

Slope stability analysis

Input data

Project

Task : Sanacija plazu nad objekti pod hišno številko Ulica Pohorskega bataljona 27A
 Description : Stabilnostna analiza - mokro
 Customer : Občina Oplotnica
 Author : GEOING d.o.o.
 Date : 17/04/2026

Settings

Slovenia - EN 1997 (137)

Stability analysis

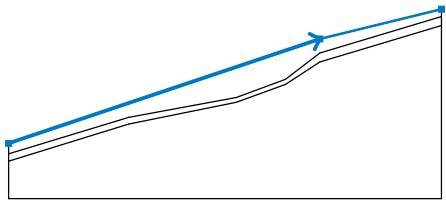
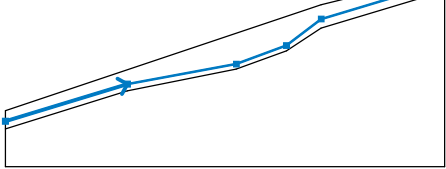
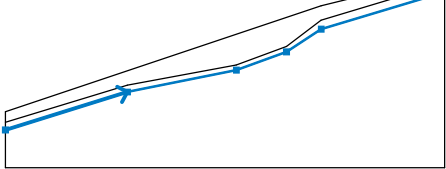
Earthquake analysis : Standard
 Verification methodology : Safety factors (ASD)

Safety factors

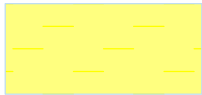
Permanent design situation

Safety factor : $SF_s = 1,50$ [-]

Interface

No.	Interface location	Coordinates of interface points [m]					
		x	z	x	z	x	z
1		0,00	11,00	41,70	25,00	58,00	29,00
2		0,00	9,60	16,10	14,50	30,50	17,15
		37,10	19,60	41,70	23,10	58,00	28,00
3		0,00	8,60	16,10	13,60	30,50	16,50
		37,10	18,90	41,70	21,90	58,00	26,80

Soil parameters - effective stress state

No.	Name	Pattern	ϕ_{ef} [°]	c_{ef} [kPa]	γ [kN/m ³]
1	Glina		26,00	2,00	19,00
2	Preperina		28,00	10,00	21,00

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [kPa]	γ [kN/m ³]
3	Hribina		34,00	30,00	22,00

Soil parameters - uplift

No.	Name	Pattern	γ_{sat} [kN/m ³]	γ_s [kN/m ³]	n [-]
1	Glina		19,00		
2	Preperina		21,00		
3	Hribina		22,00		

Soil parameters**Glina**

Unit weight : $\gamma = 19,00 \text{ kN/m}^3$
 Stress-state : effective
 Angle of internal friction : $\varphi_{ef} = 26,00^\circ$
 Cohesion of soil : $c_{ef} = 2,00 \text{ kPa}$
 Saturated unit weight : $\gamma_{sat} = 19,00 \text{ kN/m}^3$

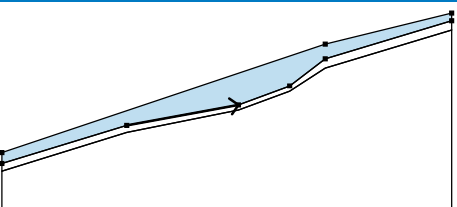
Preperina

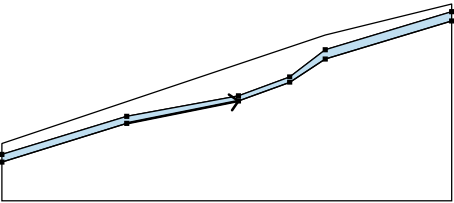
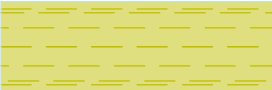
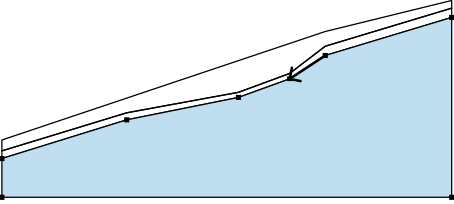
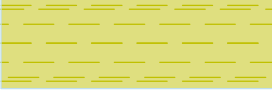
Unit weight : $\gamma = 21,00 \text{ kN/m}^3$
 Stress-state : effective
 Angle of internal friction : $\varphi_{ef} = 28,00^\circ$
 Cohesion of soil : $c_{ef} = 10,00 \text{ kPa}$
 Saturated unit weight : $\gamma_{sat} = 21,00 \text{ kN/m}^3$

