

LAMPIRAN

LAMPIRAN 1

BORING LOG

Date :
9/10/2021

**Penanganan Longsor
Tebing Ciliwung**

Borehole : DH-2

DRILLING DETAILS

Drilling Company : PT ARGOPITU ISHANA
Drilling Method : FULL CORING

Coordinates X : 704306
Y : 9301336
UTM 48 S

Total Depth : 15 m
Drill Master : Ajang S
Checked By : Grandis A, S.T

Depth (m)	Insitu Test	Testing	Graphic Log	Deskripsi	N-SPT			N Total	REMARKS
					N1	N2	N3		
0				Lempung, berwarna coklat kemerahan, lembab, lunak - kaku sedang, plastisitas rendah (landfill soil) tanah timbunan					
1				Lempung, berwarna merah, lembab, lunak, plastisitas tinggi	1/15	1/15	2/15	4	
2	SPT-1								
3				Lempung pasiran, berwarna merah, lembab, lunak - kaku sedang, plastisitas tinggi	2/15	2/15	2/15	6	
4	UDS-1								
	SPT-2								
5				lanau pasiran, berwarna coklat, lanau, kaku sedang, plastisitas sedang.	2/15	3/15	5/15	8	
6	SPT-3								
7				lempung pasiran, berwarna coklat, sangat kaku, plastisitas rendah.	16/15	39/15	11/15	50	
8	DS-1								
	SPT-4			Pasir lempungan, berwarna coklat, lembab, pasir halus - sedang, padat, terpilah baik, gradasi buruk sementasi rendah					
9				Pasir berwarna abu-abu, lembab, pasir sedang, padat, terpilah baik, gradasi buruk.	19/15	31/15	19/9	50	
10	SPT-5								
11					31/15	36/15	14/6	50	
12	SPT-6			Pasir, berwarna hitam ke abu gelap, lembab, pasir sedang - kerikilan, gradasi sedang, terpilah sedang, sementasi rendah					
13					11/15	13/15	21/15	34	
14	DS-2								
	SPT-7								
15	SPT-8				16/15	46/15	14/6	60	

Grainsize Classification (mm) :

Boulders		Cobbles		Gravel			Sand			Silt			Clay
				Coarse	Medium	Fine	Coarse	Medium	Fine	Coarse	Medium	Fine	
		200	60	20	6	2	0.6	0.2	0.06	0.02		0.006	0.002

LAMPIRAN 2

DATA PENGUJIAN LABORATORIUM

**POLITEKNIK NEGERI BANDUNG - CIVIL ENGINEERING DEPARTMENT****SOIL TESTING LABORATORY**

Jl. Geger Kalong Hilir, Desa Ciwaruga Bandung, Telp. 022 - 201 45 83

Project : : Penanganan Longsor Tebing Ciliwung

Check by : : Setiono

Location : : Asrama Kopassus

Date : : Oktober 2021

Bore location: : Cijantung

No. Bore : : BH 2

Density (γ)

No. Sample	UDS1					
Depth :	3.00 - 3.50					
No.	1	2				
Wt of can (gr)	74,48	74,48				
Wt of soil + can (gr)	218,80	219,61				
Wt of soil (gr)	144,32	145,13				
Vol of can (cm ³)	85,34	85,34				
Density (gr/cm ³)	1,691	1,701				
Ave of density (gr / cm ³)	1,696					

Water content (ω)

No. Sample	UDS1					
Depth :	3.00 - 3.50					
No.	1	2				
Wt of can (gr)	2,99	2,96				
Wt of wet soil + can (gr)	13,11	13,24				
Wt of dry soil + can (gr)	10,30	10,41				
Wt of moisture (gr)	2,81	2,83				
Wt of dry soil (gr)	7,31	7,45				
Water content (%)	38,44	37,99				
Average (%)	38,21					

Specific of gravity (Gs)

No. Sample	UDS1					
Depth :	3.00 - 3.50					
No.	7	8				
Wt of picnometer	29,01	31,49				
Wt of picnometer + dry soil	36,34	38,65				
Wt of picnometer + soil + water	81,03	81,89				
Wt of picnometer + water	76,56	77,54				
Wt of dry soil	7,33	7,16				
Specific of gravity	2,563	2,548				
Average	2,555					
Temperature	26	26				
Correction	0,9983	0,9983				
Average of Gs	2,55					

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Check by : Setiono

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Date : Oktober 2021

Bore location : Cijantung

No. Bore : BH 2

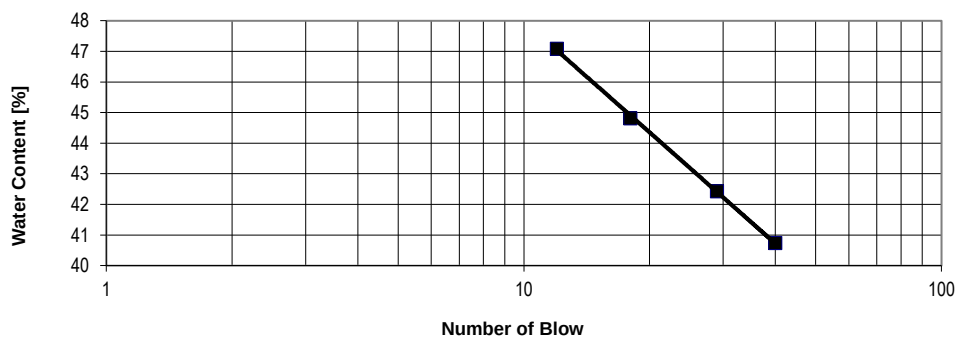
Atterberg Limits

No. Sample: UDS1

Depth : 3.00 - 3.50

Testing	Liquid Limit (LL)				Plastic Limit (PL)	
No.	1	2	3	4	1	2
Wt of can	2,97	2,88	2,87	2,94	2,94	2,97
Wt of wet soil + can	13,31	13,35	13,78	13,96	13,42	13,77
Wt of dry soil + can	10	10,11	10,53	10,77	10,64	10,89
Wt of moisting	3,31	3,24	3,25	3,19	2,78	2,88
Wt. of dry soil	7,03	7,23	7,66	7,83	7,70	7,92
Water content	47,08	44,81	42,43	40,74	36,10	36,36
Average					36,23	
Number of blow	12	18	29	40		
Limit value	LL = 43,22				PL = 36,23	

UDS1 3.00 - 3.50

Flow Curve

Plastic Limit (PL)	=	36,23	%
Liquid Limit (LL)	=	43,22	%
Plastic Index (PI)	=	6,98	%

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Check by : Setiono

Location : Asrama Kopassus

Date : Oktober 2021

Bor location : Cijantung

No. Bor : BH 2

Grain Size Analysis

No. Sample : UDS1 3.00 - 3.50

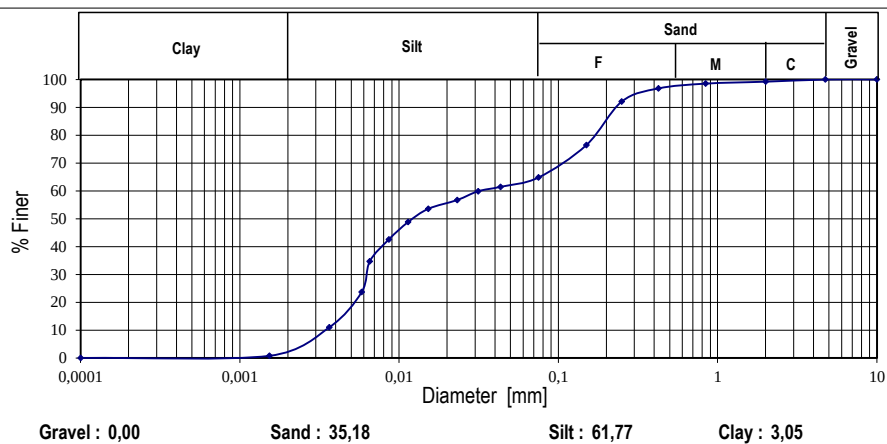
SieveW_{total} : 100 gram

Sieve No.	Diameter [mm]	Wt. retained [gram]	% Retained	% passing
4	4,750	0,00	0,00	100,00
10	2,000	0,78	0,78	99,22
20	0,840	0,69	0,69	98,53
40	0,425	1,73	1,73	96,80
60	0,250	4,71	4,71	92,09
100	0,150	15,61	15,61	76,48
200	0,075	11,66	11,66	64,82
		35,18	35,18	

No. Sample : UDS1 3.00 - 3.50

HydrometerW_d = 67,65

Date	Time	Rh	T	C	Rh + C	Zr	M	D	N	N'
	0	40	26	0	40,0	5,265	0,0130	0,0000	97,25	63,04
	0,25	39,5	26	0	39,5	5,399	0,0130	0,0605	96,03	62,25
	0,5	39	26	0	39,0	5,534	0,0130	0,0433	94,82	61,46
	1	38	26	0	38,0	5,802	0,0130	0,0313	92,38	59,88
	2	36	26	0	36,0	6,339	0,0130	0,0232	87,52	56,73
	5	34	26	0	34,0	6,877	0,0130	0,0153	82,66	53,58
	10	31	26	0	31,0	7,682	0,0130	0,0114	75,37	48,85
	20	27	26	0	27,0	8,757	0,0130	0,0086	65,64	42,55
	40	22	26	0	22,0	10,100	0,0130	0,0065	53,49	34,67
	60	15	26	0	15,0	11,980	0,0130	0,0058	36,47	23,64
	180	7	26	0	7,0	14,129	0,0130	0,0036	17,02	11,03
	1140	0,5	26	0	0,5	15,875	0,0130	0,0015	1,22	0,79





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Project : Penanganan Longsor Tebing Ciliwung

Check by : Setiono

Location : Asrama Kopassus

Date : Oktober 2021

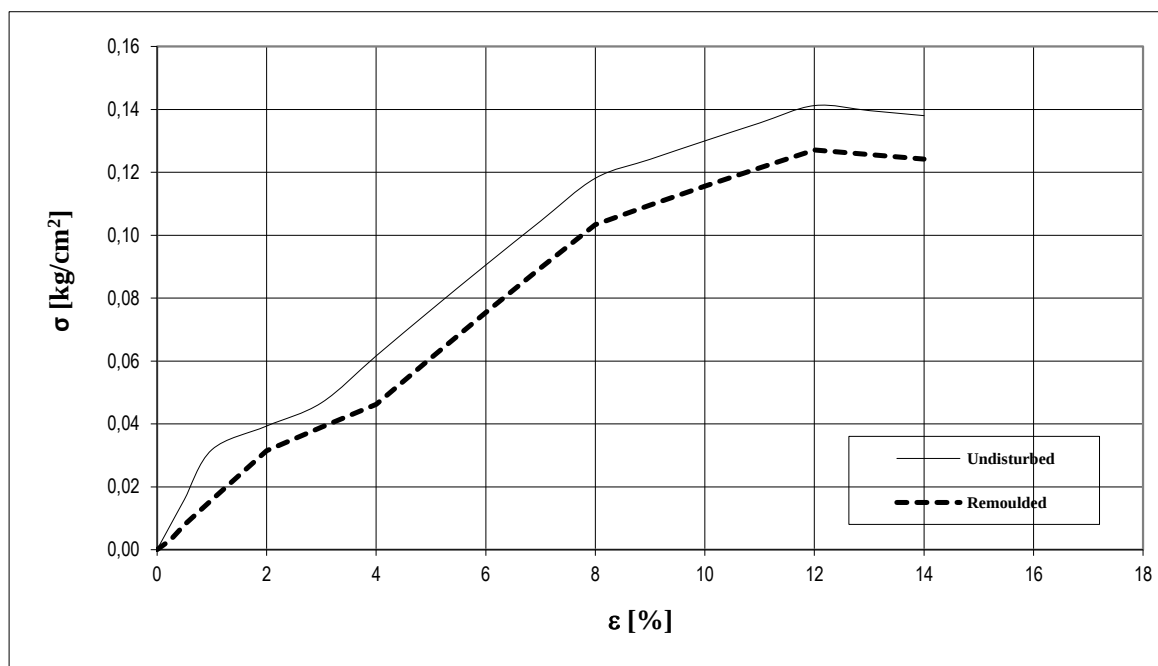
Bore location : Cijantung

No. Bore : BH 2

Unconfined Compression Test

Sample No. / Depth			UDS1 3.00 - 3.50					
Time t (mnt)	Strain ϵ (%)	Area A_1 (cm ²)	Undisturbed			Remoulded		
			Ring	P (kg)	σ (kg/cm ²)	Ring	P (kg)	σ (kg/cm ²)
0,00	0,00	11,341	0,0	0,00	0,000	0,0	0,00	0,000
0,25	0,25	11,370	0,5	0,09	0,008	0,2	0,04	0,003
0,50	0,50	11,398	1,0	0,18	0,016	0,5	0,09	0,008
1,00	1,00	11,456	2,0	0,36	0,032	1,0	0,18	0,016
2,00	2,00	11,573	2,5	0,46	0,039	2,0	0,36	0,031
3,00	3,00	11,692	3,0	0,55	0,047	2,5	0,46	0,039
4,00	4,00	11,814	4,0	0,73	0,062	3,0	0,55	0,046
5,00	5,00	11,938	5,0	0,91	0,076	4,0	0,73	0,061
6,00	6,00	12,065	6,0	1,09	0,091	5,0	0,91	0,075
7,00	7,00	12,195	7,0	1,27	0,104	6,0	1,09	0,090
8,00	8,00	12,327	8,0	1,46	0,118	7,0	1,27	0,103
9,00	9,00	12,463	8,5	1,55	0,124	7,5	1,37	0,110
10,00	10,00	12,601	9,0	1,64	0,130	8,0	1,46	0,116
11,00	11,00	12,743	9,5	1,73	0,136	8,5	1,55	0,121
12,00	12,00	12,888	10,0	1,82	0,141	9,0	1,64	0,127
13,00	13,00	13,036	10,0	1,82	0,140	9,0	1,64	0,126
14,00	14,00	13,187	10,0	1,82	0,138	9,0	1,64	0,124
15,00	15,00	13,343						
16,00	16,00	13,501						
17,00	17,00	13,664						
			$\sigma_{mak} = 0,141 \text{ kg/cm}^2$			$\sigma'_{mak} = 0,127 \text{ kg/cm}^2$		

Stress (σ) - Strain (ϵ) Curve



$c_u = 0,071 \text{ kg/cm}^2$

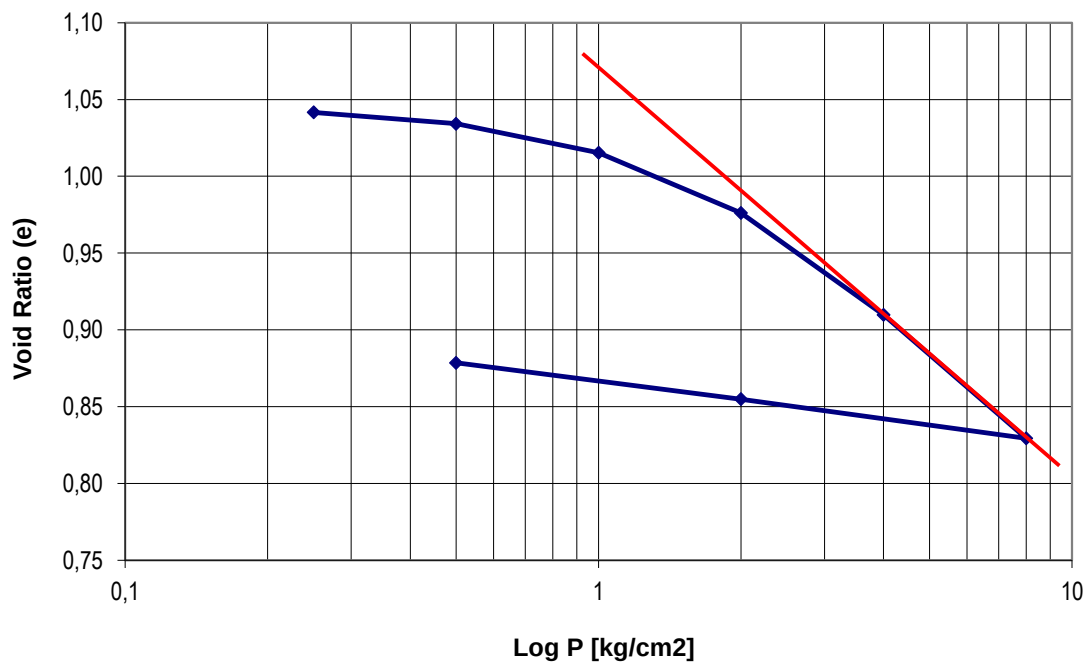
$S = \sigma/\sigma' = 1,111$



Consolidation Test

Project : **Penanganan Longsor Terbitik** Initial Ht (H_0) : 2,50 cm Initial Water content (ω_n) : 38,21
 Location : **Asrama Kopassus** Diameter : 6,25 cm Water content (ω_a) : 31,15
 Bor location : **Cijantung** Area (A) : 30,63 cm² Dry weight (W_s) = $W / (1 + \omega_a)$: 95,42
 No. Sample : **UDS1** Weight (W) : 125,80 gr Ht of solids (H_s) = $W_s / (A * G_s * \gamma_w)$: 1,221
 Depth : **3.00 - 3.50** G_s : 2,55 Initial void ratio (e_0) = $(H_0 - H_s) / H_s$: 1,047

Loads (σ) kg/cm ²	dial read at end cm	Change in samp (ΔH) cm	ΔH total cm	ave H cm	Δe	e	t_{90} second	Cv cm ² /second	Note
0	0,000		0,000	2,500		1,047			
0,25	0,007	0,007	0,007	2,493	0,0057	1,042	1069	0,0012	
0,5	0,016	0,009	0,016	2,484	0,0131	1,034	975	0,0013	
1	0,039	0,023	0,039	2,461	0,0319	1,015	1047	0,0012	
2	0,087	0,048	0,087	2,413	0,0712	0,976	1438	0,0009	
4	0,168	0,081	0,168	2,332	0,1376	0,910	1357	0,0008	
8	0,266	0,098	0,266	2,234	0,2178	0,830	3697	0,0003	
2	0,235	-0,031	0,235	2,265	0,1925	0,855			
0,5	0,206	-0,029	0,206	2,294	0,1687	0,879			
								9,658E-04	



$$C_c = (e_1 - e_2) / (\log p_2 - \log p_1) = 0,2435$$



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Project : Penanganan Longsor Tebing Ciliwung
Location : Asrama Kopassus
Bor location : Cijantung

