R.3. IZRAČUN SIDRANE PILOTNE STENE

Analysis of anti-slide pile

Input data

Task : Rekonstrukcija ceste in usada na JP 965051 Lemberk-Vine v občini Vojnik
Description : Sidrana pilotna stena
Customer : GHC-Projekt, d.o.o.
Author : Bojana Žibret
Date : 1. 03. 2024
Project ID : GG 49/3/24
Project number : GG 49/3/24

Settings

Slovenia - EN 1997

Materials and standards

Concrete structures : EN 1992-1-1 (EC2)
Coefficients EN 1992-1-1 : standard
Steel structures : EN 1993-1-1 (EC3)
Partial factor on bearing capacity of steel cross section : γ_{M0} = 1,00

Pressure analysis

Verification methodology : according to EN 1997
Active earth pressure calculation : Coulomb
Passive earth pressure calculation : Caquot-Kerisel
Earthquake analysis : Mononobe-Okabe
Modulus of subsoil reaction : standard
Consider reduction of the modulus of subsoil reaction for a braced sheeting
Pressures below the slip surface : standard
Design approach : 2 - reduction of actions and resistances

Partial factors on actions (A)					
Permanent design situation					
		Unfavourable		Favourable	
Permanent actions :	γ_G =	1,35	[–]	1,00	[–]
Variable actions :	γ_Q =	1,50	[–]	0,00	[–]
Water load :	γ_w =	1,35	[–]		

Partial factors for resistances (R)			
Permanent design situation			
Partial factor on earth resistance :	γ_{Re} =	1,40	[–]

Anchors

Verification methodology : Limit states (LSD)

Reduction coefficients			
Reduction. coeff of steel strength :	γ_s =	1,35	[–]
Reduction coefficient of pull out resistance (soil) :	γ_e =	1,35	[–]
Reduction coefficient of pull out resistance (grouting) :	γ_c =	1,35	[–]

Geometry of structure

Structure length = 14,50 m

Cross-section name : Pile curtain d = 0.50 m, a = 1.00 m
Material of pile : concrete
Computed coefficient of pressure reduction below the ditch = 1,00
Area of cross-section A = 1,96E-01 m^2/m

Moment of inertia $I = 3{,}07E\text{-}03\ m^4/m$

Forces above the slip surface

Depth of slip surface h_{s1} = 2,50 m
Input of active horizontal force : residual active force
Input of passive horizontal force : residual passive force

Active horizontal force T = 0,00 kN/m
Passive horizontal force P = 0,00 kN/m

Distribution of active force : triangle
Distribution of passive force : triangle

Material of structure

Analysis of concrete structures carried out according to the standard EN 1992-1-1 (EC2).

Concrete: C 20/25

Cylinder compressive strength	f_{ck}	=	20,00 MPa
Tensile strength	f_{ctm}	=	2,20 MPa
Elasticity modulus	E_{cm}	=	30000,00 MPa
Shear modulus	G	=	12500,00 MPa

Longitudinal steel: B500B
Yield strength f_{yk} = 500,00 MPa

Transverse steel: B500B
Yield strength f_{yk} = 500,00 MPa

Modulus of reaction

Modulus of subsoil reaction is computed by method Schmitt.

Basic soil parameters

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [kPa]	γ [kN/m³]	γ_{su} [kN/m³]	δ [°]
1	Gruščnata peščena glina		34,00	4,00	18,00	9,00	0,00
2	Lapor, apnenec		35,00	100,00	22,00	12,00	0,00
3	Tampon		35,00	0,00	20,00	11,00	0,00

Soil parameters to compute pressure at rest

No.	Name	Pattern	Type calculation	φ_{ef} [°]	v [–]	OCR [–]	K_r [–]
1	Gruščnata peščena glina		cohesive	-	0,40	-	-
2	Lapor, apnenec		cohesive	-	0,30	-	-
3	Tampon		cohesive	-	0,30	-	-

Parameters of soils to compute modulus of subsoil reaction (Schmitt)

No.	Name	Pattern	v [–]	E_{oed} [MPa]	E_{def} [MPa]
1	Gruščnata peščena glina		0,40	-	5,00
2	Lapor, apnenec		0,30	-	100,00

No.	Name	Pattern	v [–]	E_{oed} [MPa]	E_{def} [MPa]
3	Tampon		0,30	-	100,00

Soil parameters

Gruščnata peščena glina

Unit weight :	γ =	18,00 kN/m^3
Stress-state :	effective	
Angle of internal friction :	φ_{ef} =	34,00 °
Cohesion of soil :	c_{ef} =	4,00 kPa
Angle of friction struc.-soil :	δ =	0,00 °
Soil :	cohesive	
Poisson's ratio :	v =	0,40
Deformation modulus :	E_{def} =	5,00 MPa
Poisson's ratio :	v =	0,40
Saturated unit weight :	γ_{sat} =	19,00 kN/m^3

Lapor, apnenec

Unit weight :	γ =	22,00 kN/m^3
Stress-state :	effective	
Angle of internal friction :	φ_{ef} =	35,00 °
Cohesion of soil :	c_{ef} =	100,00 kPa
Angle of friction struc.-soil :	δ =	0,00 °
Soil :	cohesive	
Poisson's ratio :	v =	0,30
Deformation modulus :	E_{def} =	100,00 MPa
Poisson's ratio :	v =	0,30
Saturated unit weight :	γ_{sat} =	22,00 kN/m^3

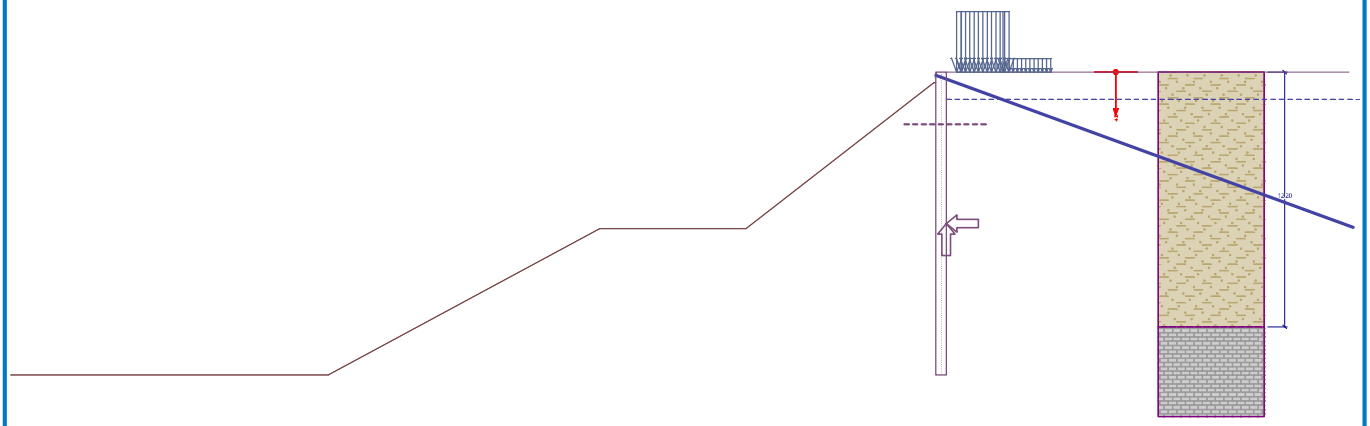
Tampon

Unit weight :	γ =	20,00 kN/m^3
Stress-state :	effective	
Angle of internal friction :	φ_{ef} =	35,00 °
Cohesion of soil :	c_{ef} =	0,00 kPa
Angle of friction struc.-soil :	δ =	0,00 °
Soil :	cohesive	
Poisson's ratio :	v =	0,30
Deformation modulus :	E_{def} =	100,00 MPa
Poisson's ratio :	v =	0,30
Saturated unit weight :	γ_{sat} =	21,00 kN/m^3

Geological profile and assigned soils

No.	Thickness of layer t [m]	Depth z [m]	Assigned soil	Pattern
1	12,20	0,00 .. 12,20	Gruščnata peščena glina	
2	-	12,20 .. ∞	Lapor, apnenec	

Name : Profile and assignment	Stage - analysis : 1 - 0



Excavation

Soil in front of wall is excavated to a depth of 0,50 m.

Ditch bottom shape

No.	Coordinate x [m]	Depth z [m]
1	0,00	0,00
2	-0,10	0,00
3	-9,10	7,00
4	-16,10	7,00
5	-29,10	14,00
6	-30,10	14,00

Origin [0,0] is located at the ditch bottom.
Positive coordinate +z has downward direction.

Terrain profile

Terrain behind the structure is flat.

Water influence

GWT behind the structure lies at a depth of 1,30 m

Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [kN/m²]	Mag.2 [kN/m²]	Ord.x x [m]	Length l [m]	Depth z [m]
1	Yes		variable	9,00		0,50	2,50	on terrain
2	Yes		variable	2,00		3,00	2,00	on terrain

Input concentrated surcharges

No.	Surcharge new	Surcharge change	Action	Magnitude [kN]	Ord.x x [m]	Length l [m]	Width b[m]	Depth z [m]
1	Yes		permanent	65,00	0,50	0,44	0,32	on terrain
2	Yes		permanent	65,00	2,50	0,44	0,32	on terrain

Input anchors

No.	New anchor	Depth z [m]	Name	Post-stressing	Force F [kN]
1	Yes	0,25	IBO SIS-R38-500 (user-defined)		399,16

List of the new anchors

IBO SIS-R38-500 (user-defined)
Anchor type : non-prestressed bar
Production set : user-defined

Depth :	z	=	0,25	m
Overall length :	l	=	21,00	m
Slope :	α	=	20,00	°
Spacing :	b	=	4,00	m
Diameter :	d_s	=	38,00	mm
Elasticity modulus :	E	=	210000,00	MPa
Design strength of material :	f_u	=	690,00	MPa
Pull out resistance (soil) :	R_e	=	15187,75	kN

Earthquake

Factor of horizontal acceleration K_h = 0,0350
Factor of vertical acceleration K_v = 0,0350

Water below the GWT is restricted.

Global settings

Number of FEs to discretize wall = 100
Analysis of depending pressures : reduce according to analysis settings
Minimum pressure is considered as $\sigma_{a,min} = 0{,}20\sigma_z$

Settings of the stage of construction

Design situation : permanent

Analysis results

Pressure above the slip surface

Depth [m]	Passive pressure [kPa]	Active pressure [kPa]
0	0,00	0,00
0,50	0,00	0,00
0,50	0,00	0,00
2,50	0,00	0,00

Distribution of pressures acting on the structure (in front and behind the wall) - below the slip surface

Depth [m]	Ta,p [kPa]	Tk,p [kPa]	Tp,p [kPa]	Ta,z [kPa]	Tk,z [kPa]	Tp,z [kPa]
2.50	-5.54	-16.40	-22.74	31.31	34.80	107.80
2.51	-8.18	-16.43	-22.79	36.21	39.30	96.33
2.64	-8.75	-17.47	-23.93	38.16	41.05	100.44
3.30	-11.59	-22.67	-29.65	47.97	50.25	121.08
3.95	-14.42	-27.87	-35.37	57.77	59.95	141.71
4.61	-17.26	-33.07	-41.09	67.58	69.97	162.34
5.12	-19.42	-37.03	-45.45	75.04	77.72	178.06
5.27	-20.10	-38.27	-46.81	77.60	80.15	182.98
5.64	-21.69	-41.18	-50.02	83.62	85.92	194.54
5.64	-21.69	-41.18	-50.02	80.80	85.92	194.54
5.93	-22.94	-43.47	-52.54	85.57	90.44	203.61
6.59	-25.78	-48.66	-58.26	96.44	100.81	224.24
7.00	-27.54	-51.89	-61.81	103.18	107.28	237.05
7.00	-27.54	-51.90	-61.82	103.20	107.29	237.08
7.25	-28.61	-53.86	-63.98	107.30	111.23	244.88
7.50	-29.69	-55.84	-66.15	111.43	115.20	252.70

Depth [m]	Ta,p [kPa]	Tk,p [kPa]	Tp,p [kPa]	Ta,z [kPa]	Tk,z [kPa]	Tp,z [kPa]
7.91	-31.45	-59.06	-69.70	118.17	121.68	265.51
8.57	-34.29	-64.26	-75.43	129.04	132.16	286.14
8.96	-35.98	-67.36	-78.84	135.52	138.42	298.46
9.23	-37.13	-69.46	-91.19	139.90	142.65	306.78
9.40	-37.89	-70.85	-99.40	142.81	145.46	312.30
9.40	-37.89	-70.85	-99.40	142.64	145.46	312.30
9.89	-39.97	-74.66	-121.85	150.63	153.16	327.41
10.55	-42.80	-79.86	-152.50	161.54	163.67	348.04
11.20	-45.64	-85.06	-183.15	172.46	174.19	368.68
11.86	-48.48	-90.25	-213.80	183.37	184.72	389.31
12.20	-49.93	-92.91	-229.44	188.94	190.09	399.84
12.20	-0.58	-61.74	-430.06	148.13	161.16	670.34
12.52	-0.50	-63.81	-437.61	152.35	166.04	683.21
13.18	-0.33	-68.03	-453.02	160.96	176.01	709.49
13.84	-0.17	-72.25	-468.43	169.58	185.98	735.76
14.00	-0.13	-73.27	-472.15	171.66	188.39	742.10
14.50	0.00	-76.48	-483.84	178.20	195.96	762.04

Distributions of the modulus of subsoil reaction and internal forces on the structure

