Slope stability analysis

Input data

Project

Task : Sanacija plazu v pobočju pod cesto JP 948781 Koritno-Grm pri objektu Koritno 37
Part : GP-1
Description : Povratna stabilnostna analiza - mokro
Customer : Občina Oplotnica
Author : GEOING d.o.o.
Date : 24/04/2025

Settings

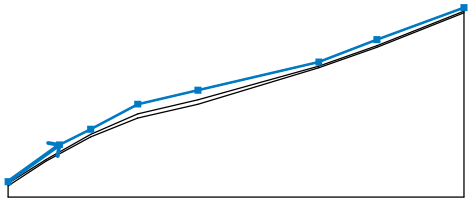
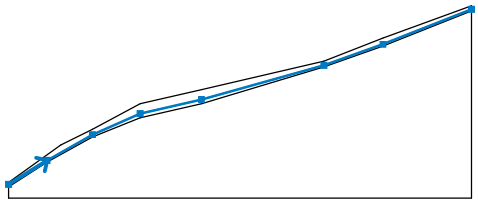
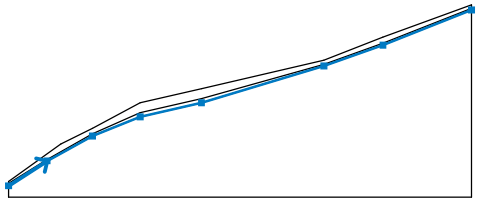
Slovenia - EN 1997 (53)

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	8,90	23,00	25,40	37,00	32,40
		58,00	43,60	85,00	49,80	139,00	62,40
		165,00	72,50	204,00	86,80		
2		0,00	8,10	17,00	18,70	37,00	30,00
		58,00	39,30	85,00	45,50	139,00	60,60
		165,00	69,80	204,00	85,20		
3		0,00	7,00	17,00	18,00	37,00	28,90
		58,00	37,40	85,00	43,60	139,00	59,80
		165,00	69,00	204,00	84,50		

Soil parameters - effective stress state

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [kPa]	γ [kN/m^3]
1	Glina		18,00	1,00	19,00
2	Preperina		30,00	10,00	21,00

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No.	Name	Pattern	φ_{ef} [°]	c_{ef} [kPa]	γ [kN/m^3]
3	Hribina		34,00	30,00	23,00

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		23,00		

Soil parameters

Glina

Unit weight : γ = 19,00 kN/m^3
Stress-state : effective
Angle of internal friction : φ_{ef} = 18,00 °
Cohesion of soil : c_{ef} = 1,00 kPa
Saturated unit weight : γ_{sat} = 19,00 kN/m^3

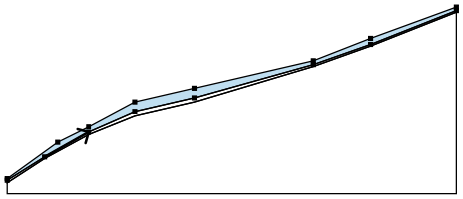
Preperina

Unit weight : γ = 21,00 kN/m^3
Stress-state : effective
Angle of internal friction : φ_{ef} = 30,00 °
Cohesion of soil : c_{ef} = 10,00 kPa
Saturated unit weight : γ_{sat} = 21,00 kN/m^3

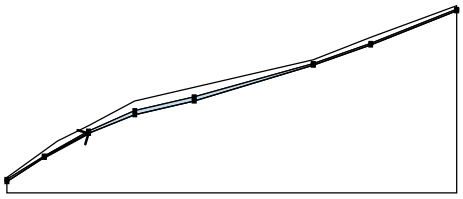
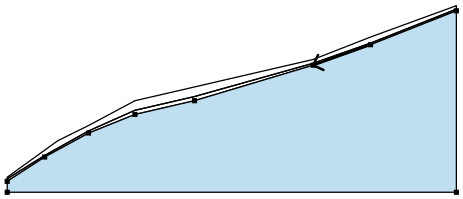
Hribina

Unit weight : γ = 23,00 kN/m^3
Stress-state : effective
Angle of internal friction : φ_{ef} = 34,00 °
Cohesion of soil : c_{ef} = 30,00 kPa
Saturated unit weight : γ_{sat} = 23,00 kN/m^3

