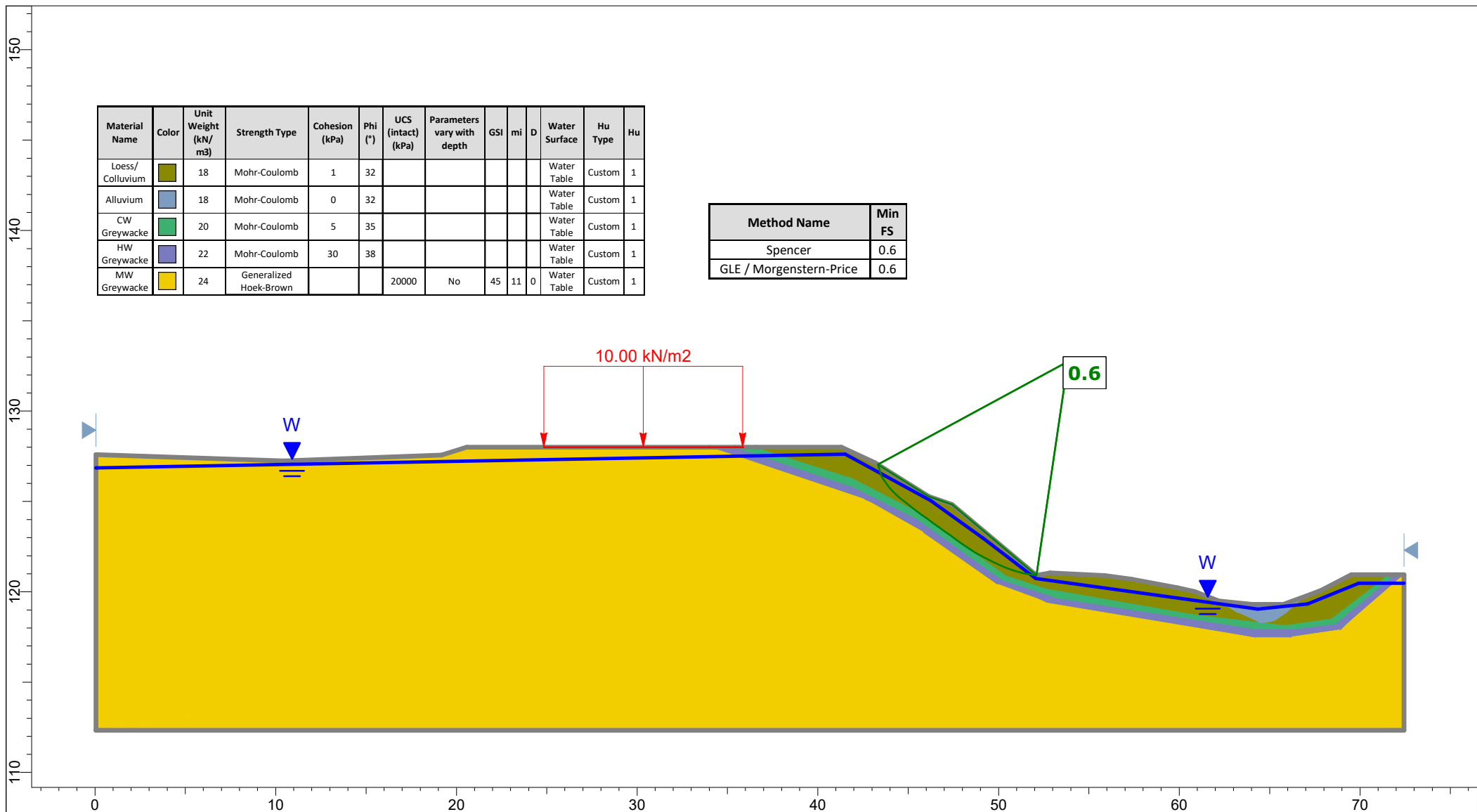
Material Name	Color	Unit Weight (kN/m³)	Strength Type	Cohesion (kPa)	Phi (°)	UCS (intact) (kPa)	Parameters vary with depth	GSI	mi	D	Water Surface	Hu Type	Hu
Loess/ Colluvium		18	Mohr-Coulomb	1	32						Water Table	Custom	1
Alluvium		18	Mohr-Coulomb	0	32						Water Table	Custom	1
CW Greywacke		20	Mohr-Coulomb	5	35						Water Table	Custom	1
HW Greywacke		22	Mohr-Coulomb	30	38						Water Table	Custom	1
MW Greywacke		24	Generalized Hoek-Brown			20000	No	45	11	0	Water Table	Custom	1

Method Name	Min FS
Spencer	0.6
GLE / Morgenstern-Price	0.6

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SLIDEINTERPRET 9.034

Project	Mt Welcome Development		
Analysis Description	Section L-1		
Drawn By	CW	Scenario	ULS Seismic
Date	26/06/2024	Client	Classic Developments Ltd



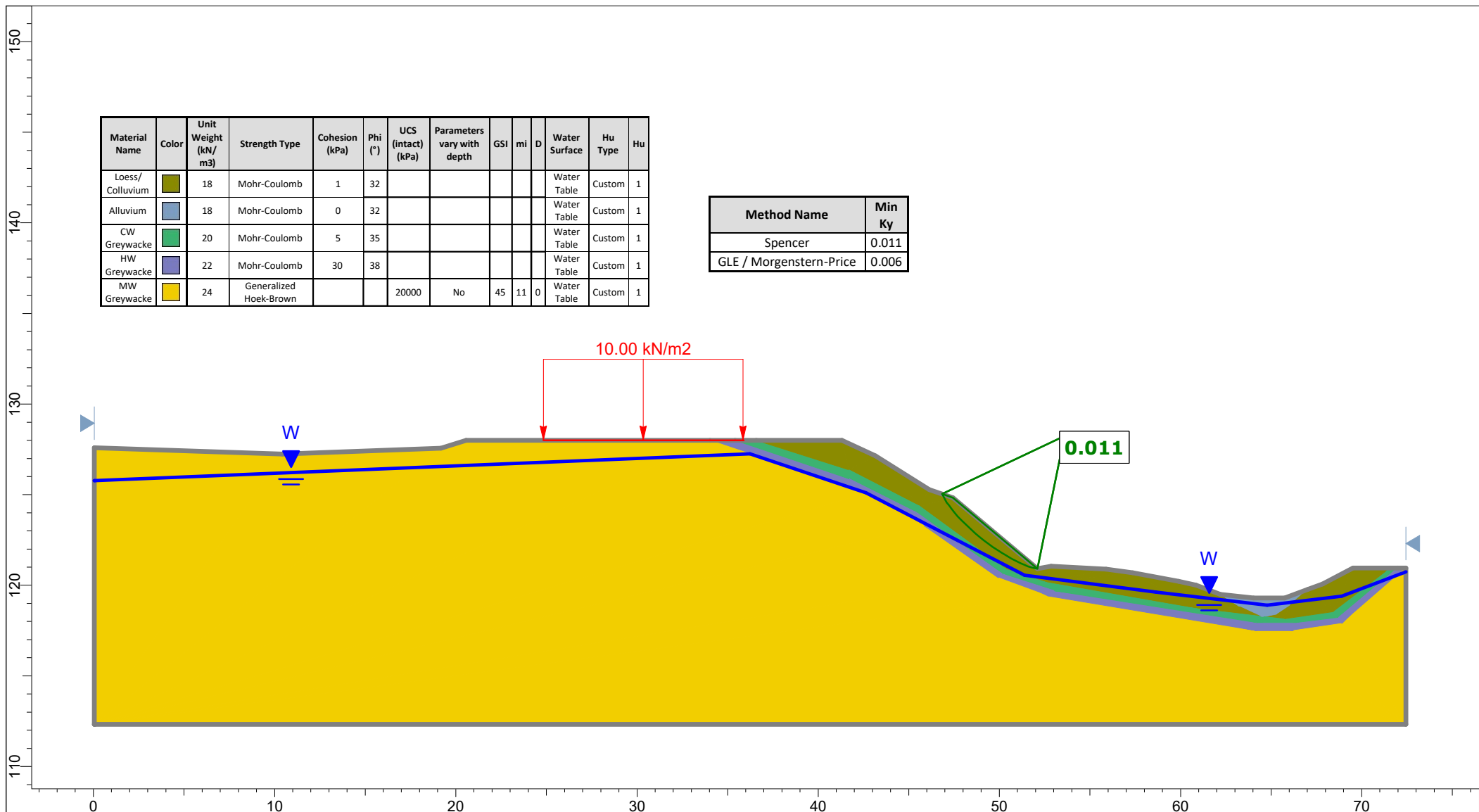
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	UCS (intact) (kPa)	Parameters vary with depth	GSI	mi	D	Water Surface	Hu Type	Hu
Loess/Colluvium		18	Mohr-Coulomb	1	32						Water Table	Custom	1
Alluvium		18	Mohr-Coulomb	0	32						Water Table	Custom	1
CW Greywacke		20	Mohr-Coulomb	5	35						Water Table	Custom	1
HW Greywacke		22	Mohr-Coulomb	30	38						Water Table	Custom	1
MW Greywacke		24	Generalized Hoek-Brown			20000	No	45	11	0	Water Table	Custom	1

Method Name	Min FS
Spencer	0.6
GLE / Morgenstern-Price	0.6

ENGEO

SLIDEINTERPRET 9.034

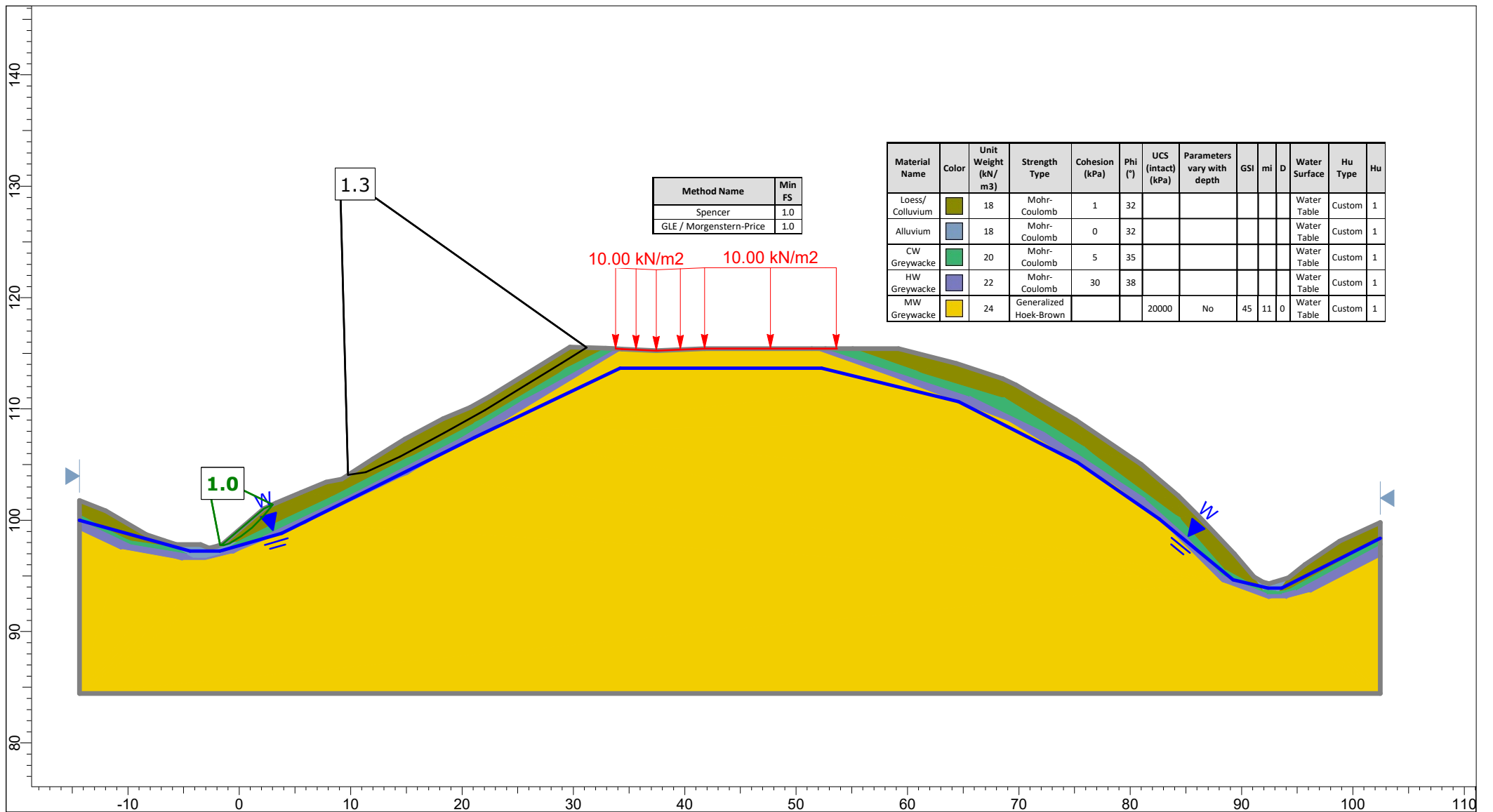
Project	Mt Welcome Development		
Analysis Description	Section L-1		
Drawn By	CW	Scenario	Raised Groundwater
Date	26/06/2024	Client	Classic Developments Ltd



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SLIDEINTERPRET 9.034

Project	Mt Welcome Development		
Analysis Description	Section L-1		
Drawn By	CW	Scenario	Yield Acceleration
Date	26/06/2024	Client	Classic Developments Ltd



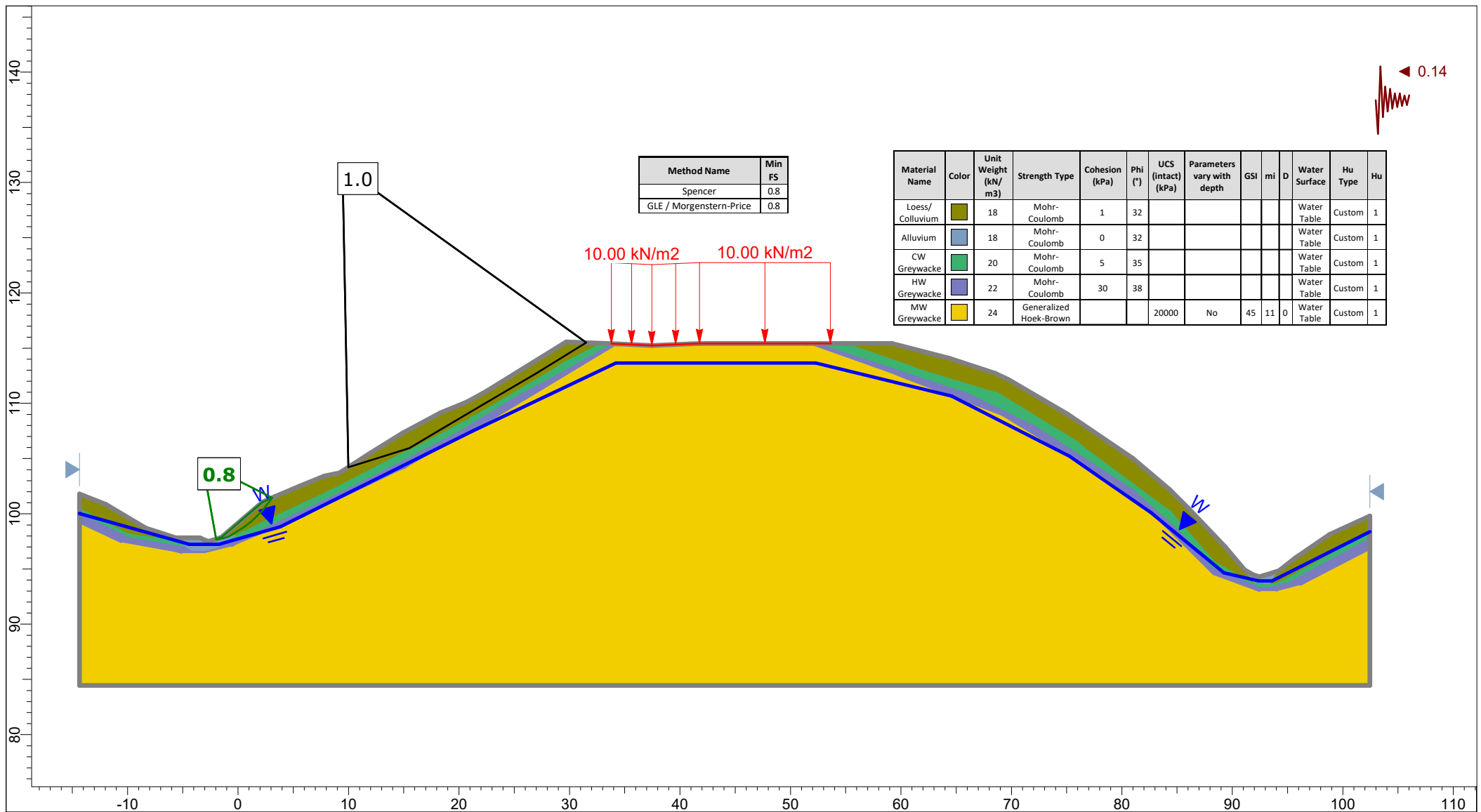
Method Name	Min FS
Spencer	1.0
GLE / Morgenstern-Price	1.0

Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	UCS (intact) (kPa)	Parameters vary with depth	GSI	mi	D	Water Surface	Hu Type	Hu
Loess/ Colluvium		18	Mohr-Coulomb	1	32						Water Table	Custom	1
Alluvium		18	Mohr-Coulomb	0	32						Water Table	Custom	1
CW Greywacke		20	Mohr-Coulomb	5	35						Water Table	Custom	1
HW Greywacke		22	Mohr-Coulomb	30	38						Water Table	Custom	1
MW Greywacke		24	Generalized Hoek-Brown			20000	No	45	11	0	Water Table	Custom	1

