Idejni projekt lokalne ceste

Sabljić, Mateja

SVEUČILIŠTE U SPLITU

FAKULTET GRAĐEVINARSTVA,ARHITEKTURE I GEODEZIJE

ZAVRŠNI RAD

Mateja Sabljić

Split,2024.

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FAKULTET GRAĐEVINARSTVA,
ARHITEKTURE I GEODEZIJE

UNIVERSITY OF SPLIT
FACULTY OF CIVIL ENGINEERING,
ARCHITECTURE AND GEODESY

STUDIJ: SVEUČILIŠNI PRIJEDIPLOMSKI STUDIJ GRAĐEVINARSTVO

KANDIDAT: Mateja Sabljić

MATIČNI BROJ (JMBAG): 0083228021

KATEDRA: Katedra za prometnice

KOLEGIJ: Ceste

ZADATAK ZA ZAVRŠNI RAD

Tema: Idejni projekt lokalne ceste

Opis zadatka: Uz pomoć programa za projektiranje cesta Autodesk Civil 3D potrebno je izraditi projekt ceste na geodetskoj podlozi koja je korištena za izradu programa u okviru kolegija Ceste. Trasu treba položiti od točke A do točke B prema svim podacima iz programskog zadatka.

Rad treba sadržavati:

1. Kopiju programskog zadatka
2. Tehnički opis
3. Građevinsku situaciju u mjerilu 1:1000
4. Uzdužni presjek u mjerilu 1:1000/100
5. Normalni poprečni presjek u mjerilu 1:50
6. Karakteristične poprečne presjeke u mjerilu 1:200
7. Računalne ispise horizontalnog i vertikalnog toka trase
8. Računalne ispise točaka poprečnih presjeka
9. Aproksimativni troškovnik

U Splitu, 21.03.2024.

Mentor: izv.prof.dr.sc. Deana Breški

SVEUČILIŠTE U SPLITU
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ARCHITECTURE AND GEODESY

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Sažetak:

Za izradu idejnog projekta lokalne ceste korišten je zadatak iz kolegija Ceste i zadana geodetska podloga. Projekt je izrađen pomoću Autodesk Civil 3D programa, na temelju godišnjeg dnevnog prometa (PGDP) od 950 vozila na dan, na brdovitom terenu. Korištena je projektna brzina ceste 40 km/h te je cijeli projekt izrađen u skladu s Pravilnikom i osnovnim uvjetima za projektiranje ceste.

Ključne riječi:

Idejni projekt, lokalna cesta, projektna brzina, os ceste, niveleta, poprečni presjek

Conceptual project of local road

Abstract:

The task from the course Roads and the given geodetic base are used to create the conceptual project of the local road. The project is created using the Autodesk Civil 3D program, based on annual daily traffic (AADT) of 950 vehicles per day, on hilly terrain. The project speed of 40 km/h is used, and the entire project is made in accordance with the Regulations on the basic conditions for the design of public roads.

Keywords:

Conceptual project, local road, design speed, the road axis, profile, cross-section

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1.PROGRAMSKI ZADATAK

SVEUČILIŠTE U SPLITU
FAKULTET GRAĐEVINARSTVA, ARHITEKTURE
I GEODEZIJE

Split, ak.god. 2023/2024.

Katedra za prometnice

Studij: Prijediplomski

Nastavni predmet: CESTE

Student/ica: Matija Sabljić

ZADATAK

Treba izraditi idejni projekt dionice ceste izmedu točaka A i B naznačenih na priloženoj geodetskoj podlozi u mjerilu 1:1000.

Zadano je:

- PGDP - prosječni godišnji dnevni promet: **950 voz/dan**
- vrsta terena: **brdoviti.**

Idejni projekt treba sadržavati:

1. Tehnički opis
2. Proračun horizontalne geometrije
3. Proračun proširenja kolnika u krivini (ukupno i po pojedinim presjecima)
4. Proračun vertikalne geometrije i kota nivelete
5. Proračun vitoperenja kolnika
6. Gradevinska situacija MJ. 1:1000
7. Uzdužni presjek MJ. 1:1000/100
8. Normalni poprečni presjek MJ. 1:50
9. Karakteristični poprečni presjeci MJ. 1:100
10. Predmjer radova
11. Aproksimativni troškovnik

Predmetna nastavnica:

izv.prof.dr.sc. Deana Breški

2. TEHNIČKI OPIS

2.1. Općenito

Idejni projekt ceste izrađen je na priloženoj geodetskoj podlozi u mjerilu 1:1000. Cesta prolazi između točke A, smještene na 371 metara nadmorske visine, i točke B, koja se nalazi na 345 metara nadmorske visine. Radi se o cesti V. kategorije, projektiranoj za brdoviti teren, s predviđenim prosječnim dnevnim prometom od 950 vozila na dan. Predviđena projektna brzina na ovoj dionici iznosi 40 km/h.

2.2. Horizontalni elementi

Prema Pravilniku o osnovnim uvjetima kojima javne ceste izvan naselja i njihovi elementi moraju udovoljavati sa stajališta sigurnosti prometa, minimalni radijus horizontalne krivine za cestu ove kategorije iznosi 45 m, dok je minimalna duljina prijelaznice 30 m. Trasa kontinuirane ceste ukupne duljine 467,82 m sastoji se od četiri pravca i tri krivine.

Prva krivina ima radijus od 100 m, duljinu prijelaznice 40 m te proširenje kružnog luka za teretna vozila s priključkom od 0,84 m.

Druga krivina ima radijus od 90 m, duljinu prijelaznice 40 m, a proširenje kružnog luka iznosi 0,94 m.

Treća krivina, s radijusom od 45 m i prijelaznicom duljine 30 m, ima proširenje kružnog luka od 1,86 m.

Sve krivine izvedene su pomoću dvije prijelaznice oblika klotoide i jednog kružnog luka.

2.3. Vertikalni elementi

Za cestu V. kategorije i projektnu brzinu od 40 km/h, najveći dopušteni nagib nivelete je 12%. Najmanji dopušteni radijus krivine za konkavna zaobljenja pri uzdužnom nagibu od 0% iznosi 200 m, dok je za konveksna zaobljenja taj radijus 300 m.Trasa ove ceste obuhvaća dva pravca i jednu krivinu.Nagib prvog pravca je -6,42%. Nagib drugog pravca iznosi -4.81%. Tangenta krivine duga je 23,61 m, a radijus konkavne krivine je 2950 m.

2.4. Poprečni presjek

Projektirana cesta sadrži dva kolnička traka, svaki širine 3 m, asfaltnu rubnu traku širine 0,20 m,bankinu širine 1 m s nagibom od 4% te bermu širine 1 m s nagibom 5% prema rigolu. Cesta se prostire dijelom u zasjeku, dijelom u usjeku i nasipu. Nagib pokosa nasipa je 1:1,5, dok je nagib usjeka 2:1. Na usjecima su izvedeni rigoli širine 0,65 m za odvodnju, a drenaža je postavljena u glinenu posteljicu.

Poprečni nagib ceste iznosi 2,5% u pravcu. U krivinama se poprečni nagib prilagođava ovisno o radijusu kružnog luka i računskoj brzini od 40 km/h. Poprečni nagib prve krivine je q1=4,00%, druge krivine q2=4,30%,a treće krivine q3=7,00%.

2.5. Kolnička konstrukcija

Projektom je predviđena kolnička konstrukcija sa sljedećim slojevima:

-AC 11 surf (BIT50/70) AG4 M4 u debljini 4 cm

- AC 22 base (BIT50/70) AG6 M2 u debljini 6 cm

-Mehanički zbijeni nosivi sloj debljine 30 cm

2.6. Odvodnja

Odvodnja kolnika riješena je otvorenim sustavom, gdje se voda s rubova kolnika u zasjecima i usjecima prikuplja putem betonskih rigola. Nakon toga, voda se kontrolirano ispušta u okolni teren, izravno ili putem betonskih cijevnih propusta kroz konstrukciju kolnika.

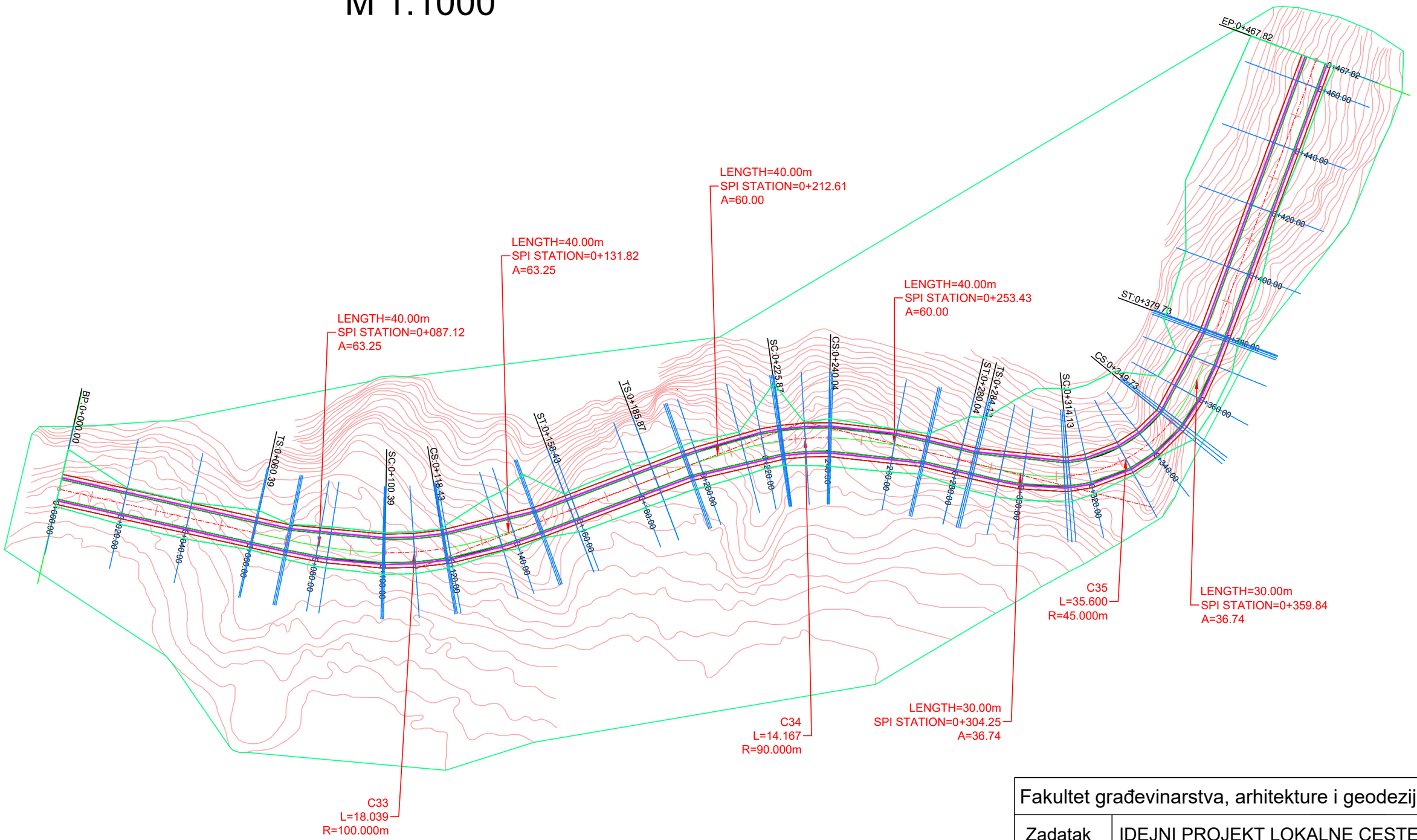
2.7. Oprema ceste

Prema idejnom rješenju, horizontalna signalizacija obuhvaća jednu punu razdjelnu crtu širine 15 cm postavljenu duž sredine prometnice te pune rubne crte, također širine 15 cm, koje se postavljaju uz rubove kolnika. Na nasipu je postavljena jednostrana zaštitna čelična ograda.

3. GRAFIČKI PRILOZI

3.1. SITUACIJA M 1:1000

GRAĐEVINSKA SITUACIJA
M 1:1000

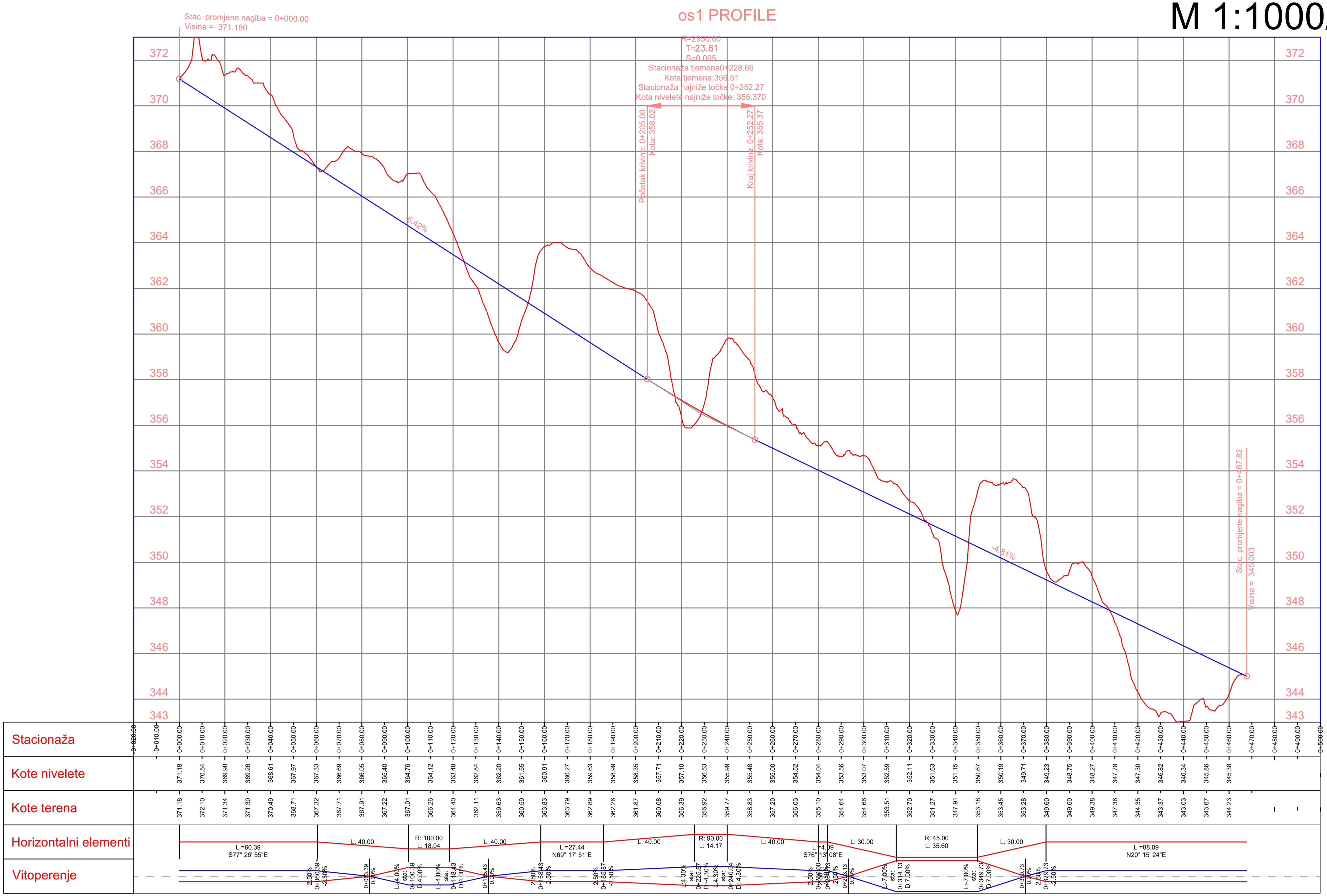


Fakultet građevinarstva, arhitekture i geodezije		
Zadatak	IDEJNI PROJEKT LOKALNE CESTE	
Predmet	CESTE - ZAVRŠNI RAD	M 1:1000
Sadržaj	Građevinska situacija	Godina
Studentica	Mateja Sabljić	2023./2024.

