

Appendix B – Laboratory Test Data



LABORATORY REPORT



4043

Contract Number: PSL20/5543

Report Date: 04 November 2020

Client's Reference:

Client Name: Aecom
12 Regan Way
Chetwynd Business Park
Chilwell
Nottingham
NG9 6RZ

For the attention of: Josuha Lewis

Contract Title: Llanmaes

Date Received: 13/10/2020

Date Commenced: 13/10/2020

Date Completed: 4/11/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:



S Royle
(Laboratory Manager)

A Watkins
(Director)

R Berriman
(Quality Manager)

H Daniels
(Senior Technician)

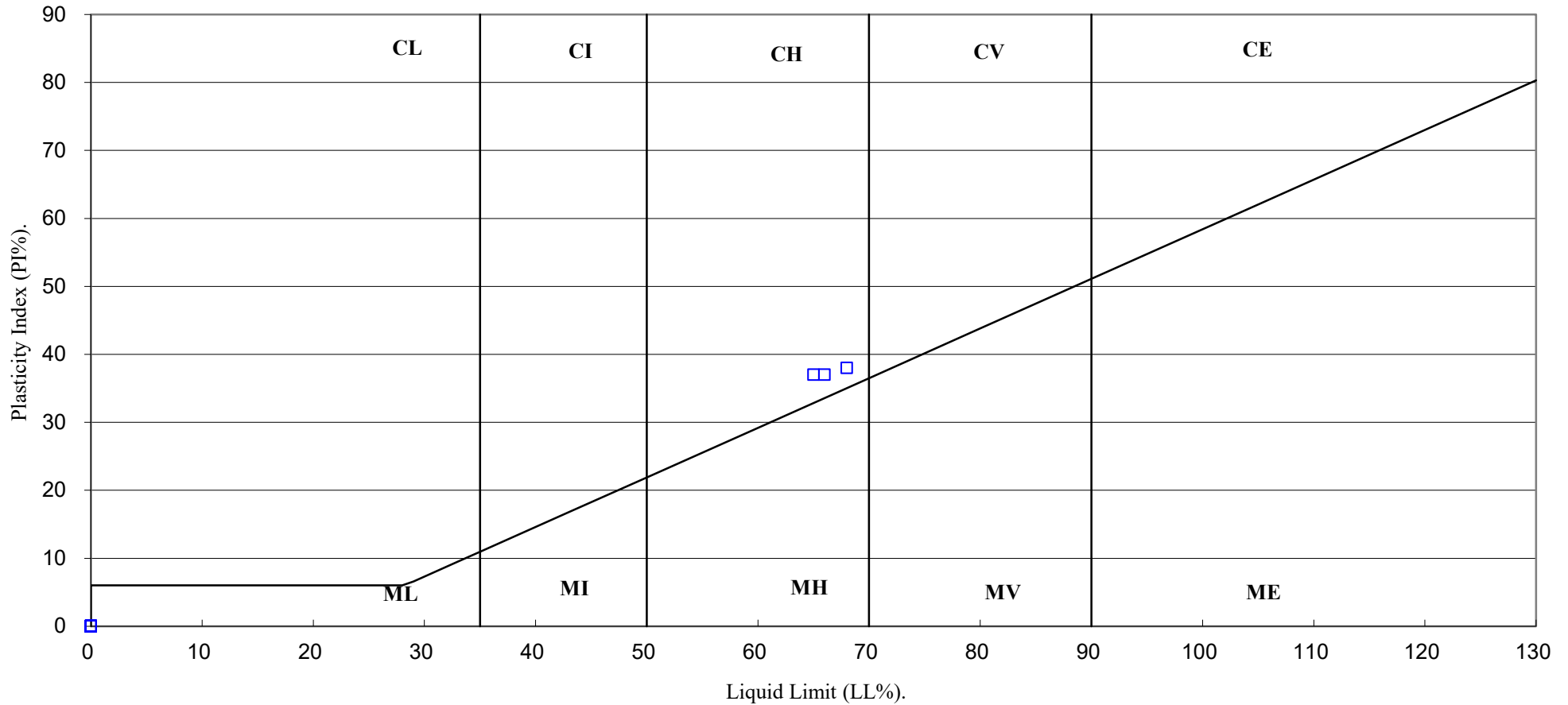
S Eyre
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PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043

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Contract No:

PSL20/5543

Client Ref:

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.4 : 1990

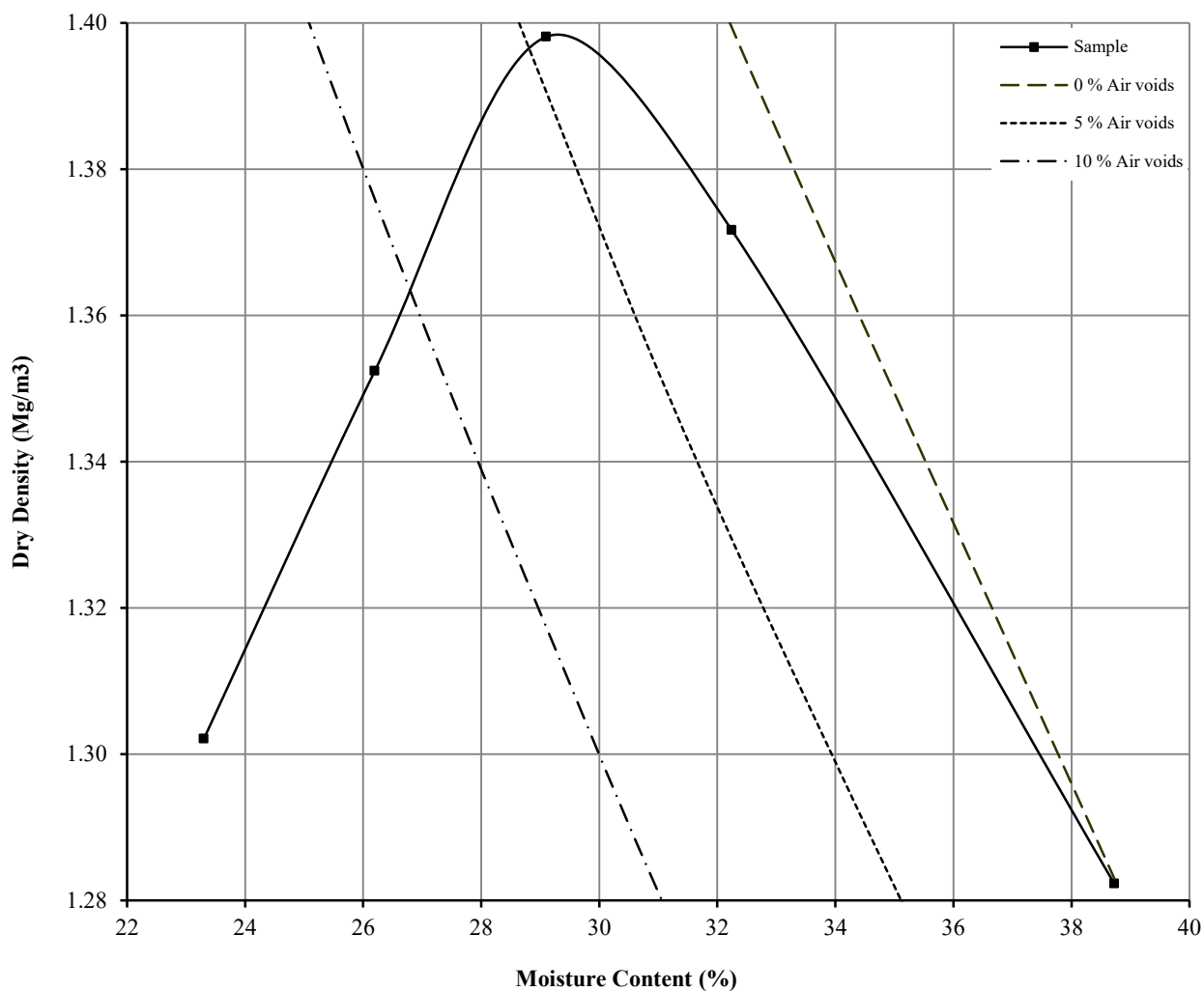
Hole Number: TP1-6

Top Depth (m) :

Sample Number:

Base Depth (m) :

Sample Type:



Initial Moisture Content:	39	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.55	Assumed	Material Retained on 37.5 mm Test Sieve (%):	3
Maximum Dry Density (Mg/m ³):	1.40		Material Retained on 20.0 mm Test Sieve (%):	4
Optimum Moisture Content (%):	29			
Remarks				
See summary of soil descriptions.				



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

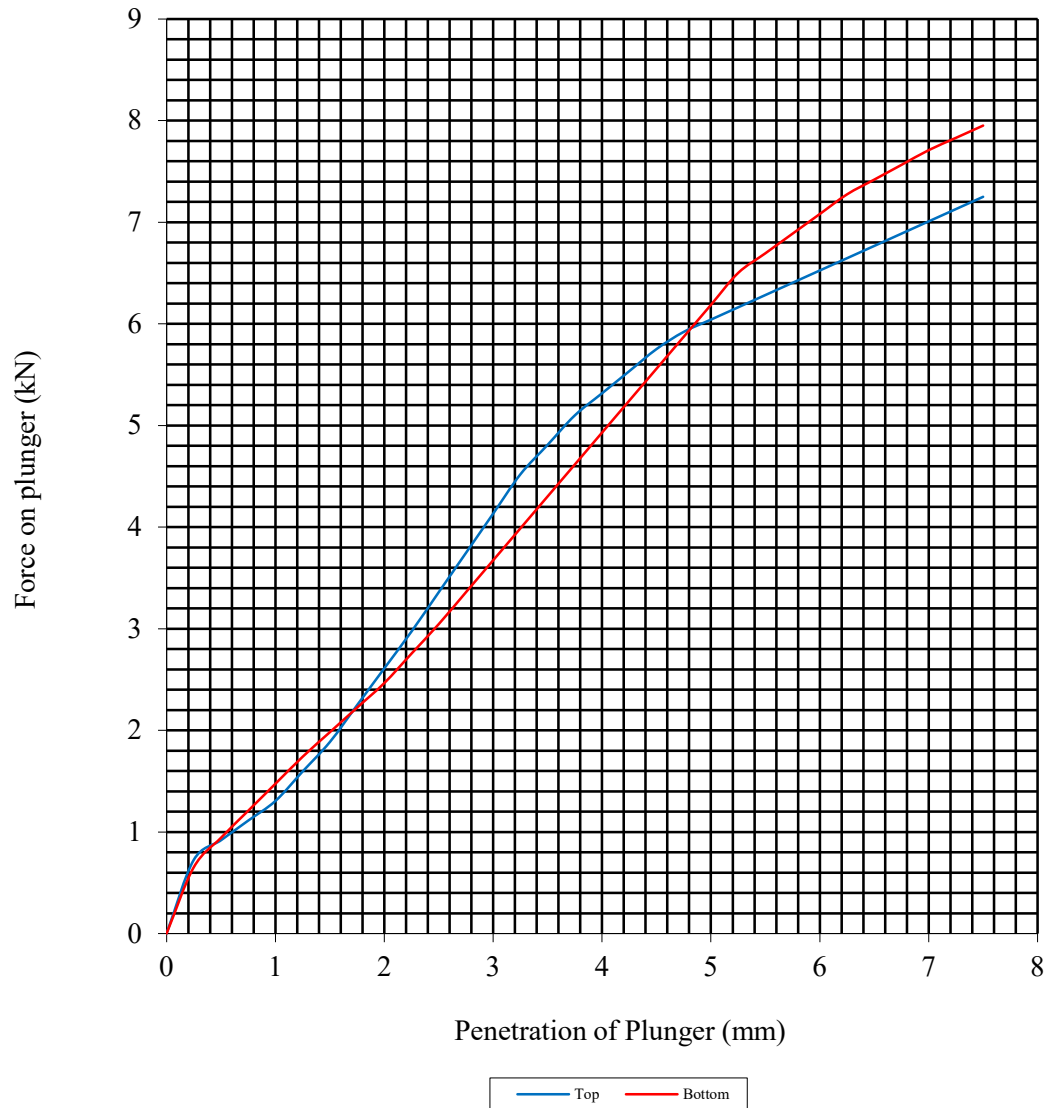
Hole Number: TP1-6

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	23	Surcharge Kg:	4.20	Sample Top	23	Sample Top	30.2
Bulk Density Mg/m ³ :	1.60	Soaking Time hrs	0	Sample Bottom	23	Sample Bottom	30.9
Dry Density Mg/m ³ :	1.30	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			7				
Compaction Conditions		2.5kg					



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

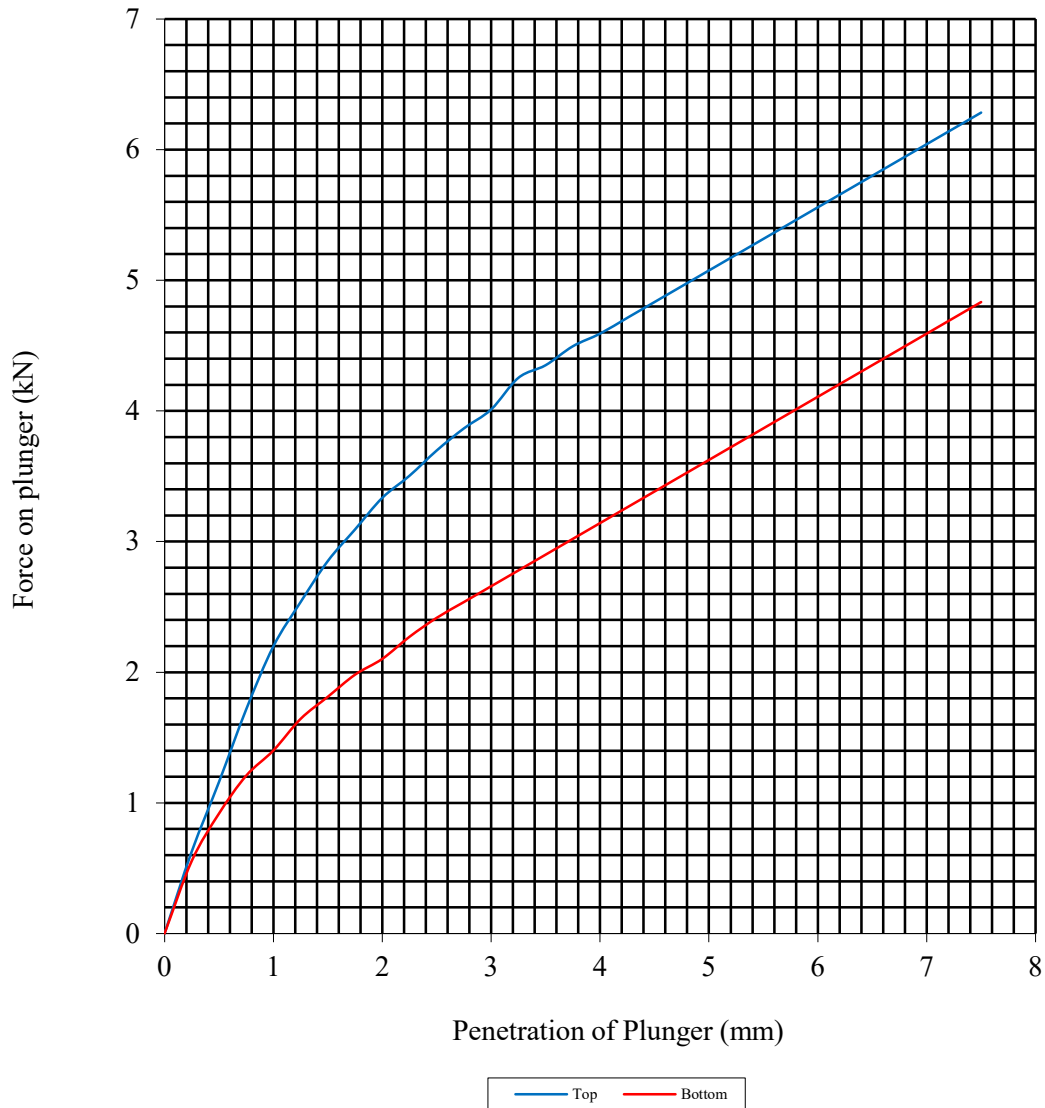
Hole Number: TP1-6

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	26	Surcharge Kg:	4.20	Sample Top	26	Sample Top	28.0
Bulk Density Mg/m ³ :	1.71	Soaking Time hrs	0	Sample Bottom	26	Sample Bottom	18.3
Dry Density Mg/m ³ :	1.35	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:	7						
Compaction Conditions	2.5kg						



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

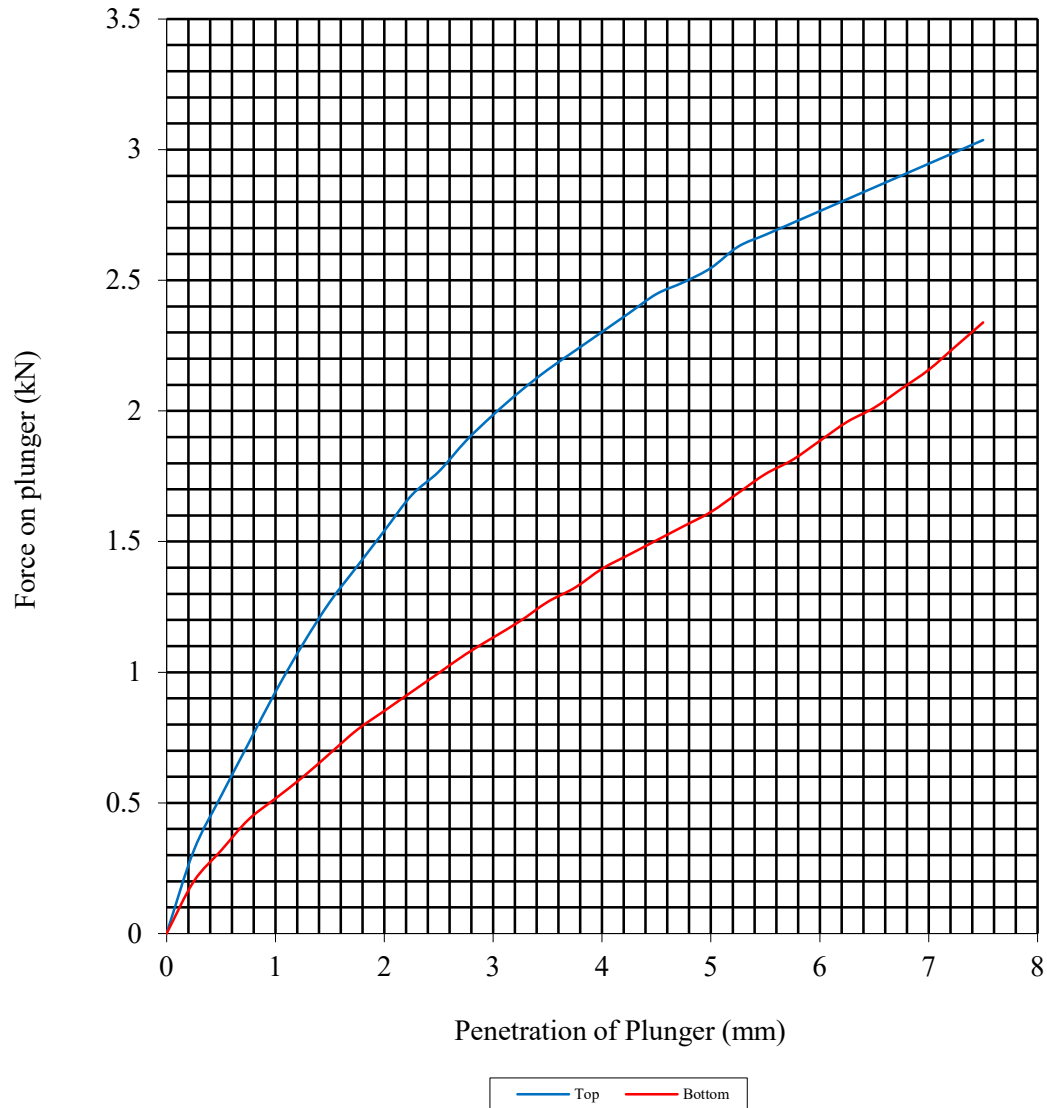
Hole Number: TP1-6

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	29	Surcharge Kg:	4.20	Sample Top	29	Sample Top	13.4
Bulk Density Mg/m ³ :	1.78	Soaking Time hrs	0	Sample Bottom	29	Sample Bottom	8.1
Dry Density Mg/m ³ :	1.38	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		7					
Compaction Conditions		2.5kg					