ENGEO

SLIDEINTERPRET 9.034

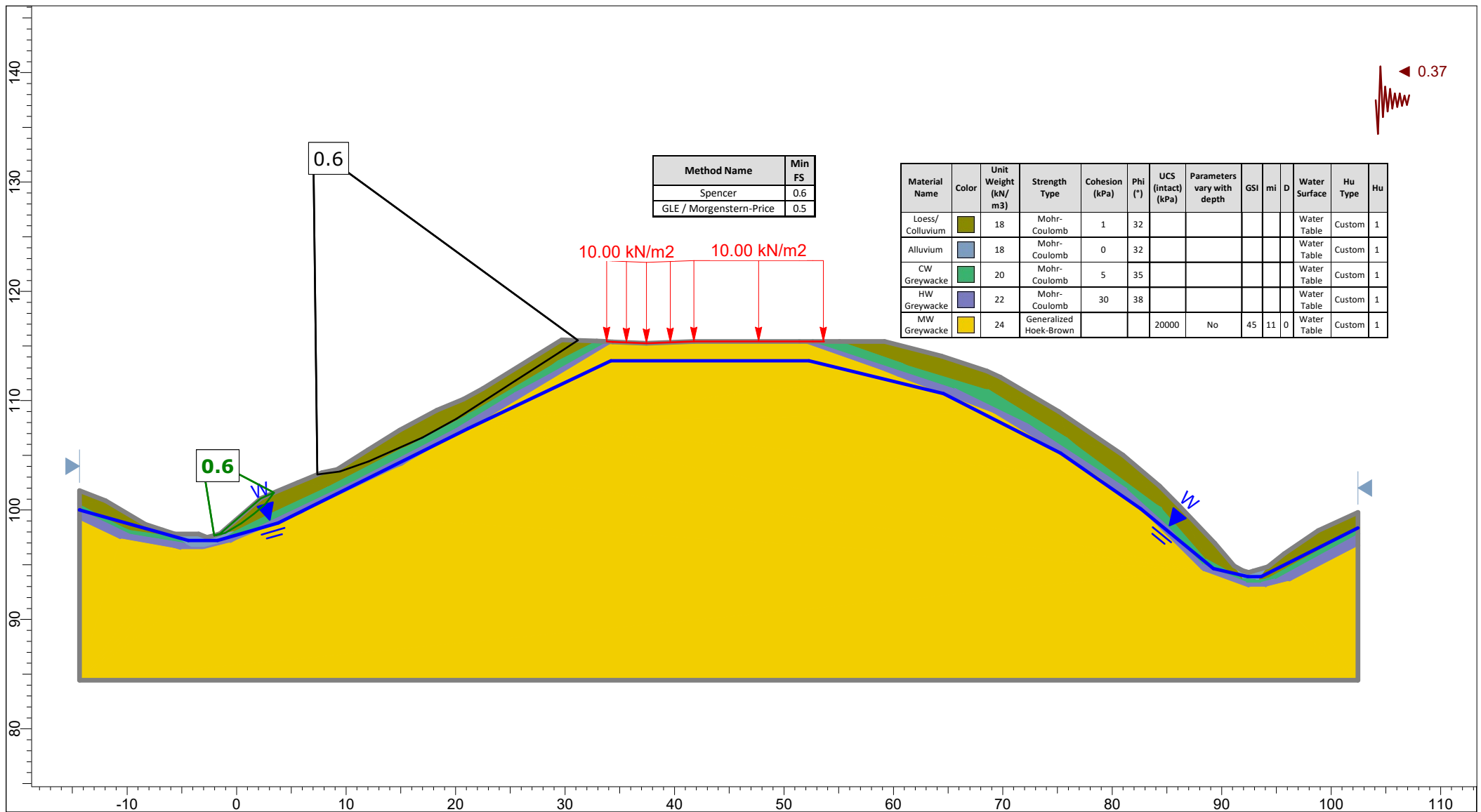
Project	Mt Welcome Development		
Analysis Description	Section L-2		
Drawn By	CW	Scenario	Static
Date	26/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

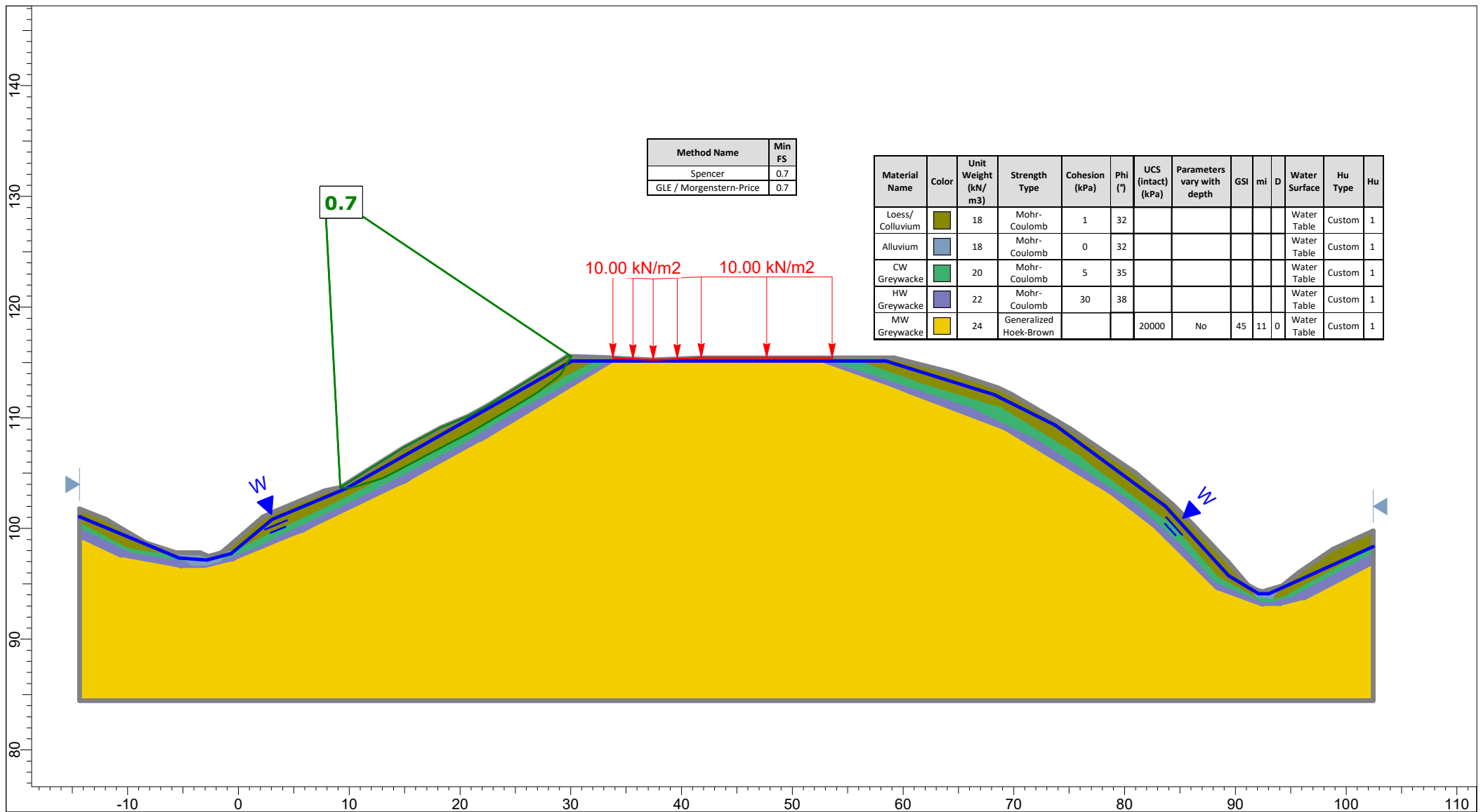
Project	Mt Welcome Development		
Analysis Description	Section L-2		
Drawn By	CW	Scenario	SLS Seismic
Date	26/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

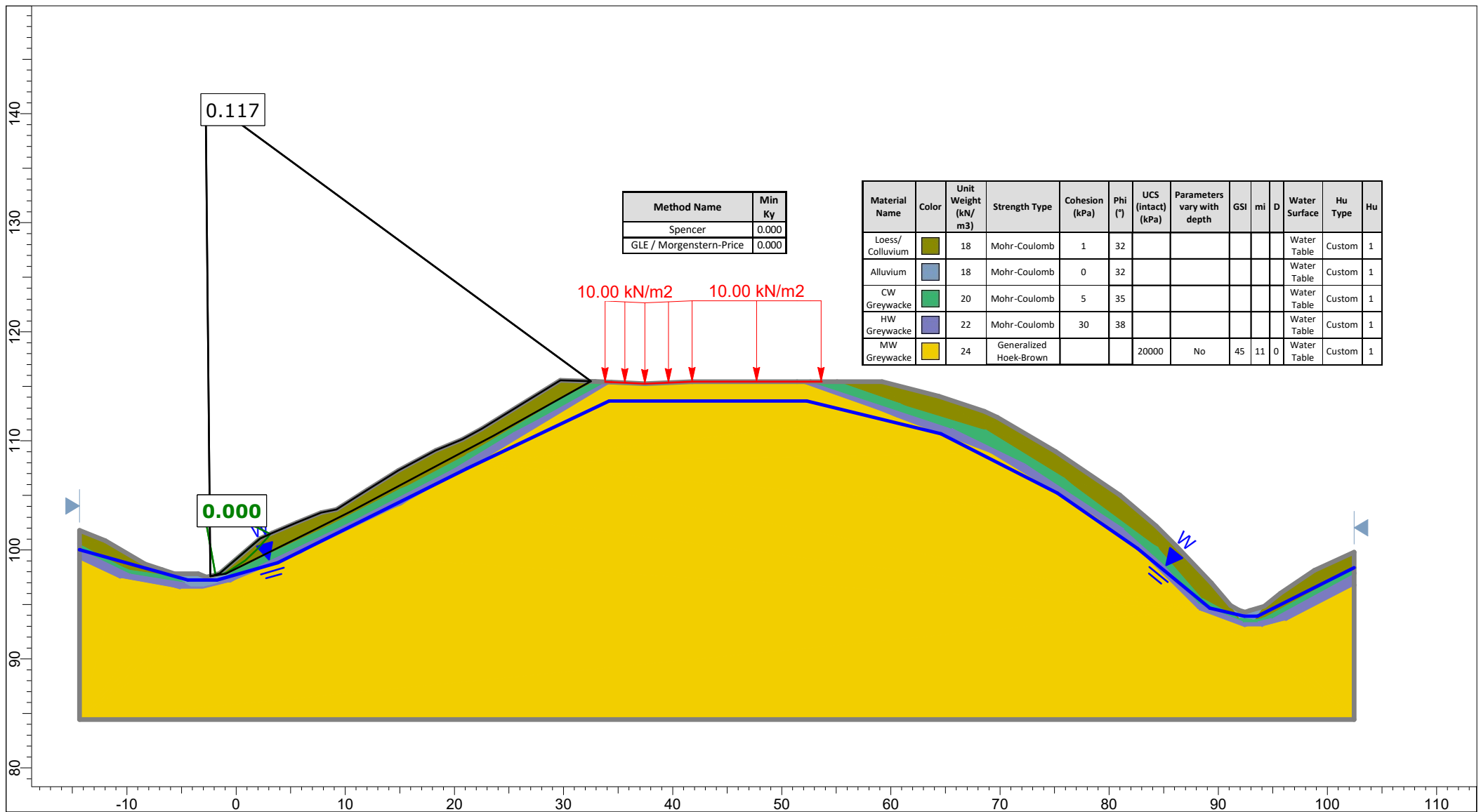
Project	Mt Welcome Development		
Analysis Description	Section L-2		
Drawn By	CW	Scenario	ULS Seismic
Date	26/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

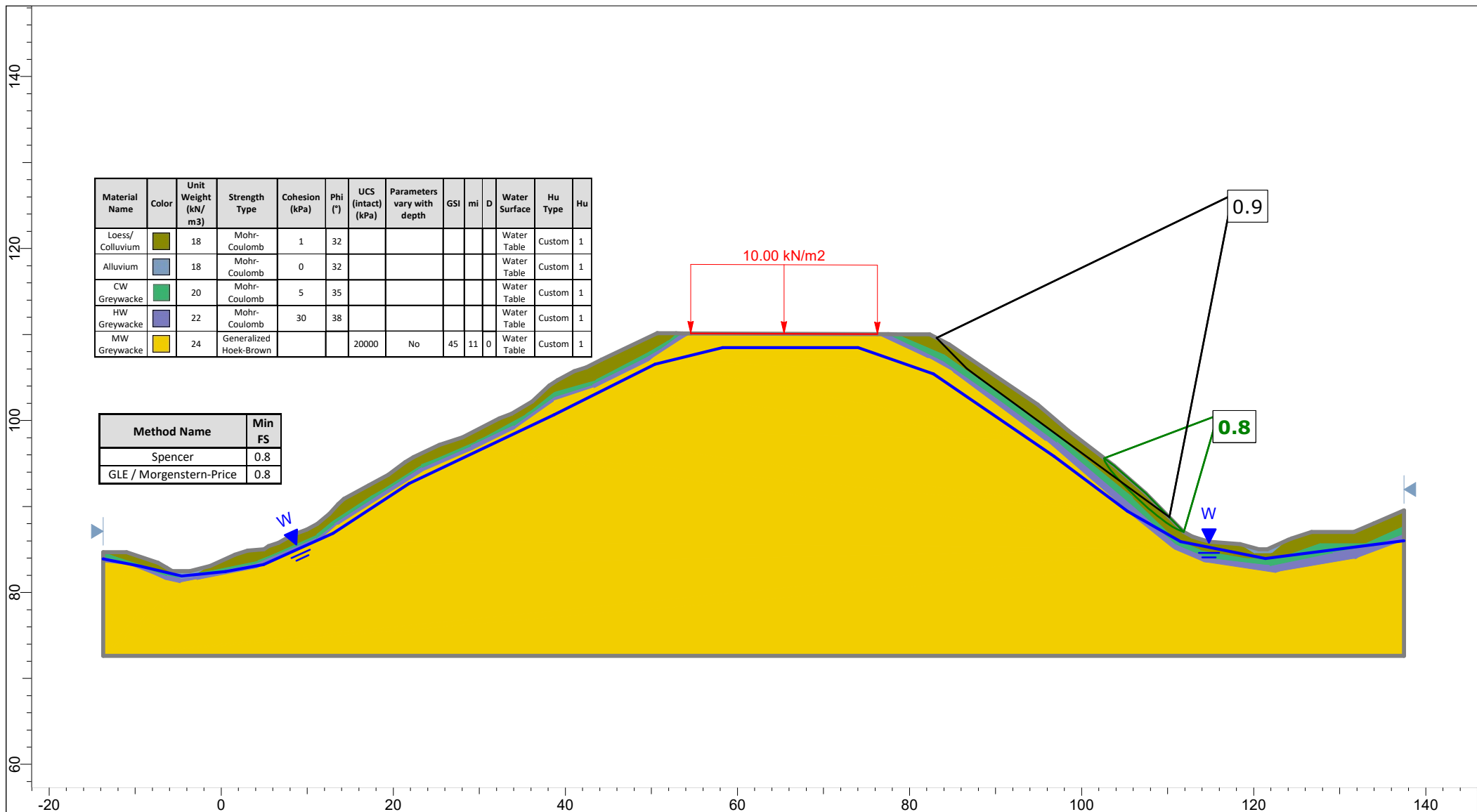
Project	Mt Welcome Development		
Analysis Description	Section L-2		
Drawn By	CW	Scenario	Raised Groundwater
Date	26/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

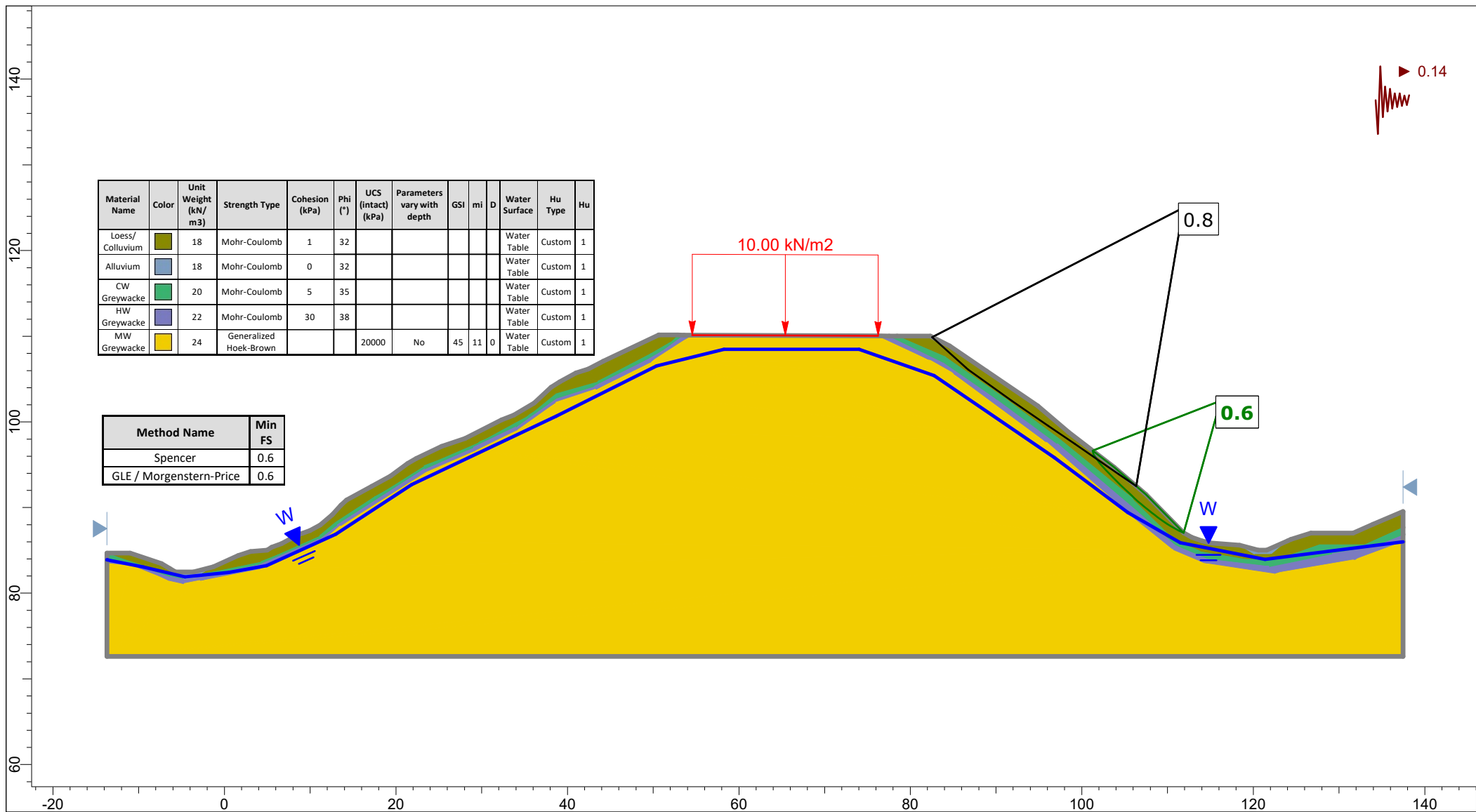
Project	Mt Welcome Development		
Analysis Description	Section L-2		
Drawn By	CW	Scenario	Yield Acceleration
Date	26/06/2024	Client	Classic Developments Ltd