3.2. UZDUŽNI PRESJEK

M 1:1000/100

UZDUŽNI PRESJEK
M 1:1000/100

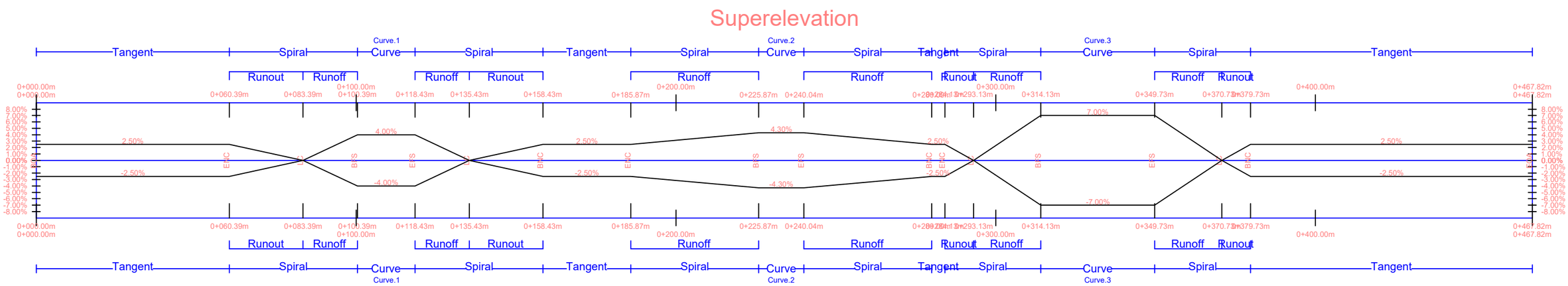


Stacionaža	Kote nivelete	Kote terena
0+000.00	371.18	371.18
0+010.00	370.54	372.10
0+020.00	369.90	371.34
0+030.00	369.26	371.30
0+040.00	368.61	370.49
0+050.00	367.97	368.71
0+060.00	367.33	367.32
0+070.00	366.69	367.71
0+080.00	366.05	367.91
0+090.00	365.40	367.22
0+100.00	364.76	367.01
0+110.00	364.12	366.26
0+120.00	363.48	364.40
0+130.00	362.84	362.11
0+140.00	362.20	359.63
0+150.00	361.55	360.59
0+160.00	360.91	363.83
0+170.00	360.27	363.79
0+180.00	359.63	362.89
0+190.00	358.99	362.26
0+200.00	358.35	361.87
0+210.00	357.71	360.08
0+220.00	357.10	356.39
0+230.00	356.53	356.92
0+240.00	355.99	359.77
0+250.00	355.48	358.83
0+260.00	355.00	357.20
0+270.00	354.52	356.03
0+280.00	354.04	355.10
0+290.00	353.56	354.64
0+300.00	353.07	354.66
0+310.00	352.59	353.51
0+320.00	352.11	352.70
0+330.00	351.63	351.27
0+340.00	351.15	347.91
0+350.00	350.67	353.18
0+360.00	350.19	353.45
0+370.00	349.71	353.28
0+380.00	349.23	349.60
0+390.00	348.75	349.60
0+400.00	348.27	349.38
0+410.00	347.78	347.36
0+420.00	347.30	344.35
0+430.00	346.82	343.37
0+440.00	346.34	343.03
0+450.00	345.86	343.67
0+460.00	345.38	344.23

Fakultet građevinarstva, arhitekture i geodezije		
Zadatak	IDEJNI PROJEKT LOKALNE CESTE	
Predmet	CESTE - ZAVRŠNI RAD	M 1:1000/100
Sadržaj	Uzdužni presjek	Godina
Studentica	Mateja Sabljić	2023./2024.

3.3 DIJAGRAM VITOPERENJA

DIJAGRAM VITOPERENJA



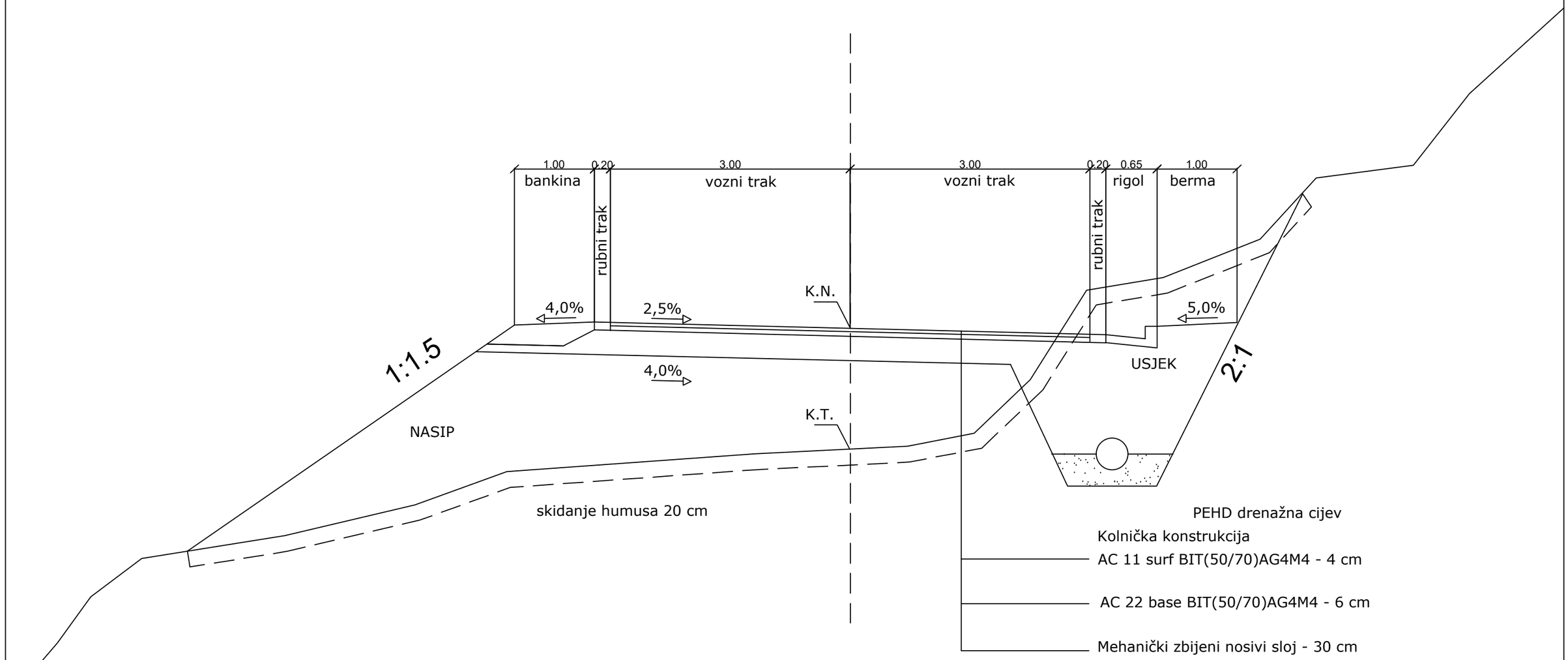
Fakultet građevinarstva, arhitekture i geodezije		
Zadatak	IDEJNI PROJEKT LOKALNE CESTE	
Predmet	CESTE - ZAVRŠNI RAD	
Sadržaj	Dijagram vitoperenja	Godina
Studentica	Mateja Sabljić	2023./2024.

3.4. NORMALNI POPREČNI PRESJEK

M 1:50

Normalni poprečni presjek

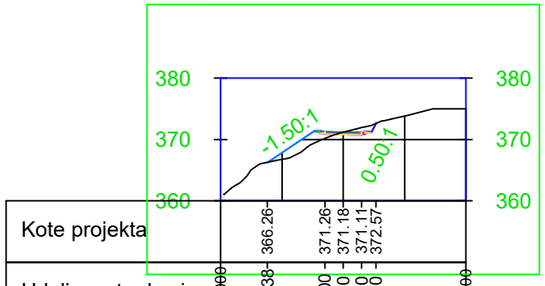
M 1:50



Fakultet građevinarstva, arhitekture i geodezije		
Zadatak	IDEJNI PROJEKT LOKALNE CESTE	
Predmet	CESTE - ZAVRŠNI RAD	M 1:50
Sadržaj	Normalni poprečni presjek	Godina
Studentica	Mateja Sabljić	2023./2024.

3.5. KARAKTERISTIČNI POPREČNI PRESJECI

M 1:200



0+000.00

0+020.00

0+040.00

0+060.00

0+060.39

0+080.00

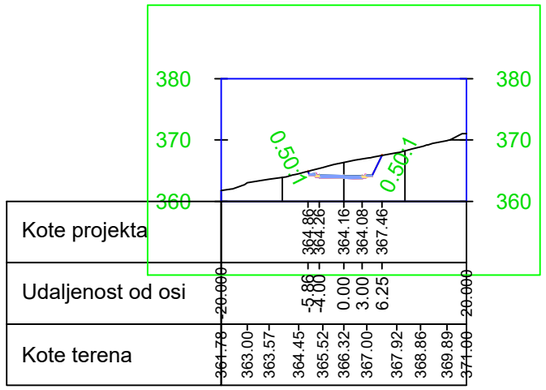
0+100.00

0+100.39

KARAKTERISTIČNI POPREČNI PRESJECI
M 1:200

Fakultet građevinarstva, arhitekture i geodezije		
Zadatak	IDEJNI PROJEKT LOKALNE CESTE	
Predmet	CESTE - ZAVRŠNI RAD	M 1:200
Sadržaj	Karakteristični poprečni presjeci	Godina
Studentica	Mateja Sabljić	2023./2024.

0+109.41



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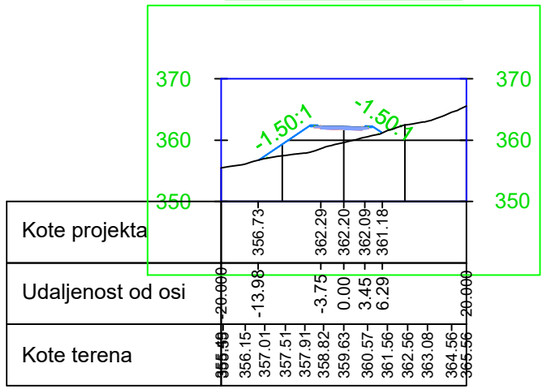

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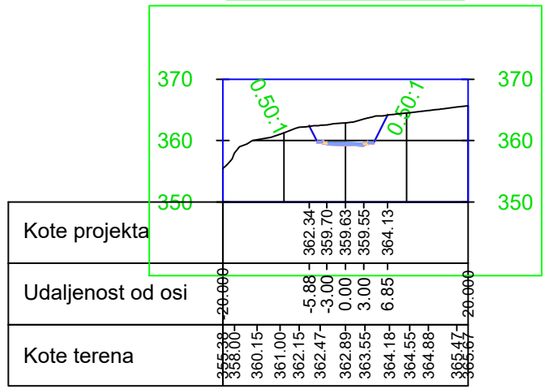

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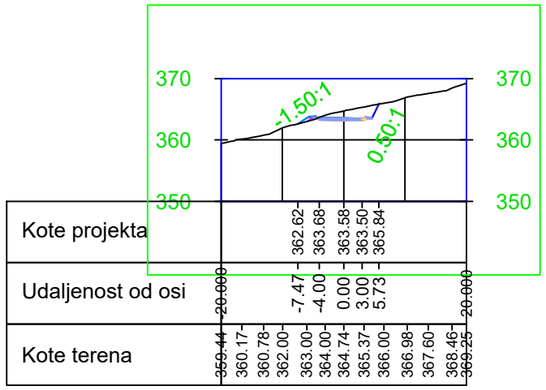

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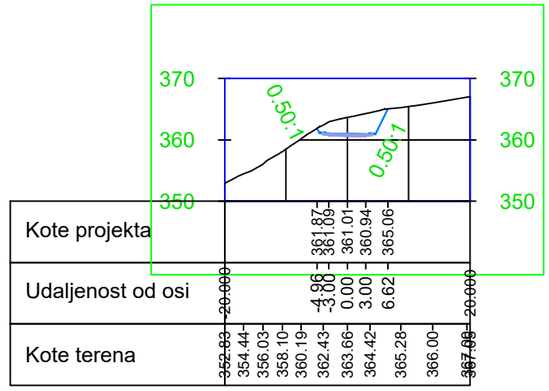

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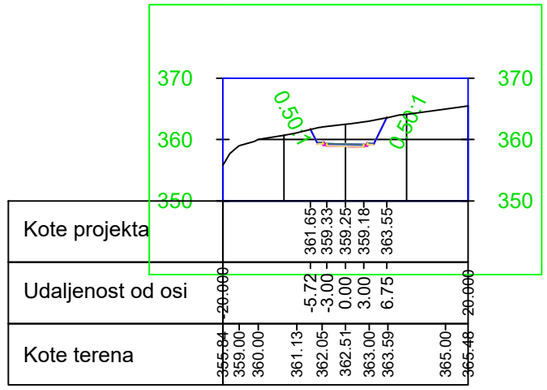

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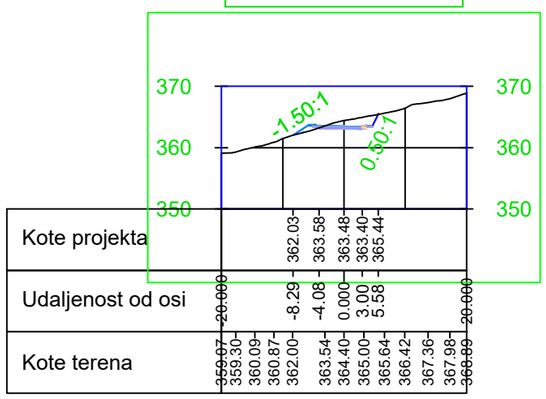

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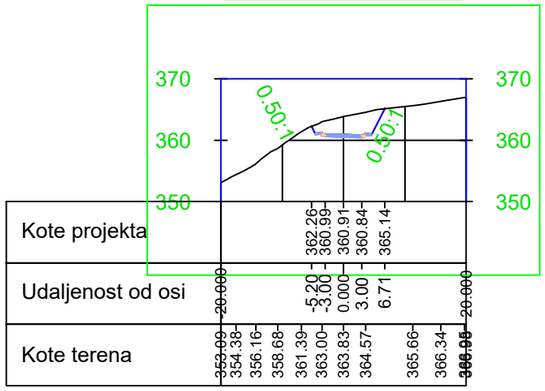
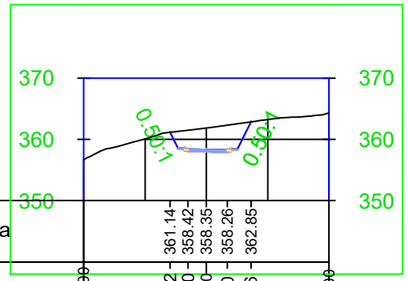


KARAKTERISTIČNI POPREČNI PRESJECI
M 1:200

Fakultet građevinarstva, arhitekture i geodezije		
Zadatak	IDEJNI PROJEKT LOKALNE CESTE	
Predmet	CESTE - ZAVRŠNI RAD	M 1:200
Sadržaj	Karakteristični poprečni presjeci	Godina
Studentica	Mateja Sabljić	2023./2024.