Depth [m]	kh,p [MN/m³]	kh,z [MN/m³]	Displacement [mm]	Pressure [kPa]	Shear Force [kN/m]	Moment [kNm/m]
0.00	0.00	0.00	-31.59	0.00	-0.00	-0.00
0.25	0.00	0.00	-35.20	0.00	-0.00	0.00
0.25	0.00	0.00	-35.20	0.00	93.77	0.00
0.50	0.00	0.00	-38.74	0.00	93.77	-23.07
0.50	0.00	0.00	-38.85	0.00	93.77	-23.82
0.73	0.00	0.00	-42.02	0.00	93.77	-44.54
1.45	0.00	0.00	-52.19	0.00	93.77	-112.53
2.17	0.00	0.00	-61.71	0.00	93.77	-180.51
2.50	0.00	0.00	-65.63	0.00	93.77	-210.61
2.50	0.00	0.00	-65.72	13.42	93.72	-211.36
2.90	0.00	0.00	-70.21	15.87	87.92	-247.36
3.63	0.00	0.00	-77.30	20.36	74.79	-306.54
4.35	0.00	0.00	-82.64	24.85	58.40	-355.01
5.08	0.00	0.00	-85.96	29.34	38.75	-390.42
5.80	0.00	0.00	-87.05	32.01	16.13	-410.41
6.53	0.00	0.00	-85.82	37.66	-9.13	-413.19
7.25	0.00	0.00	-82.23	43.32	-38.49	-396.18
7.98	0.00	0.00	-76.39	48.98	-71.95	-356.40
8.70	0.00	0.00	-68.52	54.64	-109.51	-290.87
9.43	0.00	0.00	-59.01	42.60	-147.04	-197.28
10.15	0.00	0.00	-48.39	20.89	-170.05	-81.38
10.88	0.00	0.00	-37.30	-0.82	-177.33	45.50
11.60	0.00	0.00	-26.47	-22.53	-168.86	171.95
12.33	0.00	0.00	-16.62	-283.22	-127.33	285.71
13.05	0.00	0.00	-8.35	-290.70	80.72	302.93
13.78	0.00	0.00	-1.74	-298.17	294.18	167.36

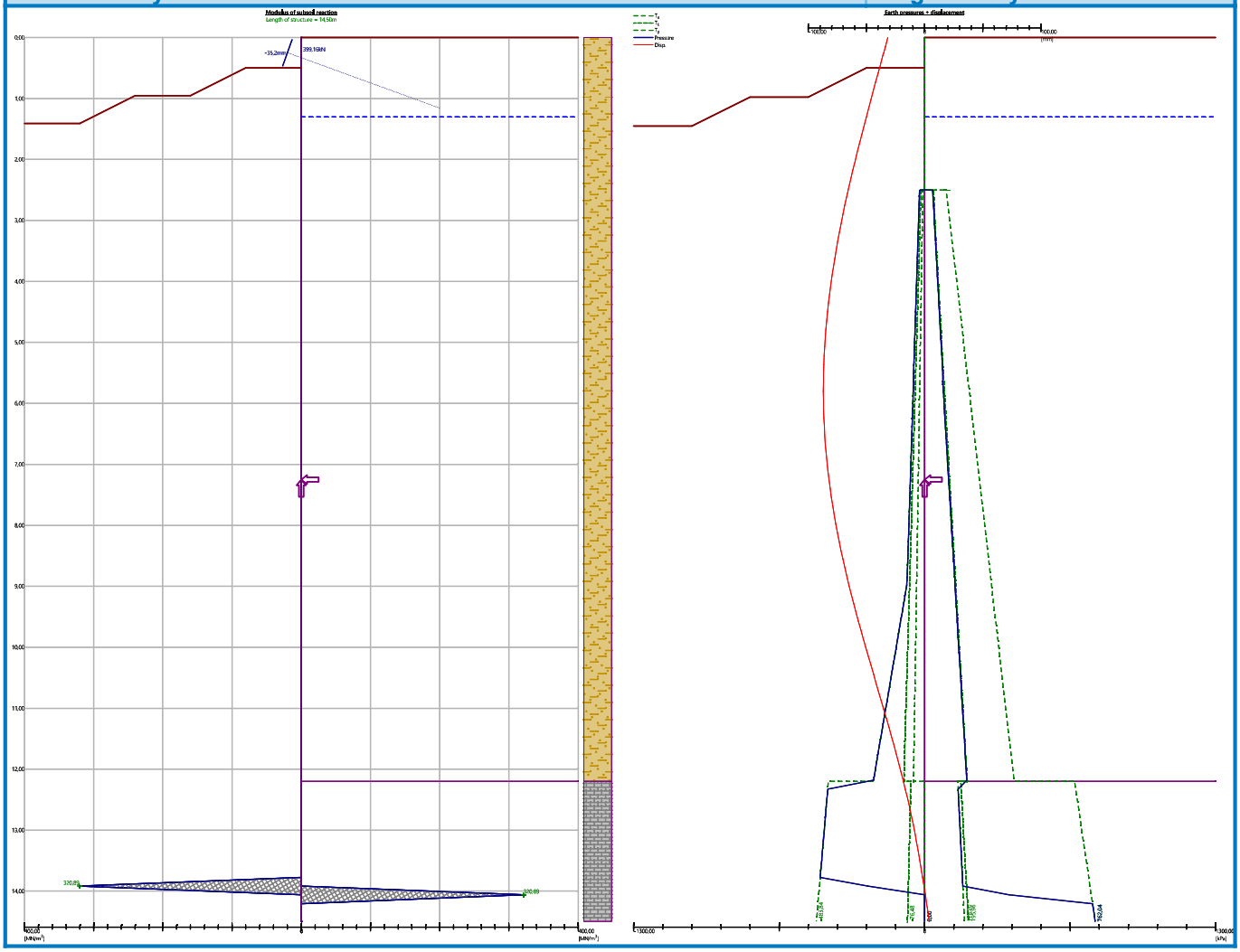
Depth [m]	kh,p [MN/m3]	kh,z [MN/m3]	Displacement [mm]	Pressure [kPa]	Shear Force [kN/m]	Moment [kNm/m]
14.50	0.00	0.00	3.96	762.04	-0.00	0.00

Maximum shear force = 335,48 kN/m
Maximum moment = 414,29 kNm/m
Maximum displacement = 87,1 mm
Displacement in the depth of slip surface = 65,7 mm

Anchors forces

No.	Depth [m]	Displacement [mm]	Anchor force [kN]
1	0,25	-35,2	399,16

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



Dimensioning No. 1

Distribution of forces on construction

	Disp. min [mm]	Disp. max [mm]	Shear force min. [kN/m]	Shear force max [kN/m]	Moment min. [kNm/m]	Moment max. [kNm/m]
0.00	-31.59	-31.59	-0.00	-0.00	-0.00	-0.00
0.25	-35.20	-35.20	-0.00	-0.00	0.00	0.00
0.25	-35.20	-35.20	93.77	93.77	0.00	0.00

	Disp. min [mm]	Disp. max [mm]	Shear force min. [kN/m]	Shear force max [kN/m]	Moment min. [kNm/m]	Moment max. [kNm/m]
0.50	-38.74	-38.74	93.77	93.77	-23.07	-23.07
0.50	-38.74	-38.74	93.77	93.77	-23.07	-23.07
0.50	-38.85	-38.85	93.77	93.77	-23.82	-23.82
0.50	-38.85	-38.85	93.77	93.77	-23.82	-23.82
0.73	-42.02	-42.02	93.77	93.77	-44.54	-44.54
1.45	-52.19	-52.19	93.77	93.77	-112.53	-112.53
2.17	-61.71	-61.71	93.77	93.77	-180.51	-180.51
2.50	-65.63	-65.63	93.77	93.77	-210.61	-210.61
2.50	-65.63	-65.63	93.77	93.77	-210.61	-210.61
2.50	-65.72	-65.72	93.72	93.72	-211.36	-211.36
2.50	-65.72	-65.72	93.72	93.72	-211.36	-211.36
2.90	-70.21	-70.21	87.92	87.92	-247.36	-247.36
3.63	-77.30	-77.30	74.79	74.79	-306.54	-306.54
4.35	-82.64	-82.64	58.40	58.40	-355.01	-355.01
5.08	-85.96	-85.96	38.75	38.75	-390.42	-390.42
5.80	-87.05	-87.05	16.13	16.13	-410.41	-410.41
6.53	-85.82	-85.82	-9.13	-9.13	-413.19	-413.19
7.25	-82.23	-82.23	-38.49	-38.49	-396.18	-396.18
7.98	-76.39	-76.39	-71.95	-71.95	-356.40	-356.40
8.70	-68.52	-68.52	-109.51	-109.51	-290.87	-290.87
9.43	-59.01	-59.01	-147.04	-147.04	-197.28	-197.28
10.15	-48.39	-48.39	-170.05	-170.05	-81.38	-81.38
10.88	-37.30	-37.30	-177.33	-177.33	45.50	45.50
11.60	-26.47	-26.47	-168.86	-168.86	171.95	171.95
12.33	-16.62	-16.62	-127.33	-127.33	285.71	285.71
13.05	-8.35	-8.35	80.72	80.72	302.93	302.93
13.78	-1.74	-1.74	294.18	294.18	167.36	167.36
14.50	3.96	3.96	-0.00	-0.00	0.00	0.00

Maximum values of internal forces

Maximum displacement = -87,1 mm
Minimum displacement = 4,0 mm
Maximum bending moment = 314,16 kNm/m
Minimum bending moment = -414,29 kNm/m
Maximum shear force = 335,48 kN/m

Verification of RC cross section (Pile curtain d = 0.50 m, a = 1.00 m)

All construction stages are taken into the analysis.
Partial factor on load = 1,00

Verification of cross section in bending:

Reinforcement - 12 pc bars 32,0 mm; cover 80,0 mm
Type of structure (reinforcement ratio) : beam
Reinforcement ratio ρ = 2,458 % > 0,130 % = ρ_{min}
Load : M_{Ed} = 414,29 kNm
Bearing capacity : M_{Rd} = 434,85 kNm

Designed pile reinforcement is SATISFACTORY

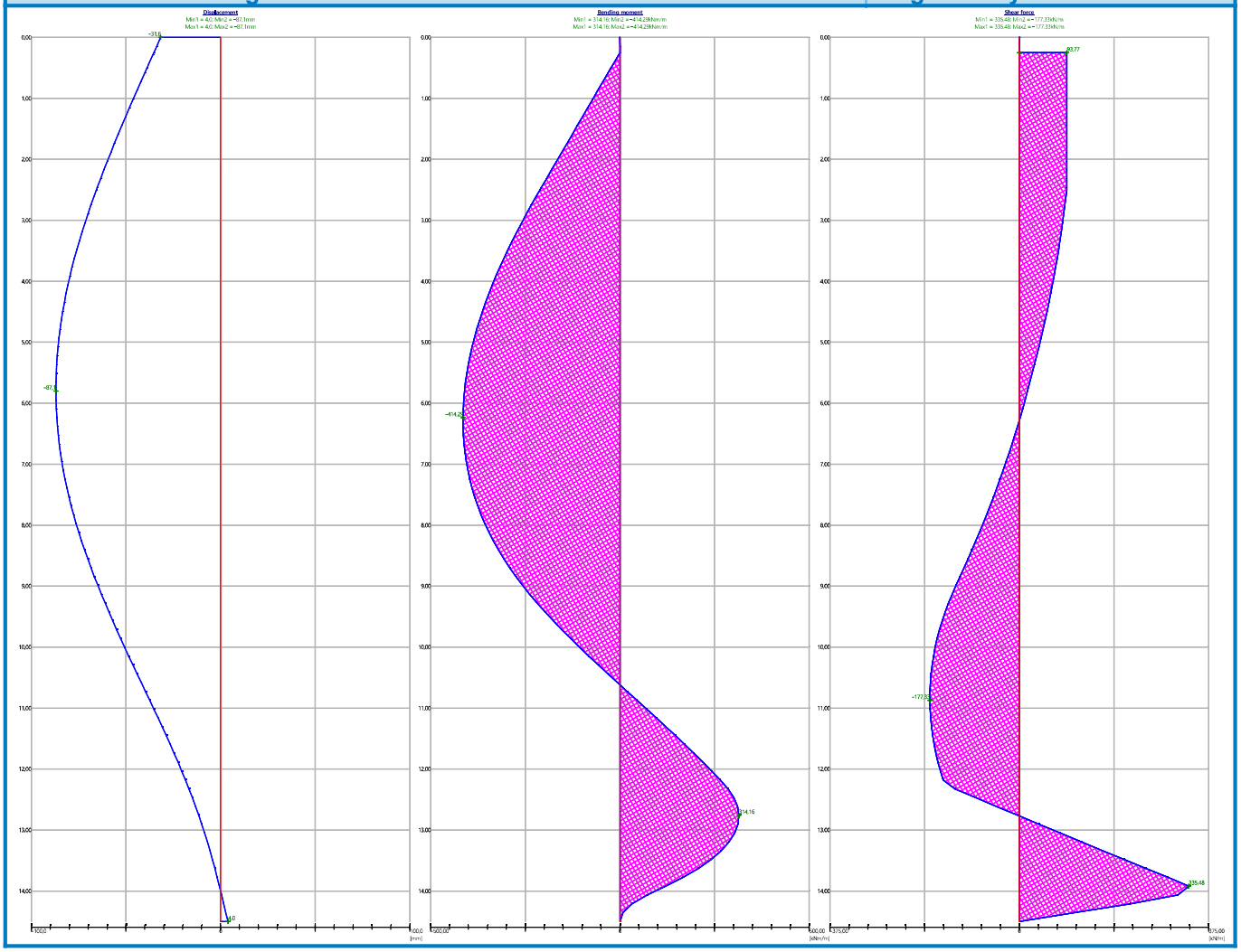
Verification of cross section in shear:

Shear reinf. - profile 10,0 mm; spacing 150,0 mm
A_{sw} = 2 x 523,6 = 1047,2 mm^2
Ultimate shear force: V_{Rd} = 409,77 kN > 335,48 kN = V_{Ed}

Cross-section is SATISFACTORY.