Assigning and surfaces

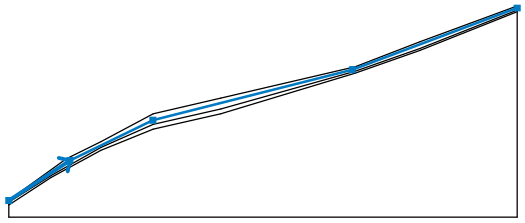
No.	Surface position	Coordinates of surface points [m]				Assigned soil
		x	z	x	z	
1		17,00	18,70	37,00	30,00	Glina
		58,00	39,30	85,00	45,50	
		139,00	60,60	165,00	69,80	
		204,00	85,20	204,00	86,80	
		165,00	72,50	139,00	62,40	
		85,00	49,80	58,00	43,60	
		37,00	32,40	23,00	25,40	
		0,00	8,90	0,00	8,10	

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No.	Surface position	Coordinates of surface points [m]				Assigned soil
		x	z	x	z	
2		17,00	18,00	37,00	28,90	Preperina
		58,00	37,40	85,00	43,60	
		139,00	59,80	165,00	69,00	
		204,00	84,50	204,00	85,20	
		165,00	69,80	139,00	60,60	
		85,00	45,50	58,00	39,30	
		37,00	30,00	17,00	18,70	
		0,00	8,10	0,00	7,00	
3		165,00	69,00	139,00	59,80	Hribina
		85,00	43,60	58,00	37,40	
		37,00	28,90	17,00	18,00	
		0,00	7,00	0,00	2,00	
		204,00	2,00	204,00	84,50	

Water

Water type : GWT

No.	GWT location	Coordinates of GWT points [m]					
		x	z	x	z	x	z
1		0,00	8,70	24,52	24,85	57,85	41,00
		137,91	61,27	204,00	86,01		

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

Polygonal slip surface

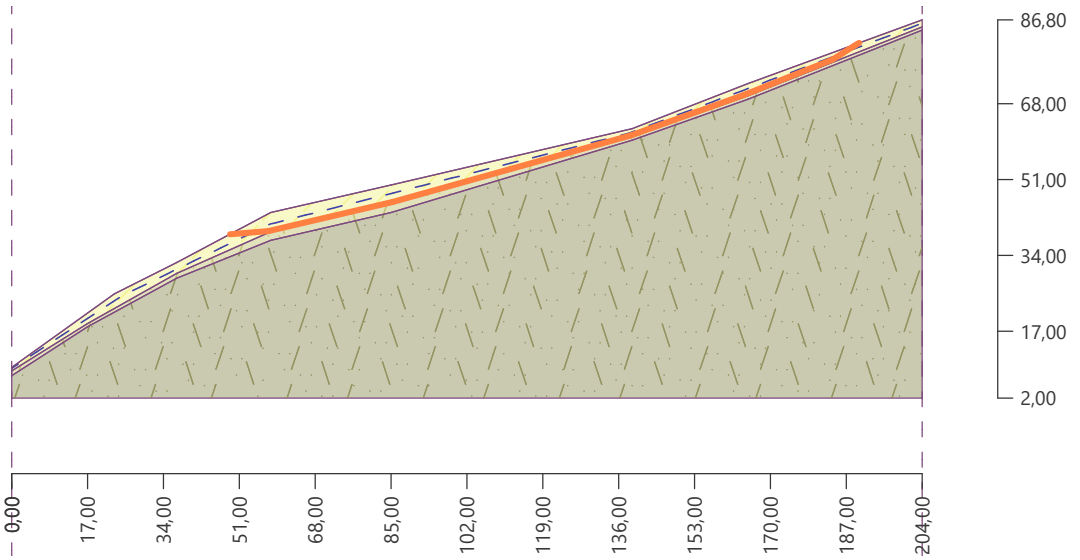
Coordinates of slip surface points [m]									
x	z	x	z	x	z	x	z	x	z
48,92	38,76	57,50	39,45	85,34	45,98	138,76	60,93	164,19	70,03
183,95	77,93	188,93	81,03	189,89	81,63				
Analysis of the slip surface without optimization.									

Slope stability verification (Janbu)
Factor of safety = 0,97 < 1,50
Slope stability NOT ACCEPTABLE

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Name : Analysis | **Stage - analysis : 1 - 1**

Description : Drsina



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