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

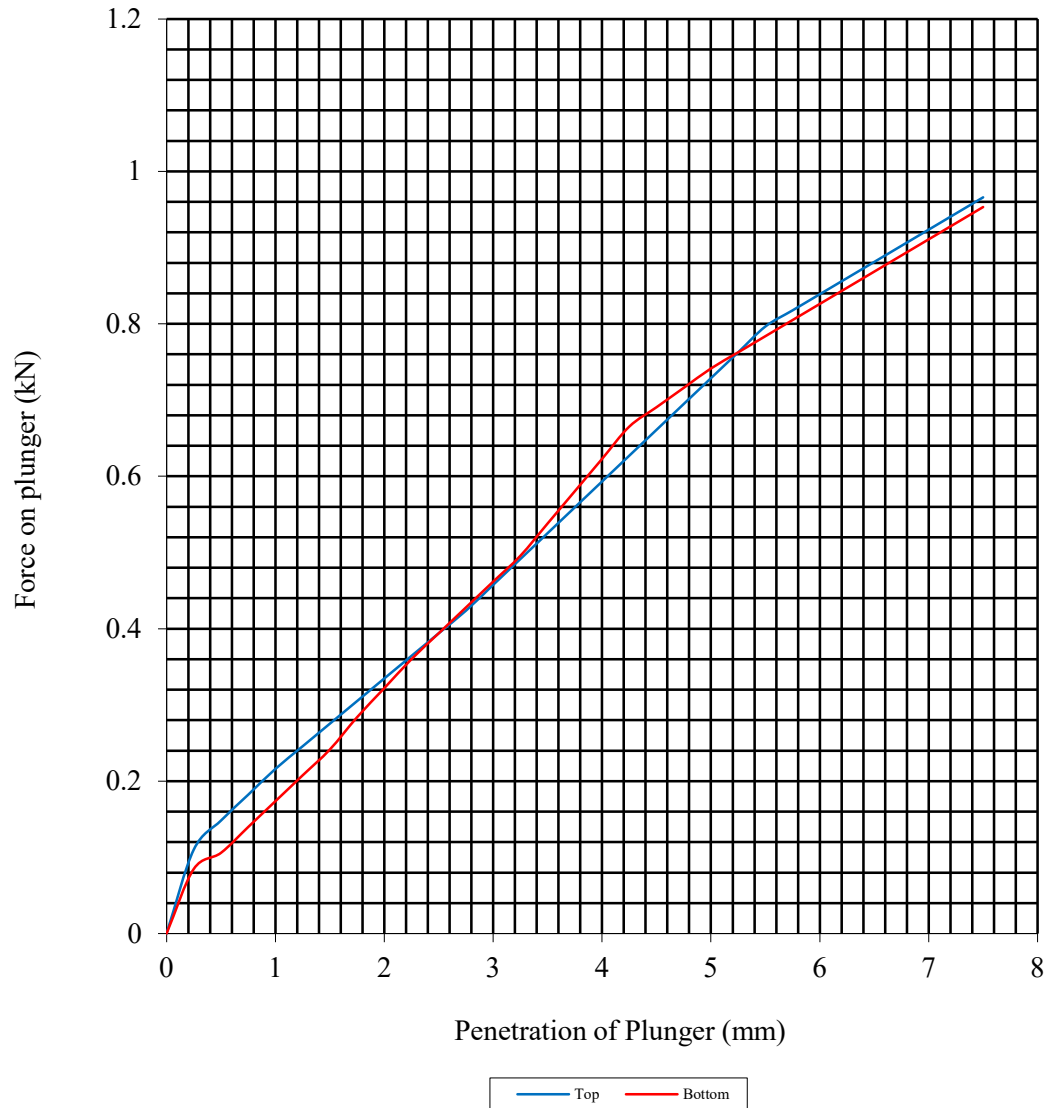
Hole Number: TP1-6

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	32	Surcharge Kg:	4.20	Sample Top	32	Sample Top	3.6
Bulk Density Mg/m ³ :	1.81	Soaking Time hrs	0	Sample Bottom	32	Sample Bottom	3.7
Dry Density Mg/m ³ :	1.37	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			7				
Compaction Conditions		2.5kg					



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

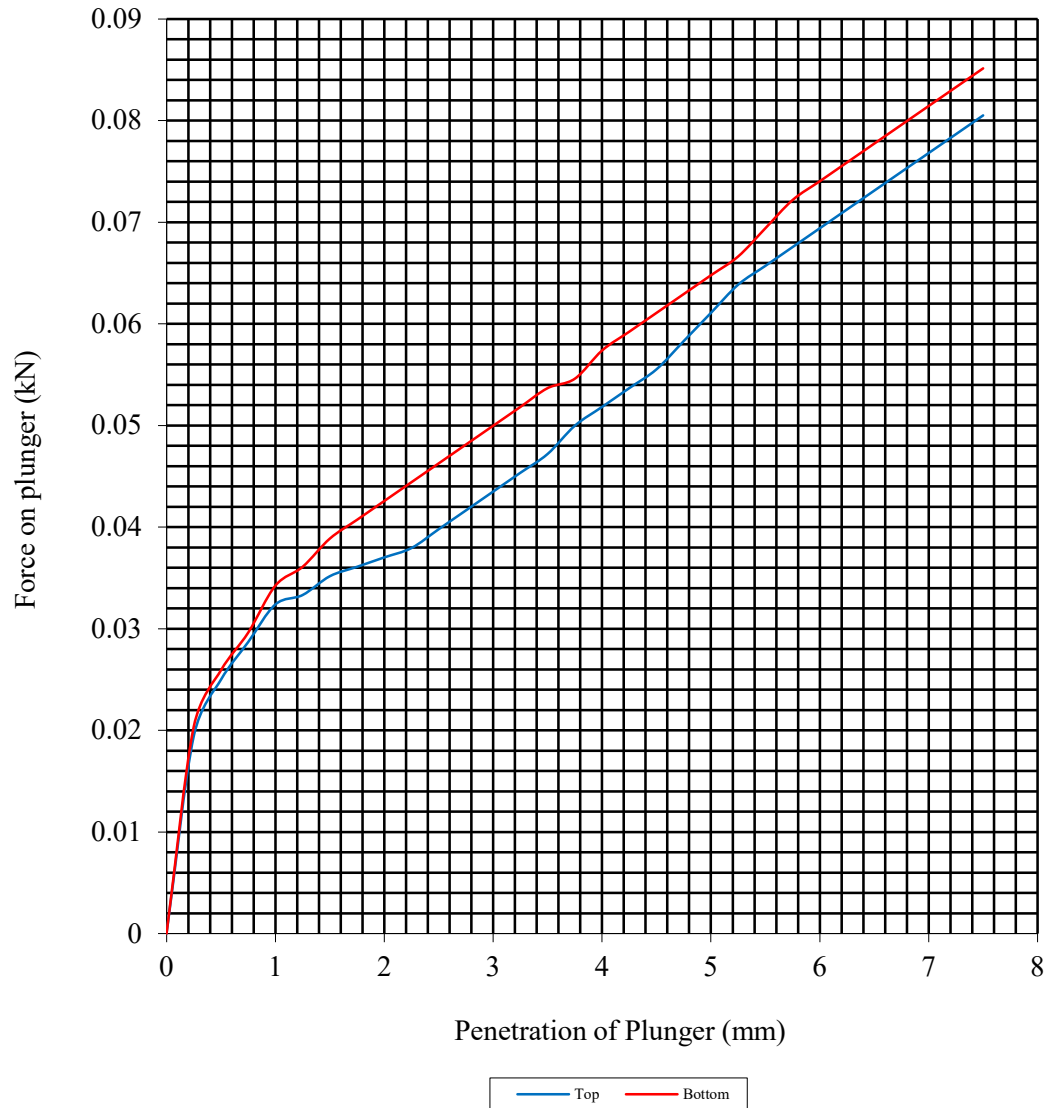
Hole Number: TP1-6

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	39	Surcharge Kg:	4.20	Sample Top	39	Sample Top	0.3
Bulk Density Mg/m ³ :	1.78	Soaking Time hrs	0	Sample Bottom	39	Sample Bottom	0.4
Dry Density Mg/m ³ :	1.28	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:	7						
Compaction Conditions		2.5kg					



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MOISTURE CONDITION VALUE

BS1377 : Part 4 : 1990 Clause 5.4

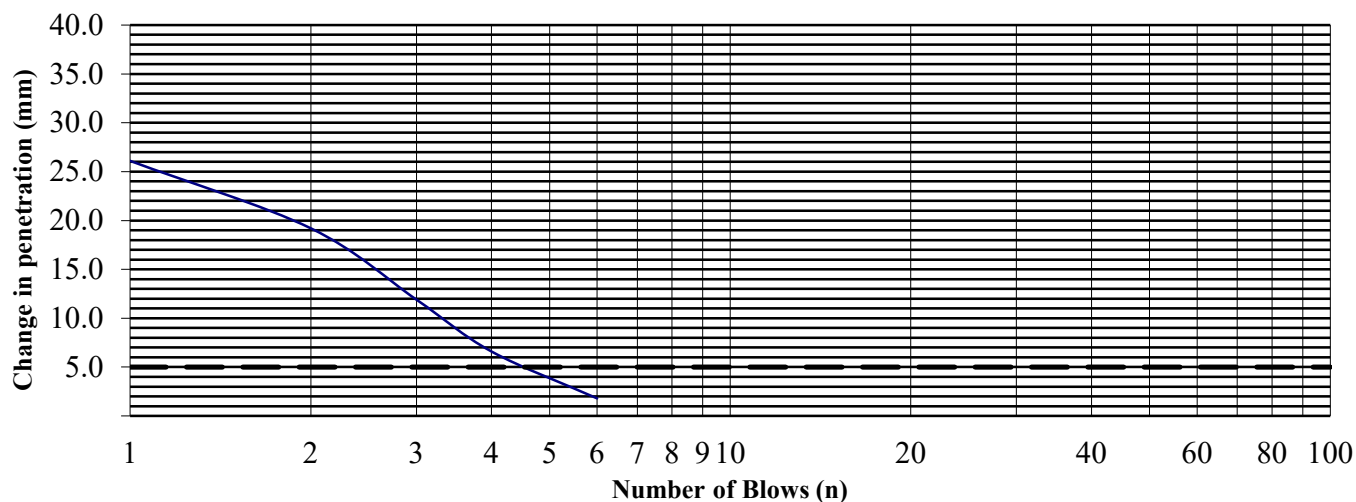
Hole Number: TP1-6 Top Depth (m):

Sample Number: Base Depth (m):

Sample Type:

Material Retained on the 20mm BS Test Sieve (%):	7
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

MCV Determination



Blows (N)	Penetration (mm)	n to 4n (mm)
1	110.7	26.1
2	97.8	19.2
3	90.0	11.9
4	84.6	6.6
6	79.7	1.8
8	78.6	
12	78.1	
16	78.0	
24	77.9	
32		
48		
64		
96		
128		
192		
256		

Test Results.

Moisture Content (%)	39
MCV	6.6



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:

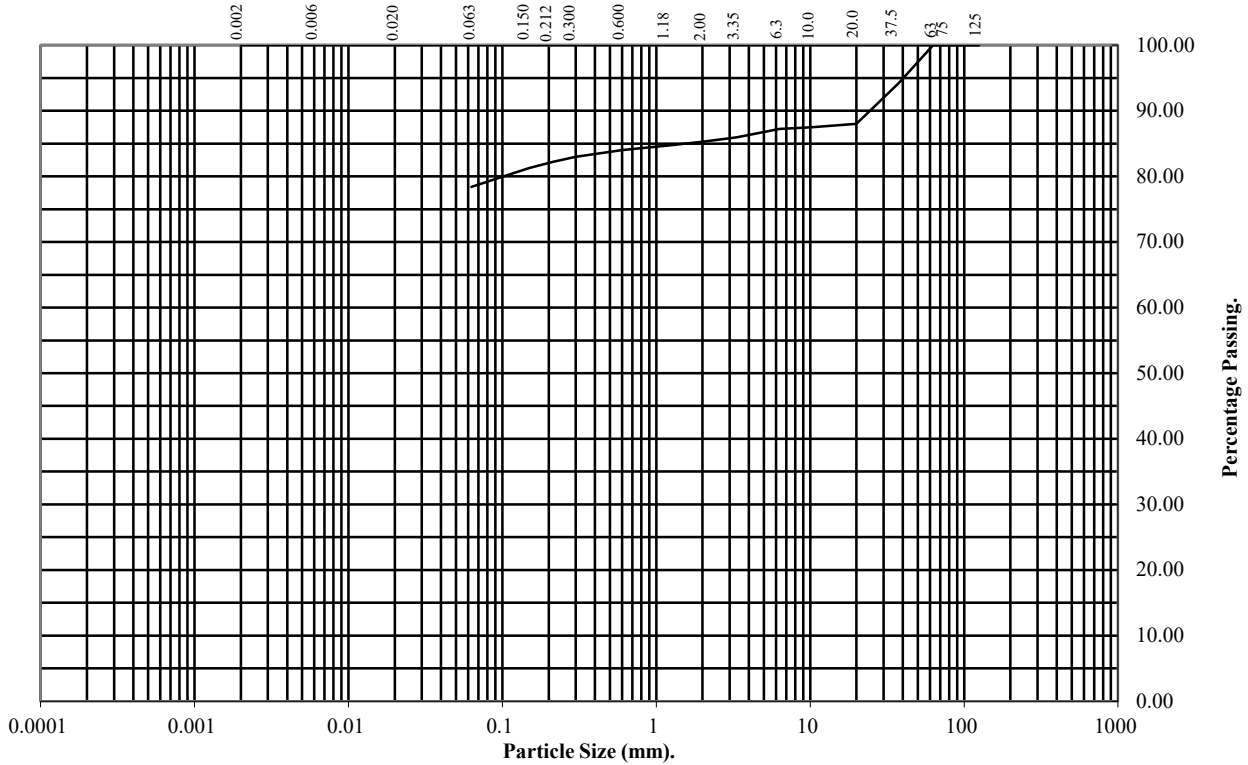
TP16-18

Top Depth (m):

Sample Number:

Base Depth(m):

Sample Type:



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	94
20	88
10	87
6.3	87
3.35	86
2	85
1.18	85
0.6	84
0.3	83
0.212	82
0.15	81
0.063	78

Soil Fraction	Total Percentage
Cobbles	0
Gravel	15
Sand	7
Silt/Clay	78

Remarks:

See Summary of Soil Descriptions



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.4 : 1990

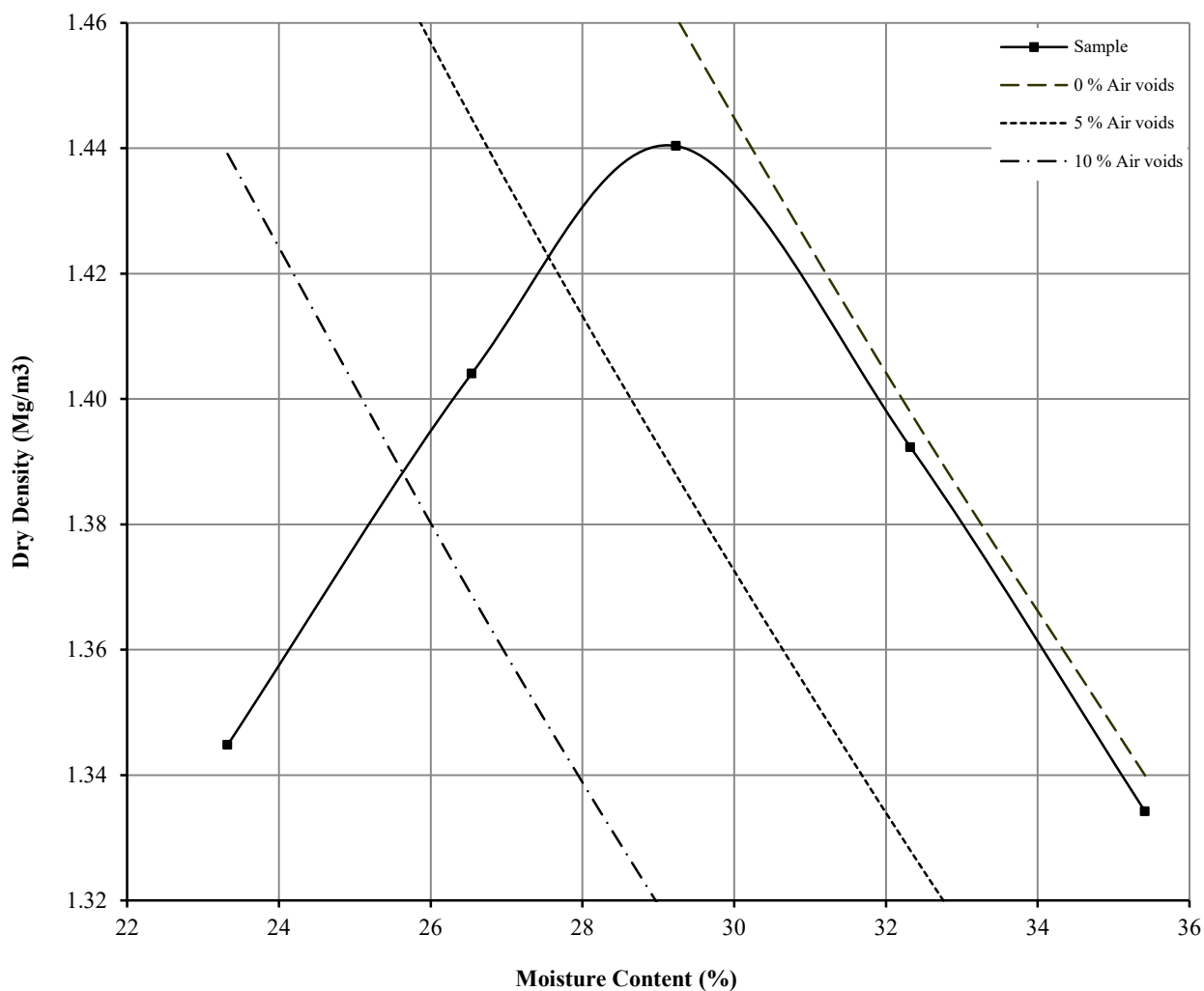
Hole Number: TP16-18

Top Depth (m) :

Sample Number:

Base Depth (m) :

Sample Type:



Initial Moisture Content:	29	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.55	Assumed	Material Retained on 37.5 mm Test Sieve (%):	6
Maximum Dry Density (Mg/m ³):	1.44		Material Retained on 20.0 mm Test Sieve (%):	6
Optimum Moisture Content (%):	29			
Remarks				
See summary of soil descriptions.				



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

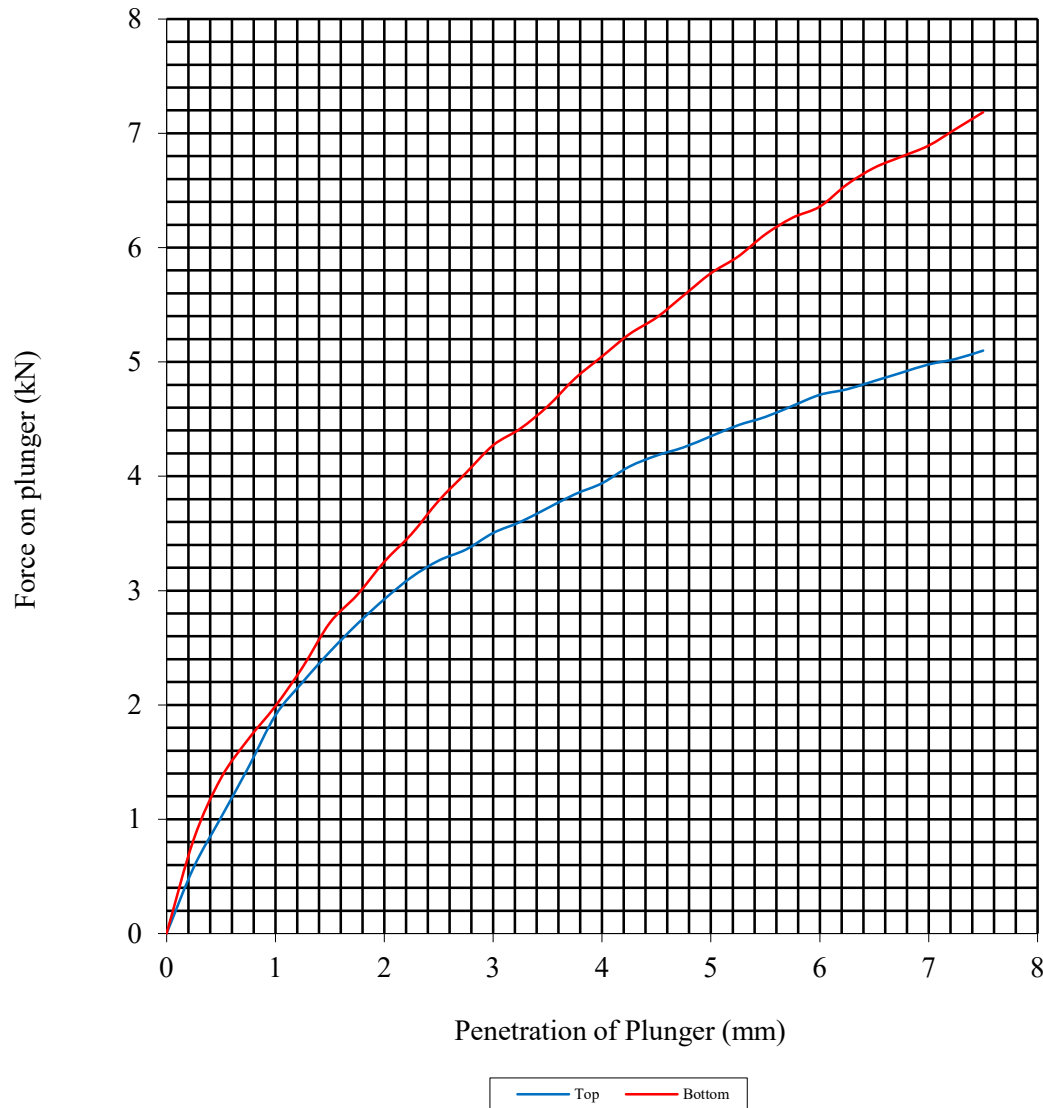
Hole Number: TP16-18

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	23	Surcharge Kg:	4.20	Sample Top	23	Sample Top	24.7
Bulk Density Mg/m ³ :	1.66	Soaking Time hrs	0	Sample Bottom	24	Sample Bottom	28.9
Dry Density Mg/m ³ :	1.34	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:	12						
Compaction Conditions	2.5kg						



