

# Idejni projekt lokalne ceste

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Ištuk, Ivana

Undergraduate thesis / Završni rad

2022

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UNIVERSITY OF SPLIT



**SVEUČILIŠTE U SPLITU  
FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE**

# **ZAVRŠNI RAD**

**IVANA IŠTUK**

**Split, 2022.**

**SVEUČILIŠTE U SPLITU  
FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE**

**IDEJNI PROJEKT LOKALNE CESTE**

**Završni rad**

**Split, 2022.**

## **Idejni projekt lokalne ceste**

### ***Sažetak:***

Idejni projekt lokalne ceste izrađen je između točaka A i B postavljenih na geodetskoj podlozi prema programskom zadatku kolegija Ceste. Idejni projekt se izrađuje služeći se računalnim programom AutoCAD Civil 3D. Cesta je projektirana na brdovitom terenu i za prosječni godišnji dnevni promet od 950 vozila/dan. Za 5. kategoriju ceste odabrana projektna brzina je 40 km/h.

Idejno rješenje izrađeno je prema Pravilniku 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 conceptual project of the local road was made between points A and B placed on a geodetic basis according to the task of the course Roads. Conceptual project is made using the computer program AutoCAD Civil 3D. The road is designed on hilly terrain and for an average annual daily traffic of 950 vehicles/day. For the 5th road category, the selected design speed is 40 km/h. The conceptual design was made according to the Ordinance and the basic conditions for road design.

### ***Keywords:***

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

**SVEUČILIŠTE U SPLITU  
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Split, Matice hrvatske 15

STUDIJ: **PREDDIPLOMSKI STUDIJ GRAĐEVINARSTVA**

KANDIDAT: **Ivana Ištuk**

MATIČNI BROJ (JMBAG): **0119044094**

KATEDRA: **Katedra za prometnice**

PREDMET: **Ceste**

**ZADATAK ZA ZAVRŠNI RAD**

Tema: Idejni projekt lokalne ceste

Opis zadatka: Uz pomoć programa za projektiranje cesta AutoCAD Civil 3D potrebno je izraditi idejni projekt ceste na geodetskoj podlozi koja je korištena za izradu programa u okviru kolegija Ceste. Trasa se treba položiti od točke A do točke B koristeći podatke iz programskog zadatka.

Zadatak treba sadržavati:

1. Kopiju programskog zadatka
2. Tehnički opis s prikazom korištenja programa Civil 3D
3. Građevinsku situaciju u mjerilu 1:1000
4. Uzdužni presjek u mjerilu 1:1000/100
5. Karakteristične poprečne presjeke u mjerilu 1:200
6. Obradu na računalu
7. Računalne ispise koordinatnih točaka osi
8. Proračun količina zemljanih radova
9. Proračun količine radova po presjecima

U Splitu, rujan 2022.

Voditelj Završnog rada:

Prof. dr. sc. Dražen Cvitanić

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## **1. PROGRAMSKI ZADATAK**

Katedra za prometnice

Studij: Preddiplomski

Nastavni predmet: CESTE

Student/ica: Ivana Ištuk

## ZADATAK

Treba izraditi idejni projekt dionice ceste između 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
4. Proračun vertikalne geometrije i kota nivelete
5. Proračun vitoperenja kolnika
6. Građevinska 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, dipl.ing.grad.



## 2. TEHNIČKI OPIS

### 2.1 Općenito

Na priloženoj geodetskoj podlozi u mjerilu 1:1000 izrađen je idejni projekt ceste na dionici od točke A, koja se nalazi na 270 metara nadmorske visine, do točke B koja se nalazi na 249 metra nadmorske visine.

Cesta je projektirana na prosječni godišnji dnevni promet od 950 vozila na dan i pripada cestama 5. kategorije na brdovitom terenu. Zbog zahtjevnog konfiguracije terena odabrana projektna brzina za ovu kategoriju ceste je  $V_p = 40$  km/h.

### 2.2 Horizontalni elementi

Za 5. kategoriju ceste prema pravilniku minimalni radijus krivine je 25 m, a prijelaznice 30 m. Duljina trase iznosi 377.56 m te se sastoji od tri pravca, šest prijelaznih krivina i tri kružna luka. Prvi kružni luk je radijusa  $R = 80$  m, duljina prijelaznice  $L = 40$  m. Drugi kružni luk je radijusa  $R = 45$  m, duljina prijelaznice  $L = 30$  m. Treći kružni luk je radijusa  $R = 80$  m, duljina prijelaznice  $L = 40$  m. Krivine su konstruirane uz pomoć dvije prijelazne krivine oblika klotoide i jednog kružnog luka.

### 2.3 Vertikalni elementi

Minimalni dozvoljeni nagib nivelete je 0.5%, a maksimalni 12%.

Uzdužni presjek idejnog projekta sastoji se od dva pravca i jedne vertikalne konveksne krivine. Odabrani radijus konveksne krivine iznosi  $R = 4200$  m.

Nagib prve tangente iznosi  $S_1 = 4.27\%$ , a druge  $S_2 = 6.63\%$ .

### 2.4 Poprečni presjek

Cesta 5. kategorije ima dva kolnička traka svaki širine 2.75 m, rubni trak širine 0.2 m, bankine širine 1.0 m i nagiba 4% te berme širine 1.05 m i nagiba 5%.

Cesta se većim dijelom nalazi u zasjeku. U zasjeku se izvodi jedan, u usjeku po dva rigola širine 0.65 m za odvodnju vode i drenažna cijev koja je postavljena u posteljicu. Nagibi usjeka su 2:1, dok su nagibi nasipa 1:1,5.

### 2.5 Kolnička konstrukcija

Projektom je predviđena kolnička konstrukcija sa sljedećim slojevima:

- Habajući sloj AC 11 surf (BIT50/70) AG4 M4 u debljini 4 cm
- Nosivi sloj AC 22 base (BIT50/70) AG6 M2 u debljini 6 cm
- Mehanički zbijeni nosivi sloj debljine 30 cm

### 2.6 Odvodnja

Odvodnja kolnika predviđa se otvorenim sustavom odvodnje prihvaćanjem vode u zasjeku i usjeku u betonske rigole te kontroliranim ispuštanjem vode u teren direktno.

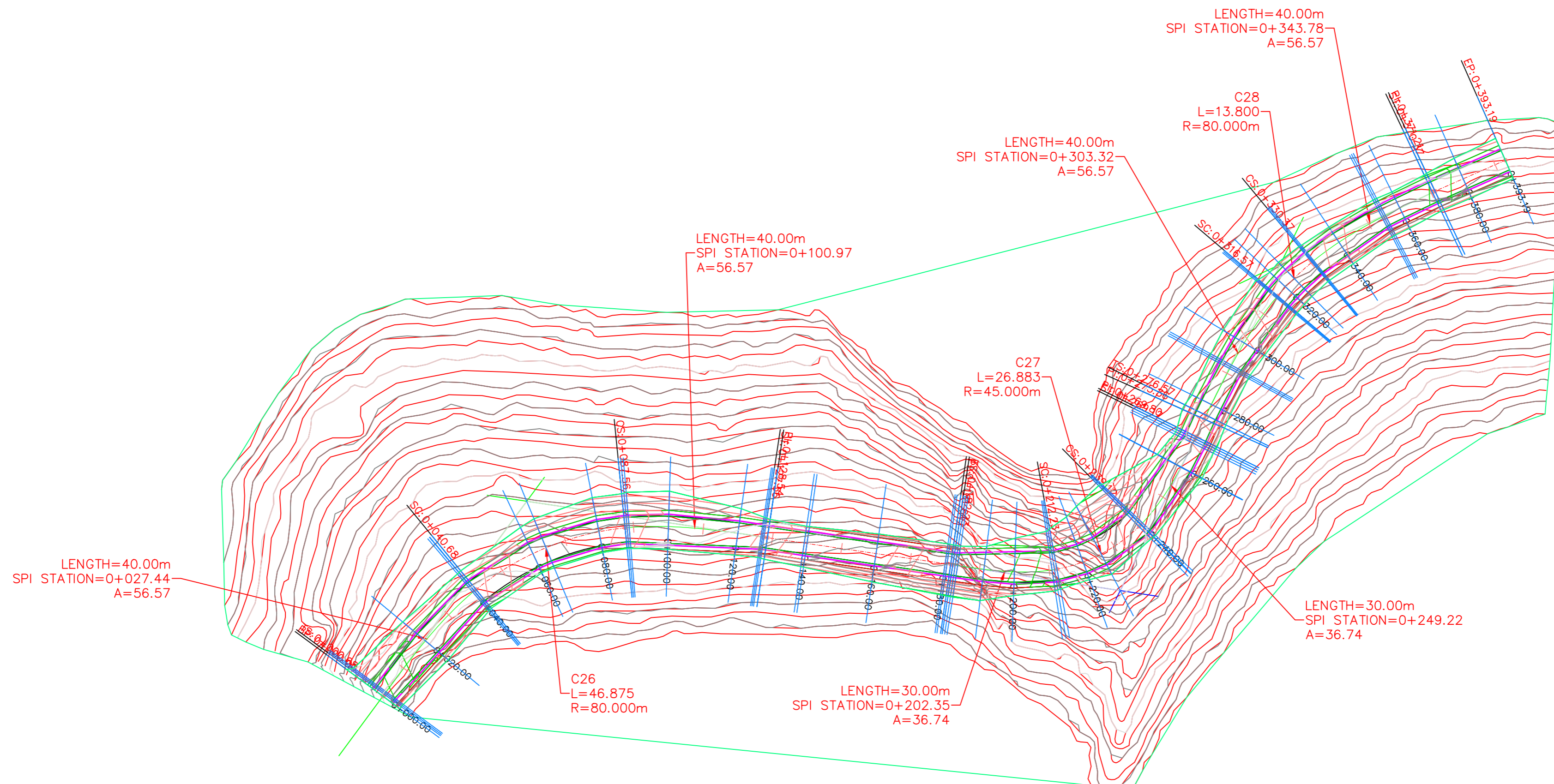
### 2.7 Oprema ceste

Idejnim rješenjem je predviđena horizontalna signalizacija koja se sastoji od jedne pune razdjelne crte širine 10 cm koja se postavlja u osi prometnice i punih rubnih crta širine 10 cm koje se postavljaju na svaki od rubnih trakova. Na nasip se postavlja jednostrana zaštitna čelična ograda.

### **3. GRAFIČKI PRILOZI**

#### **3.1 Situacija M 1:1000**

# SITUACIJA M 1:1000

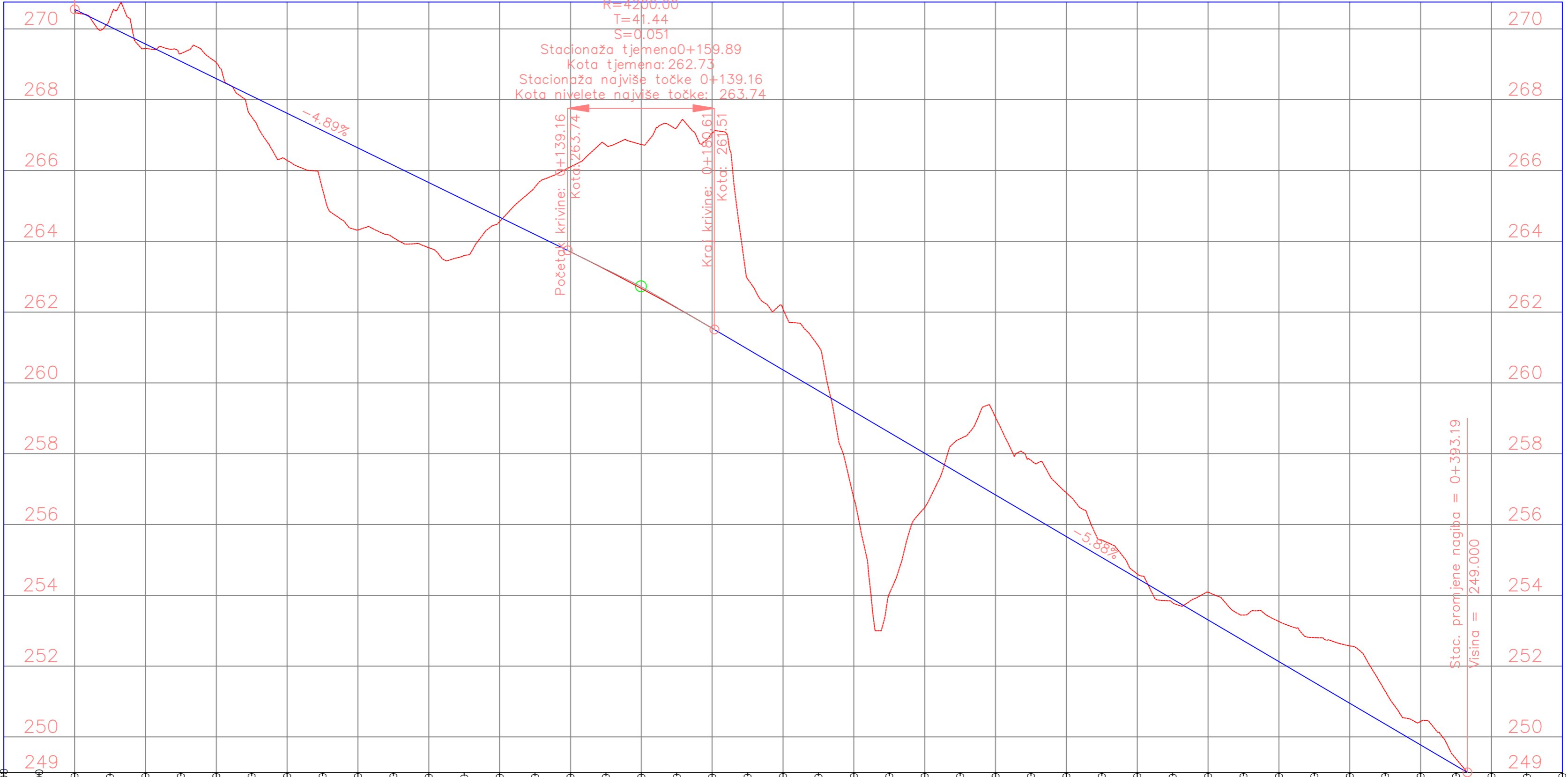


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SADRŽAJ	SITUACIJA	M 1:1000
STUDENTICA	IVANA IŠTUK	

### **3.2 Uzdužni presjek M 1:1000/100**

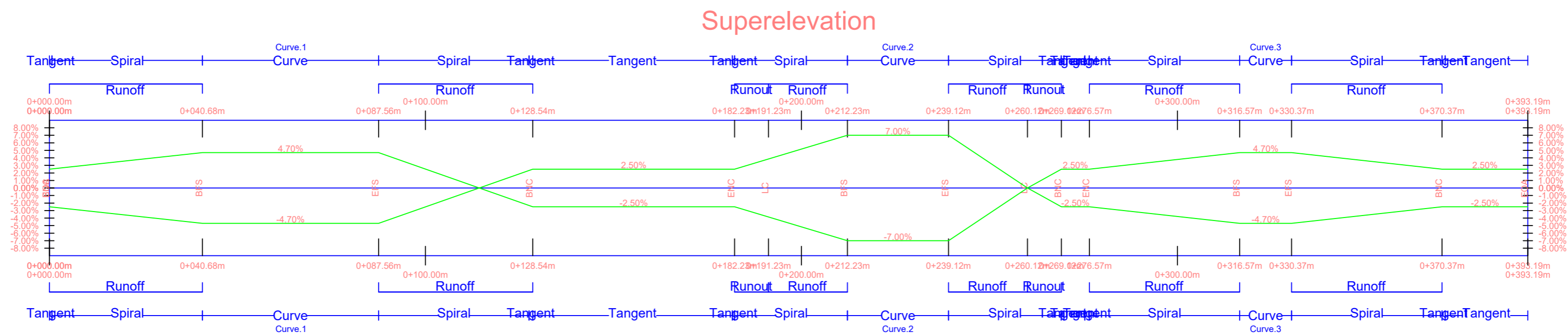
# VERTIKALNI TOK TRASE M 1:1000/100

os 001 (2) PROFILE



<b>Stacionaža</b>	0+000.00	0+010.00	0+020.00	0+030.00	0+040.00	0+050.00	0+060.00	0+070.00	0+080.00	0+090.00	0+100.00	0+110.00	0+120.00	0+130.00	0+140.00	0+150.00	0+160.00	0+170.00	0+180.00	0+190.00	0+200.00	0+210.00	0+220.00	0+230.00	0+240.00	0+250.00	0+260.00	0+270.00	0+280.00	0+290.00	0+300.00	0+310.00	0+320.00	0+330.00	0+340.00	0+350.00	0+360.00	0+370.00	0+380.00	0+390.00	0+400.00	0+410.00	0+426.00		
<b>Kote nivelete</b>					204.40	203.91	203.42	202.93	202.44	201.95	201.46	200.97	200.48	199.99	199.50	199.01	198.52	198.04	197.53	197.01	196.46	195.89	195.30	194.71	194.12	193.53	192.95	192.36	191.77	191.18	190.59	190.00	189.42	188.83	188.24	187.65	187.06	186.47	185.89	185.30	184.71	184.12	183.53		
<b>Kote terena</b>		270.55	270.31	269.44	269.31	269.04	267.51	266.29	265.47	264.32	264.10	263.82	263.60	264.56	265.53	266.10	266.72	266.73	267.21	267.05	262.94	262.09	261.04	256.74	254.04	256.48	258.42	259.03	257.81	256.89	255.56	254.60	253.79	254.09	253.44	253.26	252.81	252.57	251.29	250.44	249.38	184.71	184.12	183.53	
<b>Horizontalni elementi</b>		L: 40.00 N36° 28' 36"E		R: 80.00 L: 46.87		L: 40.00		L: 53.07 S81° 41' 19"E		L: 30.00 S81° 14' 35"E		R: 45.00 L: 26.88		L: 30.00 N64° 41' 20"E		L: 40.00		R: 80.00 L: 13.80		L: 40.00		L: 21.98 N64° 41' 20"E																							
<b>Vitoperenje</b>		2.50%	-2.50%	L: 4.70%	stc: 0+040.68 D: -4.70%	L: 4.70%	stc: 0+087.66 D: -4.70%	-2.50%	stc: 0+283.54 D: 2.50%	-2.50%	stc: 0+191.83 D: 3.85%	-7.00%	stc: 0+212.27 D: 7.00%	-7.00%	stc: 0+259.12 D: 7.00%	0.00%	stc: 0+260.12 D: 0.00%	2.50%	stc: 0+269.12 D: -2.50%	-2.50%	stc: 0+276.57 D: -2.50%	L: 4.70%	stc: 0+330.37 D: -4.70%	L: 4.70%	stc: 0+316.37 D: -4.70%	L: 4.70%	stc: 0+370.37 D: -2.50%	L: 4.70%	stc: 0+370.37 D: -2.50%	L: 4.70%	stc: 0+370.37 D: -2.50%	L: 4.70%	stc: 0+370.37 D: -2.50%	L: 4.70%	stc: 0+370.37 D: -2.50%	L: 4.70%	stc: 0+370.37 D: -2.50%	L: 4.70%	stc: 0+370.37 D: -2.50%	L: 4.70%	stc: 0+370.37 D: -2.50%	L: 4.70%	stc: 0+370.37 D: -2.50%	L: 4.70%	stc: 0+370.37 D: -2.50%