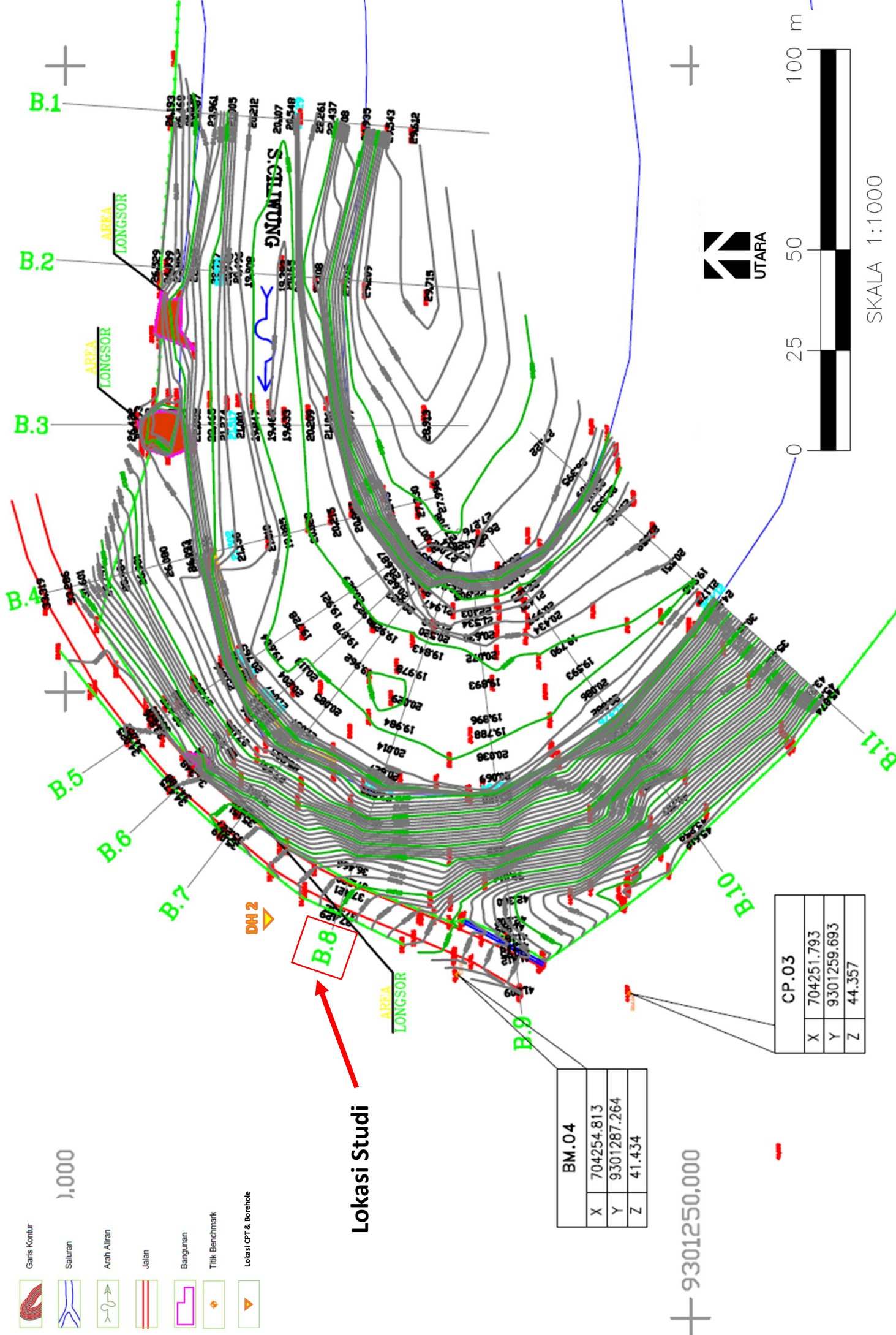
Check by : Setiono
Date : Oktober 2021
No. Bor : BH 2

Laboratory Test Resume

No. Sample				UDS1				
Depth				3.00 - 3.50				
Index Properties		symbol	unit					
1.	Density	γ	t/m ³	1,696				
2.	Water content	ω	%	38,21				
3.	Specific of gravity	Gs	-	2,55				
	Void ratio	e	-	1,08				
	Porosity	n	-	0,52				
	Degree of saturation	Sr	%	90,33				
4.	Plastic limit	PL	%	36,23				
	Liquid limit	LL	%	43,22				
	Plasticity index	PI	%	6,98				
5.	Grain size Gravel	G	%	0,00				
	Sand	S	%	35,18				
	Silt	M	%	61,77				
	Clay	C	%	3,05				
6	Soil Classification USCS			ML				
Engineering properties								
6,	Unconfined	q_u	kg/cm ²	0,141				
	Compression Test	q_u'	kg/cm ²	0,127				
		S_t	-	1,111				
		c_u	kg/cm ²	0,071				
7,	Triaxial - UU Test	ϕ	°					
		c	kg/cm ²					
8,	Triaxial - CU Test	ϕ	°					
		c	kg/cm ²					
9,	Direct Shear Test	ϕ	°					
		c	kg/cm ²					
10,	Consolidation Test	Cc	-	0,243				
		C_v	cm ² /sec	9,658E-04				
11,	Permeability	k	cm/sec					

LAMPIRAN 3

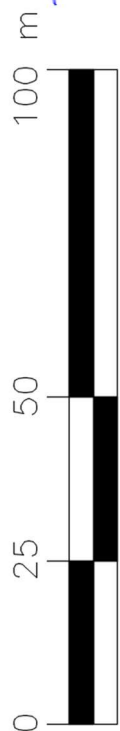
GAMBAR GEOMETRIK LERENG



+ 9301250.000

BM.04			
X	704254.813		
Y	9301287.264		
Z	41.434		

CP.03			
X	704251.793		
Y	9301259.693		
Z	44.357		

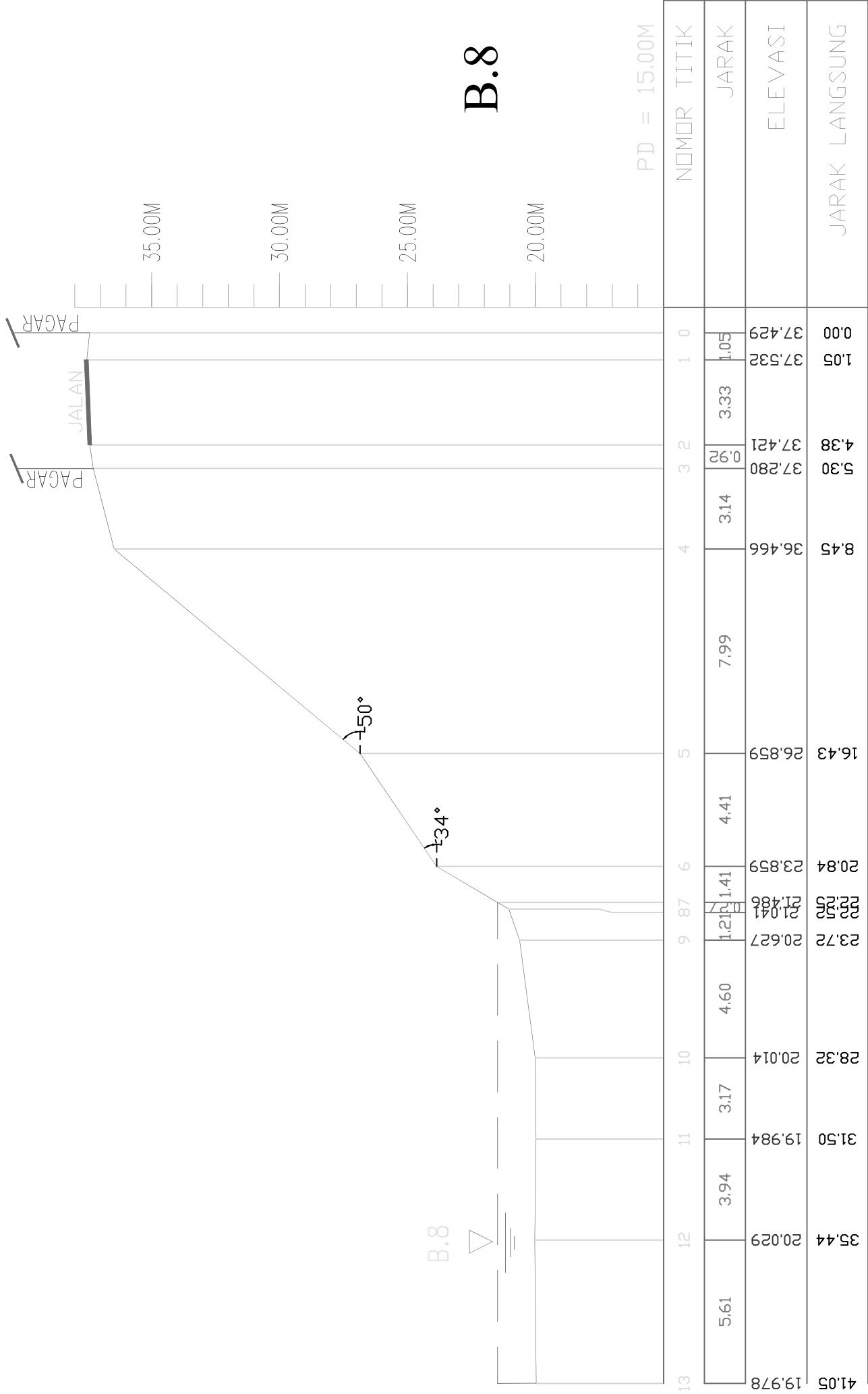


SKALA 1:1000

- Garis Kontur
- Saluran
- Arah Aliran
- Jalan
- Bangunan
- Titik Benchmark
- Lokasi CPT & Borehole

1.000

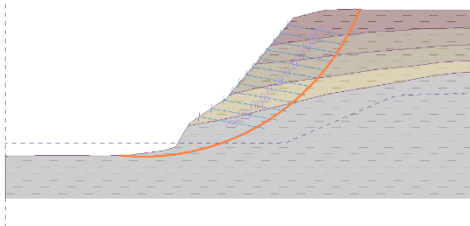
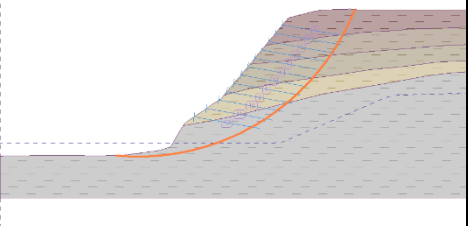
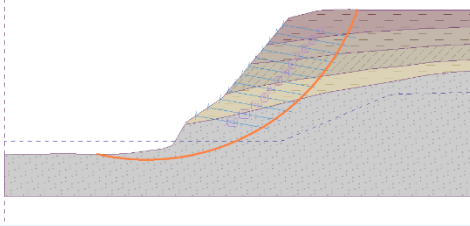
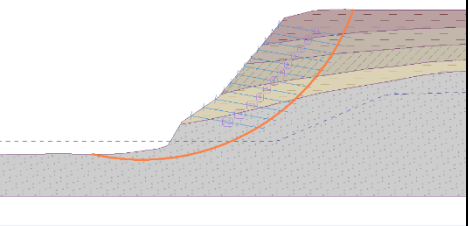
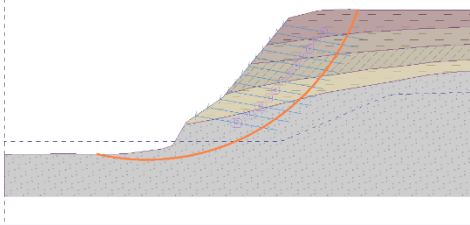
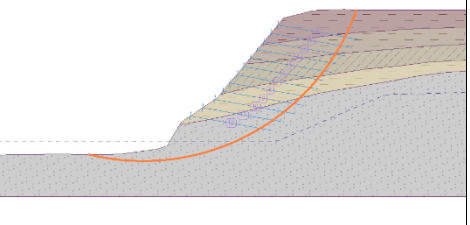
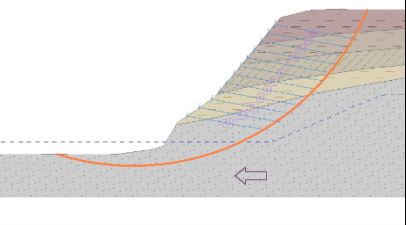
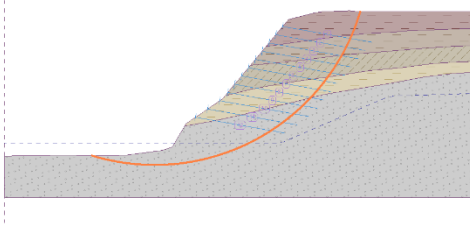
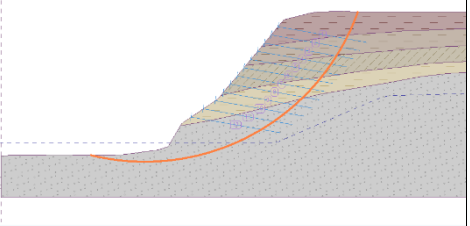
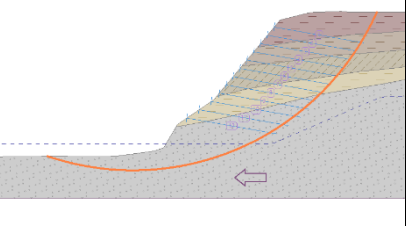
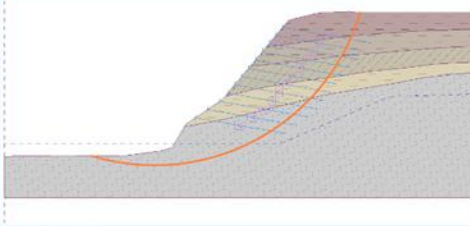
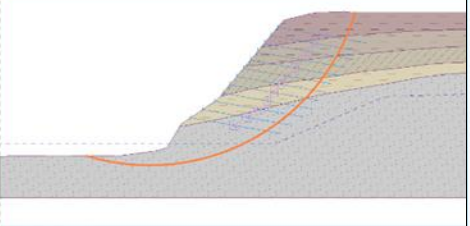
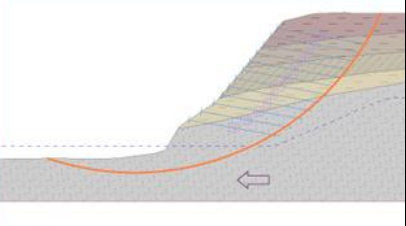
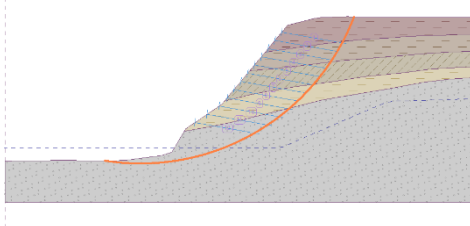
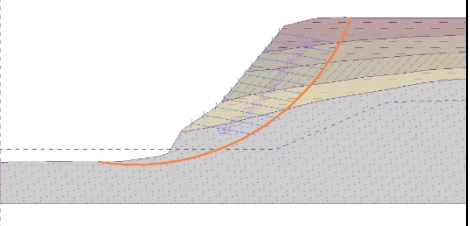
Lokasi Studi

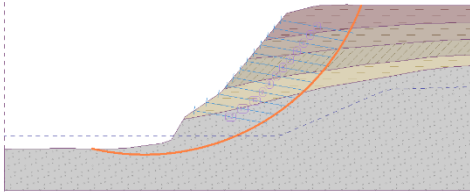
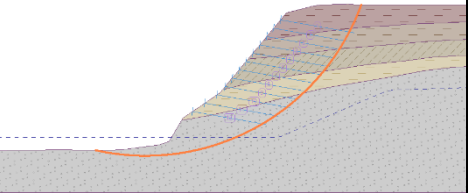
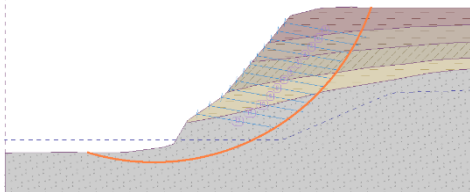
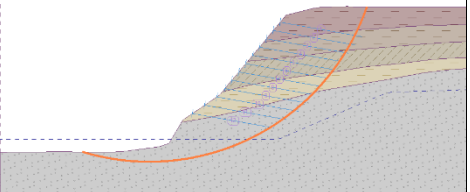
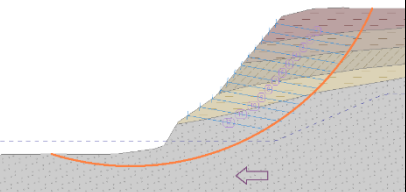
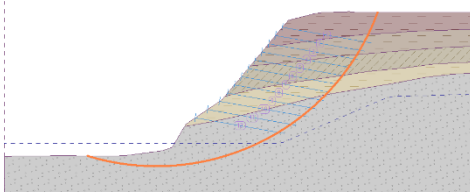
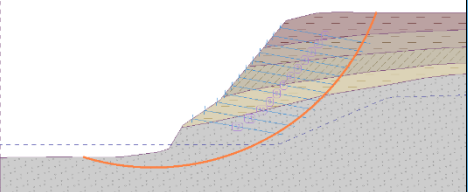
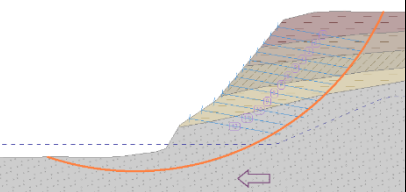
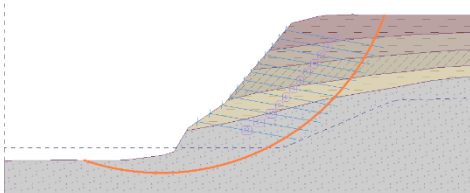
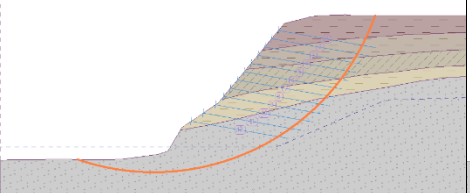
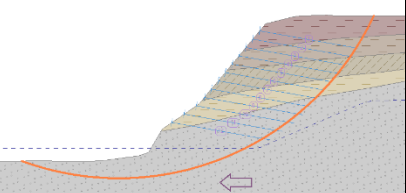
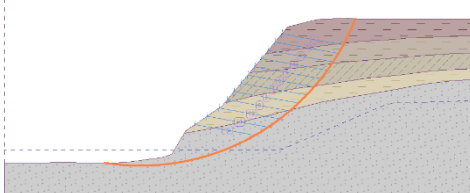
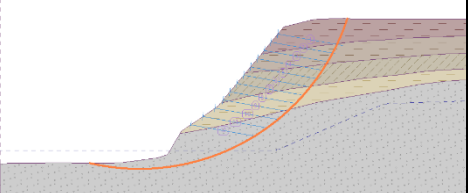
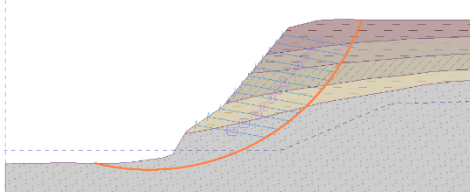
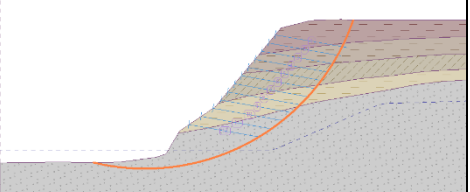