0+200.00

0+232.95

0+260.00

0+220.00

0+240.00

0+280.00

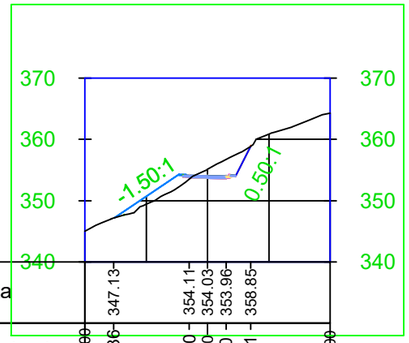
0+225.87

0+240.04

KARAKTERISTIČNI POPREČNI PRESJECI
M 1:200

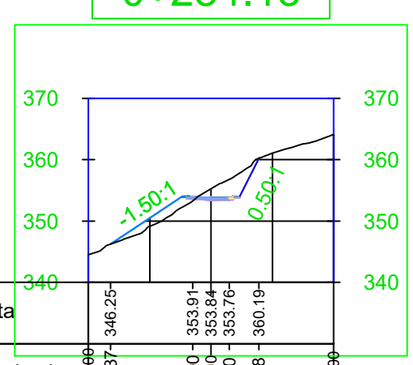
Fakultet građevinarstva, arhitekture i geodezije		
Zadatak	IDEJNI PROJEKT LOKALNE CESTE	
Predmet	CESTE - ZAVRŠNI RAD	M 1:200
Sadržaj	Karakteristični poprečni presjeci	Godina
Studentica	Mateja Sabljić	2023./2024.

0+280.04



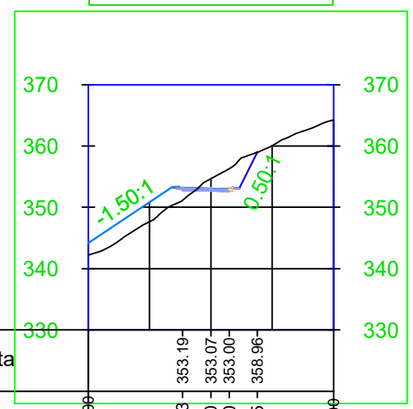
Kote projekta		347.13		354.11	354.03	353.96	358.85			
Udaljenost od osi	20.000	-15.36		-3.00	0.000	3.00	7.01	20.000		
Kote terena	345.04	346.37	347.67	349.40	351.00	353.33	355.11	357.00	358.83	360.86	362.00	364.07	364.27

0+284.13



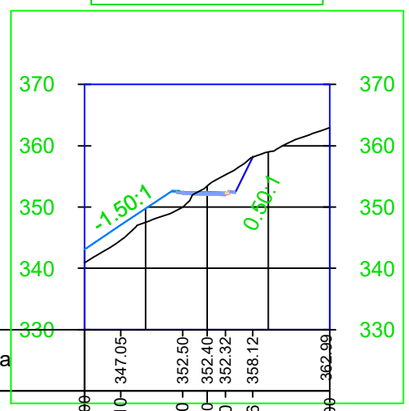
Kote projekta		346.25		353.91	353.84	353.76	360.19			
Udaljenost od osi	20.000	-16.37		-3.00	0.000	3.00	7.78	20.000		
Kote terena	344.50	345.18	347.04	349.00	351.00	353.00	355.26	357.00	359.00	360.88	362.00	363.00	364.07

0+300.00



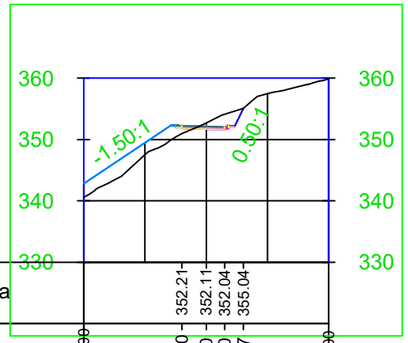
Kote projekta				353.19	353.07	353.00	358.96			
Udaljenost od osi	20.000			-4.63	0.00	3.00	7.55	20.000		
Kote terena	342.19	343.00	345.00	347.03	350.07	352.00	354.67	356.70	358.80	360.47	362.00	363.80	364.27

0+314.13



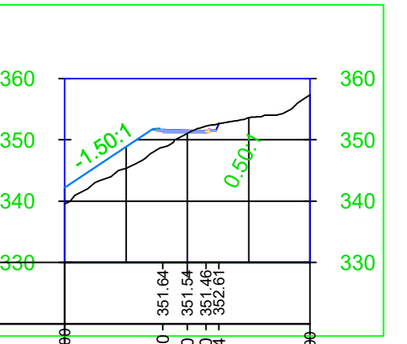
Kote projekta		347.05		352.50	352.40	352.32	358.12	
Udaljenost od osi	20.000	-14.10		-4.00	0.000	3.00	7.46	20.000
Kote terena	342.85	342.00	344.00	347.00	348.22	350.67	353.42	355.55	357.62	359.00	360.85	362.00	362.99

0+320.00



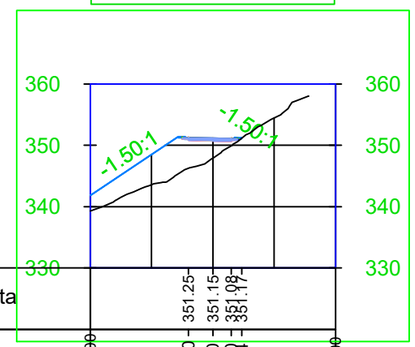
Kote projekta				352.21	352.11	352.04	355.04	
Udaljenost od osi	20.000			-4.00	0.00	3.00	6.07	20.000
Kote terena	340.60	342.49	344.18	347.15	349.00	351.00	352.70	354.37	356.00	357.65	358.44	359.49	359.88

0+331.93



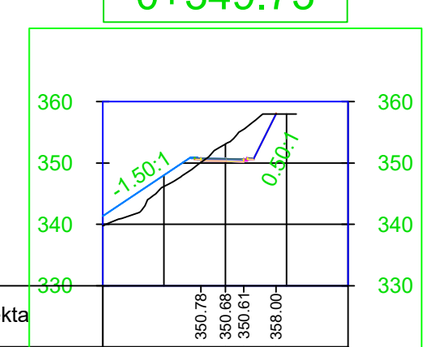
Kote projekta				351.64	351.54	351.46	352.61			
Udaljenost od osi	20.000			-4.00	0.00	3.00	5.14	20.000		
Kote terena	339.55	341.02	343.32	345.40	347.73	349.14	351.04	352.33	352.88	353.55	354.00	355.00	357.34

0+340.00



Kote projekta				351.25	351.15	351.08	351.17			
Udaljenost od osi	20.000			-4.00	0.00	3.00	4.74	20.000		
Kote terena	339.36	340.00	342.00	343.43	344.39	346.34	347.91	350.00	352.11	354.19	356.42	358.00	358.00

0+349.73

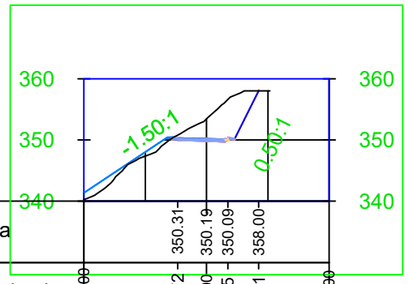


Kote projekta				350.78	350.68	350.61	358.00	
Udaljenost od osi	20.000			-4.00	0.00	3.00	8.26	20.000
Kote terena	339.79	341.00	342.26	346.08	348.00	350.38	353.08	355.58	358.00	358.00	358.00

KARAKTERISTIČNI POPREČNI PRESJECI
M 1:200

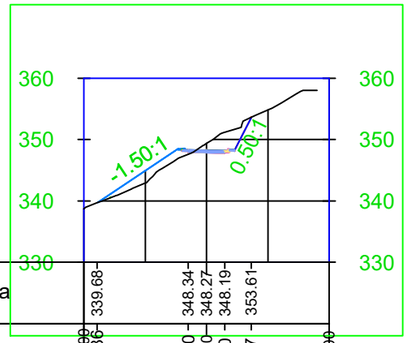
Fakultet građevinarstva, arhitekture i geodezije		
Zadatak	IDEJNI PROJEKT LOKALNE CESTE	
Predmet	CESTE - ZAVRŠNI RAD	M 1:200
Sadržaj	Karakteristični poprečni presjeci	Godina
Studentica	Mateja Sabljić	2023./2024.

0+360.00



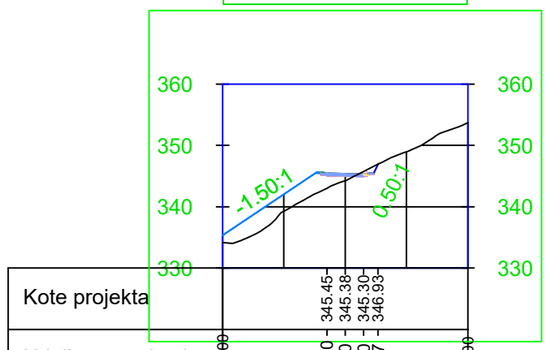
Kote projekta				350.31	350.19	350.09	358.00		
Udaljenost od osi	20.000			-4.72	0.000	3.45	8.51		20.000
Kote terena	340.28	341.18	344.00	347.00	349.00	351.00	353.45	356.16	358.00	358.00

0+400.00



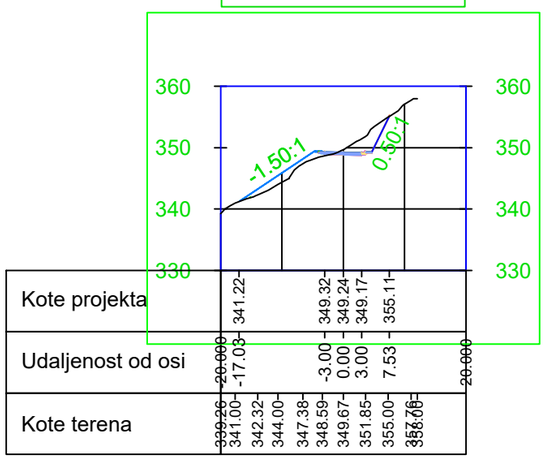
Kote projekta			339.68		348.34	348.27	348.19	353.61	
Udaljenost od osi	20.000	-17.86		-3.00	0.000	3.00	7.27		20.000
Kote terena	338.69	340.00	342.00	345.00	347.00	349.38	352.00	355.00	357.42	358.00

0+460.00



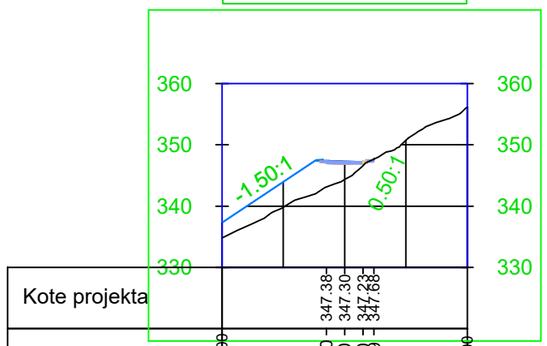
Kote projekta			345.45	345.38	345.30	346.93	
Udaljenost od osi	20.000		-3.00	0.00	3.00	5.37	20.000
Kote terena	334.17	334.00	335.54	338.00	340.36	342.35	344.23	346.48	348.00	349.32	351.00	353.00	353.89

0+379.73



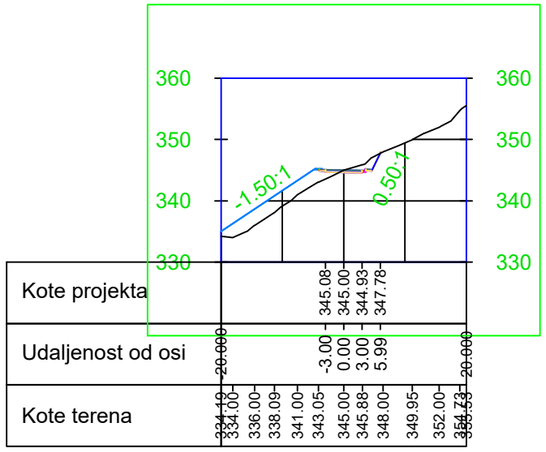
Kote projekta		341.22		349.32	349.24	349.17	355.11	
Udaljenost od osi	20.000	-17.03		-3.00	0.00	3.00	7.53	20.000
Kote terena	339.26	341.00	342.32	344.00	347.38	348.59	349.67	351.85	355.00	357.76	358.00

0+420.00



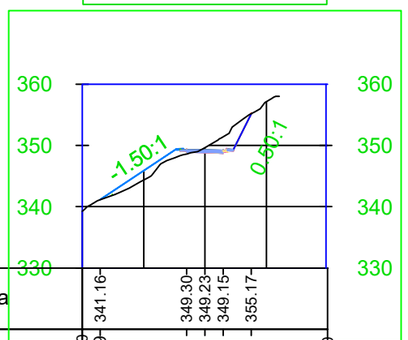
Kote projekta			347.38	347.30	347.23	347.68		
Udaljenost od osi	20.000		-3.00	0.00	3.00	4.79		20.000
Kote terena	334.00	334.00	337.00	339.00	341.00	343.00	344.35	347.00	348.82	350.82	352.94	354.19	356.00

0+467.82



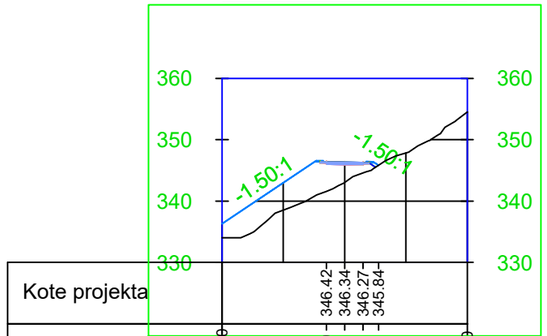
Kote projekta			345.08	345.00	344.93	347.78		
Udaljenost od osi	20.000		-3.00	0.00	3.00	5.99		20.000
Kote terena	334.10	334.00	336.00	338.09	341.00	343.05	345.00	345.88	348.00	349.95	352.00	354.73	355.33

0+380.00



Kote projekta		341.16		349.30	349.23	349.15	355.17	
Udaljenost od osi	20.000	-17.09		-3.00	0.00	3.00	7.57	20.000
Kote terena	339.25	341.00	342.19	344.00	347.12	348.46	349.60	352.00	355.00	357.62	358.00

0+440.00



Kote projekta			346.42	346.34	346.27	345.84		
Udaljenost od osi	20.000		-3.00	0.00	3.00	5.52		20.000
Kote terena	334.00	334.00	334.68	337.00	339.00	341.00	343.03	344.75	346.57	348.00	349.81	353.00	354.51

KARAKTERISTIČNI POPREČNI PRESJECI
M 1:200

Fakultet građevinarstva, arhitekture i geodezije		
Zadatak	IDEJNI PROJEKT LOKALNE CESTE	
Predmet	CESTE - ZAVRŠNI RAD	M 1:200
Sadržaj	Karakteristični poprečni presjeci	Godina
Studentica	Mateja Sabljić	2023./2024.