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SLIDEINTERPRET 9.034

Project	Mt Welcome Development		
Analysis Description	Section L-3		
Drawn By	CW	Scenario	Static
Date	26/06/2024	Client	Classic Developments Ltd



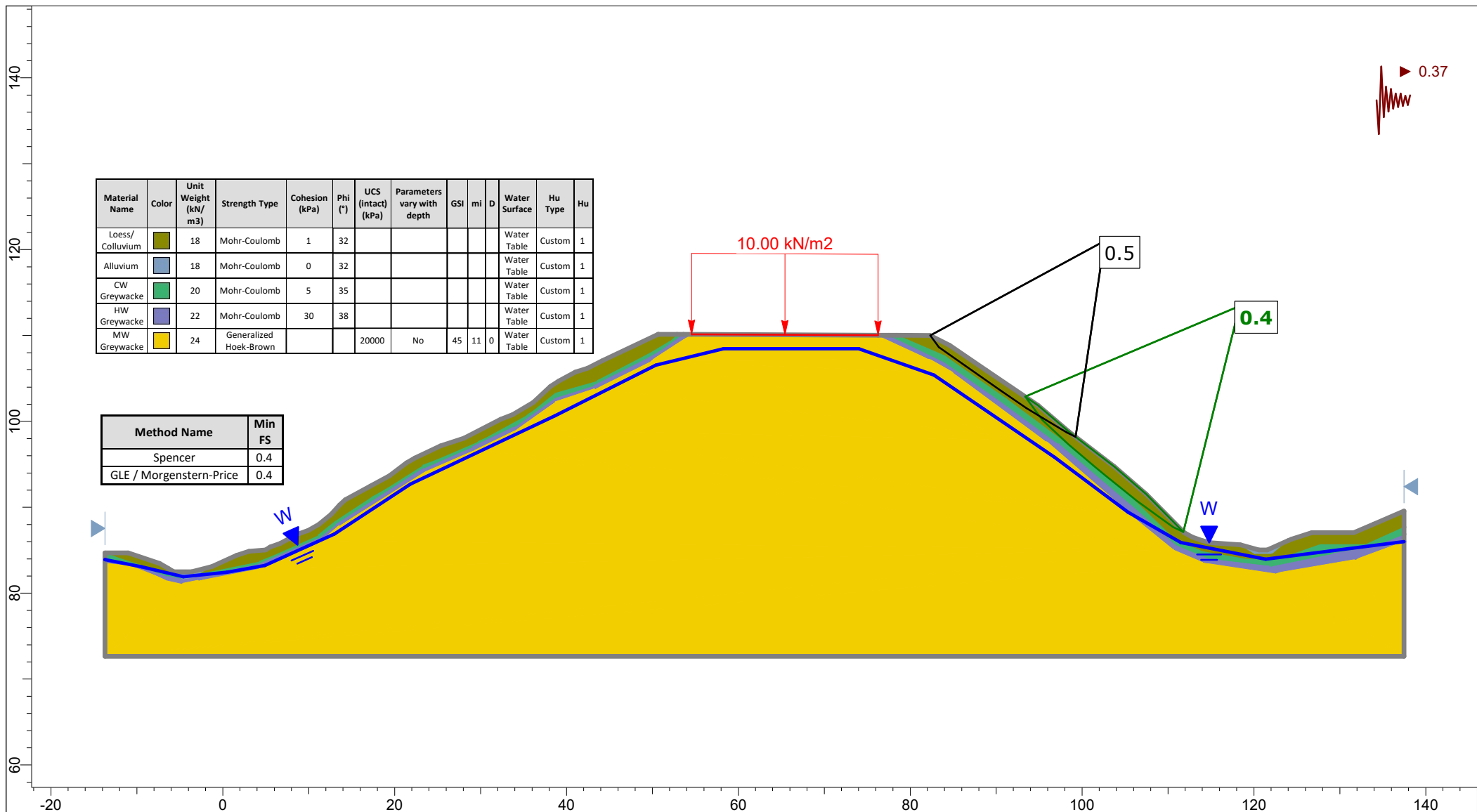
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	UCS (intact) (kPa)	Parameters vary with depth	GSI	mi	D	Water Surface	Hu Type	Hu
Loess/ Colluvium		18	Mohr-Coulomb	1	32						Water Table	Custom	1
Alluvium		18	Mohr-Coulomb	0	32						Water Table	Custom	1
CW Greywacke		20	Mohr-Coulomb	5	35						Water Table	Custom	1
HW Greywacke		22	Mohr-Coulomb	30	38						Water Table	Custom	1
MW Greywacke		24	Generalized Hoek-Brown			20000	No	45	11	0	Water Table	Custom	1

Method Name	Min FS
Spencer	0.6
GLE / Morgenstern-Price	0.6

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SLIDEINTERPRET 9.034

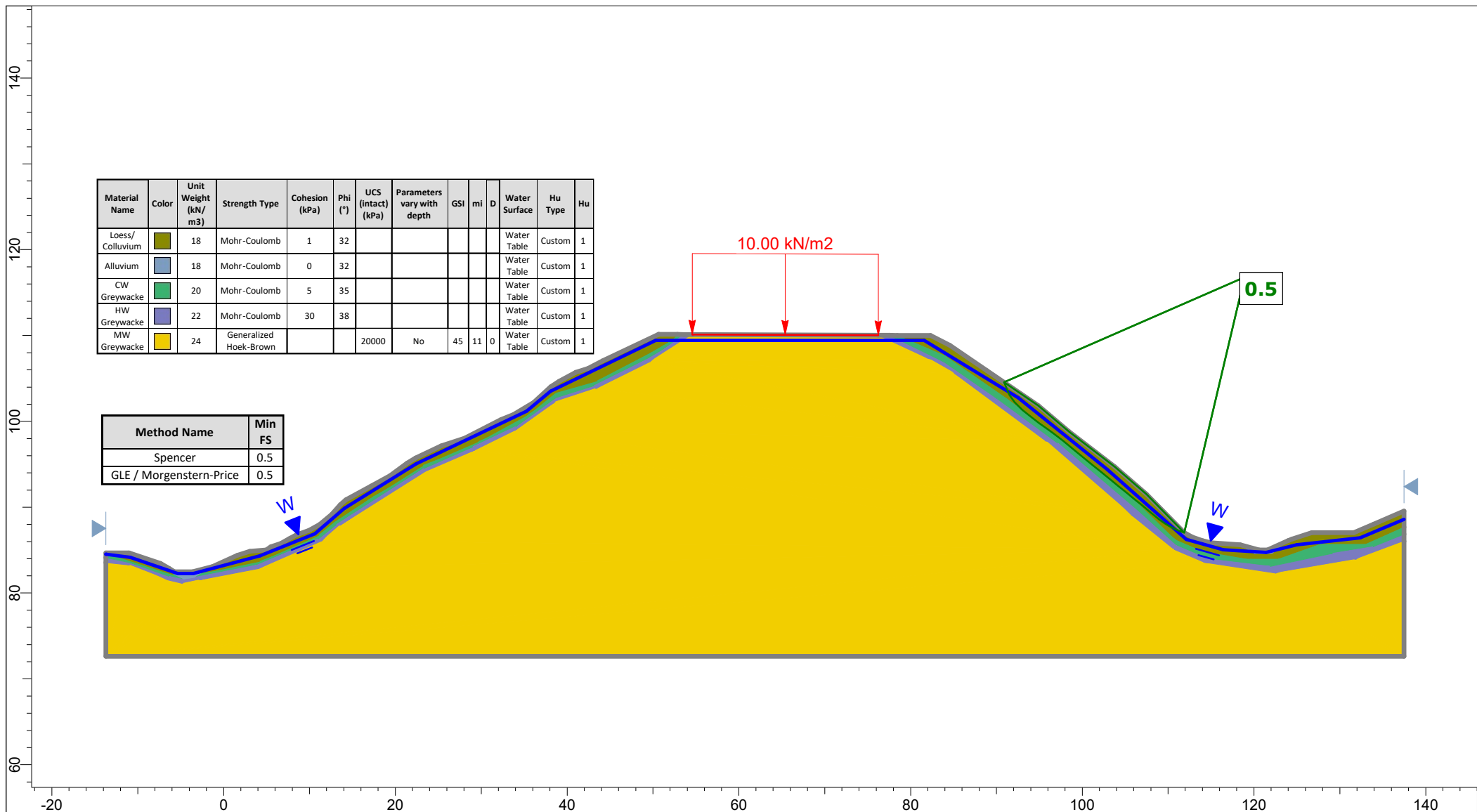
Project	Mt Welcome Development		
Analysis Description	Section L-3		
Drawn By	CW	Scenario	SLS Seismic
Date	26/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

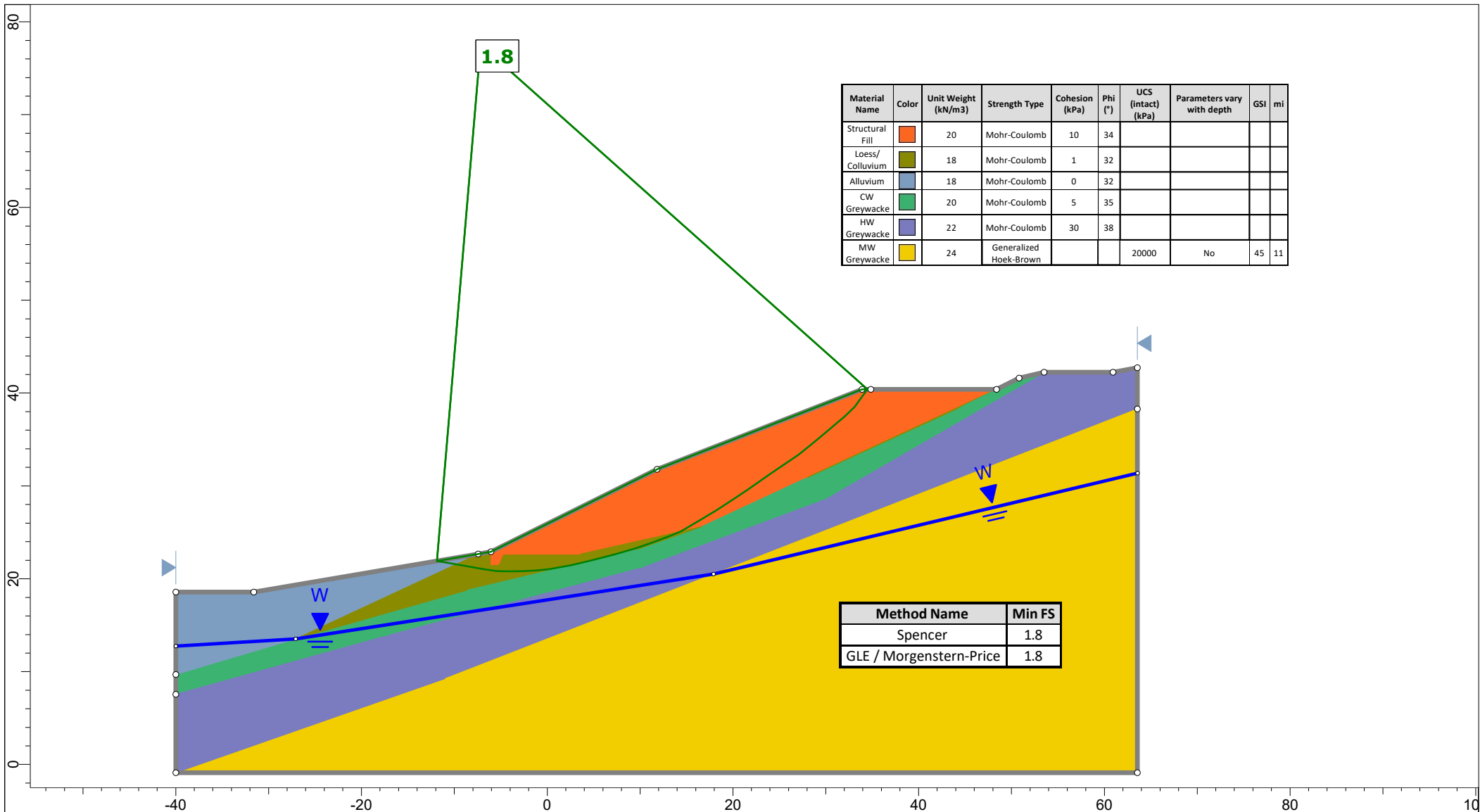
Project		Mt Welcome Development	
Analysis Description		Section L-3	
Drawn By		CW	Scenario ULS Seismic
Date		26/06/2024	Client Classic Developments Ltd



ENGEO

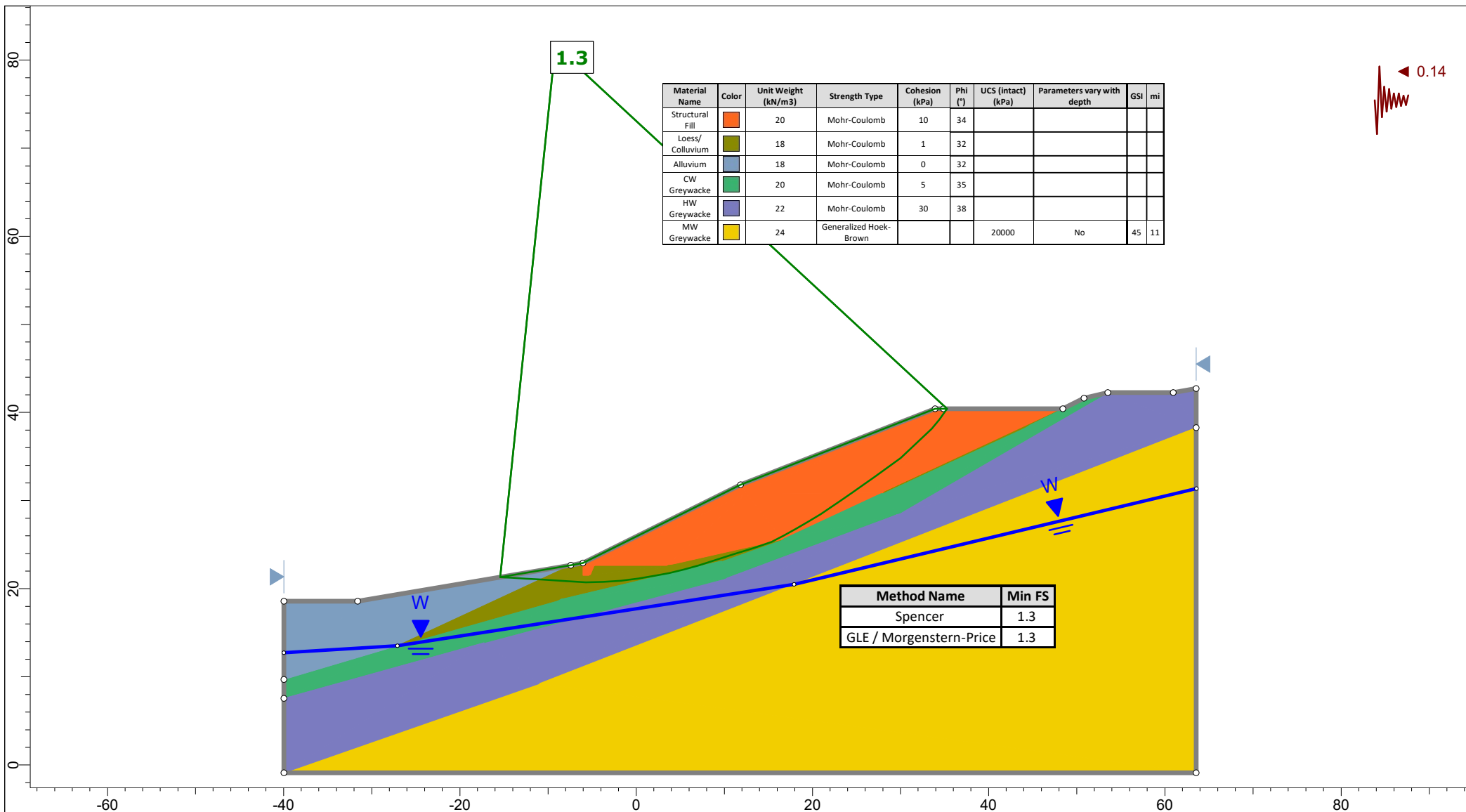
SLIDEINTERPRET 9.034

Project		Mt Welcome Development	
Analysis Description		Section L-3	
Drawn By		CW	Scenario Raised Groundwater
Date		26/06/2024	Client Classic Developments Ltd