Overall verification: Cross-section is SATISFACTORY

Name : Dimensioning	Stage - analysis : 1 - 1



Verification of lagging 1

Input data

Concrete : C 30/37
Longitudinal steel : B500B
Transverse steel : B500B

Cross section type : rectanglebxh=1200,0x500,0mm
Type of load : rectangle

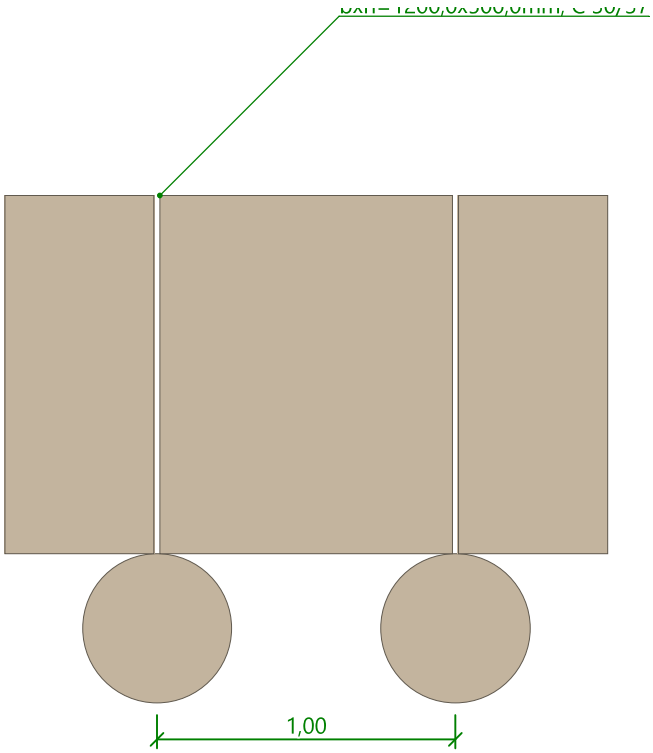
Verification of RC cross section (b = 0,50 m; h = 1,20 m)

All construction stages are taken into the analysis.
Partial factor on load = 1,00
Reinforcement - 10 pc bars 12,0 mm; cover 50,0 mm
Shear reinf. - 2 profile 10,0 mm; distance 200,0 mm

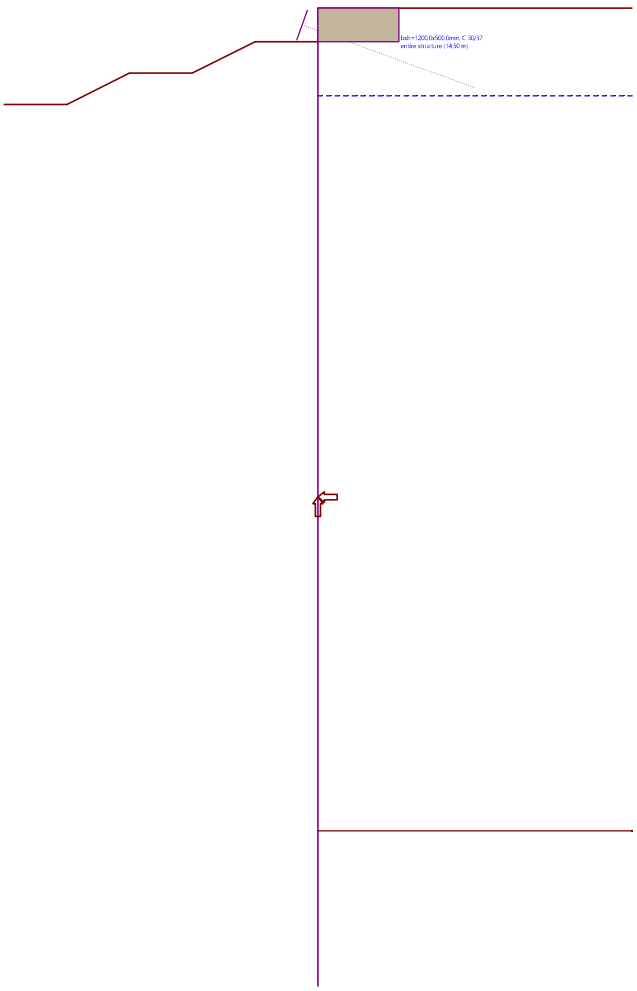
Reinforcement ratio	ρ	=	0,20	%	>	0,15	%	=	ρ_{min}
Position of neutral axis	x	=	0,06	m	<	0,71	m	=	x_{max}
Ultimate moment	M_{Rd}	=	550,45	kNm	>	0,00	kNm	=	M_{Ed}

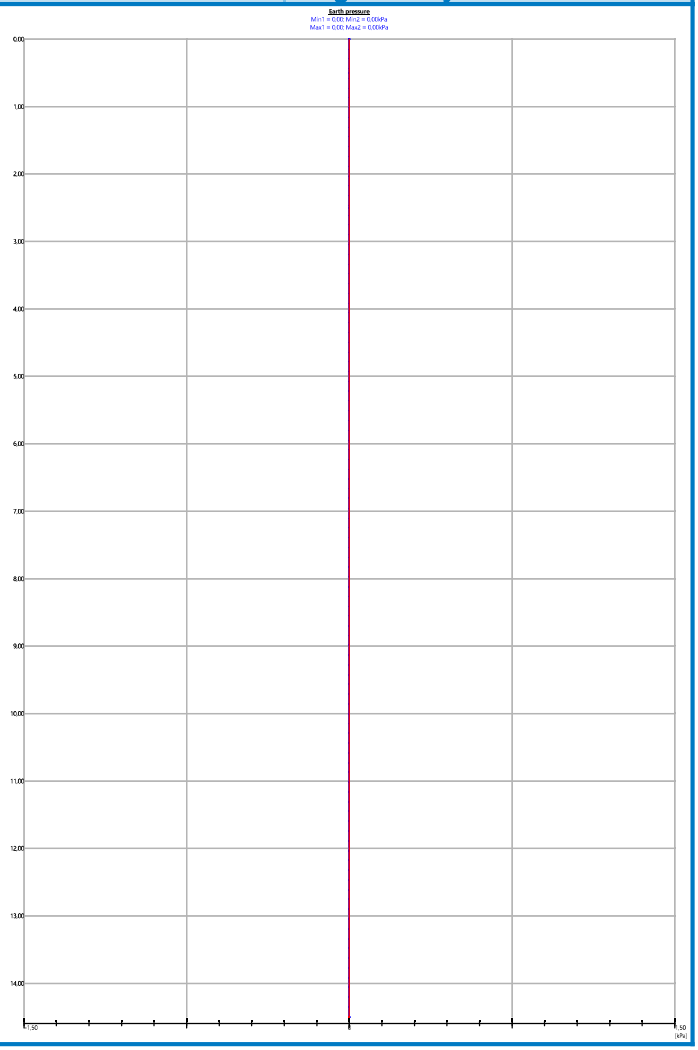
Cross-section is SATISFACTORY.

Lagging scheme



Name : Lagging	Stage - analysis : 1 - 1



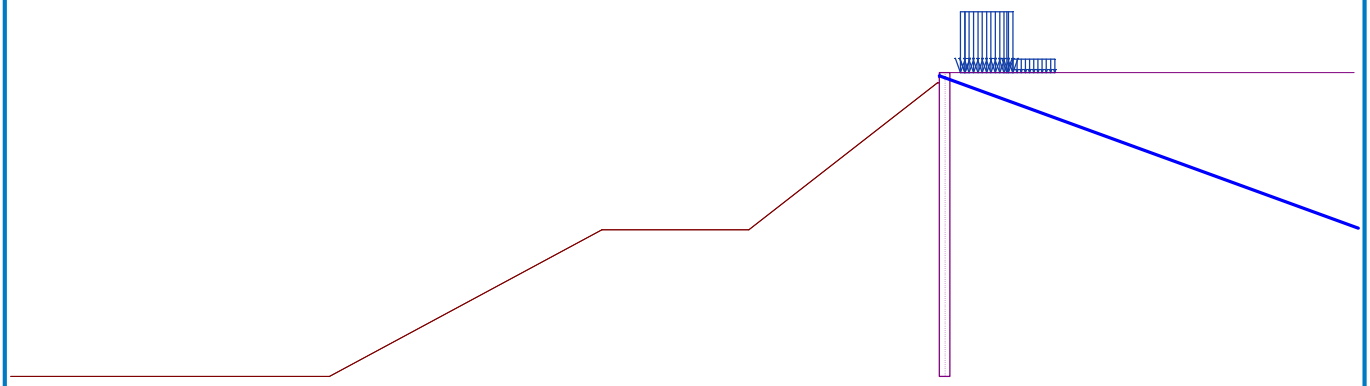


Verification of anchors

Anchor	Stage	Depth z [m]	Max. force F [kN]	Anchor strength R_t [kN]	Pull-out res. (soil) R_e [kN]	Pull-out res. (grouting) R_c [kN]	Verification
1	1	0,25	399,16	579,66	11250,19	-	is satisfactory (68,86 %)

Anchor with max. utilization - Nr. 1. (Stage 1; z = 0,25 m)
Utilization is 68,86 %
Anchors bearing capacity is SATISFACTORY

Name : Anchors Verification	Stage - analysis : 1 - -1



R.4. ANALIZA STABILNOSTI PILOTNE STENE PO SANACIJI

Slope stability analysis

Input data

Project

Task : Rekonstrukcija ceste in usada na JP 965051 Lemberg-Vine v občini Vojnik
Part : Analiza stabilnosti po sanaciji
Description : Sidrana pilotna stena
Customer : GHC-Projekt, d.o.o.
Author : Ciril Obreza, dipl. inž. grad.
Date : 1. 03. 2024
Project ID : GG 49/3/24
Project number : GG 49/3/24

Settings

Slovenia - EN 1997

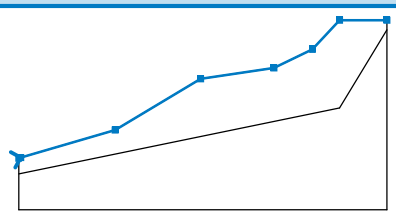
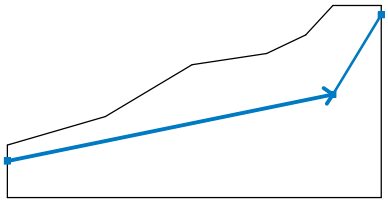
Stability analysis

Earthquake analysis : Standard
Verification methodology : according to EN 1997
Design approach : 3 - reduction of actions (GEO, STR) and soil parameters

Partial factors on actions (A)									
Permanent design situation									
		State STR				State GEO			
		Unfavourable		Favourable		Unfavourable		Favourable	
Permanent actions :	γ_G =	1,00	[–]	1,00	[–]	1,00	[–]	1,00	[–]
Variable actions :	γ_Q =	1,50	[–]	0,00	[–]	1,30	[–]	0,00	[–]
Water load :	γ_w =					1,00	[–]		

Partial factors for soil parameters (M)			
Permanent design situation			
Partial factor on internal friction :	γ_ϕ =	1,25	[–]
Partial factor on effective cohesion :	γ_c =	1,25	[–]
Partial factor on undrained shear strength :	γ_{cu} =	1,40	[–]

Interface

No.	Interface location	Coordinates of interface points [m]					
		x	z	x	z	x	z
1		-7,40	-0,99	-7,10	-0,90	5,99	2,91
		17,86	10,00	28,05	11,53	33,40	14,10
		37,15	18,16	43,74	18,16		
2		-7,40	-3,16	37,15	5,96	43,74	16,83

Soil parameters - effective stress state

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [kPa]	γ [kN/m³]
1	Gruščnata peščena glina		34,00	4,00	18,00
2	Lapor, apnenec		35,00	100,00	22,00

Soil parameters - uplift

No.	Name	Pattern	γ_{sat} [kN/m³]	γ_s [kN/m³]	n [–]
1	Gruščnata peščena glina		19,00		
2	Lapor, apnenec		22,00		

Soil parameters

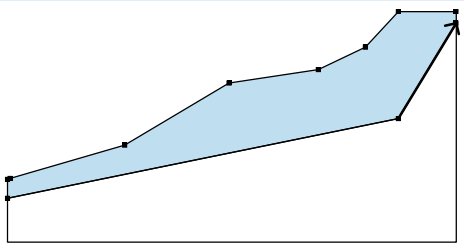
Gruščnata peščena glina

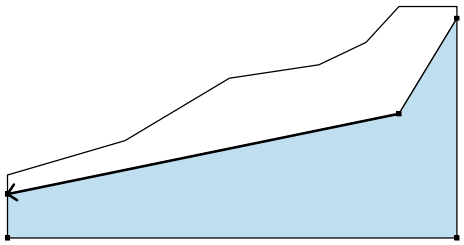
Unit weight : γ = 18,00 kN/m³
Stress-state : effective
Angle of internal friction : φ_{ef} = 34,00 °
Cohesion of soil : c_{ef} = 4,00 kPa
Saturated unit weight : γ_{sat} = 19,00 kN/m³