4. OBRADA NA RAČUNALU

Korištenjem Autodesk Civil 3D programa izrađen je idejni projekt lokalne ceste te je ručni način projektiranja zamijenjen računalnim. Samim time cijeli proces projektiranja ceste značajno je olakšan i ubrzan.

Za izradu idejnog projekta lokalne ceste prvo je skenirana geodetska podloga u mjerilu 1:1000 preko koje su iscrtane slojnice korištenjem 3D poligonalnih linija. Nakon iscrtavanja slojnica označene su nadmorske visine i ispisane točke preko kojih se dobila 3D površina i oblik terena. Na podlozi su još postavljene i tangente u čijim sjecištima su postavljeni kružni lukovi i prijelazne krivine čiji su radijusi i duljine prijelaznice definirani. Nakon horizontalne geometrije,izrađen je uzdužni presjek ceste,definirana je niveleta postavljanjem dviju tangenti i kružne krivine zadanog radijusa.

U sljedećem koraku je definiran poprečni nagib i širina kolnika te pokos usjeka i nasipa. Zatim je izrađen koridor pomoću horizontalnih i vetikalnih elemenata koji su prethodno definirani. Izradom koridora definiran je 3D model ceste te su iscrtani poprečni presjeci svakih 20 m.

Na kraju programa ispisuju se izlazni podaci u obliku ispisa koordinatnih točaka osi, ispis vertikalnog toka trase te proračun količine zemljanih radova za troškovnik i dokaznicu mjera.

5. KOORDINATNI RAČUN GLAVNIH TOČAKA OSI

Alignment: os1

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+00.000	157409.315	457435.001
End:	0+60.394	157396.190	457493.952

Tangent Data

Parameter	Value	Parameter	Value
Length:	60.394	Course:	S 77° 26' 55.4888" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	0+60.394	157396.190	457493.952
SPI:		157390.383	457520.036
SC:	1+00.394	157390.128	457533.418

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.000	L Tan:	26.723
Radius:	100.000	S Tan:	13.384
Theta:	11° 27' 32.9612"	P:	0.666
X:	39.840	K:	19.973
Y:	2.659	A:	63.246
Chord:	39.929	Course:	S 81° 16' 01.8149" E

Curve Point Data

Description	Station	Northing	Easting
SC:	1+00.394	157390.128	457533.418
RP:		157490.110	457535.324
CS:	1+18.433	157391.408	457551.387

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	10° 20' 07.8687"	Type:	LEFT
Radius:	100.000		
Length:	18.039	Tangent:	9.044
Mid-Ord:	0.406	External:	0.408
Chord:	18.014	Course:	N 85° 55' 27.6156" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	1+18.433	157391.408	457551.387
SPI:		157393.558	457564.597
ST:	1+58.433	157403.005	457589.595

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.000	L Tan:	26.723
Radius:	100.000	S Tan:	13.384
Theta:	11° 27' 32.9612"	P:	0.666
X:	39.840	K:	19.973
Y:	2.659	A:	63.246
Chord:	39.929	Course:	N 73° 06' 57.0461" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+58.433	157403.005	457589.595
End:	1+85.871	157412.705	457615.261

Tangent Data

Parameter	Value	Parameter	Value
Length:	27.438	Course:	N 69° 17' 50.7200" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	1+85.871	157412.705	457615.261
SPI:		157422.157	457640.270
SC:	2+25.871	157424.014	457653.537

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.000	L Tan:	26.736
Radius:	90.000	S Tan:	13.396
Theta:	12° 43' 56.6236"	P:	0.739
X:	39.803	K:	19.967
Y:	2.953	A:	60.000
Chord:	39.912	Course:	N 73° 32' 23.1995" E

Curve Point Data

Description	Station	Northing	Easting
SC:	2+25.871	157424.014	457653.537
RP:		157334.884	457666.017
CS:	2+40.038	157424.869	457667.664

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 01' 07.5540"	Type:	RIGHT
Radius:	90.000		
Length:	14.167	Tangent:	7.098
Mid-Ord:	0.279	External:	0.279
Chord:	14.152	Course:	N 86° 32' 21.1206" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	2+40.038	157424.869	457667.664
SPI:		157424.623	457681.058
ST:	2+80.038	157418.255	457707.024

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.000	L Tan:	26.736
Radius:	90.000	S Tan:	13.396
Theta:	12° 43' 56.6236"	P:	0.739
X:	39.803	K:	19.967
Y:	2.953	A:	60.000
Chord:	39.912	Course:	S 80° 27' 40.9582" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+80.038	157418.255	457707.024
End:	2+84.128	157417.280	457710.997

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.091	Course:	S 76° 13' 08.4788" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	2+84.128	157417.280	457710.997
SPI:		157412.488	457730.535
SC:	3+14.128	157413.425	457740.599

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	30.000	L Tan:	20.118
Radius:	45.000	S Tan:	10.107
Theta:	19° 05' 54.9354"	P:	0.830
X:	29.668	K:	14.945
Y:	3.307	A:	36.742
Chord:	29.852	Course:	S 82° 34' 45.1749" E

Curve Point Data

Description	Station	Northing	Easting
SC:	3+14.128	157413.425	457740.599
RP:		157458.231	457736.429
CS:	3+49.728	157429.695	457771.224

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	45° 19' 37.1948"	Type:	LEFT
Radius:	45.000		
Length:	35.600	Tangent:	18.790
Mid-Ord:	3.475	External:	3.765
Chord:	34.679	Course:	N 62° 01' 07.9884" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	3+49.728	157429.695	457771.224
SPI:		157437.510	457777.633
ST:	3+79.728	157456.384	457784.598

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	30.000	L Tan:	20.118
Radius:	45.000	S Tan:	10.107
Theta:	19° 05' 54.9354"	P:	0.830
X:	29.668	K:	14.945
Y:	3.307	A:	36.742
Chord:	29.852	Course:	N 26° 37' 01.1517" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+79.728	157456.384	457784.598
End:	4+67.816	157539.023	457815.097

Tangent Data

Parameter	Value	Parameter	Value
Length:	88.088	Course:	N 20° 15' 24.4556" E

Alignment: os1-Left-3.000

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+00.000	157412.243	457435.653
End:	0+60.394	157399.119	457494.604

Tangent Data

Parameter	Value	Parameter	Value
Length:	60.394	Course:	S 77° 26' 55.4888" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	0+60.394	157399.119	457494.604
SPI:		157397.674	457501.093
SC:	0+70.357	157396.994	457504.337

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	9.963	L Tan:	6.642
Radius:	397.000	S Tan:	3.321
Theta:	00° 43' 08.0518"	P:	0.010
X:	9.962	K:	4.981
Y:	0.042	A:	62.890

Chord:	9.962	Course:	S 77° 41' 13.3068" E

Curve Point Data

Description	Station	Northing	Easting
SC:	0+70.357	157396.994	457504.337
RP:		157404.824	457505.978
PT:	0+71.231	157396.862	457505.201

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	06° 15' 54.9876"	Type:	LEFT
Radius:	8.000		
Length:	0.875	Tangent:	0.438
Mid-Ord:	0.012	External:	0.012
Chord:	0.874	Course:	S 81° 17' 51.2927" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+71.231	157396.862	457505.201
End:	0+99.031	157394.164	457532.870

Tangent Data

Parameter	Value	Parameter	Value
Length:	27.800	Course:	S 84° 25' 48.7865" E

Curve Point Data

Description	Station	Northing	Easting
PC:	0+99.031	157394.164	457532.870
RP:		157402.126	457533.647
PCC:	0+99.657	157394.127	457533.494

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	04° 28' 39.6636"	Type:	LEFT
Radius:	8.000		
Length:	0.625	Tangent:	0.313
Mid-Ord:	0.006	External:	0.006
Chord:	0.625	Course:	S 86° 40' 08.6183" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	0+99.657	157394.127	457533.494
RP:		157490.110	457535.324
PCC:	1+16.974	157395.357	457550.744

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	10° 20' 07.8687"	Type:	LEFT
Radius:	96.000		
Length:	17.317	Tangent:	8.682
Mid-Ord:	0.390	External:	0.392
Chord:	17.294	Course:	N 85° 55' 27.6156" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	1+16.974	157395.357	457550.744
RP:		157403.253	457549.459
PT:	1+17.599	157395.481	457551.357

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	04° 28' 39.6636"	Type:	LEFT
Radius:	8.000		
Length:	0.625	Tangent:	0.313
Mid-Ord:	0.006	External:	0.006
Chord:	0.625	Course:	N 78° 31' 03.8495" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+17.599	157395.481	457551.357
End:	1+45.399	157402.075	457578.364

Tangent Data

Parameter	Value	Parameter	Value
Length:	27.800	Course:	N 76° 16' 44.0177" E

Curve Point Data

Description	Station	Northing	Easting
PC:	1+45.399	157402.075	457578.364
RP:		157409.847	457576.466
CS:	1+46.274	157402.329	457579.200

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	06° 15' 54.9876"	Type:	LEFT
Radius:	8.000		
Length:	0.875	Tangent:	0.438
Mid-Ord:	0.012	External:	0.012
Chord:	0.874	Course:	N 73° 08' 46.5239" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	1+46.274	157402.329	457579.200
SPI:		157403.461	457582.315
ST:	1+56.236	157405.812	457588.534

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	9.963	L Tan:	6.642
Radius:	397.000	S Tan:	3.321
Theta:	00° 43' 08.0518"	P:	0.010
X:	9.962	K:	4.981
Y:	0.042	A:	62.890
Chord:	9.962	Course:	N 69° 32' 08.5380" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+56.236	157405.812	457588.534
End:	1+83.674	157415.511	457614.200

Tangent Data

Parameter	Value	Parameter	Value
Length:	27.438	Course:	N 69° 17' 50.7200" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	1+83.674	157415.511	457614.200
SPI:		157425.081	457639.523
SC:	2+24.341	157426.985	457653.121

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.667	L Tan:	27.179
Radius:	93.000	S Tan:	13.618
Theta:	12° 31' 37.3232"	P:	0.740
X:	40.473	K:	20.301
Y:	2.954	A:	61.498
Chord:	40.577	Course:	N 73° 34' 28.5305" E

Curve Point Data

Description	Station	Northing	Easting
SC:	2+24.341	157426.985	457653.121
RP:		157334.884	457666.017
CS:	2+38.980	157427.868	457667.718

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 01' 07.5540"	Type:	RIGHT
Radius:	93.000		
Length:	14.639	Tangent:	7.335
Mid-Ord:	0.288	External:	0.289
Chord:	14.624	Course:	N 86° 32' 21.1206" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	2+38.980	157427.868	457667.718
SPI:		157427.617	457681.447
ST:	2+79.647	157421.168	457707.739

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.667	L Tan:	27.179
Radius:	93.000	S Tan:	13.618
Theta:	12° 31' 37.3232"	P:	0.740
X:	40.473	K:	20.301
Y:	2.954	A:	61.498

Chord:	40.577	Course:	S 80° 29' 46.2893" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+79.647	157421.168	457707.739
End:	2+83.737	157420.194	457711.712

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.091	Course:	S 76° 13' 08.4788" E

Curve Point Data

Description	Station	Northing	Easting
PC:	2+83.737	157420.194	457711.712
RP:		157427.963	457713.617
PT:	2+84.863	157420.003	457712.820

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	08° 03' 45.0620"	Type:	LEFT
Radius:	8.000		
Length:	1.126	Tangent:	0.564
Mid-Ord:	0.020	External:	0.020
Chord:	1.125	Course:	S 80° 15' 01.0098" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+84.863	157420.003	457712.820
End:	3+10.862	157417.413	457738.690

Tangent Data

Parameter	Value	Parameter	Value
Length:	25.999	Course:	S 84° 16' 53.5408" E

Curve Point Data

Description	Station	Northing	Easting
PC:	3+10.862	157417.413	457738.690
RP:		157425.373	457739.487
PCC:	3+12.403	157417.407	457740.228

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	11° 02' 09.8734"	Type:	LEFT
Radius:	8.000		
Length:	1.541	Tangent:	0.773
Mid-Ord:	0.037	External:	0.037
Chord:	1.539	Course:	S 89° 47' 58.4775" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	3+12.403	157417.407	457740.228
RP:		157458.231	457736.429

PCC:	3+44.838	157432.232	457768.131

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	45° 19' 37.1948"	Type:	LEFT
Radius:	41.000		
Length:	32.435	Tangent:	17.120
Mid-Ord:	3.166	External:	3.431
Chord:	31.596	Course:	N 62° 01' 07.9884" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	3+44.838	157432.232	457768.131
RP:		157437.305	457761.945
PT:	3+46.379	157433.510	457768.988

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	11° 02' 09.8734"	Type:	LEFT
Radius:	8.000		
Length:	1.541	Tangent:	0.773
Mid-Ord:	0.037	External:	0.037
Chord:	1.539	Course:	N 33° 50' 14.4543" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+46.379	157433.510	457768.988
End:	3+72.378	157456.397	457781.321

Tangent Data

Parameter	Value	Parameter	Value
Length:	25.999	Course:	N 28° 19' 09.5176" E

Curve Point Data

Description	Station	Northing	Easting
PC:	3+72.378	157456.397	457781.321
RP:		157460.192	457774.279
PT:	3+73.504	157457.422	457781.784