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

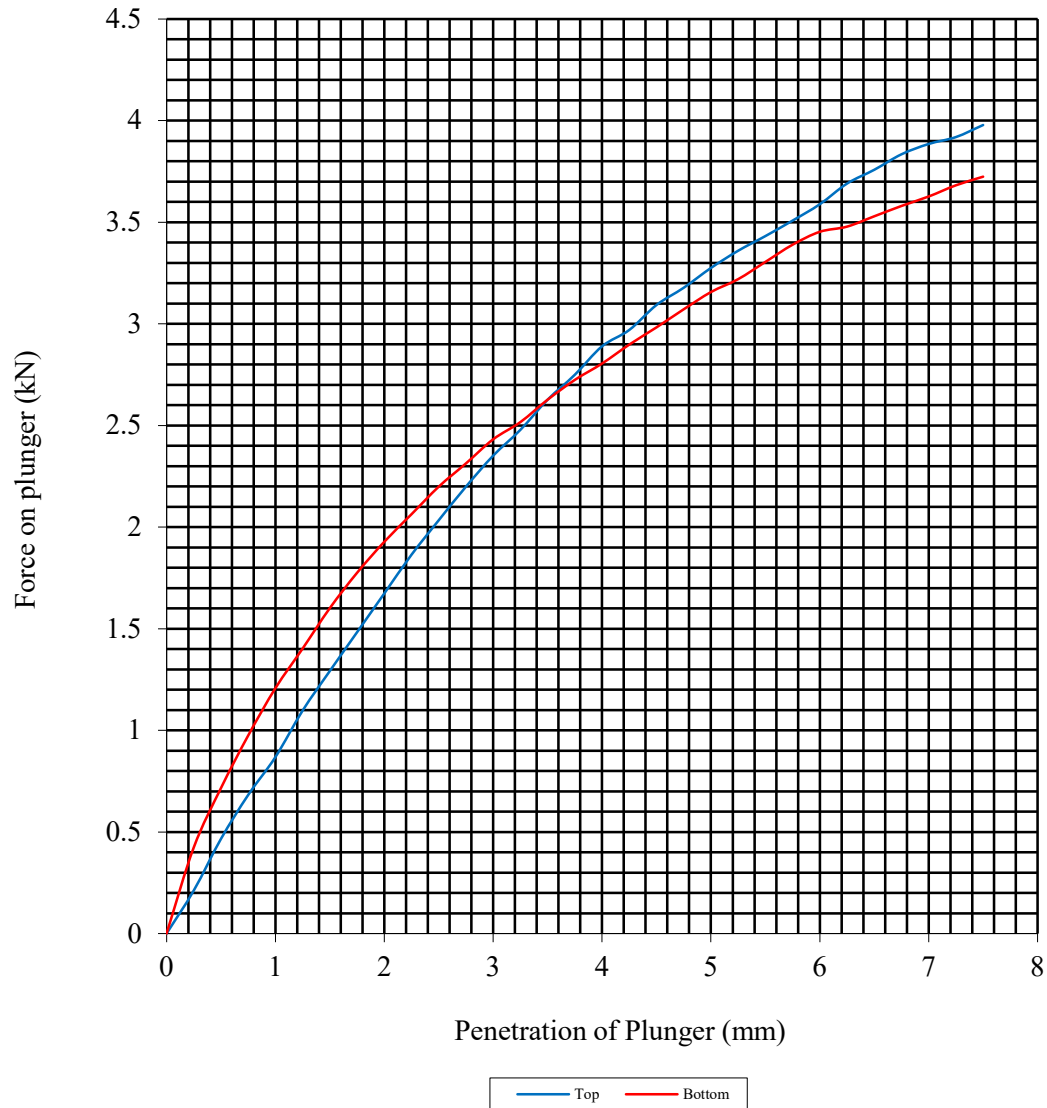
Hole Number: TP16-18

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	26	Surcharge Kg:	4.20	Sample Top	26	Sample Top	16.4
Bulk Density Mg/m ³ :	1.77	Soaking Time hrs	0	Sample Bottom	26	Sample Bottom	16.7
Dry Density Mg/m ³ :	1.40	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			12				
Compaction Conditions		2.5kg					



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BS 1377 : Part 4 : 1990

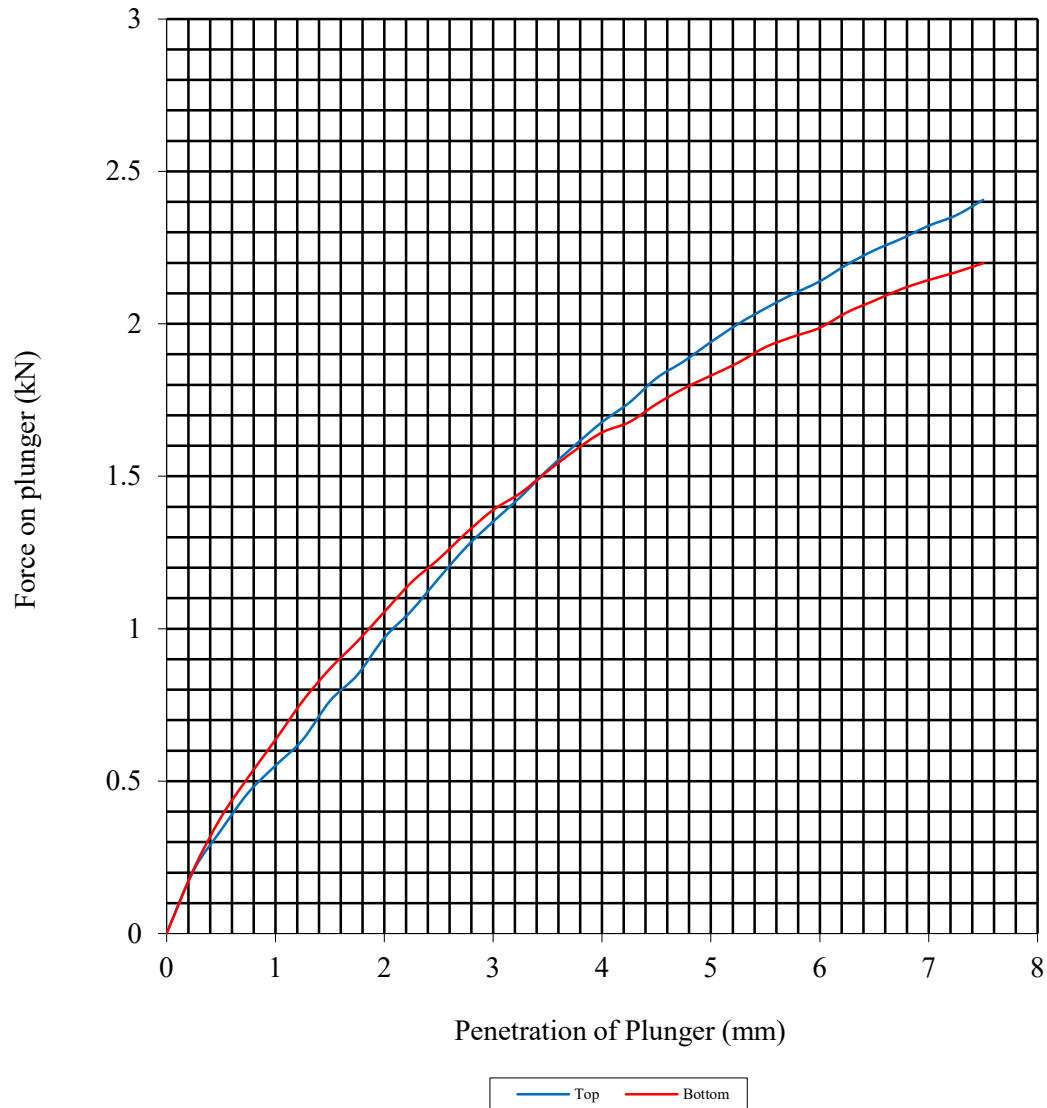
Hole Number: TP16-18

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	29	Surcharge Kg:	4.20	Sample Top	29	Sample Top	9.7
Bulk Density Mg/m ³ :	1.87	Soaking Time hrs	0	Sample Bottom	29	Sample Bottom	9.3
Dry Density Mg/m ³ :	1.44	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			12				
Compaction Conditions		2.5kg					



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BS 1377 : Part 4 : 1990

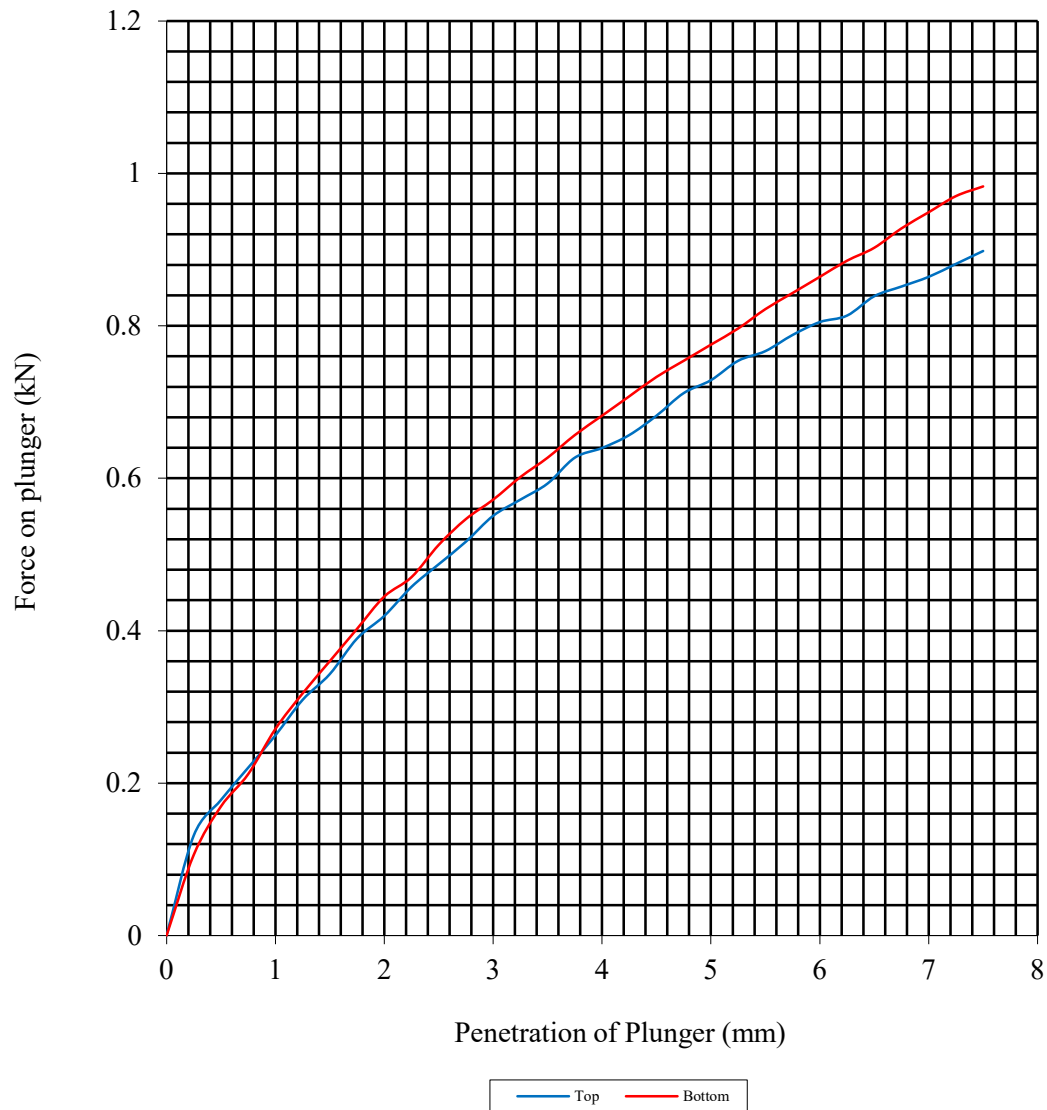
Hole Number: TP16-18

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	32	Surcharge Kg:	4.20	Sample Top	32	Sample Top	3.7
Bulk Density Mg/m ³ :	1.84	Soaking Time hrs	0	Sample Bottom	32	Sample Bottom	3.9
Dry Density Mg/m ³ :	1.39	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			12				
Compaction Conditions		2.5kg					



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

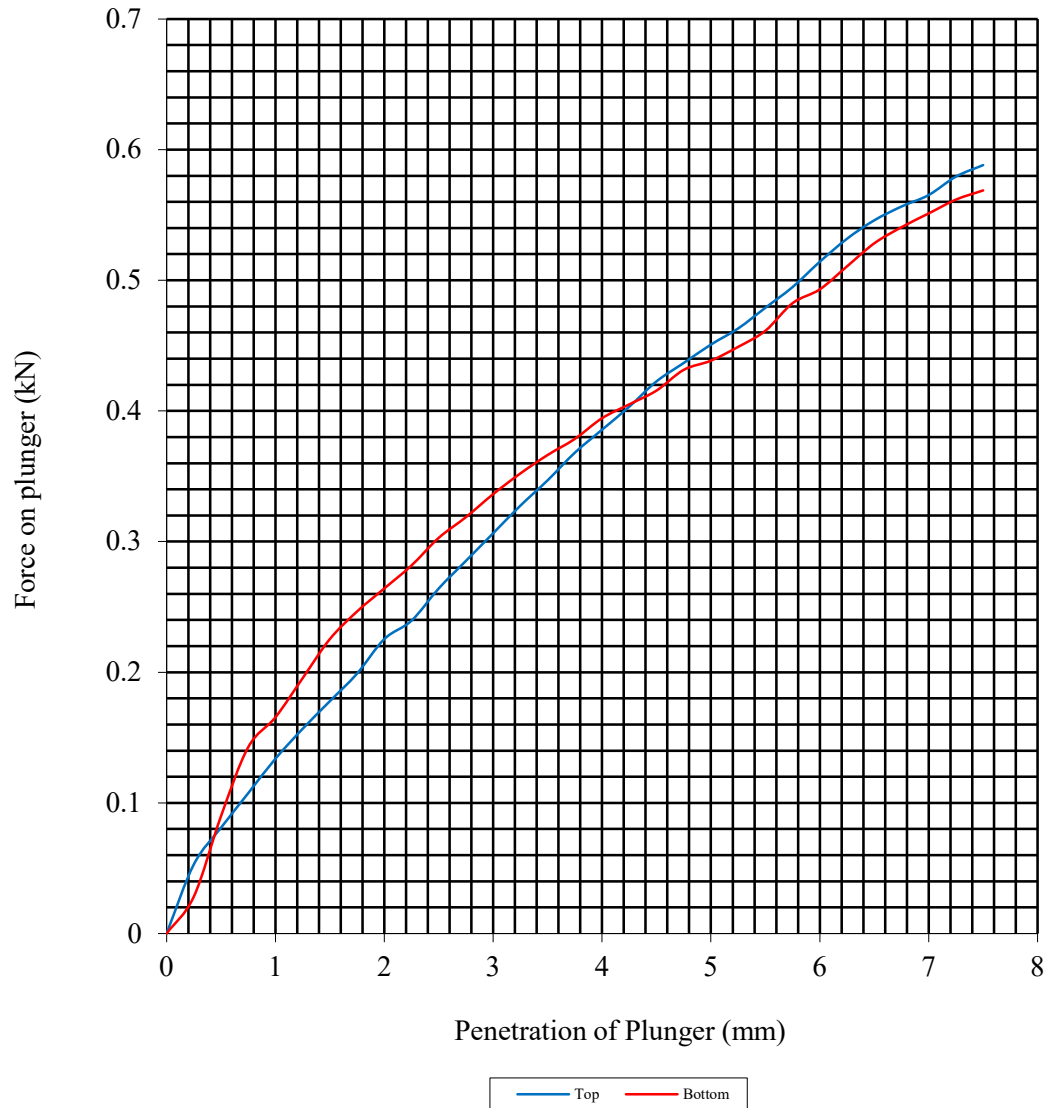
Hole Number: TP16-18

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	35	Surcharge Kg:	4.20	Sample Top	35	Sample Top	2.3
Bulk Density Mg/m ³ :	1.81	Soaking Time hrs	0	Sample Bottom	35	Sample Bottom	2.3
Dry Density Mg/m ³ :	1.33	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			12				
Compaction Conditions		2.5kg					



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MOISTURE CONDITION VALUE

BS1377 : Part 4 : 1990 Clause 5.4

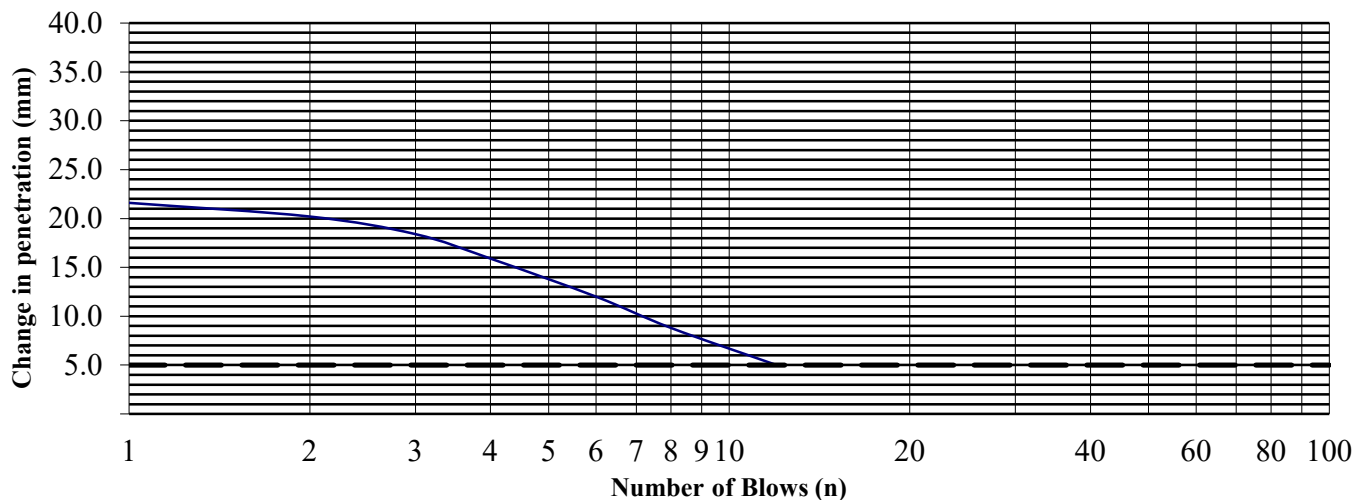
Hole Number: TP16-18 Top Depth (m):

Sample Number: Base Depth (m):

Sample Type:

Material Retained on the 20mm BS Test Sieve (%):	12
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

MCV Determination



Blows (N)	Penetration (mm)	n to 4n (mm)
1	112.4	21.6
2	101.7	20.2
3	95.5	18.4
4	90.8	15.9
6	85.1	12.0
8	81.5	8.8
12	77.1	5.0
16	74.9	
24	73.1	
32	72.7	
48	72.1	
64		
96		
128		
192		
256		

Test Results.

Moisture Content (%)	29
MCV	10.5



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Client Ref:

PARTICLE SIZE DISTRIBUTION TEST

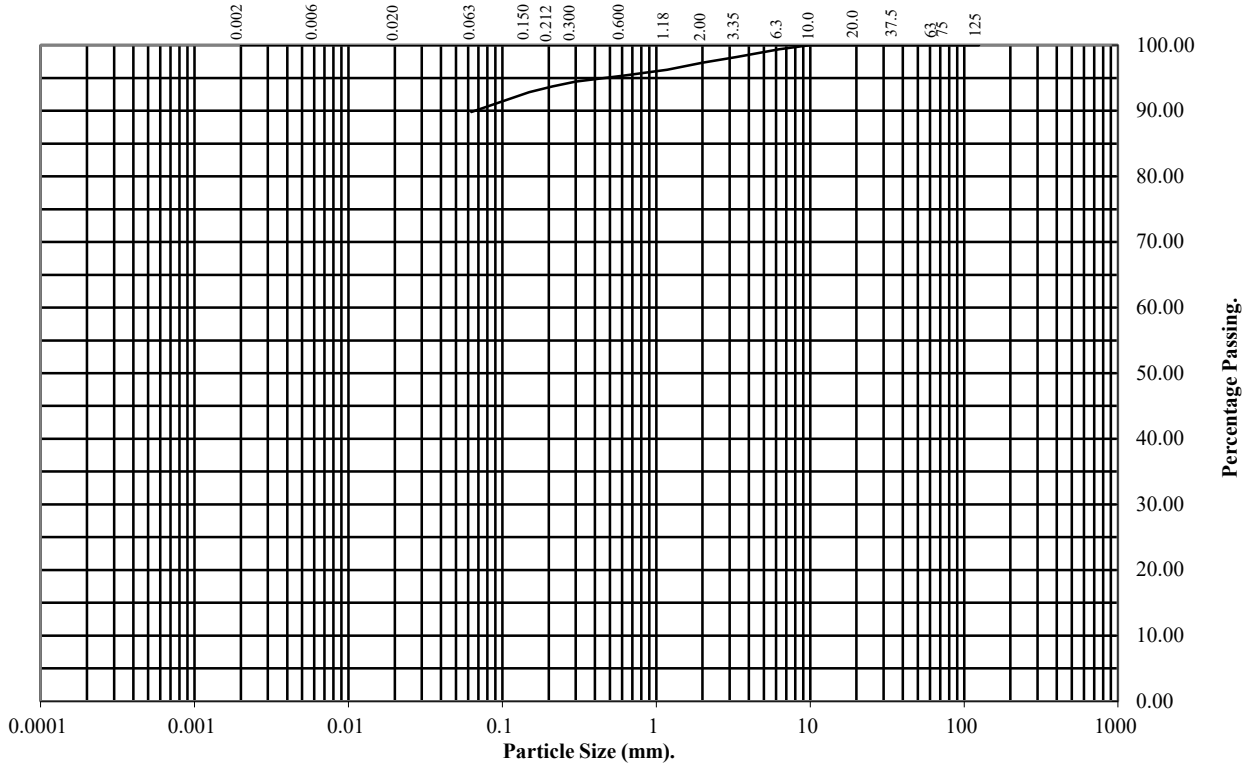
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **TP19-21** Top Depth (m):

Sample Number: Base Depth(m):

Sample Type:



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	98
2	97
1.18	96
0.6	95
0.3	94
0.212	94
0.15	93
0.063	90

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	7
Silt/Clay	90

Remarks:
See Summary of Soil Descriptions



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Contract No:
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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

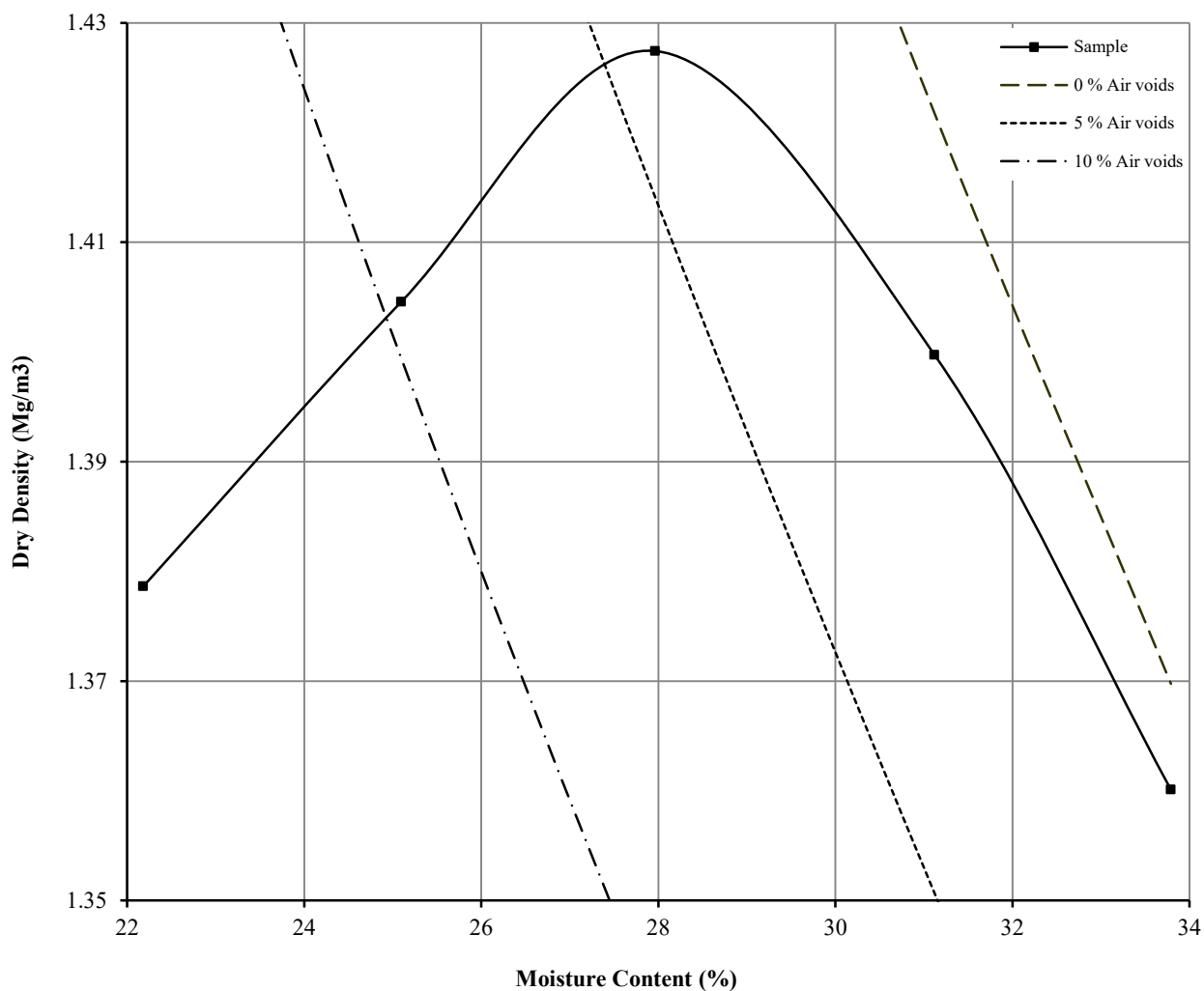
Hole Number: TP19-21

Top Depth (m) :

Sample Number:

Base Depth (m) :

Sample Type:



Initial Moisture Content:	28	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.55	Assumed	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.43		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	28			
Remarks				
See summary of soil descriptions.				