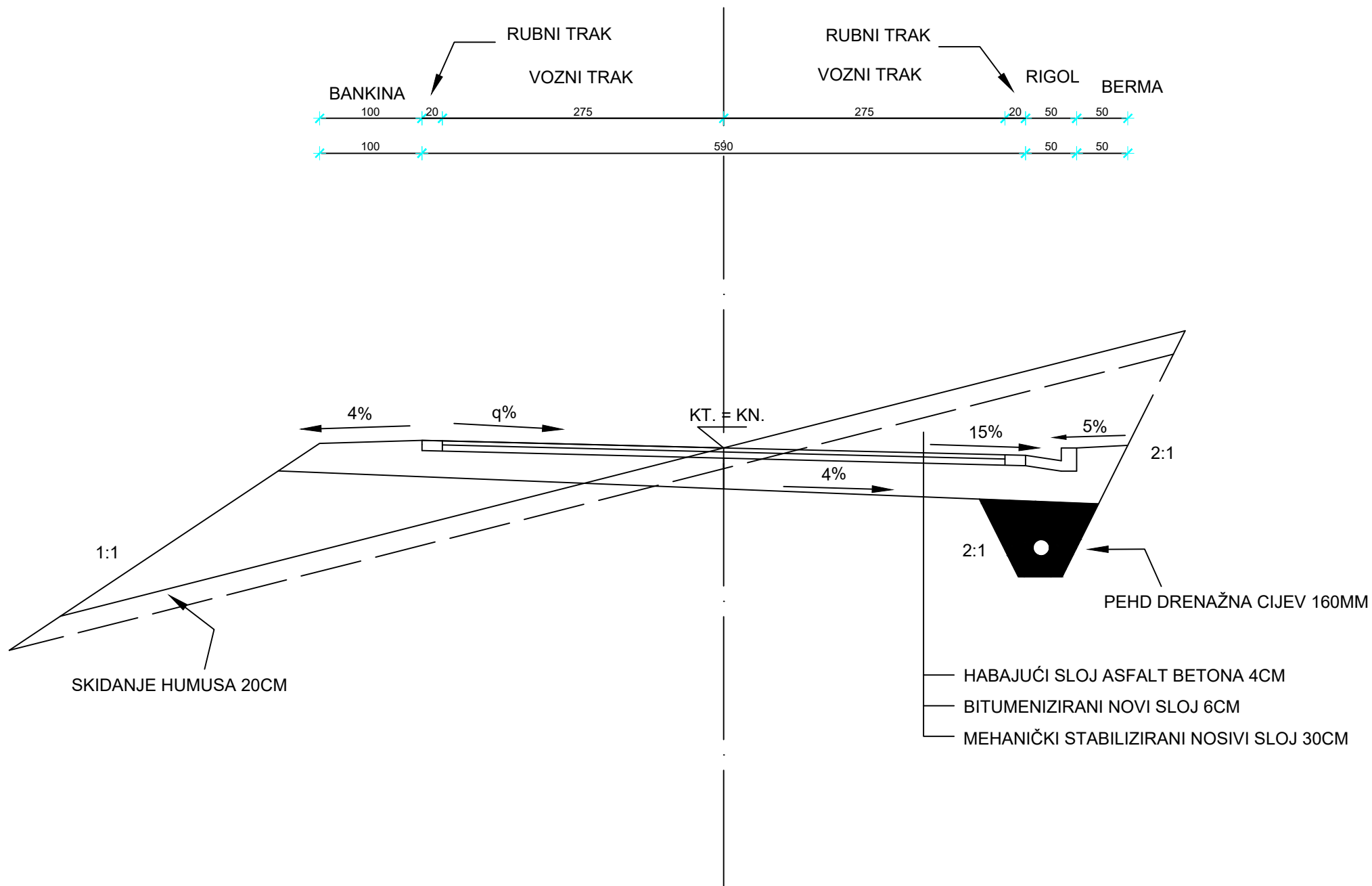
# DIJAGRAM VITOPERENJA M 1:1000



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SADRŽAJ	DIJAGRAM VITOPERENJA	M 1:1000
STUDENTICA	IVANA IŠTUK	

### **3.3 Normalni poprečni presjek M 1:50**

# NORMALNI POPREČNI PRESJEK M 1:50

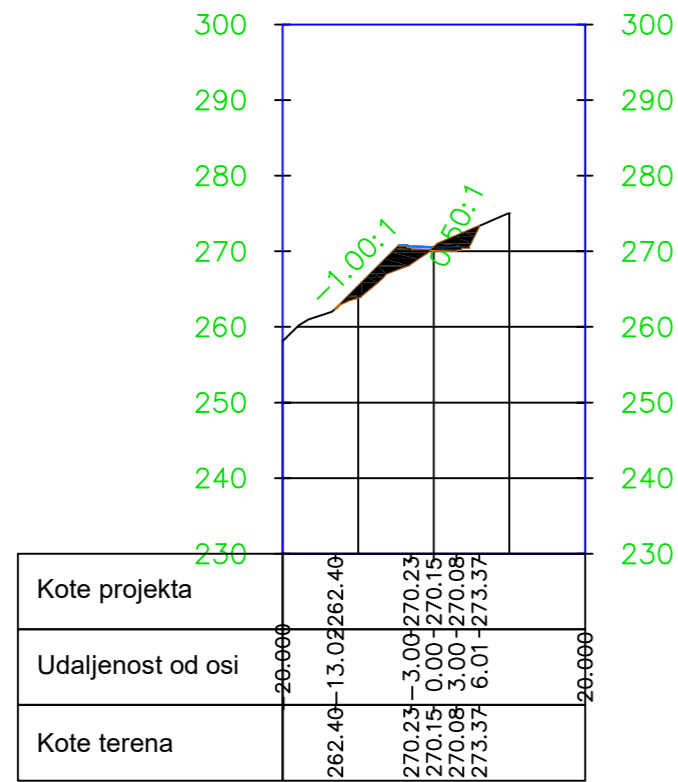




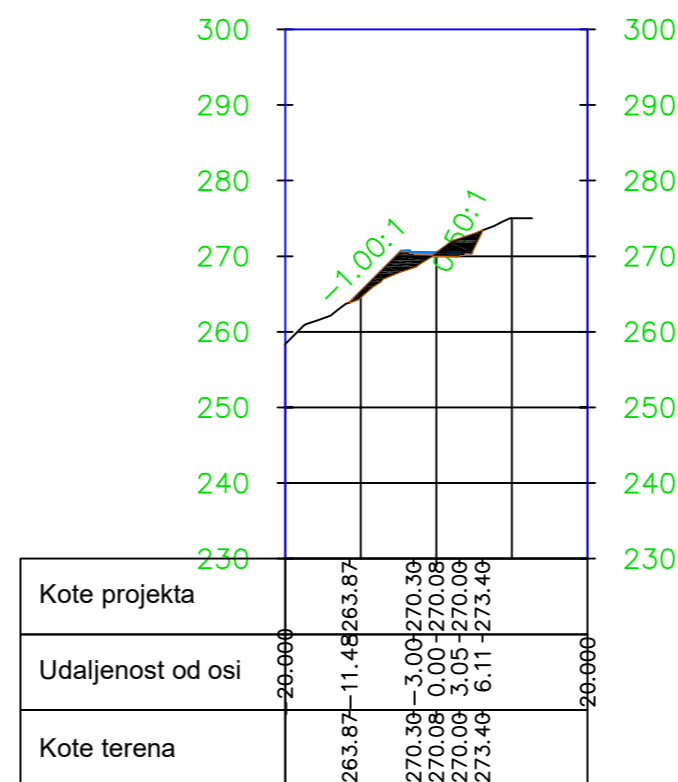
### **3.4 Charakteristični poprečni presjeci M 1:200**

# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

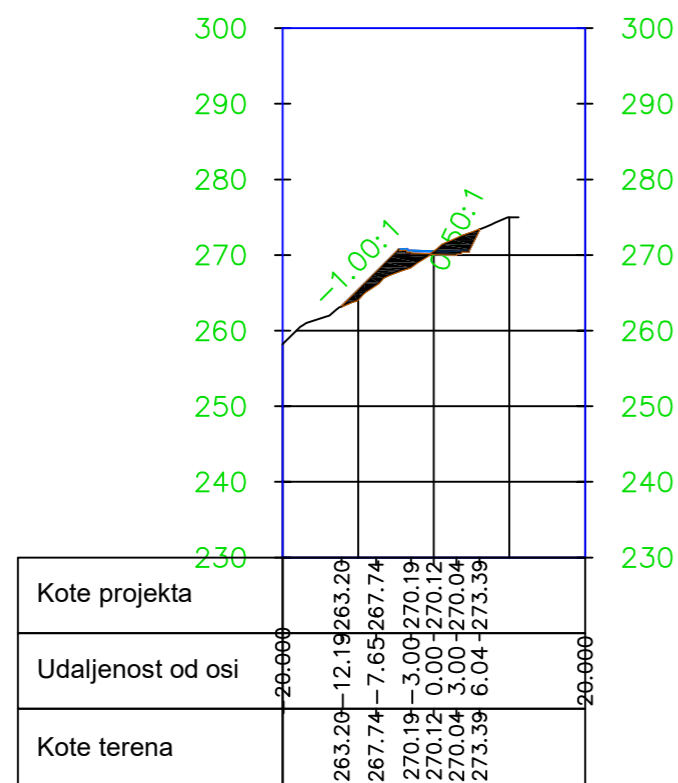
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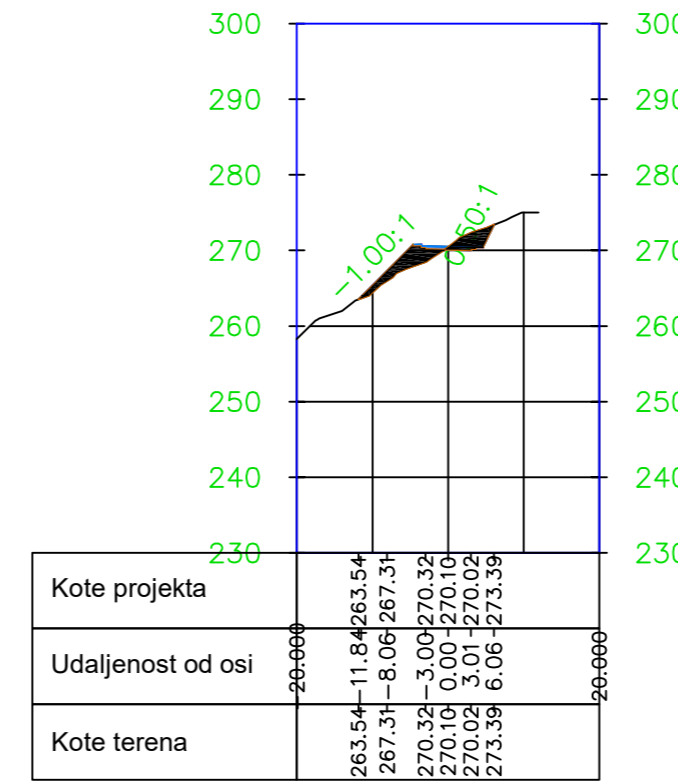
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0+000.68



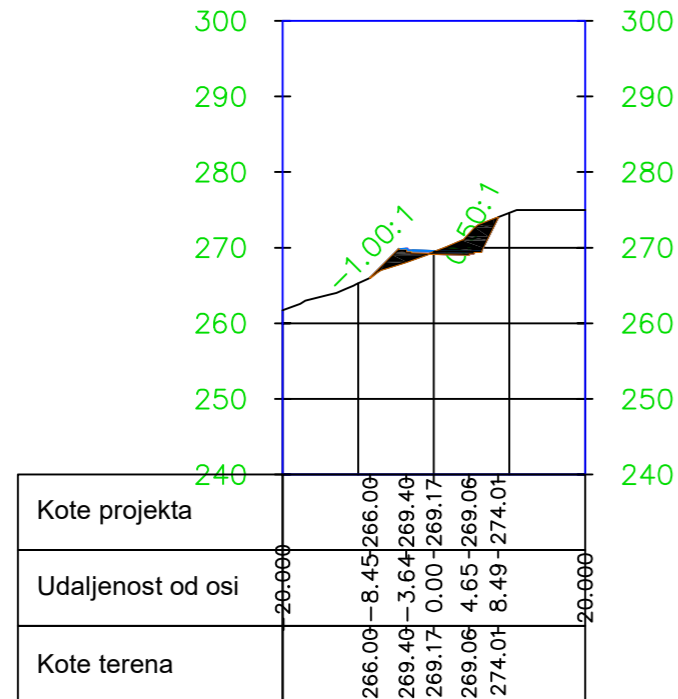
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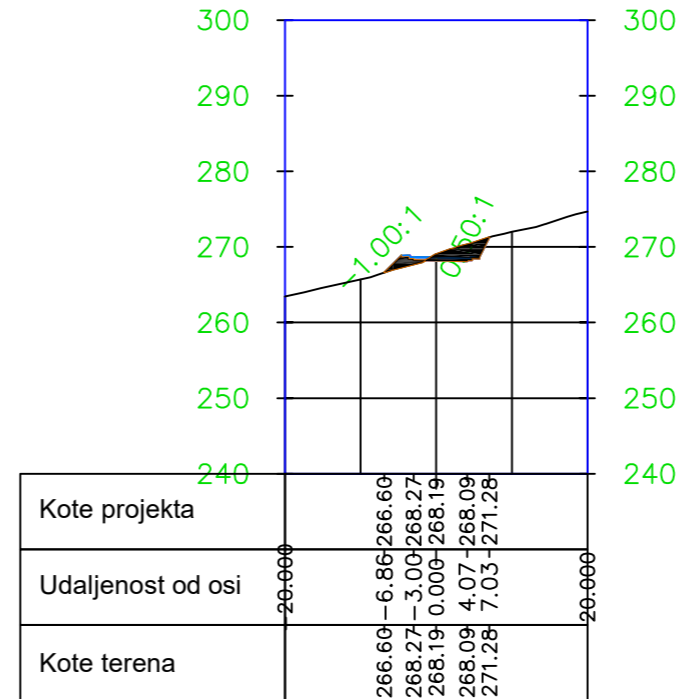
FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
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ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	17

# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

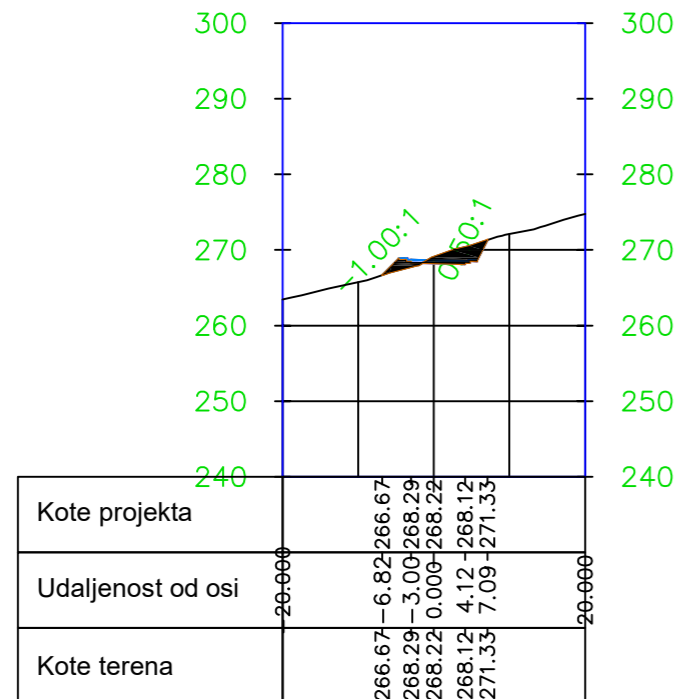
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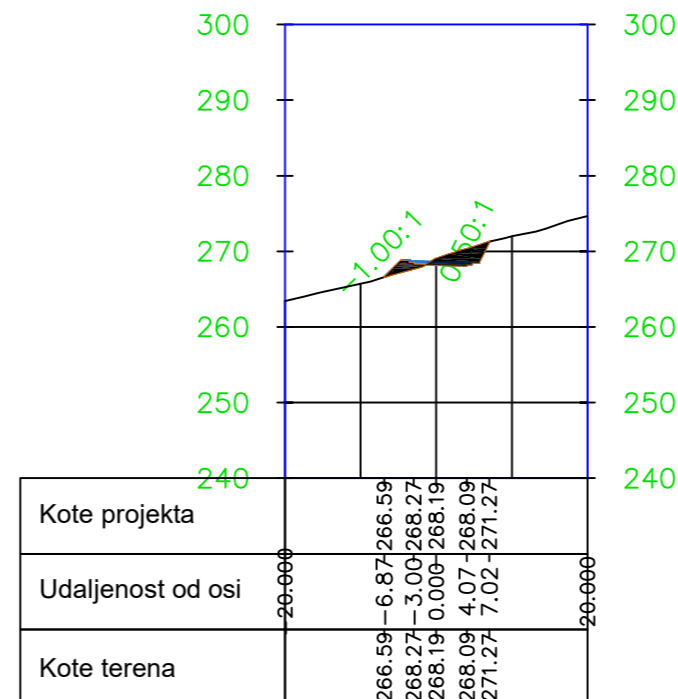
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0+039.49



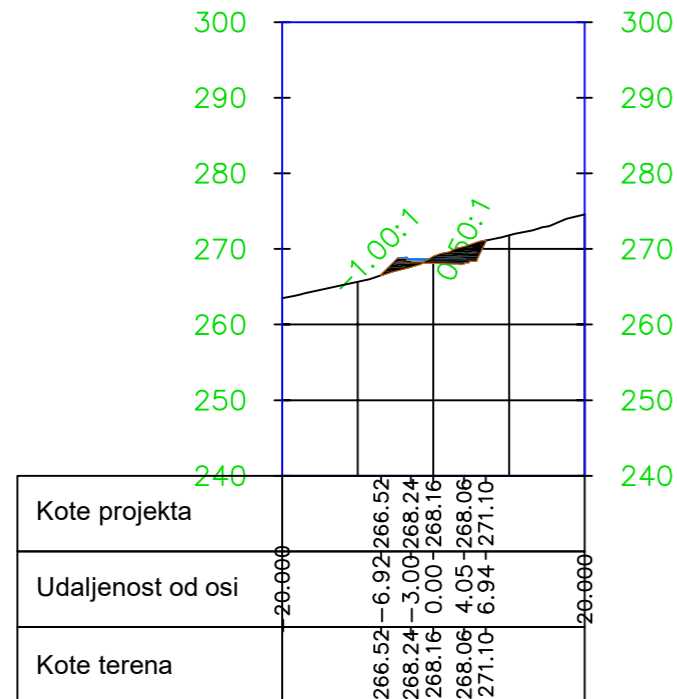
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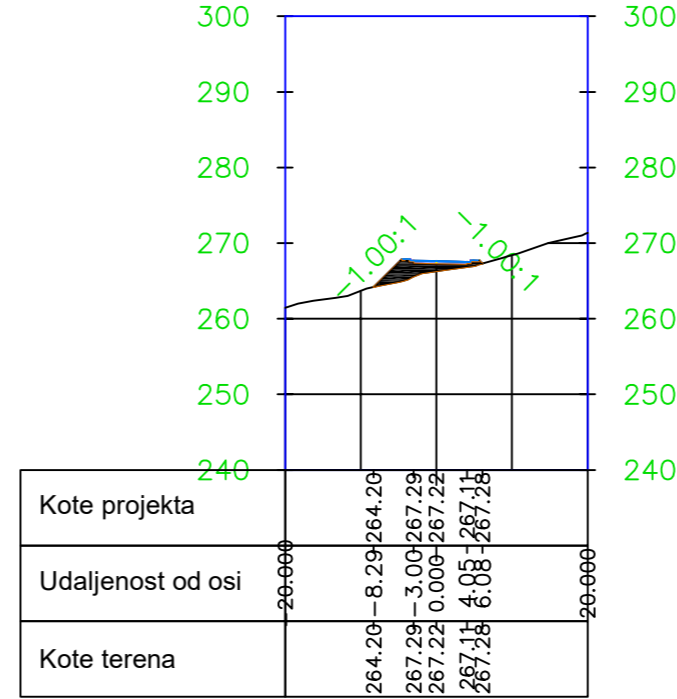
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ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	18

# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

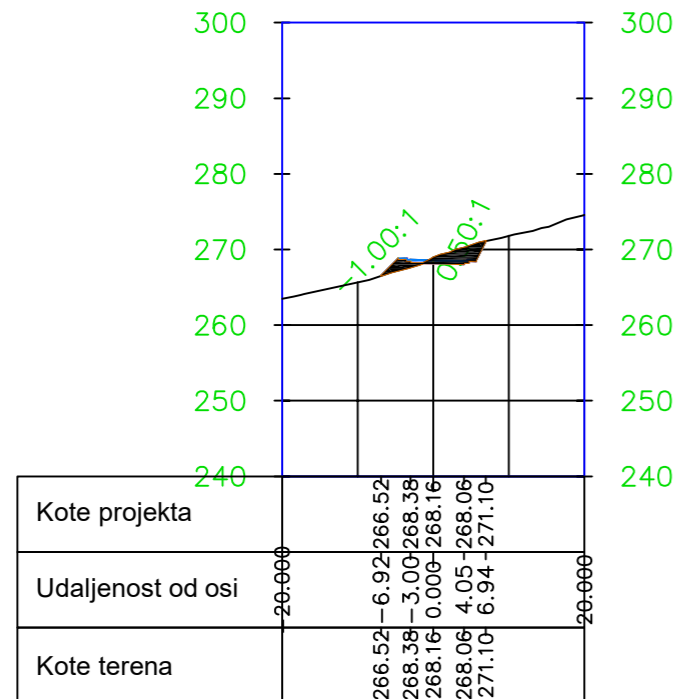
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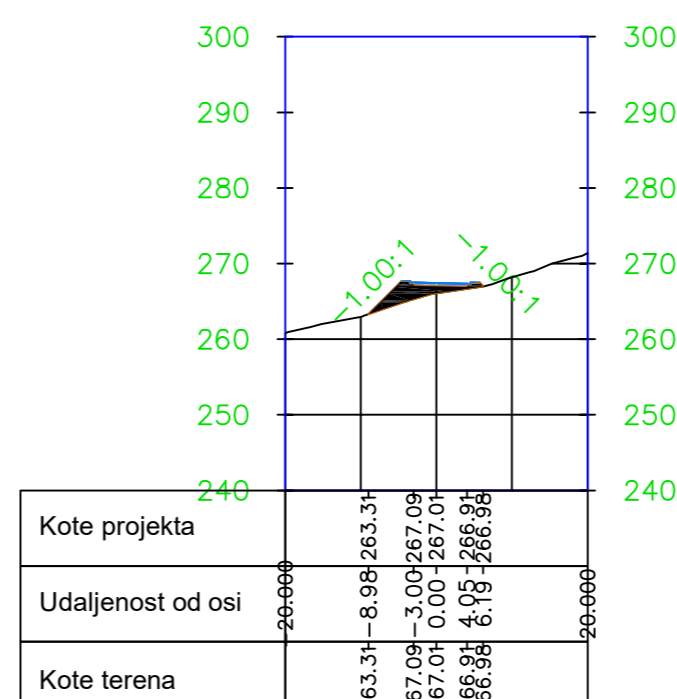
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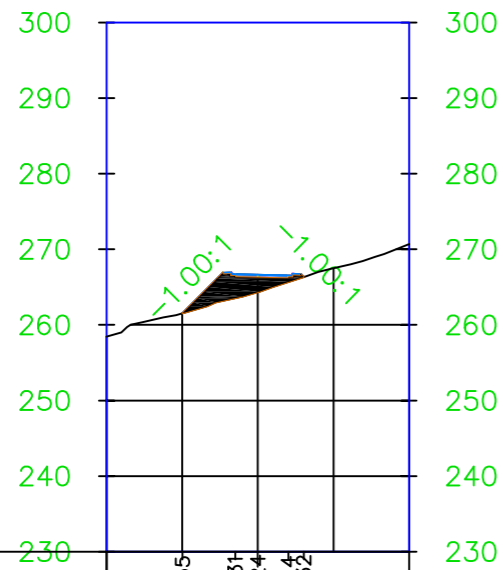
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SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	19

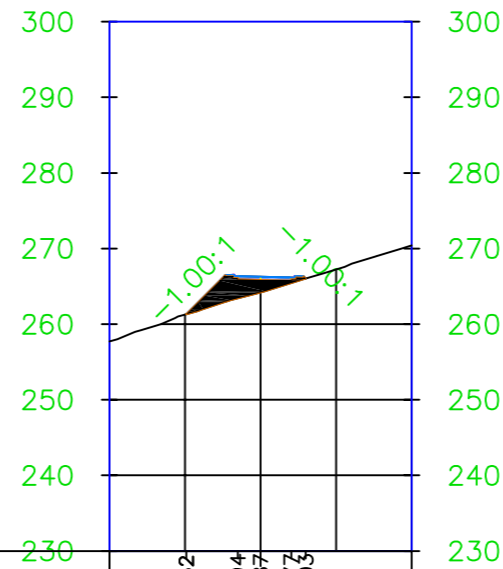
# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

0+080.00



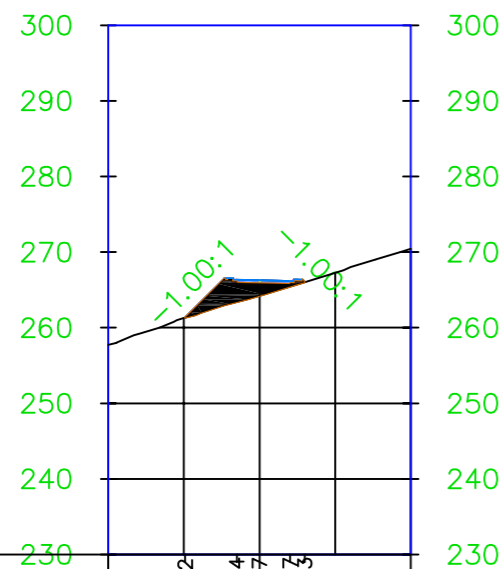
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Udaljenost od osi											
Kote terena			261.55	266.31	266.24	266.14	268.14	268.32			

0+087.56



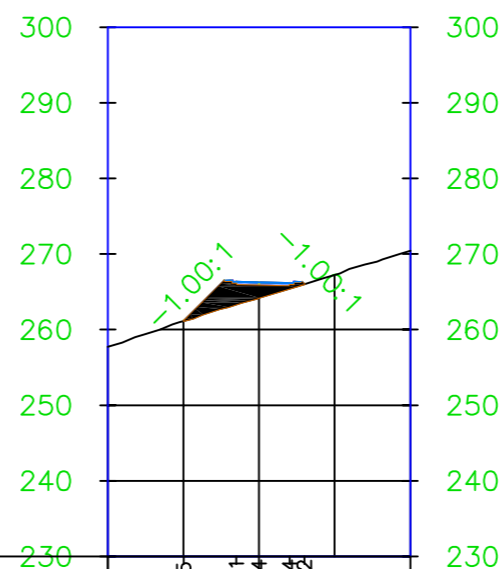
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Udaljenost od osi											
Kote terena			261.32	265.94	265.87	265.73	268.73	268.73			

0+087.56



Kote projekta	20.000	-9.83	261.32	265.94	0.000	265.87	265.73	4.99	268.73	268.73	20.000
Udaljenost od osi											
Kote terena			261.32	265.94	265.87	265.73	268.73	268.73			

0+088.15

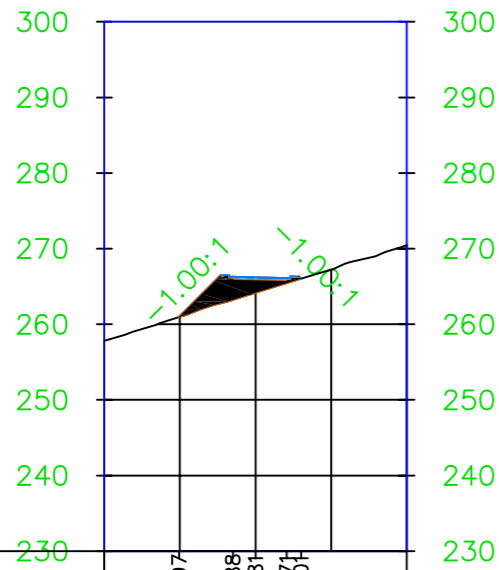


Kote projekta	20.000	-9.97	261.15	265.91	0.00	265.84	265.74	4.99	268.74	268.74	20.000
Udaljenost od osi											
Kote terena			261.15	265.91	265.84	265.74	268.74	268.74			

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ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	20

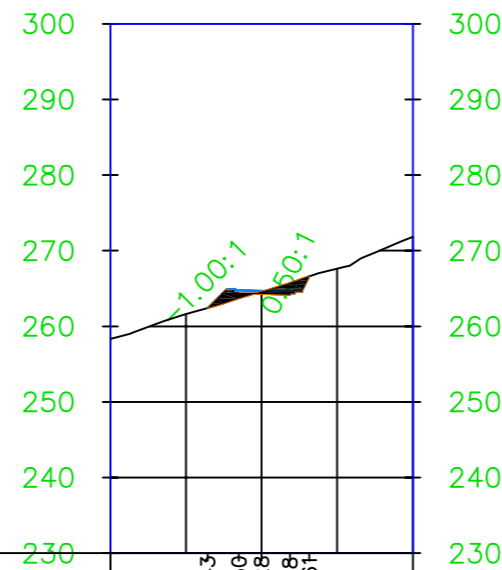
# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

0+088.75



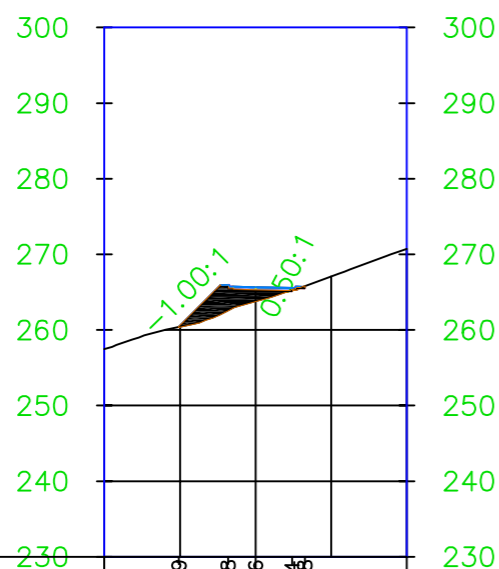
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Udaljenost od osi			-3.00	265.88	
Kote terena			265.81	0.00	265.81
			4.12	288.71	
			6.02	288.71	

0+120.00



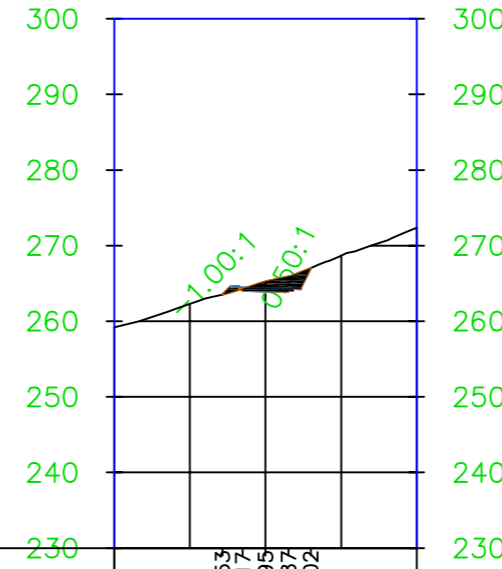
Kote projekta	20.000	7.12	262.43	262.43	20.000
Udaljenost od osi			-3.00	264.50	
Kote terena			0.00	264.28	
			3.75	264.18	
			6.32	266.61	

0+100.00



Kote projekta	20.000	10.14	260.39	260.39	20.000
Udaljenost od osi			-3.64	265.48	
Kote terena			0.00	265.26	
			4.83	265.14	
			6.51	265.14	