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	08° 03' 45.0620"	Type:	LEFT
Radius:	8.000		
Length:	1.126	Tangent:	0.564
Mid-Ord:	0.020	External:	0.020
Chord:	1.125	Course:	N 24° 17' 16.9866" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+73.504	157457.422	457781.784
End:	4+61.592	157540.062	457812.282

Tangent Data

Parameter	Value	Parameter	Value
Length:	88.088	Course:	N 20° 15' 24.4556" E

Alignment: os1-Right-3.000

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+00.000	157406.386	457434.349
End:	0+60.394	157393.262	457493.300

Tangent Data

Parameter	Value	Parameter	Value
Length:	60.394	Course:	S 77° 26' 55.4888" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	0+60.394	157393.262	457493.300
SPI:		157387.389	457519.678
SC:	1+00.994	157387.129	457533.361

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.600	L Tan:	27.122
Radius:	103.000	S Tan:	13.584
Theta:	11° 17' 32.1900"	P:	0.666
X:	40.443	K:	20.274
Y:	2.660	A:	64.667
Chord:	40.528	Course:	S 81° 17' 43.4852" E

Curve Point Data

Description	Station	Northing	Easting
SC:	1+00.994	157387.129	457533.361
RP:		157490.110	457535.324
CS:	1+19.574	157388.447	457551.869

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	10° 20' 07.8687"	Type:	LEFT
Radius:	103.000		
Length:	18.580	Tangent:	9.315
Mid-Ord:	0.419	External:	0.420
Chord:	18.555	Course:	N 85° 55' 27.6156" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	1+19.574	157388.447	457551.869
SPI:		157390.646	457565.376
ST:	1+60.174	157400.199	457590.655

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.600	L Tan:	27.122
Radius:	103.000	S Tan:	13.584
Theta:	11° 17' 32.1900"	P:	0.666
X:	40.443	K:	20.274
Y:	2.660	A:	64.667
Chord:	40.528	Course:	N 73° 08' 38.7164" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+60.174	157400.199	457590.655
End:	1+87.612	157409.899	457616.321

Tangent Data

Parameter	Value	Parameter	Value
Length:	27.438	Course:	N 69° 17' 50.7200" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	1+87.612	157409.899	457616.321
SPI:		157412.248	457622.538
SC:	1+97.570	157413.376	457625.653

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	9.958	L Tan:	6.639
Radius:	357.000	S Tan:	3.320
Theta:	00° 47' 56.8259"	P:	0.012
X:	9.958	K:	4.979
Y:	0.046	A:	59.625
Chord:	9.958	Course:	N 69° 33' 43.6503" E

Curve Point Data

Description	Station	Northing	Easting
SC:	1+97.570	157413.376	457625.653
RP:		157405.854	457628.377
PT:	1+98.511	157413.644	457626.554

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	06° 44' 18.7179"	Type:	RIGHT
Radius:	8.000		
Length:	0.941	Tangent:	0.471
Mid-Ord:	0.014	External:	0.014
Chord:	0.940	Course:	N 73° 27' 44.8679" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+98.511	157413.644	457626.554
End:	2+26.060	157419.920	457653.379

Tangent Data

Parameter	Value	Parameter	Value
Length:	27.549	Course:	N 76° 49' 54.2269" E

Curve Point Data

Description	Station	Northing	Easting
PC:	2+26.060	157419.920	457653.379
RP:		157412.130	457655.201
PCC:	2+26.786	157420.053	457654.092

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	05° 11' 53.1167"	Type:	RIGHT
Radius:	8.000		
Length:	0.726	Tangent:	0.363
Mid-Ord:	0.008	External:	0.008
Chord:	0.726	Course:	N 79° 25' 50.7852" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	2+26.786	157420.053	457654.092
RP:		157334.884	457666.017
PCC:	2+40.323	157420.869	457667.590

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 01' 07.5540"	Type:	RIGHT
Radius:	86.000		
Length:	13.537	Tangent:	6.783
Mid-Ord:	0.266	External:	0.267
Chord:	13.523	Course:	N 86° 32' 21.1206" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	2+40.323	157420.869	457667.590
RP:		157412.871	457667.444
PT:	2+41.049	157420.823	457668.314

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	05° 11' 53.1167"	Type:	RIGHT
Radius:	8.000		
Length:	0.726	Tangent:	0.363
Mid-Ord:	0.008	External:	0.008
Chord:	0.726	Course:	S 86° 21' 08.5440" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+41.049	157420.823	457668.314
End:	2+68.598	157417.825	457695.700

Tangent Data

Parameter	Value	Parameter	Value
Length:	27.549	Course:	S 83° 45' 11.9857" E

Curve Point Data

Description	Station	Northing	Easting
PC:	2+68.598	157417.825	457695.700
RP:		157409.873	457694.829
CS:	2+69.539	157417.668	457696.627

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	06° 44' 18.7179"	Type:	RIGHT
Radius:	8.000		
Length:	0.941	Tangent:	0.471
Mid-Ord:	0.014	External:	0.014
Chord:	0.940	Course:	S 80° 23' 02.6267" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	2+69.539	157417.668	457696.627
SPI:		157416.924	457699.855
ST:	2+79.497	157415.341	457706.309

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	9.958	L Tan:	6.639
Radius:	357.000	S Tan:	3.320
Theta:	00° 47' 56.8259"	P:	0.012
X:	9.958	K:	4.979
Y:	0.046	A:	59.625
Chord:	9.958	Course:	S 76° 29' 01.4091" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+79.497	157415.341	457706.309
End:	2+83.588	157414.366	457710.282

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.091	Course:	S 76° 13' 08.4788" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	2+83.588	157414.366	457710.282
SPI:		157409.454	457730.311
SC:	3+14.588	157410.437	457740.877

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	31.000	L Tan:	20.781
Radius:	48.000	S Tan:	10.437
Theta:	18° 30' 06.3437"	P:	0.831

X:	30.678	K:	15.446
Y:	3.312	A:	38.575
Chord:	30.846	Course:	S 82° 40' 55.4595" E

Curve Point Data

Description	Station	Northing	Easting
SC:	3+14.588	157410.437	457740.877
RP:		157458.231	457736.429
CS:	3+52.561	157427.793	457773.544

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	45° 19' 37.1948"	Type:	LEFT
Radius:	48.000		
Length:	37.973	Tangent:	20.043
Mid-Ord:	3.706	External:	4.017
Chord:	36.991	Course:	N 62° 01' 07.9884" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	3+52.561	157427.793	457773.544
SPI:		157435.998	457780.273
ST:	3+83.561	157455.345	457787.413

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	31.000	L Tan:	20.781
Radius:	48.000	S Tan:	10.437
Theta:	18° 30' 06.3437"	P:	0.831
X:	30.678	K:	15.446
Y:	3.312	A:	38.575
Chord:	30.846	Course:	N 26° 43' 11.4364" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+83.561	157455.345	457787.413
End:	4+71.648	157537.984	457817.911

Tangent Data

Parameter	Value	Parameter	Value
Length:	88.088	Course:	N 20° 15' 24.4556" E

6. KOORDINATNI RAČUN DETALJNIH TOČAKA OSI

Alignment Name: os1
Description:
Station Range: Start: 0+000.00, End: 0+467.82
Station Increment: 20.00

Station	Northing	Easting	Tangential Direction
0+000.00	157,409.3148m	457,435.0012m	S77° 26' 55"E
0+020.00	157,404.9685m	457,454.5232m	S77° 26' 55"E
0+040.00	157,400.6223m	457,474.0452m	S77° 26' 55"E
0+060.00	157,396.2760m	457,493.5673m	S77° 26' 55"E
0+080.00	157,392.2372m	457,513.1531m	S80° 12' 06"E
0+100.00	157,390.1364m	457,533.0240m	S88° 41' 00"E
0+120.00	157,391.6721m	457,552.9315m	N79° 52' 35"E
0+140.00	157,396.7342m	457,572.2628m	N71° 43' 51"E
0+160.00	157,403.5593m	457,591.0605m	N69° 17' 51"E
0+180.00	157,410.6297m	457,609.7690m	N69° 17' 51"E
0+200.00	157,417.5775m	457,628.5227m	N70° 53' 10"E
0+220.00	157,423.0204m	457,647.7521m	N78° 34' 00"E
0+240.00	157,424.8692m	457,667.6260m	S88° 58' 31"E
0+260.00	157,422.6646m	457,687.4807m	S79° 24' 51"E
0+280.00	157,418.2635m	457,706.9876m	S76° 13' 09"E
0+300.00	157,413.9817m	457,726.5159m	S81° 33' 53"E
0+320.00	157,414.3481m	457,746.3935m	N77° 12' 22"E
0+340.00	157,422.8958m	457,764.2931m	N51° 44' 29"E
0+360.00	157,438.2418m	457,776.8941m	N28° 30' 57"E
0+380.00	157,456.6387m	457,784.6925m	N20° 15' 24"E
0+400.00	157,475.4017m	457,791.6171m	N20° 15' 24"E
0+420.00	157,494.1647m	457,798.5416m	N20° 15' 24"E
0+440.00	157,512.9277m	457,805.4662m	N20° 15' 24"E
0+460.00	157,531.6908m	457,812.3908m	N20° 15' 24"E
0+467.82	157,539.0231m	457,815.0968m	N20° 15' 24"E

7. KOORDINATNI ISPIS TOČAKA POPREČNOG PRESJEKA

Corridor Name: koridor
Description:
Base Alignment Name: os1
Station Range: Start: 0+000.00, End: 0+467.82

CHAINAGE 0+000.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,437.6910	157,421.3970	366.2558	-12.378m	Daylight
2	457,436.0099	157,413.8456	371.4134	-4.642m	EPS
3	457,436.0096	157,413.8446	371.2134	-4.641m	EPS_Sub
4	457,435.7925	157,412.8695	371.4534	-3.642m	Back_Curb
5	457,435.7599	157,412.7231	371.4534	-3.492m	Top_Curb
6	457,435.7509	157,412.6824	371.2284	-3.450m	Flowline_Gutter
7	457,435.6531	157,412.2431	370.8554	-3.000m	ETW_SubBase
8	457,435.6531	157,412.2431	371.2554	-3.000m	ETW
9	457,434.3492	157,406.3865	370.7054	3.000m	ETW_SubBase
10	457,434.3492	157,406.3865	371.1054	3.000m	ETW
11	457,434.2514	157,405.9473	371.0784	3.450m	Flowline_Gutter
12	457,434.2424	157,405.9066	371.3034	3.492m	Top_Curb
13	457,434.2098	157,405.7601	371.3034	3.642m	Back_Curb
14	457,433.9927	157,404.7850	371.0634	4.641m	EPS_Sub
15	457,433.9925	157,404.7840	371.2634	4.642m	Ditch_In
16	457,433.8502	157,404.1453	372.5721	5.296m	Daylight

CHAINAGE 0+020.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,455.5795	157,409.7130	369.8874	-4.861m	Daylight
2	457,455.5319	157,409.4993	370.0333	-4.642m	EPS
3	457,455.5317	157,409.4983	369.8333	-4.641m	EPS_Sub

4	457,455.3146	157,408.5232	370.0733	-3.642m	Back_Curb
5	457,455.2820	157,408.3768	370.0733	-3.492m	Top_Curb
6	457,455.2729	157,408.3361	369.8483	-3.450m	Flowline_Gutter
7	457,455.1751	157,407.8969	369.4753	-3.000m	ETW_SubBase
8	457,455.1751	157,407.8969	369.8753	-3.000m	ETW
9	457,453.8713	157,402.0402	369.3253	3.000m	ETW_SubBase
10	457,453.8713	157,402.0402	369.7253	3.000m	ETW
11	457,453.7735	157,401.6010	369.6983	3.450m	Flowline_Gutter
12	457,453.7644	157,401.5603	369.9233	3.492m	Top_Curb
13	457,453.7318	157,401.4139	369.9233	3.642m	Back_Curb
14	457,453.5147	157,400.4388	369.6833	4.641m	EPS_Sub
15	457,453.5145	157,400.4378	369.8833	4.642m	Ditch_In
16	457,453.1499	157,398.8003	373.2385	6.319m	Daylight

CHAINAGE 0+040.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,475.0856	157,405.2954	368.9450	-4.788m	Daylight
2	457,475.0539	157,405.1531	368.6533	-4.642m	Ditch_In
3	457,475.0537	157,405.1521	368.4533	-4.641m	EPS_Sub
4	457,474.8366	157,404.1770	368.6933	-3.642m	Back_Curb
5	457,474.8040	157,404.0305	368.6933	-3.492m	Top_Curb
6	457,474.7950	157,403.9898	368.4683	-3.450m	Flowline_Gutter
7	457,474.6972	157,403.5506	368.0953	-3.000m	ETW_SubBase
8	457,474.6972	157,403.5506	368.4953	-3.000m	ETW
9	457,473.3933	157,397.6940	367.9453	3.000m	ETW_SubBase
10	457,473.3933	157,397.6940	368.3453	3.000m	ETW
11	457,473.2955	157,397.2547	368.3183	3.450m	Flowline_Gutter
12	457,473.2864	157,397.2140	368.5433	3.492m	Top_Curb
13	457,473.2538	157,397.0676	368.5433	3.642m	Back_Curb

14	457,473.0367	157,396.0925	368.3033	4.641m	EPS_Sub
15	457,473.0365	157,396.0915	368.5033	4.642m	Ditch_In
16	457,472.6566	157,394.3849	372.0000	6.390m	Daylight

CHAINAGE 0+060.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,495.0578	157,402.9710	365.7951	-6.859m	Daylight
2	457,494.5760	157,400.8068	367.2733	-4.642m	EPS
3	457,494.5758	157,400.8058	367.0733	-4.641m	EPS_Sub
4	457,494.3587	157,399.8307	367.3133	-3.642m	Back_Curb
5	457,494.3261	157,399.6843	367.3133	-3.492m	Top_Curb
6	457,494.3170	157,399.6436	367.0883	-3.450m	Flowline_Gutter
7	457,494.2192	157,399.2043	366.7153	-3.000m	ETW_SubBase
8	457,494.2192	157,399.2043	367.1153	-3.000m	ETW
9	457,492.9153	157,393.3477	366.5653	3.000m	ETW_SubBase
10	457,492.9153	157,393.3477	366.9653	3.000m	ETW
11	457,492.8175	157,392.9085	366.9383	3.450m	Flowline_Gutter
12	457,492.8085	157,392.8678	367.1633	3.492m	Top_Curb
13	457,492.7759	157,392.7214	367.1633	3.642m	Back_Curb
14	457,492.5588	157,391.7462	366.9233	4.641m	EPS_Sub
15	457,492.5586	157,391.7453	367.1233	4.642m	Ditch_In
16	457,492.4095	157,391.0756	368.4954	5.328m	Daylight