Lapor, apnenec

Unit weight : γ = 22,00 kN/m³
Stress-state : effective
Angle of internal friction : φ_{ef} = 35,00 °
Cohesion of soil : c_{ef} = 100,00 kPa
Saturated unit weight : γ_{sat} = 22,00 kN/m³

Assigning and surfaces

No.	Surface position	Coordinates of surface points [m] x	z	x	z	Assigned soil
1		37,15	5,96	43,74	16,83	Gruščnata peščena glina
		43,74	18,16	37,15	18,16	
		33,40	14,10	28,05	11,53	
		17,86	10,00	5,99	2,91	
		-7,10	-0,90	-7,40	-0,99	
		-7,40	-3,16			

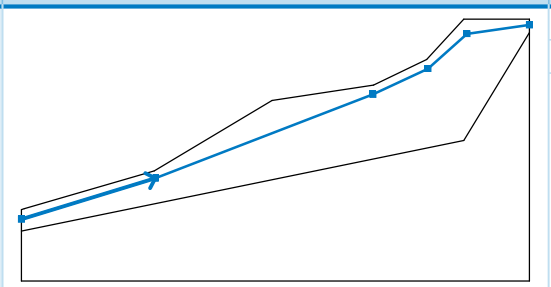
No.	Surface position	Coordinates of surface points [m]				Assigned soil
		x	z	x	z	
2		37,15	5,96	-7,40	-3,16	Lapor, apnenec
		-7,40	-8,16	43,74	-8,16	
		43,74	16,83			

Anti-Slide piles

No.	Point		Length	Pile spacing	Cross-section	Pile bearing capacity			
	x [m]	z [m]	l [m]	b [m]	[m]	Distribution along the pile	Max. bearing capacity V_u [kN]	Gradient K [–]	Passive force direction
1	37,21	18,16	14,50	1,00	d = 0,50	linear	409,77	1,00	perpendicular to pile

Water

Water type : GWT

No.	GWT location	Coordinates of GWT points [m]					
		x	z	x	z	x	z
1		-7,40	-1,95	6,11	2,16	27,99	10,61
		33,54	13,19	37,45	16,70	43,74	17,60

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 (stage 1)

Circular slip surface

Slip surface parameters							
Center :	x =	0,53	[m]	Angles :	α_1 =	-5,99	[°]
	z =	50,08	[m]		α_2 =	50,86	[°]
Radius :	R =	50,57	[m]				
The slip surface after optimization.							

The restrictions of points of circular slip surface

Keep the right end point of the slip surface

Slope stability verification (Bishop)

Sum of active forces : F_a = 1164,74 kN/m

Sum of passive forces : F_p = 1562,69 kN/m

Sliding moment : M_a = 58901,07 kNm/m
Resisting moment : M_p = 79025,05 kNm/m
Utilization : 74,5 %

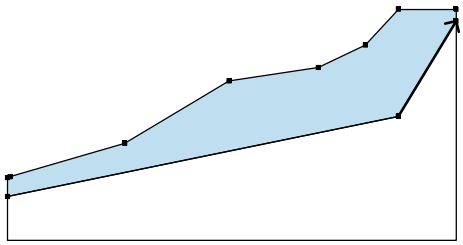
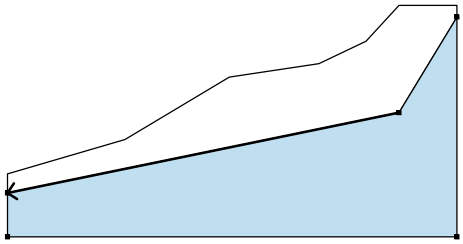
Slope stability ACCEPTABLE

Piles verification 1 (stage 1)

Anti-Slide pile : Anti-Slide Pile No. 1 (37,21; 18,16 [m])
Analysis : Calculation 1 (slip surface circular)
Method : Bishop

Input data (Stage of construction 2)

Assigning and surfaces

No.	Surface position	Coordinates of surface points [m] x	z	x	z	Assigned soil
1		37,15	5,96	43,74	16,83	Gruščnata peščena glina
		43,74	18,16	37,15	18,16	
		33,40	14,10	28,05	11,53	
		17,86	10,00	5,99	2,91	
		-7,10	-0,90	-7,40	-0,99	
		-7,40	-3,16			
2		37,15	5,96	-7,40	-3,16	Lapor, apnenec
		-7,40	-8,16	43,74	-8,16	
		43,74	16,83			

Anti-Slide piles

No.	Anti-Slide pile new	Point x [m]	Point z [m]	Length l [m]	Pile spacing b [m]	Cross-section [m]	Pile bearing capacity: Distribution along the pile	Max. bearing capacity V_u [kN]	Gradient K [–]	Passive force direction
1	No	37,21	18,16	14,50	1,00	d = 0,50	linear	409,77	1,00	perpendicular to pile

Water

Water type : No water

Tensile crack

Tensile crack not input.

Earthquake

Horizontal seismic coefficient : K_h = 0,04
Vertical seismic coefficient : K_v = 0,04

Settings of the stage of construction

Design situation : permanent

Results (Stage of construction 2)

Analysis 1 (stage 2)

Circular slip surface

Slip surface parameters							
Center :	x =	2,95	[m]	Angles :	α_1 =	-7,05	[°]
	z =	47,90	[m]		α_2 =	51,67	[°]
Radius :	R =	47,95	[m]				
The slip surface after optimization.							

The restrictions of points of circular slip surface

Keep the right end point of the slip surface

Slope stability verification (Bishop)

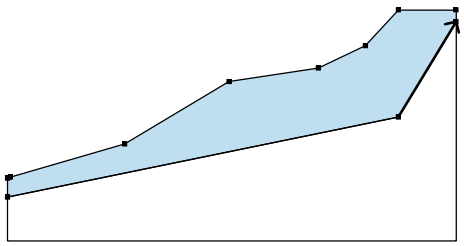
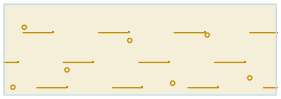
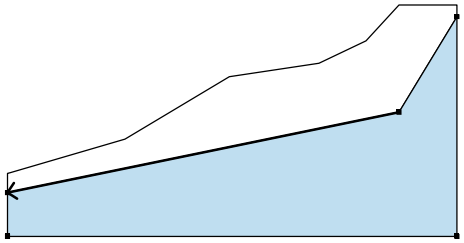
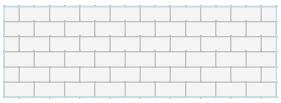
Sum of active forces : F_a = 1252,29 kN/m
Sum of passive forces : F_p = 2032,36 kN/m

Sliding moment : M_a = 60047,23 kNm/m
Resisting moment : M_p = 97451,67 kNm/m
Utilization : 61,6 %

Slope stability ACCEPTABLE

Input data (Stage of construction 3)

Assigning and surfaces

No.	Surface position	Coordinates of surface points [m] x	z	x	z	Assigned soil
1		37,15	5,96	43,74	16,83	Gruščnata peščena glina
		43,74	18,16	37,15	18,16	
		33,40	14,10	28,05	11,53	
		17,86	10,00	5,99	2,91	
		-7,10	-0,90	-7,40	-0,99	
		-7,40	-3,16			
2		37,15	5,96	-7,40	-3,16	Lapor, apnenec
		-7,40	-8,16	43,74	-8,16	
		43,74	16,83			

Anti-Slide piles

No.	Anti-Slide pile new	Point x [m]	Point z [m]	Length l [m]	Pile spacing b [m]	Cross-section [m]	Pile bearing capacity: Distribution along the pile	Max. bearing capacity V_u [kN]	Gradient K [–]	Passive force direction
1	No	37,21	18,16	14,50	1,00	d = 0,50	linear	409,77	1,00	perpendicular to pile

Surcharge

No.	Surcharge new	Surcharge change	Type	Type of action	Location z [m]	Origin x [m]	Length l [m]	Width b [m]	Slope α [°]	Magnitude q, q_1, f, F	Magnitude q_2	Magnitude unit
1	Yes		strip	variable	on terrain	x = 38,00	l = 2,50		0,00	9,00		kN/m²
2	Yes		strip	variable	on terrain	x = 40,50	l = 2,00		0,00	2,00		kN/m²

No.	Surcharge		Type	Type of action	Location	Origin	Length	Width	Slope	Magnitude		
	new	change			z [m]	x [m]	l [m]	b [m]	α [°]	q, q_1, f, F	q_2	unit
3	Yes		concentrated	variable	on terrain	x = 38,00	l = 0,44	b = 0,32		65,00		kN
4	Yes		concentrated	variable	on terrain	x = 40,50	l = 0,44	b = 0,32		65,00		kN

Water

Water type : No water

Tensile crack

Tensile crack not input.

Earthquake

Earthquake not included.

Settings of the stage of construction

Design situation : permanent

Results (Stage of construction 3)

Analysis 1 (stage 3)

Circular slip surface

Slip surface parameters							
Center :	x =	28,74	[m]	Angles :	α_1 =	-18,33	[°]
	z =	20,78	[m]		α_2 =	75,03	[°]
Radius :	R =	10,14	[m]				
The slip surface after optimization.							

The restrictions of points of circular slip surface

Keep the right end point of the slip surface

Slope stability verification (Bishop)

Sum of active forces : F_a = 289,47 kN/m
Sum of passive forces : F_p = 559,48 kN/m

Sliding moment : M_a = 2935,24 kNm/m
Resisting moment : M_p = 5673,15 kNm/m
Utilization : 51,7 %

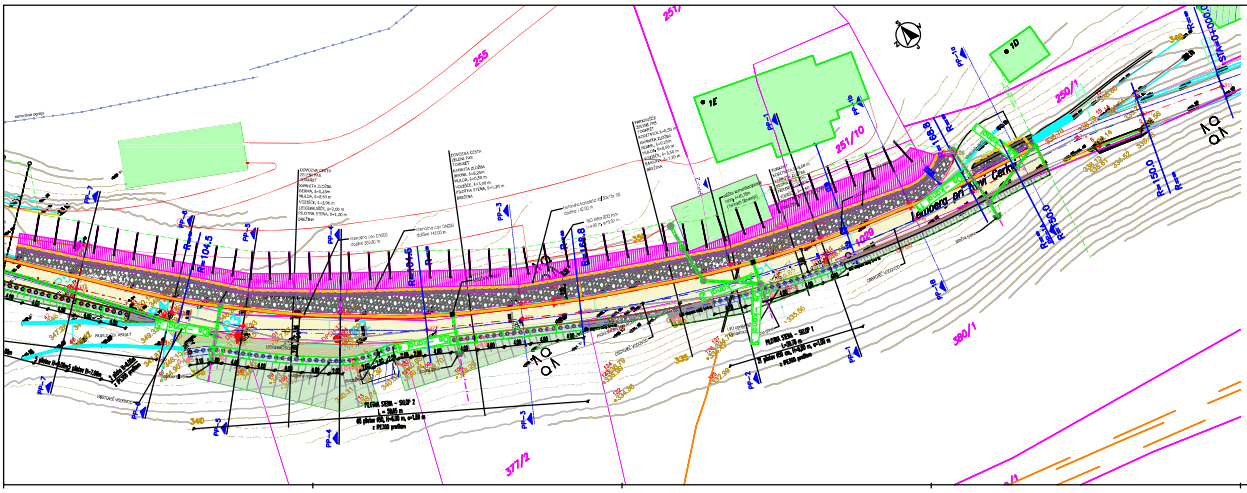
Slope stability ACCEPTABLE

G. GRAFIKE

Naročnik:	Občina Vojnik Kardova 8 3212 Vojnik		
Izvajalec:	GHC PROJEKT GHC-projekt, projektiranje in inženiring, d.o.o.		
Podizvajalec:			
Naziv	Ime in priimek	Ident. št.	Podpis
Odg.vodja proj.:			
Odg.projektant:	Vid ŠTUKOVNIK dipl.inž.grad.	G-4619	
Projektant 1:	Bojana Žibret		
Projektant 2:			

Projekt:	Sanacija ceste in usada na JP 965051 Lemberg-Vine v občini Vojnik		
Vrsta gradnje:	sanacija		
Opis risbe:	Pregledna situacija		
Del. risbe:			
Št. projekta:	49/3/24	Faza:	PZI
Št. mapnice:	NK 49/3/24	Merilo:	1:2000
Šifra CC:		Datum:	november 2024

Št. odseka:	Arhivska št.:	Faza/Objekt:	Šifra risbe:	
Št. priloge:	G.1		Avtor risbe:	GHC-projekt, projektiranje in inženiring, d.o.o.
			Ident. št. risbe:	