0+126.69

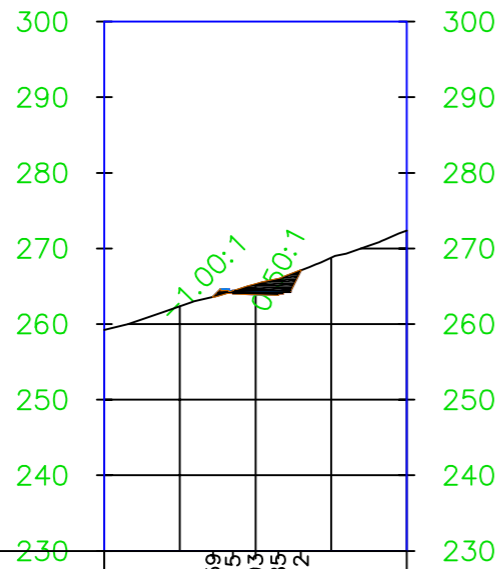


Kote projekta	20.000	5.69	263.53	263.53	20.000
Udaljenost od osi			-3.00	264.17	
Kote terena			0.00	263.95	
			3.05	263.87	
			5.98	267.02	

FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	21

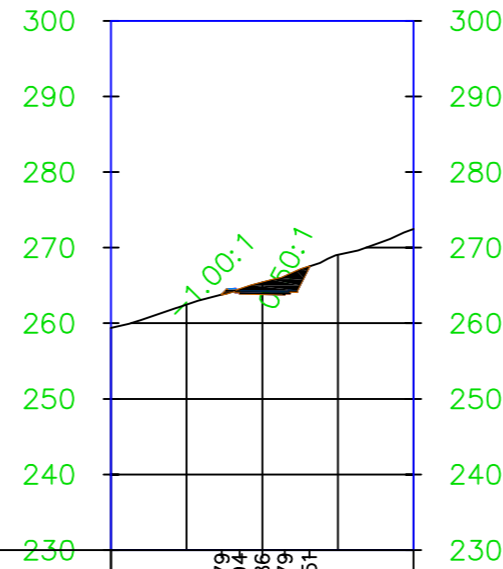
# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

0+127.12



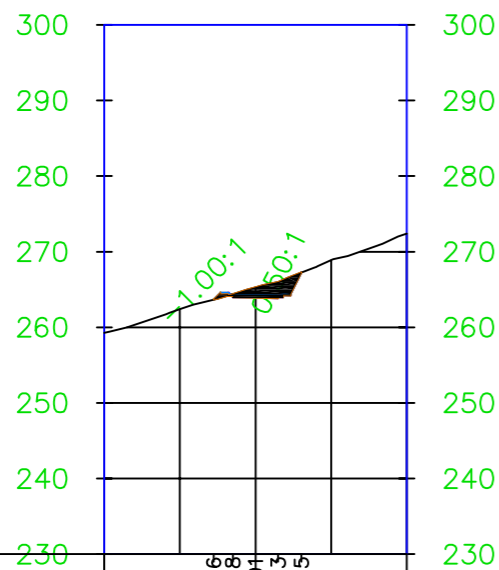
Kote projekta	263.59	-5.61	263.59
Udaljenost od osi	20.000	-3.00	264.15
Kote terena	263.93	0.00	263.93
	263.85	3.01	263.85
	267.12	6.01	267.12

0+128.53



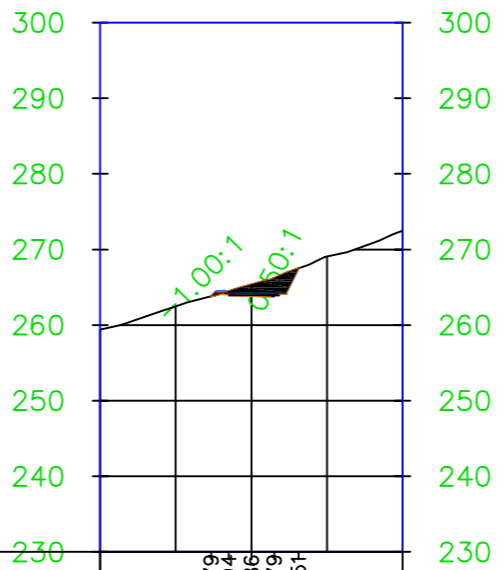
Kote projekta	263.79	-5.34	263.79
Udaljenost od osi	20.000	-3.00	263.94
Kote terena	263.86	0.00	263.86
	263.79	3.00	263.79
	267.51	6.23	267.51

0+127.56



Kote projekta	263.66	-5.53	263.66
Udaljenost od osi	20.000	-3.00	263.98
Kote terena	263.94	0.00	263.94
	263.83	3.00	263.83
	267.25	6.07	267.25

0+128.54

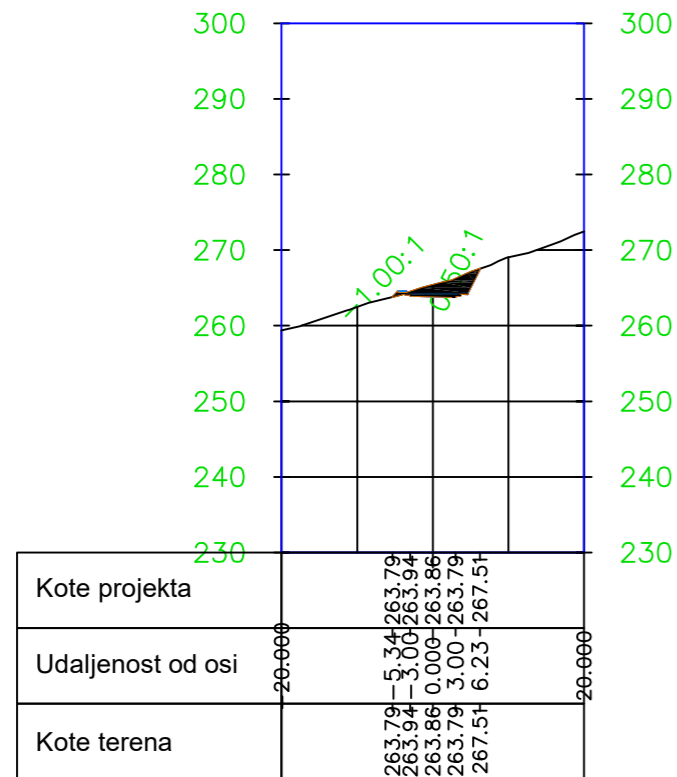


Kote projekta	263.79	-5.34	263.79
Udaljenost od osi	20.000	-3.00	263.94
Kote terena	263.86	0.00	263.86
	263.79	3.00	263.79
	267.51	6.23	267.51

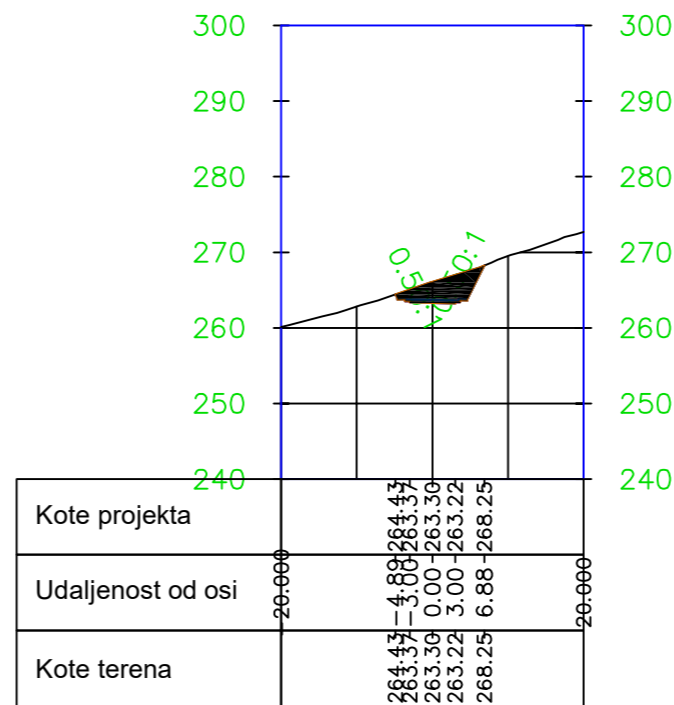
FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA 2021./2022.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200 22
STUDENTICA	IVANA IŠTUK	

# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

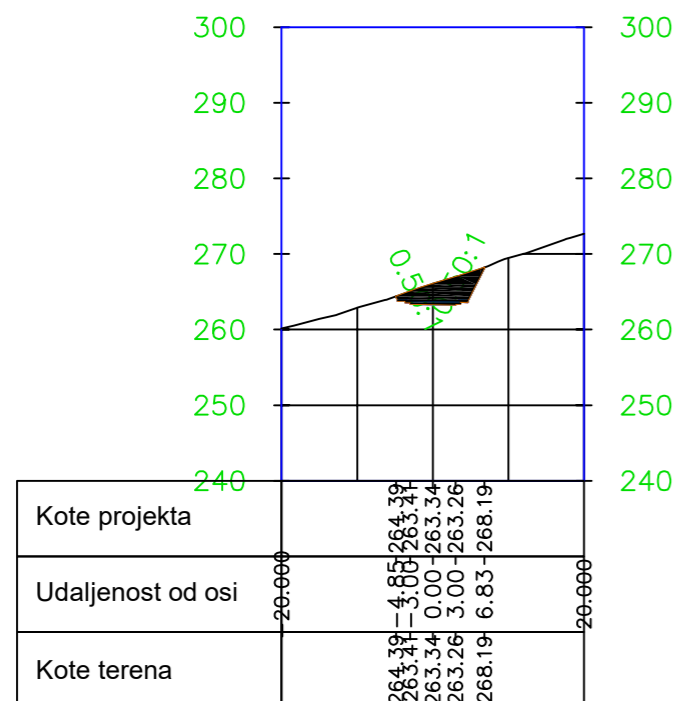
0+128.54



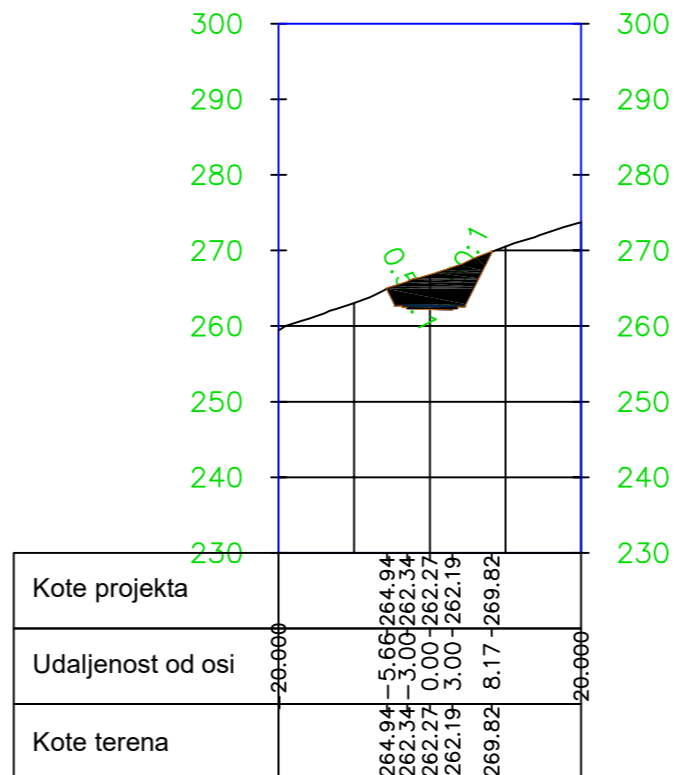
0+140.00



0+139.21



0+160.00

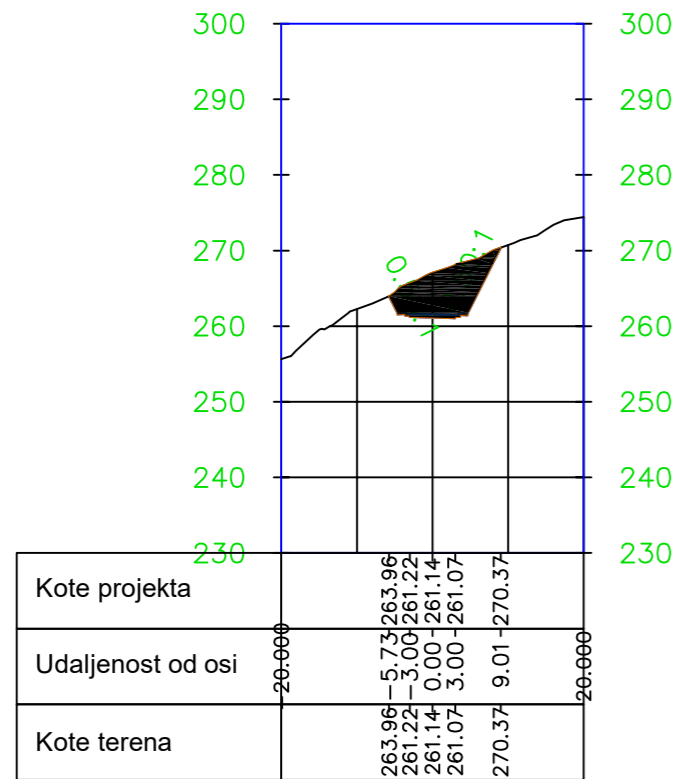


FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	23

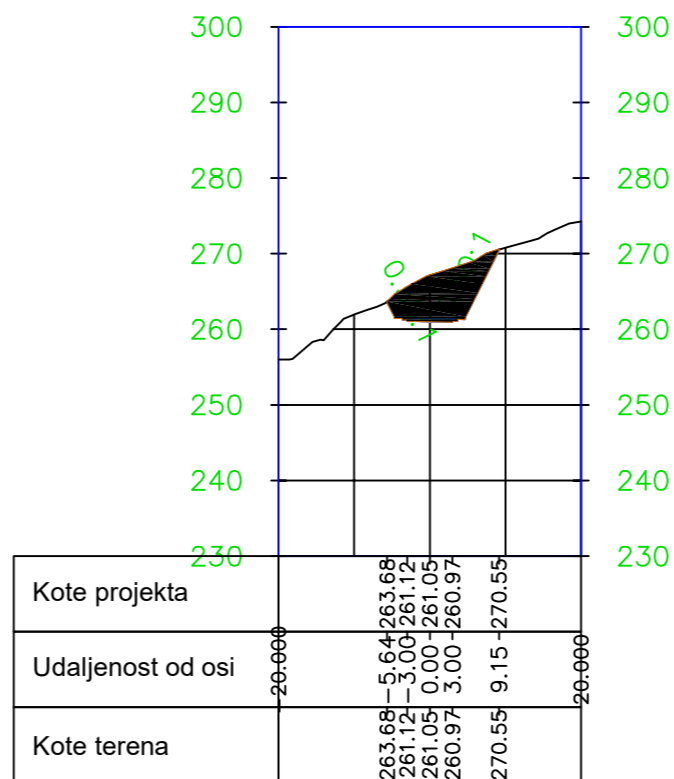


# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

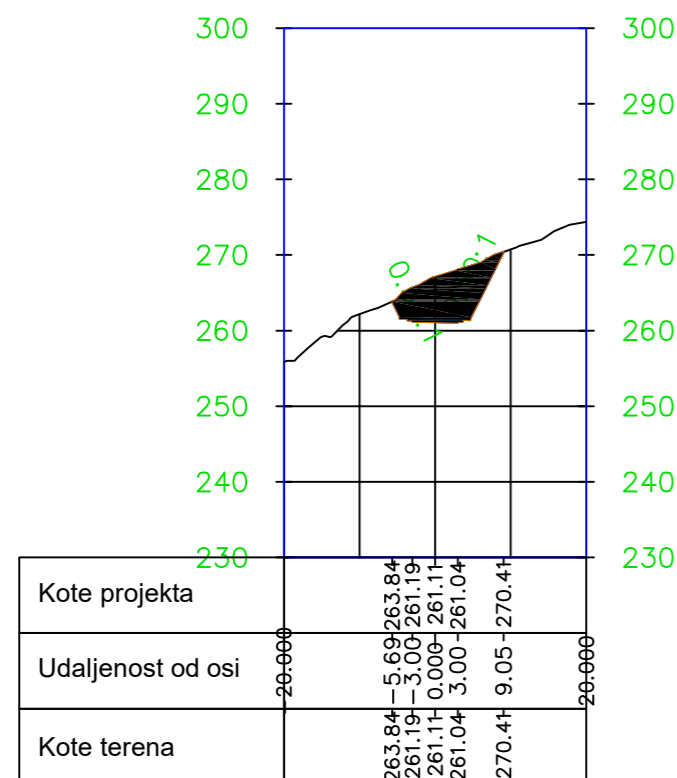
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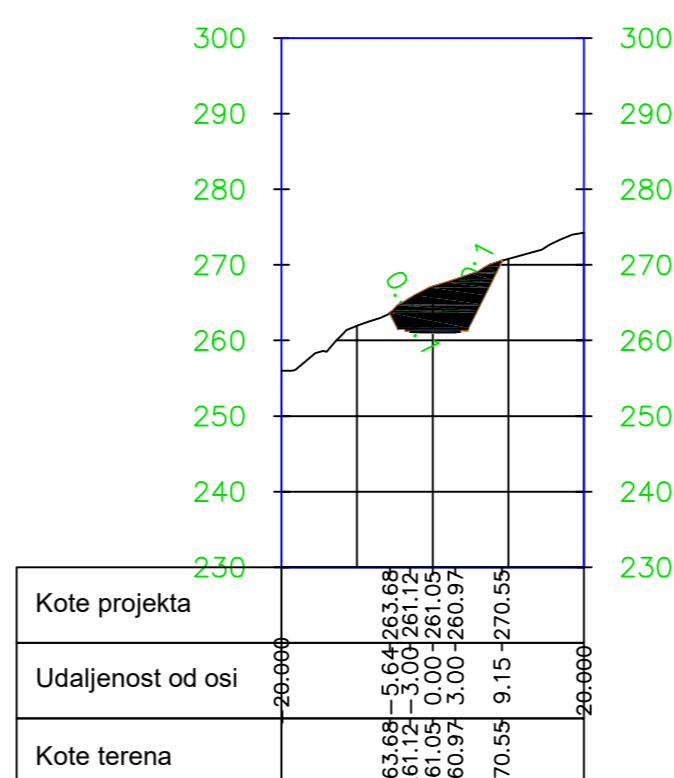
0+181.60