CHAINAGE 0+080.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,514.1818	157,398.1938	367.0372	-6.045m	Daylight
2	457,514.0863	157,397.6405	365.9143	-5.483m	Ditch_In
3	457,514.0861	157,397.6395	365.7143	-5.482m	EPS_Sub
4	457,513.9161	157,396.6551	365.9543	-4.483m	Back_Curb

5	457,513.8906	157,396.5072	365.9543	-4.333m	Top_Curb
6	457,513.8835	157,396.4662	365.7293	-4.292m	Flowline_Gutter
7	457,513.8069	157,396.0227	365.3563	-3.842m	ETW_SubBase
8	457,513.8069	157,396.0227	365.7563	-3.842m	ETW
9	457,512.6427	157,389.2815	365.1852	3.000m	ETW_SubBase
10	457,512.6427	157,389.2815	365.5852	3.000m	ETW
11	457,512.5661	157,388.8380	365.5582	3.450m	Flowline_Gutter
12	457,512.5590	157,388.7969	365.7832	3.491m	Top_Curb
13	457,512.5335	157,388.6491	365.7832	3.641m	Back_Curb
14	457,512.3635	157,387.6647	365.5432	4.640m	EPS_Sub
15	457,512.3633	157,387.6637	365.7432	4.641m	Ditch_In
16	457,512.0983	157,386.1295	368.8571	6.198m	Daylight

CHAINAGE 0+100.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,533.1664	157,396.3312	365.6315	-6.196m	Daylight
2	457,533.1538	157,395.7848	364.5384	-5.650m	Ditch_In
3	457,533.1538	157,395.7838	364.3384	-5.649m	EPS_Sub
4	457,533.1308	157,394.7851	364.5784	-4.650m	Back_Curb
5	457,533.1274	157,394.6351	364.5784	-4.500m	Top_Curb
6	457,533.1264	157,394.5934	364.3534	-4.458m	Flowline_Gutter
7	457,533.1161	157,394.1435	363.9804	-4.008m	ETW_SubBase
8	457,533.1161	157,394.1435	364.3804	-4.008m	ETW
9	457,532.9550	157,387.1372	363.8052	3.000m	ETW_SubBase
10	457,532.9550	157,387.1372	364.2052	3.000m	ETW
11	457,532.9447	157,386.6873	364.1782	3.450m	Flowline_Gutter
12	457,532.9437	157,386.6456	364.4032	3.492m	Top_Curb
13	457,532.9403	157,386.4956	364.4032	3.642m	Back_Curb
14	457,532.9173	157,385.4969	364.1632	4.641m	EPS_Sub

15	457,532.9173	157,385.4959	364.3632	4.642m	Ditch_In
16	457,532.8744	157,383.6290	368.0979	6.509m	Daylight

CHAINAGE 0+120.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,551.7276	157,398.4149	362.4095	-6.849m	Daylight
2	457,551.9255	157,397.3064	363.1602	-5.723m	EPS
3	457,551.9257	157,397.3054	362.9602	-5.722m	EPS_Sub
4	457,552.1013	157,396.3220	363.2002	-4.723m	Back_Curb
5	457,552.1277	157,396.1743	363.2002	-4.573m	Top_Curb
6	457,552.1350	157,396.1333	362.9752	-4.532m	Flowline_Gutter
7	457,552.2141	157,395.6903	362.6022	-4.082m	ETW_SubBase
8	457,552.2141	157,395.6903	363.0022	-4.082m	ETW
9	457,553.4589	157,388.7186	362.4252	3.000m	ETW_SubBase
10	457,553.4589	157,388.7186	362.8252	3.000m	ETW
11	457,553.5380	157,388.2756	362.7982	3.450m	Flowline_Gutter
12	457,553.5453	157,388.2346	363.0232	3.492m	Top_Curb
13	457,553.5717	157,388.0869	363.0232	3.642m	Back_Curb
14	457,553.7473	157,387.1035	362.7832	4.641m	EPS_Sub
15	457,553.7475	157,387.1025	362.9832	4.642m	Ditch_In
16	457,553.9685	157,385.8643	365.4987	5.900m	Daylight

CHAINAGE 0+140.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,568.3666	157,408.5364	357.0827	-12.429m	Daylight
2	457,570.5716	157,401.8571	361.7720	-5.395m	EPS
3	457,570.5719	157,401.8562	361.5720	-5.394m	EPS_Sub
4	457,570.8851	157,400.9075	361.8120	-4.395m	Back_Curb
5	457,570.9321	157,400.7651	361.8120	-4.245m	Top_Curb

6	457,570.9452	157,400.7255	361.5870	-4.203m	Flowline_Gutter
7	457,571.0862	157,400.2982	361.2140	-3.753m	ETW_SubBase
8	457,571.0862	157,400.2982	361.6140	-3.753m	ETW
9	457,573.2030	157,393.8859	361.0451	2.999m	ETW_SubBase
10	457,573.2030	157,393.8859	361.4451	2.999m	ETW
11	457,573.3441	157,393.4586	361.4181	3.449m	Flowline_Gutter
12	457,573.3572	157,393.4190	361.6431	3.491m	Top_Curb
13	457,573.4042	157,393.2766	361.6431	3.641m	Back_Curb
14	457,573.7174	157,392.3279	361.4031	4.640m	EPS_Sub
15	457,573.7177	157,392.3270	361.6031	4.641m	EPS
16	457,574.0238	157,391.3997	360.9521	5.618m	Daylight

CHAINAGE 0+160.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,589.1092	157,408.7225	362.1289	-5.520m	Daylight
2	457,589.4195	157,407.9013	360.3731	-4.642m	Ditch_In
3	457,589.4199	157,407.9004	360.1731	-4.641m	EPS_Sub
4	457,589.7731	157,406.9659	360.4131	-3.642m	Back_Curb
5	457,589.8261	157,406.8255	360.4131	-3.492m	Top_Curb
6	457,589.8408	157,406.7865	360.1881	-3.450m	Flowline_Gutter
7	457,589.9999	157,406.3656	359.8151	-3.000m	ETW_SubBase
8	457,589.9999	157,406.3656	360.2151	-3.000m	ETW
9	457,592.1210	157,400.7530	359.6651	3.000m	ETW_SubBase
10	457,592.1210	157,400.7530	360.0651	3.000m	ETW
11	457,592.2801	157,400.3321	360.0381	3.450m	Flowline_Gutter
12	457,592.2948	157,400.2931	360.2631	3.492m	Top_Curb
13	457,592.3479	157,400.1528	360.2631	3.642m	Back_Curb
14	457,592.7010	157,399.2183	360.0231	4.641m	EPS_Sub
15	457,592.7014	157,399.2173	360.2231	4.642m	Ditch_In

16	457,593.5781	157,396.8975	365.1830	7.122m	Daylight

CHAINAGE 0+180.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,607.5460	157,416.5119	362.2863	-6.288m	Daylight
2	457,608.1281	157,414.9716	358.9931	-4.642m	Ditch_In
3	457,608.1285	157,414.9707	358.7931	-4.641m	EPS_Sub
4	457,608.4816	157,414.0362	359.0331	-3.642m	Back_Curb
5	457,608.5346	157,413.8959	359.0331	-3.492m	Top_Curb
6	457,608.5494	157,413.8569	358.8081	-3.450m	Flowline_Gutter
7	457,608.7085	157,413.4359	358.4351	-3.000m	ETW_SubBase
8	457,608.7085	157,413.4359	358.8351	-3.000m	ETW
9	457,610.8296	157,407.8234	358.2851	3.000m	ETW_SubBase
10	457,610.8296	157,407.8234	358.6851	3.000m	ETW
11	457,610.9887	157,407.4024	358.6581	3.450m	Flowline_Gutter
12	457,611.0034	157,407.3634	358.8831	3.492m	Top_Curb
13	457,611.0564	157,407.2231	358.8831	3.642m	Back_Curb
14	457,611.4096	157,406.2886	358.6431	4.641m	EPS_Sub
15	457,611.4099	157,406.2877	358.8431	4.642m	Ditch_In
16	457,612.3561	157,403.7841	364.1960	7.318m	Daylight

CHAINAGE 0+200.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,626.4343	157,423.6036	361.0848	-6.378m	Daylight
2	457,627.0028	157,421.9634	357.6130	-4.642m	Ditch_In
3	457,627.0031	157,421.9625	357.4130	-4.641m	EPS_Sub
4	457,627.3302	157,421.0186	357.6530	-3.642m	Back_Curb
5	457,627.3793	157,420.8768	357.6530	-3.492m	Top_Curb
6	457,627.3930	157,420.8374	357.4280	-3.450m	Flowline_Gutter

7	457,627.5403	157,420.4122	357.0550	-3.000m	ETW_SubBase
8	457,627.5403	157,420.4122	357.4550	-3.000m	ETW
9	457,629.6361	157,414.3649	356.8950	3.400m	ETW_SubBase
10	457,629.6361	157,414.3649	357.2950	3.400m	ETW
11	457,629.7834	157,413.9397	357.2680	3.850m	Flowline_Gutter
12	457,629.7971	157,413.9003	357.4930	3.892m	Top_Curb
13	457,629.8462	157,413.7585	357.4930	4.042m	Back_Curb
14	457,630.1733	157,412.8146	357.2530	5.041m	EPS_Sub
15	457,630.1736	157,412.8137	357.4530	5.042m	Ditch_In
16	457,631.0694	157,410.2290	362.9241	7.777m	Daylight

CHAINAGE 0+220.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,645.6259	157,433.5338	352.2141	-10.726m	Daylight
2	457,646.8321	157,427.5696	356.2707	-4.641m	EPS
3	457,646.8323	157,427.5686	356.0707	-4.640m	EPS_Sub
4	457,647.0303	157,426.5894	356.3107	-3.641m	Back_Curb
5	457,647.0600	157,426.4424	356.3107	-3.491m	Top_Curb
6	457,647.0683	157,426.4015	356.0857	-3.450m	Flowline_Gutter
7	457,647.1575	157,425.9604	355.7127	-3.000m	ETW_SubBase
8	457,647.1575	157,425.9604	356.1127	-3.000m	ETW
9	457,648.6051	157,418.8029	355.5302	4.303m	ETW_SubBase
10	457,648.6051	157,418.8029	355.9302	4.303m	ETW
11	457,648.6943	157,418.3619	355.9032	4.753m	Flowline_Gutter
12	457,648.7025	157,418.3210	356.1282	4.795m	Top_Curb
13	457,648.7323	157,418.1740	356.1282	4.945m	Back_Curb
14	457,648.9303	157,417.1948	355.8882	5.944m	EPS_Sub
15	457,648.9305	157,417.1938	356.0882	5.945m	Ditch_In
16	457,649.2098	157,415.8130	358.9057	7.353m	Daylight

CHAINAGE 0+240.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,667.7286	157,430.6025	357.5305	-5.734m	Daylight
2	457,667.7091	157,429.5102	355.3455	-4.642m	Ditch_In
3	457,667.7090	157,429.5092	355.1455	-4.641m	EPS_Sub
4	457,667.6912	157,428.5103	355.3855	-3.642m	Back_Curb
5	457,667.6885	157,428.3603	355.3855	-3.492m	Top_Curb
6	457,667.6877	157,428.3187	355.1605	-3.450m	Flowline_Gutter
7	457,667.6797	157,427.8687	354.7875	-3.000m	ETW_SubBase
8	457,667.6797	157,427.8687	355.1875	-3.000m	ETW
9	457,667.5545	157,420.8698	354.6125	4.000m	ETW_SubBase
10	457,667.5545	157,420.8698	355.0125	4.000m	ETW
11	457,667.5465	157,420.4199	354.9855	4.450m	Flowline_Gutter
12	457,667.5457	157,420.3782	355.2105	4.492m	Top_Curb
13	457,667.5430	157,420.2282	355.2105	4.642m	Back_Curb
14	457,667.5252	157,419.2294	354.9705	5.641m	EPS_Sub
15	457,667.5252	157,419.2284	355.1705	5.642m	Ditch_In
16	457,667.4730	157,416.3141	361.0000	8.556m	Daylight

CHAINAGE 0+260.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,688.3760	157,427.4553	354.9226	-4.874m	Daylight
2	457,688.3333	157,427.2269	354.4580	-4.641m	Ditch_In
3	457,688.3331	157,427.2260	354.2580	-4.640m	EPS_Sub
4	457,688.1496	157,426.2440	354.4980	-3.641m	Back_Curb
5	457,688.1220	157,426.0965	354.4980	-3.491m	Top_Curb
6	457,688.1144	157,426.0555	354.2730	-3.450m	Flowline_Gutter
7	457,688.0317	157,425.6132	353.9000	-3.000m	ETW_SubBase

8	457,688.0317	157,425.6132	354.3000	-3.000m	ETW
9	457,686.7592	157,418.8041	353.7268	3.927m	ETW_SubBase
10	457,686.7592	157,418.8041	354.1268	3.927m	ETW
11	457,686.6765	157,418.3618	354.0998	4.377m	Flowline_Gutter
12	457,686.6688	157,418.3208	354.3248	4.419m	Top_Curb
13	457,686.6413	157,418.1733	354.3248	4.569m	Back_Curb
14	457,686.4577	157,417.1913	354.0848	5.568m	EPS_Sub
15	457,686.4576	157,417.1903	354.2848	5.569m	Ditch_In
16	457,685.9607	157,414.5319	359.6938	8.274m	Daylight

CHAINAGE 0+280.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,710.1897	157,431.3190	347.7034	-13.442m	Daylight
2	457,708.0933	157,422.7716	353.5705	-4.642m	EPS
3	457,708.0930	157,422.7706	353.3705	-4.641m	EPS_Sub
4	457,707.8551	157,421.8004	353.6105	-3.642m	Back_Curb
5	457,707.8193	157,421.6547	353.6105	-3.492m	Top_Curb
6	457,707.8094	157,421.6142	353.3855	-3.450m	Flowline_Gutter
7	457,707.7022	157,421.1771	353.0125	-3.000m	ETW_SubBase
8	457,707.7022	157,421.1771	353.4125	-3.000m	ETW
9	457,706.2729	157,415.3499	352.8625	3.000m	ETW_SubBase
10	457,706.2729	157,415.3499	353.2625	3.000m	ETW
11	457,706.1657	157,414.9128	353.2355	3.450m	Flowline_Gutter
12	457,706.1558	157,414.8723	353.4605	3.492m	Top_Curb
13	457,706.1201	157,414.7266	353.4605	3.642m	Back_Curb
14	457,705.8821	157,413.7564	353.2205	4.641m	EPS_Sub
15	457,705.8819	157,413.7554	353.4205	4.642m	Ditch_In
16	457,705.0982	157,410.5603	360.0002	7.932m	Daylight