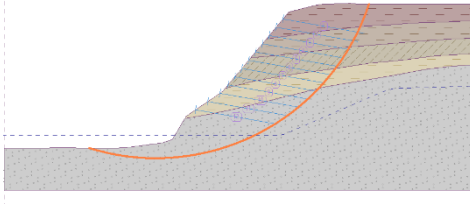
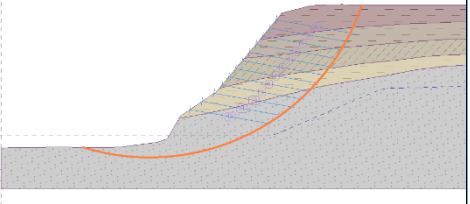
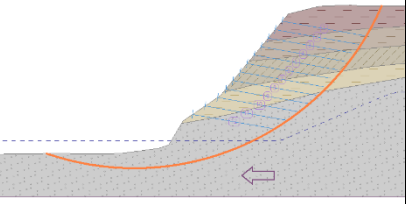
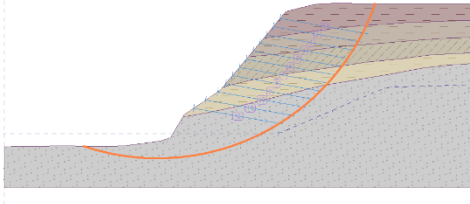
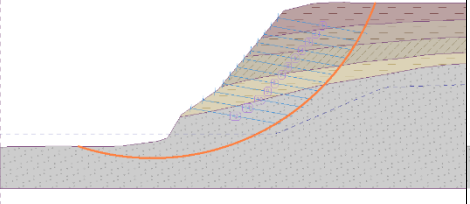
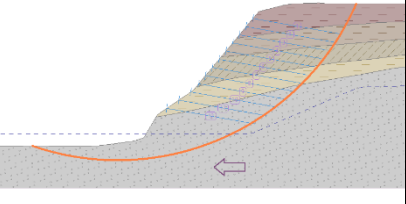
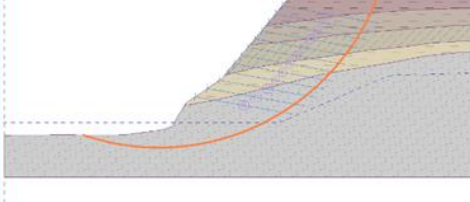
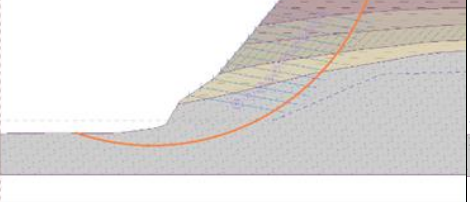
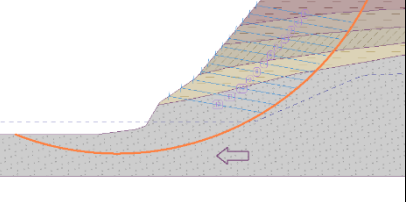
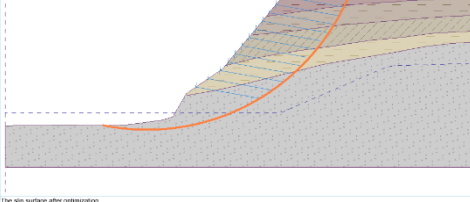
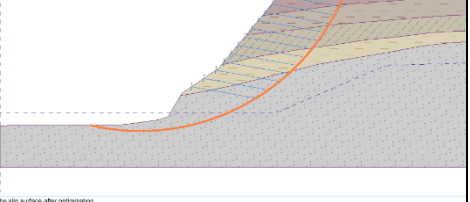
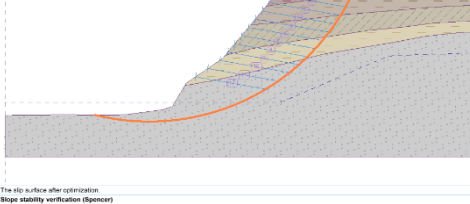
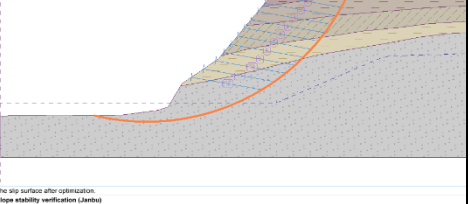
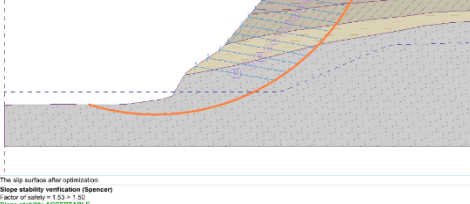
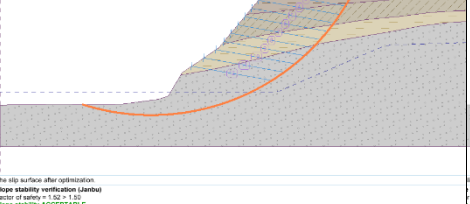
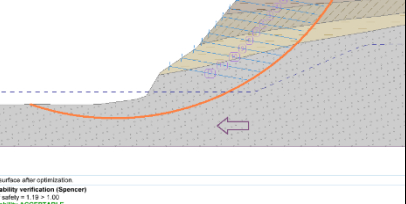
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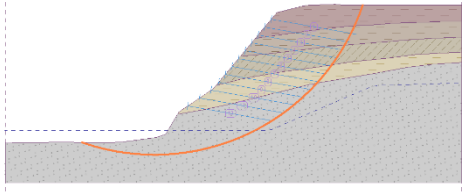
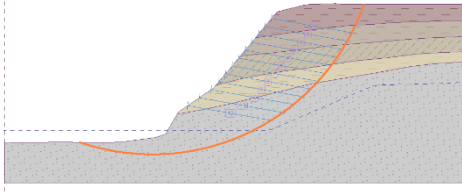
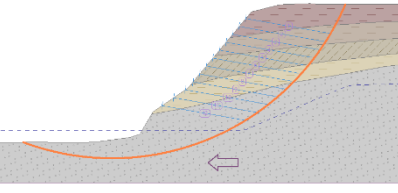
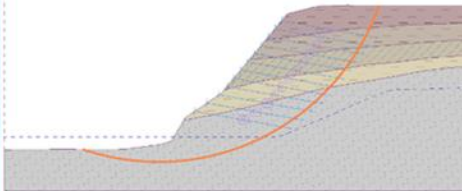
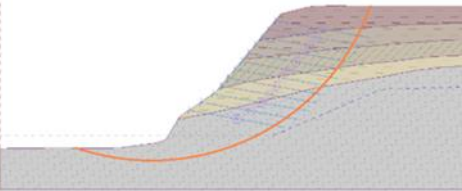
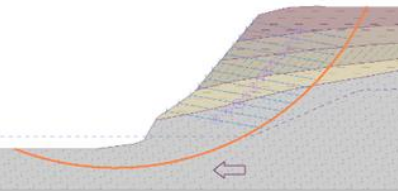
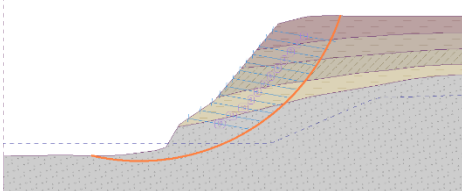
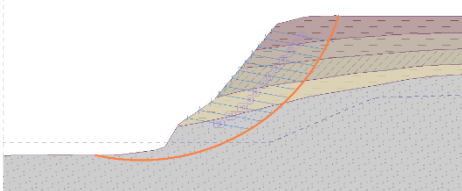
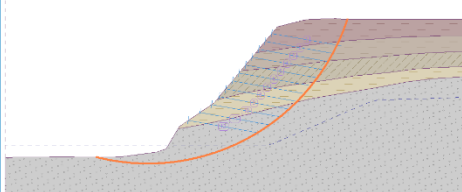
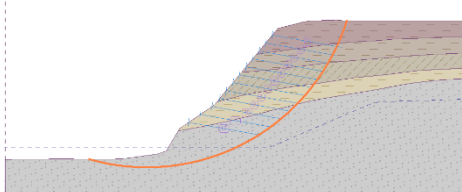
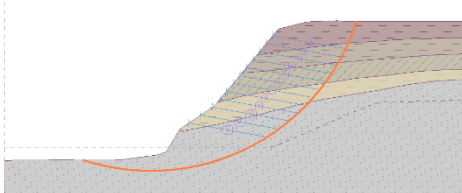
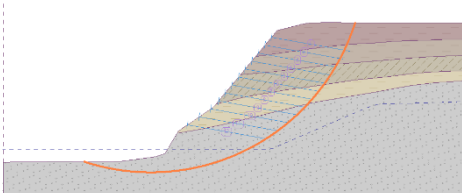
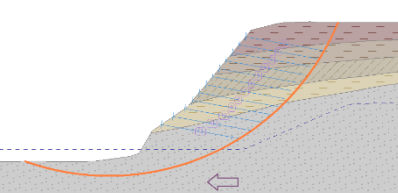
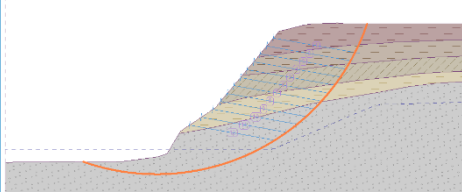
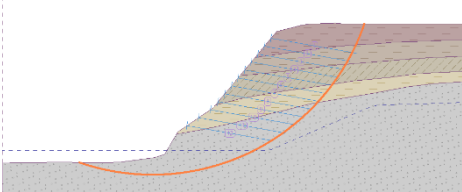
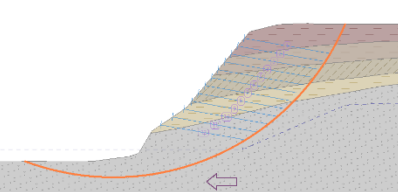
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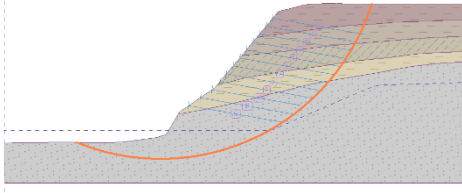
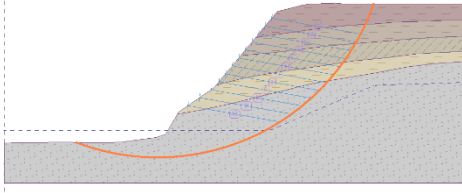
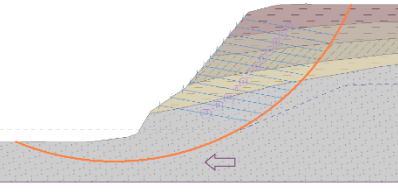
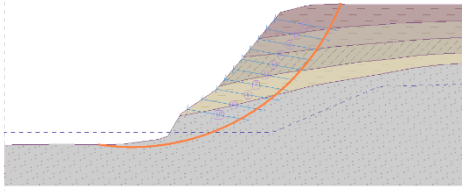
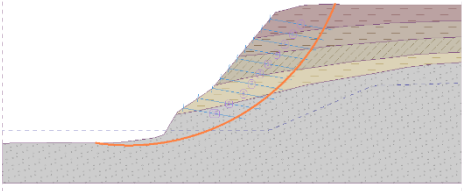
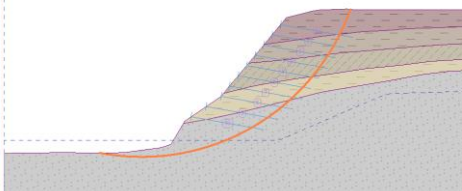
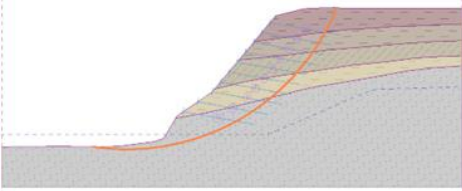
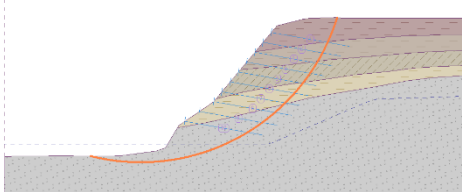
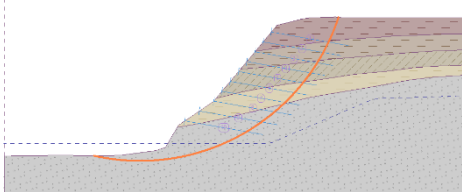
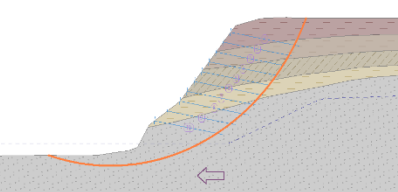
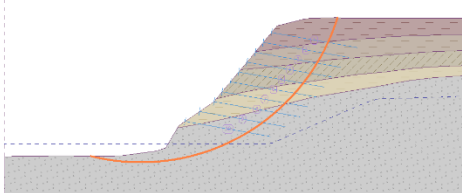
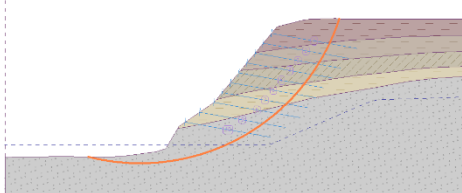
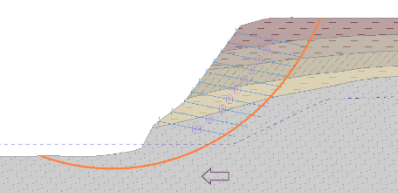
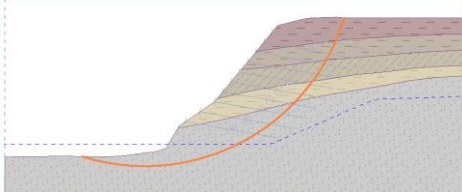
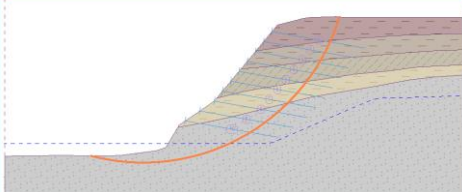
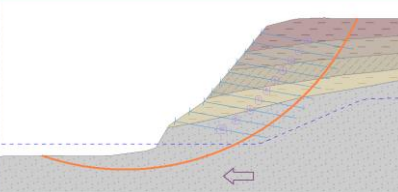
HASIL ANALISIS PERKUATAN LERENG

Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1, PJ 8, HD 100	 Specified slip surface. Slope stability verification (Spencer) Analysis has not been performed.	 Specified slip surface. Slope stability verification (Spencer) Analysis has not been performed.	-
SP 1, PJ 9, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.45 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.45 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1, PJ 10, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.51 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.17 > 1.50 Slope stability ACCEPTABLE
SP 1, PJ 11, HD 100	 The slip surface after optimization. Slope stability verification (Morgenstern-Price) Factor of safety = 1.57 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.57 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.22 > 1.50 Slope stability ACCEPTABLE
SP 1, PJ 12, HD 100	 The slip surface after optimization. Slope stability verification (Morgenstern-Price) Factor of safety = 1.51 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Morgenstern-Price) Factor of safety = 1.57 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.22 > 1.50 Slope stability ACCEPTABLE
SP 1, PJ 8, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.38 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.38 < 1.50 Slope stability NOT ACCEPTABLE	-