LEGENDA

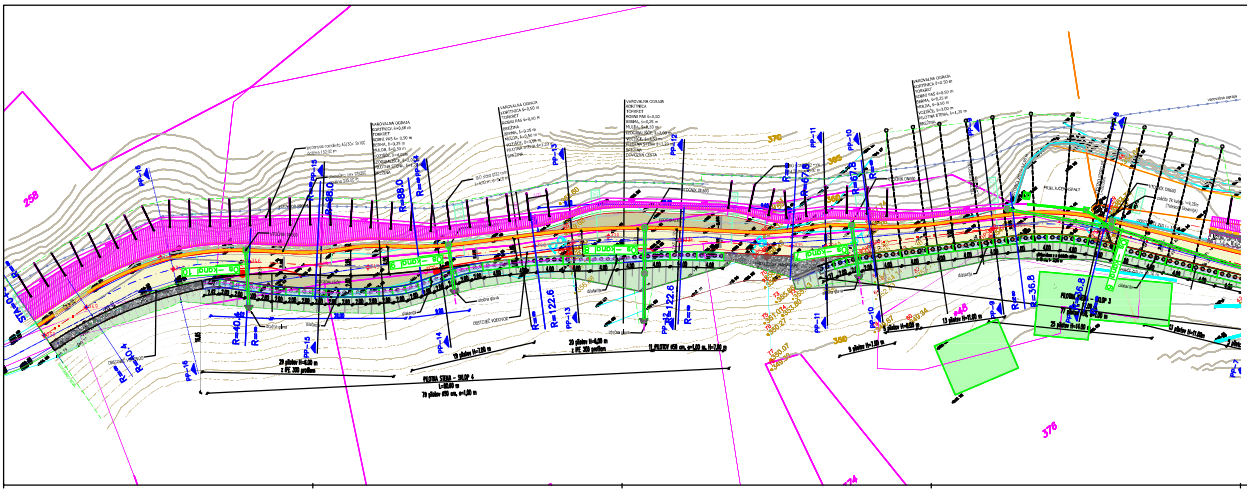
- asfalt
- tampon/drobljenec
- mulda
- bankina
- zemnina ojačana
- betonska stena
- betonska
- objekt
- forlaef
- nasip
- drenaža
- pilot
- kamen v betonu-enakomerno pečje
- betonski jašek DN800
- vtočnik DN600
- urejena meja parcele
- meja parcele
- parcelna številka

DPSH – LOKACIJE MERITEV Z DINAMIČNIM PENETROMETROM SUPER HEAVY

CPT – LOKACIJE MERITEV S STATIČNIM PENETROMETROM

Naročnik: Občina Vojnik, Parkovna 8, 3212 Vojnik		Projekt: Sanacija ceste in usada na JP 965051 Lemberg-Vine v naselju Vojnik	
Izdelovalec: GRC-projekt, projektiranje in inženiring, d.o.o.		Faza projekta: rekonstrukcija	
Podizvajalec:		Ime načrta: Grafična situacija L&V	
Vodja:	Ime in priimek:	Kat. št.	Podpis:
Odgovorni projektant:	MG STROJNIK dipl.kul.grad.	G-4819	
Odgovorni V:	Boštjan Žunič		
Odgovorni K:			
Št. načrta:	Arhivska št.:	Datum/Mapa:	Ime datoteka:
Št. priloge:	G.2.1		Avtor risbe: GRC-projekt, projektiranje in inženiring, d.o.o.
			Datum, ID risbe:

Kat. načrt:	Grafična situacija L&V		
Št. projekta:	49/Q/24	Faza:	PZI
Št. načrta:	NK 49/Q/24	Merilo:	1:250
Ime rib:		Datum:	november 2024



LEGENDA

asfalt
tampon/kamnina
mulda
bankina
kamnita ureditev
betonska stena
betonska
objekt
nasip
drenažo
silos
kamen v betonu - mulasto polje
betonski jašek DN800
vtočnik DN600
urejena meja parcele
meja parcele
parcelna številka

DPSH – LOKACIJE MERITEV Z DINAMIČNIM PENETROMETROM SUPER HEAVY
CPT – LOKACIJE MERITEV S STATIČNIM PENETROMETROM

Naročnik: Občina Vojnik, Kartinova ul. 3212 Vojnik	Projekt: Sanacija ceste in usada na JP 965051 Lemberg-Vine v občini Vojnik
Izdelovalec: GRC-projekt, projektiranje in tehnolog. svet.	Naziv projekta: rekonstrukcija
Podizvajalec:	Ime risbe: Gradbena situacija II.del
Vodja: Ime in priimek / Kat. st. / Podpis	Kat. načrt:
Odgovorni projektant: Ivi STROVINK dipl.kult.grad. G-4819	Št. projekta: 49/2/24 / Faza: PZI
Projektant 1: Bojana Žunič	Št. načrta: IN 49/2/24 / Merilo: 1:250
Projektant 2:	Datum risbe: Datum: november 2024

Št. načrta:	Arhivska št.:	Faza/Vrsta:	Ime risbe:
Št. priloge: G.2.2			Avtor risbe: GRC-projekt, projektiranje in tehnolog. svet.
			Kont. st. risbe:

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T1	X:610111.6767	Y:131201.1086	sklop 1
T2	X:519443.7371	Y:131201.8438	sklop 1
T3	X:519442.8006	Y:131202.1944	sklop 1
T4	X:519441.8662	Y:131202.5505	sklop 1
T5	X:519440.9338	Y:131202.9121	sklop 1
T0	X:519440.0030	Y:131203.2792	sklop 1
T7	X:519439.0756	Y:131203.6517	sklop 1
T8	X:519438.1497	Y:131204.0296	sklop 1
T9	X:519437.2261	Y:131204.4129	sklop 1
T10	X:510436.3060	Y:131204.8044	sklop 1
T11	X:519435.3857	Y:131205.1956	sklop 1

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T12	X:610131.1716	Y:131206.6000	sklop 1
T13	X:519433.5546	Y:131206.0000	sklop 1
T14	X:519432.6426	Y:131206.4102	sklop 1
T15	X:519431.7330	Y:131206.8257	sklop 1
T16	X:519430.8259	Y:131207.2466	sklop 1
T17	X:519429.9212	Y:131207.0727	sklop 1
T18	X:519429.0191	Y:131208.1042	sklop 1
T19	X:519428.1195	Y:131208.5409	sklop 1
T20	X:519427.2224	Y:131208.9828	sklop 1
T21	X:510426.3280	Y:131200.4300	sklop 1

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T22	X:610108.8138	Y:131210.6066	sklop 2
T23	X:519407.9793	Y:131220.1465	sklop 2
T24	X:519407.1447	Y:131220.6975	sklop 2
T25	X:519406.3102	Y:131221.2485	sklop 2
T26	X:510405.4757	Y:131221.7904	sklop 2
T27	X:519404.0411	Y:131222.3504	sklop 2
T28	X:519403.8066	Y:131222.9013	sklop 2
T29	X:519402.9721	Y:131223.4523	sklop 2
T30	X:519402.1441	Y:131224.0000	sklop 2
T31	X:510401.3035	Y:131224.5550	sklop 2

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T32	X:610100.1686	Y:131226.1061	sklop 2
T33	X:519399.6339	Y:131225.6561	sklop 2
T34	X:519398.7994	Y:131226.2071	sklop 2
T35	X:519397.9649	Y:131226.7580	sklop 2
T36	X:510397.1360	Y:131227.3176	sklop 2
T37	X:519390.3015	Y:131227.8080	sklop 2
T38	X:519395.4612	Y:131228.4109	sklop 2
T39	X:519394.6267	Y:131228.9619	sklop 2
T40	X:519393.7922	Y:131229.5128	sklop 2
T41	X:510392.0577	Y:131230.0638	sklop 2

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T12	X:610302.1231	Y:131230.6117	sklop 2
T43	X:519391.2886	Y:131231.1657	sklop 2
T44	X:519390.4541	Y:131231.7166	sklop 2
T45	X:519389.6195	Y:131232.2676	sklop 2
T46	X:510388.7878	Y:131232.8228	sklop 2
T47	X:519387.9024	Y:131233.3873	sklop 2
T48	X:519387.1397	Y:131233.9557	sklop 2
T49	X:519386.2961	Y:131234.4919	sklop 2
T50	X:519385.4178	Y:131231.9691	sklop 2
T51	X:510384.5000	Y:131235.3853	sklop 2

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T62	X:610383.6738	Y:131236.7383	sklop 2
T53	X:519382.6210	Y:131236.0416	sklop 2
T54	X:519381.6836	Y:131236.3902	sklop 2
T55	X:519380.7707	Y:131236.7984	sklop 2
T56	X:510379.8850	Y:131237.2647	sklop 2
T07	X:519379.0331	Y:131237.7870	sklop 2
T58	X:519378.2157	Y:131238.3632	sklop 2
T59	X:519377.4372	Y:131238.9909	sklop 2
T60	X:519376.6836	Y:131239.6484	sklop 2
T61	X:510375.0361	Y:131240.3128	sklop 2

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T62	X:610376.1016	Y:131210.0830	sklop 2
T63	X:519374.4597	Y:131241.6619	sklop 2
T64	X:519373.7309	Y:131242.3467	sklop 2
T65	X:519373.0084	Y:131243.0381	sklop 2
T66	X:510372.2923	Y:131213.7362	sklop 2
T07	X:519371.5827	Y:131244.4408	sklop 2
T68	X:519370.8796	Y:131245.1519	sklop 2
T69	X:519370.1831	Y:131245.8695	sklop 2
T70	X:519369.4932	Y:131246.5935	sklop 2
T71	X:510368.8101	Y:131247.3238	sklop 2

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T72	X:510368.1337	Y:131248.0604	sklop 2
T73	X:519367.4641	Y:131248.8032	sklop 2
T74	X:519366.8014	Y:131249.5522	sklop 2
T75	X:519366.1457	Y:131250.3072	sklop 2
T76	X:510365.4826	Y:131251.0664	sklop 2
T77	X:519364.7719	Y:131251.7582	sklop 2
T78	X:519364.0144	Y:131252.4104	sklop 2
T79	X:519363.2138	Y:131253.0089	sklop 2
T80	X:519362.3739	Y:131253.6597	sklop 2
T01	X:519361.4900	Y:131254.0334	sklop 2

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T238	X:519365.2260	Y:131261.9572	zložba
T239	X:519367.5421	Y:131263.6526	zložba
T240	X:519356.4236	Y:131273.6084	zložba
T241	X:519358.1104	Y:131274.8432	zložba
T242	X:519350.5264	Y:131281.6646	zložba
T243	X:519351.9364	Y:131282.7637	zložba
T279	X:519372.4184	Y:131254.0101	zložba
T280	X:519373.6457	Y:131255.0935	zložba
T281	X:519374.0240	Y:131255.4272	zložba
T282	X:519382.5405	Y:131244.1128	zložba

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T283	X:519384.1405	Y:131245.9831	zložba
T284	X:519384.4630	Y:131246.3657	zložba
T285	X:519404.0673	Y:131227.8210	zložba
T286	X:519405.0604	Y:131229.3689	zložba
T287	X:519405.3636	Y:131229.7847	zložba
T288	X:519407.8108	Y:131224.5264	zložba
T289	X:519408.2251	Y:131225.1424	zložba
T290	X:519409.3351	Y:131226.9233	zložba
T291	X:519431.8193	Y:131212.1483	zložba
T292	X:519432.6130	Y:131213.8148	zložba

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T293	X:519432.8284	Y:131214.2671	zložba
T294	X:519444.7030	Y:131206.6391	zložba
T295	X:519445.4569	Y:131208.6422	zložba
T296	X:519445.6331	Y:131209.1103	zložba
T297	X:519458.0052	Y:131201.4102	zložba
T298	X:519458.2090	Y:131202.1348	zložba
T299	X:519458.6453	Y:131203.6838	zložba
T300	X:519466.0656	Y:131203.3898	zložba
T301	X:519466.3660	Y:131204.2257	zložba
T302	X:519466.0889	Y:131204.6409	zložba

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T310	X:610505.2014	Y:131186.3182	os
T311	X:519493.5055	Y:131189.7222	os
T314	X:519473.6245	Y:131195.6146	os
T315	X:519466.4995	Y:131197.2001	os
T316	X:519457.4609	Y:131199.4751	os
T317	X:519483.7691	Y:131193.3571	os
T318	X:519436.1321	Y:131203.9577	os
T319	X:519443.7087	Y:131203.9877	os
T320	X:519410.1690	Y:131221.0970	os
T321	X:519402.8277	Y:131225.9432	os

Tabela točk zakoličbe

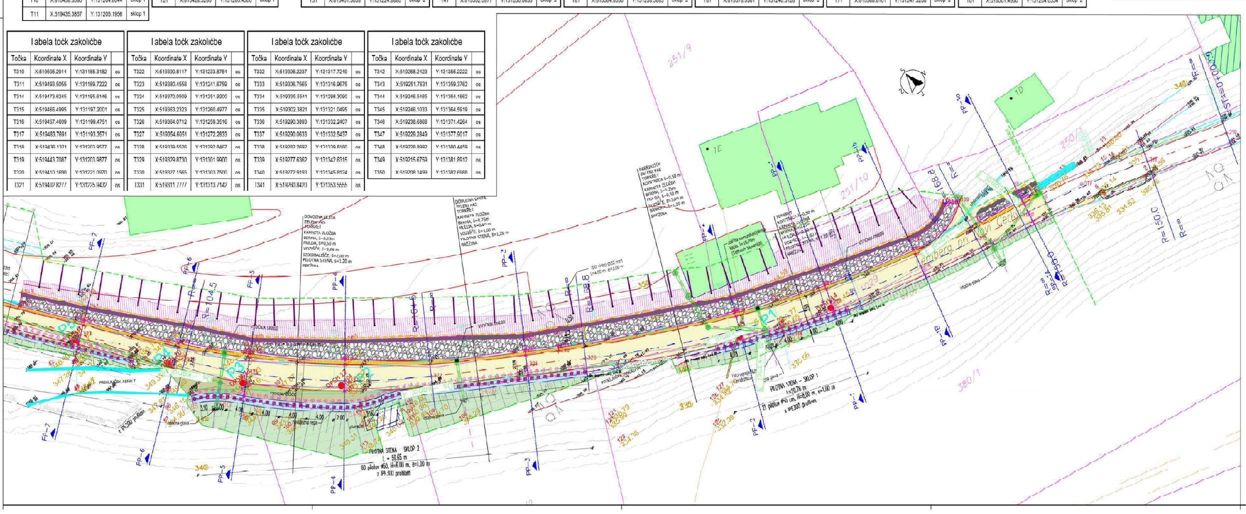
Točka	Koordinate X	Koordinate Y	
T322	X:610300.8117	Y:131233.8761	os
T323	X:519380.4558	Y:131241.6759	os
T324	X:519370.0509	Y:131251.9200	os
T325	X:519363.2323	Y:131260.4977	os
T326	X:519364.0712	Y:131259.3516	os
T327	X:519354.6051	Y:131272.2833	os
T328	X:519339.5526	Y:131292.8467	os
T329	X:519329.8730	Y:131301.9900	os
T330	X:519327.1565	Y:131303.7500	os
T331	X:519311.7777	Y:131313.7142	os