SLIDEINTERPRET 9.034

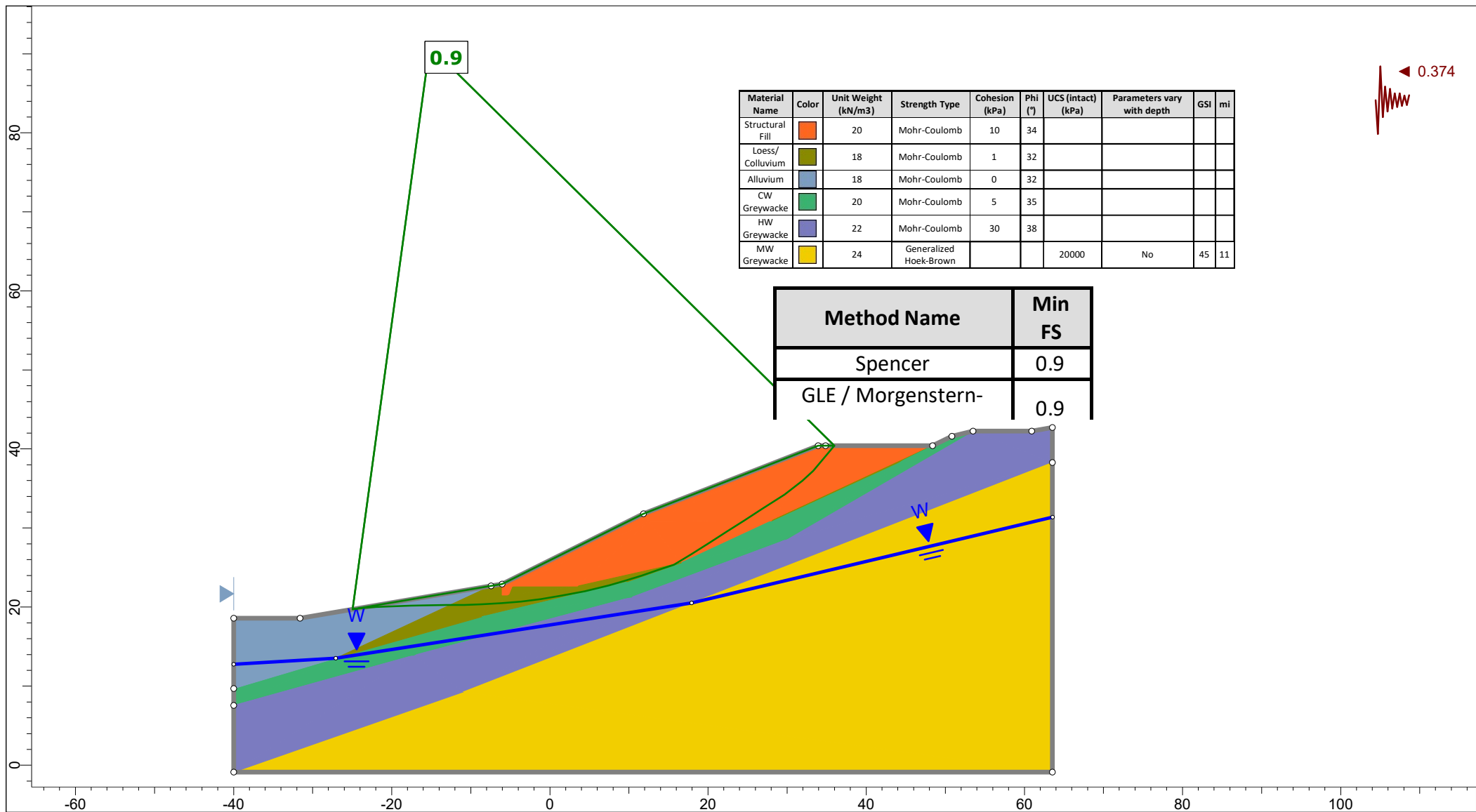
Project	Mt Welcome Development		
Group	Section N (Fill)	Scenario	Static
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



ENGEO

SLIDEINTERPRET 9.034

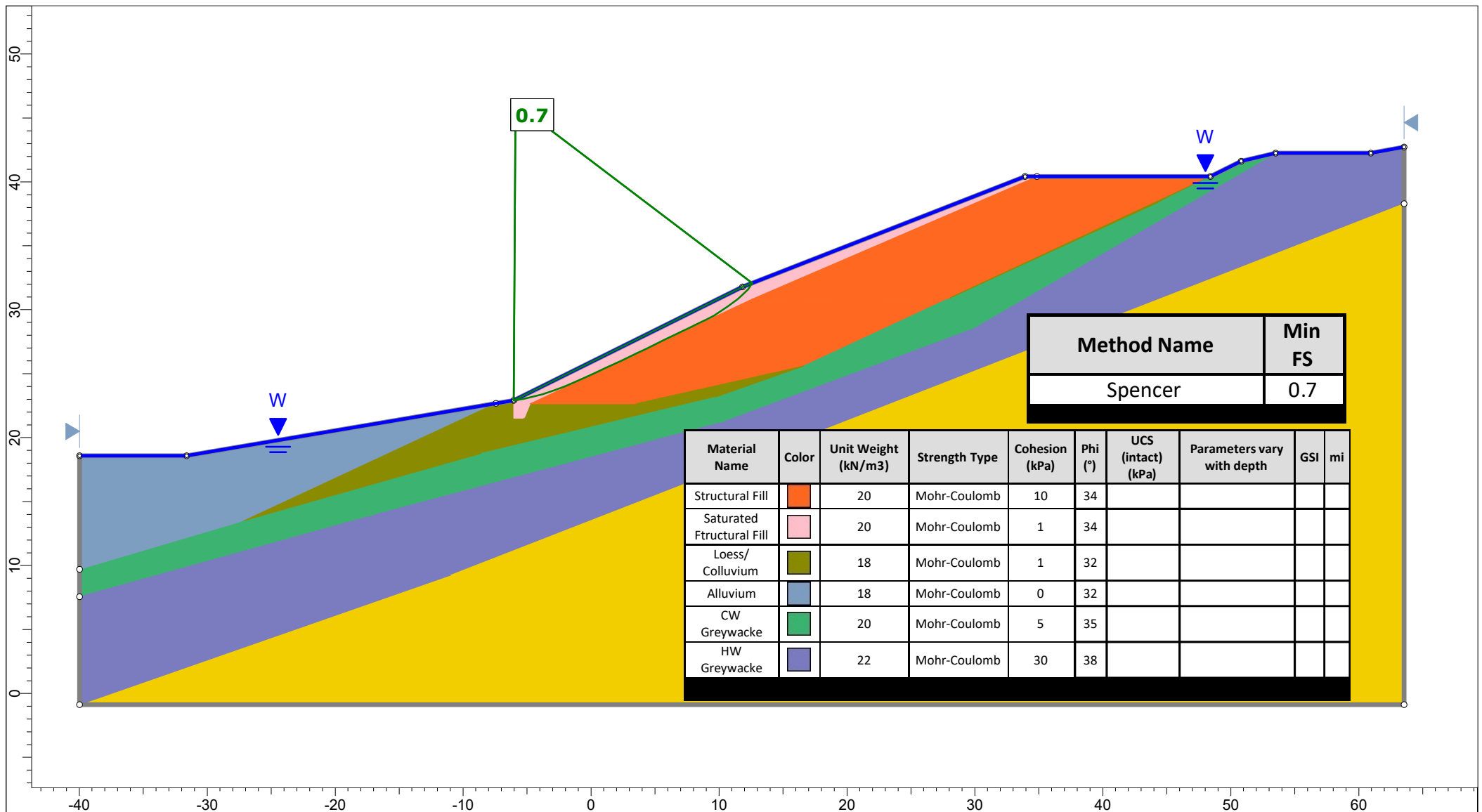
Project	Mt Welcome Development		
Group	Section N (Fill)	Scenario	SLS
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



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SLIDEINTERPRET 9.034

Project			Mt Welcome Development		
Group		Section N (Fill)		Scenario	
Drawn By		TV		Company	
Date		26/09/2025		File Name	
				Mt Welcome	



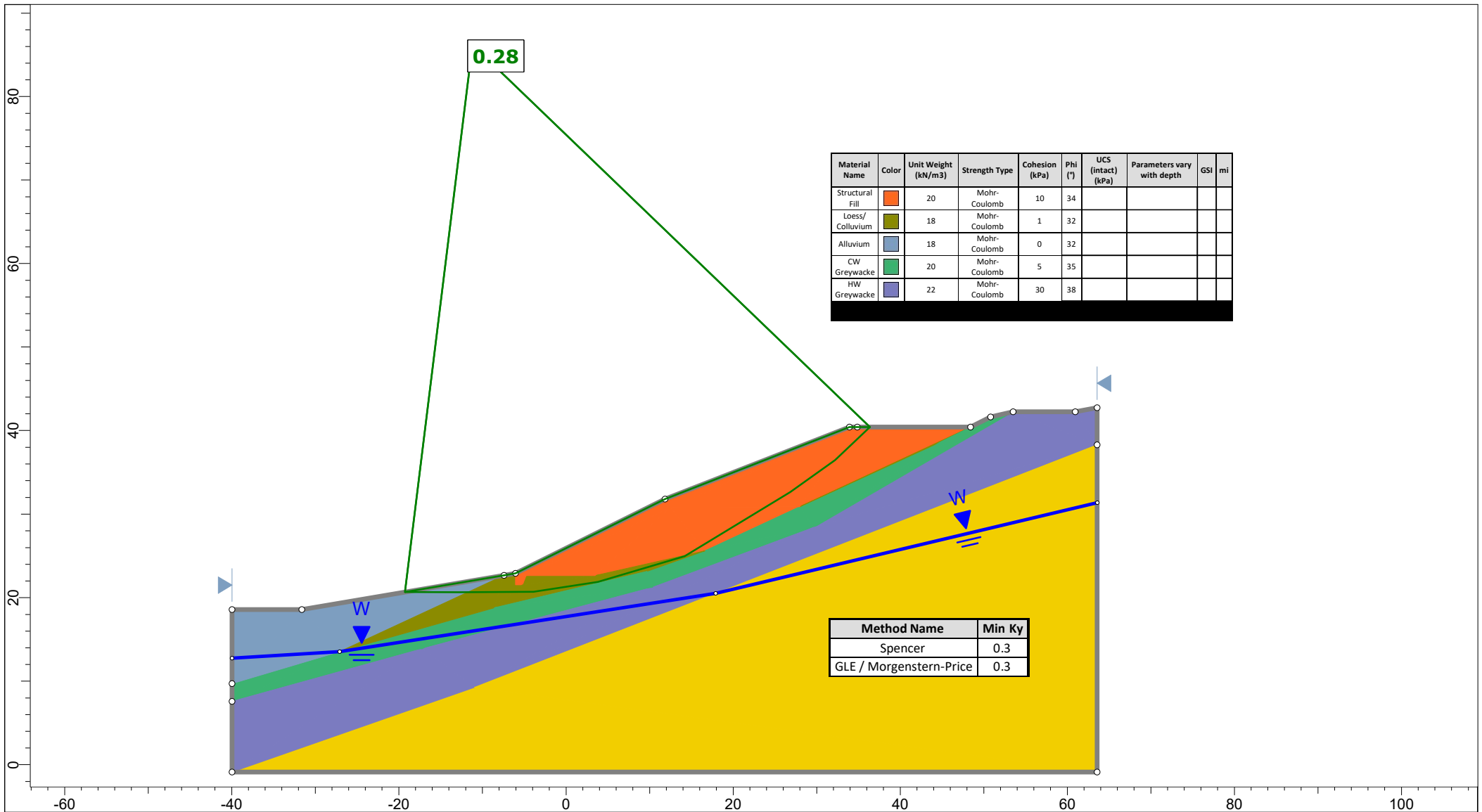
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SLIDEINTERPRET 9.034

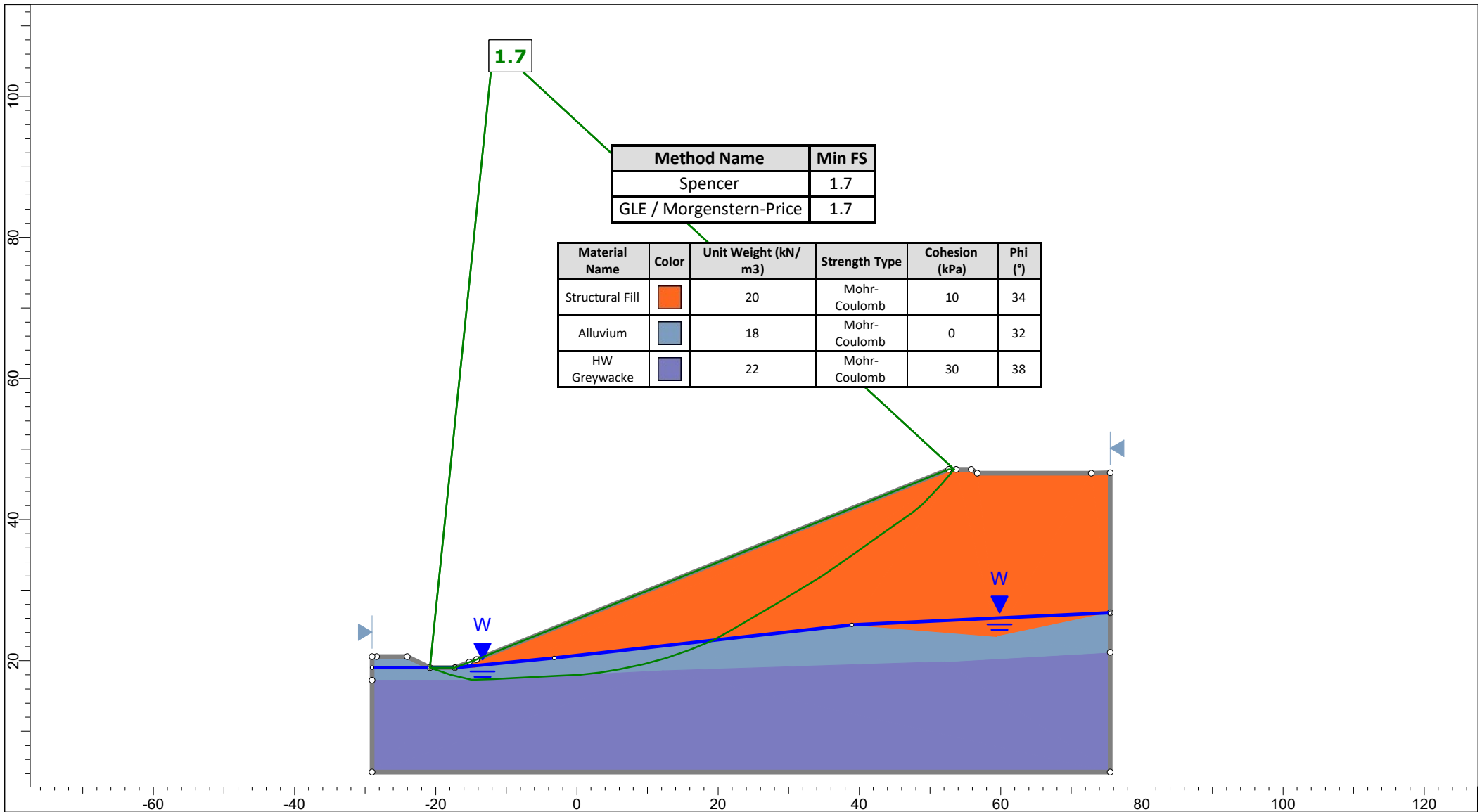
Project			Mt Welcome Development		
Group		Section N (Fill)		Scenario	
Drawn By		TV		Company	
Date		26/09/2025		File Name	
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Raised GW

Mt Welcome

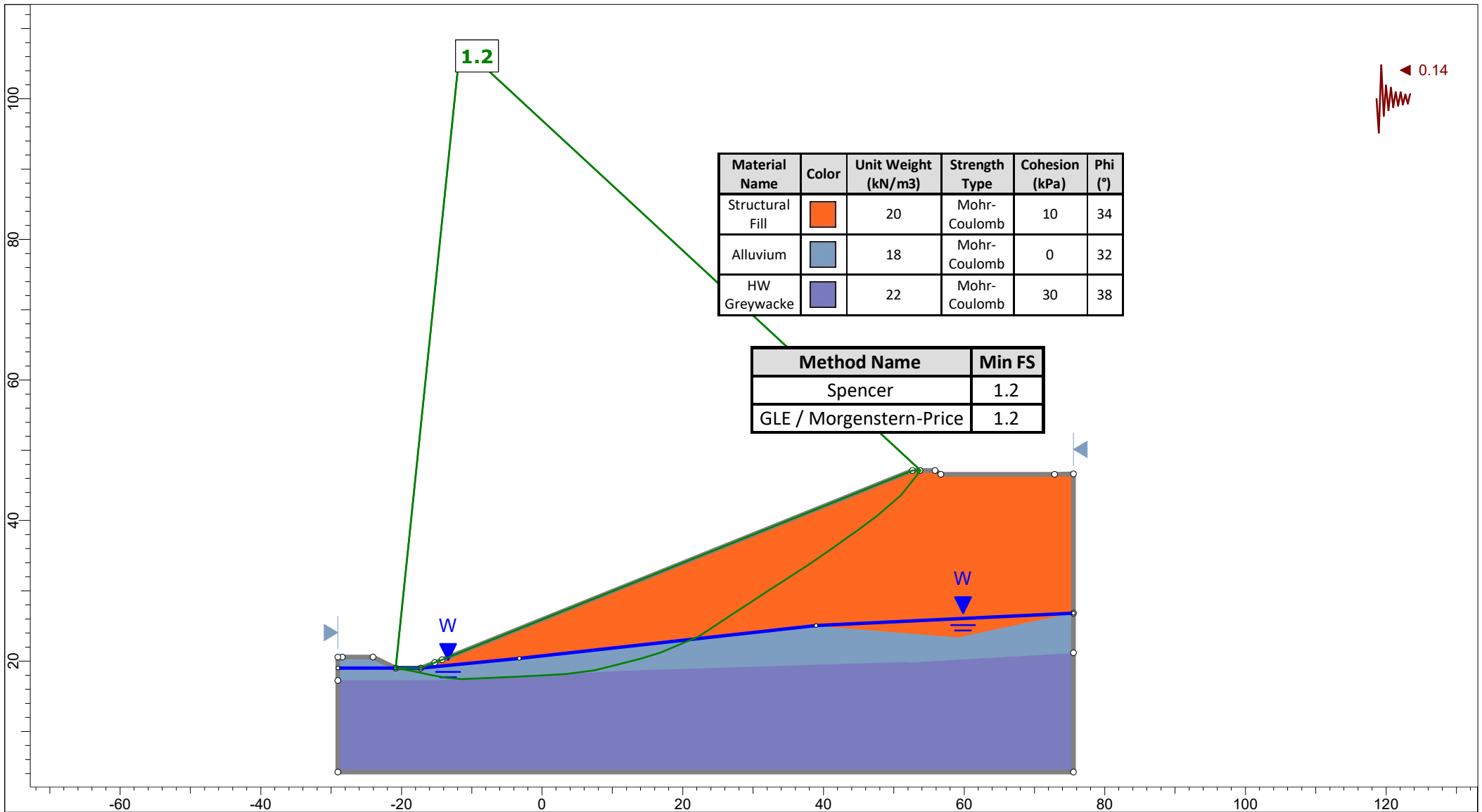


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	Group	Section N (Fill)	Scenario	Yield acceleration
	Drawn By	TV	Company	
	Date	26/09/2025	File Name	Mt Welcome