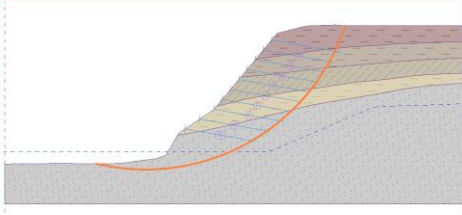
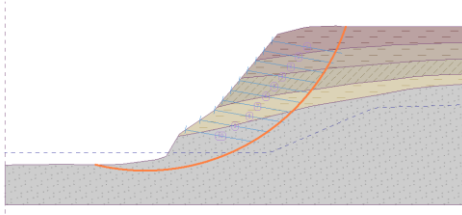
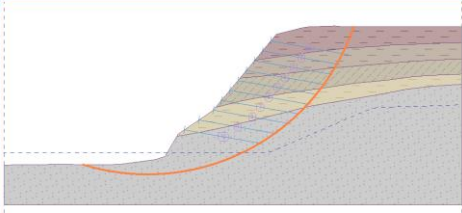
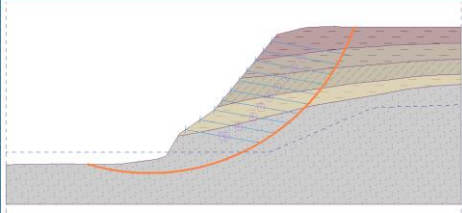
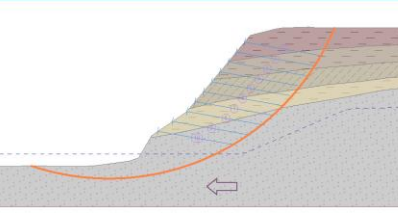
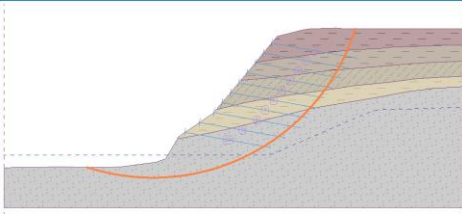
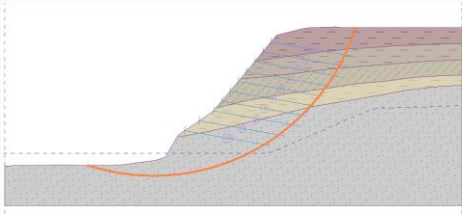
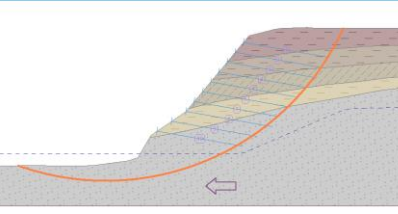
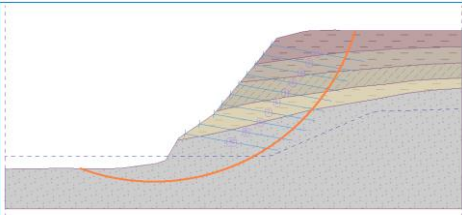
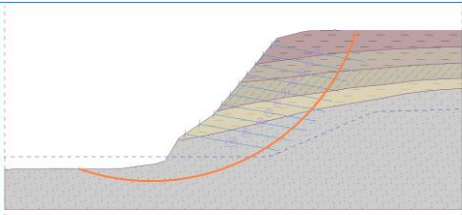
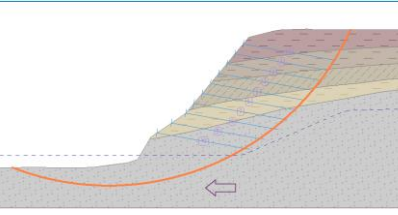
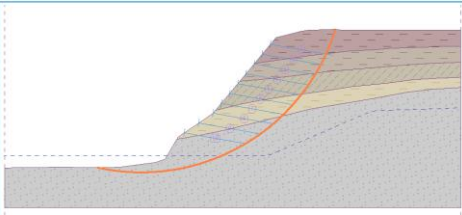
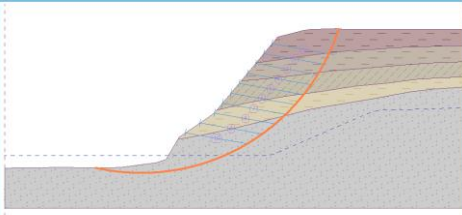
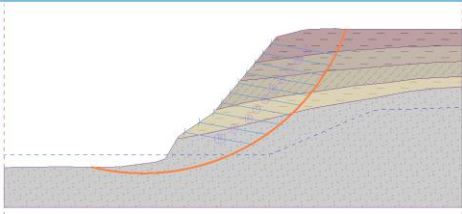
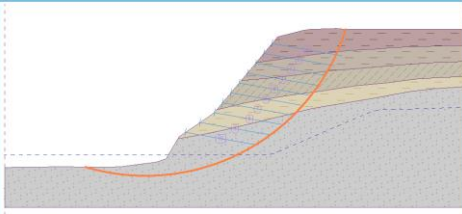
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1, PJ 9, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.46 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.45 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1, PJ 10, HD 125	 Analysis of the slip surface without optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.00 Slope stability ACCEPTABLE	 Analysis of the slip surface without optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.00 Slope stability ACCEPTABLE	 Analysis of the slip surface without optimization. Slope stability verification (Spencer) Factor of safety = 1.19 > 1.00 Slope stability ACCEPTABLE
SP 1, PJ 11, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.59 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.58 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.22 > 1.00 Slope stability ACCEPTABLE
SP 1, PJ 12, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.66 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.65 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.20 > 1.00 Slope stability ACCEPTABLE
SP 1, PJ 8, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.58 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.55 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1, PJ 9, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.48 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.45 > 1.00 Slope stability NOT ACCEPTABLE	-

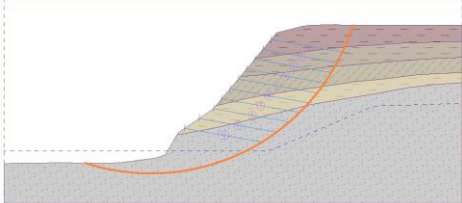
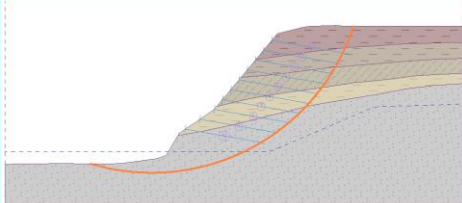
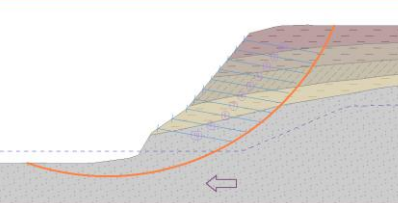
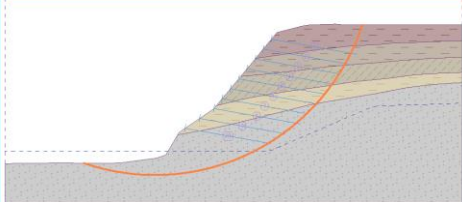
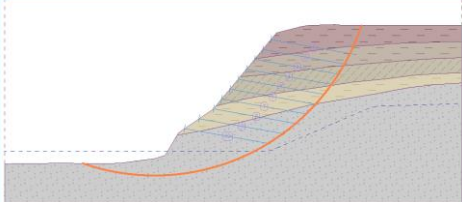
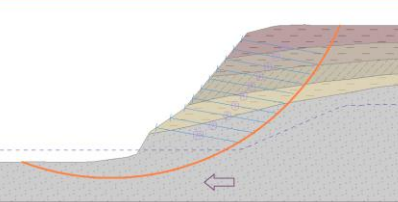
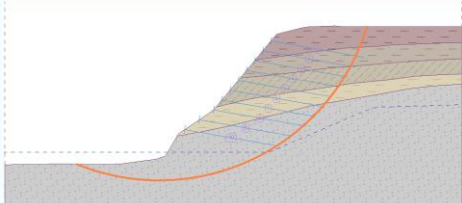
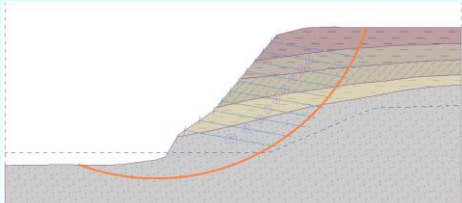
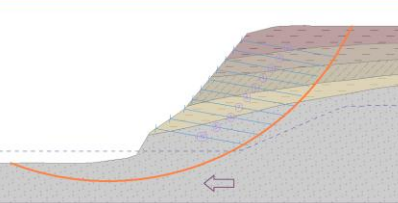
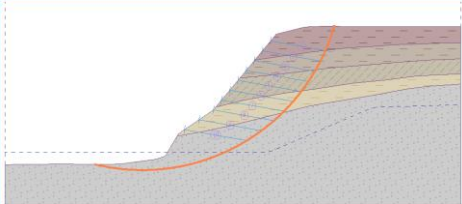
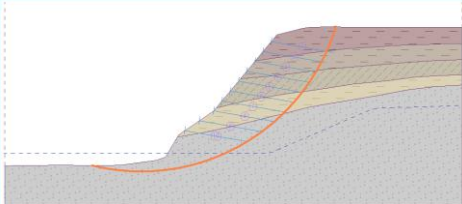
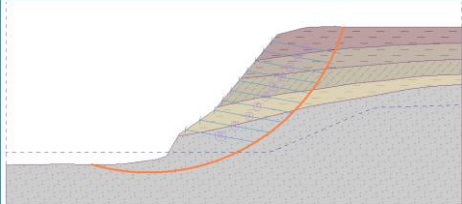
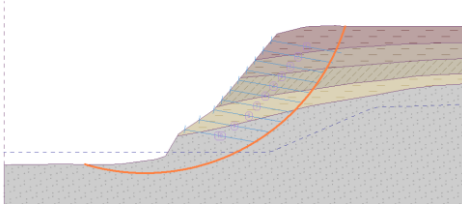
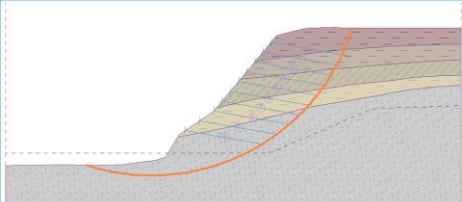
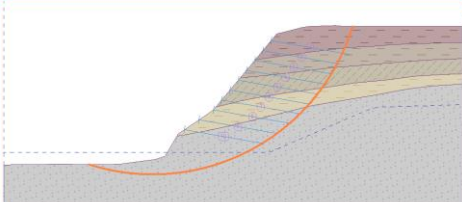
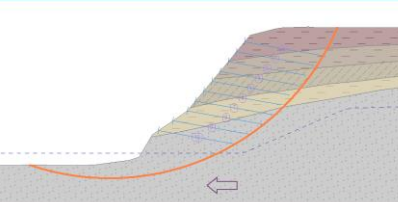
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1, PJ 10, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.19 > 1.00 Slope stability ACCEPTABLE
SP 1, PJ 11, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.56 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.55 > 1.50 Slope stability ACCEPTABLE	 ip surface after optimization stability verification (Spencer) of safety = 1.21 > 1.00 stability ACCEPTABLE
SP 1, PJ 12, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.56 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.55 > 1.50 Slope stability ACCEPTABLE	 ip surface after optimization stability verification (Spencer) of safety = 1.21 > 1.00 stability ACCEPTABLE
SP 1, PJ 8, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.43 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.39 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1, PJ 9, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.41 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.45 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1, PJ 10, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 ip surface after optimization stability verification (Spencer) of safety = 1.19 > 1.00 stability ACCEPTABLE

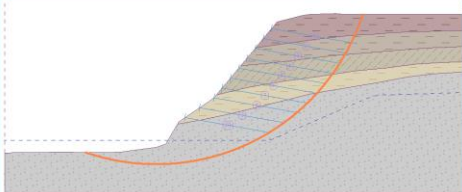
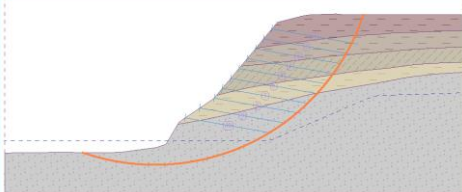
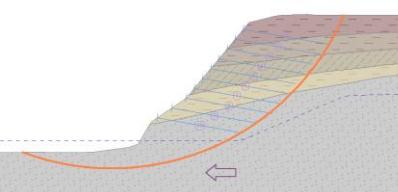
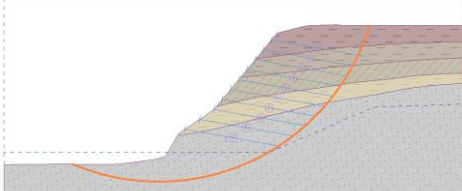
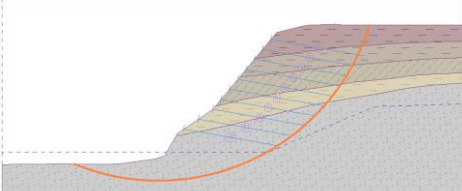
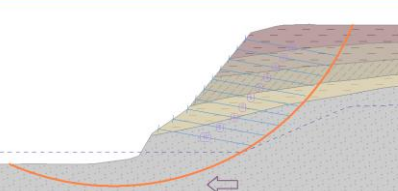
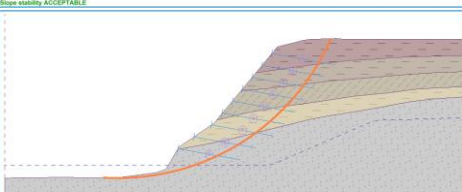
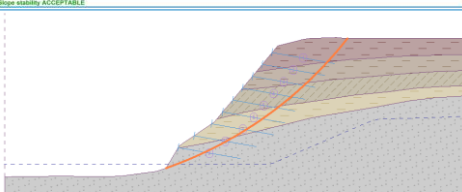
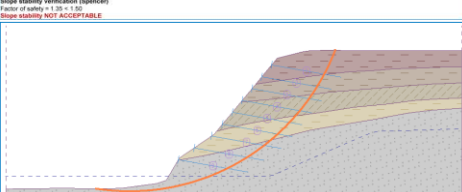
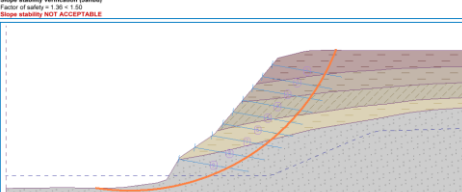
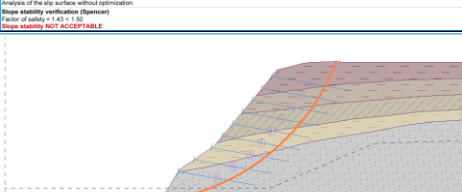
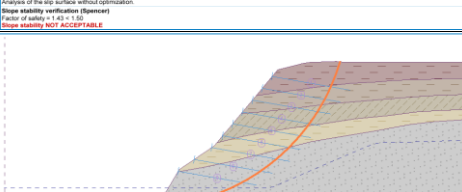
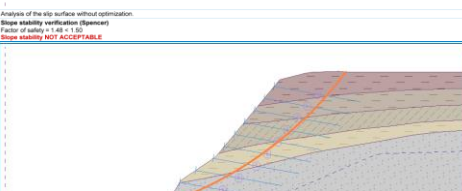
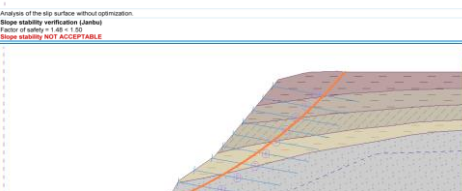
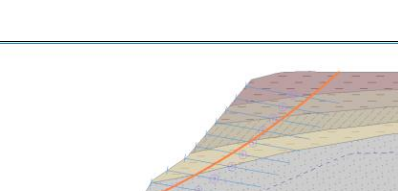
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1, PJ 11, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.50 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.25 > 1.00 Slope stability ACCEPTABLE
SP 1, PJ 12, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.50 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.27 > 1.00 Slope stability ACCEPTABLE
SP 1, PJ 8, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.39 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.40 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1, PJ 9, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.47 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.48 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1, PJ 10, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.55 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.18 > 1.00 Slope stability ACCEPTABLE
SP 1, PJ 11, HD 200	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.50 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.22 > 1.00 Slope stability ACCEPTABLE