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

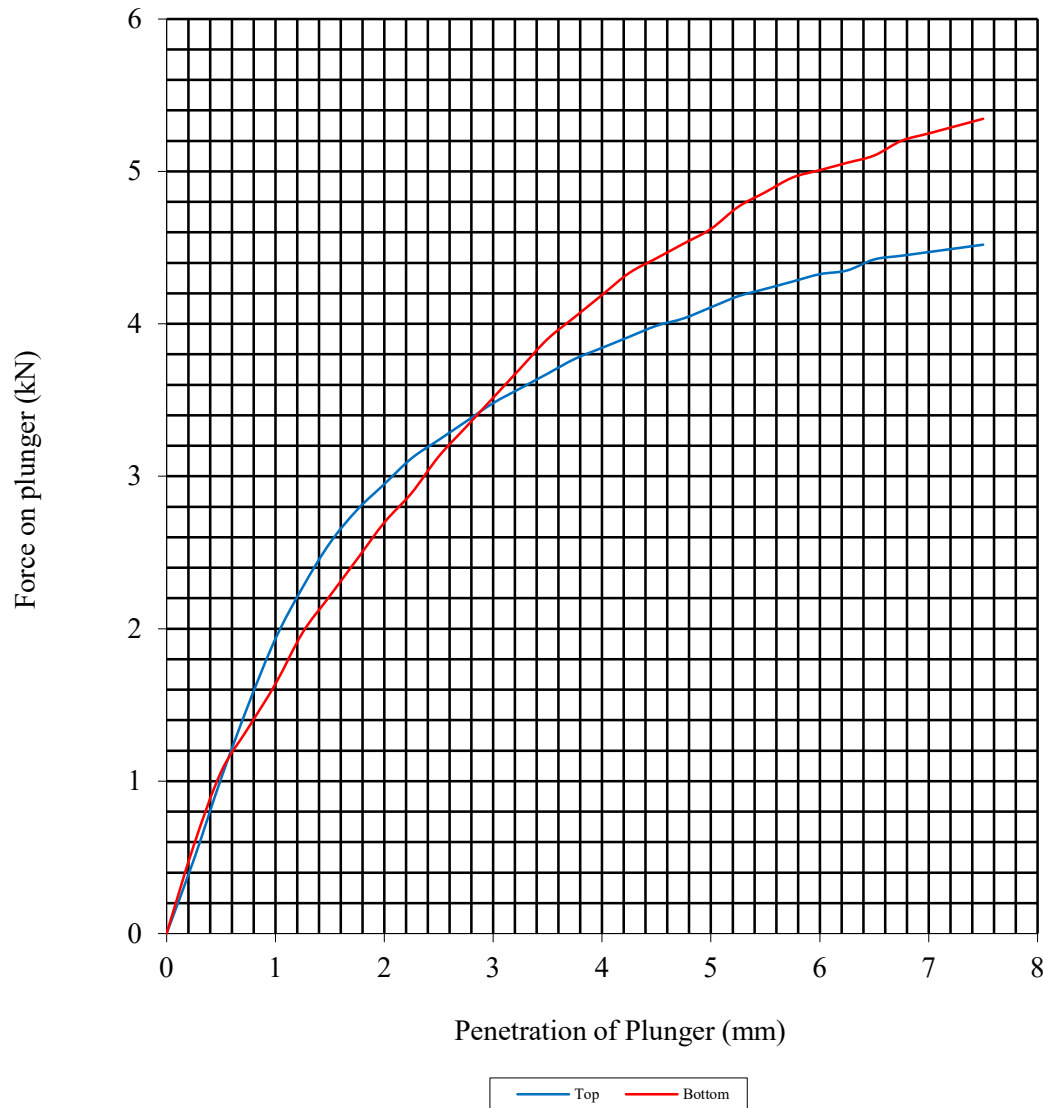
Hole Number: TP19-21

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	22	Surcharge Kg:	4.20	Sample Top	22	Sample Top	24.5
Bulk Density Mg/m ³ :	1.68	Soaking Time hrs	0	Sample Bottom	22	Sample Bottom	23.7
Dry Density Mg/m ³ :	1.38	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:	0						
Compaction Conditions	2.5kg						



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BS 1377 : Part 4 : 1990

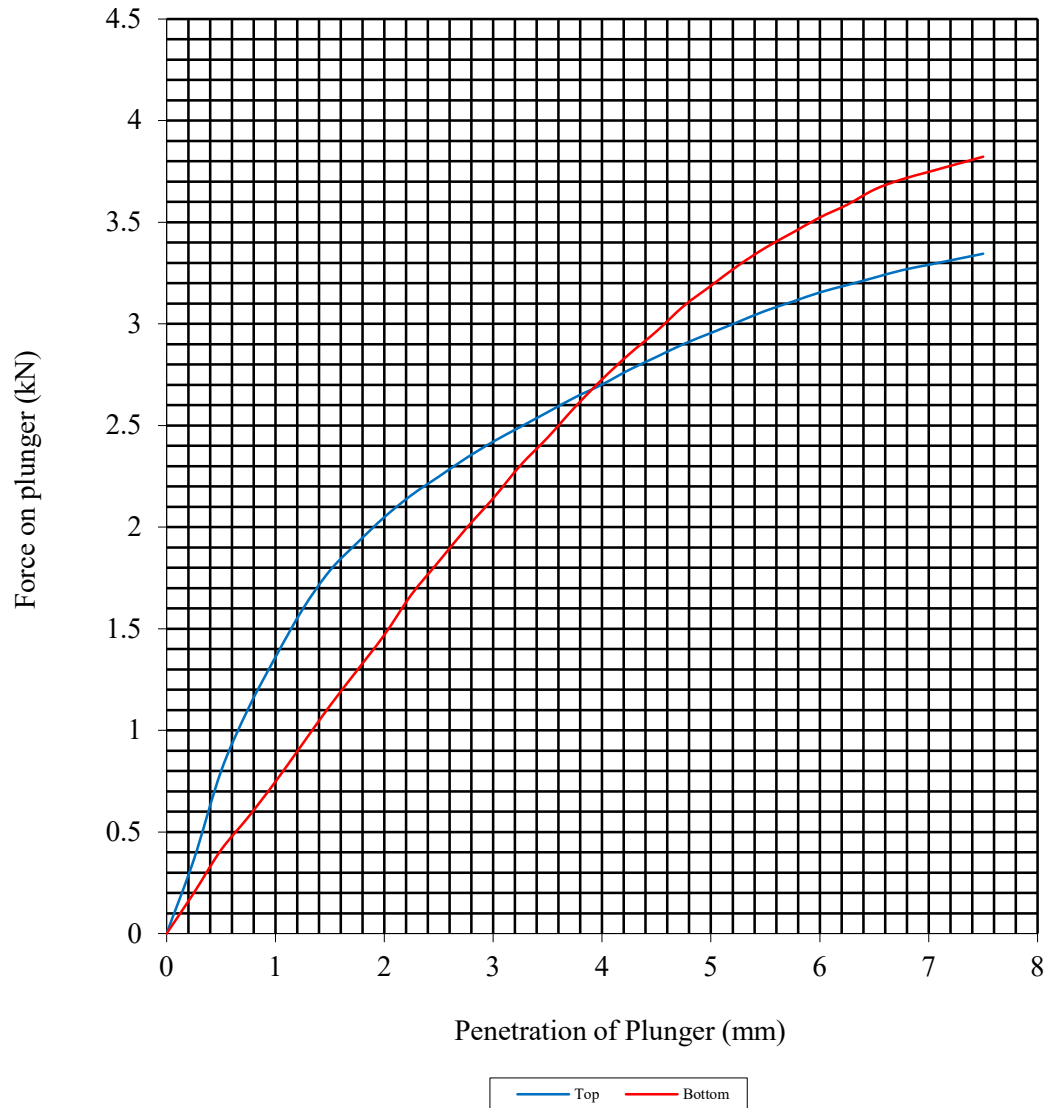
Hole Number: TP19-21

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	25	Surcharge Kg:	4.20	Sample Top	25	Sample Top	17.0
Bulk Density Mg/m ³ :	1.76	Soaking Time hrs	0	Sample Bottom	25	Sample Bottom	15.9
Dry Density Mg/m ³ :	1.40	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					



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BS 1377 : Part 4 : 1990

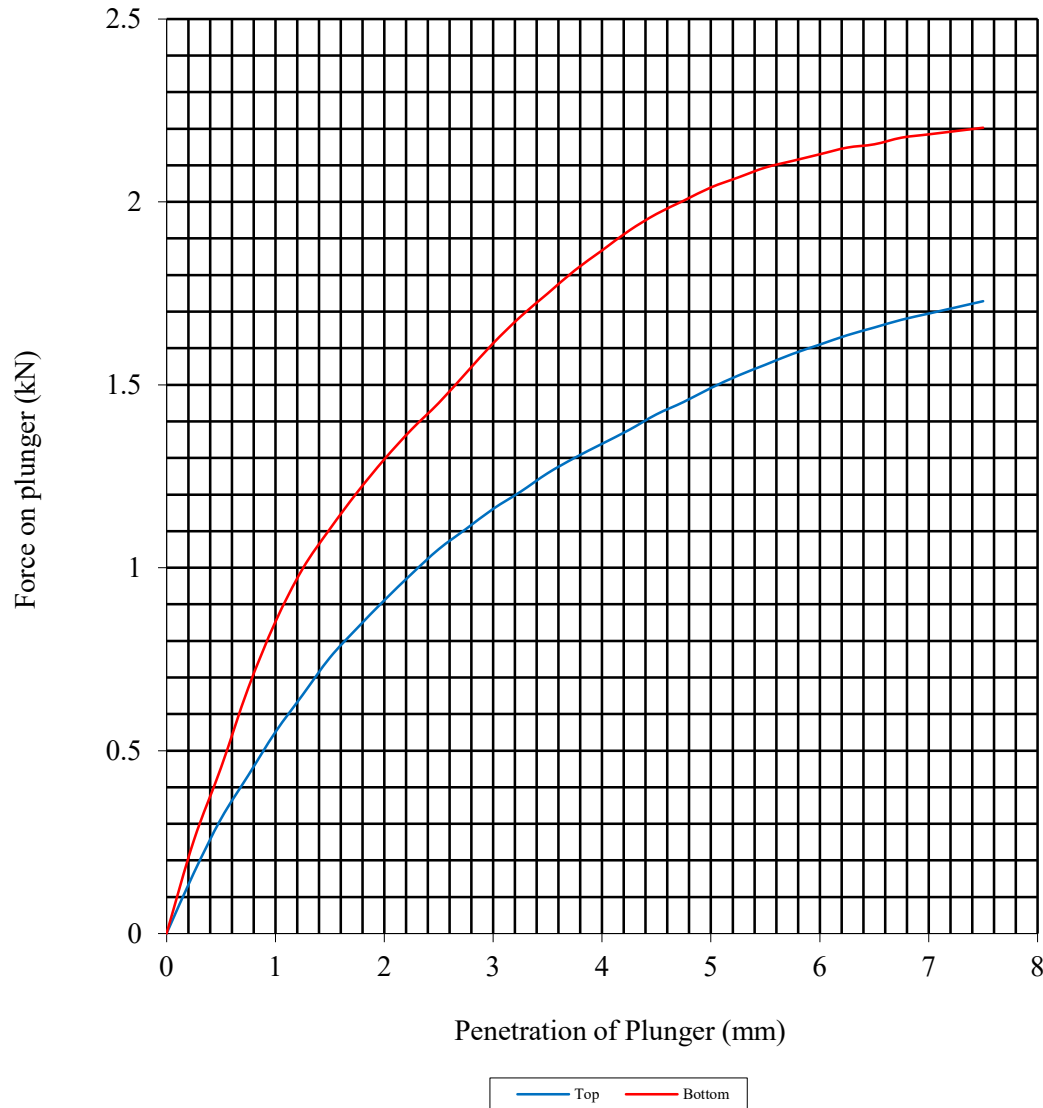
Hole Number: TP19-21

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	28	Surcharge Kg:	4.20	Sample Top	28	Sample Top	8.0
Bulk Density Mg/m ³ :	1.80	Soaking Time hrs	0	Sample Bottom	28	Sample Bottom	11.0
Dry Density Mg/m ³ :	1.41	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		2.5kg					



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

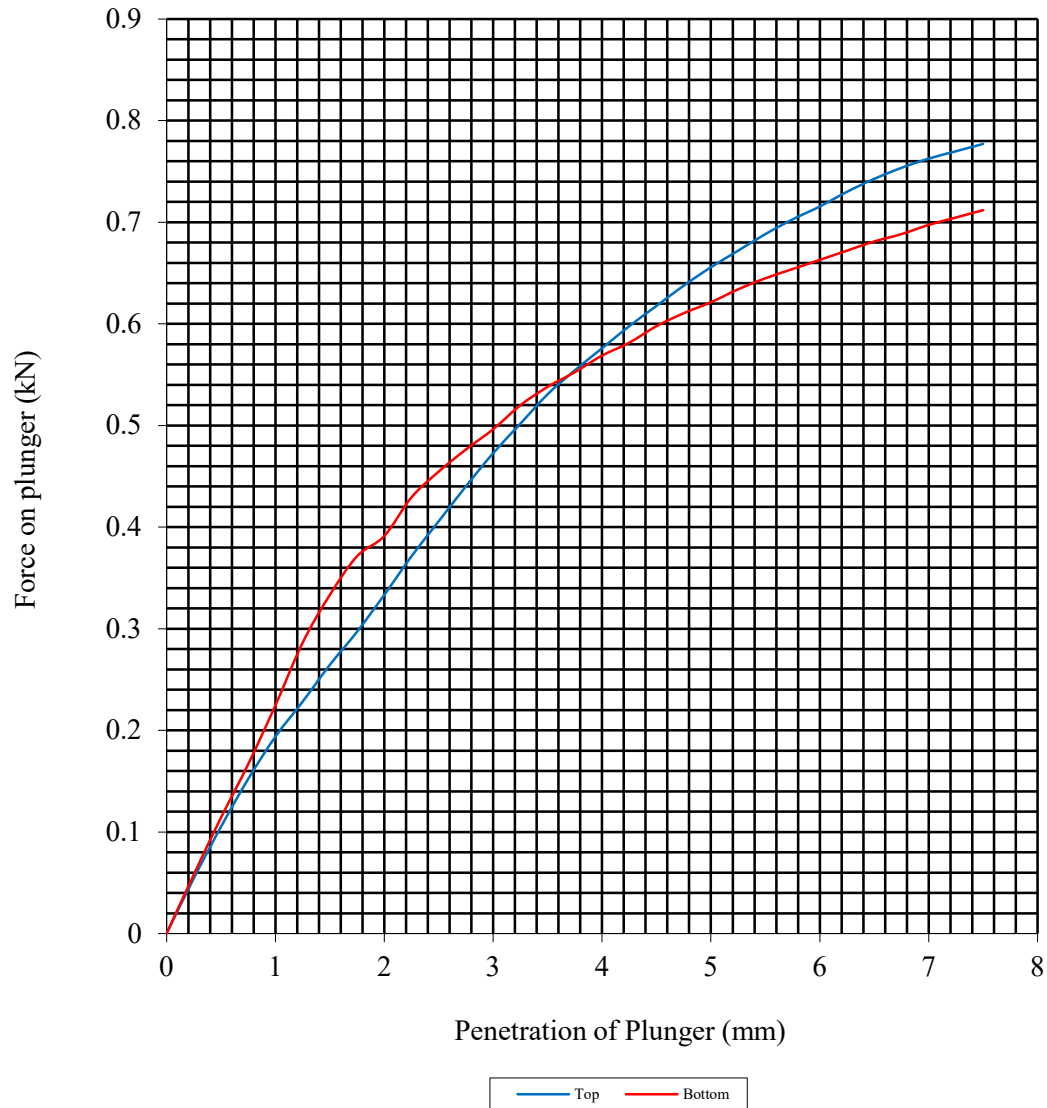
Hole Number: TP19-21

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	31	Surcharge Kg:	4.20	Sample Top	31	Sample Top	3.3
Bulk Density Mg/m ³ :	1.84	Soaking Time hrs	0	Sample Bottom	31	Sample Bottom	3.4
Dry Density Mg/m ³ :	1.40	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					



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CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

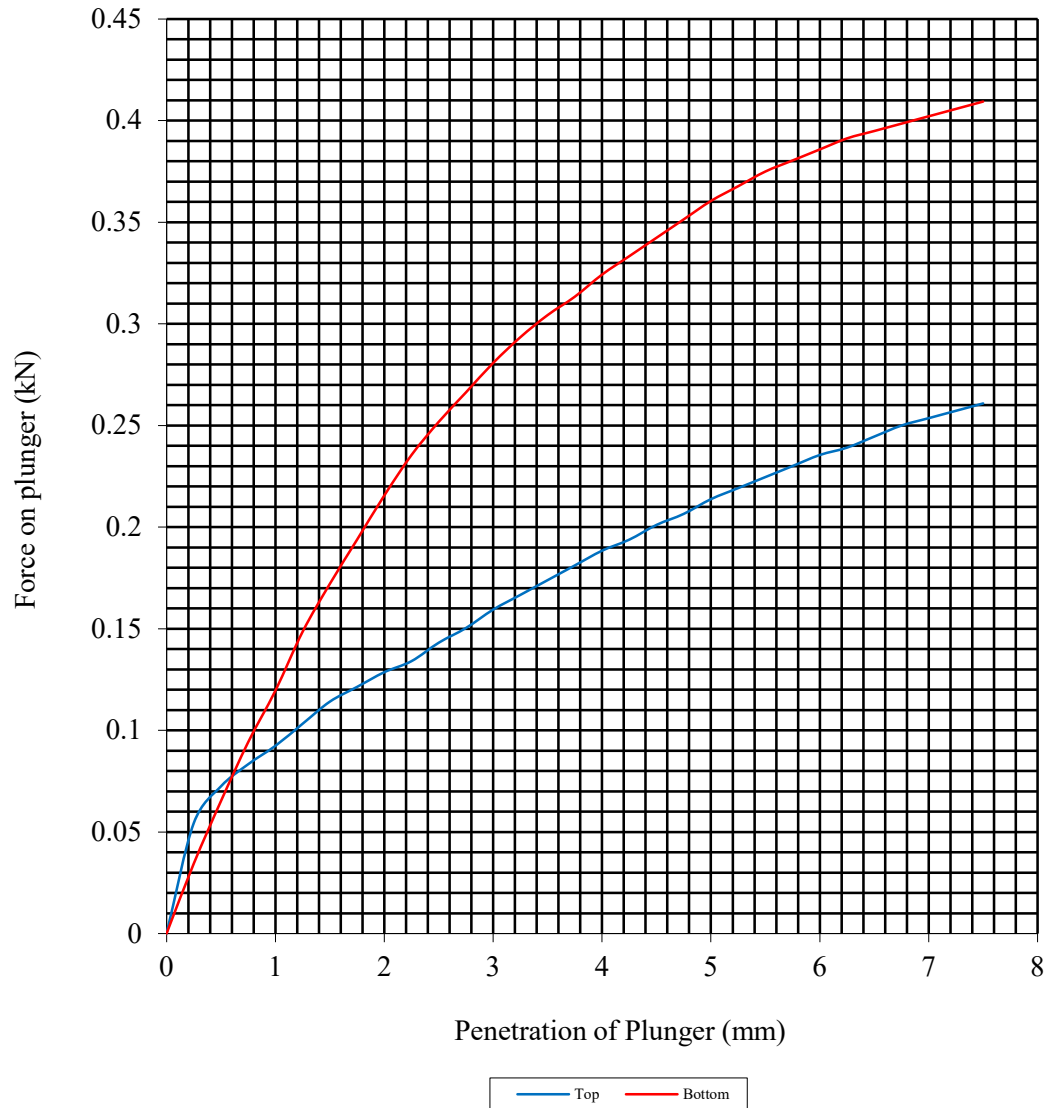
Hole Number: TP19-21

Top Depth (m):

Sample Number:

Base Depth (m):

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	34	Surcharge Kg:	4.20	Sample Top	34	Sample Top	1.1
Bulk Density Mg/m ³ :	1.82	Soaking Time hrs	0	Sample Bottom	34	Sample Bottom	1.9
Dry Density Mg/m ³ :	1.36	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:	0						
Compaction Conditions	2.5kg						



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MOISTURE CONDITION VALUE

BS1377 : Part 4 : 1990 Clause 5.4

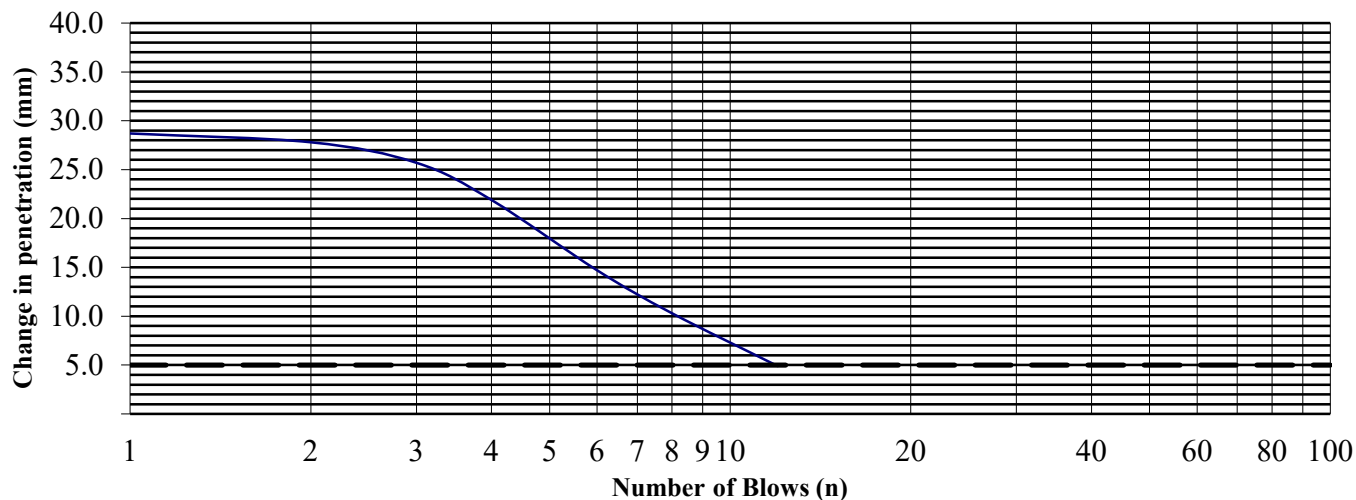
Hole Number: TP19-21 Top Depth (m):

Sample Number: Base Depth (m):

Sample Type:

Material Retained on the 20mm BS Test Sieve (%):	0
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

MCV Determination



Blows (N)	Penetration (mm)	n to 4n (mm)
1	122.8	28.7
2	108.5	27.8
3	100.6	25.7
4	94.1	21.9
6	85.4	14.7
8	80.7	10.3
12	74.9	4.9
16	72.2	
24	70.7	
32	70.4	
48	70.0	
64		
96		
128		
192		
256		

Test Results.