CHAINAGE 0+300.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,730.3356	157,439.7388	339.5473	-26.039m	Daylight
2	457,727.4363	157,420.1877	352.7239	-6.274m	EPS
3	457,727.4361	157,420.1867	352.5239	-6.273m	EPS_Sub
4	457,727.2896	157,419.1985	352.7639	-5.274m	Back_Curb
5	457,727.2676	157,419.0501	352.7639	-5.124m	Top_Curb
6	457,727.2614	157,419.0089	352.5389	-5.082m	Flowline_Gutter
7	457,727.1954	157,418.5638	352.1659	-4.632m	ETW_SubBase
8	457,727.1954	157,418.5638	352.5659	-4.632m	ETW
9	457,726.0758	157,411.0139	351.9751	3.000m	ETW_SubBase
10	457,726.0758	157,411.0139	352.3751	3.000m	ETW
11	457,726.0098	157,410.5688	352.3481	3.450m	Flowline_Gutter
12	457,726.0037	157,410.5275	352.5731	3.492m	Top_Curb
13	457,725.9817	157,410.3791	352.5731	3.642m	Back_Curb
14	457,725.8352	157,409.3909	352.3331	4.641m	EPS_Sub
15	457,725.8350	157,409.3900	352.5331	4.642m	Ditch_In
16	457,725.3525	157,406.1362	359.1118	7.931m	Daylight

CHAINAGE 0+320.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,740.6828	157,439.4964	338.3893	-25.789m	Daylight
2	457,745.1442	157,419.8497	351.8206	-5.642m	EPS
3	457,745.1444	157,419.8487	351.6206	-5.641m	EPS_Sub
4	457,745.3656	157,418.8745	351.8606	-4.642m	Back_Curb
5	457,745.3989	157,418.7283	351.8606	-4.492m	Top_Curb
6	457,745.4081	157,418.6876	351.6356	-4.450m	Flowline_Gutter
7	457,745.5077	157,418.2488	351.2626	-4.000m	ETW_SubBase

8	457,745.5077	157,418.2488	351.6626	-4.000m	ETW
9	457,747.0578	157,411.4226	351.0876	3.000m	ETW_SubBase
10	457,747.0578	157,411.4226	351.4876	3.000m	ETW
11	457,747.1575	157,410.9837	351.4606	3.450m	Flowline_Gutter
12	457,747.1667	157,410.9431	351.6856	3.492m	Top_Curb
13	457,747.1999	157,410.7968	351.6856	3.642m	Back_Curb
14	457,747.4212	157,409.8226	351.4456	4.641m	EPS_Sub
15	457,747.4214	157,409.8216	351.6456	4.642m	Ditch_In
16	457,747.8470	157,407.9472	355.4899	6.564m	Daylight

CHAINAGE 0+340.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,748.8771	157,442.4448	338.0968	-24.896m	Daylight
2	457,760.7997	157,427.3258	350.9331	-5.642m	EPS
3	457,760.8003	157,427.3250	350.7331	-5.641m	EPS_Sub
4	457,761.4189	157,426.5406	350.9731	-4.642m	Back_Curb
5	457,761.5118	157,426.4228	350.9731	-4.492m	Top_Curb
6	457,761.5376	157,426.3900	350.7481	-4.450m	Flowline_Gutter
7	457,761.8163	157,426.0367	350.3751	-4.000m	ETW_SubBase
8	457,761.8163	157,426.0367	350.7751	-4.000m	ETW
9	457,766.1507	157,420.5401	350.2001	3.000m	ETW_SubBase
10	457,766.1507	157,420.5401	350.6001	3.000m	ETW
11	457,766.4294	157,420.1868	350.5731	3.450m	Flowline_Gutter
12	457,766.4552	157,420.1540	350.7981	3.492m	Top_Curb
13	457,766.5481	157,420.0362	350.7981	3.642m	Back_Curb
14	457,767.1667	157,419.2518	350.5581	4.641m	EPS_Sub
15	457,767.1673	157,419.2510	350.7581	4.642m	Ditch_In
16	457,767.3369	157,419.0359	351.3060	4.916m	Daylight

CHAINAGE 0+360.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,767.1570	157,443.5321	346.9139	-11.081m	Daylight
2	457,771.3083	157,441.2767	350.0635	-6.357m	EPS
3	457,771.3092	157,441.2762	349.8635	-6.356m	EPS_Sub
4	457,772.1870	157,440.7993	350.1035	-5.357m	Back_Curb
5	457,772.3188	157,440.7277	350.1035	-5.207m	Top_Curb
6	457,772.3554	157,440.7078	349.8785	-5.165m	Flowline_Gutter
7	457,772.7508	157,440.4929	349.5055	-4.715m	ETW_SubBase
8	457,772.7508	157,440.4929	349.9055	-4.715m	ETW
9	457,779.5297	157,436.8099	349.3126	2.999m	ETW_SubBase
10	457,779.5297	157,436.8099	349.7126	2.999m	ETW
11	457,779.9251	157,436.5951	349.6856	3.449m	Flowline_Gutter
12	457,779.9618	157,436.5752	349.9106	3.491m	Top_Curb
13	457,780.0936	157,436.5036	349.9106	3.641m	Back_Curb
14	457,780.9714	157,436.0267	349.6706	4.640m	EPS_Sub
15	457,780.9722	157,436.0262	349.8706	4.641m	Ditch_In
16	457,784.5438	157,434.0857	358.0000	8.706m	Daylight

CHAINAGE 0+380.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,769.6231	157,462.2001	341.5190	-16.063m	Daylight
2	457,780.3379	157,458.2458	349.1331	-4.642m	EPS
3	457,780.3388	157,458.2455	348.9331	-4.641m	EPS_Sub
4	457,781.2760	157,457.8996	349.1731	-3.642m	Back_Curb
5	457,781.4167	157,457.8477	349.1731	-3.492m	Top_Curb
6	457,781.4559	157,457.8332	348.9481	-3.450m	Flowline_Gutter
7	457,781.8780	157,457.6774	348.5751	-3.000m	ETW_SubBase

8	457,781.8780	157,457.6774	348.9751	-3.000m	ETW
9	457,787.5069	157,455.6000	348.4251	3.000m	ETW_SubBase
10	457,787.5069	157,455.6000	348.8251	3.000m	ETW
11	457,787.9291	157,455.4442	348.7981	3.450m	Flowline_Gutter
12	457,787.9682	157,455.4298	349.0231	3.492m	Top_Curb
13	457,788.1089	157,455.3779	349.0231	3.642m	Back_Curb
14	457,789.0462	157,455.0320	348.7831	4.641m	EPS_Sub
15	457,789.0471	157,455.0316	348.9831	4.642m	Ditch_In
16	457,792.0069	157,453.9393	355.2930	7.797m	Daylight

CHAINAGE 0+400.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,775.7045	157,481.2743	340.0323	-16.962m	Daylight
2	457,787.2624	157,477.0088	348.2456	-4.642m	EPS
3	457,787.2634	157,477.0085	348.0456	-4.641m	EPS_Sub
4	457,788.2006	157,476.6626	348.2856	-3.642m	Back_Curb
5	457,788.3413	157,476.6107	348.2856	-3.492m	Top_Curb
6	457,788.3804	157,476.5962	348.0606	-3.450m	Flowline_Gutter
7	457,788.8026	157,476.4404	347.6876	-3.000m	ETW_SubBase
8	457,788.8026	157,476.4404	348.0876	-3.000m	ETW
9	457,794.4315	157,474.3631	347.5376	3.000m	ETW_SubBase
10	457,794.4315	157,474.3631	347.9376	3.000m	ETW
11	457,794.8537	157,474.2073	347.9106	3.450m	Flowline_Gutter
12	457,794.8928	157,474.1928	348.1356	3.492m	Top_Curb
13	457,795.0335	157,474.1409	348.1356	3.642m	Back_Curb
14	457,795.9707	157,473.7950	347.8956	4.641m	EPS_Sub
15	457,795.9717	157,473.7947	348.0956	4.642m	Ditch_In
16	457,798.5934	157,472.8271	353.6847	7.436m	Daylight

CHAINAGE 0+420.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,775.5738	157,502.6411	334.1313	-24.482m	Daylight
2	457,794.1870	157,495.7718	347.3582	-4.642m	EPS
3	457,794.1879	157,495.7715	347.1582	-4.641m	EPS_Sub
4	457,795.1252	157,495.4256	347.3982	-3.642m	Back_Curb
5	457,795.2659	157,495.3737	347.3982	-3.492m	Top_Curb
6	457,795.3050	157,495.3592	347.1732	-3.450m	Flowline_Gutter
7	457,795.7272	157,495.2034	346.8002	-3.000m	ETW_SubBase
8	457,795.7272	157,495.2034	347.2002	-3.000m	ETW
9	457,801.3561	157,493.1261	346.6502	3.000m	ETW_SubBase
10	457,801.3561	157,493.1261	347.0502	3.000m	ETW
11	457,801.7782	157,492.9703	347.0232	3.450m	Flowline_Gutter
12	457,801.8174	157,492.9558	347.2482	3.492m	Top_Curb
13	457,801.9581	157,492.9039	347.2482	3.642m	Back_Curb
14	457,802.8953	157,492.5580	347.0082	4.641m	EPS_Sub
15	457,802.8962	157,492.5577	347.2082	4.642m	Ditch_In
16	457,803.1418	157,492.4670	347.7316	4.903m	Daylight

CHAINAGE 0+440.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,783.9113	157,520.8827	334.2478	-22.976m	Daylight
2	457,801.1116	157,514.5348	346.4707	-4.642m	EPS
3	457,801.1125	157,514.5345	346.2707	-4.641m	EPS_Sub
4	457,802.0497	157,514.1886	346.5107	-3.642m	Back_Curb
5	457,802.1904	157,514.1367	346.5107	-3.492m	Top_Curb
6	457,802.2296	157,514.1222	346.2857	-3.450m	Flowline_Gutter
7	457,802.6517	157,513.9664	345.9127	-3.000m	ETW_SubBase

8	457,802.6517	157,513.9664	346.3127	-3.000m	ETW
9	457,808.2806	157,511.8891	345.7627	3.000m	ETW_SubBase
10	457,808.2806	157,511.8891	346.1627	3.000m	ETW
11	457,808.7028	157,511.7333	346.1357	3.450m	Flowline_Gutter
12	457,808.7419	157,511.7188	346.3607	3.492m	Top_Curb
13	457,808.8826	157,511.6669	346.3607	3.642m	Back_Curb
14	457,809.8199	157,511.3210	346.1207	4.641m	EPS_Sub
15	457,809.8208	157,511.3207	346.3207	4.642m	EPS
16	457,810.5712	157,511.0437	345.7874	5.442m	Daylight

CHAINAGE 0+460.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	457,792.1893	157,539.1462	334.3222	-21.533m	Daylight
2	457,808.0361	157,533.2978	345.5832	-4.642m	EPS
3	457,808.0371	157,533.2975	345.3832	-4.641m	EPS_Sub
4	457,808.9743	157,532.9516	345.6232	-3.642m	Back_Curb
5	457,809.1150	157,532.8997	345.6232	-3.492m	Top_Curb
6	457,809.1541	157,532.8852	345.3982	-3.450m	Flowline_Gutter
7	457,809.5763	157,532.7294	345.0252	-3.000m	ETW_SubBase
8	457,809.5763	157,532.7294	345.4252	-3.000m	ETW
9	457,815.2052	157,530.6521	344.8752	3.000m	ETW_SubBase
10	457,815.2052	157,530.6521	345.2752	3.000m	ETW
11	457,815.6274	157,530.4963	345.2482	3.450m	Flowline_Gutter
12	457,815.6665	157,530.4818	345.4732	3.492m	Top_Curb
13	457,815.8072	157,530.4299	345.4732	3.642m	Back_Curb
14	457,816.7444	157,530.0840	345.2332	4.641m	EPS_Sub
15	457,816.7454	157,530.0837	345.4332	4.642m	Ditch_In
16	457,817.4497	157,529.8237	346.9348	5.392m	Daylight

8. VERTIKALNI TOK TRASE

Vertical Alignment: niveleta
Description:
Station Range: Start: 0+000.00, End: 0+467.82

PVI	Station	Grade Out	Curve Length
0.00	0+000.00	-6.42%	
1.00	0+228.66	-4.81%	47.208m
	Vertical Curve Information:(sag curve) ---------- PVC Station: 0+205.06 Elevation: 358.020m PVI Station: 0+228.66 Elevation: 356.506m PVT Station: 0+252.27 Elevation: 355.370m Low Point: 0+252.27 Elevation: 355.370m Grade in: -6.42% Grade out: -4.81% Change: 1.61% K: Curve Length: 47.208m Headlight Distance:		
2.00	0+467.82		

9. PRORAČUN KOLIČINE RADOVA ZA TROŠKOVNIK

Volume summary

Name	**Type**	**Cut Factor**	**Fill Factor**	**2d area** (sq.m)	**Cut** (Cu.M.)	**Fill** (Cu.M.)	**Net** (Cu.M.)
Zem r	full	1.000	1.000	9102.42	9465.36	10032.52	567.16<Cut>

Totals

	2d area (sq.m)	**Cut** (Cu.M.)	**Fill** (Cu.M.)	**Net** (Cu.M.)
Total	9102.42	9465.36	10032.52	567.16<Cut>

* Value adjusted by cut or fill factor other than 1.0

10. PRORAČUN KOLIČINE RADOVA PO PRESJECIMA

Alignment: os1
Sample Line Group: SL Collection - 5
Start Sta: 0+000.000
End Sta: 0+467.816