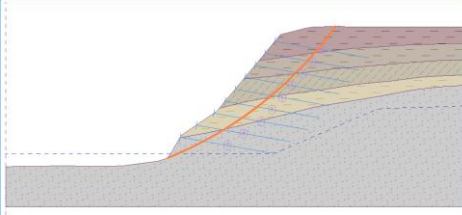
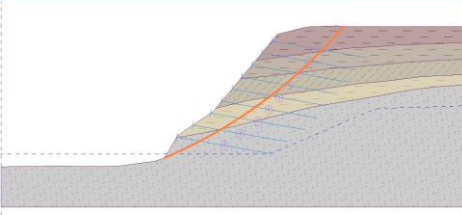
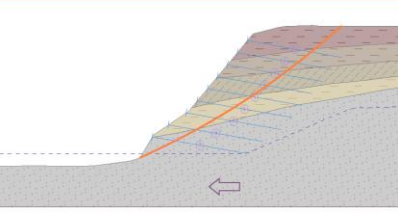
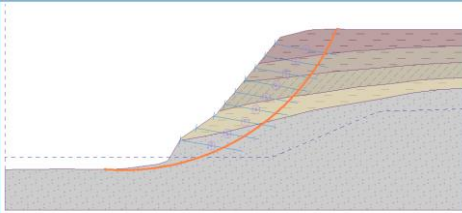
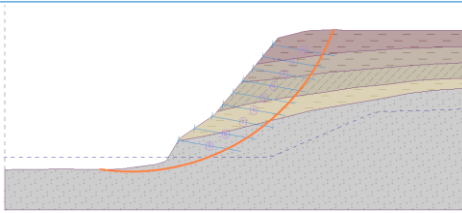
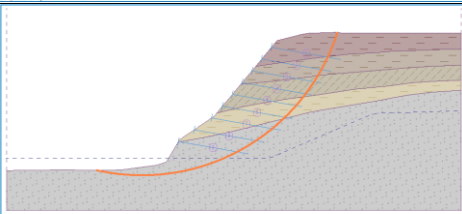
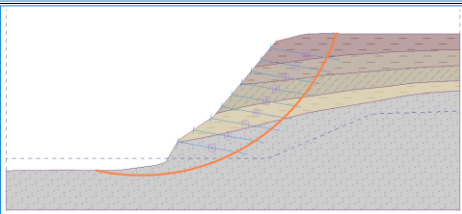
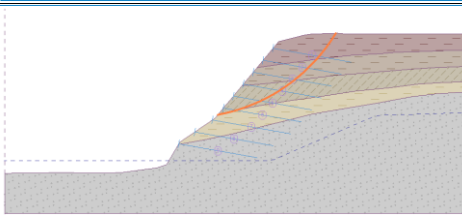
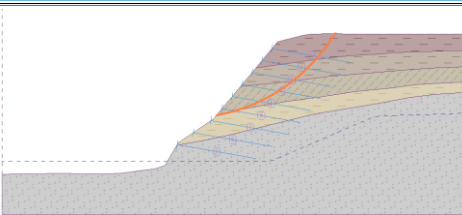
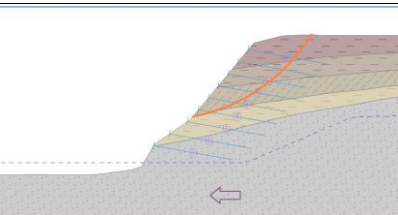
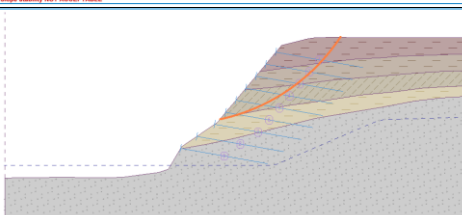
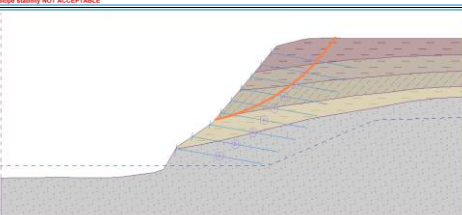
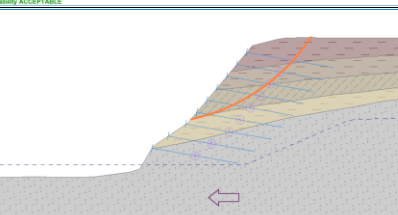
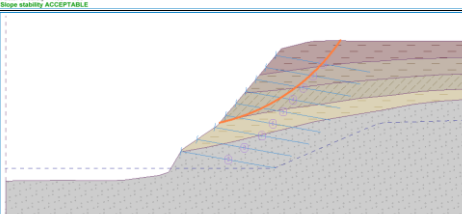
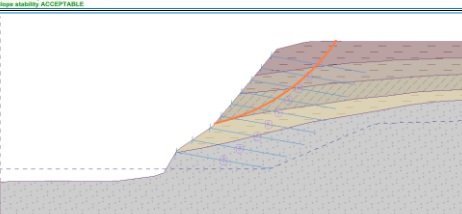
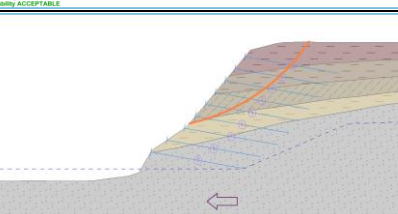
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1, PJ 12, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.07 > 1.05 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.08 > 1.05 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.26 > 1.05 Slope stability ACCEPTABLE
SP 1,25, PJ 8, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.36 > 1.05 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.37 > 1.05 Slope stability NOT ACCEPTABLE	-
SP 1,25, PJ 9, HD 100	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.43 > 1.05 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.44 > 1.05 Slope stability NOT ACCEPTABLE	-
SP 1,25, PJ 10, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.52 > 1.05 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.49 > 1.05 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.17 > 1.05 Slope stability ACCEPTABLE
SP 1,25, PJ 11, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.55 > 1.05 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.55 > 1.05 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.23 > 1.05 Slope stability ACCEPTABLE
SP 2,5, PJ 12, HD 100	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.55 > 1.05 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.55 > 1.05 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.25 > 1.05 Slope stability ACCEPTABLE

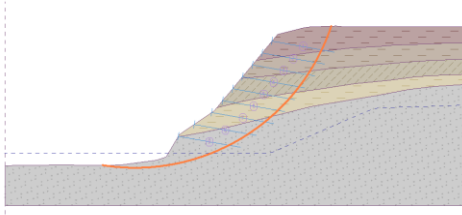
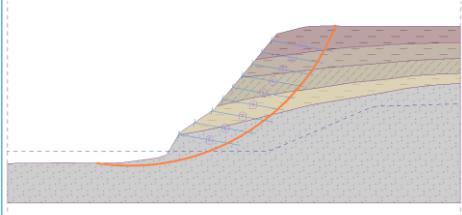
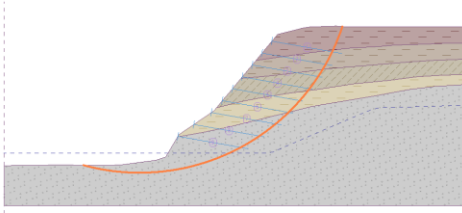
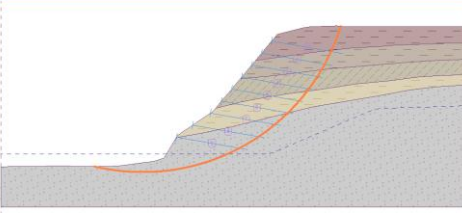
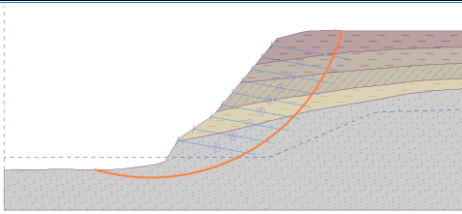
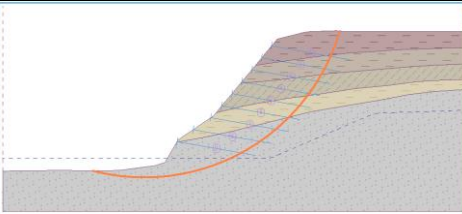
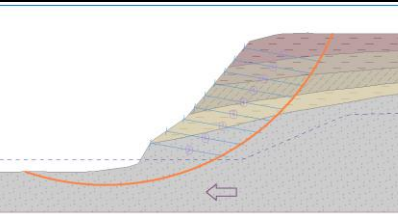
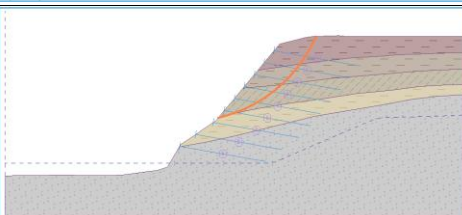
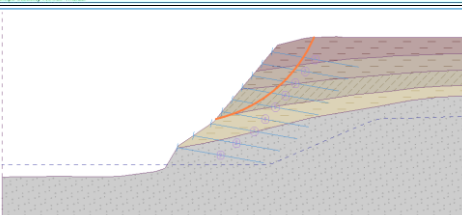
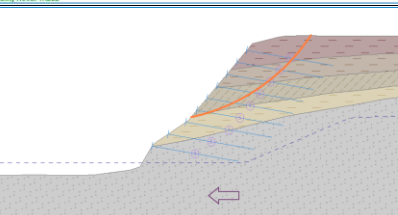
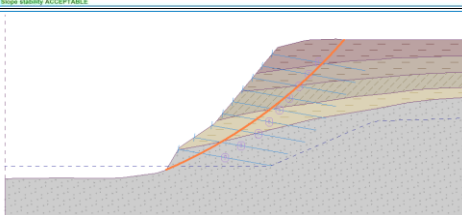
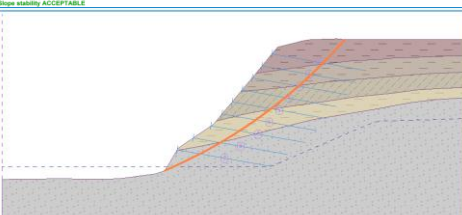
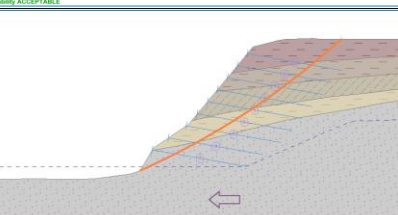
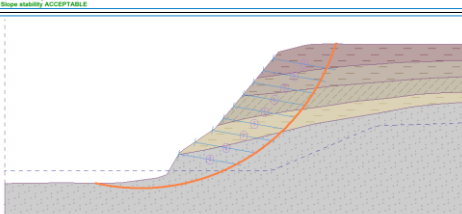
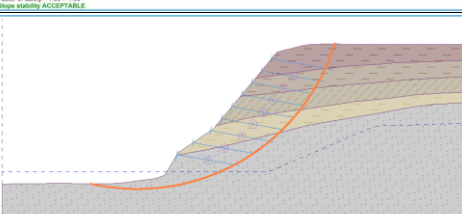
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1,25, PJ 8, HD 125	The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.28 > 1.00 Slope stability NOT ACCEPTABLE	The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.28 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1,25, PJ 9, HD 125	The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.46 > 1.00 Slope stability NOT ACCEPTABLE	The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.45 > 1.00 Slope stability NOT ACCEPTABLE	The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.14 > 1.00 Slope stability ACCEPTABLE
SP 1,25, PJ 10, HD 125	The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.52 > 1.00 Slope stability ACCEPTABLE	The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.51 > 1.00 Slope stability ACCEPTABLE	The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.19 > 1.00 Slope stability ACCEPTABLE
SP 1,25, PJ 11, HD 125	The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.52 > 1.00 Slope stability ACCEPTABLE	The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.51 > 1.00 Slope stability ACCEPTABLE	The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.22 > 1.00 Slope stability ACCEPTABLE
SP 2,5, PJ 12, HD 125	The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.52 > 1.00 Slope stability ACCEPTABLE	The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.00 Slope stability ACCEPTABLE	The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.26 > 1.00 Slope stability ACCEPTABLE
SP 1,25, PJ 8, HD 150	The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.25 > 1.00 Slope stability NOT ACCEPTABLE	The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.25 > 1.00 Slope stability NOT ACCEPTABLE	-

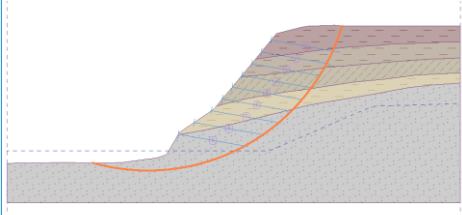
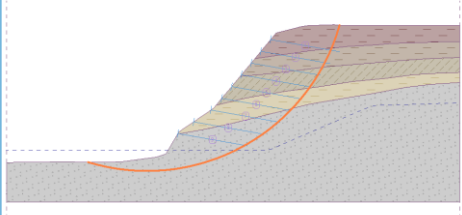
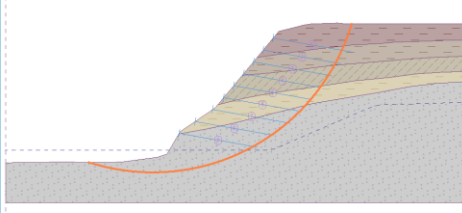
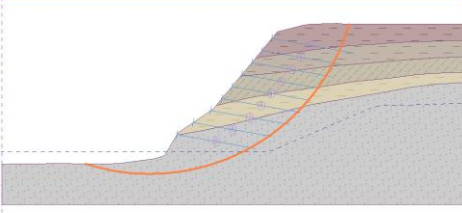
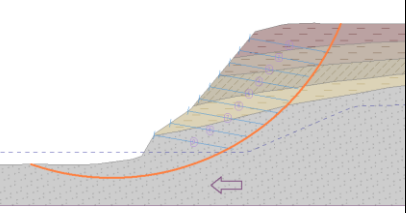
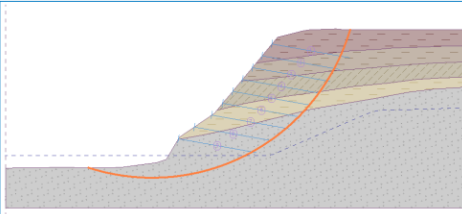
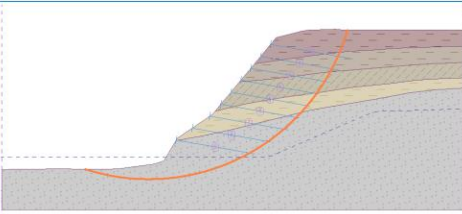
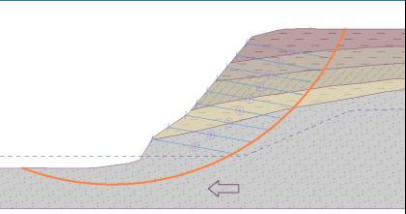
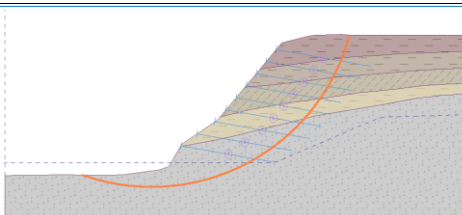
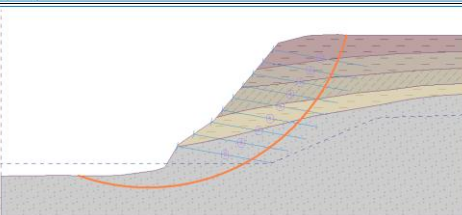
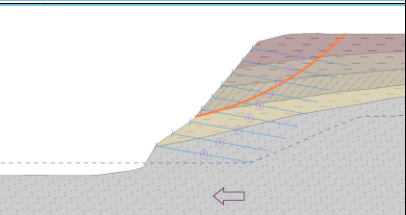
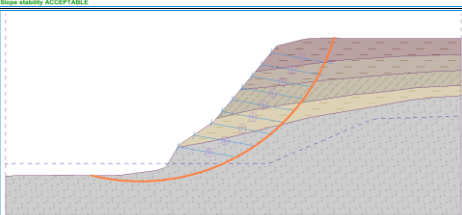
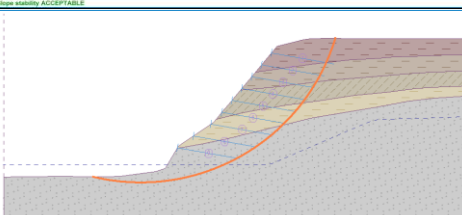
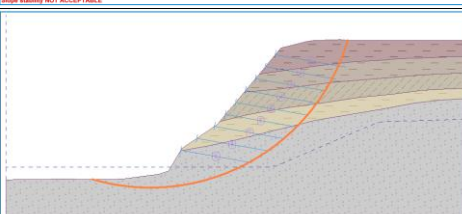
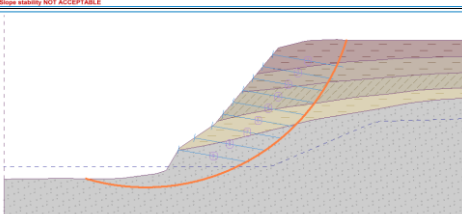
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1,25, PJ 9, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.46 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.46 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1,25, PJ 10, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.00 Slope stability ACCEPTABLE	 S surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.18 > 1.00 Slope stability ACCEPTABLE
SP 1,25, PJ 11, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.50 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.00 Slope stability ACCEPTABLE	 S surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.23 > 1.00 Slope stability ACCEPTABLE
SP 2,5, PJ 12, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.50 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.00 Slope stability ACCEPTABLE	 S surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.37 > 1.00 Slope stability ACCEPTABLE
SP 1,25, PJ 8, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.42 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.40 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1,25, PJ 9, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.37 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.40 > 1.00 Slope stability NOT ACCEPTABLE	-