Hribina

Unit weight : $\gamma = 22,00 \text{ kN/m}^3$
 Stress-state : effective
 Angle of internal friction : $\varphi_{ef} = 34,00^\circ$
 Cohesion of soil : $c_{ef} = 30,00 \text{ kPa}$
 Saturated unit weight : $\gamma_{sat} = 22,00 \text{ kN/m}^3$

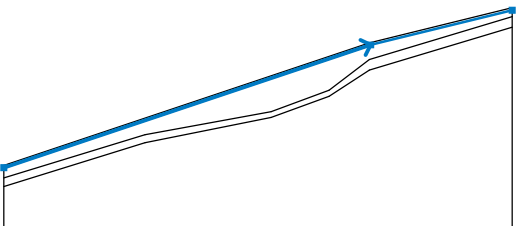
Assigning and surfaces

No.	Surface position	Coordinates of surface points [m]				Assigned soil
		x	z	x	z	
1		16,10	14,50	30,50	17,15	Glina 
		37,10	19,60	41,70	23,10	
		58,00	28,00	58,00	29,00	
		41,70	25,00	0,00	11,00	
		0,00	9,60			

No.	Surface position	Coordinates of surface points [m]				Assigned soil
		x	z	x	z	
2		16,10	13,60	30,50	16,50	Preperina 
		37,10	18,90	41,70	21,90	
		58,00	26,80	58,00	28,00	
		41,70	23,10	37,10	19,60	
		30,50	17,15	16,10	14,50	
		0,00	9,60	0,00	8,60	
3		41,70	21,90	37,10	18,90	Preperina 
		30,50	16,50	16,10	13,60	
		0,00	8,60	0,00	3,60	
		58,00	3,60	58,00	26,80	

Water

Water type : GWT

No.	GWT location	Coordinates of GWT points [m]					
		x	z	x	z	x	z
1		0,00	10,75	41,85	24,76	58,00	28,72

Tensile crack

Tensile crack not input.

Earthquake

Earthquake not included.

Settings of the stage of construction

Design situation : permanent

Results (Stage of construction 1)**Analysis 1****Circular slip surface**

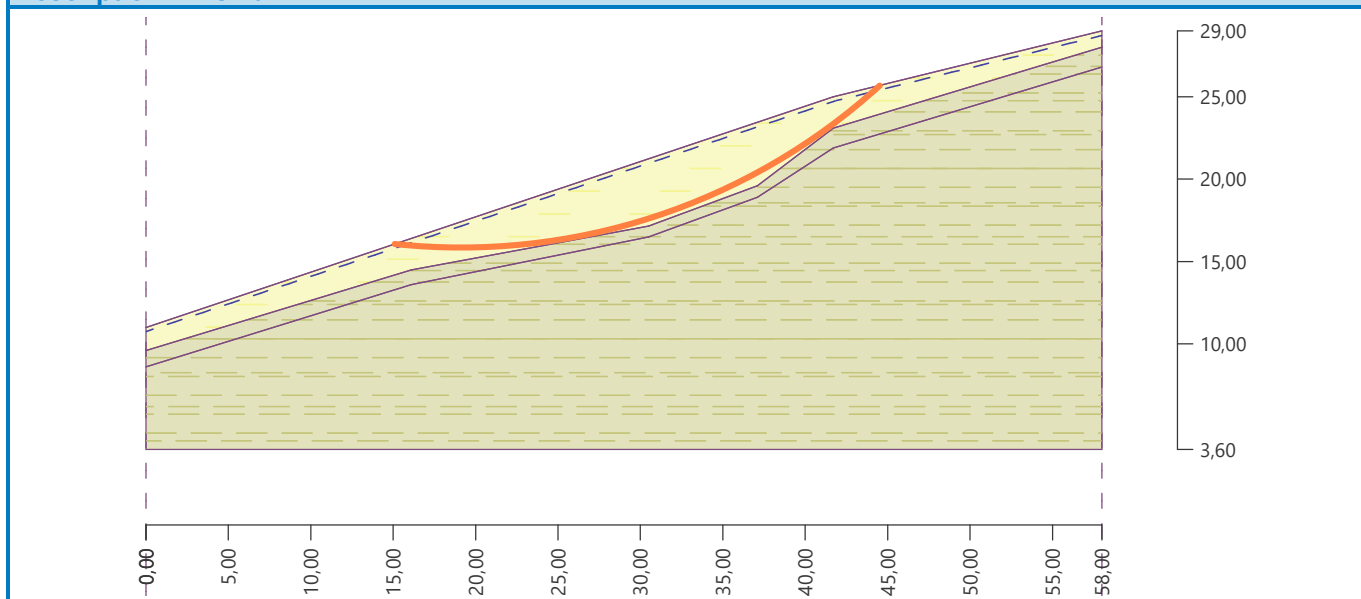
Slip surface parameters						
Center :	x =	19,10 [m]	Angles :	α_1 =	-6,09	[°]
	z =	53,60 [m]		α_2 =	42,32	[°]
Radius :	R =	37,75 [m]				
Analysis of the slip surface without optimization.						