0+180.56



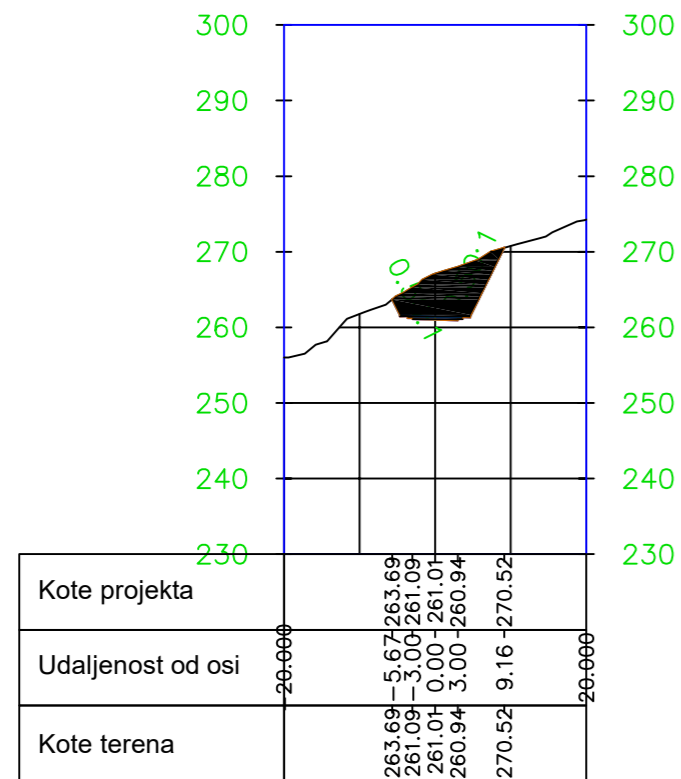
0+181.61



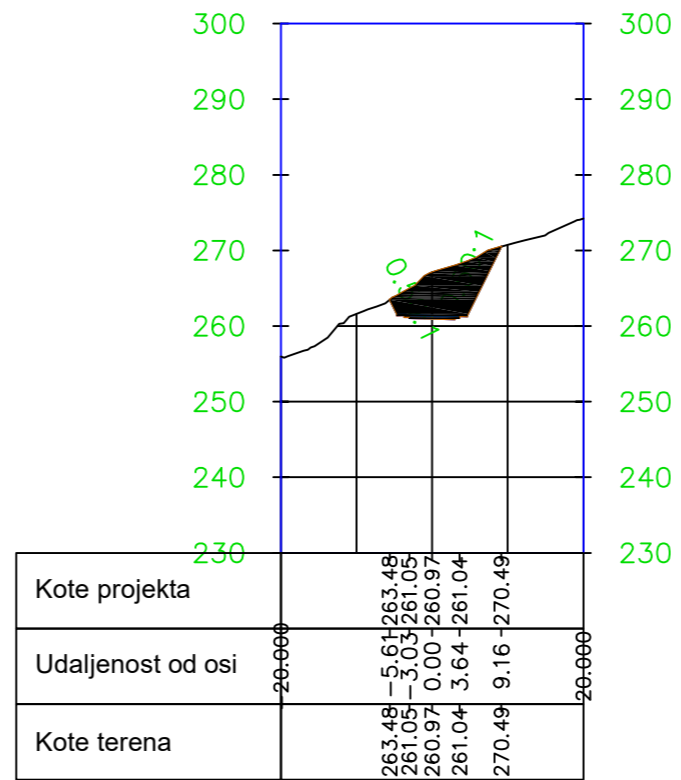
FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	24

# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

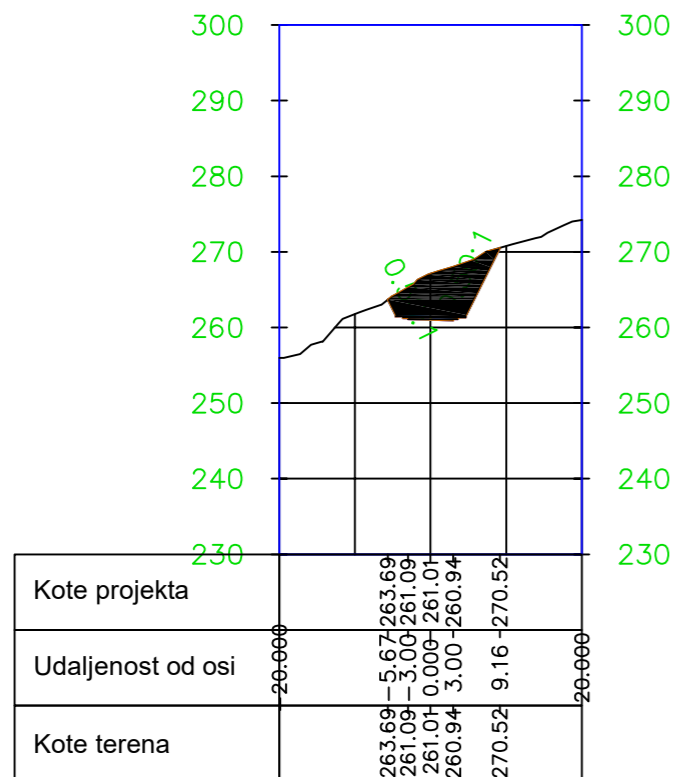
0+182.23



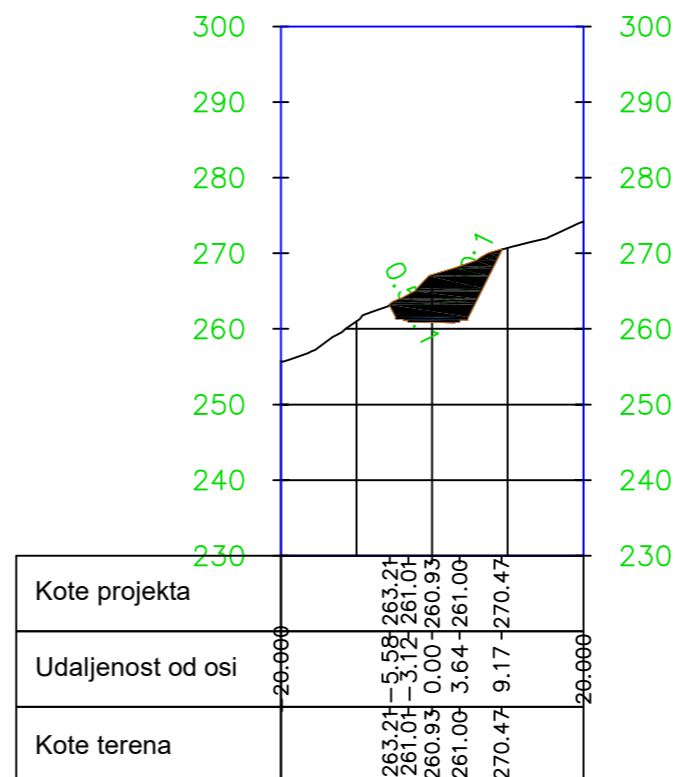
0+182.93



0+182.23



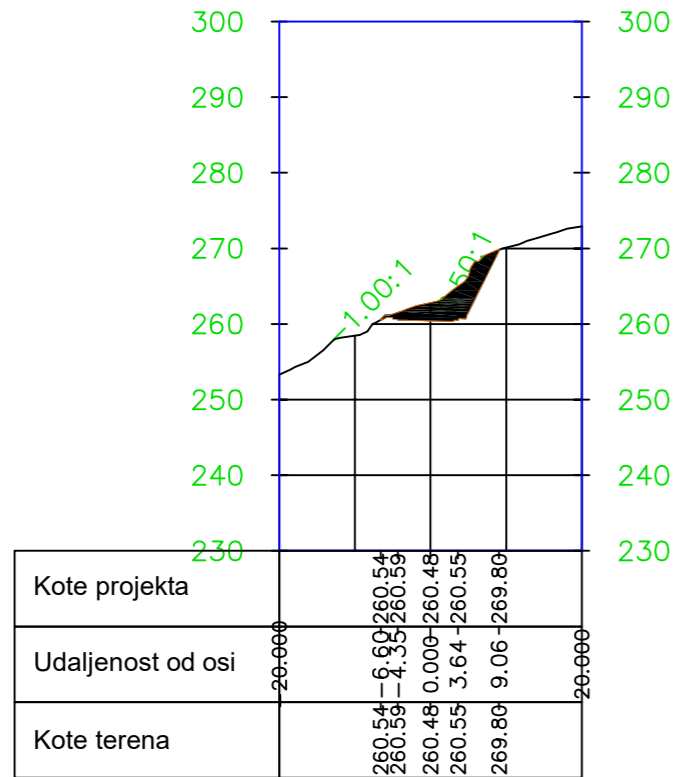
0+183.62



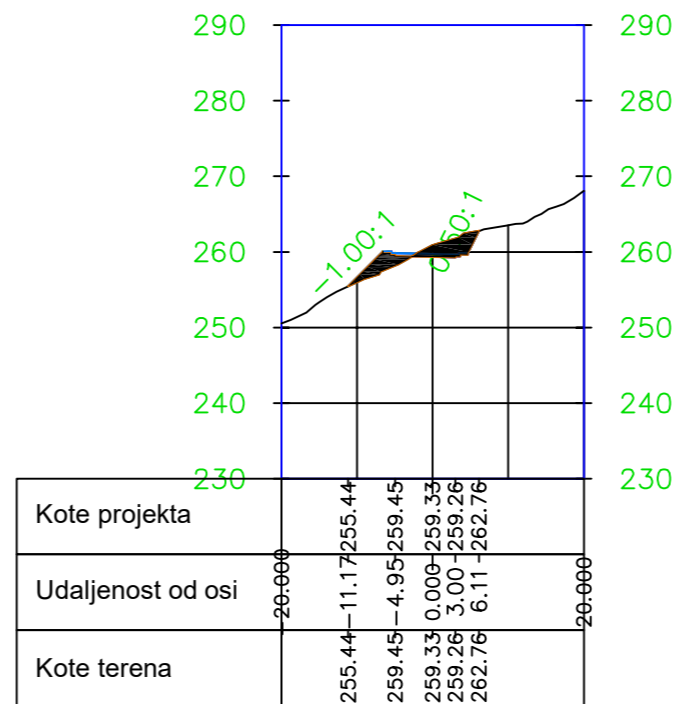
FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	25

# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

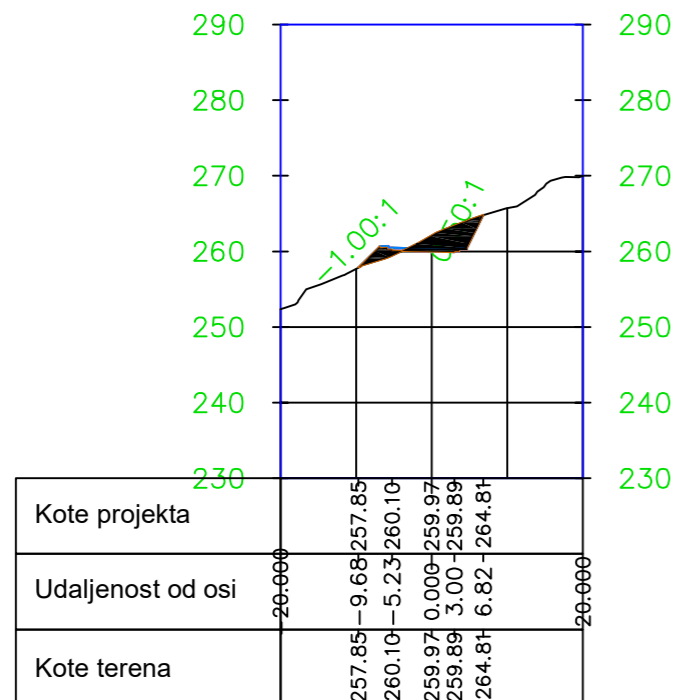
0+191.23



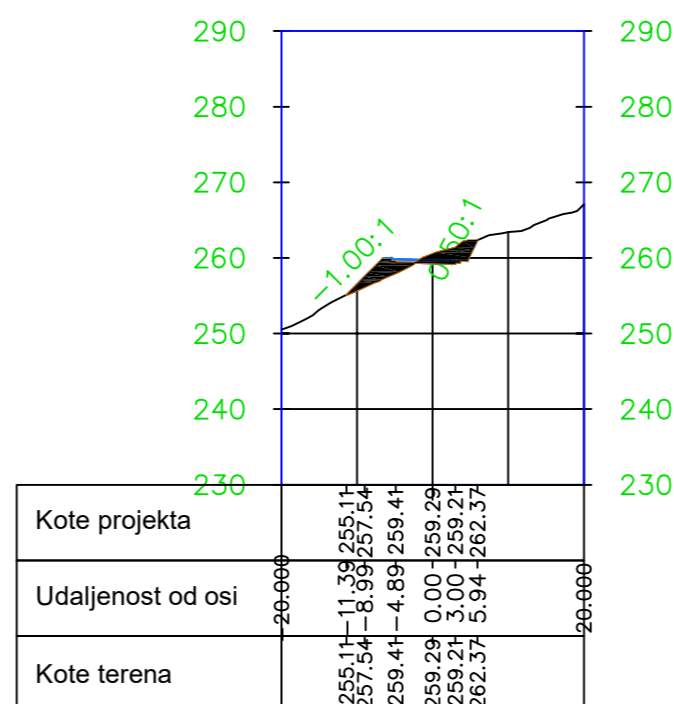
0+210.81



0+200.00



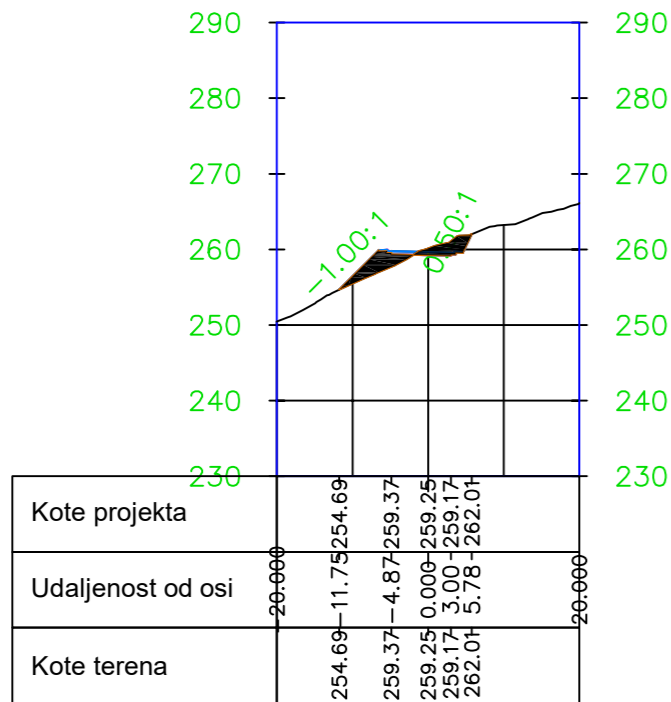
0+211.52



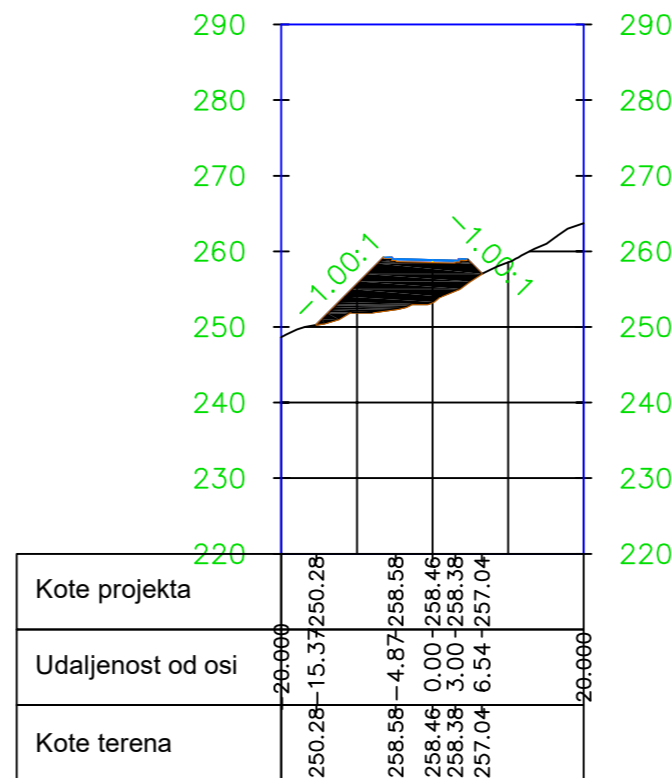
FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	26

# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

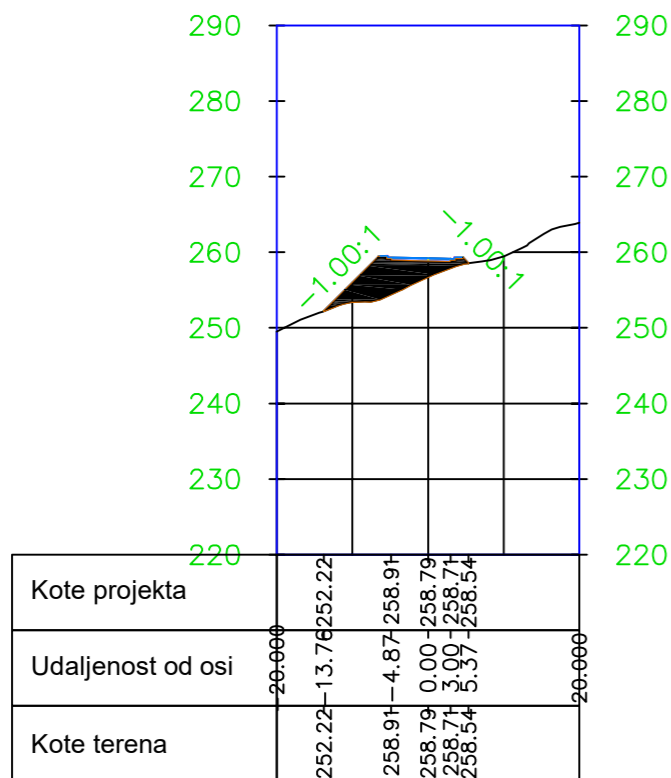
0+212.23



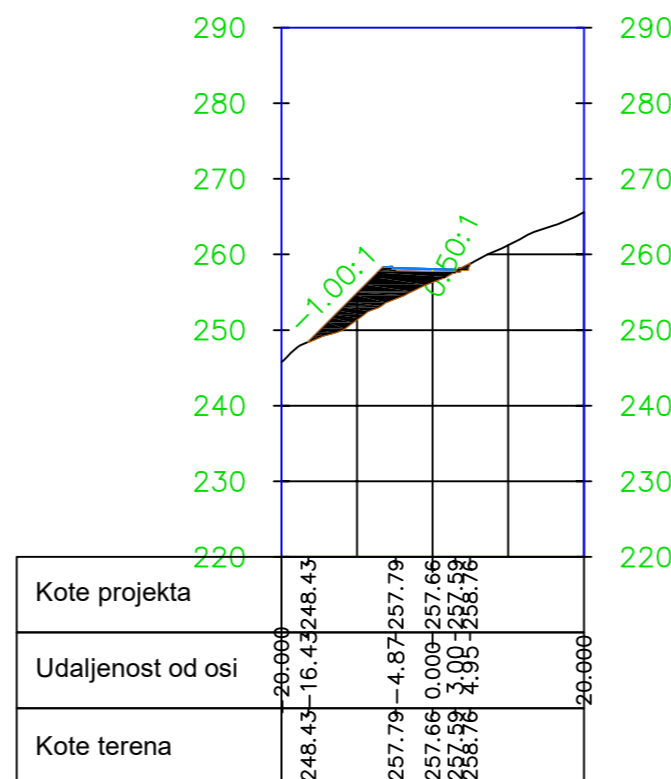
0+225.68



0+220.00



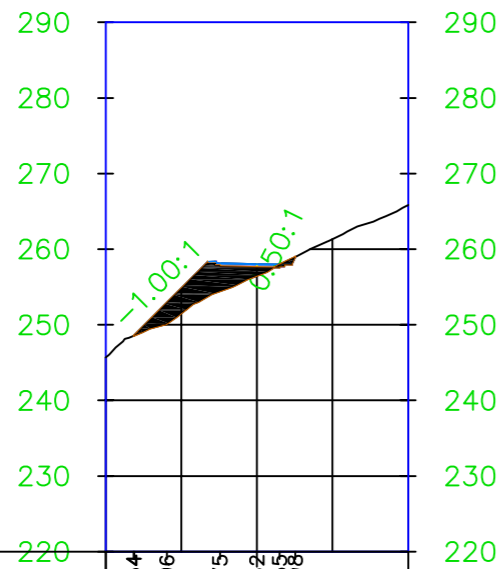
0+239.12



FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	27

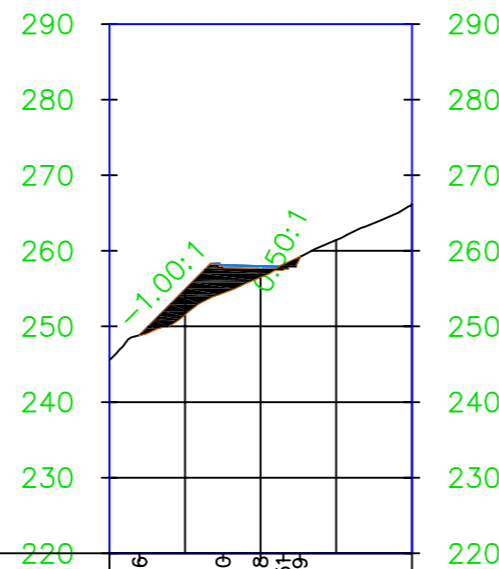
# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

0+239.83



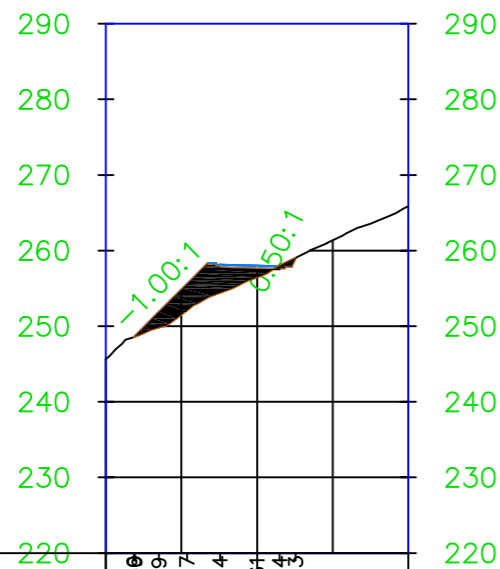
Kote projekta	20.000	248.64	16.28	248.64	252.96	11.90	252.96	257.75	4.89	257.75	257.62	0.00	257.62	257.55	3.00	257.55	258.98	5.08	258.98	20.000
Udaljenost od osi	20.000																			20.000
Kote terena																				

0+240.54



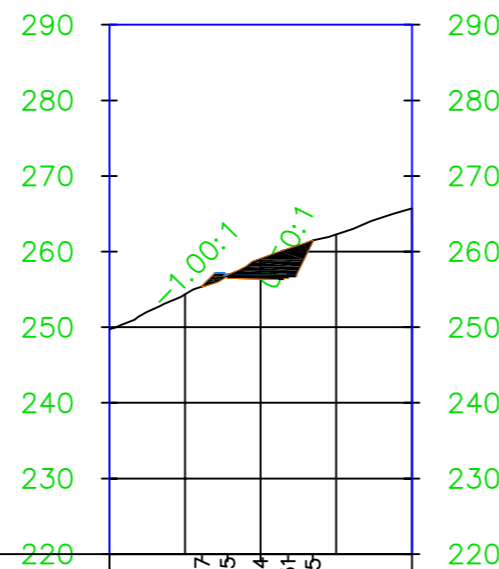
Kote projekta	20.000	248.86	16.06	248.86	257.70	4.95	257.70	257.58	0.00	257.58	257.51	3.00	257.51	259.19	5.21	259.19	20.000			
Udaljenost od osi	20.000																			20.000
Kote terena																				

0+240.00



Kote projekta	20.000	248.66	16.28	248.66	251.89	12.97	251.89	255.57	9.27	255.57	257.74	4.90	257.74	257.61	0.00	257.61	257.54	3.00	257.54	259.03	5.11	259.03	20.000	
Udaljenost od osi	20.000																							20.000
Kote terena																								

0+260.00



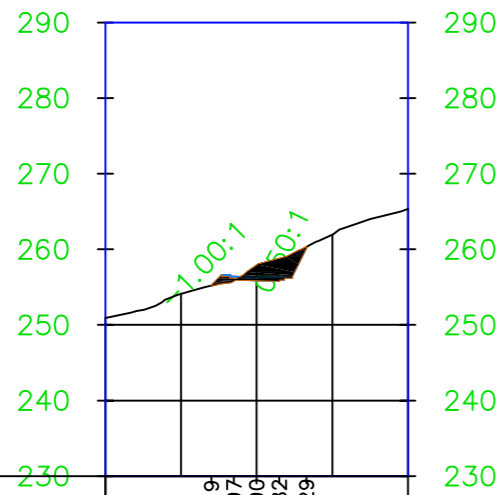
Kote projekta	20.000	255.37	7.73	255.37	256.55	4.36	256.55	256.44	0.00	256.44	256.51	3.64	256.51	261.45	6.91	261.45	20.000							
Udaljenost od osi	20.000																							20.000
Kote terena																								

FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	28



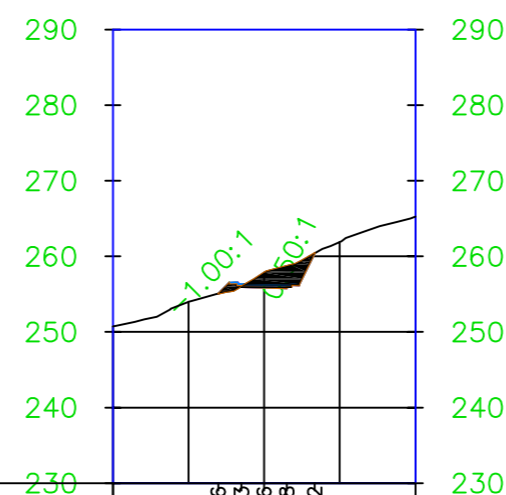
# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

0+269.12



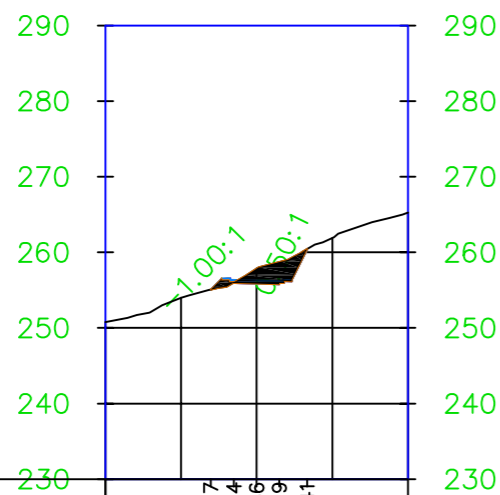
Kote projekta	20.000	255.19	255.97	255.90	255.82	260.29	20.000
Udaljenost od osi		-5.98	-3.00	0.00	3.00	6.60	
Kote terena		255.19	255.97	255.90	255.82	260.29	

0+269.80



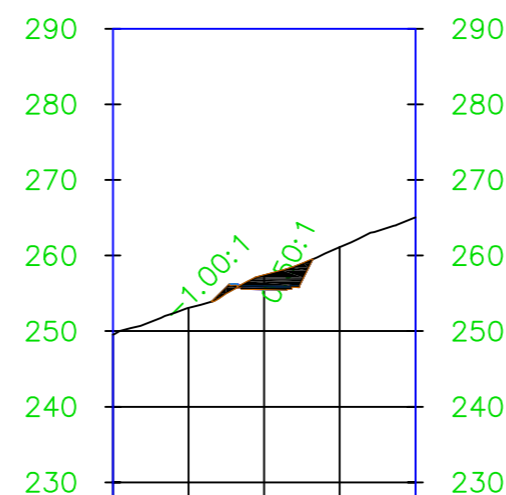
Kote projekta	20.000	255.06	255.93	255.86	255.78	260.42	20.000
Udaljenost od osi		-6.08	-3.00	0.00	3.00	6.68	
Kote terena		255.06	255.93	255.86	255.78	260.42	

0+269.75



Kote projekta	20.000	255.07	255.94	255.86	255.79	260.41	20.000
Udaljenost od osi		-6.07	-3.00	0.00	3.00	6.67	
Kote terena		255.07	255.94	255.86	255.79	260.41	

0+275.31

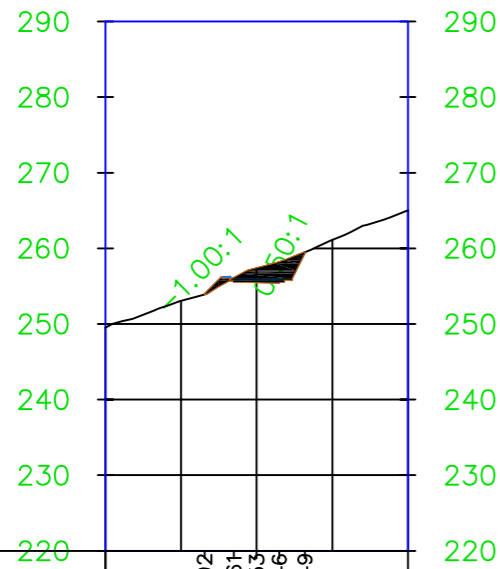


Kote projekta	20.000	253.92	255.61	255.54	255.46	259.50	20.000
Udaljenost od osi		-6.89	-3.00	0.00	3.00	6.38	
Kote terena		253.92	255.61	255.54	255.46	259.50	

FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	30

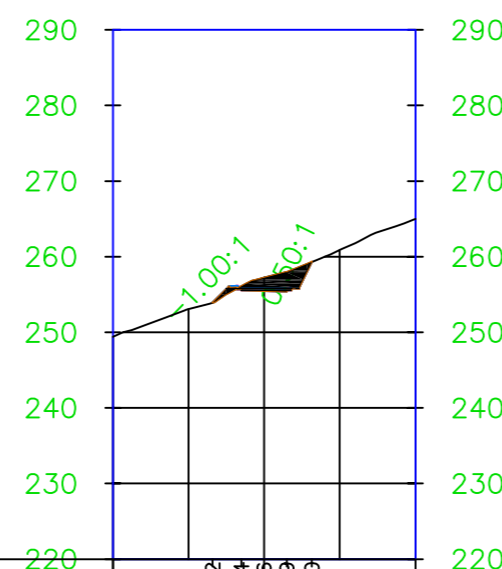
# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

0+275.36



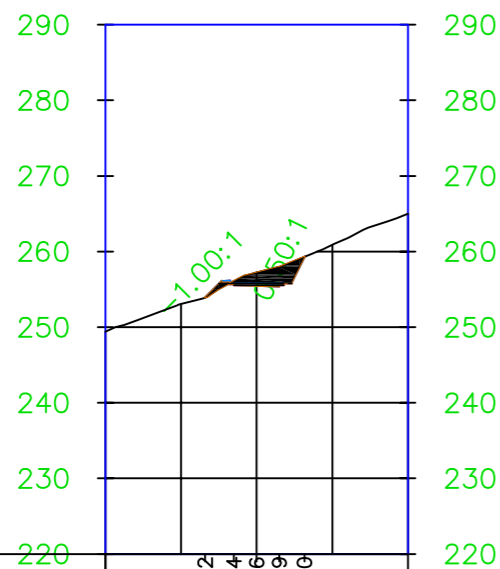
Kote projekta	253.92	-6.89	253.92
Udaljenost od osi	20.000	3.00	255.61
Kote terena	255.53	0.00	255.53
	255.46	3.00	255.46
	259.49	6.38	259.49

0+276.57



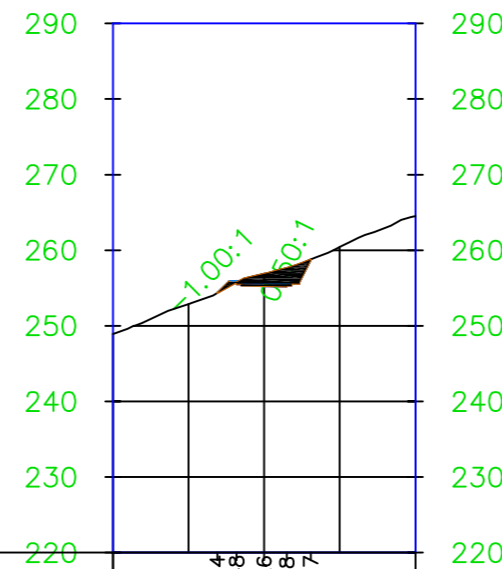
Kote projekta	253.92	-6.81	253.92
Udaljenost od osi	20.000	3.00	255.54
Kote terena	255.46	0.00	255.46
	255.39	3.00	255.39
	259.30	6.32	259.30

0+276.57



Kote projekta	253.92	-6.82	253.92
Udaljenost od osi	20.000	3.00	255.54
Kote terena	255.46	0.00	255.46
	255.39	3.00	255.39
	259.30	6.32	259.30