Station	Cut Area (Sq.m.)	Cut Volume (Cu.m.)	Reusable Volume (Cu.m.)	Fill Area (Sq.m.)	Fill Volume (Cu.m.)	Cum. Cut Vol. (Cu.m.)	Cum. Reusable Vol. (Cu.m.)	Cum. Fill Vol. (Cu.m.)	Cum. Net Vol. (Cu.m.)
0+000.000	4.23	0.00	0.00	13.39	0.00	0.00	0.00	0.00	0.00
0+020.000	17.23	214.56	214.56	0.04	134.29	214.56	214.56	134.29	80.27
0+040.000	21.86	390.83	390.83	0.00	0.42	605.39	605.39	134.71	470.68
0+060.000	4.50	263.54	263.54	3.80	38.02	868.93	868.93	172.73	696.19
0+060.390	4.41	1.74	1.74	3.91	1.50	870.66	870.66	174.24	696.42
0+060.394	4.40	0.02	0.02	3.91	0.02	870.68	870.68	174.25	696.43
0+080.000	23.62	275.26	275.26	0.00	37.94	1145.94	1145.94	212.19	933.75
0+083.394	24.58	82.02	82.02	0.00	0.00	1227.96	1227.96	212.19	1015.77
0+100.000	26.06	422.60	422.60	0.00	0.00	1650.56	1650.56	212.19	1438.37
0+100.394	26.59	10.37	10.37	0.00	0.00	1660.93	1660.93	212.19	1448.74
0+109.413	25.16	235.09	235.09	0.00	0.00	1896.02	1896.02	212.19	1683.83
0+118.433	13.16	174.25	174.25	1.07	4.56	2070.28	2070.28	216.75	1853.52
0+120.000	10.66	18.67	18.67	1.34	1.89	2088.94	2088.94	218.65	1870.30
0+135.433	0.00	83.06	83.06	23.47	185.25	2172.00	2172.00	403.90	1768.10
0+140.000	0.00	0.00	0.00	40.16	142.39	2172.00	2172.00	546.29	1625.71
0+158.430	30.41	281.04	281.04	0.00	366.94	2453.04	2453.04	913.23	1539.81
0+158.433	30.42	0.09	0.09	0.00	0.00	2453.13	2453.13	913.23	1539.90
0+160.000	33.74	50.27	50.27	0.00	0.00	2503.40	2503.40	913.23	1590.17
0+180.000	40.31	740.50	740.50	0.00	0.00	3243.90	3243.90	913.23	2330.67
0+185.870	38.36	230.90	230.90	0.00	0.00	3474.80	3474.80	913.23	2561.57
0+185.871	38.36	0.03	0.03	0.00	0.00	3474.83	3474.83	913.23	2561.60
0+195.871	40.03	391.95	391.95	0.00	0.00	3866.78	3866.78	913.23	2953.55
0+196.345	40.38	19.07	19.07	0.00	0.00	3885.85	3885.85	913.23	2972.62
0+196.818	40.82	19.20	19.20	0.00	0.00	3905.04	3905.04	913.23	2991.82
0+200.000	43.76	134.57	134.57	0.00	0.00	4039.61	4039.61	913.23	3126.38
0+205.064	42.78	218.26	218.26	0.00	0.01	4257.88	4257.88	913.23	3344.64
0+220.000	4.47	349.83	349.83	21.32	166.42	4607.71	4607.71	1079.65	3528.06
0+225.870	5.74	28.77	28.77	37.77	187.50	4636.48	4636.48	1267.15	3369.32
0+225.871	5.74	0.00	0.00	37.77	0.03	4636.48	4636.48	1267.19	3369.30
0+232.954	27.55	114.38	114.38	0.34	148.24	4750.86	4750.86	1415.42	3335.43
0+240.000	47.93	260.07	260.07	0.00	1.26	5010.93	5010.93	1416.68	3594.25
0+240.038	47.99	1.80	1.80	0.00	0.00	5012.73	5012.73	1416.68	3596.05
0+240.038	47.99	0.04	0.04	0.00	0.00	5012.77	5012.77	1416.68	3596.09
0+260.000	31.36	778.71	778.71	0.10	1.03	5791.48	5791.48	1417.71	4373.77
0+280.000	15.90	469.41	469.41	15.38	158.27	6260.89	6260.89	1575.98	4684.91
0+280.038	15.91	0.60	0.60	15.43	0.58	6261.49	6261.49	1576.56	4684.93

0+284.128	19.17	71.74	71.74	16.85	66.02	6333.23	6333.23	1642.58	4690.64
0+284.130	19.17	0.03	0.03	16.85	0.03	6333.26	6333.26	1642.61	4690.65
0+300.000	21.75	329.54	329.54	45.39	461.79	6662.80	6662.80	2104.40	4558.40
0+314.128	16.82	284.82	284.82	42.42	498.41	6947.63	6947.63	2602.82	4344.81
0+320.000	10.52	84.86	84.86	37.86	174.66	7032.49	7032.49	2777.48	4255.02
0+331.928	3.11	85.71	85.71	55.19	416.31	7118.20	7118.20	3193.78	3924.42
0+340.000	0.00	13.32	13.32	92.50	471.72	7131.52	7131.52	3665.51	3466.02
0+349.728	35.04	180.91	180.91	34.84	485.53	7312.43	7312.43	4151.03	3161.40
0+360.000	47.42	442.66	442.66	12.63	185.70	7755.09	7755.09	4336.74	3418.35
0+379.728	13.66	613.18	613.18	13.95	239.66	8368.27	8368.27	4576.40	3791.87
0+379.730	13.66	0.03	0.03	13.95	0.03	8368.29	8368.29	4576.42	3791.87
0+380.000	13.47	3.66	3.66	14.67	3.86	8371.96	8371.96	4580.29	3791.67
0+400.000	16.43	298.95	298.95	18.64	333.08	8670.90	8670.90	4913.37	3757.54
0+420.000	0.10	165.26	165.26	80.85	994.94	8836.16	8836.16	5908.30	2927.86
0+440.000	0.00	0.97	0.97	96.24	1770.96	8837.13	8837.13	7679.26	1157.87
0+460.000	1.95	19.47	19.47	49.98	1462.20	8856.60	8856.60	9141.45	-284.85
0+467.816	5.17	27.83	27.83	31.83	319.70	8884.43	8884.43	9461.15	-576.72

11. TROŠKOVNIK

Redni broj	Opis radova	Jedinica mjere	Količina radova	Jedinična cijena	Iznos
1.	**PRIPREMNI RADOVI**				
1.1.	Iskolčenje trase i objekata. Iskolčenje trase i objekata obuhvaća sva geodetska mjerenja, kojima se podaci iz projekta prenose na teren, osiguranje osi iskolčene trase, profiliranje, obnavljanje i održavanje iskolčenih oznaka na terenu za sve vrijeme građenja, odnosno do predaje radova investitoru. U cijenu održavanja osi trase i iskolčenja uključena su sva mjerenja i iskolčenja u tijeku rada i pri tehničkom prijamu, te izvođač nema pravo na posebnu naknadu za ove radove (OTU I. 1-02.1).				
	Obračun po km trase u skladu s projektom.				
1.1.1.	Osiguranje iskolčenja osi. Nakon preuzimanja iskolčene osi ceste (objekta) izvođač je dužan sve točke osigurati tako da ih je tijekom ili nakon završetka radova moguće lako obnoviti. Osiguranje se sastoji od postavljanja kolčića i pločica s oznakom broja i stacionaže profila, poligonskih točaka i repera, vođenja zapisnika iskice osiguranja i izrade nacrta osiguranja (OTU I. 1-02.2).				
	Obračun po km trase.	km	0.47		
1.1.2.	Snimanje i osiguranje profila trupa ceste. Prije početka zemljanih radova izvođač mora postaviti oznake za profile trupa ceste prema projektiranim poprečnim profilima. Profili trupa ceste postavljaju se ovisno o terenskim uvjetima, radovima (usjek, nasip, zidovi) i načinu rada na razmaku od 5 do 50 m (OTU I. 1-02.3).				
	Obračun po km trase.	km	0.47		
1.2.	Uklanjanje grmlja i drveća. Ovaj rad obuhvaća sječenje šiblja i stabala promjera do 10 cm, odsijecanje granja, rezanje stabala i debelih grana na dužine pogodne za prijevoz, vađenje korijenja, šiblja, te starih panjeva i panjeva novoposječenih stabala, odnošenje šiblja, granja, trupaca i panjeva izvan trupa ceste i uklanjanje svega nepotrebnog materijala zaostalog nakon ovih radova (OTU I. 1-03.1).				
	Obračun po m^2 uređene površine. Količine su	m^2	4315.2		
	PRIPREMNI RADOVI UKUPNO				

Redni broj	Opis radova	Jedinica mjere	Količina radova	Jedinična cijena	Iznos
2.	**ZEMLJANI RADOVI**				
2.1.	Iskop površinskog sloja.				
2.1.1.	Strojni iskop površinskog sloja prosječne debljine 20 cm s utovarom u prijevozno sredstvo i prebacivanjem na privremenu ili stalnu deponiju i formiranje i uređenje deponije s razastiranjem i planiranjem i svim poslovima potrebnim za njezinu stabilnost i uklapanje u okoliš (OTU II. 2.-01).				
	Obračun po m^3 stvarno iskopanog površinskog sloja.	m^3	953.6		
2.2.	Široki iskop u materijalu "A", "B", ili "C" kategorije, na trasi ili pozajmištu, s utovarom u prijevozno sredstvo. U cijenu su uključeni svi radovi na iskopu materijala s utovarom u prijevozno sredstvo, radovi na uređenju i čišćenju pokosa od labilnih blokova i rastresitog materijala i planiranje iskopanih i susjednih površina kao i odlaganje viška materijala s oblikovanjem i uređenjem odlagališta sa svim poslovima potrebnim za njegovu stabilnost i uklapanje u okolinu (OTU II. 2.-02).				
	Obračun po m^3 stvarno iskopanog materijala u sraslom				
2.2.1.	Široki iskop u materijalu "A" kategorije (OTU II. 2-02.1).	m^3	0.0		
2.2.2.	Široki iskop u materijalu "B" kategorije (OTU II. 2-02.2).	m^3	9465.36		
2.2.3.	Široki iskop u materijalu "C" kategorije (OTU II. 2-02.3).	m^3	0.0		
2.3.	Izrada nasipa (OTU II. 2-09). Ovaj rad obuhvaća nasipanje, razastiranje, eventualno potrebno vlaženje ili sušenje, te grubo planiranje materijala u nasipu prema veličinama i nagibima danim u projektu, nabijanje prema zahtjevima iz OTU, planiranje pokosa nasipa i čišćenje okoline nasipa.				
2.3.1.	Izrada nasipa od miješanih materijala. Nasip se radi u slojevima debljine 30 – 60 cm. Potreban modul stišljivosti Ms=35 MPa mjereno kružnom pločom Ø 30 cm za slojeve nasipa visokih preko 2 m na dijelu od podnožja nasipa do visine 2 m ispod planuma posteljice, a Ms=40 MPa za slojeve nasipa nižih od 2 m i slojevi nasipa viših od 2 m u zoni 2 m ispod planuma posteljice (OTU II. 2-09.2).				
	Obračun po m^3 ugrađenog i nabijenog nasipa.	m^3	10032.52		

Redni broj	Opis radova	Jedinica mjere	Količina radova	Jedinična cijena	Iznos
2.4.	Izrada posteljice od miješanih materijala. Rad obuhvaća planiranje, eventualnu sanaciju pojedinih manjih površina slabije kakvoće boljim materijalom, eventualno kvašenje ili prosušivanje materijala i nabijanje do potrebne nabijenosti. Ako je materijal u usjeku vrlo nehomogen (kamen s ulošcima gline), iskop treba produbiti za 30 – 50 cm i izraditi sloj od homogenog miješanog ili od kamenog materijala. Potreban modul stišljivosti Ms=35 MPa mjereno kružnom pločom Ø 30 cm (OTU II. 2-10.2).				
	Obračun po m^2 uređene površine.	m^2	3560.315		
2.5.	Izrada bankina i bermi širine 1.0 m s oblogom od plodne zemlje, debljine 20 cm, uz planiranje i lako nabijanje sa sijanjem trave (5,1-8 g/m2 sjemena) i zasipanjem s oko 80 g/m2 gnojiva. Potreban modul stišljivosti bankine (ispod plodne zemlje) Ms= 40 MPa mjereno pločom Ø 30 cm (OTU II. 2-16.2).				
	Obračun po m^2 izrađene bankine.	m^2	935.6		
	ZEMLJANI RADOVI UKUPNO				

Redni broj	Opis radova	Jedinica mjere	Količina radova	Jedinična cijena	Iznos
3.	**KOLNIČKA KONSTRUKCIJA**				
3.1.	Nabava, prijevoz i ugradnja nosivog sloja od zrnatog kamenog materijala bez veziva najmanje debljine 30 cm. Potreban modul stišljivosti Ms=100 MPa mjereno kružnom pločom Ø 30 cm. Odstupanje ravnosti površine izvedenog sloja ne smije iznositi više od ± 2 cm (OTU III. 5-01).				
	Obračun po m^3 ugrađenog materijala mjereno u nabijenom stanju.	m^3	1333.29		
3.2.	Nabava, prijevoz i ugradnja bitumeniziranog nosivog sloja kolnika, AC 22 base (BIT 50/70) AG6 M2, debljine 6.0 cm u uvaljanom stanju. Odstupanje ravnosti površine izvedenog sloja ne smije iznositi više od ± 8 mm (OTU III. 5-04).				
	Obračun po m^2 ugrađenog sloja u uvaljanom stanju.	m^2	2994.08		
3.3.	Nabava, prijevoz i ugradnja asfaltnog habajućeg sloja AC 11 surf (BIT 50/70) AG4 M2, debljine 4 cm u uvaljanom stanju. (OTU III. 6-03).				
	Obračun po m^2 ugrađenog sloja u uvaljanom stanju.	m^2	2994.08		
	KOLNIČKA KONSTRUKCIJA UKUPNO				

Redni broj	Opis radova	Jedinica mjere	Količina radova	Jedinična cijena	Iznos
4.	**ODVODNJA**				
4.1.	Izrada rigola širine 65 cm od betona klase C 30/37 na pripremljenoj podlozi od drobljenog kamena debljine 15 cm u uvaljanom stanju. Podloga mora imati modul stišljivosti Ms≥ 80 MPa mjereno kružnom pločom Ø 30 cm. U jediničnoj cijeni obuhvaćeni su svi radovi, materijali i prijevozi, priprema podloge, spravljanje, doprema, ugradnja i njega betona (OTU II 3-04.8.1).				
	Obračun po m' izrađenog rigola.	m'	487.50		
4.2.	Izrada drenaža. Rad obuhvaća strojni iskop materijala za drenažni rov u svemu prema 2-05 OTU II te nabavu, prijevoz i ugradbu svih potrebnih materijala za izradu drenaže kao i zatrpavanje preostalog dijela rova iznad drenažnog filtra i čišćenje zaostalih materijala oko rova (OTU II 3-02).				
	Obračun po m' izvedenog drenažnog sustava.	m'	487.50		
	ODVODNJA UKUPNO				

5.	**OPREMA CESTE**				
	Horizontalna signalizacija čini sa okomitom i svjetlosnom signalizacijom cjelinu i pridonosi boljem i sigurnijem odvijanju prometa. Materijal koji se koristi za označavanje na kolniku treba biti trajan i ne smije mijenjati boju. Koeficijent trenja treba biti približno jednak kao kod kolnika, s maksimalnim odstupanjem +5% kod suhog i +10% kod mokrog kolnika. Horizontalnu signalizaciju treba iscrtati prema situacionom prometnom rješenju i Pravilniku o prometnim znacima (N.N. 59/2000) i prema O.T.U. 9-02.				
5.1.	Puna jednostruka uzdužna linija bijele boje (sigurnosna crta), širine 15cm (O.T.U. 9-02.1).				
	Obračun po m' iscrtane linije	m'	953.60		
5.2.	Uzdužna isprekidana razdjelna linija, bijele boje, širine 15cm, duljina punog dijela 5.0m, isprekidanog 5.0m (O.T.U. 9-02.1).				
	Obračun po m' iscrtane linije uključujući međurazmake	m'	0.00		
	OPREMA CESTE UKUPNO				

Redni broj	Opis radova	Jedinica mjere	Količina radova	Jedinična cijena	Iznos
	REKAPITULACIJA				
1.0	**PRIPREMNI RADOVI**				
2.0	**ZEMLJANI RADOVI**				
3.0	**KOLNIČKA KONSTRUKCIJA**				
4.0	**ODVODNJA**				
5.0	**OPREMA CESTE**				
	UKUPNO				

12.LITERATURA

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