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T332	X:610306.2237	Y:131317.7210	os
T333	X:519306.7565	Y:131316.9675	os
T334	X:519335.5541	Y:131298.3090	os
T335	X:519302.3821	Y:131321.0495	os
T336	X:519290.3893	Y:131332.2407	os
T337	X:519290.0633	Y:131332.5437	os
T338	X:519282.2692	Y:131339.8180	os
T339	X:519277.6362	Y:131342.6315	os
T340	X:519272.9193	Y:131345.8124	os
T341	X:519260.8420	Y:131353.5555	os

Tabela točk zakoličbe

Točka	Koordinate X	Koordinate Y	
T312	X:610268.2123	Y:131366.2222	os
T343	X:519251.7631	Y:131359.3762	os
T344	X:519246.5465	Y:131364.1862	os
T345	X:519246.1033	Y:131364.5919	os
T346	X:519238.6868	Y:131371.4264	os
T347	X:519229.2849	Y:131377.9017	os
T348	X:519228.8992	Y:131380.4459	os
T349	X:519215.6759	Y:131381.8912	os
T350	X:519208.1499	Y:131382.6988	os



LEGENDA

- ▭ astalt
- ▭ izogibališče
- ▭ mulda
- ▭ bankina
- ▨ kamnita zložba
- ▭ pilotna stena
- ▭ zelenica
- 🟩 objekt
- ▨ torkret
- ▭ nasip
- ▪▪▪ drenaža
- P1 pilot
- ▨ kamen v betonu-muldasto polje
- ○ betonski jašek DN800
- ■ vtočnik DN600
- ▭ urejena meja parcele
- ▭ meja parcele
- 195/6 parcelna številka

● DPSH – LOKACIJE MERITEV Z DINAMIČNIM PENETROMETROM SUPER HEAVY
● CPT – LOKACIJE MERITEV S STATIČNIM PENETROMETROM

Naručnik: Občina Vojnik
Karčeva 8
3212 Vojnik

Izvajalec: GHC PROJEKT
GHC-projekt, projektiranje in inženiring, d.o.o.

Podizvajalec:

Naziv	Ime in priimek	Ident. št.	Podpis
Odg.vodja proj.:			
Odg.projektant:	Vid ŠTUKOVNIK dipl.inž.grad.	G 1619	
Projektant 1:	Bojana Žibret		
Projektant 2:			

Projekt: Sanacija ceste in usada na JP 965051
Lemberg-Vine v občini Vojnik

Vrsta gradnje: rekonstrukcija

Opis risbe: Zakoličbena situacija I.del

Del risbe:			
Št. projekta:	10/3/21	Faza:	PZI
Št. načrta:	NK 43/3/24	Merilo:	1:250
Šifra CC:		Datum:	november 2024

Št. odseka:	Arhivska št.:	Faza/Objekt:	Šifra risbe:

Št. priloge: G.3.1

Avtor risbe: GHC-projekt, projektiranje in inženiring, d.o.o.

Ident. št. risbe:

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T160	X:6192033.5668	Y:1312532.7316	sklop 4
T161	X:6192034.0231	Y:1312537.3882	sklop 4
T162	X:6192041.6797	Y:1312538.1896	sklop 4
T163	X:6192041.1516	Y:1312538.7202	sklop 4
T164	X:6192039.6034	Y:1312530.0407	sklop 4
T165	X:6192039.8838	Y:1312530.0577	SKOD 4
T166	X:6192039.0816	Y:1312531.3915	sklop 4
T167	X:6192037.3111	Y:1312531.3879	sklop 4
T168	X:6192036.0245	Y:1312532.3732	sklop 4
T169	X:6192033.7243	Y:1312533.1737	sklop 4

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T170	X:6192084.8148	Y:1312533.7576	sklop 4
T171	X:6192084.1991	Y:1312534.0370	sklop 4
T172	X:6192083.2658	Y:1312534.5024	sklop 4
T173	X:6192082.4211	Y:1312535.2127	SKOD 4
T174	X:6192084.2772	Y:1312532.1372	sklop 4
T175	X:6192080.8791	Y:1312536.7370	sklop 4
T176	X:6192080.0969	Y:1312537.3103	sklop 4
T177	X:6192079.3078	Y:1312537.9037	sklop 4
T178	X:6192078.4198	Y:1312538.5730	SKOD 4
T179	X:6192077.7429	Y:1312539.2212	sklop 4
T180	X:6192076.8766	Y:1312539.8414	sklop 4

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T181	X:6192296.2164	Y:1312543.4786	sklop 4
T182	X:6192295.4430	Y:1312541.1970	sklop 1
T183	X:6192294.8964	Y:1312541.7361	sklop 4
T184	X:6192293.8458	Y:1312542.3967	SKOD 4
T185	X:6192293.7894	Y:1312543.0284	sklop 4
T186	X:6192292.3826	Y:1312543.6699	sklop 4
T187	X:6192271.4770	Y:1312544.1623	sklop 4
T188	X:6192270.6576	Y:1312544.7266	sklop 4
T189	X:6192269.1875	Y:1312545.3133	SKOD 4
T190	X:6192277.7429	Y:1312539.2212	sklop 4
T191	X:6192276.8766	Y:1312539.8414	sklop 4

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T192	X:6192257.3584	Y:1312546.8863	sklop 4
T193	X:6192256.6143	Y:1312547.5024	sklop 1
T194	X:6192255.6618	Y:1312548.0877	sklop 4
T195	X:6192254.8423	Y:1312548.6438	SKOD 4
T196	X:6192253.9883	Y:1312549.4400	sklop 4
T197	X:6192251.1170	Y:1312549.6433	sklop 4
T198	X:6192250.2279	Y:1312550.2862	sklop 4
T199	X:6192251.3086	Y:1312550.4838	sklop 4
T200	X:6192249.7011	Y:1312551.0420	SKOD 4
T201	X:6192249.1929	Y:1312551.1991	sklop 4
T202	X:6192248.4080	Y:1312551.6308	sklop 4

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T203	X:6192257.5956	Y:1312551.8777	sklop 4
T204	X:6192256.6170	Y:1312552.2030	sklop 1
T205	X:6192255.6806	Y:1312552.5736	sklop 4
T206	X:6192254.7679	Y:1312552.9581	SKOD 4
T207	X:6192253.8705	Y:1312553.3710	sklop 4
T208	X:6192253.0006	Y:1312553.8010	sklop 4
T209	X:6192232.1853	Y:1312554.4845	sklop 4
T210	X:6192231.3748	Y:1312555.0629	sklop 4
T211	X:6192230.5715	Y:1312555.6767	SKOD 4

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y
T212	X:6192216.8838	Y:1312556.8818	sklop 4
T213	X:6192215.8202	Y:1312557.3139	sklop 4
T214	X:6192214.8233	Y:1312557.7739	sklop 4
T215	X:6192213.1456	Y:1312558.1456	sklop 4
T216	X:6192212.1603	Y:1312558.1838	SKOD 4
T217	X:6192210.8002	Y:1312559.1399	sklop 4
T218	X:6192210.1343	Y:1312559.0846	sklop 4
T219	X:6192209.3855	Y:1312560.7474	sklop 4
T220	X:6192208.1409	Y:1312561.4163	SKOD 4
T221	X:6192207.5058	Y:1312562.0660	sklop 4
T222	X:6192206.1702	Y:1312562.7737	sklop 4

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y
T223	X:6192241.1379	Y:1312563.4313	sklop 4
T224	X:6192240.7324	Y:1312564.3259	sklop 4
T225	X:6192239.9671	Y:1312564.8067	sklop 4
T226	X:6192238.7576	Y:1312565.2855	SKOD 4
T227	X:6192237.8974	Y:1312566.5663	sklop 4
T228	X:6192237.2243	Y:1312567.6958	sklop 4

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T229	X:6192241.4242	Y:1312249.5992	profil
T230	X:6192240.9	Y:1312250.9	profil
T231	X:6192239.4637	Y:1312258.8437	profil
T232	X:6192239.0704	Y:1312273.1604	profil
T233	X:6192238.3816	Y:1312271.3934	profil
T234	X:6192240.6440	Y:1312264.1819	profil
T235	X:6192240.0484	Y:1312262.3683	profil
T236	X:6192237.0721	Y:1312255.0080	profil
T237	X:6192236.3409	Y:1312252.4911	profil
T238	X:6192235.7	Y:1312250.9	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T239	X:6192011.7	Y:1312250.9	profil
T240	X:6192010.7	Y:1312250.9	profil
T241	X:6192009.7	Y:1312250.9	profil
T242	X:6192008.7	Y:1312250.9	profil
T243	X:6192007.7	Y:1312250.9	profil
T244	X:6192006.7	Y:1312250.9	profil
T245	X:6192005.7	Y:1312250.9	profil
T246	X:6192004.7	Y:1312250.9	profil
T247	X:6192003.7	Y:1312250.9	profil
T248	X:6192002.7	Y:1312250.9	profil
T249	X:6192001.7	Y:1312250.9	profil
T250	X:6192000.7	Y:1312250.9	profil
T251	X:6191999.7	Y:1312250.9	profil
T252	X:6191998.7	Y:1312250.9	profil
T253	X:6191997.7	Y:1312250.9	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T254	X:6191981.4216	Y:1312249.5992	profil
T255	X:6191980.9	Y:1312250.9	profil
T256	X:6191980.2	Y:1312250.9	profil
T257	X:6191979.5	Y:1312250.9	profil
T258	X:6191978.8	Y:1312250.9	profil
T259	X:6191978.1	Y:1312250.9	profil
T260	X:6191977.4	Y:1312250.9	profil
T261	X:6191976.7	Y:1312250.9	profil
T262	X:6191976.0	Y:1312250.9	profil
T263	X:6191975.3	Y:1312250.9	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T264	X:6191811.7442	Y:1312250.4684	profil
T265	X:6191810.7442	Y:1312250.4684	profil
T266	X:6191809.2842	Y:1312249.5958	profil
T267	X:6191808.0667	Y:1312248.0441	profil
T268	X:6191807.9135	Y:1312247.8554	profil
T269	X:6191806.5835	Y:1312243.8553	profil
T270	X:6191806.4383	Y:1312243.8412	profil
T271	X:6191804.7252	Y:1312242.2030	profil
T272	X:6191803.0410	Y:1312242.2069	profil
T273	X:6191802.1	Y:1312242.2	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T274	X:6192447.7452	Y:1312205.4684	profil
T275	X:6192446.7452	Y:1312205.4684	profil
T276	X:6192444.2286	Y:1312201.5838	profil
T277	X:6192442.7577	Y:1312200.4731	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T278	X:6192441.2	Y:1312200.4	profil
T279	X:6192440.2	Y:1312200.4	profil
T280	X:6192439.2	Y:1312200.4	profil
T281	X:6192438.2	Y:1312200.4	profil
T282	X:6192437.2	Y:1312200.4	profil
T283	X:6192436.2	Y:1312200.4	profil
T284	X:6192435.2	Y:1312200.4	profil
T285	X:6192434.2	Y:1312200.4	profil
T286	X:6192433.2	Y:1312200.4	profil
T287	X:6192432.2	Y:1312200.4	profil
T288	X:6192431.2	Y:1312200.4	profil
T289	X:6192430.2	Y:1312200.4	profil
T290	X:6192429.2	Y:1312200.4	profil
T291	X:6192428.2	Y:1312200.4	profil
T292	X:6192427.2	Y:1312200.4	profil
T293	X:6192426.2	Y:1312200.4	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T294	X:6192425.2	Y:1312200.4	profil
T295	X:6192424.2	Y:1312200.4	profil
T296	X:6192423.2	Y:1312200.4	profil
T297	X:6192422.2	Y:1312200.4	profil
T298	X:6192421.2	Y:1312200.4	profil
T299	X:6192420.2	Y:1312200.4	profil
T300	X:6192419.2	Y:1312200.4	profil
T301	X:6192418.2	Y:1312200.4	profil
T302	X:6192417.2	Y:1312200.4	profil
T303	X:6192416.2	Y:1312200.4	profil
T304	X:6192415.2	Y:1312200.4	profil
T305	X:6192414.2	Y:1312200.4	profil
T306	X:6192413.2	Y:1312200.4	profil
T307	X:6192412.2	Y:1312200.4	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T308	X:6192411.2	Y:1312200.4	profil
T309	X:6192410.2	Y:1312200.4	profil
T310	X:6192409.2	Y:1312200.4	profil
T311	X:6192408.2	Y:1312200.4	profil
T312	X:6192407.2	Y:1312200.4	profil
T313	X:6192406.2	Y:1312200.4	profil
T314	X:6192405.2	Y:1312200.4	profil
T315	X:6192404.2	Y:1312200.4	profil
T316	X:6192403.2	Y:1312200.4	profil
T317	X:6192402.2	Y:1312200.4	profil
T318	X:6192401.2	Y:1312200.4	profil
T319	X:6192400.2	Y:1312200.4	profil
T320	X:6192399.2	Y:1312200.4	profil
T321	X:6192398.2	Y:1312200.4	profil
T322	X:6192397.2	Y:1312200.4	profil
T323	X:6192396.2	Y:1312200.4	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T324	X:6192395.2	Y:1312200.4	profil
T325	X:6192394.2	Y:1312200.4	profil
T326	X:6192393.2	Y:1312200.4	profil
T327	X:6192392.2	Y:1312200.4	profil
T328	X:6192391.2	Y:1312200.4	profil
T329	X:6192390.2	Y:1312200.4	profil
T330	X:6192389.2	Y:1312200.4	profil
T331	X:6192388.2	Y:1312200.4	profil
T332	X:6192387.2	Y:1312200.4	profil
T333	X:6192386.2	Y:1312200.4	profil
T334	X:6192385.2	Y:1312200.4	profil
T335	X:6192384.2	Y:1312200.4	profil
T336	X:6192383.2	Y:1312200.4	profil
T337	X:6192382.2	Y:1312200.4	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T338	X:6192381.2	Y:1312200.4	profil
T339	X:6192380.2	Y:1312200.4	profil
T340	X:6192379.2	Y:1312200.4	profil
T341	X:6192378.2	Y:1312200.4	profil
T342	X:6192377.2	Y:1312200.4	profil
T343	X:6192376.2	Y:1312200.4	profil
T344	X:6192375.2	Y:1312200.4	profil
T345	X:6192374.2	Y:1312200.4	profil
T346	X:6192373.2	Y:1312200.4	profil
T347	X:6192372.2	Y:1312200.4	profil
T348	X:6192371.2	Y:1312200.4	profil
T349	X:6192370.2	Y:1312200.4	profil
T350	X:6192369.2	Y:1312200.4	profil
T351	X:6192368.2	Y:1312200.4	profil
T352	X:6192367.2	Y:1312200.4	profil
T353	X:6192366.2	Y:1312200.4	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T354	X:6192365.2	Y:1312200.4	profil
T355	X:6192364.2	Y:1312200.4	profil
T356	X:6192363.2	Y:1312200.4	profil
T357	X:6192362.2	Y:1312200.4	profil
T358	X:6192361.2	Y:1312200.4	profil
T359	X:6192360.2	Y:1312200.4	profil
T360	X:6192359.2	Y:1312200.4	profil
T361	X:6192358.2	Y:1312200.4	profil
T362	X:6192357.2	Y:1312200.4	profil
T363	X:6192356.2	Y:1312200.4	profil
T364	X:6192355.2	Y:1312200.4	profil
T365	X:6192354.2	Y:1312200.4	profil
T366	X:6192353.2	Y:1312200.4	profil
T367	X:6192352.2	Y:1312200.4	profil
T368	X:6192351.2	Y:1312200.4	profil
T369	X:6192350.2	Y:1312200.4	profil
T370	X:6192349.2	Y:1312200.4	profil
T371	X:6192348.2	Y:1312200.4	profil
T372	X:6192347.2	Y:1312200.4	profil
T373	X:6192346.2	Y:1312200.4	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T374	X:6192345.2	Y:1312200.4	profil
T375	X:6192344.2	Y:1312200.4	profil
T376	X:6192343.2	Y:1312200.4	profil
T377	X:6192342.2	Y:1312200.4	profil
T378	X:6192341.2	Y:1312200.4	profil
T379	X:6192340.2	Y:1312200.4	profil
T380	X:6192339.2	Y:1312200.4	profil
T381	X:6192338.2	Y:1312200.4	profil
T382	X:6192337.2	Y:1312200.4	profil
T383	X:6192336.2	Y:1312200.4	profil
T384	X:6192335.2	Y:1312200.4	profil
T385	X:6192334.2	Y:1312200.4	profil
T386	X:6192333.2	Y:1312200.4	profil
T387	X:6192332.2	Y:1312200.4	profil
T388	X:6192331.2	Y:1312200.4	profil
T389	X:6192330.2	Y:1312200.4	profil
T390	X:6192329.2	Y:1312200.4	profil
T391	X:6192328.2	Y:1312200.4	profil
T392	X:6192327.2	Y:1312200.4	profil
T393	X:6192326.2	Y:1312200.4	profil