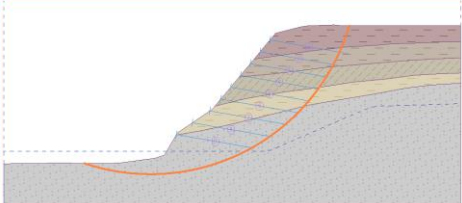
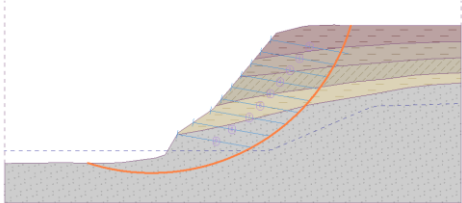
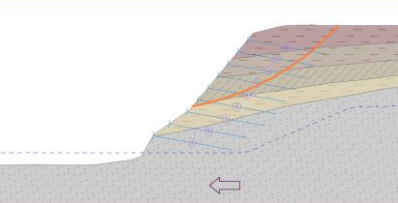
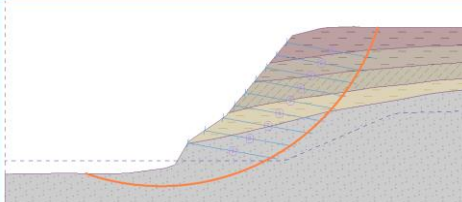
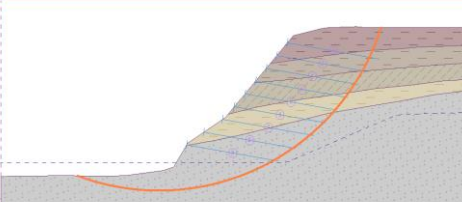
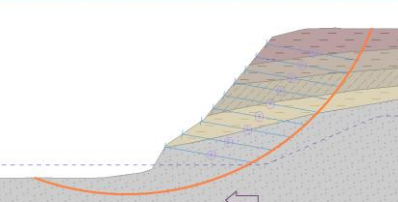
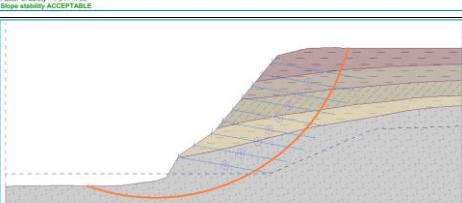
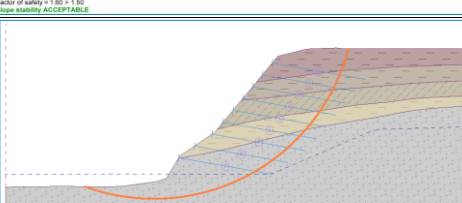
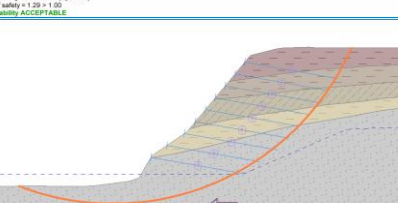
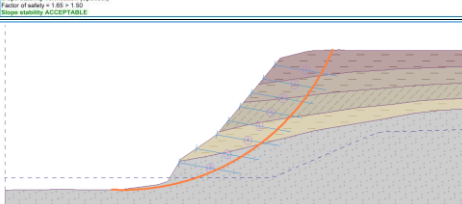
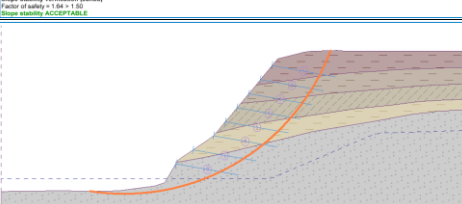
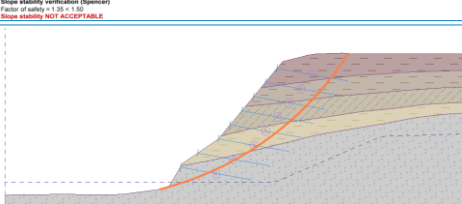
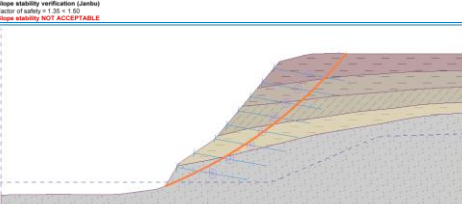
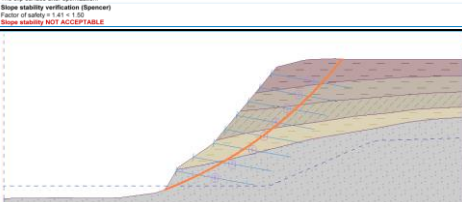
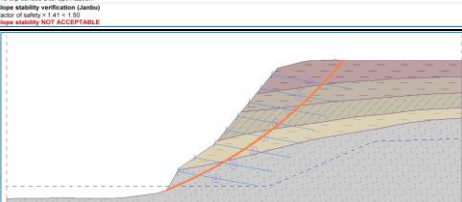
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1,25, PJ 10, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 Slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.19 > 1.00 Slope stability ACCEPTABLE
SP 1,25, PJ 11, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.57 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.56 > 1.50 Slope stability ACCEPTABLE	 Slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.23 > 1.00 Slope stability ACCEPTABLE
SP 2,5, PJ 12, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.50 Slope stability ACCEPTABLE	 Slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.27 > 1.00 Slope stability ACCEPTABLE
SP 1,25, PJ 8, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.40 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.39 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,25, PJ 9, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.41 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.44 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,25, PJ 10, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 Slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.18 > 1.00 Slope stability ACCEPTABLE

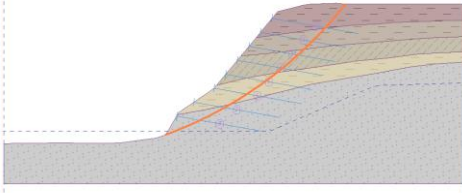
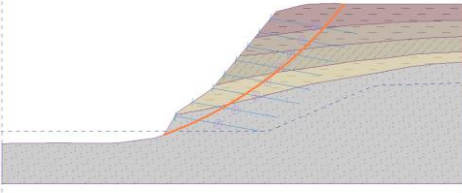
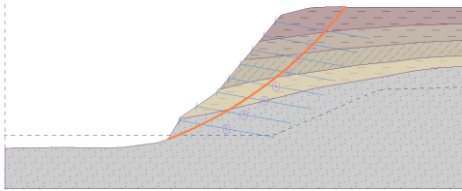
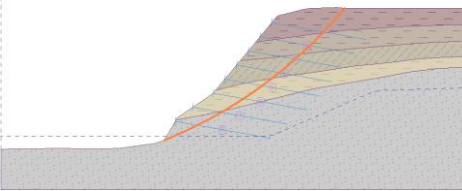
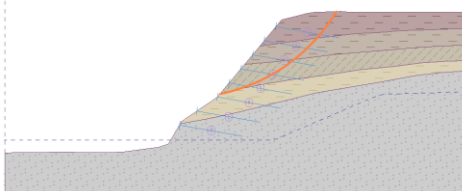
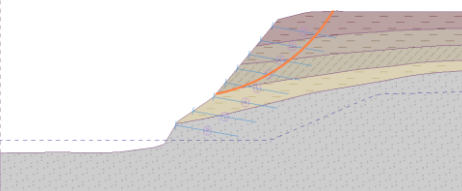
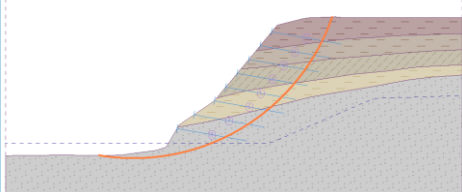
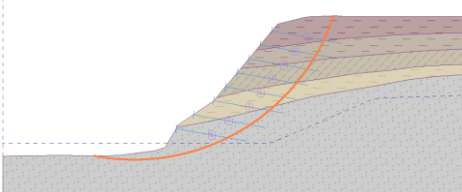
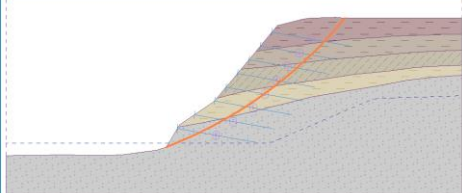
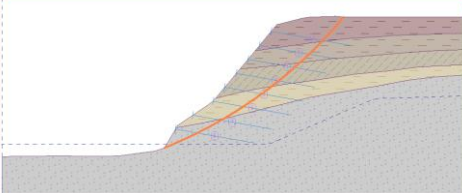
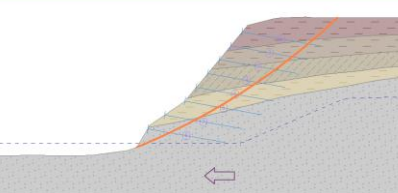
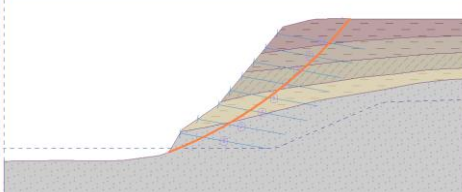
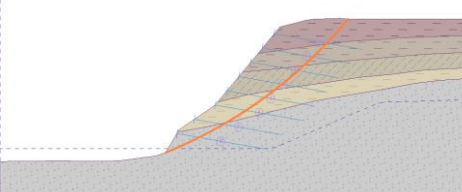
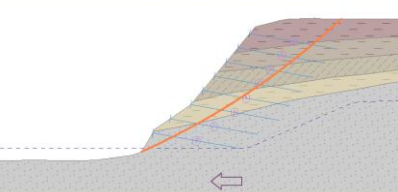
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1,25, PJ 11, HD 200	 The slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.55 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization Slope stability verification (Janbu) Factor of safety = 1.55 > 1.00 Slope stability ACCEPTABLE	 Slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.23 > 1.00 Slope stability ACCEPTABLE
SP 2,5, PJ 12, HD 200	 The slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.57 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization Slope stability verification (Janbu) Factor of safety = 1.56 > 1.00 Slope stability ACCEPTABLE	 Slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.27 > 1.00 Slope stability ACCEPTABLE
SP 1,5, PJ 8, HD 100	 The slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.57 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization Slope stability verification (Janbu) Factor of safety = 1.45 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1,5, PJ 9, HD 100	 Analysis of the slip surface without optimization Slope stability verification (Spencer) Factor of safety = 1.33 > 1.00 Slope stability NOT ACCEPTABLE	 Analysis of the slip surface without optimization Slope stability verification (Janbu) Factor of safety = 1.45 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1,5, PJ 10, HD 100	 Analysis of the slip surface without optimization Slope stability verification (Spencer) Factor of safety = 1.44 > 1.00 Slope stability NOT ACCEPTABLE	 Analysis of the slip surface without optimization Slope stability verification (Janbu) Factor of safety = 1.44 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1,5, PJ 11, HD 100	 The slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.52 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization Slope stability verification (Janbu) Factor of safety = 1.52 > 1.00 Slope stability ACCEPTABLE	 Slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.23 > 1.00 Slope stability ACCEPTABLE

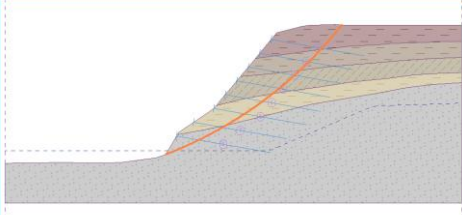
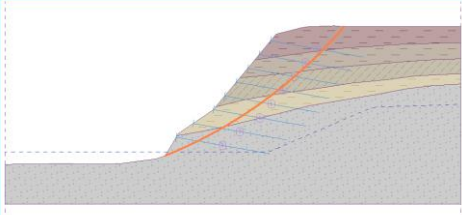
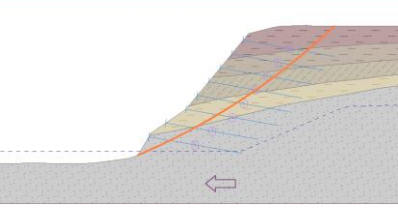
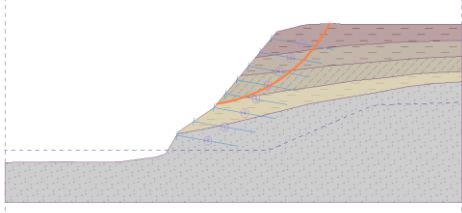
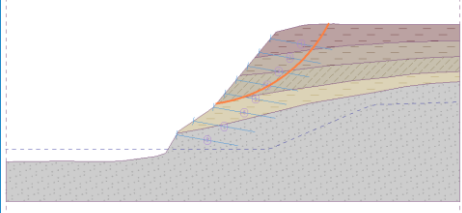
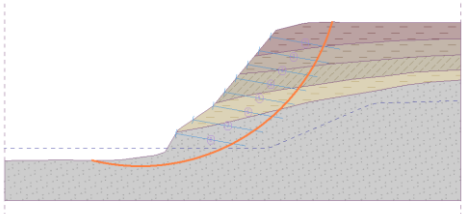
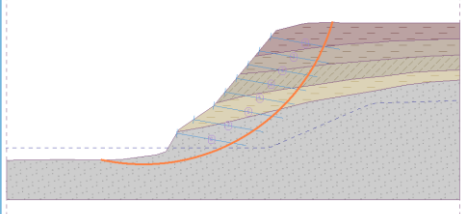
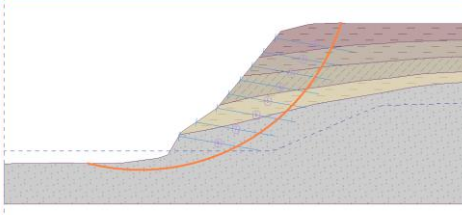
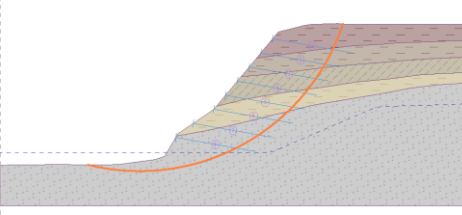
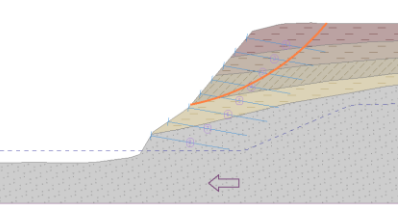
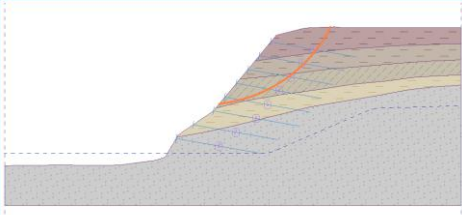
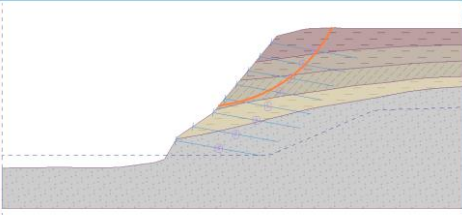
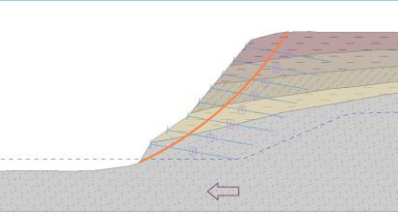
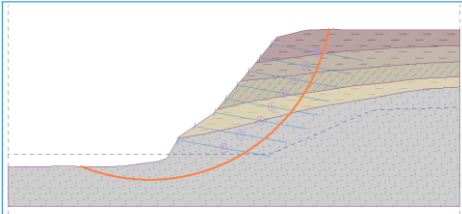
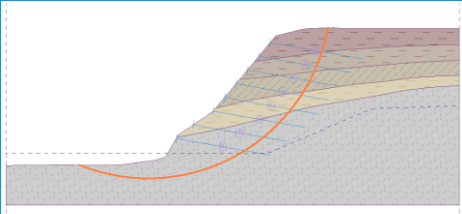
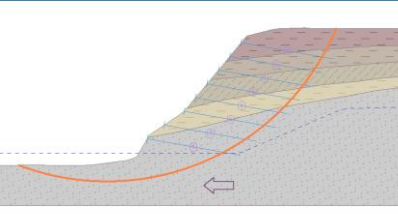
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1,5, PJ 12, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.54 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.54 > 1.00 Slope stability ACCEPTABLE	 to surface after optimization. Stability verification (Spencer) Factor of safety = 1.23 > 1.00 Stability ACCEPTABLE
SP 1,5, PJ 8, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.27 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.21 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1,5, PJ 9, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.45 > 1.00 Slope stability NOT ACCEPTABLE	 Analysis of the slip surface without optimization. Slope stability verification (Janbu) Factor of safety = 1.44 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1,5, PJ 10, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.45 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.44 > 1.00 Slope stability NOT ACCEPTABLE	 to surface after optimization. Stability verification (Spencer) Factor of safety = 1.21 > 1.00 Stability ACCEPTABLE
SP 1,5, PJ 11, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.53 > 1.00 Slope stability ACCEPTABLE	 to surface after optimization. Stability verification (Spencer) Factor of safety = 1.23 > 1.00 Stability ACCEPTABLE
SP 1,5, PJ 12, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.54 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.54 > 1.00 Slope stability ACCEPTABLE	 to surface after optimization. Stability verification (Spencer) Factor of safety = 1.24 > 1.00 Stability ACCEPTABLE

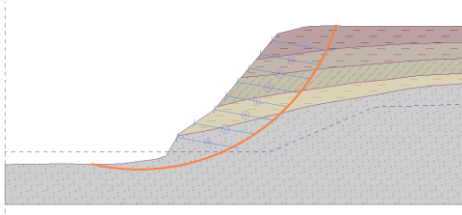
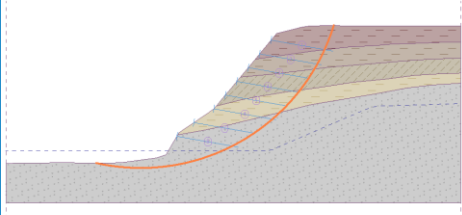
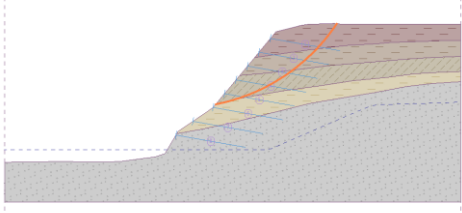
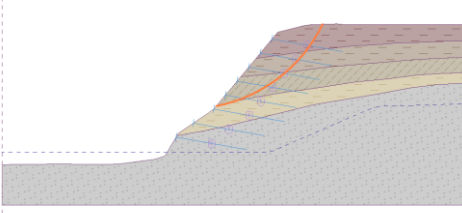
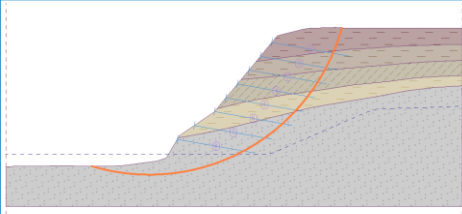
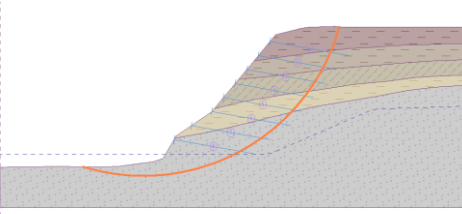
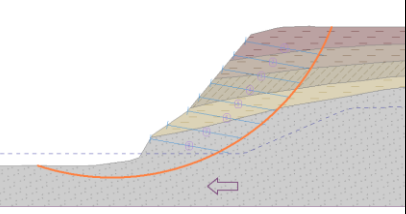
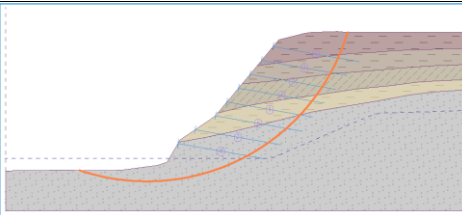
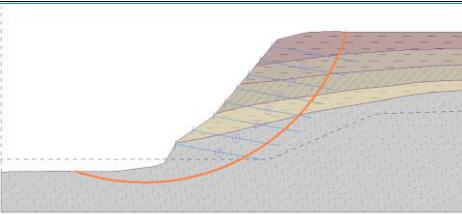
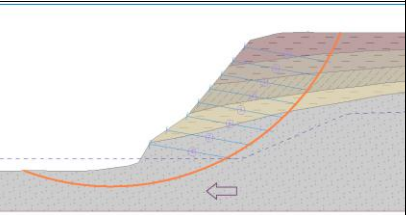
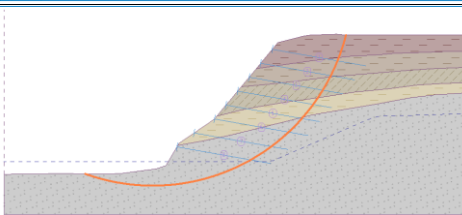
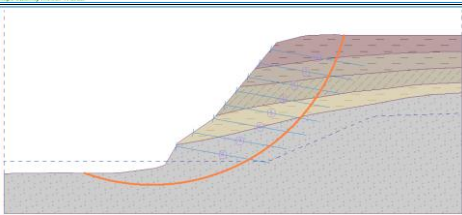
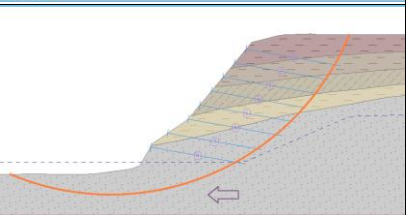
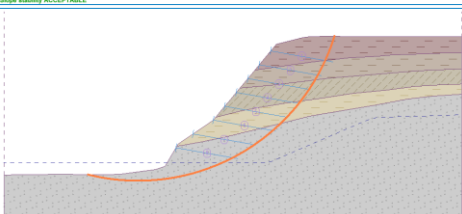
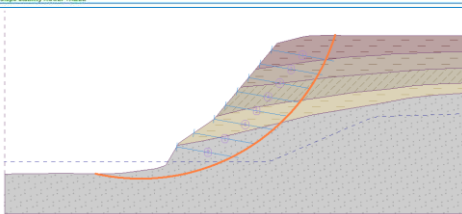
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1,5, PJ 8, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.28 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.28 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,5, PJ 9, HD 150	 The slip surface after optimization. Slope stability verification (Spencer-Price) Factor of safety = 1.45 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.45 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,5, PJ 10, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 to surface after optimization. stability verification (Spencer) of safety = 1.18 < 1.50 stability ACCEPTABLE
SP 1,5, PJ 11, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.55 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.55 > 1.50 Slope stability ACCEPTABLE	 to surface after optimization. stability verification (Spencer) of safety = 1.23 < 1.50 stability ACCEPTABLE
SP 1,5, PJ 12, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.55 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.55 > 1.50 Slope stability ACCEPTABLE	 to surface after optimization. stability verification (Spencer) of safety = 1.52 > 1.50 stability ACCEPTABLE
SP 1,5, PJ 8, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.50 > 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.50 Slope stability NOT ACCEPTABLE	-