SLIDEINTERPRET 9.034

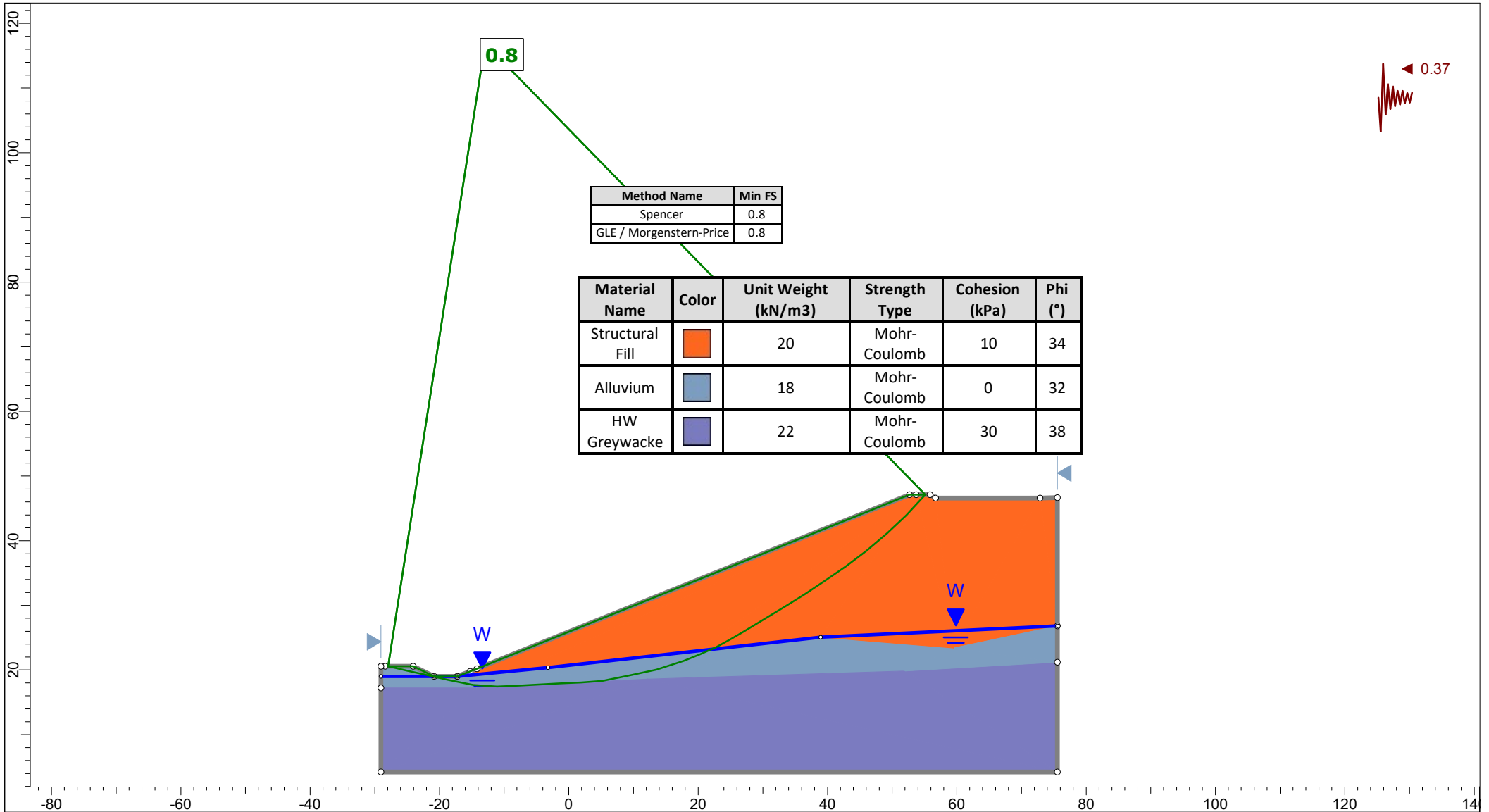
Project		Mt Welcome Development	
Group	Section O (Fill)	Scenario	Static
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



ENGEO

SLIDEINTERPRET 9.034

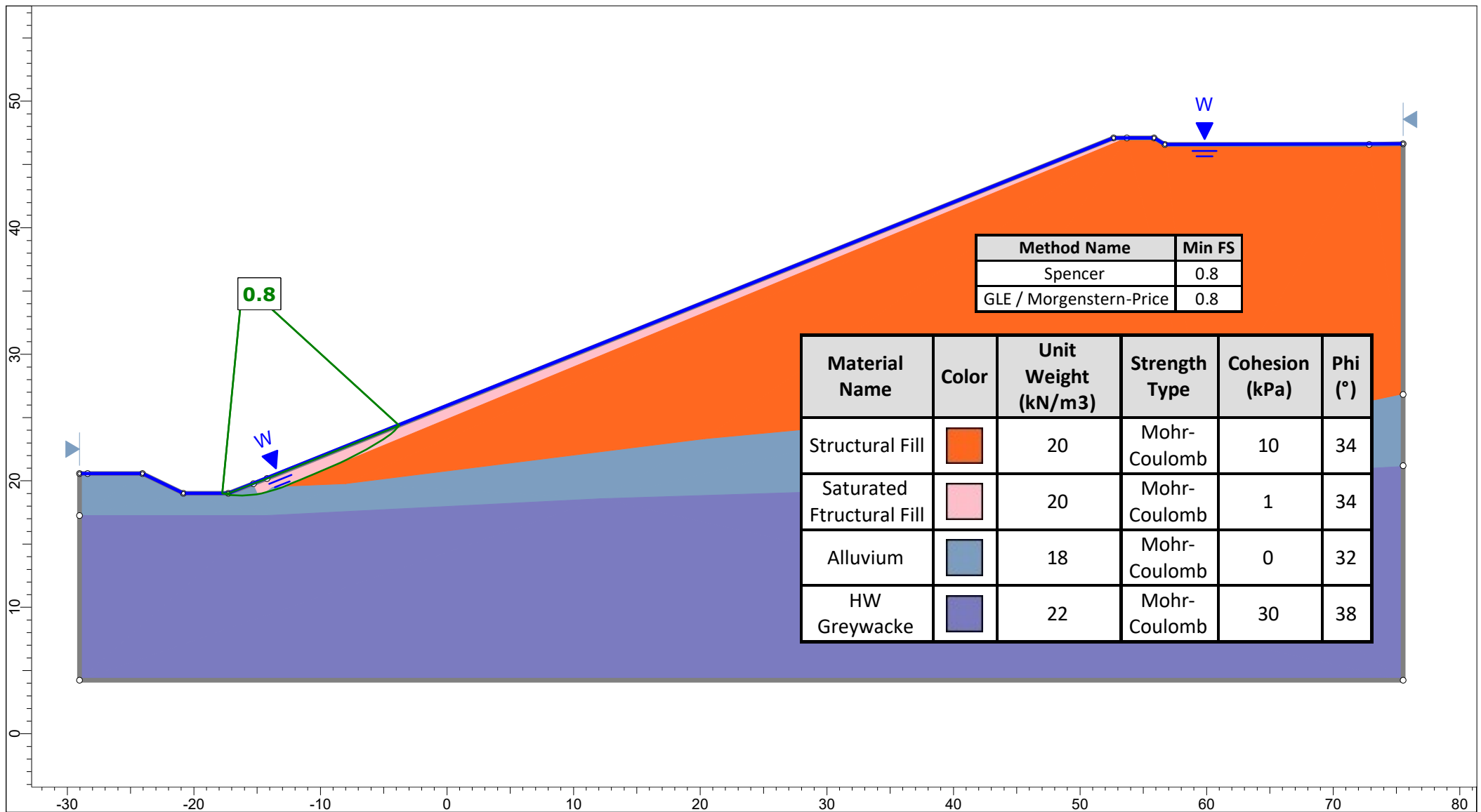
Project	Mt Welcome Development		
Group	Section O (Fill)	Scenario	SLS
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



ENGGEO

SLIDEINTERPRET 9.034

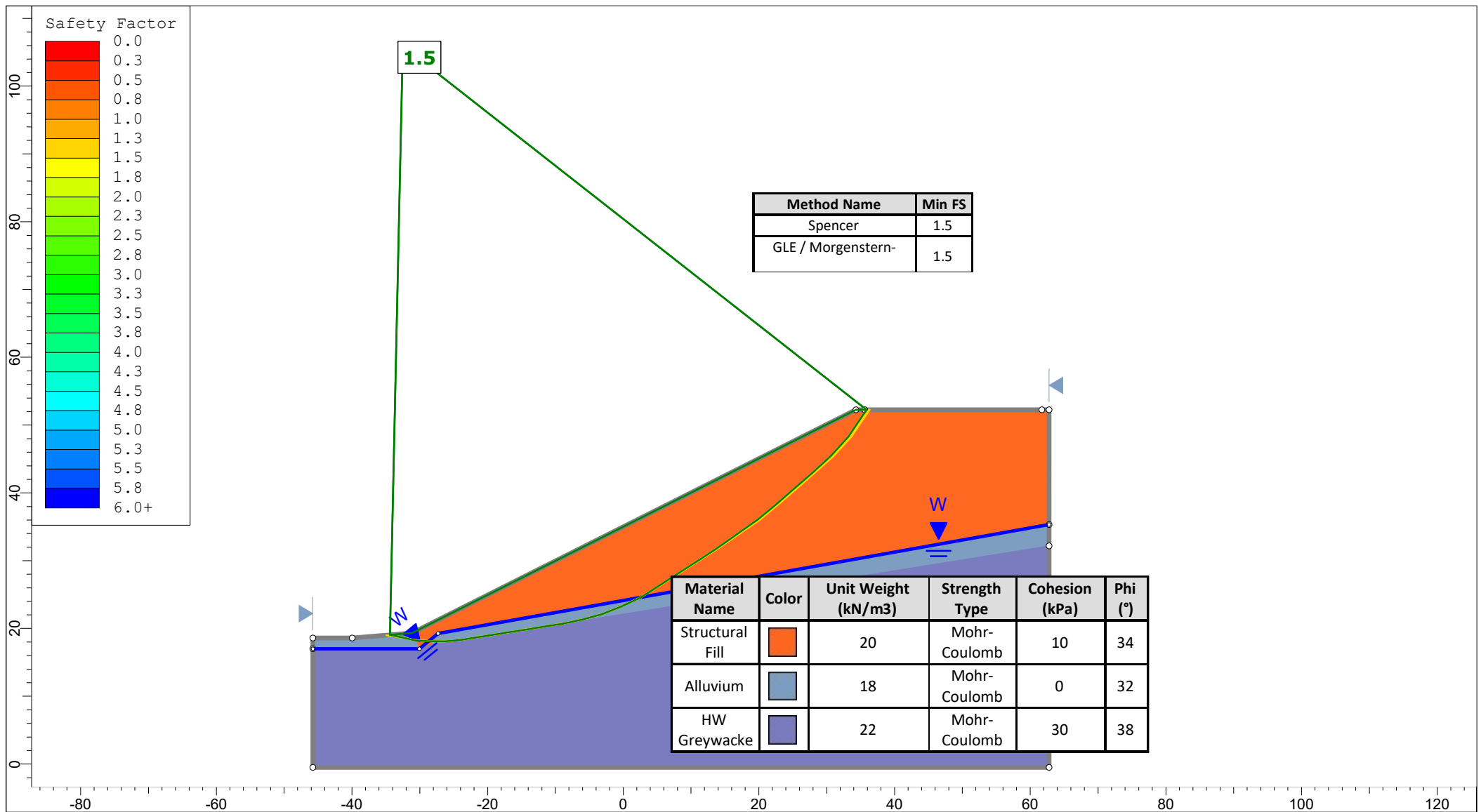
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Group		Section O (Fill)		Scenario	
Drawn By		TV		Company	
Date		26/09/2025		File Name	
				Mt Welcome	



ENGEO

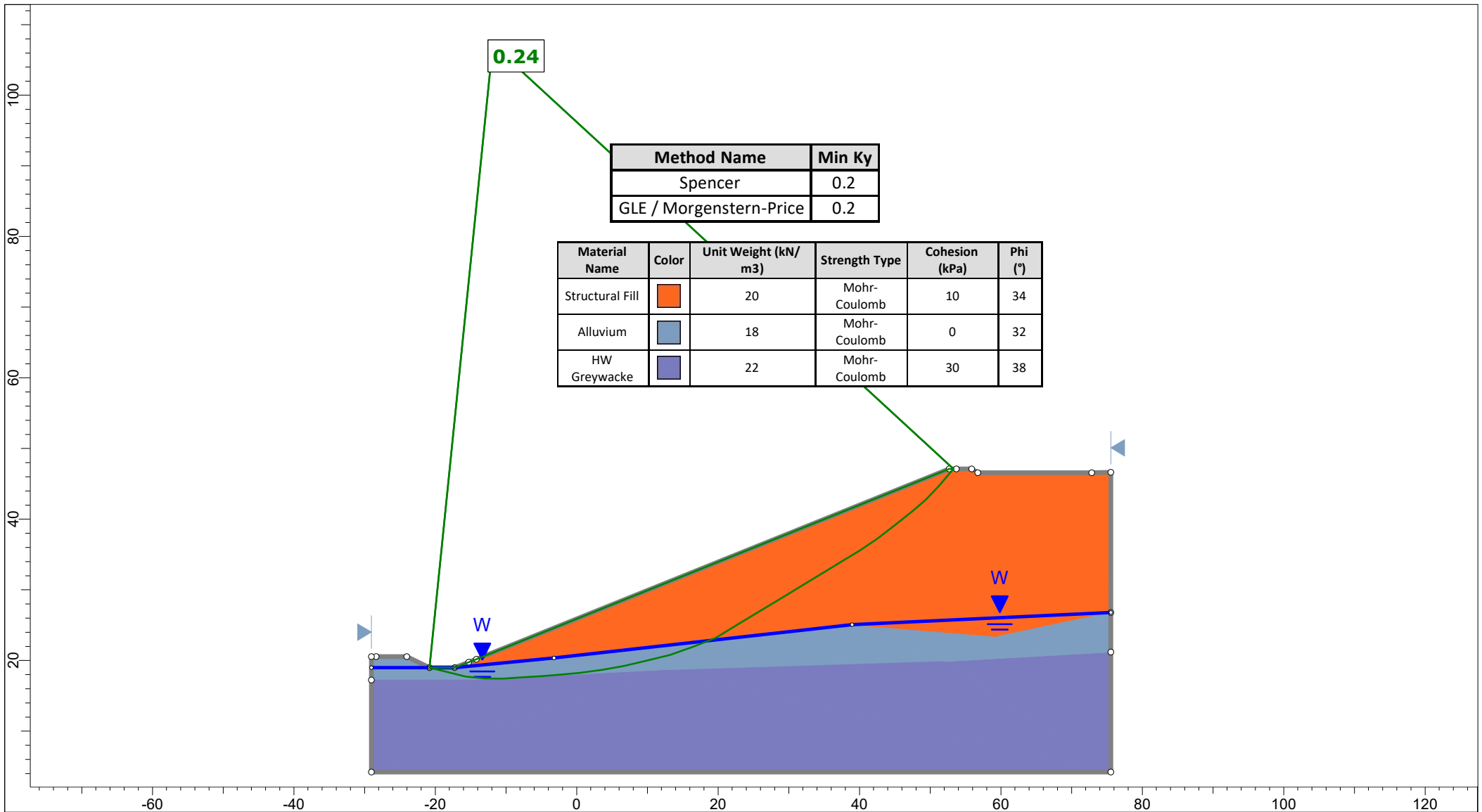
SLIDEINTERPRET 9.034

Project			Mt Welcome Development		
Group		Section O (Fill)		Scenario	
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Drawn By		TV		Company	
Date		26/09/2025		File Name	
				Mt Welcome	



SLIDEINTERPRET 9.034

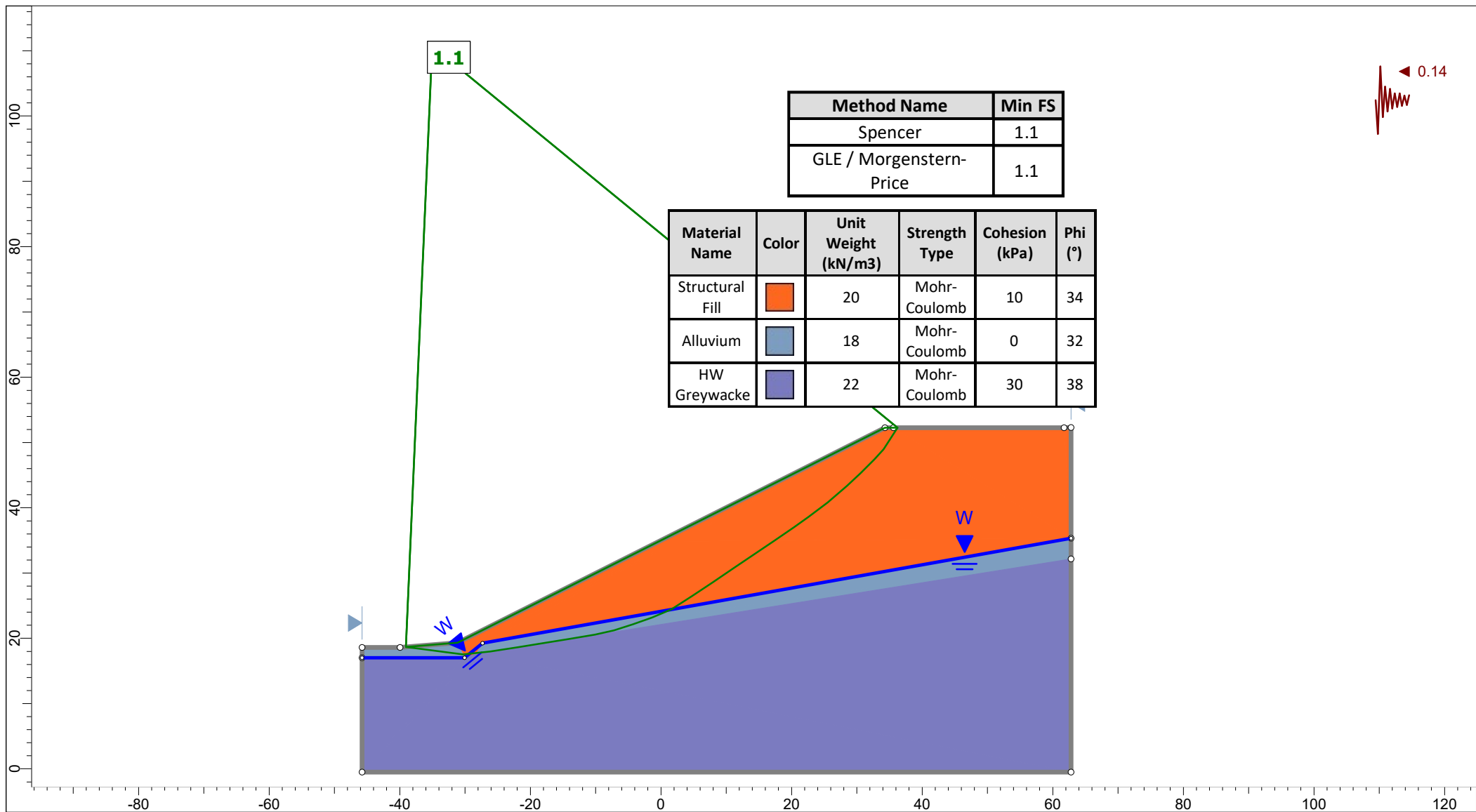
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Group	Section R (Fill)	Scenario	Static
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome





SLIDEINTERPRET 9.034

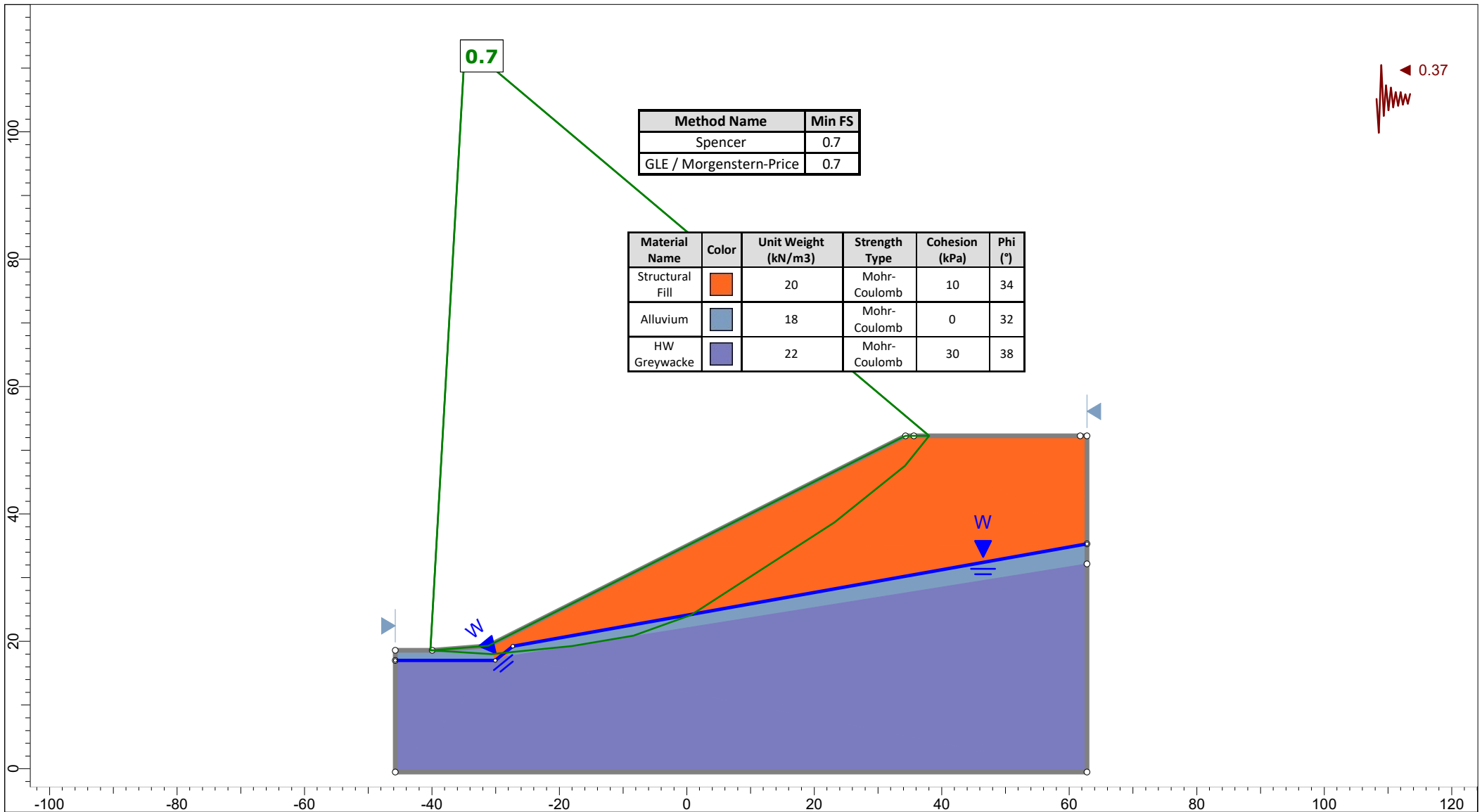
Project		Mt Welcome Development	
Group	Section O (Fill)	Scenario	Yield acceleration
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



ENGEO

SLIDEINTERPRET 9.034

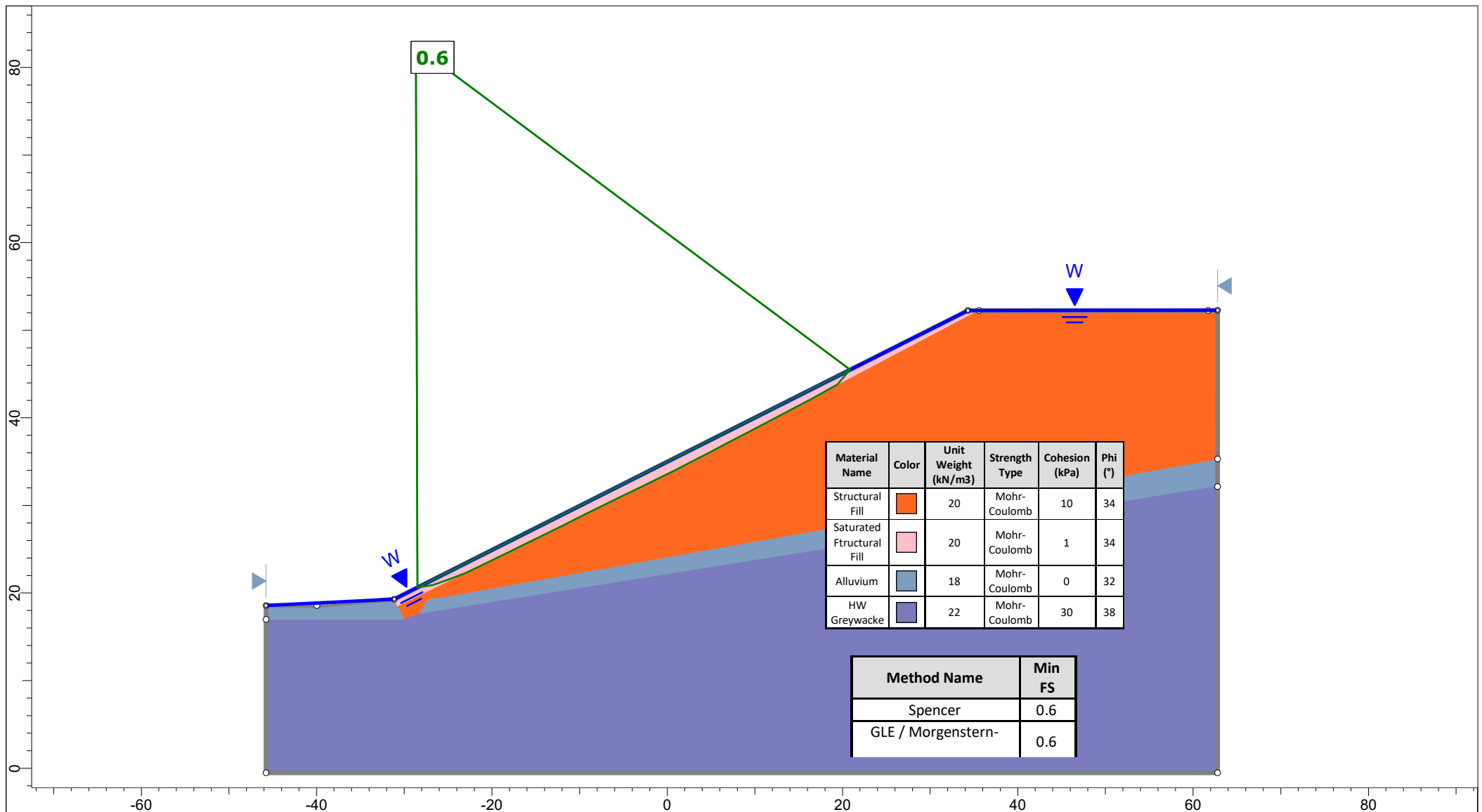
Project	Mt Welcome Development		
Group	Section R (Fill)	Scenario	SLS
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



ENGEO

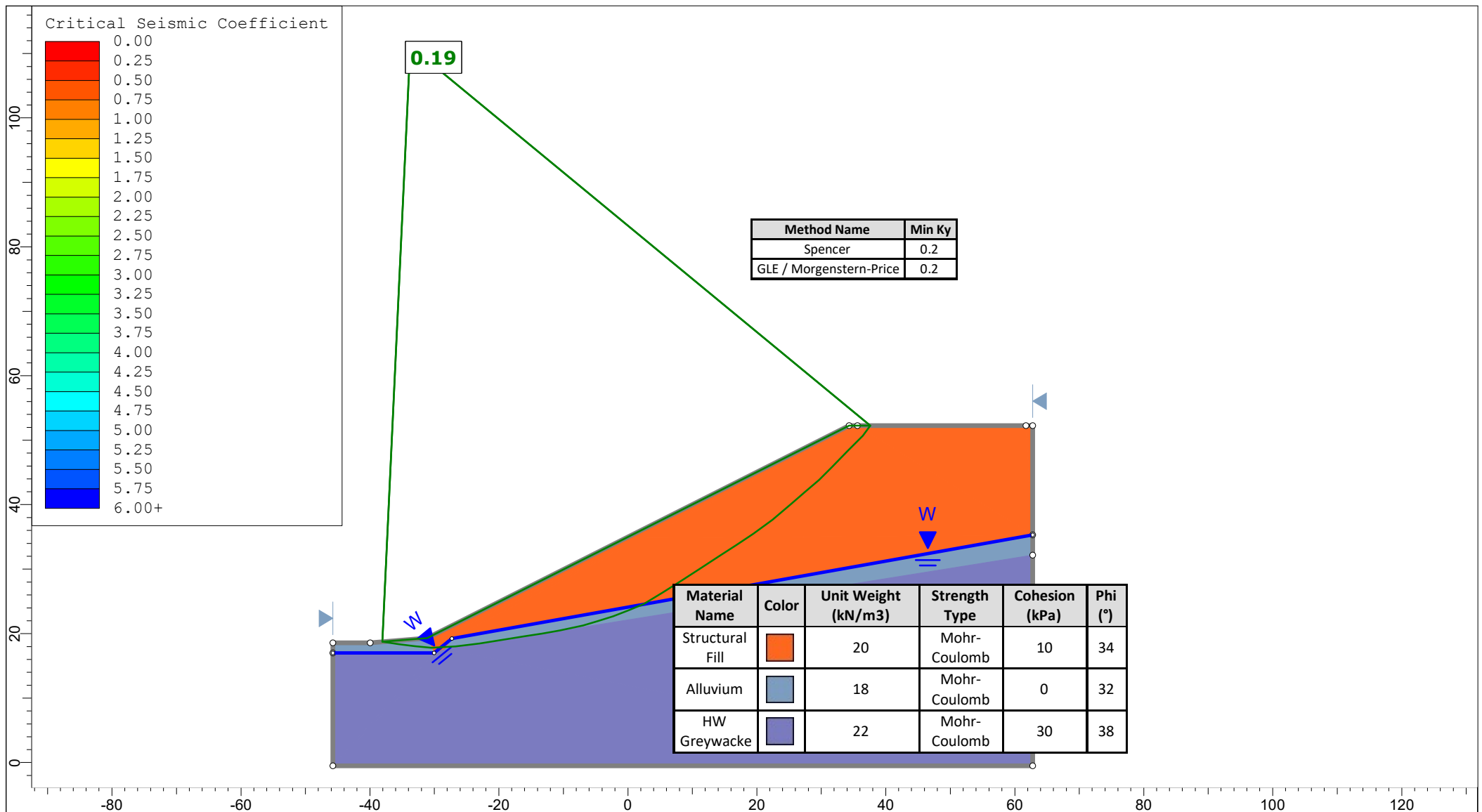
SLIDEINTERPRET 9.034

Project	Mt Welcome Development		
Group	Section R (Fill)	Scenario	Seismic - ULS
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



SLIDEINTERPRET 9.034

Project	Mt Welcome Development		
Group	Section R (Fill)	Scenario	Raised GW
Drawn By	TV	Company	
Date	26/09/2025	File Name	Mt Welcome



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SLIDEINTERPRET 9.034

Project

Mt Welcome Development

Group

Section R (Fill)

Scenario

Yield Acceleration

Drawn By

TV

Company

Date

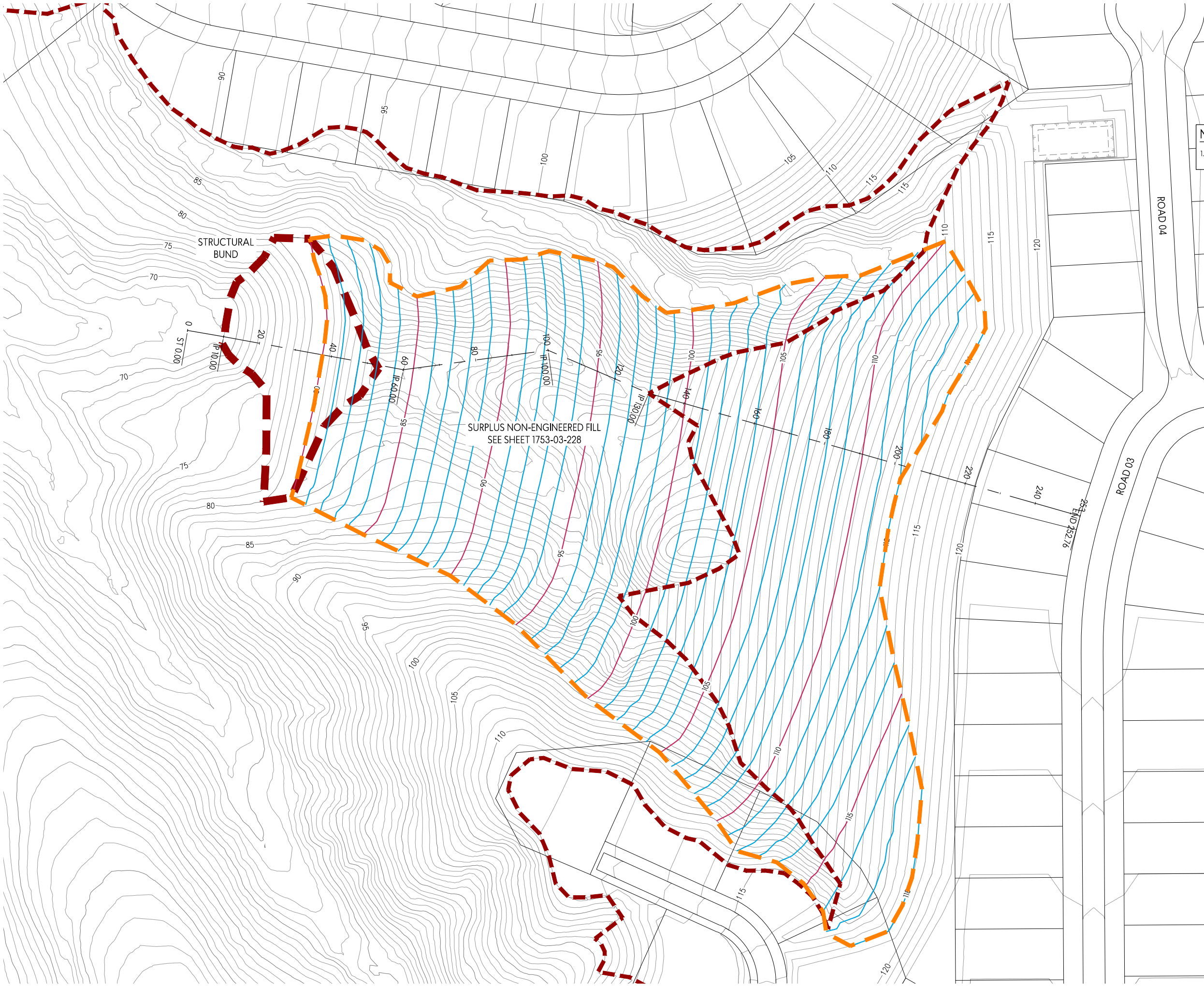
26/09/2025

File Name

Mt Welcome

APPENDIX 8:

Unsuitable Embankment Location Plan and Cross Section



NOTES:

1. SEE SHEET 1753-03-210 FOR FULL LIST OF NOTES AND LEGEND.

**DRAFT PLAN
ONLY**

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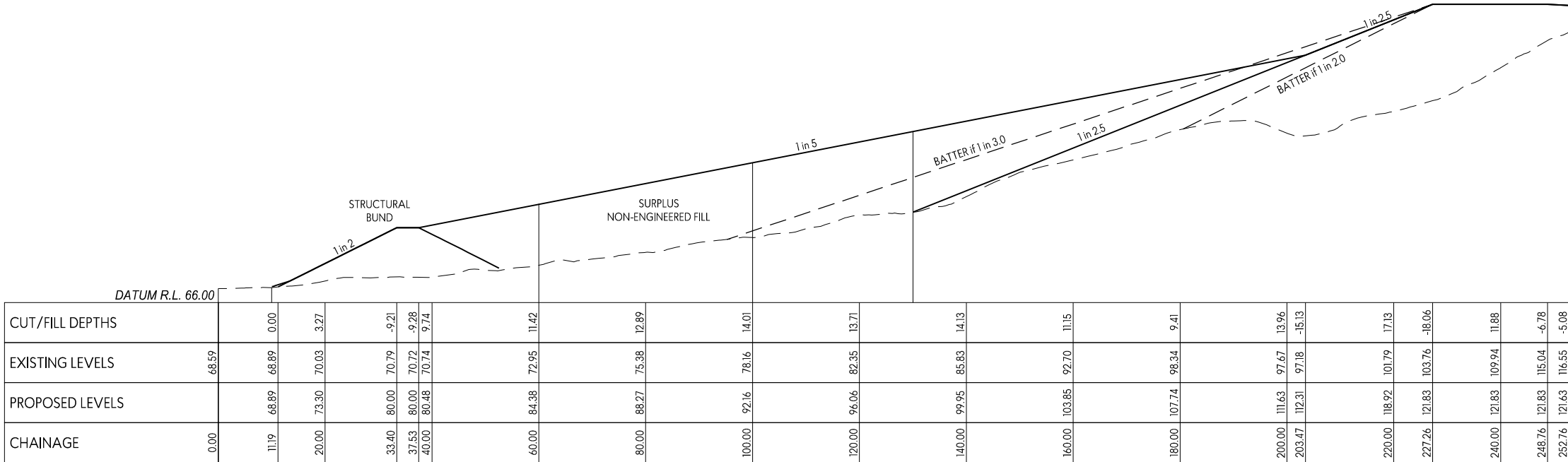
REVISIONS:		BY	DATE
REV	NOTES		
--	----	--	----