Tabela točk zakoličbe

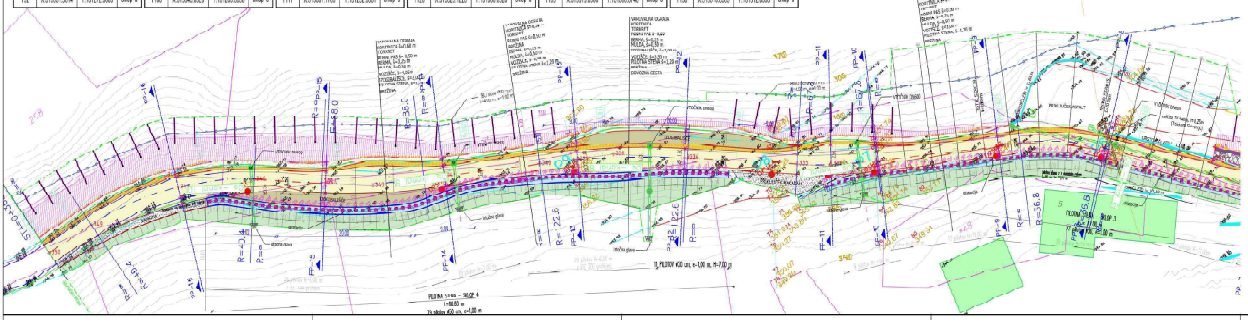
Točka	Koordinata X	Koordinata Y	
T394	X:6192325.2	Y:1312200.4	profil
T395	X:6192324.2	Y:1312200.4	profil
T396	X:6192323.2	Y:1312200.4	profil
T397	X:6192322.2	Y:1312200.4	profil
T398	X:6192321.2	Y:1312200.4	profil
T399	X:6192320.2	Y:1312200.4	profil
T400	X:6192319.2	Y:1312200.4	profil
T401	X:6192318.2	Y:1312200.4	profil
T402	X:6192317.2	Y:1312200.4	profil
T403	X:6192316.2	Y:1312200.4	profil
T404	X:6192315.2	Y:1312200.4	profil
T405	X:6192314.2	Y:1312200.4	profil
T406	X:6192313.2	Y:1312200.4	profil
T407	X:6192312.2	Y:1312200.4	profil
T408	X:6192311.2	Y:1312200.4	profil
T409	X:6192310.2	Y:1312200.4	profil
T410	X:6192309.2	Y:1312200.4	profil
T411	X:6192308.2	Y:1312200.4	profil
T412	X:6192307.2	Y:1312200.4	profil
T413	X:6192306.2	Y:1312200.4	profil
T414	X:6192305.2	Y:1312200.4	profil
T415	X:6192304.2	Y:1312200.4	profil
T416	X:6192303.2	Y:1312200.4	profil
T417	X:6192302.2	Y:1312200.4	profil
T418	X:6192301.2	Y:1312200.4	profil
T419	X:6192300.2	Y:1312200.4	profil
T420	X:6192299.2	Y:1312200.4	profil
T421	X:6192298.2	Y:1312200.4	profil
T422	X:6192297.2	Y:1312200.4	profil
T423	X:6192296.2	Y:1312200.4	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T424	X:6192295.2	Y:1312200.4	profil
T425	X:6192294.2	Y:1312200.4	profil
T426	X:6192293.2	Y:1312200.4	profil
T427	X:6192292.2	Y:1312200.4	profil
T428	X:6192291.2	Y:1312200.4	profil
T429	X:6192290.2	Y:1312200.4	profil
T430	X:6192289.2	Y:1312200.4	profil
T431	X:6192288.2	Y:1312200.4	profil
T432	X:6192287.2	Y:1312200.4	profil
T433	X:6192286.2	Y:1312200.4	profil
T434	X:6192285.2	Y:1312200.4	profil
T435	X:6192284.2	Y:1312200.4	profil
T436	X:6192283.2	Y:1312200.4	profil
T437	X:6192282.2	Y:1312200.4	profil
T438	X:6192281.2	Y:1312200.4	profil
T439	X:6192280.2	Y:1312200.4	profil
T440	X:6192279.2	Y:1312200.4	profil
T441	X:6192278.2	Y:1312200.4	profil
T442	X:6192277.2	Y:1312200.4	profil
T443	X:6192276.2	Y:1312200.4	profil
T444	X:6192275.2	Y:1312200.4	profil
T445	X:6192274.2	Y:1312200.4	profil
T446	X:6192273.2	Y:1312200.4	profil
T447	X:6192272.2	Y:1312200.4	profil
T448	X:6192271.2	Y:1312200.4	profil
T449	X:6192270.2	Y:1312200.4	profil
T450	X:6192269.2	Y:1312200.4	profil
T451	X:6192268.2	Y:1312200.4	profil
T452	X:6192267.2	Y:1312200.4	profil
T453	X:6192266.2	Y:1312200.4	profil

Tabela točk zakoličbe

Točka	Koordinata X	Koordinata Y	
T454	X:6192265.2	Y:1312200.4	profil
T455	X:6192264.2	Y:1312200.4	profil
T456	X:6192263.2	Y:1312200.4	profil
T457	X:6192262.2	Y:1312200.4	profil
T458	X:6192261.2	Y:1312200.4	profil
T459	X:6192260.2	Y:1312200.4	profil
T460	X:6192259.2	Y:1312200.4	profil
T461	X:6192258.2	Y:1312200.4	profil
T462	X:6192257.2	Y:1312200.4	profil
T463	X:6192256.2	Y:1312200.4	profil
T464	X:6192255.2	Y:1312200.4	profil
T465	X:6192254.2	Y:1312200.4	profil
T466	X:6192253.2	Y:1312200.4	profil
T467	X:6192252.2	Y:1312200.4	profil
T468	X:6192251.2	Y:1312200.4	profil
T469	X:6192250.2	Y:1312200.4	profil
T470	X:6192249.2	Y:1312200.4	profil
T471	X:6192248.2	Y:1312200.4	profil
T472	X:6192247.2	Y:1312200.4	profil
T473	X:6192246.2	Y:1312200.4	profil
T474	X:6192245.2	Y:1312200.4	profil
T475	X:6192244.2	Y:1312200.4	profil
T476	X:6192243.2	Y:1312200.4	profil
T477	X:6192242.2	Y:1312200.4	profil
T478	X:6192241.2	Y:1312200.4	profil
T479	X:6192240.2	Y:1312200.4	profil
T480	X:6192239.2	Y:1312200.4	profil

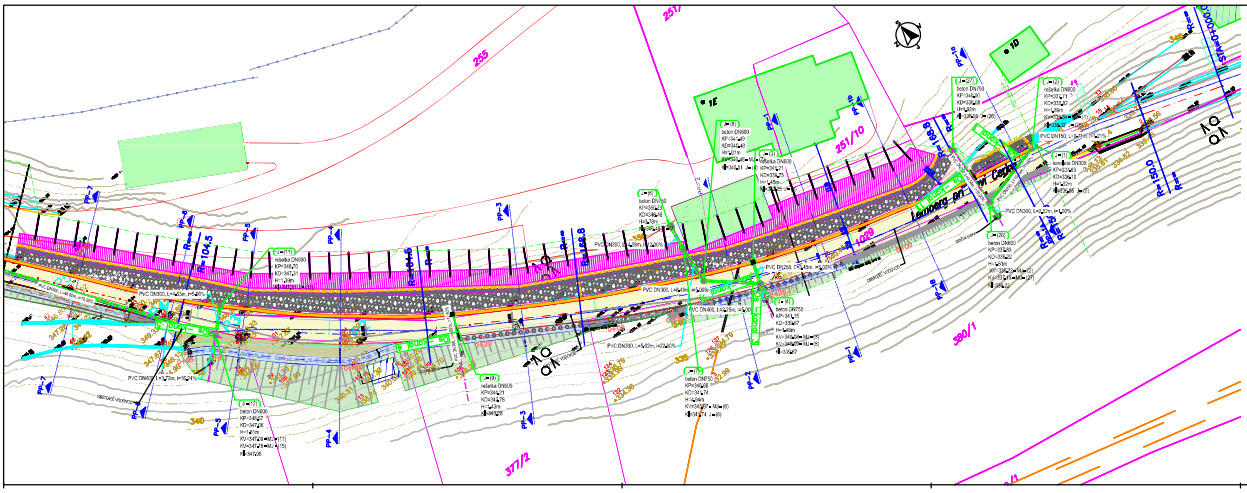


LEGENDA

- asfalt
- zagrebalcice
- mulda
- bankina
- kamnita dežba
- pilotna stena
- zelenica
- ulijeki
- tokeel
- rigoli
- obmocju
- gluf
- kanalizacija v lasti izvajalca del in izvajalca
- betonski jašek (INKO)
- vkopnik DN600
- mejna parcela
- parcelna meja

DPSH – LOKACIJE MERITEV Z DINAMIČNIM PENETROMETROM SUPER HEAVY!
CPT – LOKACIJE MERITEV S STATIČNIM PENETROMETROM

INVESTITOR:	ZAVOD RIŽANA Kidričeva 25 6310 Izola
PROJEKTANT:	GHC GRADBENO HIDROTEHNIČNO CENTER d.o.o.
Podizvajalec:	
Kraj:	Izvo. in pečat:
Ime in priimek:	Mart. št.:
Kraj:	Fakulta:
IZDELOVALCI:	
Odgovorni projektant:	Ivo ŠUMONJA, dipl.inž.grad.
Sodelavec:	Bojana Ilovar
Projektant 2:	
Naročnik:	
Ime in naslov:	Zakoličbena situacija 3. del
Ime mape:	
Št. projekta:	45/2024
Faza:	PZI
Št. načrta:	KN 45/2024
Merilo:	1:250
Kraj:	Izola
Datum:	november 2024
Št. priloge:	Z.T.9
Ime risbe:	
Izdelal:	ure-projekt, projektiranje in inženiring, d.o.o.
Odgov. št. risbe:	



LEGENDA

▭	asfalt
▭	izogibališče
▭	mulda
▨	bankina
▨	kamnita zložba
▭	pilotna stena
▨	zelenica
🟩	objekt
▨	torkret
▨	nasip
■■■■■	drenaža
P1	pilot
▨	kamen v betonu-muldasto polje
○	betonski jašek DN800
■	vtočnik DN600
▭	urejena meja parcele
▭	meja parcele
195/6	parcelna številka

Naročnik: Občina Vojnik
Keršova 8
3212 Vojnik

Izvajalec: GHC PROJEKT
GHC-projekt, projektiranje in inženiring, d.o.o.