Moisture Content (%)	28
MCV	10.2



Llanmaes

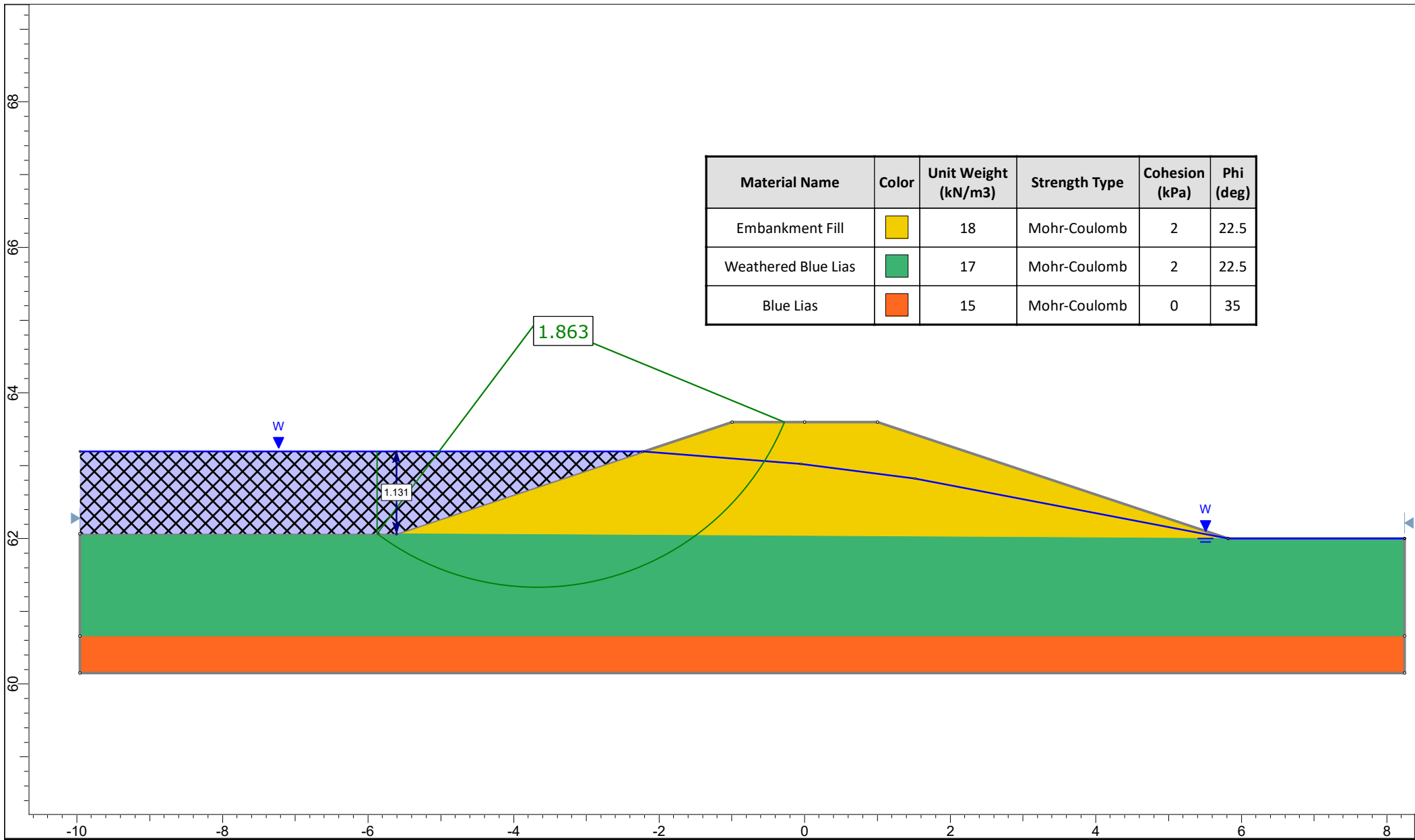
Contract No:

PSL20/5543

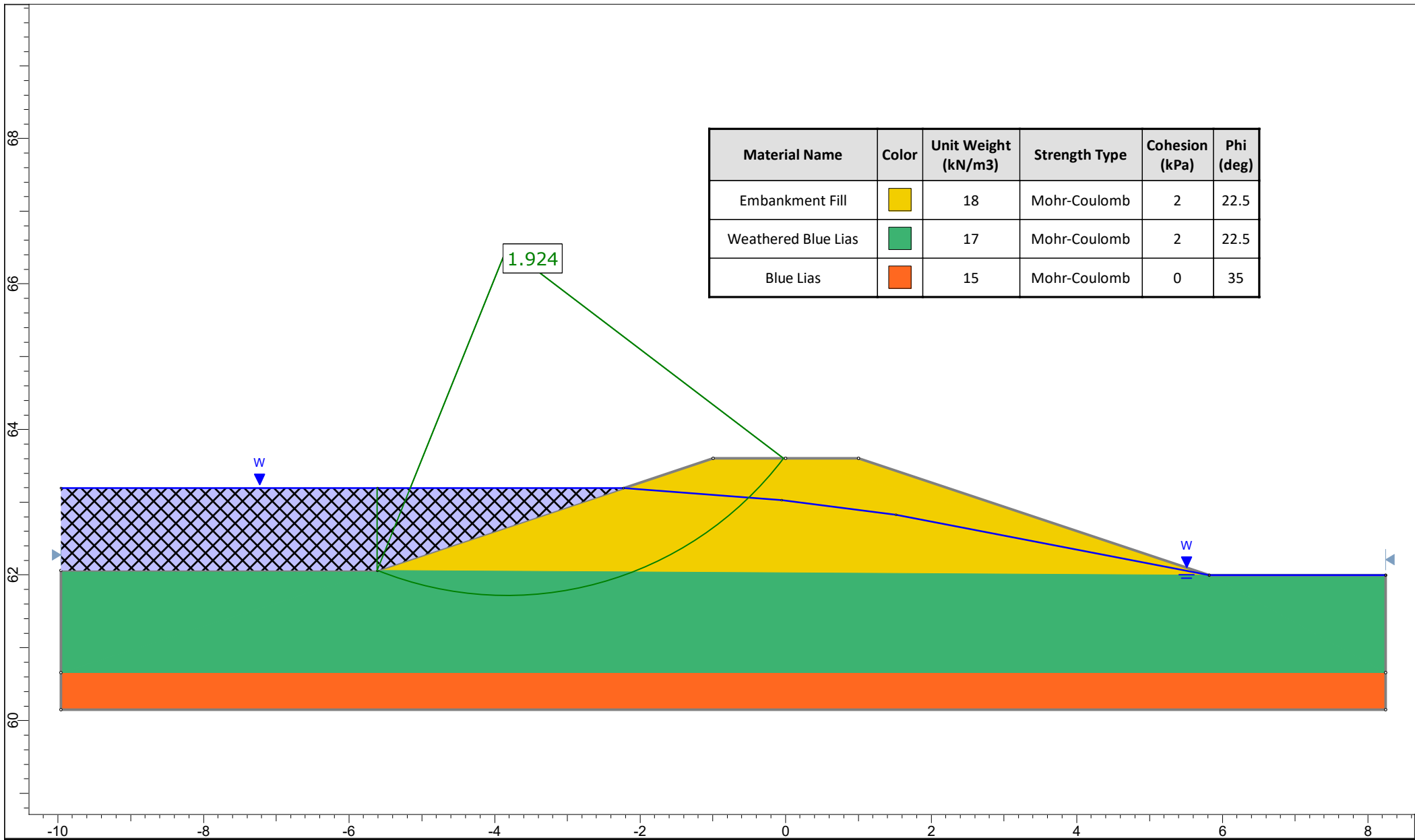
Client Ref:

Appendix C – Slope Stability Output

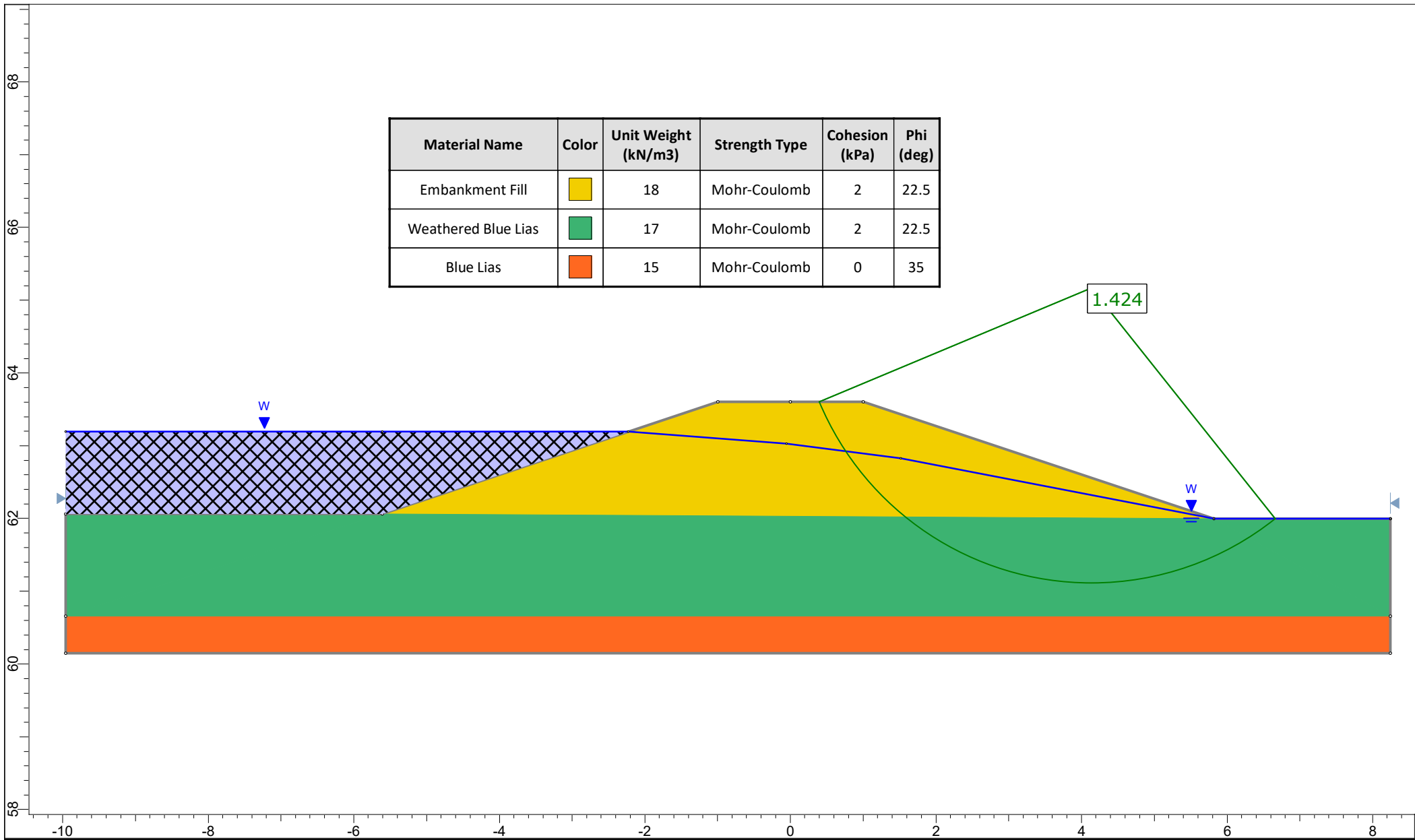
Bund 1, Analysis for maximum flood level



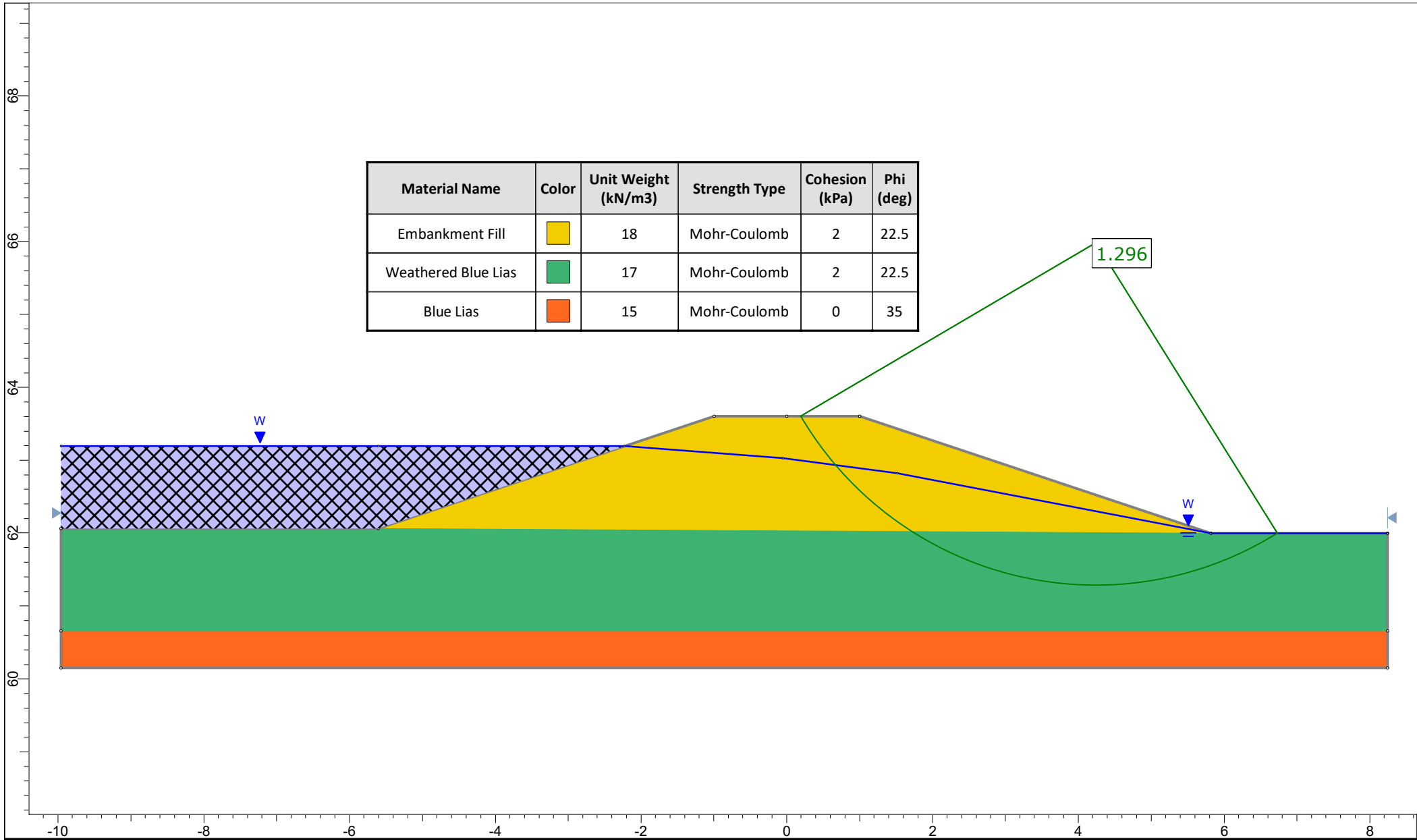
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