0+280.00



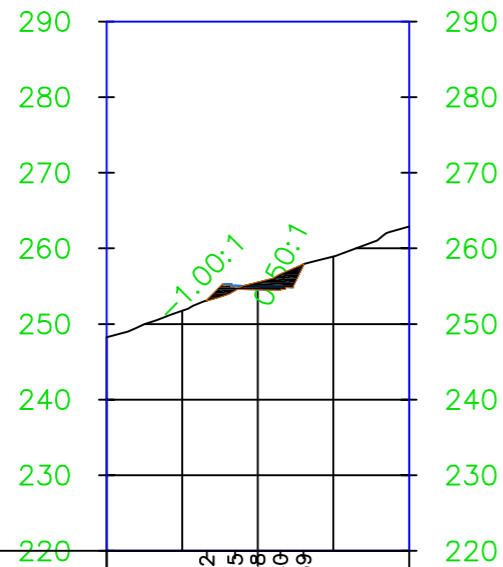
Kote projekta	254.34	-6.19	254.34
Udaljenost od osi	20.000	3.16	255.48
Kote terena	255.26	0.00	255.26
	255.18	3.00	255.18
	258.77	6.16	258.77

FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	31



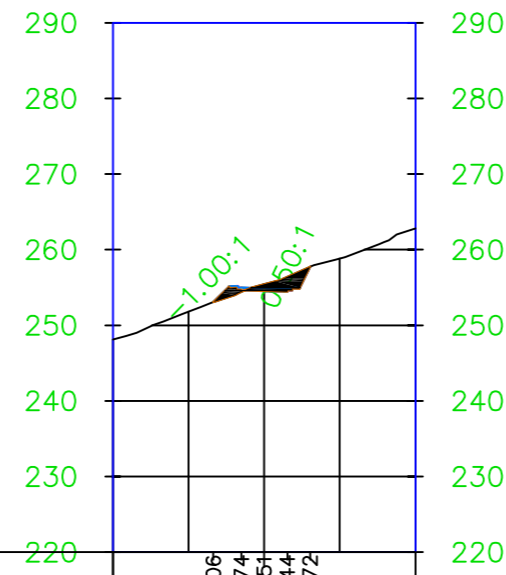
# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

0+291.57



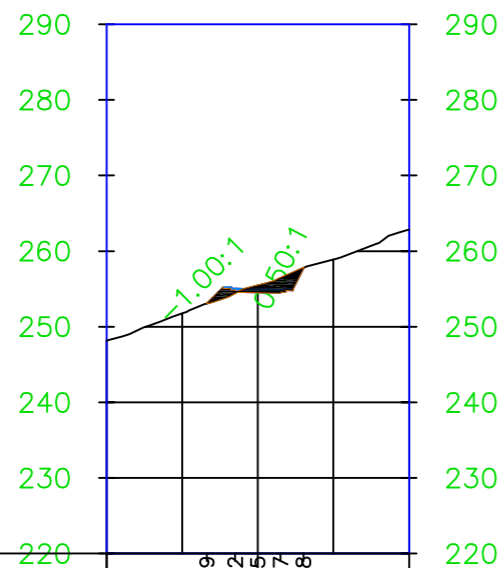
Kote projekta		253.12	-6.73	253.12
Udaljenost od osi	20.000		3.00	254.65
Kote terena		254.58	0.00	254.58
		254.50	3.00	254.50
		257.89	6.06	257.89

0+292.67



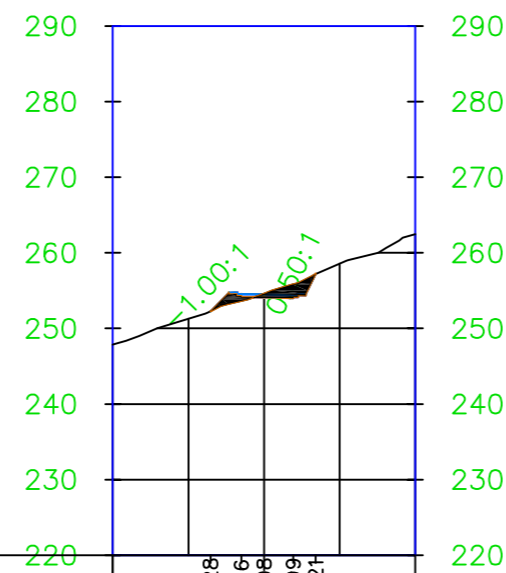
Kote projekta		253.06	-6.73	253.06
Udaljenost od osi	20.000		3.00	254.74
Kote terena		254.51	0.00	254.51
		254.44	3.07	254.44
		257.72	6.08	257.72

0+292.12



Kote projekta		253.09	-6.73	253.09
Udaljenost od osi	20.000		3.00	254.62
Kote terena		254.55	0.00	254.55
		254.47	3.02	254.47
		257.78	6.04	257.78

0+300.00

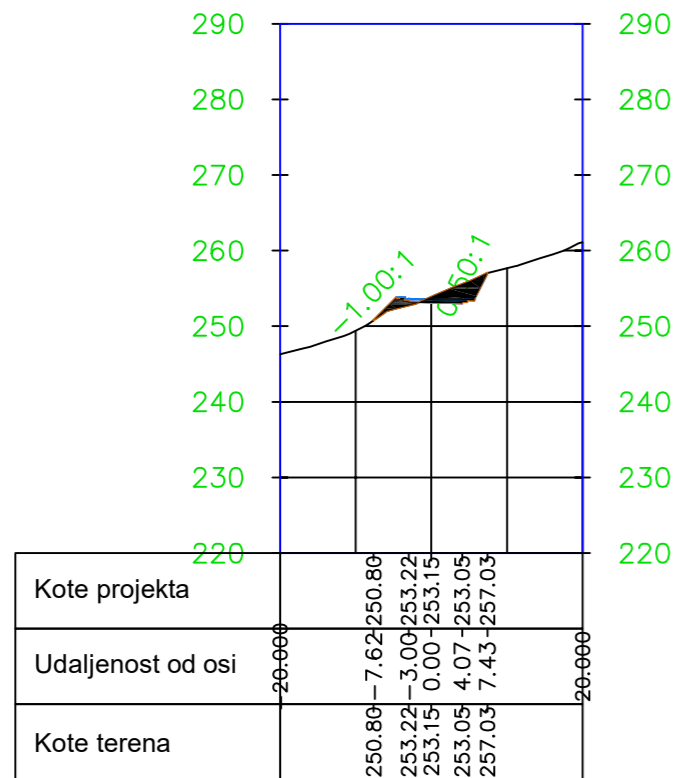


Kote projekta		252.28	-7.08	252.28
Udaljenost od osi	20.000		3.00	254.16
Kote terena		254.08	0.00	254.08
		253.99	3.86	253.99
		257.21	6.83	257.21

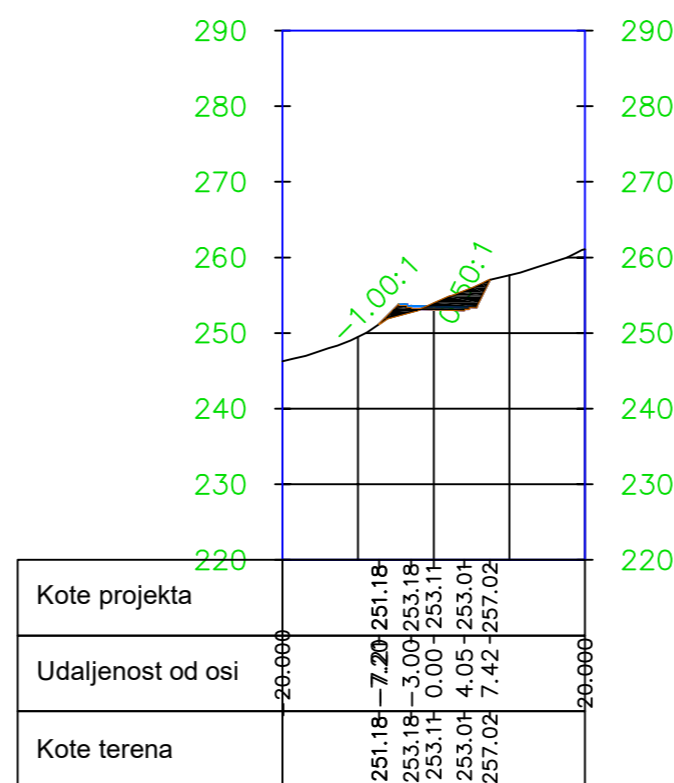
FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA 2021./2022.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200 32
STUDENTICA	IVANA IŠTUK	

# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

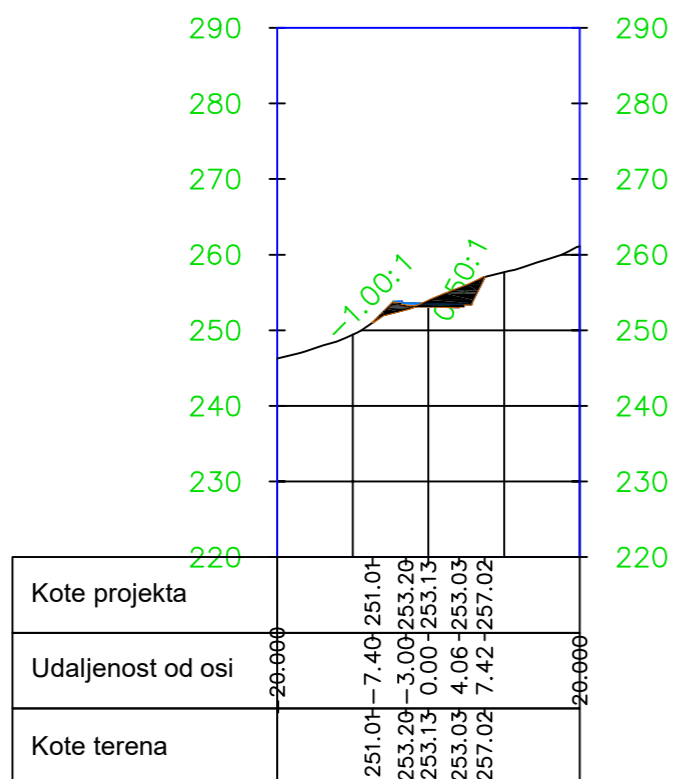
0+315.90



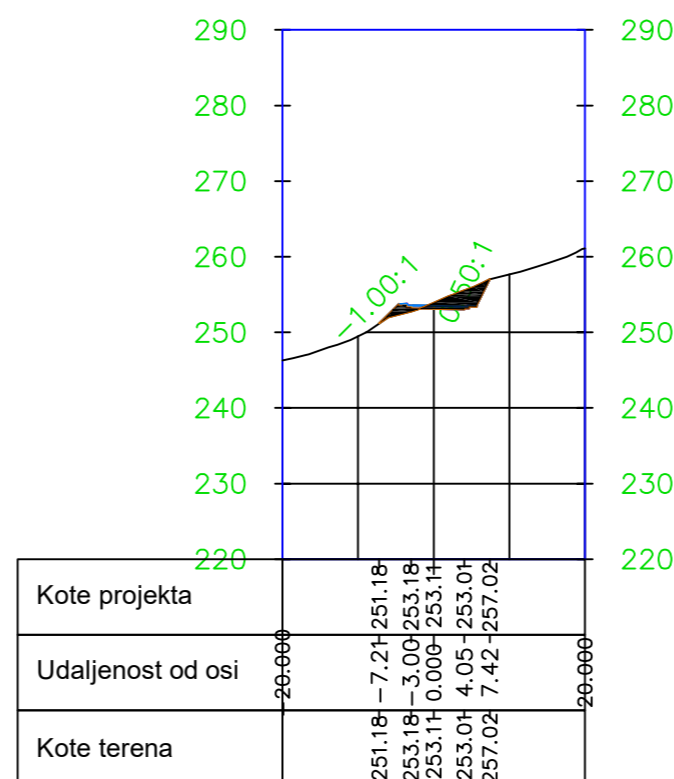
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0+316.23



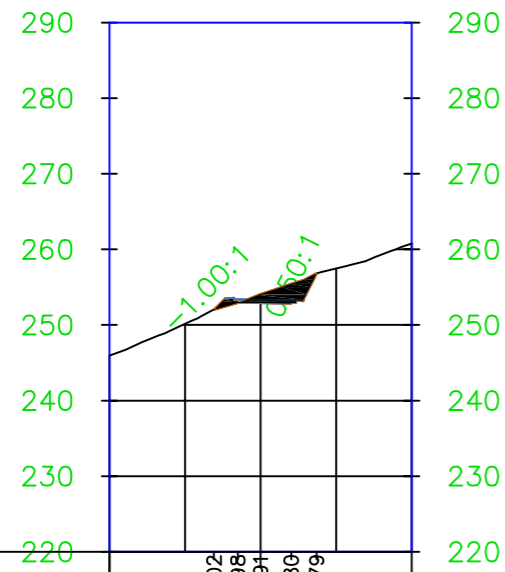
0+316.57



FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA 2021./2022.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	

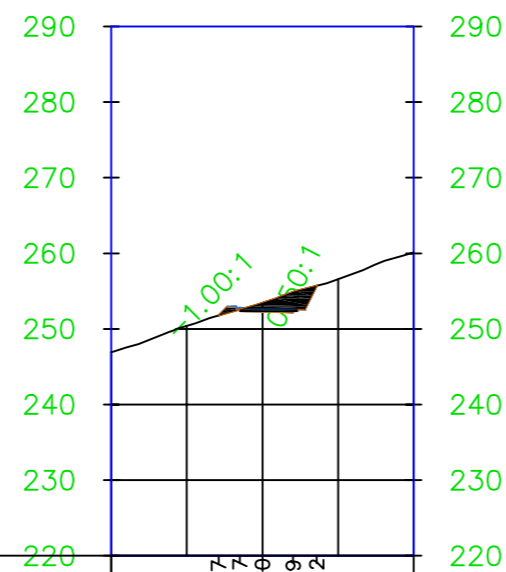
# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

0+320.00



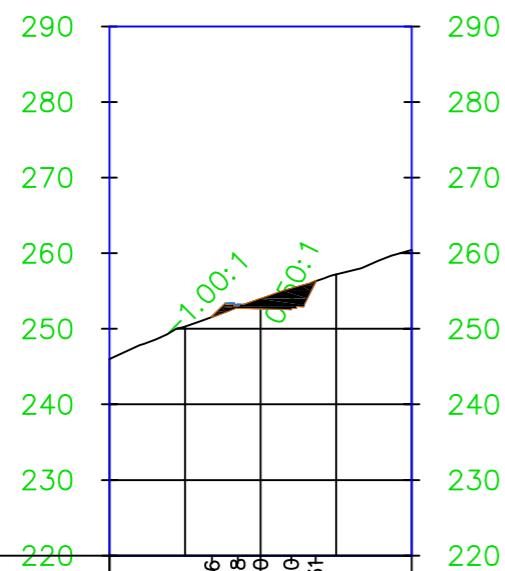
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Udaljenost od osi	20.000	-6.16	-3.00	0.00	4.05	7.41
Kote terena		252.98	252.91	252.91	252.80	256.79

0+330.37



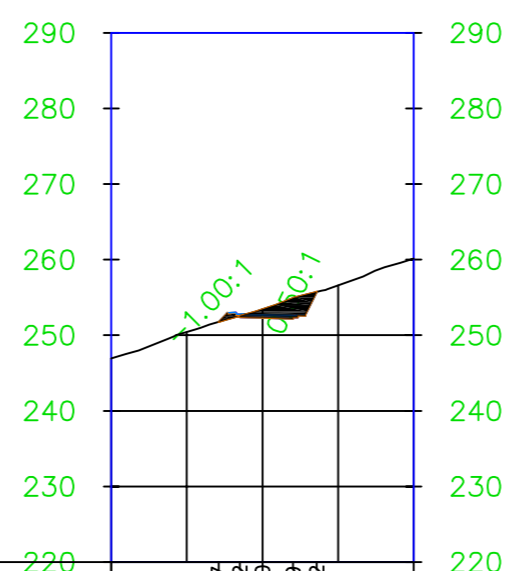
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Udaljenost od osi	20.000	-5.80	-3.00	0.00	4.05	7.18
Kote terena		251.77	252.37	252.30	252.19	255.72

0+323.47



Kote projekta	20.000	251.56	252.78	252.70	252.60	256.34
Udaljenost od osi	20.000	-6.42	-3.00	0.00	4.05	7.27
Kote terena		251.56	252.78	252.70	252.60	256.34

0+330.37

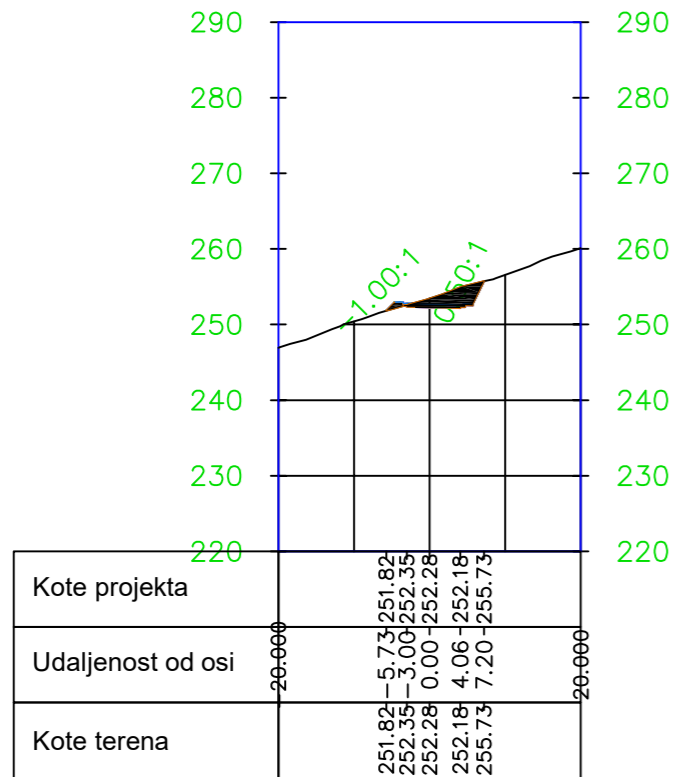


Kote projekta	20.000	251.77	252.52	252.30	252.19	255.72
Udaljenost od osi	20.000	-5.80	-3.00	0.00	4.05	7.18
Kote terena		251.77	252.52	252.30	252.19	255.72