Podizvajalec:

Naziv	Ime in priimek	Ident. št.	Podpis
Odg.vodja proj.:			
Odg.projektant:	Vid ŠTUKOVNIK dipl.inž.grad.	G-4619	
Projektant 1:	Bojana Žibret		
Projektant 2:			

Projekt: Sanacija ceste in usada na JP 965051
Lemberg-Vine v občini Vojnik

Vrsta gradnje: rekonstrukcija

Opis risbe: Situacija odvodnjavanja I.del

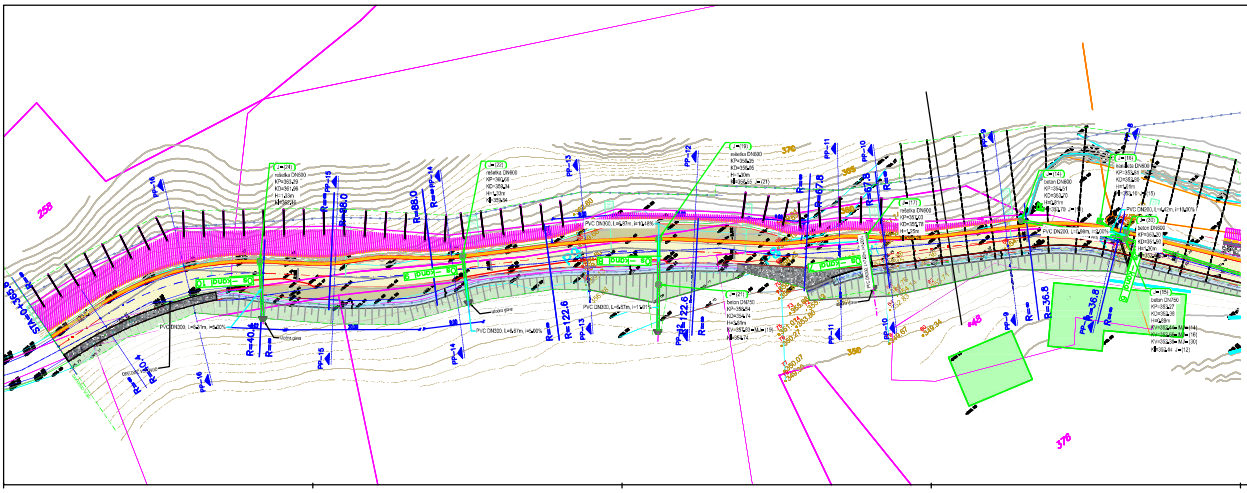
Del risbe:			
Št. projekta:	49/3/24	Faza:	PZI
Št. načrta:	NK 49/3/24	Merilo:	1:250
Šifra CC:		Datum:	november 2024

Št. odseka:	Arhivska št.:	Faza/Objekt:	Šifra risbe:

Št. priloge: G.4.1

Avtor risbe: GHC-projekt, projektiranje in inženiring, d.o.o.

Ident. št. risbe:



LEGENDA

▭	asfalt
▭	izogibališče
▭	mulda
▨	bankina
▨	kamnita zložba
▭	pilotna stena
▨	zelenica
🟩	objekt
▨	torkret
▨	nasip
■■■■■	drenaža
P1	pilot
▨	kamen v betonu-muldasto polje
○	betonski jašek DN800
■	vtočnik DN600
▭	urejena meja parcele
▭	meja parcele
195/6	parcelna številka

Naročnik: Občina Vojnik
Keršova 8
3212 Vojnik

Izvajalec: GHC-projekt, projektiranje in inženiring, d.o.o.

Podizvajalec:

Naziv	Ime in priimek	Ident. št.	Podpis
Odg.vodja proj.:			
Odg.projektant:	Vid ŠTUKOVNIK dipl.inž.grad.	G-4619	
Projektant 1:	Bojana Žibret		
Projektant 2:			

Projekt: Sanacija ceste in usada na JP 965051
Lemberg-Vine v občini Vojnik

Vrsta gradnje: rekonstrukcija

Opis risbe: Situacija odvodnjavanja II.del

Del risbe:

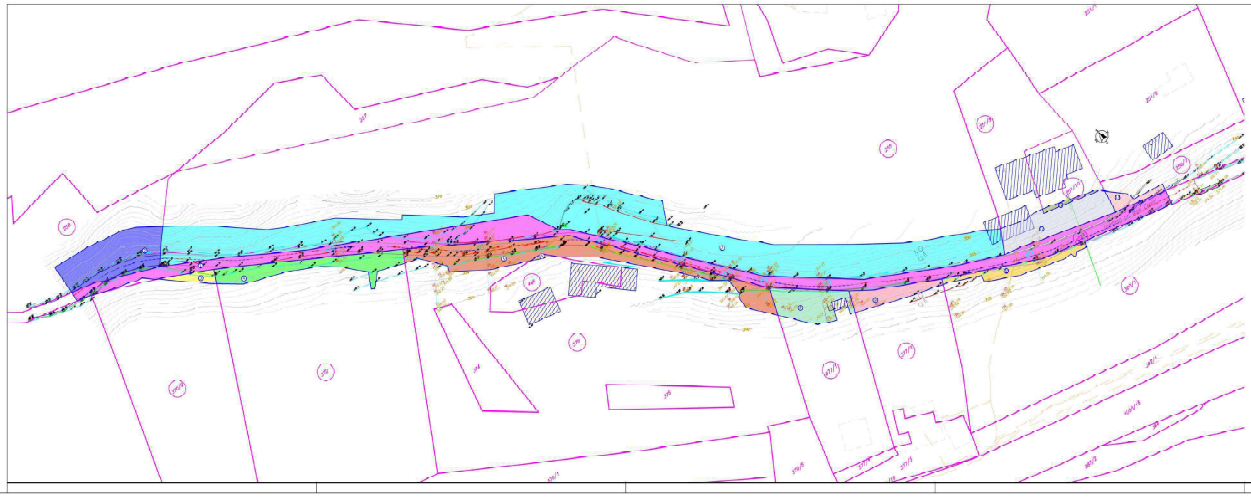
Št. projekta:	49/3/24	Faza:	PZI
Št. načrta:	NK 49/3/24	Merilo:	1:250
Šifra CC:		Datum:	november 2024

Št. odseka:	Arhivska št.:	Faza/Objekt:	Šifra risbe:

Št. priloge: G.4.2

Avtor risbe: GHC-projekt, projektiranje in inženiring, d.o.o.

Ident. št. risbe:



Rekonstrukcija ceste in izvedba na JP 905601 Lemberg-Vinc v območju Vojnik

K.O. 1055- LEMBERG

	JAV. ŠT.	HRAL. ŠT.	LASTNIK	VPI NEPREMIČNINE (m2)	VPI NEPREMIČNINE (m2)
	1	1000	Občina Vojnik, Kardinal S. 3212 Vojnik	3690	1312,20
	2	258	Fizična oseba	22886	360,76
	3	370/2	Fizična oseba	2002	99,16
	4	372	Fizična oseba	3896	247,5
	5	376	Fizična oseba	6277	660,03
	6	1/86	Fizična oseba	250	5,45
	7	256	Fizična oseba	11160	2272,75
	8	377/1	Fizična oseba	1702	160,07
	9	377/2	Fizična oseba	1000	112
	10	368/1	Fizična oseba	3630	113,07
	11	251/2	Fizična oseba	1170	267,52
	12	251/11	Fizična oseba	347	15,52
	13	251/11	Fizična oseba	1000	40,13

Naročnik: Občina Vojnik, Kardinal S. 3212 Vojnik

Izdelal: GHC d.o.o. projektiranje & inženiring

Podizvajalec:

Naziv	Ime in priimek	Štev. in.	Podpis
Odg. vodja proj.			
Odgovorni projektant 1	Uroš ŠTRAVNIK dipl.inž.grad.	G 493	
Odgovorni p. 2	Dejana Ferenc		

Projekt: Rekonstrukcija ceste in izvedba na JP 905601 Lemberg-Vinc v območju Vojnik

Naziv projekta: Rekonstrukcija

Del. naziv: Katastrska situacija

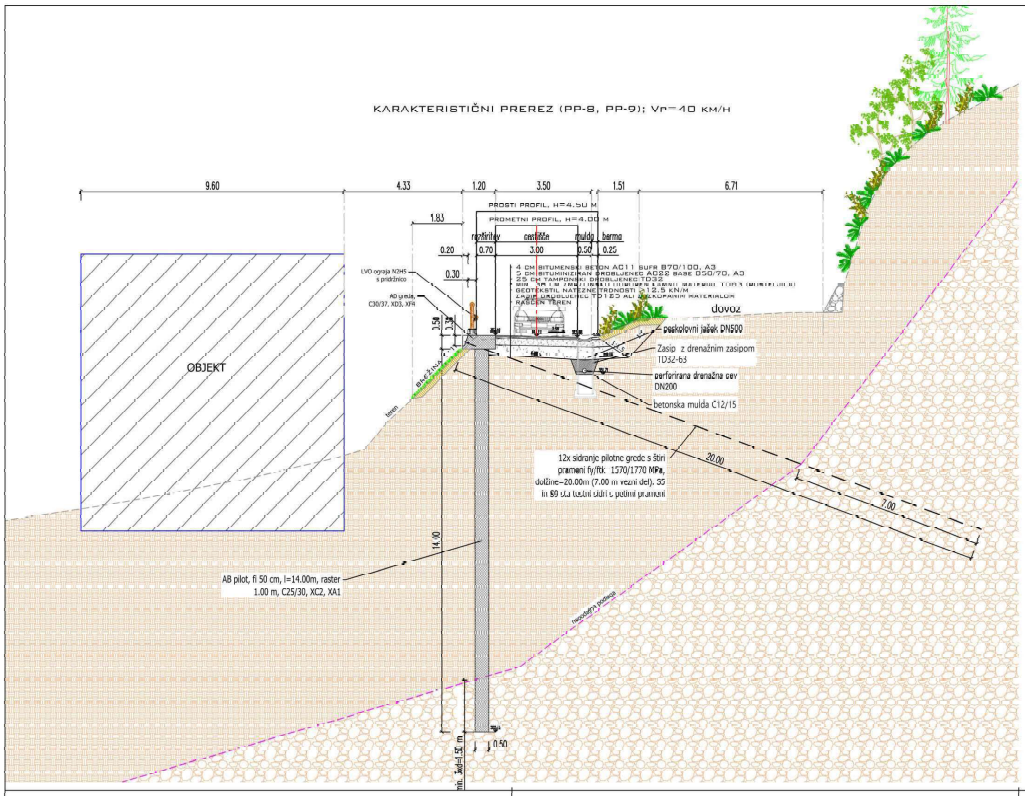
Št. načrta:	40/2/24 MK 40/2/24	Faza:	PZI
Datum:	marec 2024	Merilo:	1:500

Št. risbe: | Sprememba št.: | Datum/Podpis: | Kraj risbe:

Št. priloge: 0.5

Izdelal risbo: GHC projektiranje & inženiring d.o.o.

Odgovoren za risbo:



Naročnik: Občina Vojnik, Kerčova 8, 3212 Vojnik			
Izdelovalec: GHC-projekt, projektiranje in inženiring, d.o.o.			
Podizvajalec:			
Naziv	Ime in priimek	Ident. št.	Podpis
Odg.vodja proj.:			
Odg.projektant:	Vid ŠTUKOVNIK dipl.inž.grad.	G-4619	
Projektant 1.:	Dajana Žibret		
Projektant 2.:			

Projekt: Sanacija ceste in usada na JP 965051 Lemberg-Vlne v občini Vojnik			
Vrsta gradnje:	sanacija		
Opis risbe:	Karakteristični prerezi		
Št. risbe:			
Št. projekta:	49/3/24	Faza:	PZI
Št. načrta:	NK 49/3/24	Merilo:	1:100
Šifra CC:		Datum:	november 2024

Št. odseka:	Arhivska št.:	Faza/Objekt:	Šifra risbe:	
Št. priloge: G.6.1			Avtor risbe: GHC-projekt, projektiranje in inženiring, d.o.o.	
			Ident. št. risbe:	