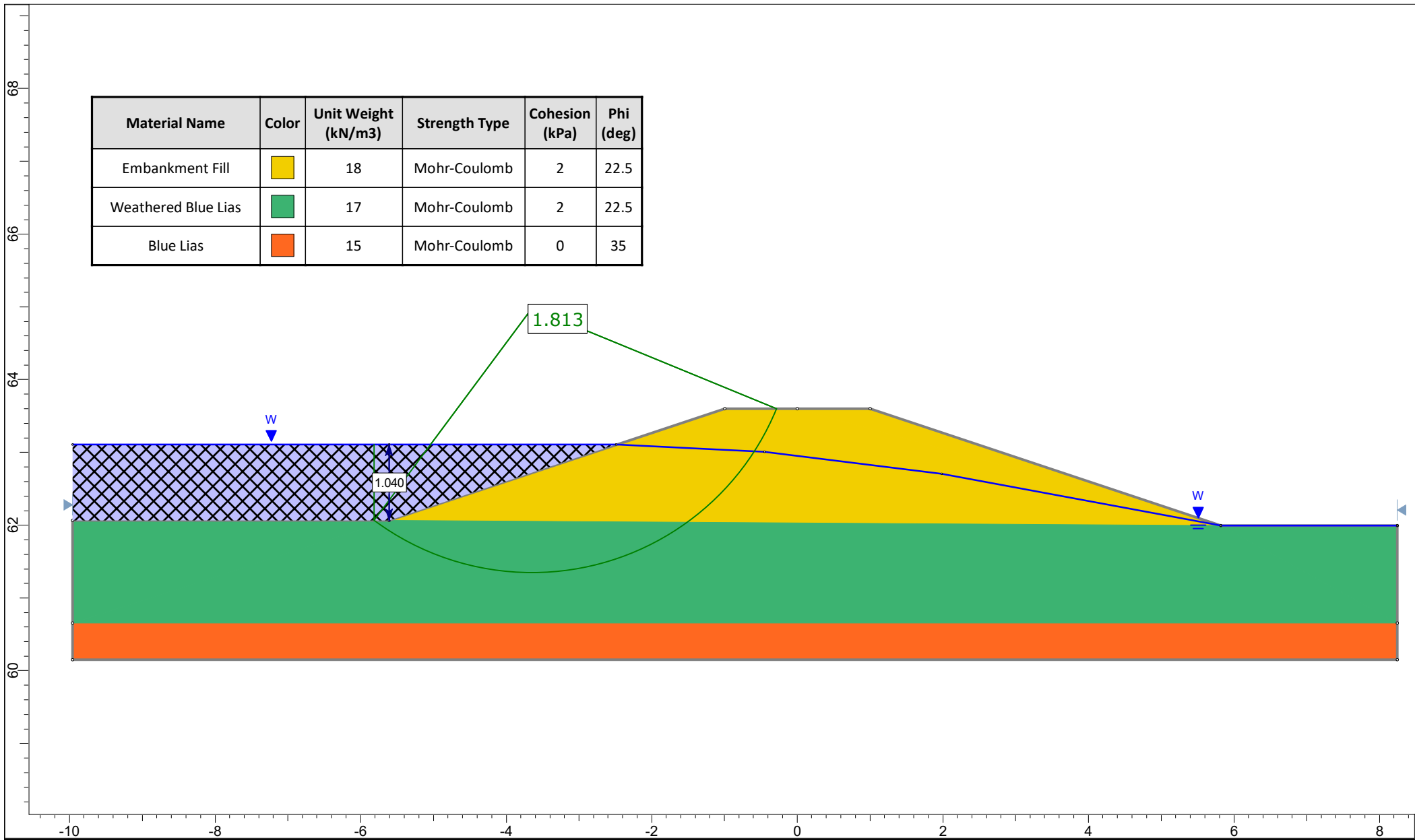


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

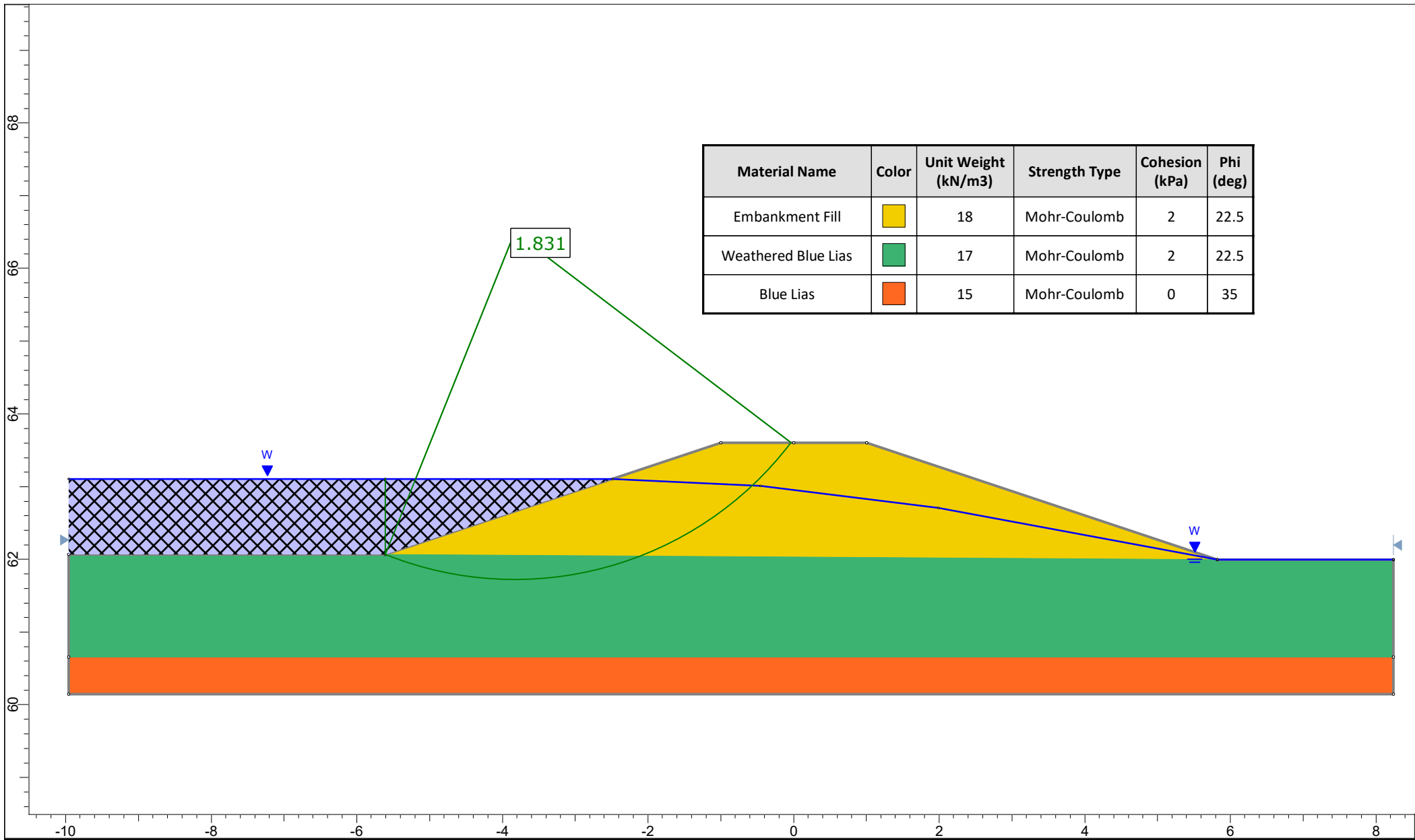


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

Bund 2, Analysis for maximum flood level

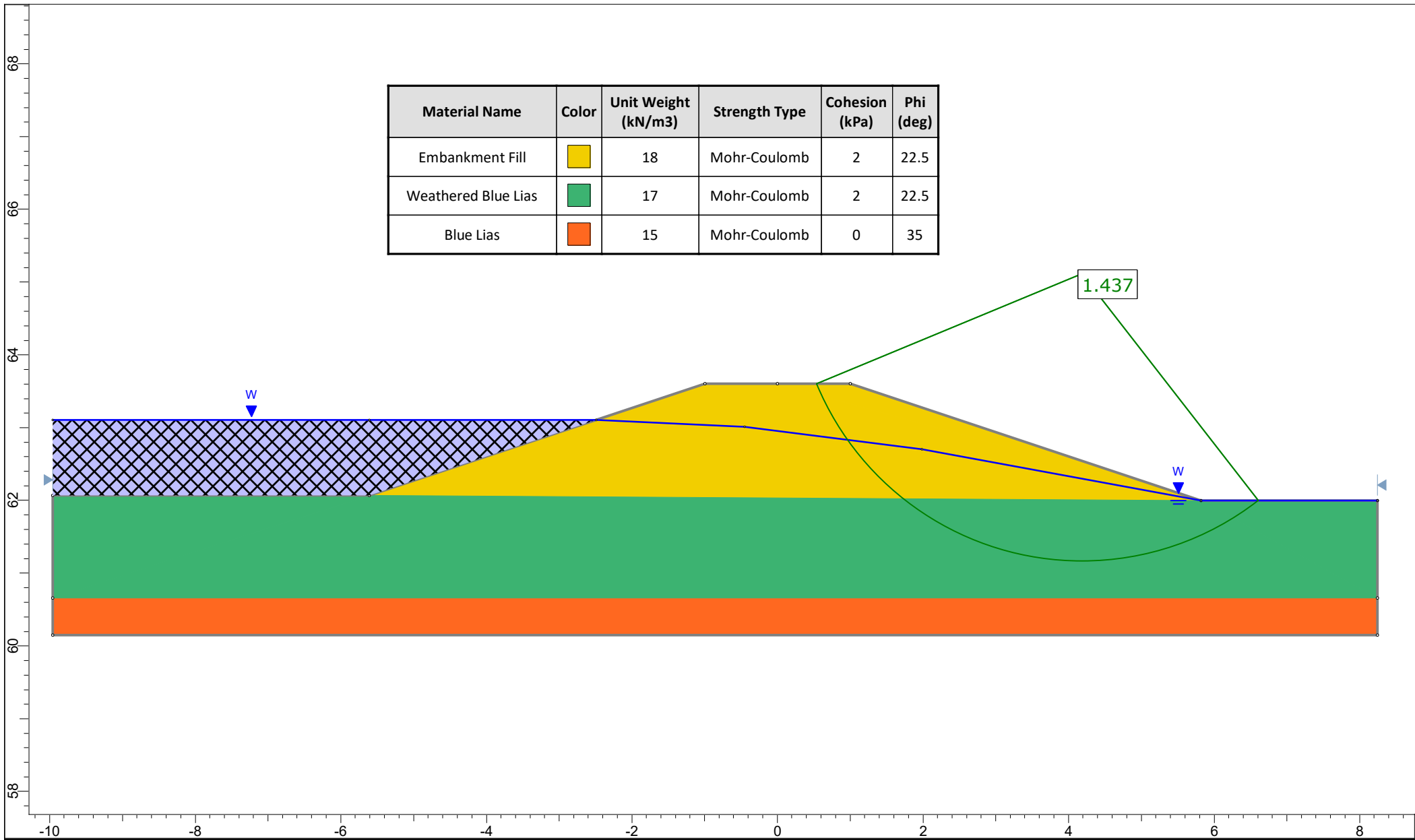


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

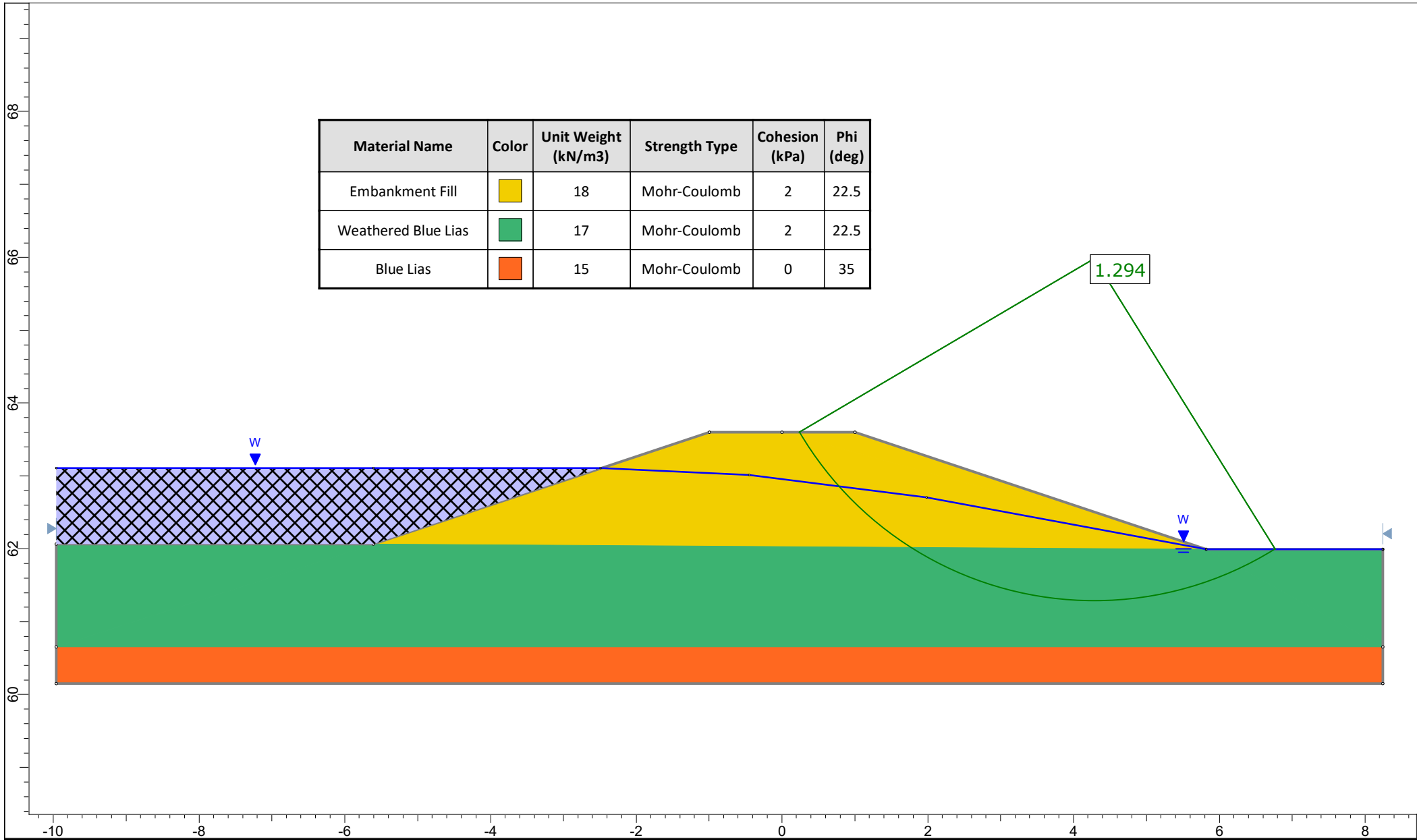


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

1.831

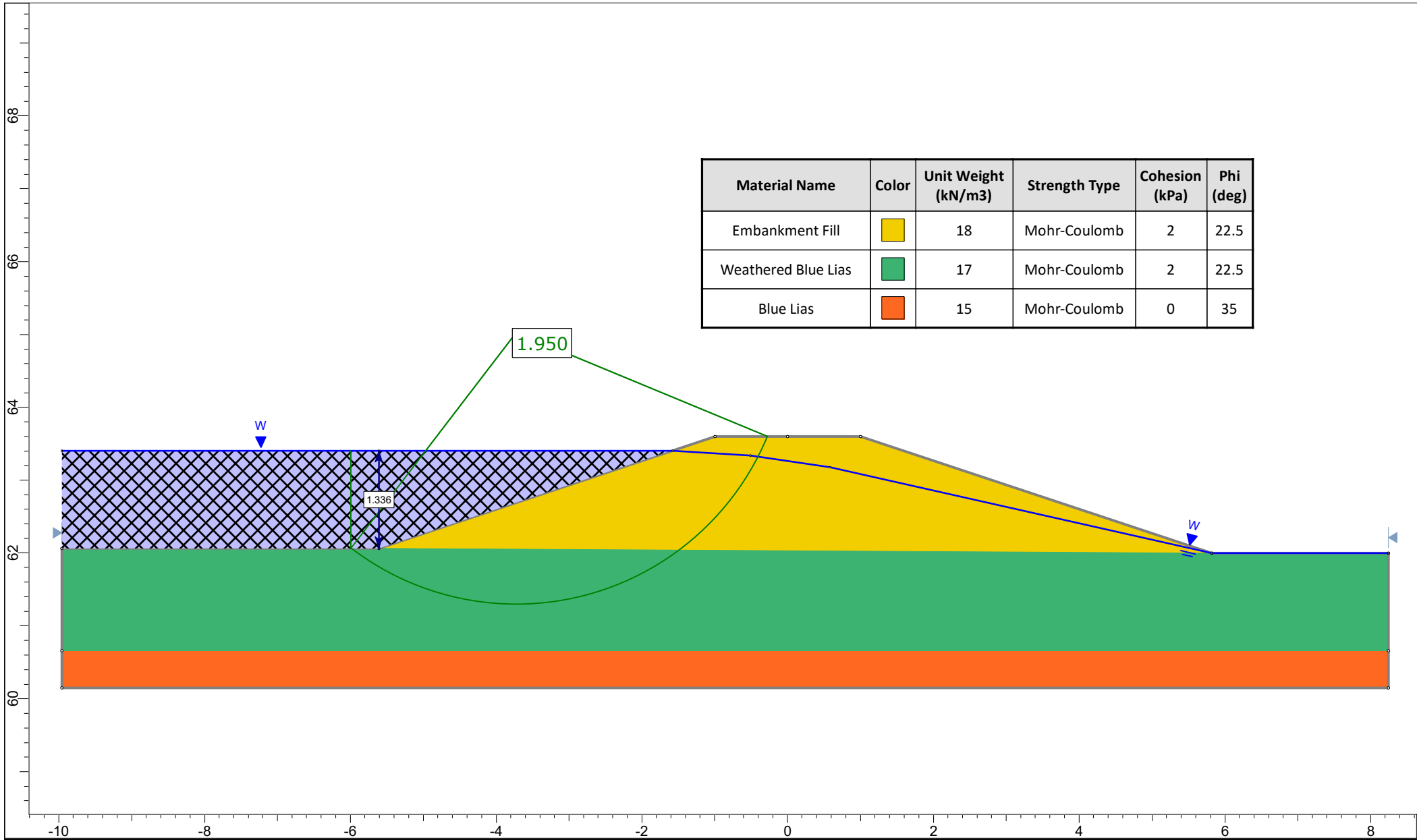


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

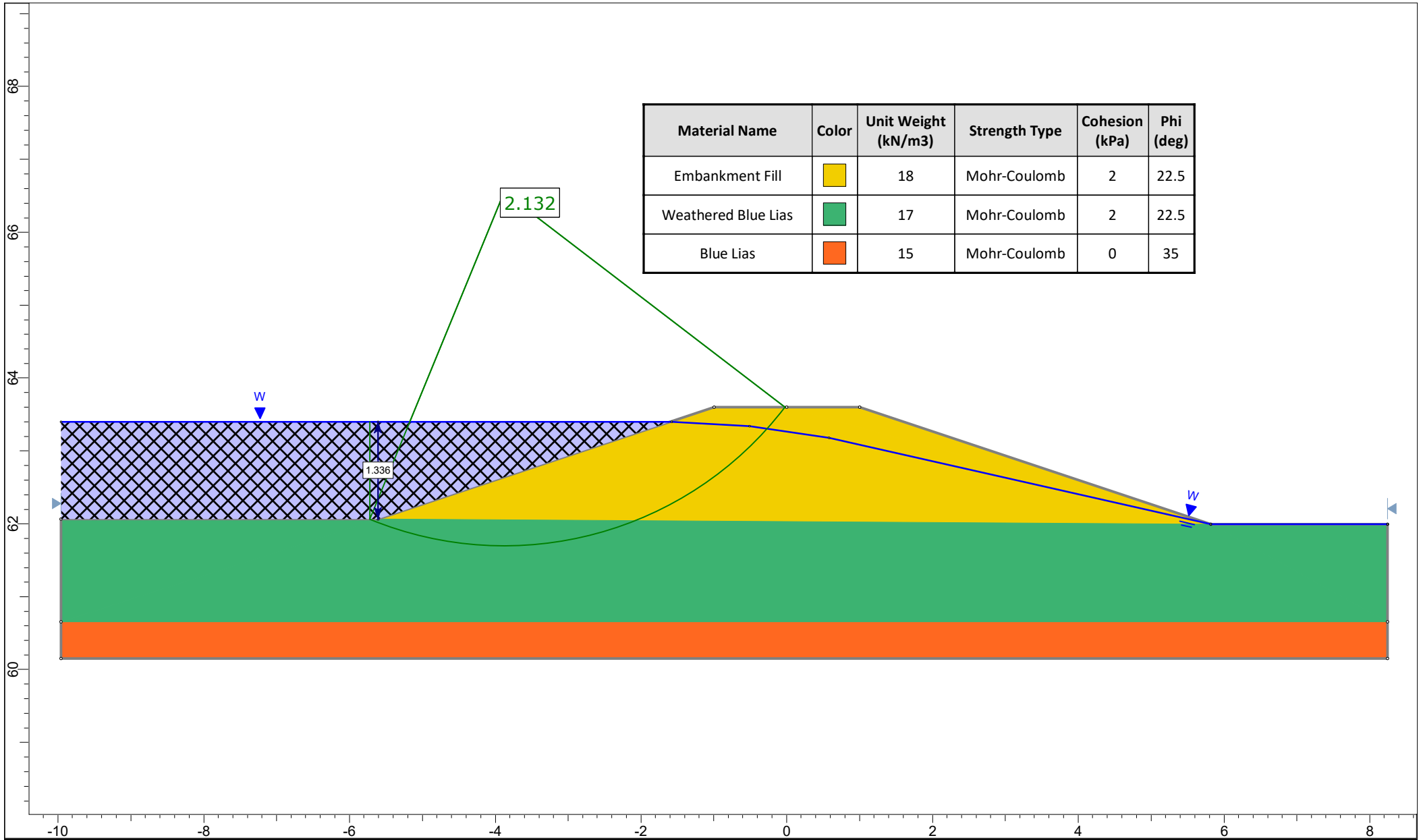


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

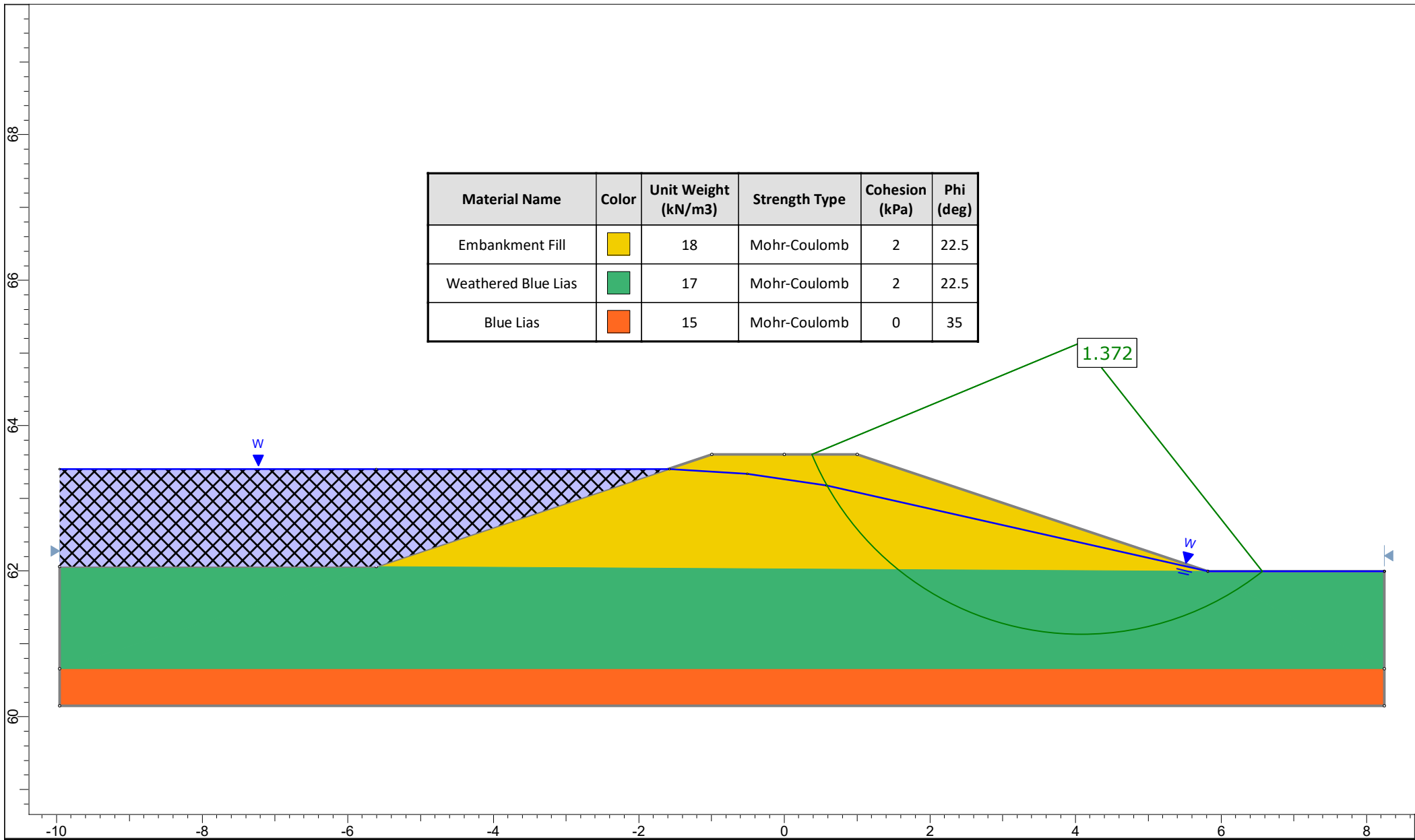
Bund 3, Analysis for maximum flood level