PROJECT:
CLASSIC DEVELOPMENTS
MT WELCOME - PHASE 01
PUKERUA BAY, PORIRUA

TITLE:
PROPOSED CONTOURS
SURPLUS FILL ZONE
LAYOUT PLAN



DESIGNED: PWJ	DRAWN: PWJ
CHECKED: --	PLOT DATE: 11-06-2024
SCALE A1: 1:500	SCALE A3: 1:1000
STATUS: PRELIMINARY	
PROJECT No: 1753-03	DRAWING No: 228
	REVISION: ---



SECTION - SURPLUS FILL
LONGSECTION BETWEEN 0.00 AND 252.76

DRAFT PLAN
ONLY

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REVISIONS:				BY	DATE
REV	NOTES				
--	----			--	-----

PROJECT:
CLASSIC DEVELOPMENTS
MT WELCOME - PHASE 01
PUKERUA BAY, PORIRUA

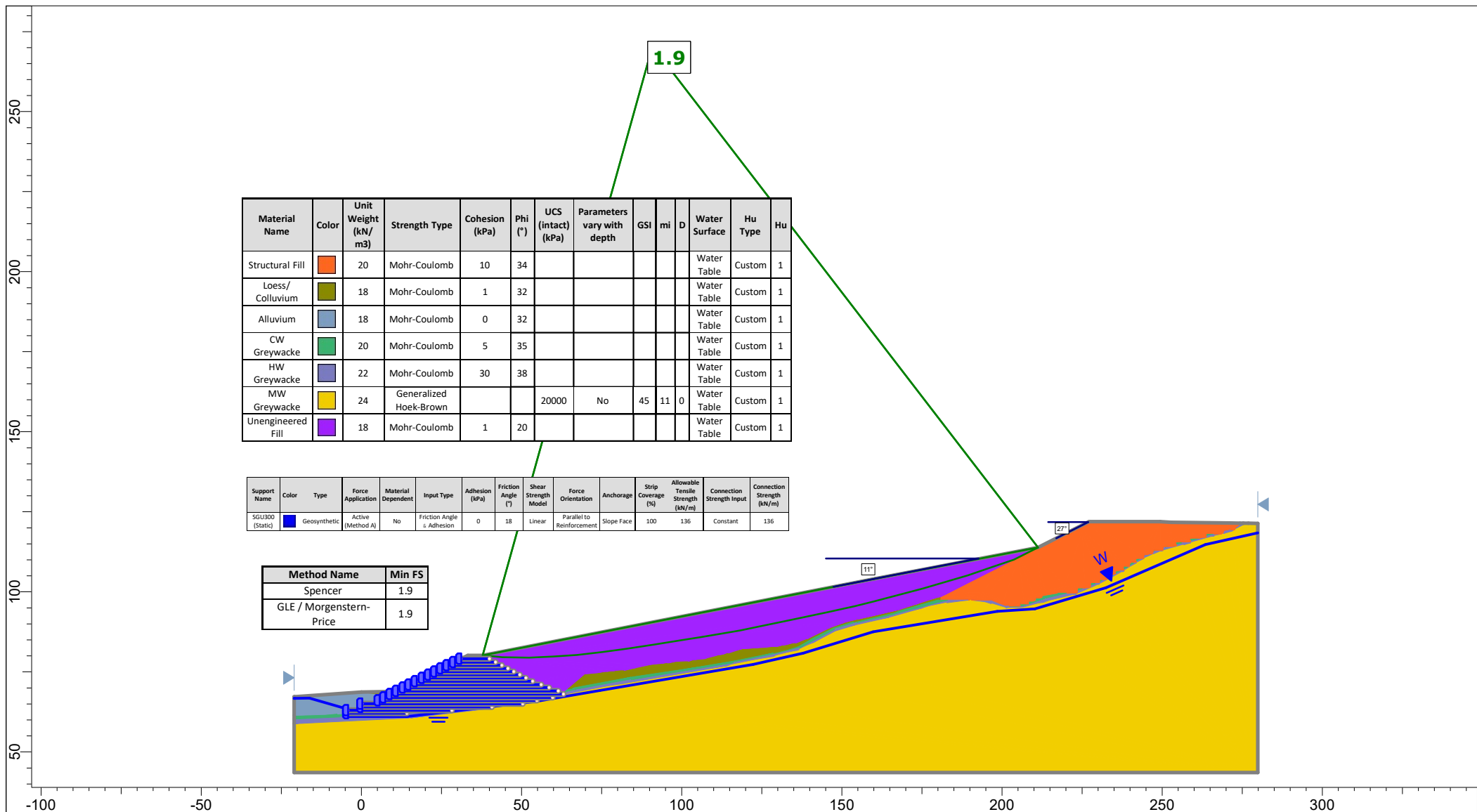
TITLE:
PROPOSED CONTOURS
SURPLUS FILL ZONE
SECTION VIEW



DESIGNED: PWJ	DRAWN: PWJ	
CHECKED: --	PLOT DATE: 11-06-2024	
SCALE A1: 1:500	SCALE A3: 1:1000	
STATUS: PRELIMINARY		
PROJECT No: 1753-03	DRAWING No: 229	REVISION: ---

APPENDIX 9:

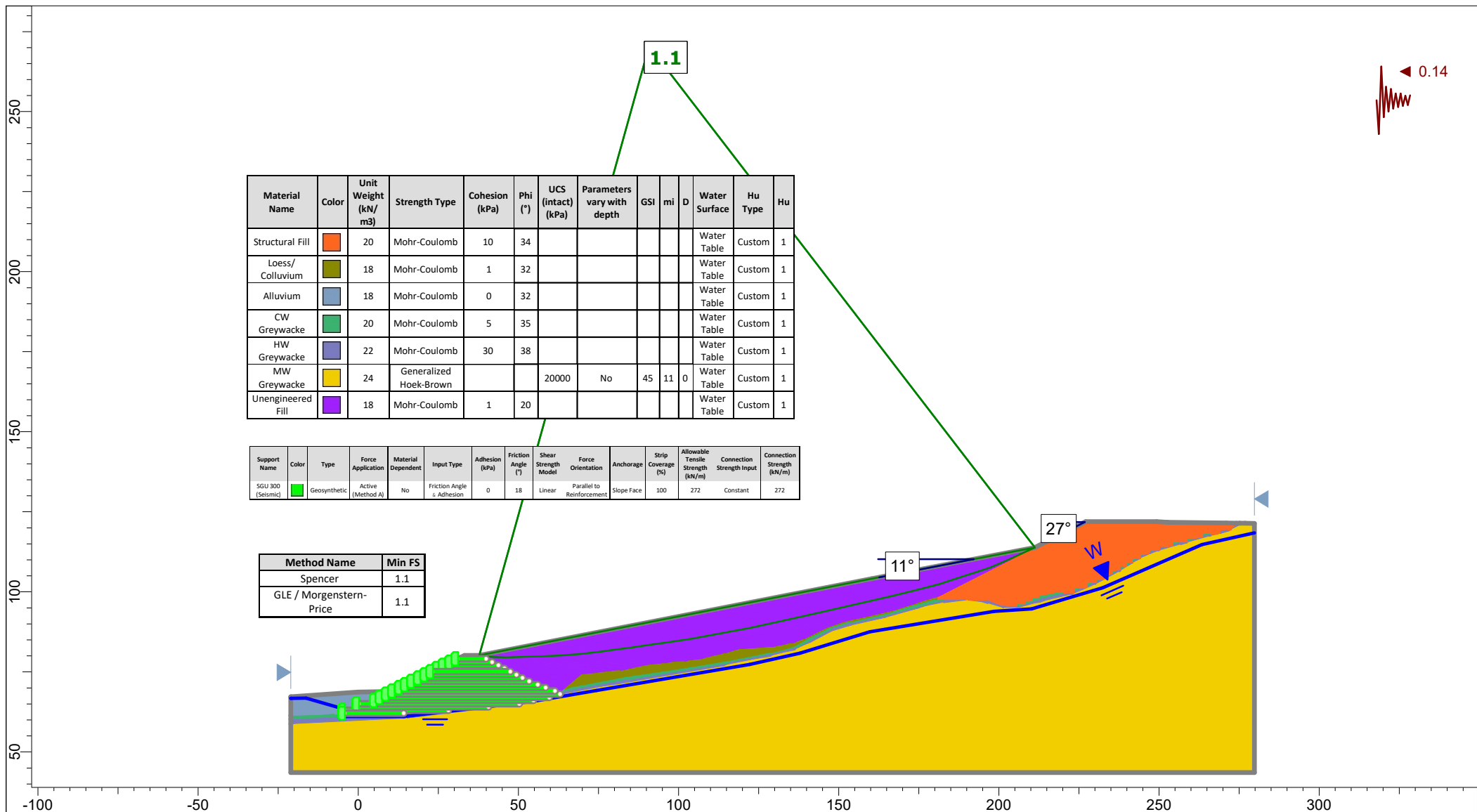
Unsuitable Embankment Stability Analysis



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SLIDEINTERPRET 9.034

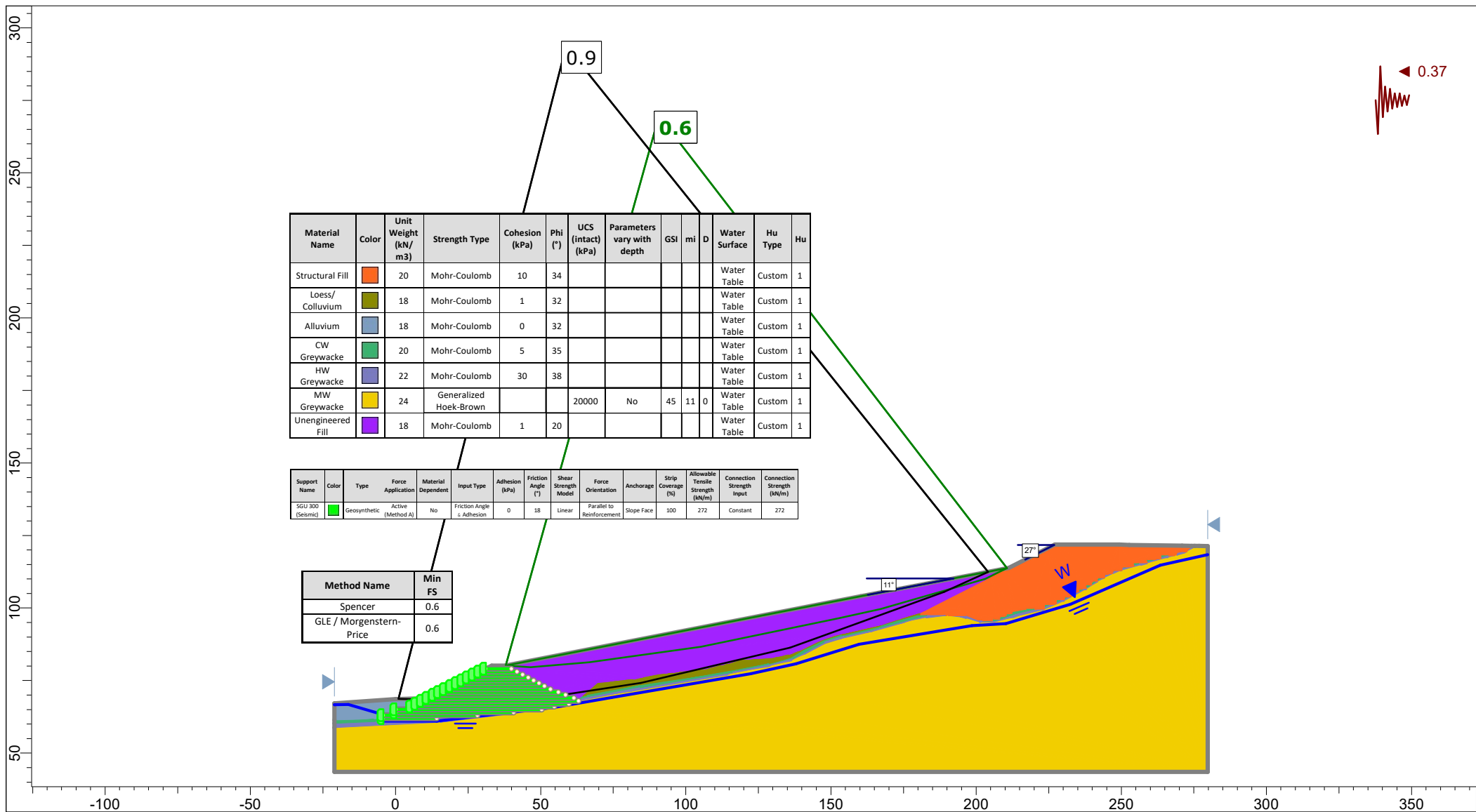
Project		Mt Welcome Development	
Analysis Description		Unsuitable Embankment and Structural batter	
Drawn By		CW	Scenario Static
Date		27/06/2024	Client Classic Developments Ltd



ENGEO

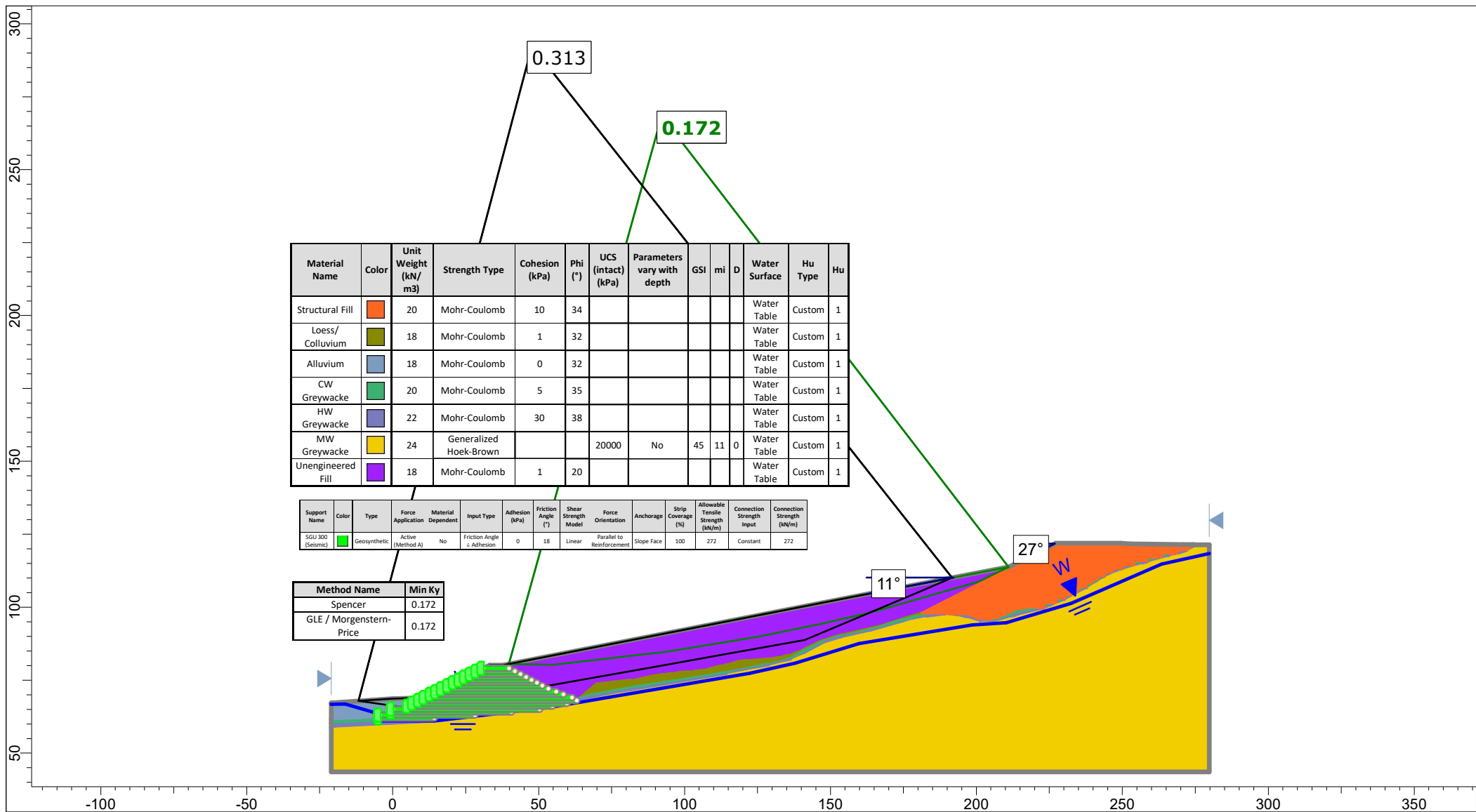
SLIDEINTERPRET 9.034

Project	Mt Welcome Development		
Analysis Description	Unsuitable Embankment and Structural batter		
Drawn By	CW	Scenario	SLS Seismic
Date	27/06/2024	Client	Classic Developments Ltd