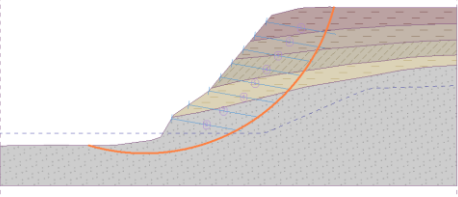
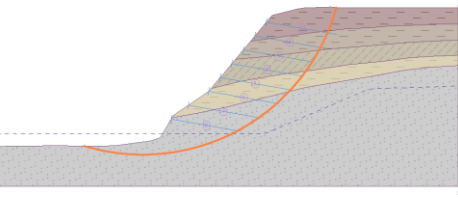
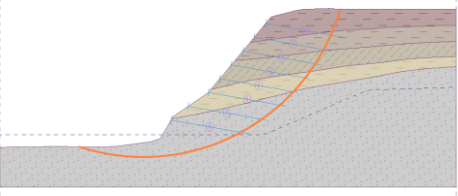
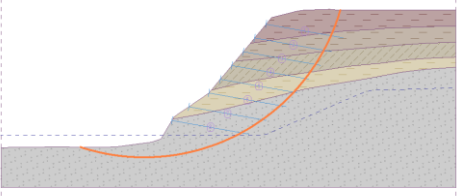
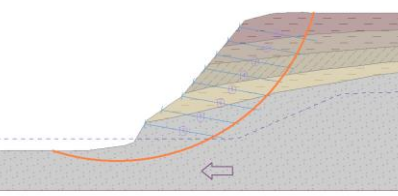
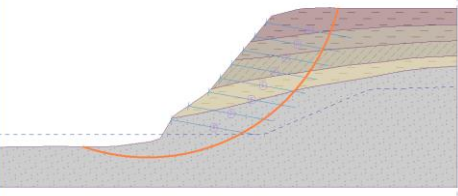
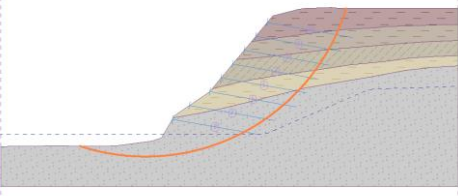
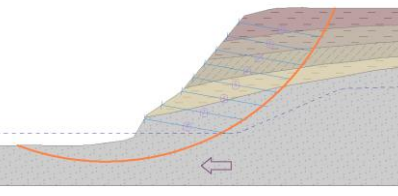
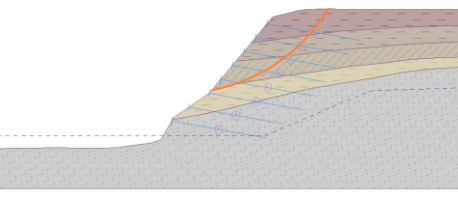
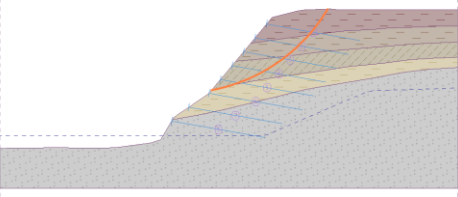
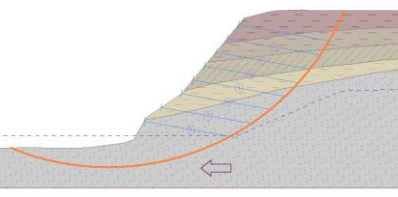
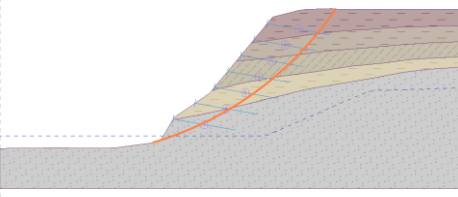
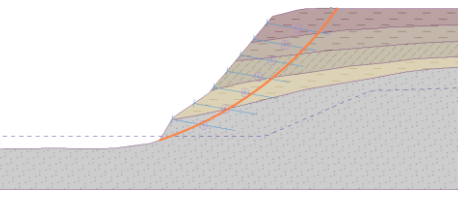
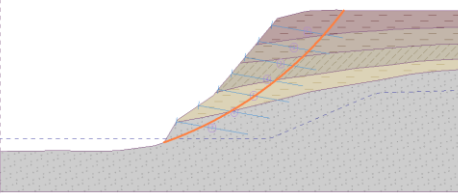
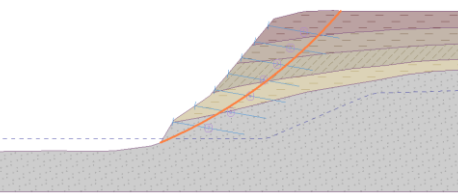
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1,5, PJ 9, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.46 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,5, PJ 10, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 ip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.19 < 1.50 Slope stability NOT ACCEPTABLE
SP 1,5, PJ 11, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 ip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.23 < 1.50 Slope stability NOT ACCEPTABLE
SP 1,5, PJ 12, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 ip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.28 < 1.50 Slope stability NOT ACCEPTABLE
SP 1,5, PJ 8, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.46 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.53 > 1.50 Slope stability ACCEPTABLE	-
SP 1,5, PJ 9, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.46 < 1.50 Slope stability NOT ACCEPTABLE	-

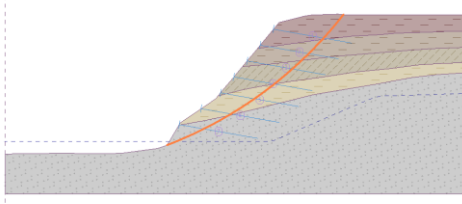
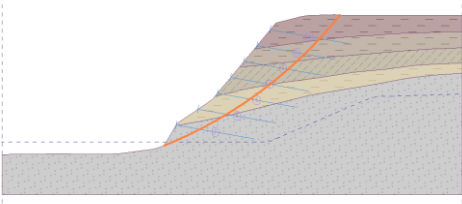
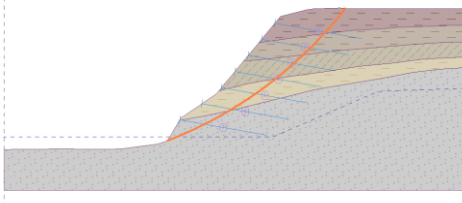
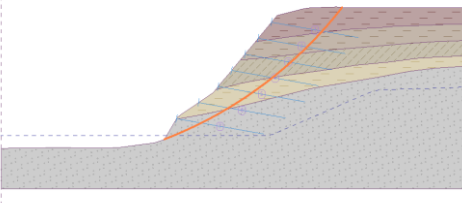
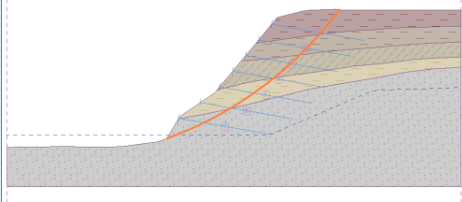
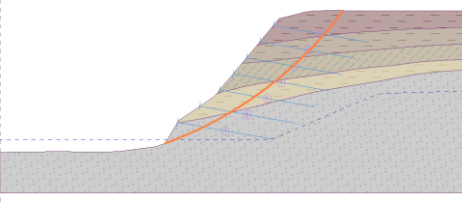
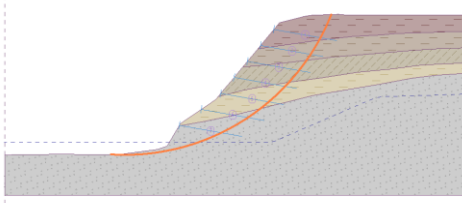
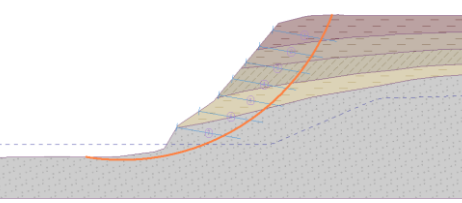
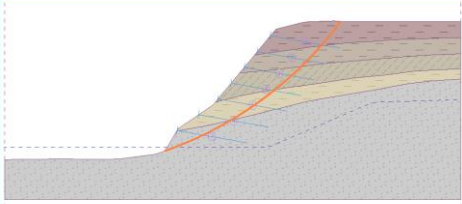
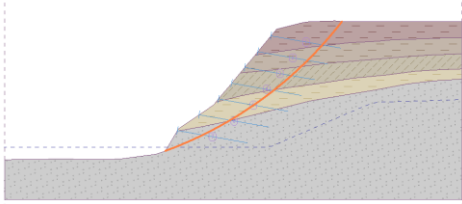
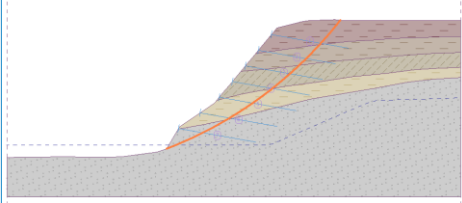
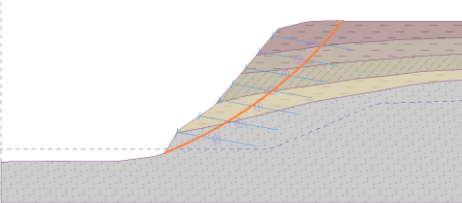
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1,5, PJ 10, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.54 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.53 > 1.50 Slope stability ACCEPTABLE	 ip surface after optimization. stability verification (Spencer) Factor of safety = 1.28 > 1.00 stability ACCEPTABLE
SP 1,5, PJ 11, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.50 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.50 Slope stability ACCEPTABLE	 ip surface after optimization. stability verification (Spencer) Factor of safety = 1.25 > 1.00 stability ACCEPTABLE
SP 1,5, PJ 12, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.50 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.50 Slope stability ACCEPTABLE	 ip surface after optimization. stability verification (Spencer) Factor of safety = 1.27 > 1.00 stability ACCEPTABLE
SP 1,75 PJ 8, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.50 > 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,75, PJ 9, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.50 > 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,75, PJ 10, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.44 > 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.44 > 1.50 Slope stability NOT ACCEPTABLE	-

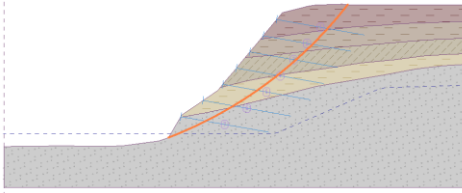
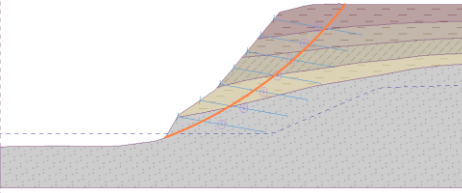
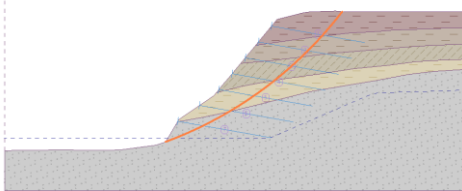
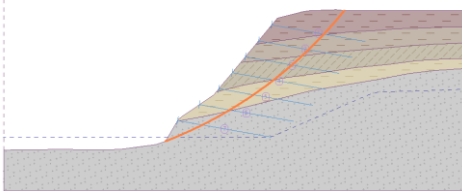
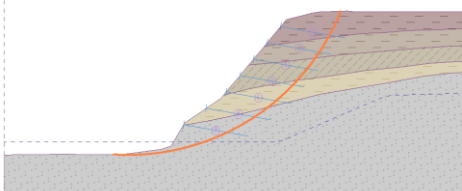
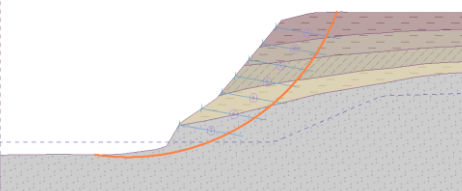
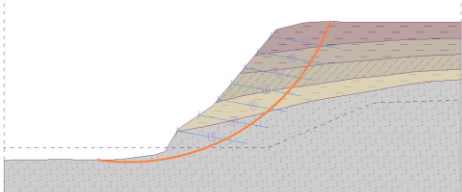
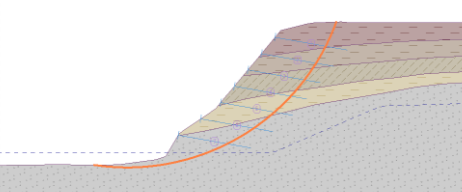
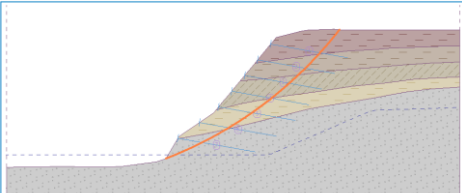
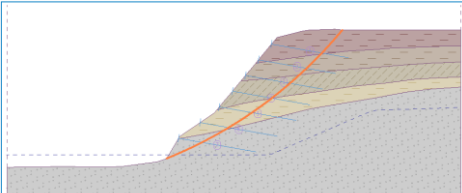
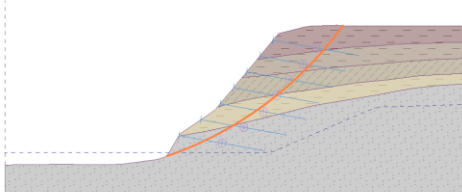
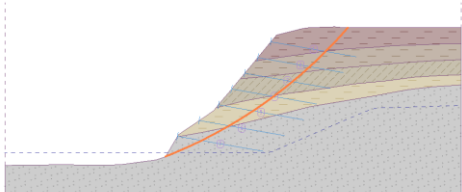
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1,75, PJ 11, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,75, PJ 12, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.52 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,75 PJ 8, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.51 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.35 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,75, PJ 9, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.54 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.43 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,75, PJ 10, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 p surface after optimization. stability verification (Spencer) of safety = 1.22 < 1.50 stability ACCEPTABLE
SP 1,75, PJ 11, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 p surface after optimization. stability verification (Janbu) of safety = 1.24 < 1.50 stability ACCEPTABLE