Slope stability verification (Bishop)Sum of active forces : $F_a = 411,07$ kN/mSum of passive forces : $F_p = 415,38$ kN/mSliding moment : $M_a = 15517,81$ kNm/mResisting moment : $M_p = 15680,56$ kNm/mFactor of safety = $1,01 < 1,50$ **Slope stability NOT ACCEPTABLE**

Name : Analysis

Stage - analysis : 1 - 1

Description : Dršina 1



Analysis 2

Circular slip surface

Slip surface parameters					
Center :	x =	18,96 [m]	Angles :	α_1 =	-6,61 [°]
	z =	49,28 [m]		α_2 =	43,61 [°]
Radius :	R =	33,43 [m]			
Analysis of the slip surface without optimization.					

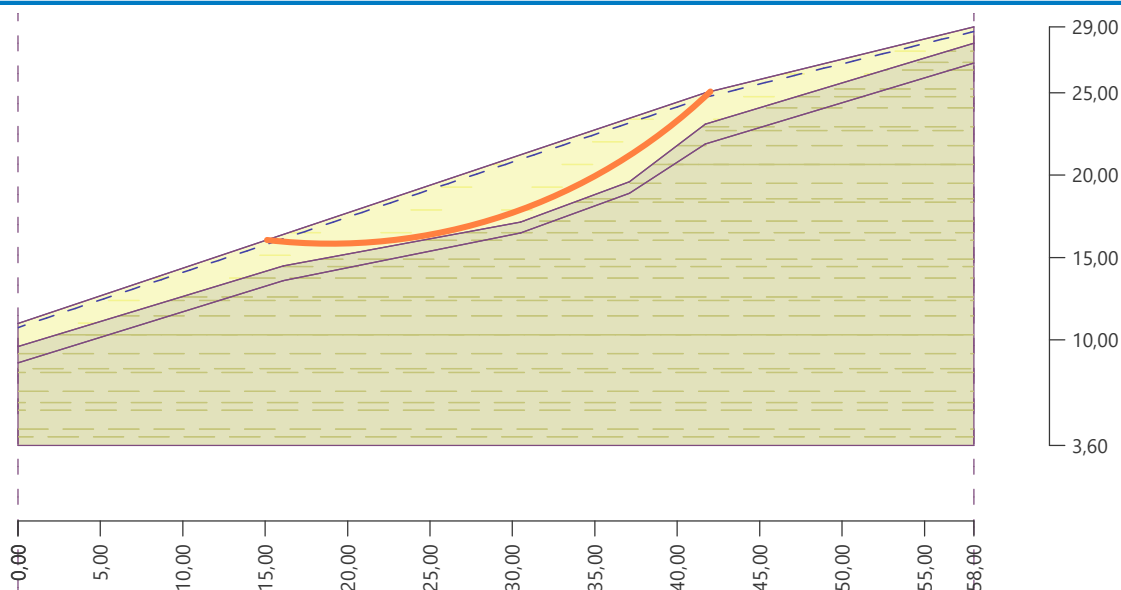
Slope stability verification (Bishop)

Sum of active forces : $F_a = 345,46 \text{ kN/m}$ Sum of passive forces : $F_p = 355,95 \text{ kN/m}$ Sliding moment : $M_a = 11548,72 \text{ kNm/m}$ Resisting moment : $M_p = 11899,27 \text{ kNm/m}$ Factor of safety = $1,03 < 1,50$ **Slope stability NOT ACCEPTABLE**

Name : Analysis

Stage - analysis : 1 - 2

Description : Dršina 2



Analysis 3

Circular slip surface

Slip surface parameters					
Center :	x =	15,35 [m]	Angles :	α_1 =	-0,05 [°]
	z =	60,42 [m]		α_2 =	37,05 [°]
Radius :	R =	44,28 [m]			
Analysis of the slip surface without optimization.					

Slope stability verification (Bishop)

Sum of active forces : $F_a = 255,96 \text{ kN/m}$ Sum of passive forces : $F_p = 277,02 \text{ kN/m}$ Sliding moment : $M_a = 11333,74 \text{ kNm/m}$ Resisting moment : $M_p = 12266,54 \text{ kNm/m}$ Factor of safety = $1,08 < 1,50$ **Slope stability NOT ACCEPTABLE**

Name : Analysis

Stage - analysis : 1 - 3

Description : Drsina 3