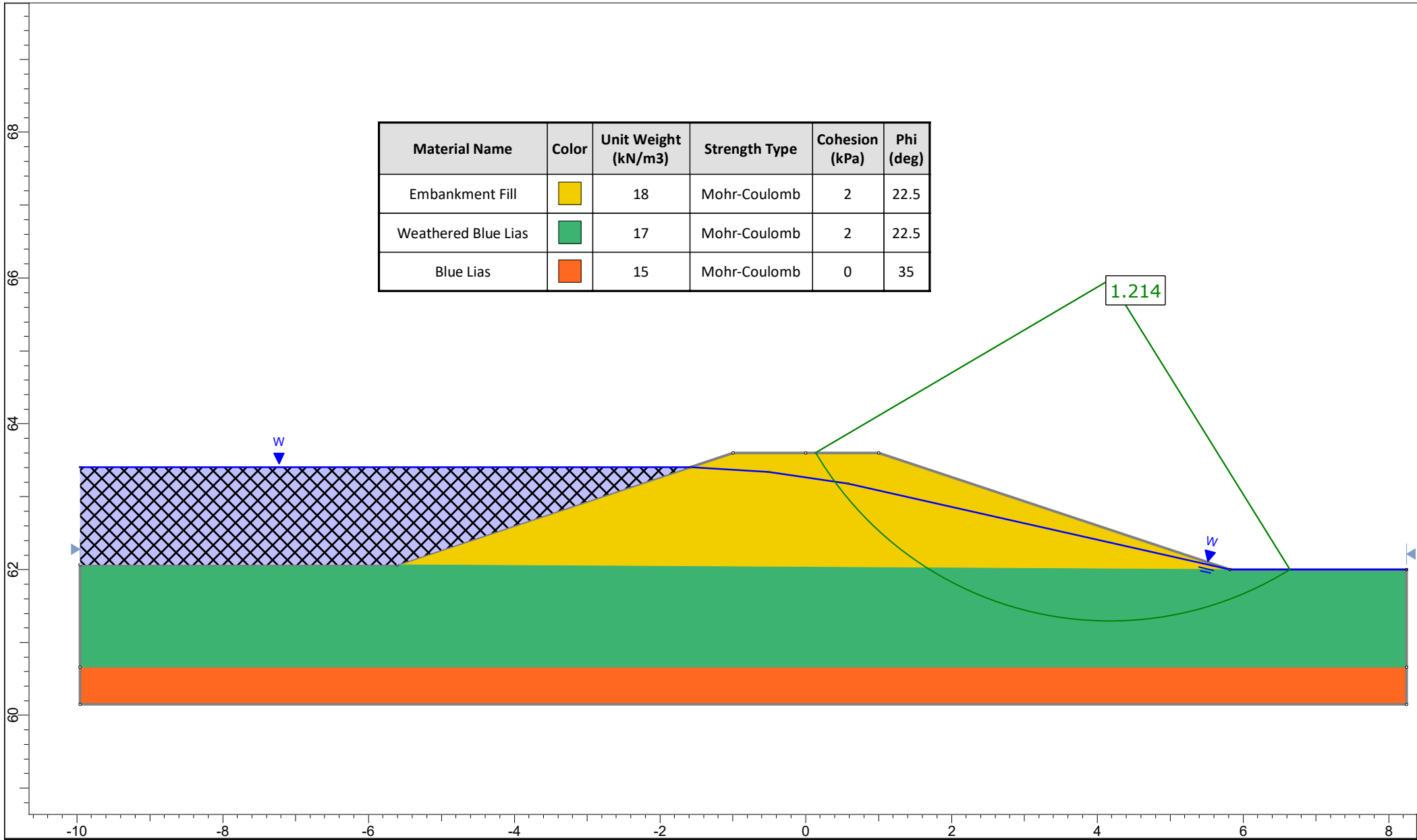
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35



Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

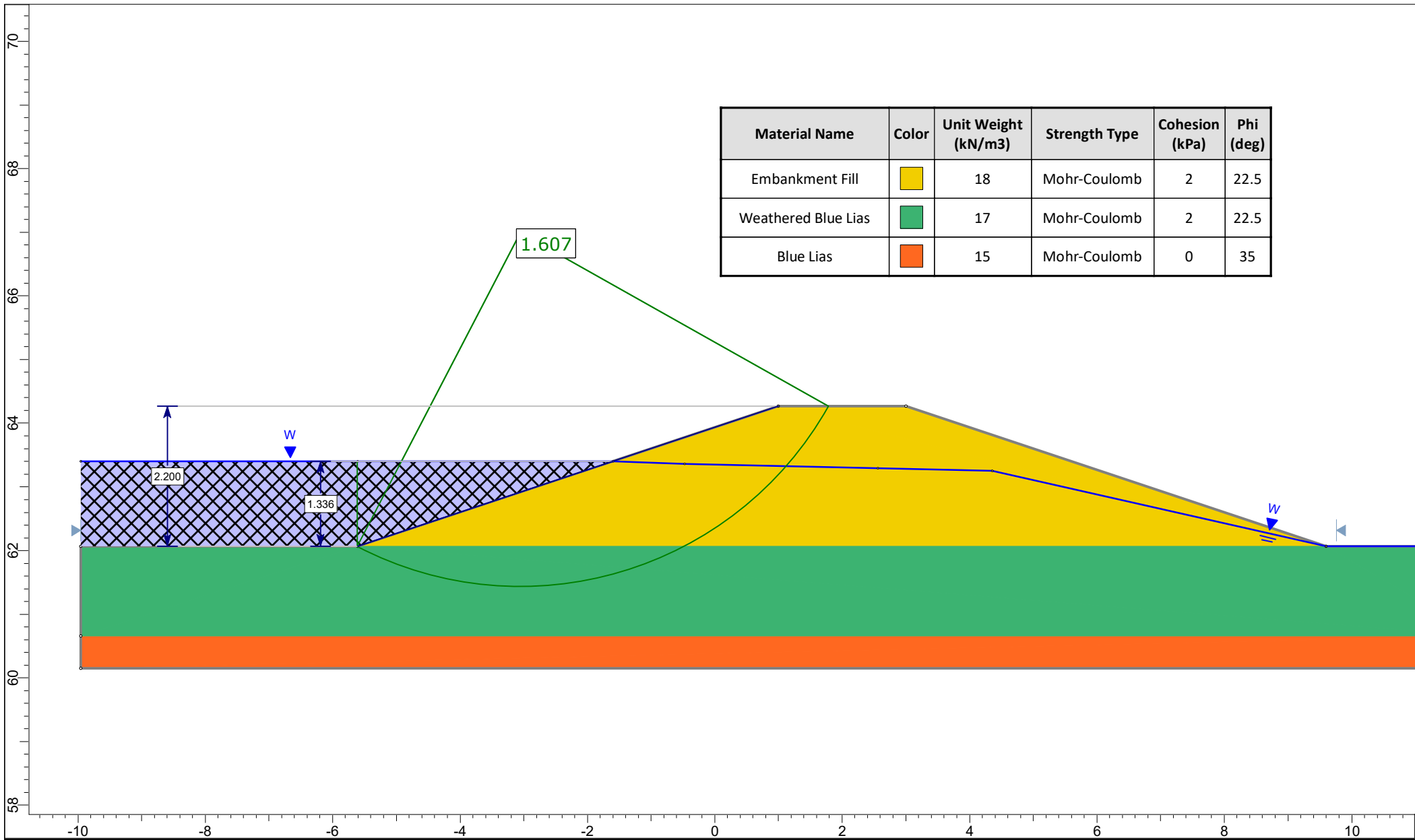


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

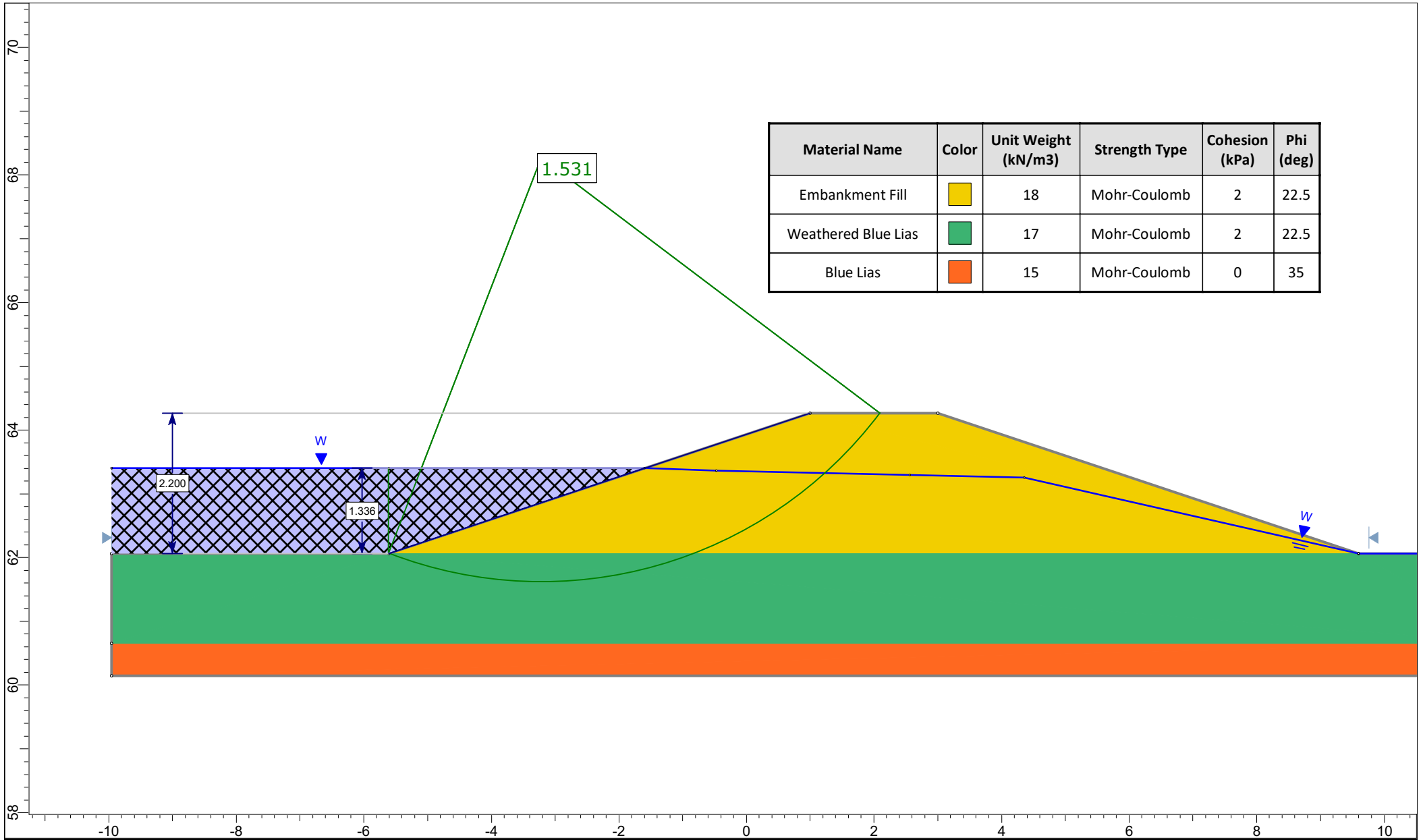


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

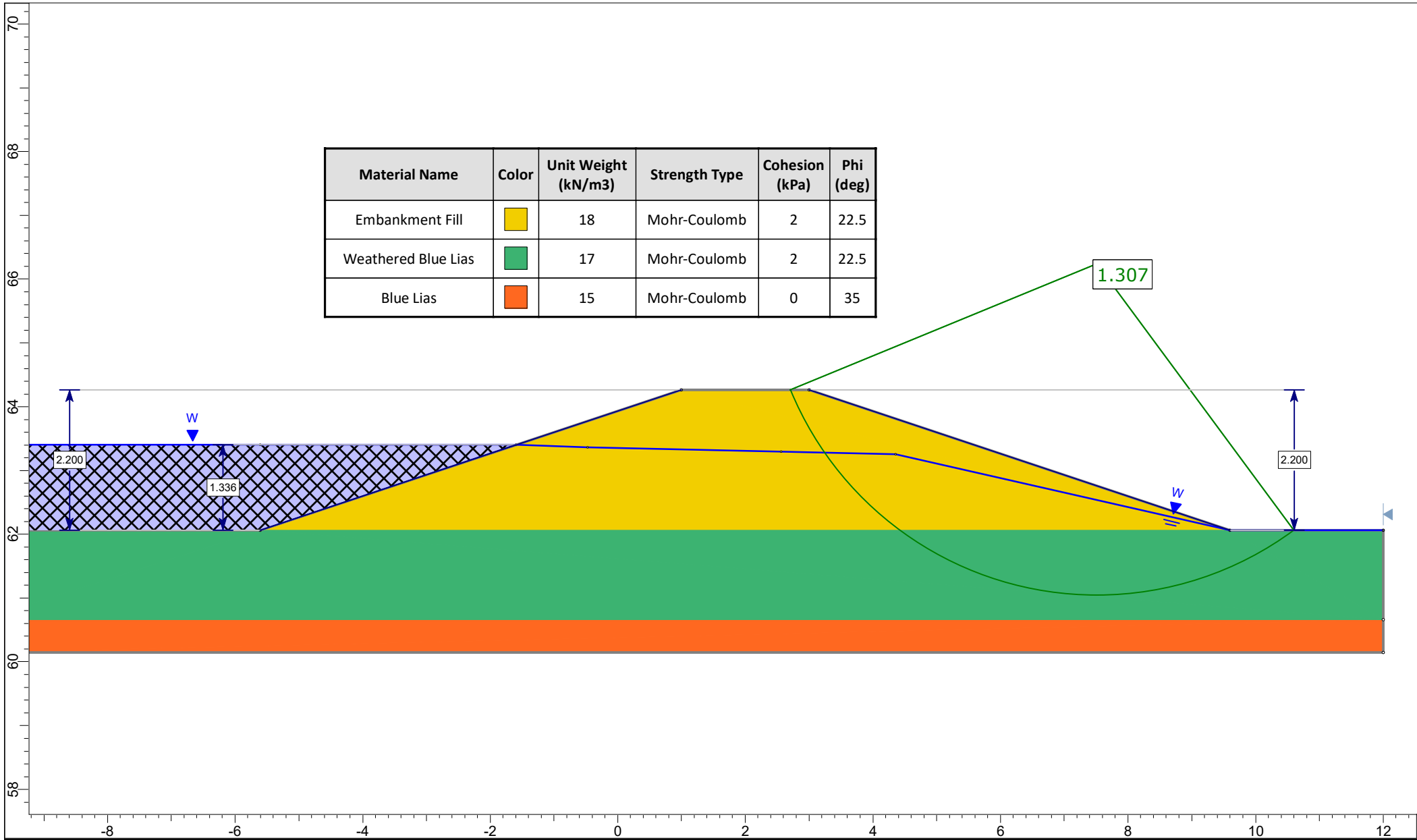
Bund 3 - 2.2m high
Analysis for maximum flood level



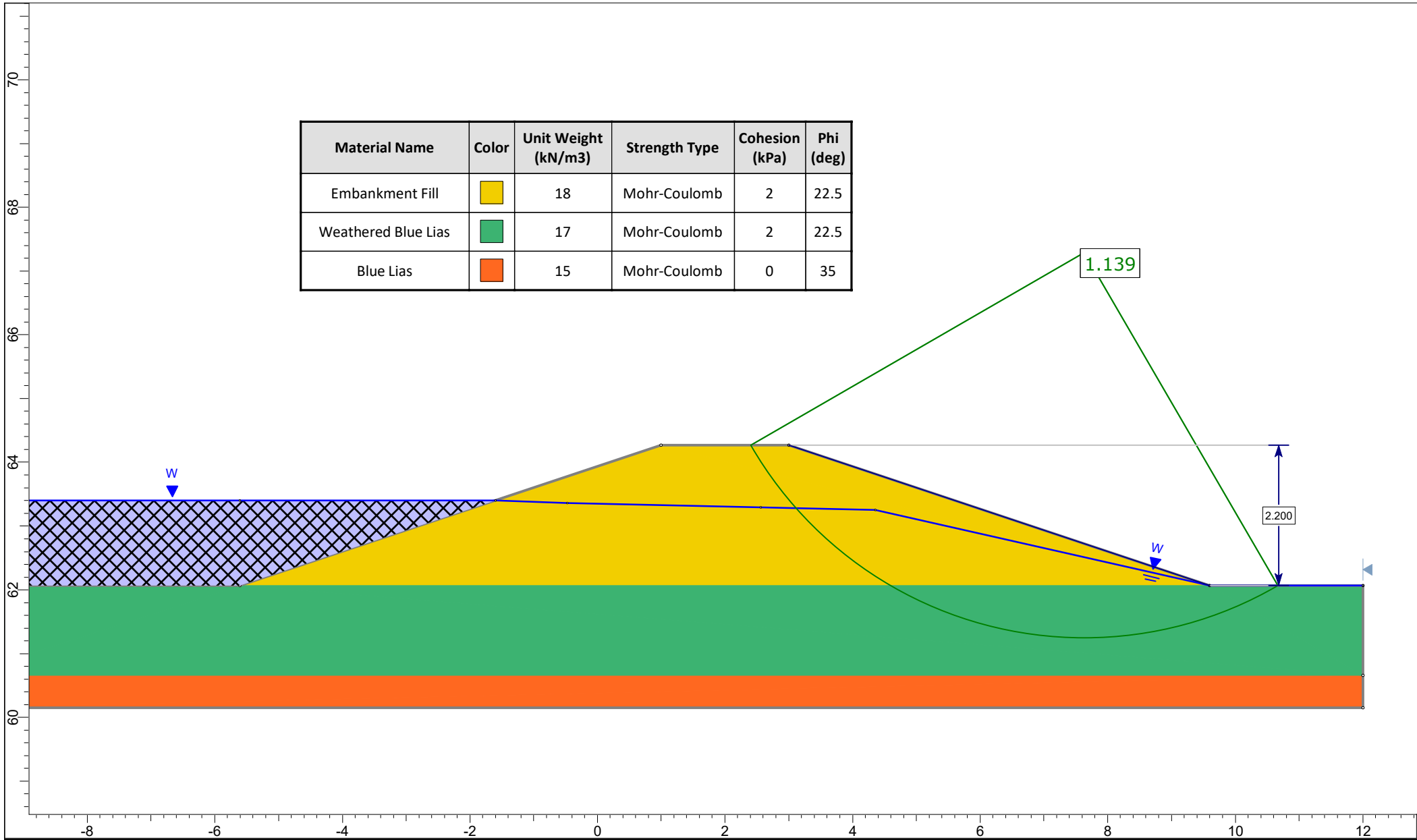
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