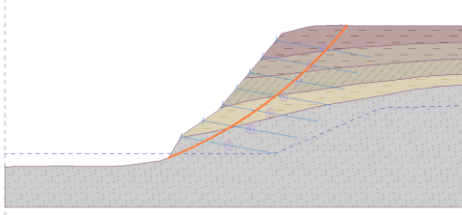
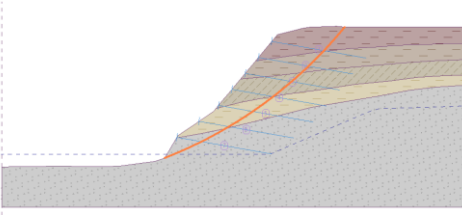
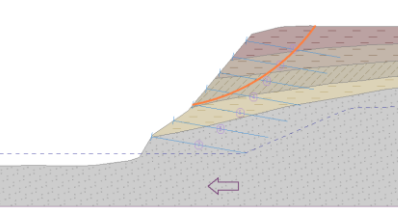
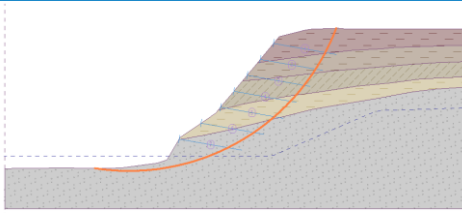
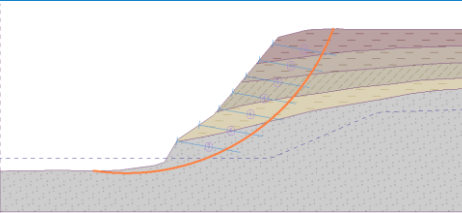
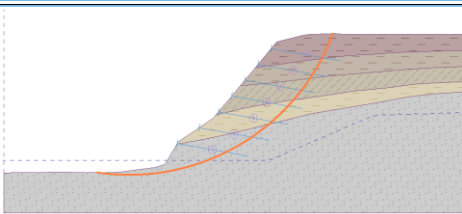
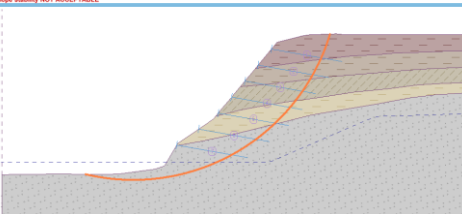
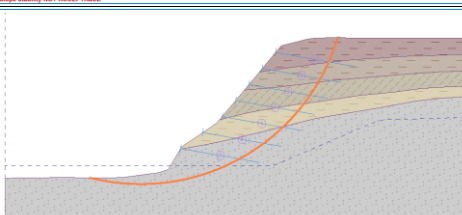
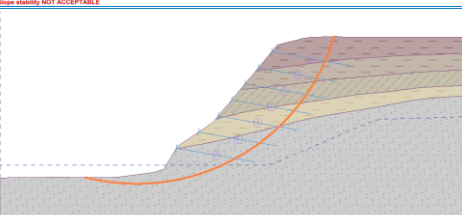
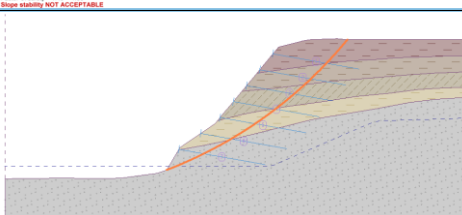
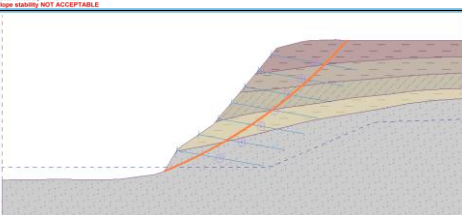
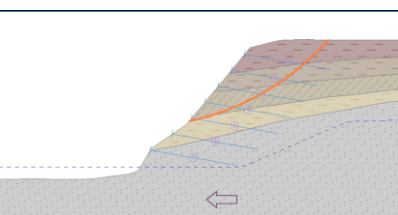
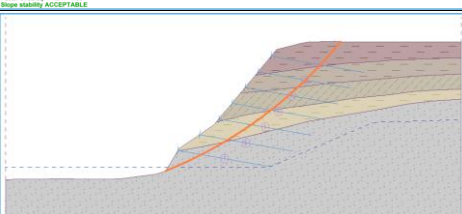
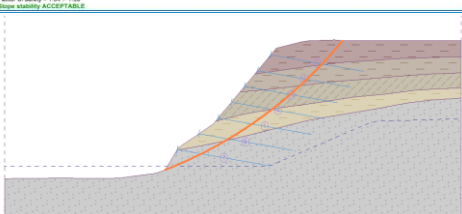
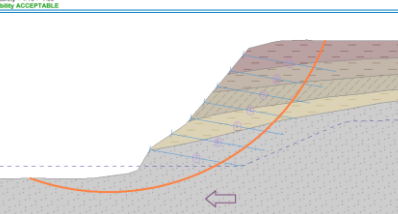
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1,75, PJ 12, HD 125	 The slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.58 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization Slope stability verification (Janbu) Factor of safety = 1.58 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.27 > 1.00 Slope stability ACCEPTABLE
SP 1,75 PJ 8, HD 150	 The slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.00 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization Slope stability verification (Janbu) Factor of safety = 1.00 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1,75, PJ 9, HD 150	 The slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.00 > 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization Slope stability verification (Janbu) Factor of safety = 1.00 > 1.00 Slope stability NOT ACCEPTABLE	-
SP 1,75, PJ 10, HD 150	 The slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.00 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization Slope stability verification (Janbu) Factor of safety = 1.00 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization Slope stability verification (Spencer) Factor of safety = 1.00 > 1.00 Slope stability ACCEPTABLE
SP 1,75, PJ 11, HD 150	 The slip surface after broken analysis Slope stability verification (Spencer) Factor of safety = 1.00 > 1.00 Slope stability ACCEPTABLE	 The slip surface after broken analysis Slope stability verification (Janbu) Factor of safety = 1.00 > 1.00 Slope stability ACCEPTABLE	 The slip surface after broken analysis Slope stability verification (Spencer) Factor of safety = 1.00 > 1.00 Slope stability ACCEPTABLE
SP 1,75, PJ 12, HD 150	 The slip surface after broken analysis Slope stability verification (Spencer) Factor of safety = 1.00 > 1.00 Slope stability ACCEPTABLE	 The slip surface after broken analysis Slope stability verification (Janbu) Factor of safety = 1.00 > 1.00 Slope stability ACCEPTABLE	 The slip surface after broken analysis Slope stability verification (Spencer) Factor of safety = 1.00 > 1.00 Slope stability ACCEPTABLE

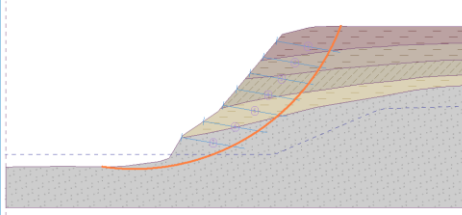
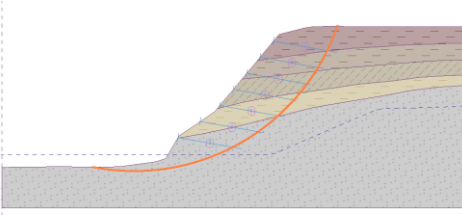
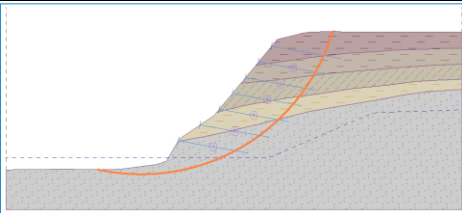
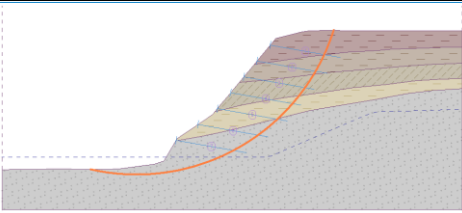
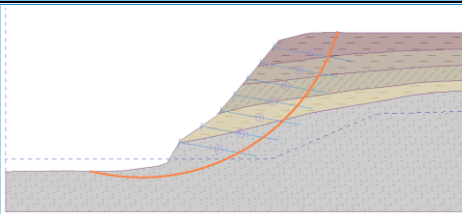
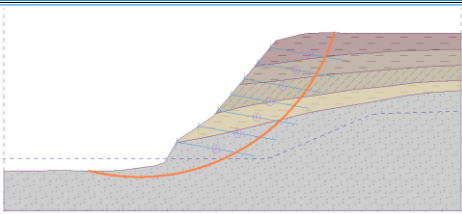
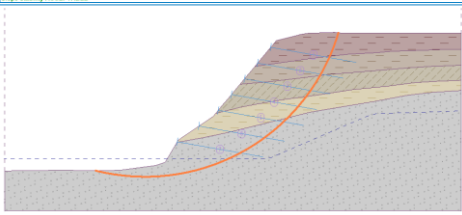
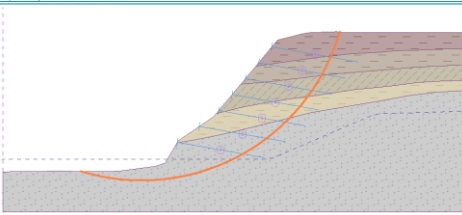
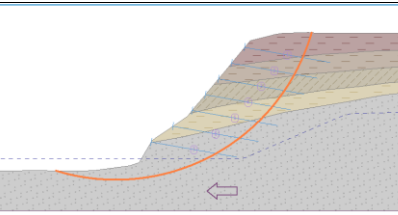
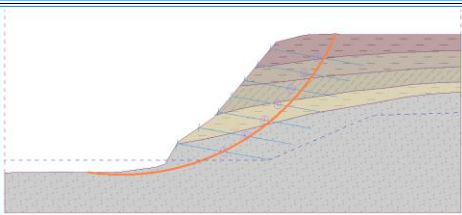
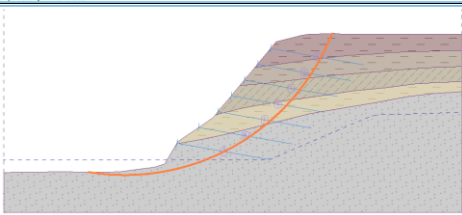
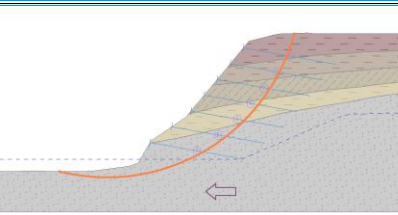
Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1,75 PJ 8, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.40 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.29 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,75, PJ 9, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.46 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.46 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,75, PJ 10, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.53 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.50 Slope stability ACCEPTABLE	 to surface after optimization stability verification (Janbu) Factor of safety = 1.19 < 1.50 Slope stability NOT ACCEPTABLE
SP 1,75, PJ 11, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.50 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.50 Slope stability ACCEPTABLE	 to surface after optimization stability verification (Janbu) Factor of safety = 1.23 < 1.50 Slope stability NOT ACCEPTABLE
SP 1,75, PJ 12, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.54 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.53 > 1.50 Slope stability ACCEPTABLE	 to surface after optimization stability verification (Janbu) Factor of safety = 1.28 < 1.50 Slope stability NOT ACCEPTABLE
SP 1,75 PJ 8, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.40 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.29 < 1.50 Slope stability NOT ACCEPTABLE	-

Variasi	SF Spencer	SF Janbu	SF Gempa
SP 1,75, PJ 9, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.17 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.16 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 1,75, PJ 10, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.34 > 1.50 Slope stability ACCEPTABLE	 Analysis of the slip surface without optimization. Slope stability verification (Janbu) Factor of safety = 1.23 > 1.50 Slope stability ACCEPTABLE	 No slip surface stability verification (Spencer) has been performed
SP 1,75, PJ 11, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.50 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.50 > 1.50 Slope stability ACCEPTABLE	 No surface after optimization stability verification (Janbu) of safety = 1.23 < 1.50 Margin ACCEPTABLE
SP 1,75, PJ 12, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.52 > 1.50 Slope stability ACCEPTABLE	 No surface after optimization stability verification (Janbu) of safety = 1.27 < 1.50 Margin ACCEPTABLE
SP 2 PJ 8, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.32 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.33 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 9, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.32 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.33 < 1.50 Slope stability NOT ACCEPTABLE	-

Variasi	SF Spencer	SF Janbu	SF Gempa
SP 2, PJ 10, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.37 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.37 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 11, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.40 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.40 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 12, HD 100	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.42 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.42 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 2 PJ 8, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.39 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.39 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 9, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.39 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.39 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 10, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.41 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.41 < 1.50 Slope stability NOT ACCEPTABLE	-

Variasi	SF Spencer	SF Janbu	SF Gempa
SP 2, PJ 11, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.45 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 12, HD 125	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 2 PJ 8, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.36 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 9, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 10, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 11, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.47 < 1.50 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.46 < 1.50 Slope stability NOT ACCEPTABLE	-

Variasi	SF Spencer	SF Janbu	SF Gempa
SP 2, PJ 12, HD 150	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.19 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.02 > 1.00 Slope stability ACCEPTABLE	 b surface after optimization. Slope stability verification (Spencer) of safety = 1.18 > 1.00 stability ACCEPTABLE
SP 2 PJ 8, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.06 < 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.06 < 1.00 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 9, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.03 < 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.03 < 1.00 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 10, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.02 < 1.00 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.02 < 1.00 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 11, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.04 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.04 > 1.00 Slope stability ACCEPTABLE	 b surface after optimization. Slope stability verification (Spencer) of safety = 1.19 > 1.00 stability ACCEPTABLE
SP 2, PJ 12, HD 175	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.04 > 1.00 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.04 > 1.00 Slope stability ACCEPTABLE	 b surface after optimization. Slope stability verification (Spencer) of safety = 1.24 > 1.00 stability ACCEPTABLE

Variasi	SF Spencer	SF Janbu	SF Gempa
SP 2 PJ 8, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.38 > 1.30 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.38 > 1.30 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 9, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.45 > 1.30 Slope stability NOT ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.44 > 1.30 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 10, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.45 > 1.30 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.45 > 1.30 Slope stability NOT ACCEPTABLE	-
SP 2, PJ 11, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.38 > 1.30 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.45 > 1.30 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Gempa) Factor of safety = 1.23 > 1.00 Slope stability ACCEPTABLE
SP 2, PJ 12, HD 200	 The slip surface after optimization. Slope stability verification (Spencer) Factor of safety = 1.38 > 1.30 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Janbu) Factor of safety = 1.38 > 1.30 Slope stability ACCEPTABLE	 The slip surface after optimization. Slope stability verification (Gempa) Factor of safety = 1.30 > 1.00 Slope stability ACCEPTABLE

LAMPIRAN 5

UJI PLAGIARISME

ANALISIS PERKUATAN SOIL NAILING PADA LERENG SUNGAI CILIWUNG DI LAPANGAN TEMBAK KOPASSUS CIJANTUNG

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LAMPIRAN 6

KARTU BIMBINGAN

KARTU BIMBINGAN

MATA KULIAH : TUGAS AKHIR
 DOSEN : Ir. ABI MAULANA HAKIM. ST. MT
 PEMBIMBING
 JUDUL : ANALISIS PERKUATAN SOIL NAILING PADA LERENG SUNGAI
 CILIWUNG DI LAPANGAN TEMBAK KOPASSUS
 NAMA MAHASISWA : MUHAMMAD RIFAN
 NRP / RIRM : 1212000020
 PROGRAM STUDI : TEKNIK SIPIL
 SEMESTER / TAHUN : SEMESTER GENAP 2023-2024

NO	TANGGAL	MASALAH YANG DIBICARAKAN	PARAF
1	22 – 05 – 2024	CATATAN ASISTENSI 22 MARET 2024 : 1. Membuat Jadwal Penelitian	
2	13– 05 – 2024	CATATAN ASISTENSI 13 MEI 2024 : 1. Memperbaiki interfaces lereng 2. Asistensi data korelasi parameter tanah 3. Mengkoreksi rumus perhitungan pull out resistance 4. Memperbaiki perhitungan Cu untuk tanah non kohesif 5. Memperbaiki perhitungan bond strength 6. Memperbaiki input parameter nail	
3	31 – 05 – 2024	CATATAN ASISTENSI 31 MEI 2024 : 1. Perhitungan nail head strength 2. Menentukan variasi nail yang akan digunakan (diameter lubang bor, panjang, spasi) 3. Perbaikan perhitungan bond strength, dihitung dari setelah bidang gelincir lereng kondisi eksisting	
4	14 – 06 – 2024	CATATAN ASISTENSI 14 JUNI 2024 : 1. Perhitungan beban gempa	
5	05 – 07 – 2024	CATATAN ASISTENSI 5 JULI 2024 : 1. Tambahkan tabel dan grafik yang digunakan untuk korelasi parameter tanah kedalam laporan 2. Ubah metode yang digunakan dalam analisis di Geo5 (hanya Janbu dan Spencer) 3. Diskusi perhitungan yang digunakan untuk menentukan variasi yang optimal	

NO	TANGGAL	MASALAH YANG DIBICARAKAN	PARAF
6	11 – 07 – 2024	CATATAN ASISTENSI 11 JULI 2024 : 1. Buat menjadi 125 variasi nail 2. Perbaiki penyajian tabel, dan grafik hasil analisis 3. Perbaiki tabel yang masih berupa screenshot 4. Revisi penulisan pada Bab 3	
7	30 – 07 – 2024	CATATAN ASISTENSI 30 JULI 2024 : 1. Revisi penulisan pada Bab 3 dan Bab 4 2. Tambahkan lampiran hasil analisis 3. Perbaiki kesimpulan	
8	31 – 08 – 2024	CATATAN ASISTENSI 2 AGUSTUS 2024 : 1. ACC Bab 3 dan 4 2. Perbaiki Abstrak	
9	2 – 08 – 2024	CATATAN ASISTENSI 2 AGUSTUS 2024 : 1. ACC untuk disidangkan	

Catatan:

1. Setiap bab wajib diasistensikan kepada Dosen Pembimbing
2. Setiap asistensi hanya membicarakan 1 (satu) bab

Telah diselesaikan tgl. 2 Agustus 2024

Serpong, 2 Agustus 2024



Ir. AB MAULANA HAKIM. ST. MT

LAMPIRAN 7

DAFTAR REVISI HASIL SIDANG

REVISI HASIL SIDANG

Nama : Muhammad Rifan
 NIM : 1212000020
 Program Studi : Teknik Sipil
 Dosen Pembimbing : Ir. Abi Maulana Hakim. ST. MT
 Judul : Analisis Perkuatan Soil Nailing Pada Lereng Sungai Ciliwung Di Lapangan Tembak Kopassus

NO	REVISI	KETERANGAN	HALAMAN
1	Ditambahkan batasan masalah, penelitian ini tidak memperhitungkan faktor-faktor seperti curah hujan, erosi, dan abrasi tanah akibat aliran sungai	Telah direvisi dan ditambahkan ke dalam laporan	2
2	Ditambahkan perbedaan antara penelitian terdahulu dan penelitian saat ini pada bagian state of the art.	Telah direvisi dan ditambahkan ke dalam laporan	5
3	Ditambahkan koordinat longitude dan latitude pada lokasi studi	Telah direvisi dan ditambahkan ke dalam laporan	39
4	Ditambahkan alasan dan penjelasan penggunaan 125 variasi dalam laporan TA	Telah direvisi dan ditambahkan ke dalam laporan	54

Tangerang Selatan. 27 Agustus 2024

Dosen Pembimbing

Ir. Abi Maulana Hakim. ST. MT