Slope stability analysis

Input data

Project

Task : Zemeljski plaz na parceli št. 2151/6 k.o. 763 pri hiši Fošt 14
Part : P-3
Description : Povratna stabilnostna analiza
Customer : Občina Oplotnica
Author : GEOING d.o.o.
Date : 13/03/2025

Settings

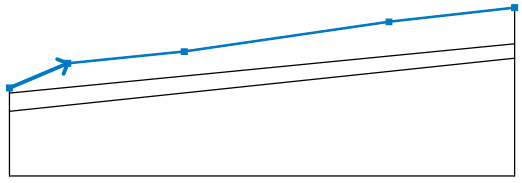
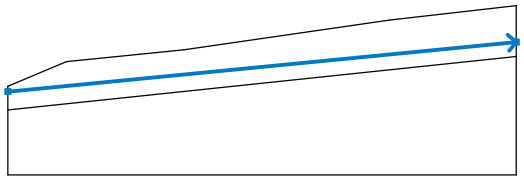
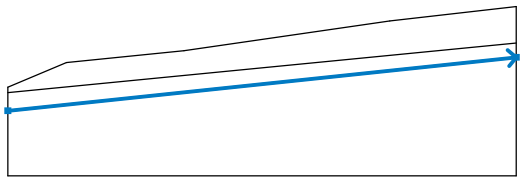
Slovenia - EN 1997 (42)

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	7,30	4,50	9,20	13,50	10,10
		29,30	12,40	39,00	13,50		
2		0,00	6,90	39,00	10,70		
3		0,00	5,50	39,00	9,60		

Soil parameters - effective stress state

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [kPa]	γ [kN/m^3]
1	Glina		12,50	0,00	19,00
2	Preperina		30,00	10,00	21,00
3	Hribina		34,00	30,00	23,00

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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} =	12,50 °
Cohesion of soil :	c_{ef} =	0,00 kPa
Saturated unit weight :	γ_{sat} =	19,00 kN/m^3

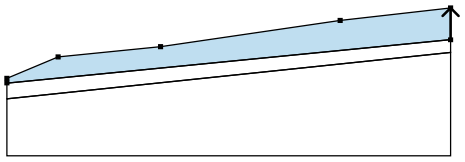
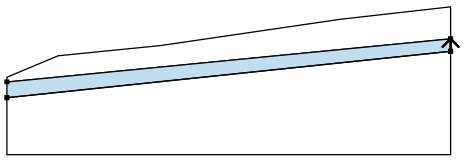
Preperina

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

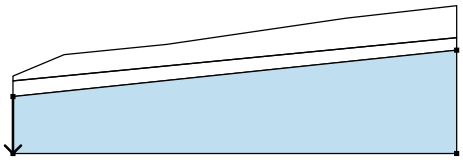
Hribina

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

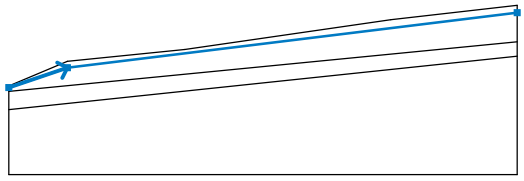
No.	Surface position	Coordinates of surface points [m]				Assigned soil
		x	z	x	z	
1		39,00	10,70	39,00	13,50	Glina
		29,30	12,40	13,50	10,10	
		4,50	9,20	0,00	7,30	
		0,00	6,90			
2		39,00	9,60	39,00	10,70	Preperina
		0,00	6,90	0,00	5,50	

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No.	Surface position	Coordinates of surface points [m]				Assigned soil
		x	z	x	z	
3		0,00	5,50	0,00	0,50	Hribina
		39,00	0,50	39,00	9,60	

Water

Water type : GWT

No.	GWT location	Coordinates of GWT points [m]					
		x	z	x	z	x	z
1		0,00	7,19	4,50	8,70	39,00	12,93

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
0,43	7,48	0,47	7,48	2,80	7,46	5,40	7,67	32,44	10,30
34,42	10,62	35,90	11,22	37,07	11,87	37,96	12,60	38,53	13,41
38,56	13,45								
Analysis of the slip surface without optimization.									

Slope stability verification (Morgenstern-Price)

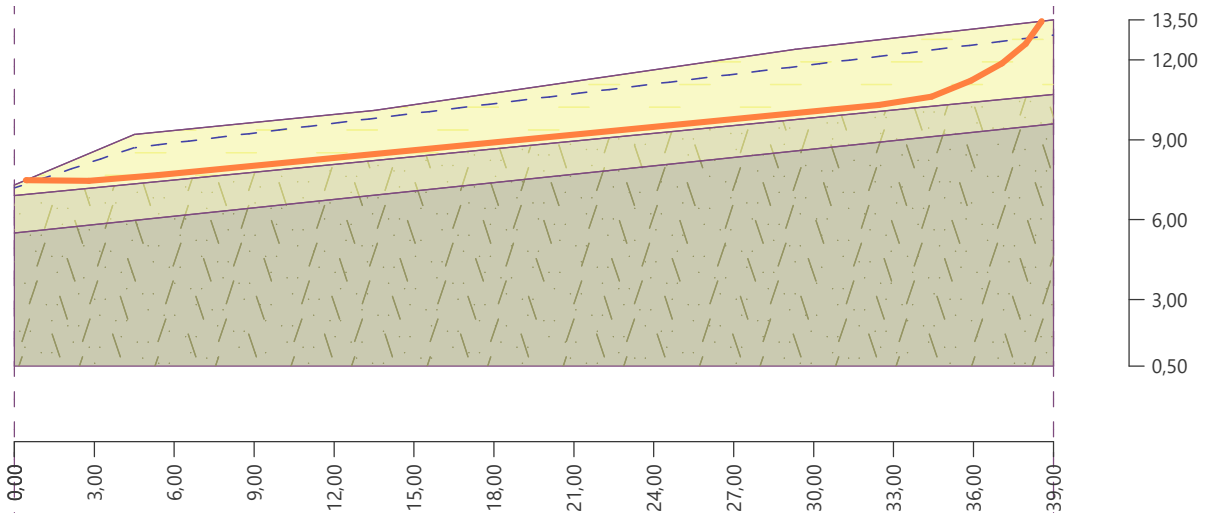
Factor of safety = 0,99 < 1,50

Slope stability NOT ACCEPTABLE

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

Description : Porušnica



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