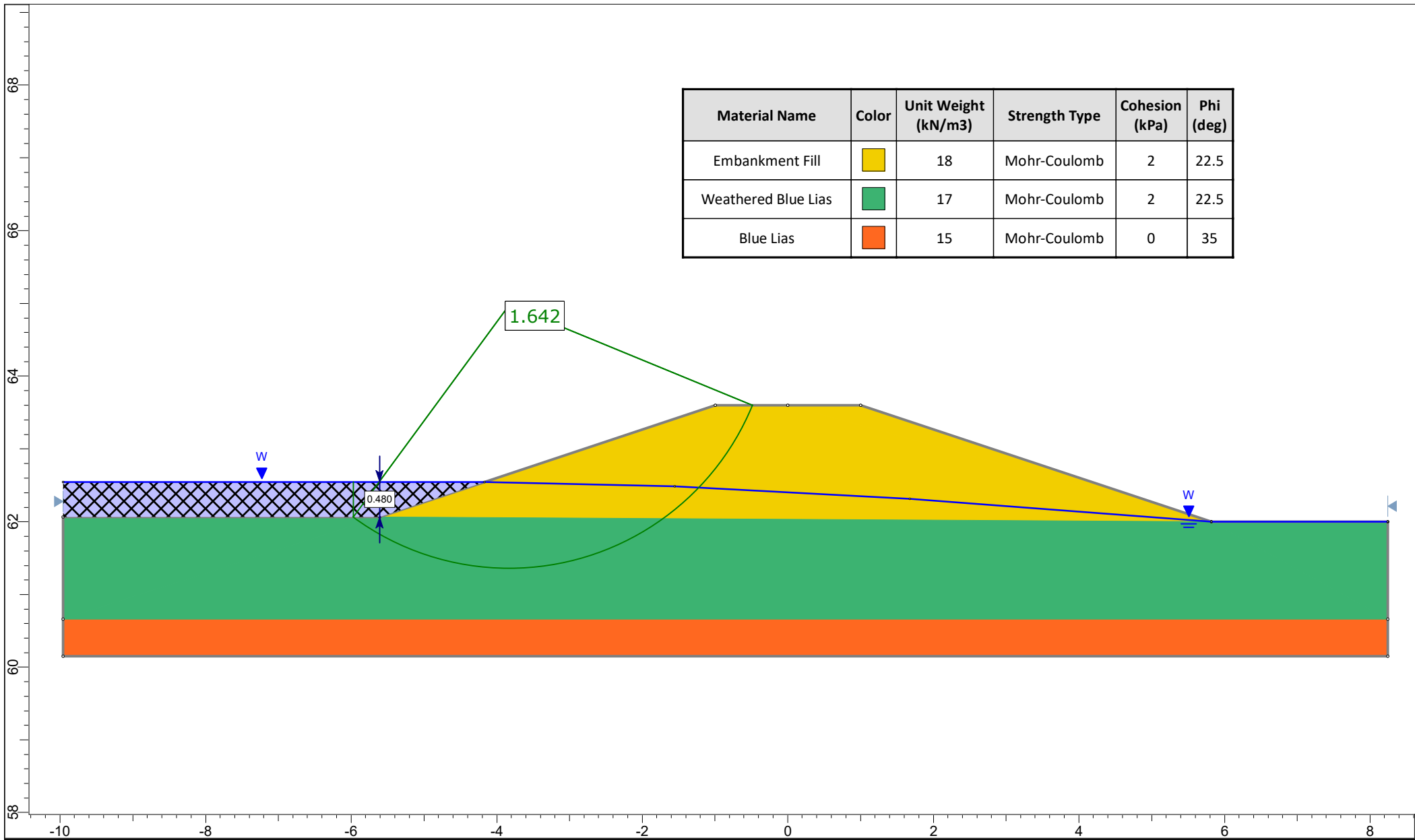


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

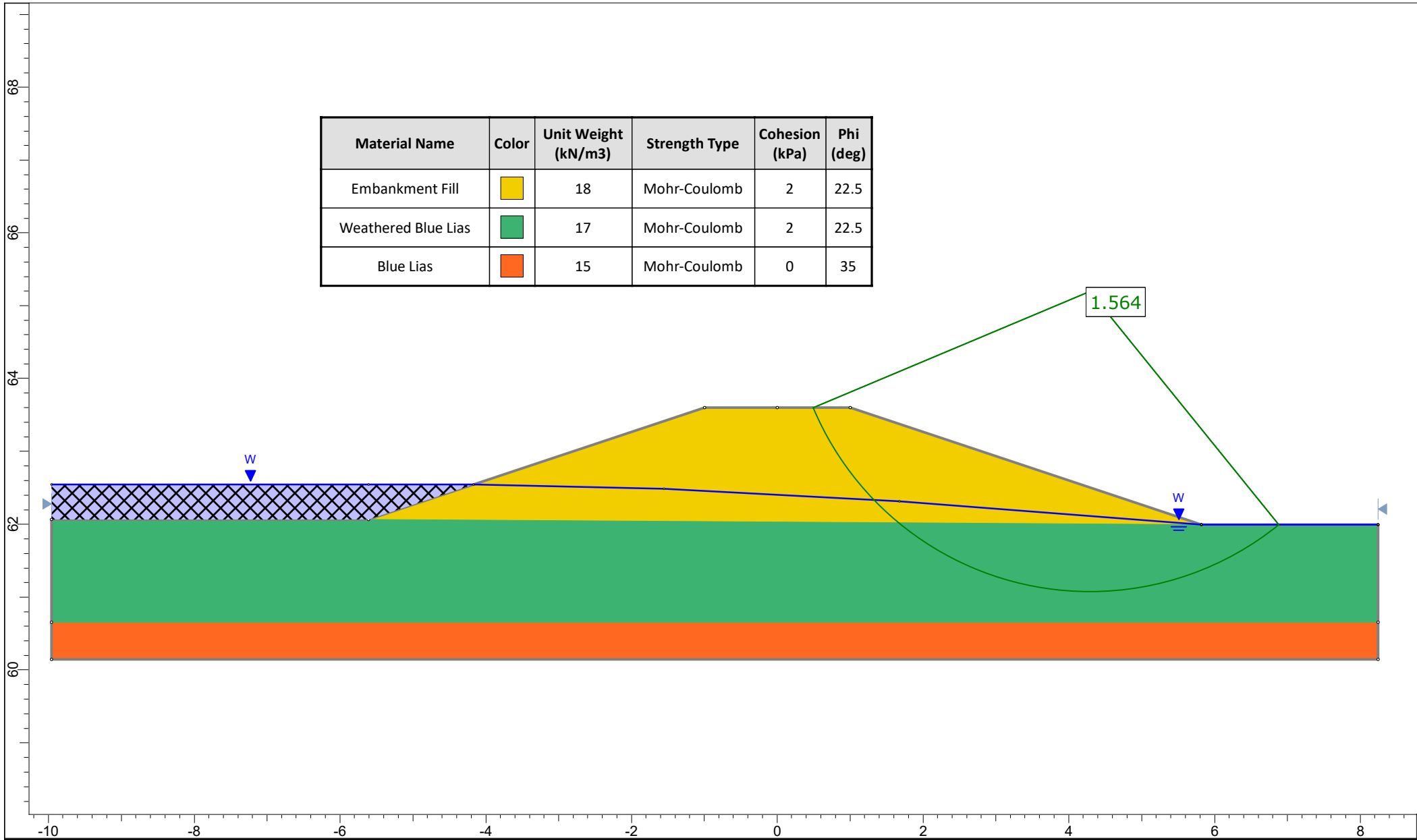


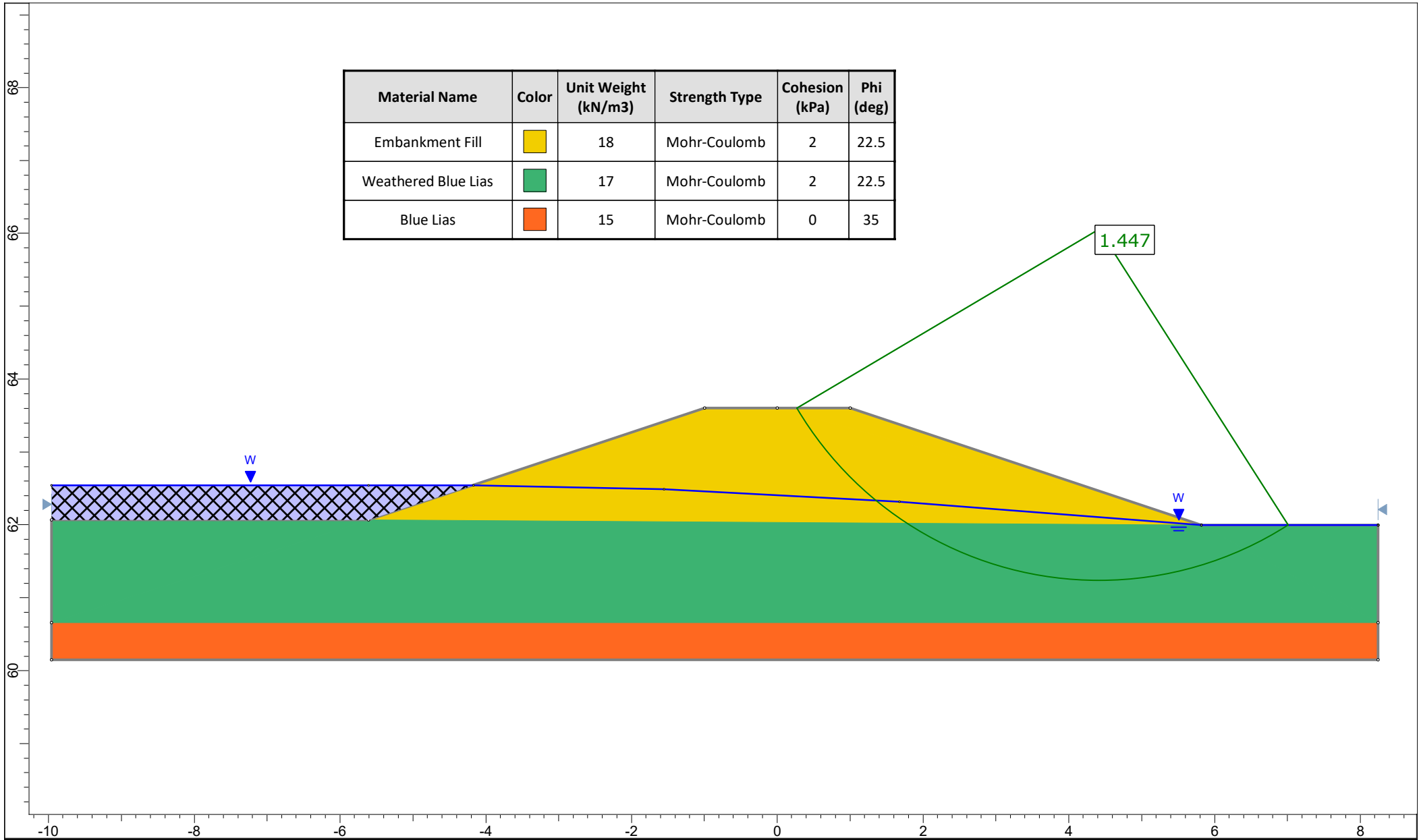
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

Bund 4, Analysis for maximum flood level



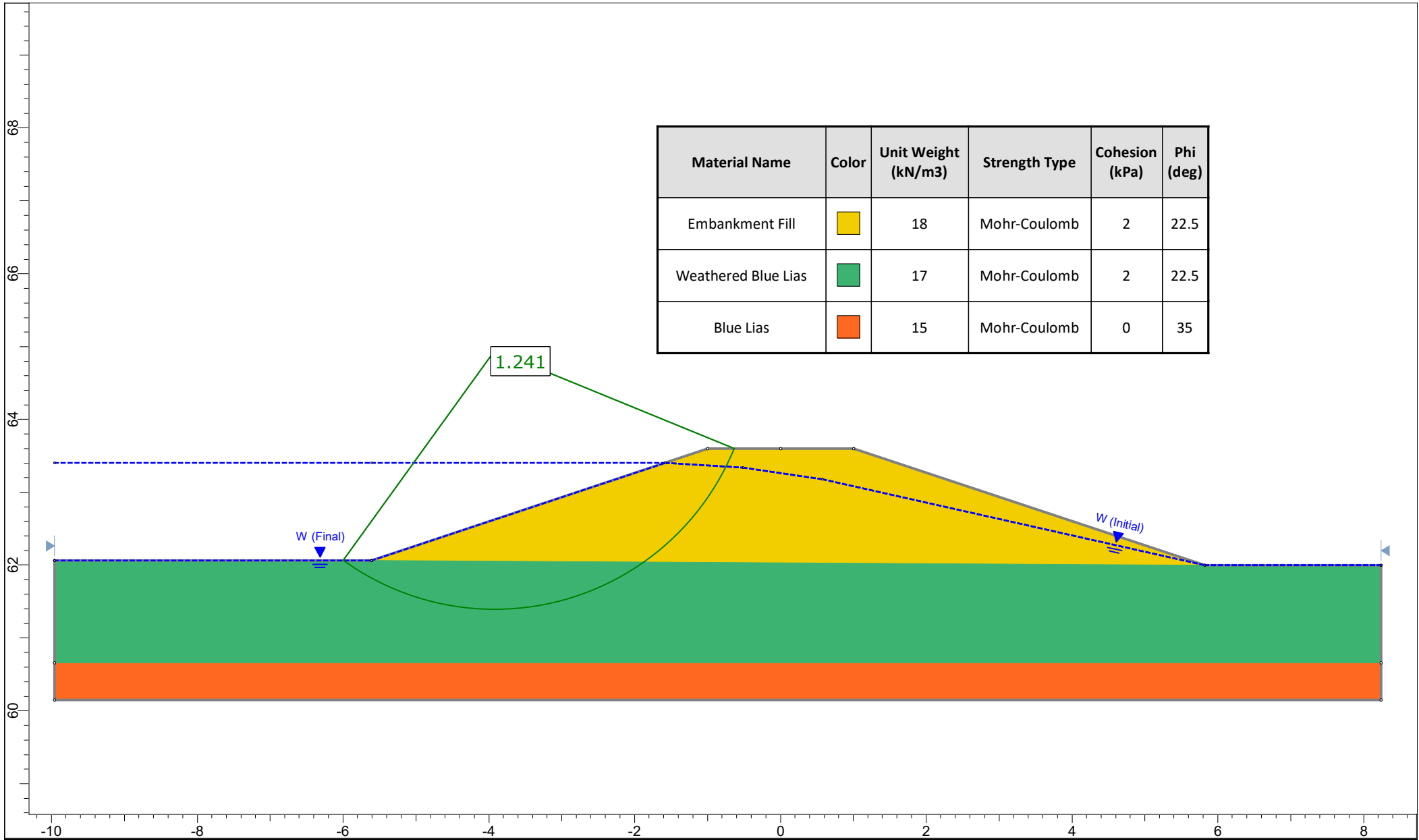
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35





Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35

Bund 3, Rapid Drawdown Analysis

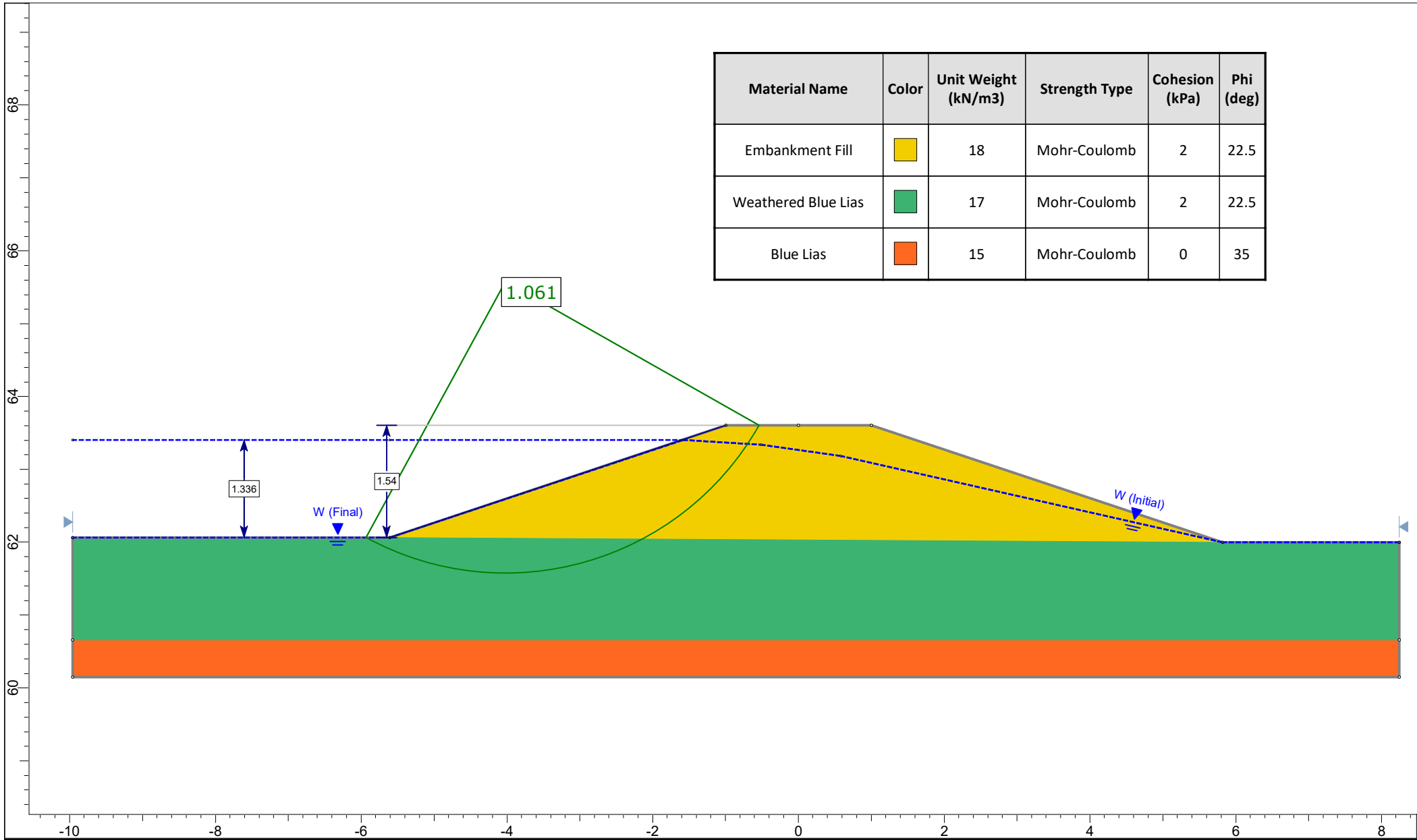


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	■	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	■	17	Mohr-Coulomb	2	22.5
Blue Lias	■	15	Mohr-Coulomb	0	35

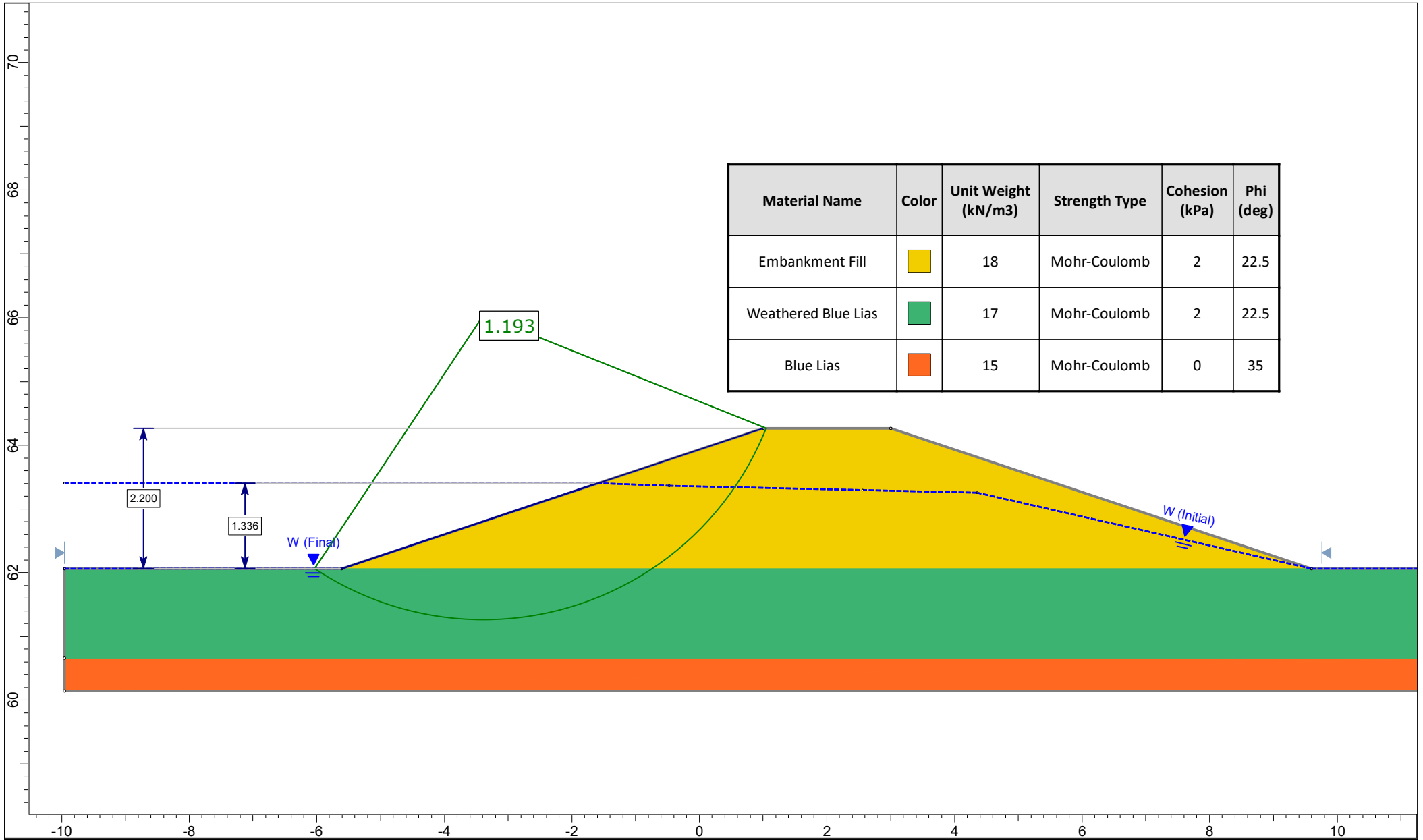
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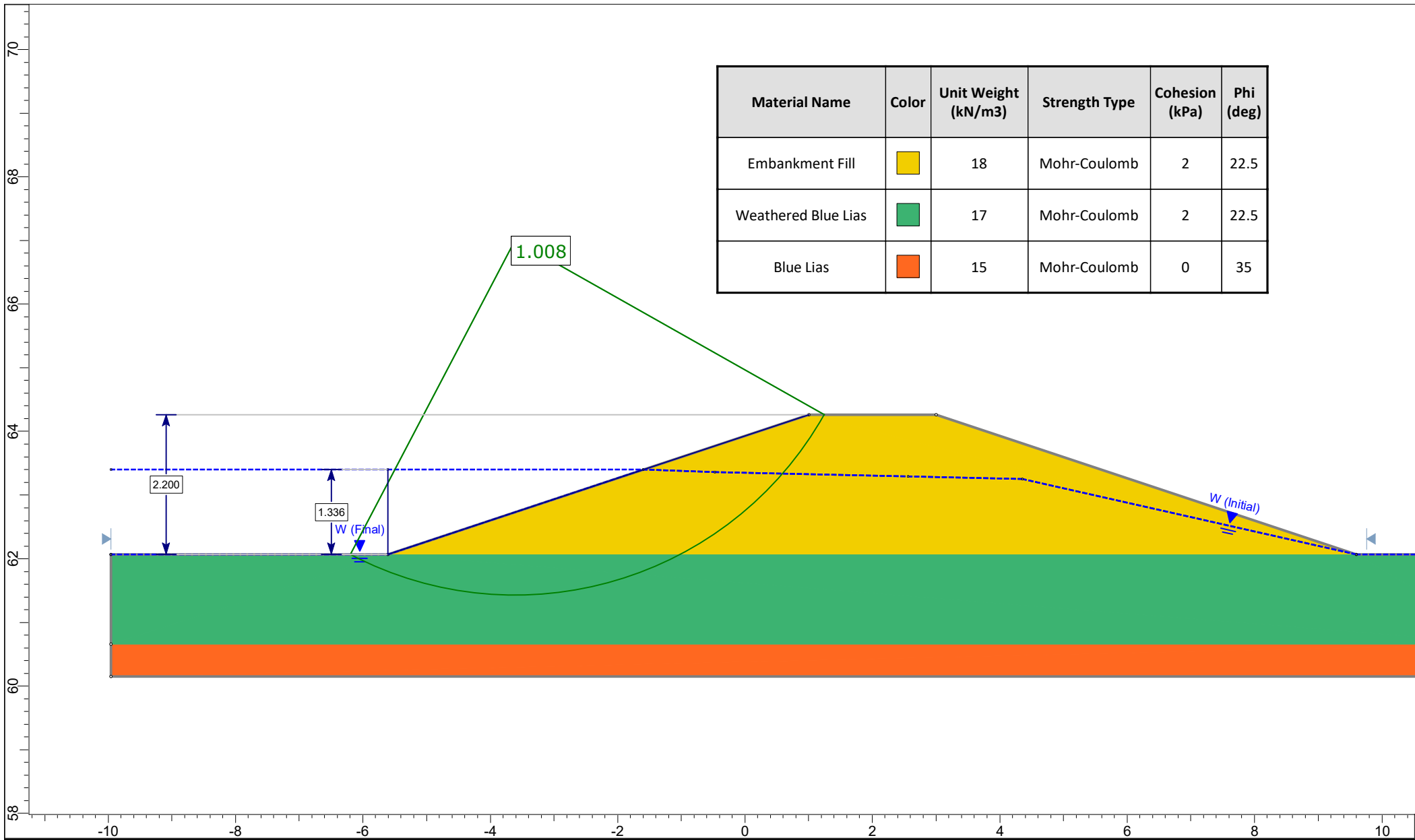
W (Final)

W (Initial)



Bund 3 - 2.2m high
Rapid Drawdown Analysis





Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)
Embankment Fill	Yellow	18	Mohr-Coulomb	2	22.5
Weathered Blue Lias	Green	17	Mohr-Coulomb	2	22.5
Blue Lias	Orange	15	Mohr-Coulomb	0	35