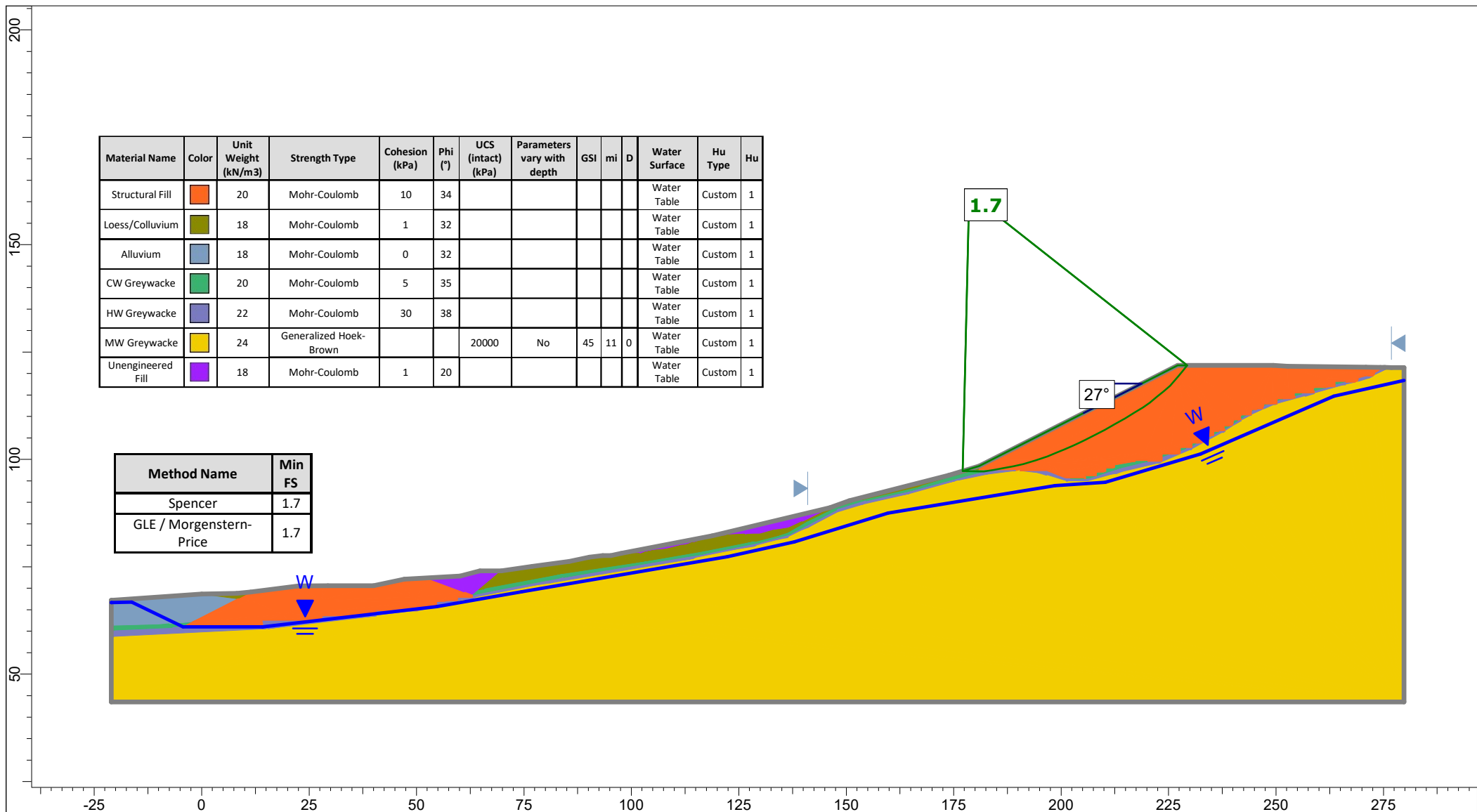
SLIDEINTERPRET 9.034

Project	Mt Welcome Development		
Analysis Description	Unsuitable Embankment and Structural batter		
Drawn By	CW	Scenario	ULS Seismic
Date	27/06/2024	Client	Classic Developments Ltd



SLIDEINTERPRET 9.034

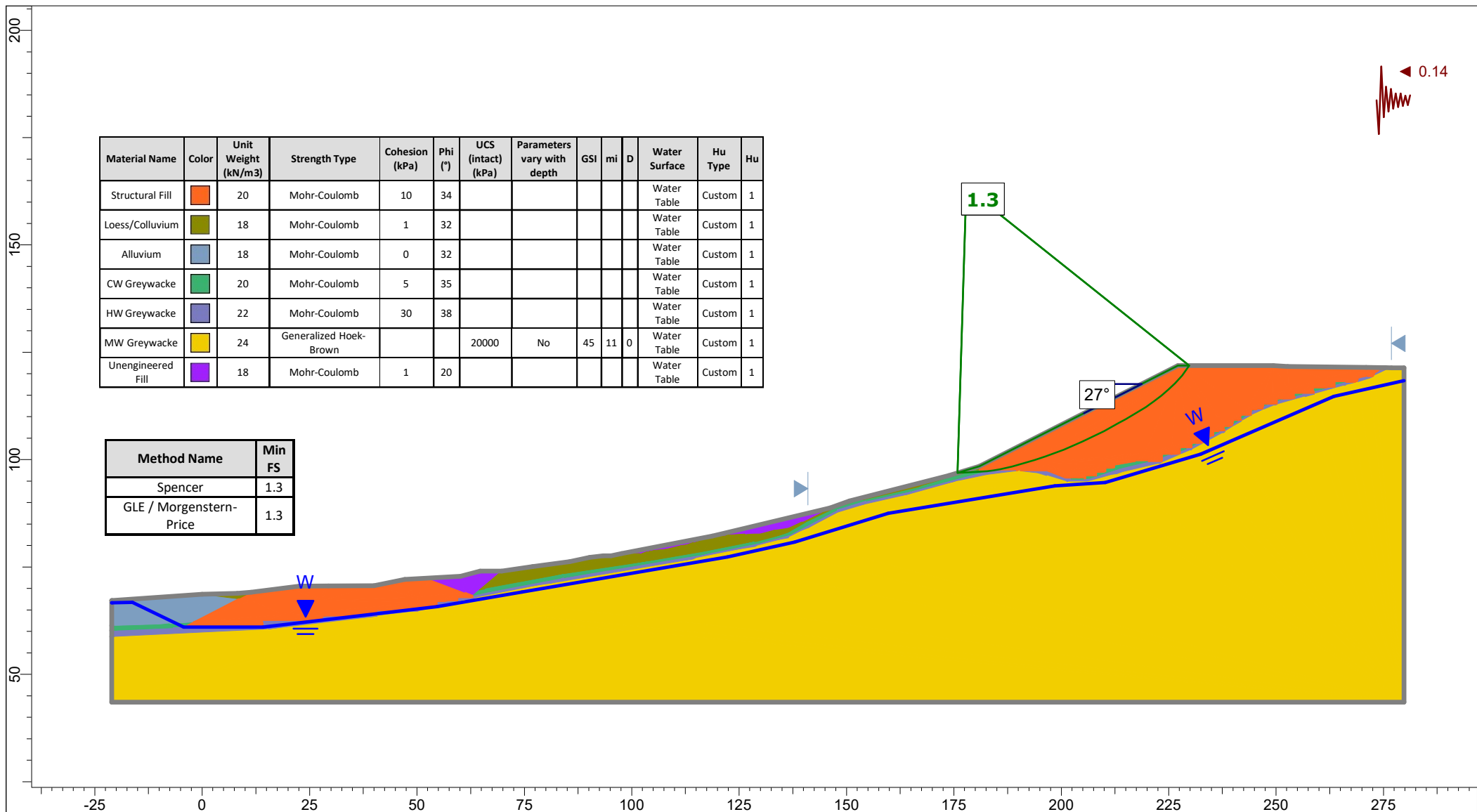
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Analysis Description		Unsuitable Embankment and Structural batter	
Drawn By	CW	Scenario	Yield Acceleration
Date	27/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

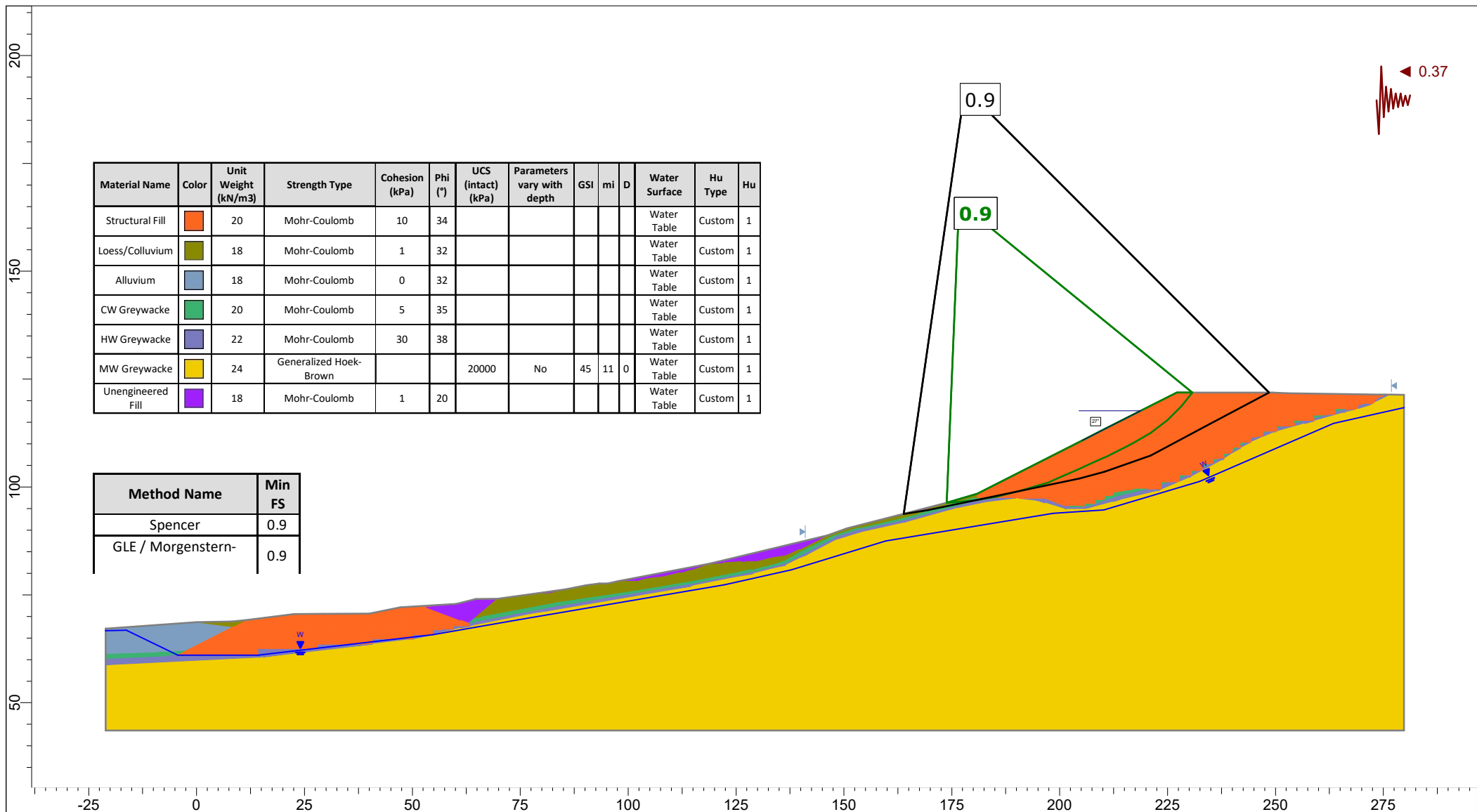
Project		Mt Welcome Development	
Analysis Description		Structural Batter with Loss of Embankment	
Drawn By		CW	Scenario Static
Date		27/06/2024	Client Classic Developments Ltd



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SLIDEINTERPRET 9.034

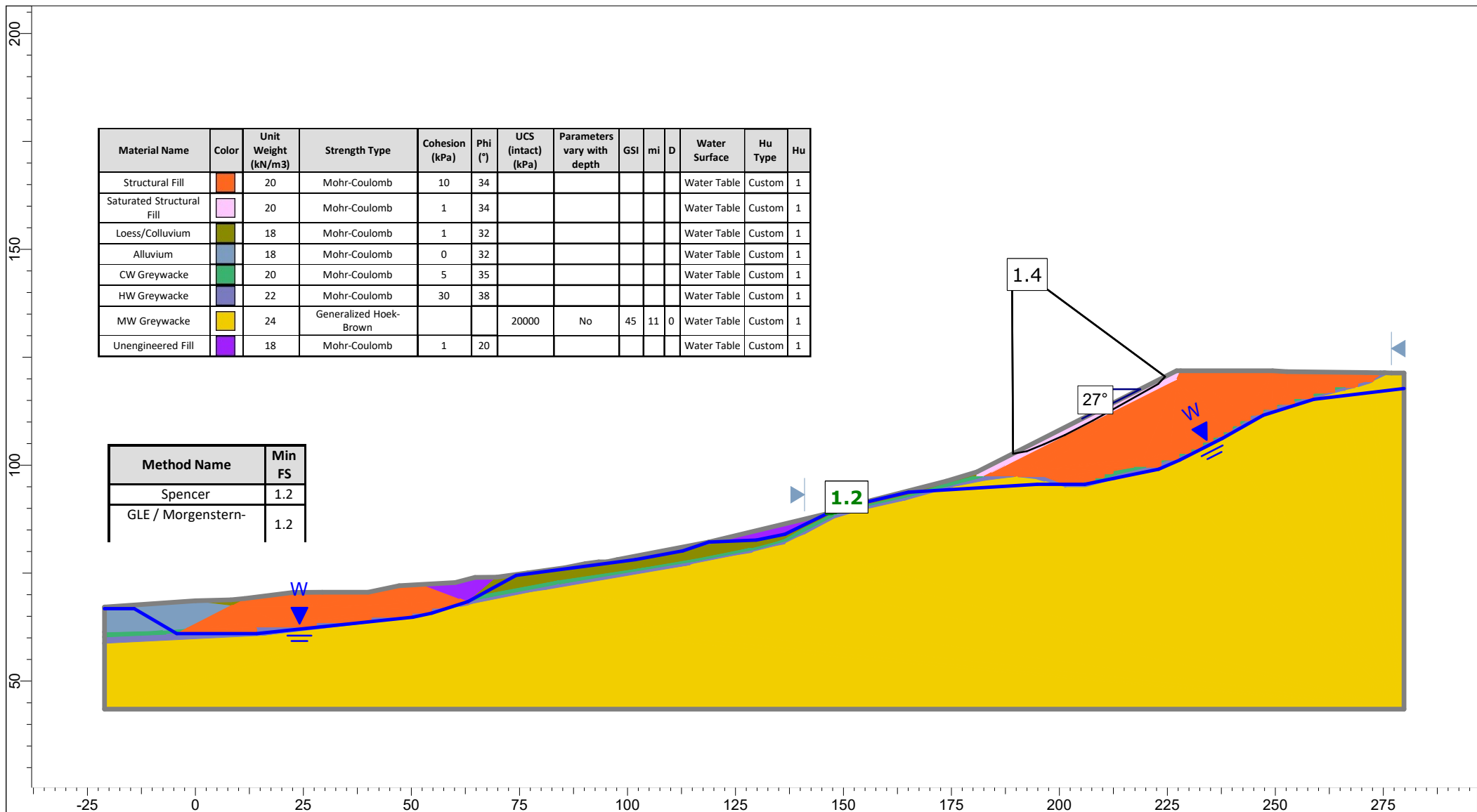
Project		Mt Welcome Development	
Analysis Description		Structural Batter with Loss of Embankment	
Drawn By		CW	Scenario
Date		27/06/2024	SLS Seismic
		Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

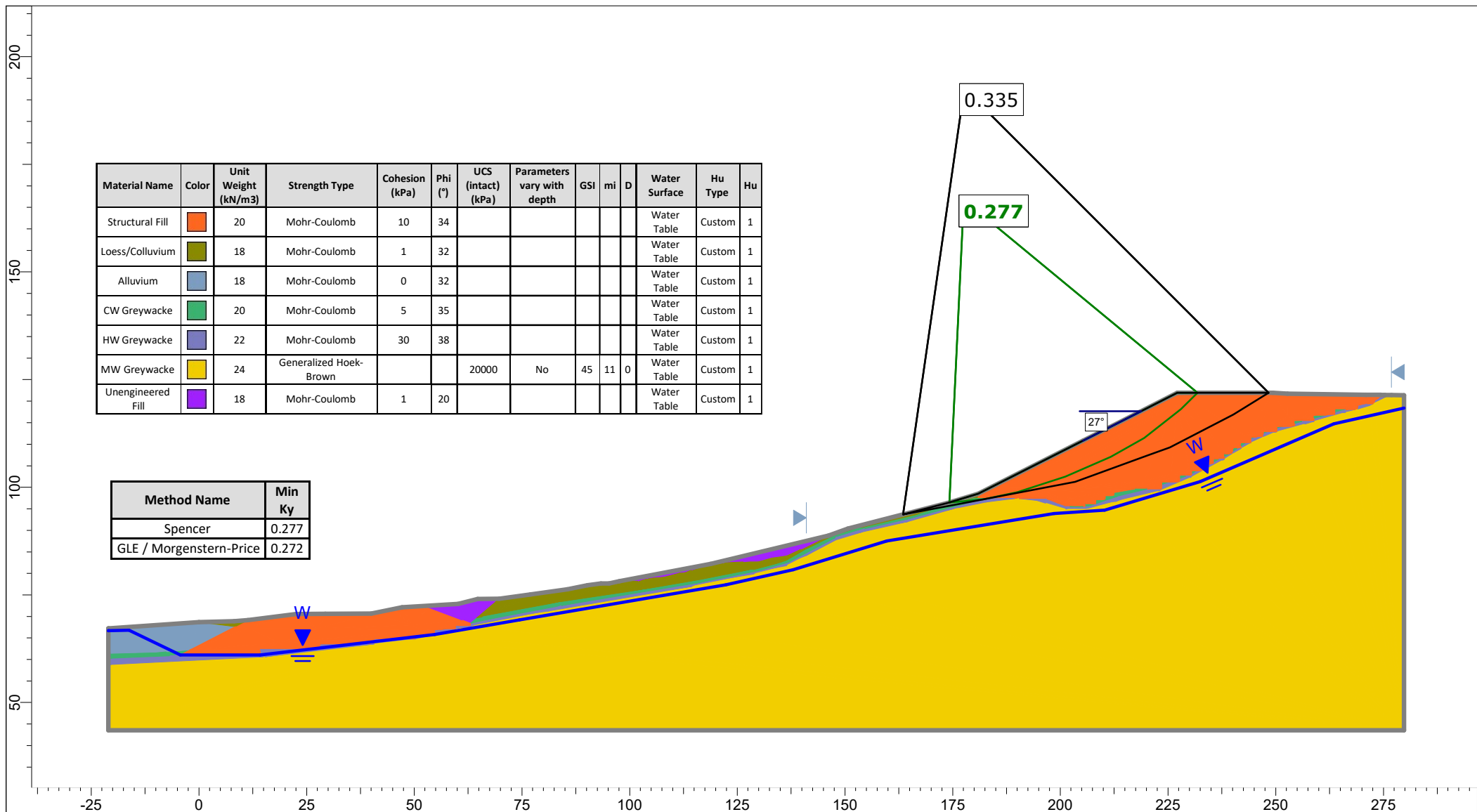
Project	Mt Welcome Development		
Analysis Description	Structural Batter with Loss of Embankment		
Drawn By	CW	Scenario	ULS Seismic
Date	27/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

Project		Mt Welcome Development	
Analysis Description		Structural Batter with Loss of Embankment	
Drawn By	CW	Scenario	Raised Groundwater
Date	27/06/2024	Client	Classic Developments Ltd



ENGEO

SLIDEINTERPRET 9.034

Project		Mt Welcome Development	
Analysis Description		Structural Batter with Loss of Embankment	
Drawn By		CW	Scenario Yield Acceleration
Date		27/06/2024	Client Classic Developments Ltd