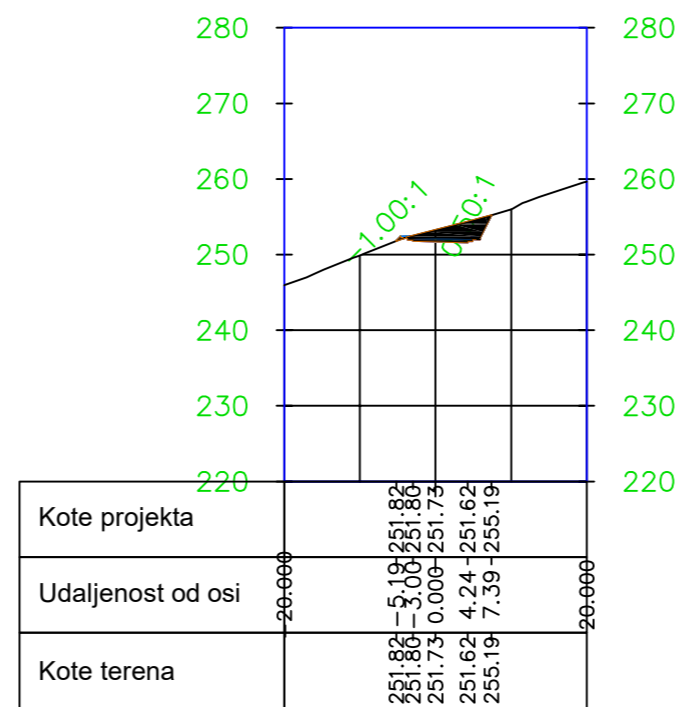
FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	34

# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

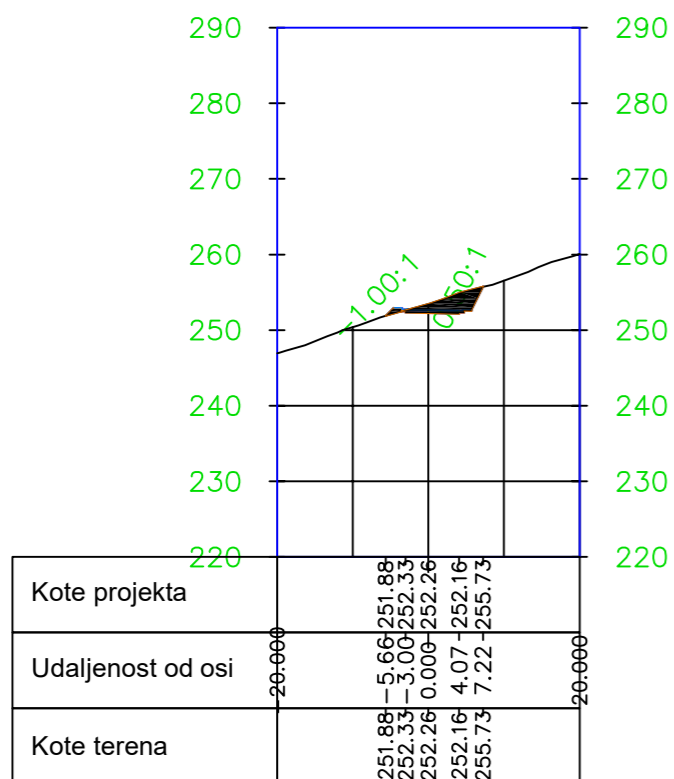
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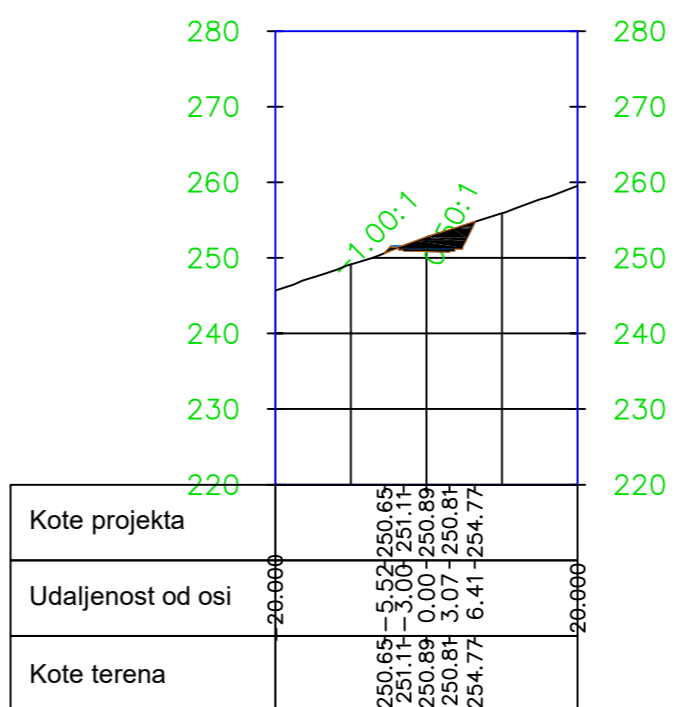
0+340.00



0+331.03



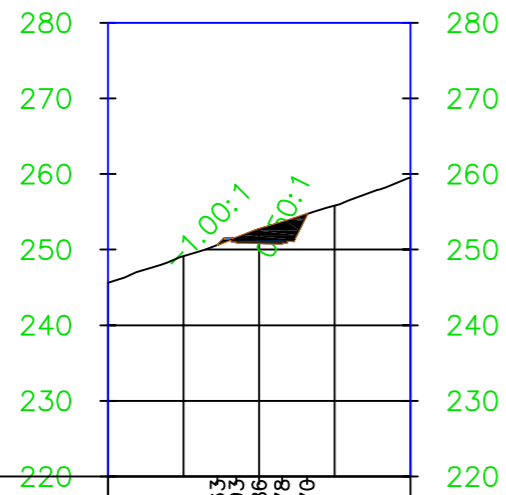
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FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	35

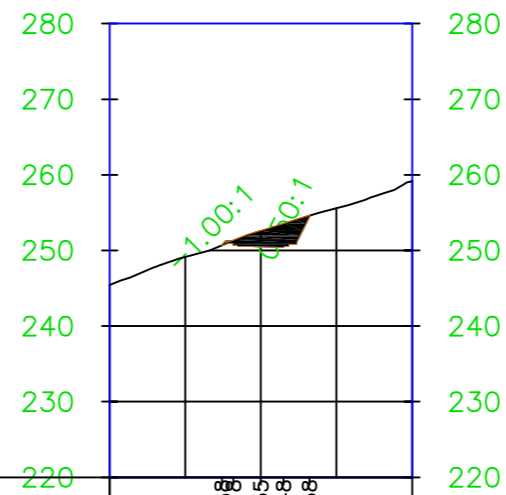
# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

0+354.82



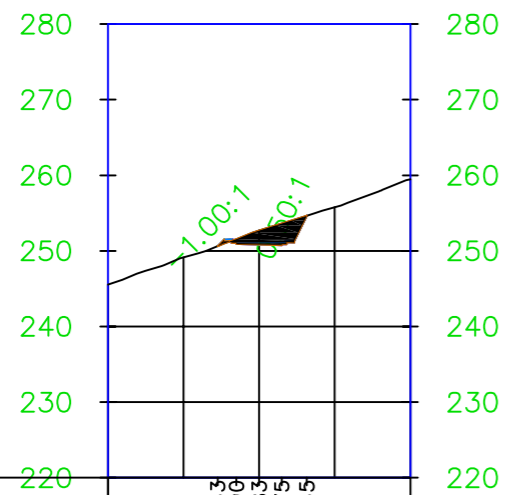
Kote projekta	250.63	250.63	250.93	250.93	250.86	250.86	250.78	250.78	254.79	254.79
Udaljenost od osi	-5.50	-5.50	0.00	0.00	3.02	3.02	6.34	6.34		
Kote terena										

0+360.00



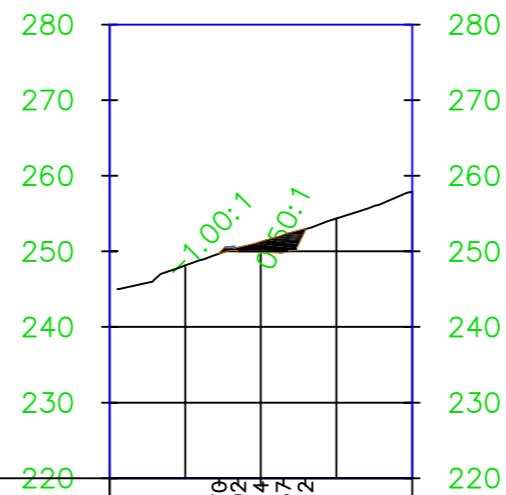
Kote projekta	250.98	250.98	250.55	250.55	250.48	250.48	254.58	254.58
Udaljenost od osi	-5.64	-5.64	0.00	0.00	3.00	3.00	6.41	6.41
Kote terena								

0+355.37



Kote projekta	250.63	250.63	250.96	250.96	250.83	250.83	250.75	250.75	254.65	254.65
Udaljenost od osi	-5.47	-5.47	0.00	0.00	3.00	3.00	6.32	6.32		
Kote terena										

0+370.37

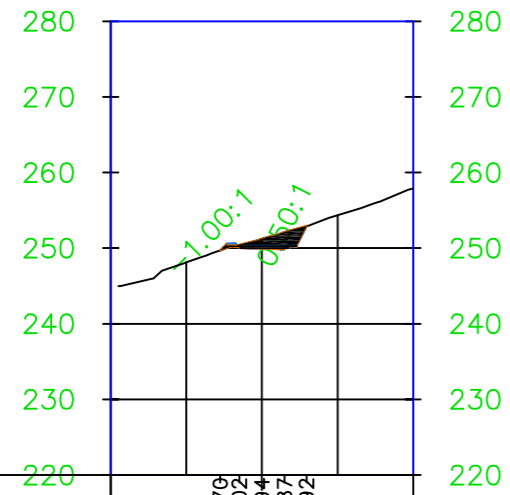


Kote projekta	249.79	249.79	250.02	250.02	249.94	249.94	249.87	249.87	252.92	252.92
Udaljenost od osi	-5.52	-5.52	0.00	0.00	3.00	3.00	5.89	5.89		
Kote terena										

FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	36

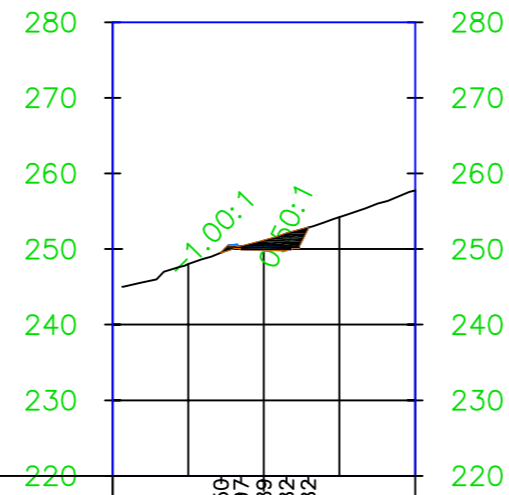
# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

0+370.37



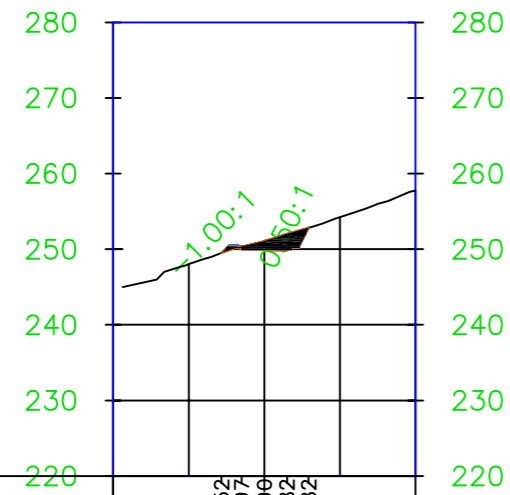
Kote projekta		249.70	-5.52	249.70
Udaljenost od osi	20.000	-3.00	250.02	20.000
Kote terena		249.94	0.00	249.94
		249.87	3.00	249.87
		252.92	5.89	252.92

0+371.21



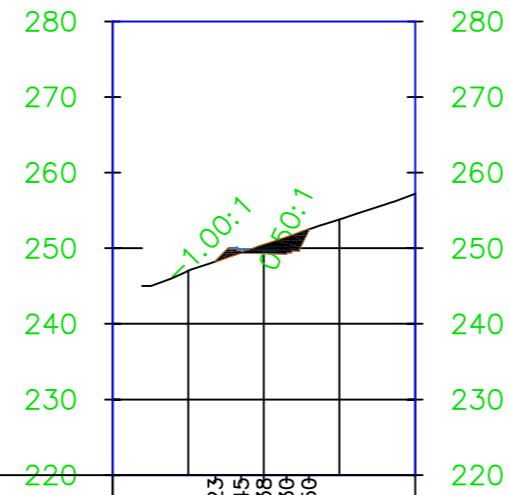
Kote projekta		249.50	-5.66	249.50
Udaljenost od osi	20.000	-3.00	249.97	20.000
Kote terena		249.89	0.00	249.89
		249.82	3.00	249.82
		252.82	5.87	252.82

0+371.17



Kote projekta		249.52	-5.65	249.52
Udaljenost od osi	20.000	-3.00	249.97	20.000
Kote terena		249.90	0.00	249.90
		249.82	3.00	249.82
		252.82	5.86	252.82

0+380.00

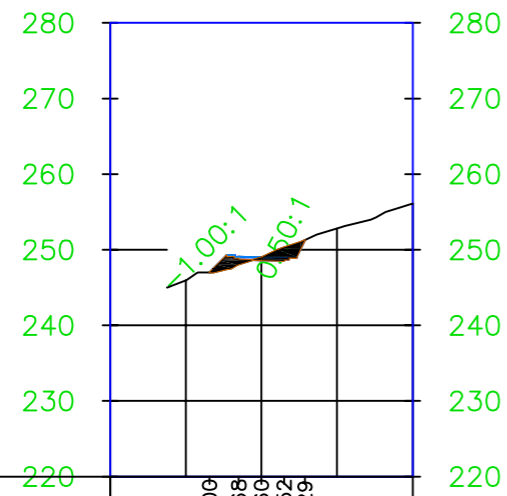


Kote projekta		248.23	-6.42	248.23
Udaljenost od osi	20.000	-3.00	249.45	20.000
Kote terena		249.38	0.00	249.38
		249.30	3.00	249.30
		252.50	5.96	252.50

FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA
ZADATAK	IDEJNI PROJEKT	2021./2022.
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	IVANA IŠTUK	37

# KARAKTERISTIČNI POPREČNI PRESJECI M 1:100

0+393.19



Kote projekta		247.00	247.00	
Udaljenost od osi	20.000	-6.87	3.00	20.000
Kote terena		247.00	248.60	251.29

FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE – ZAVRŠNI RAD	GODINA 2021./2022.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200 38
STUDENTICA	IVANA IŠTUK	

#### **4. TABLICA UKUPNOG VOLUMENA ZEMLJANIH RADOVA**



Tablica 1. Ukupni volumen zemljanih radova

Stacionaža	Površina usjeka	Volumen usjeka	Površina nasipa	Volumen nasipa	Kumulativni volumen usjeka	Kumulativni volumen nasipa	Kumulativni volumen
0+000.000	8.86	0.00	19.82	0.00	0.00	0.00	0.00
0+000.681	9.41	6.22	17.23	12.62	6.22	12.62	-6.40
0+001.114	9.67	4.13	15.58	7.10	10.35	19.72	-9.37
0+001.545	9.95	4.23	14.11	6.41	14.58	26.13	-11.54
0+020.000	15.30	229.91	6.59	194.15	244.49	220.28	24.21
0+039.490	12.47	260.25	3.90	106.29	504.74	326.57	178.17
0+040.000	12.07	6.26	3.99	2.01	511.00	328.58	182.42
0+040.084	12.01	1.01	4.00	0.34	512.01	328.91	183.10
0+040.681	11.57	7.04	4.09	2.42	519.05	331.33	187.72
0+040.681	11.57	0.00	4.09	0.00	519.05	331.33	187.72
0+060.000	0.00	106.96	16.05	202.09	626.01	533.42	92.59
0+064.118	0.00	0.00	17.25	71.03	626.01	604.45	21.56
0+080.000	0.00	0.00	27.96	372.26	626.01	976.72	-350.70

0+087.556	0.00	0.00	25.21	208.49	626.01	1185.21	-559.20
0+087.556	0.00	0.00	25.21	0.00	626.01	1185.21	-559.20
0+088.153	0.00	0.00	25.56	15.15	626.01	1200.37	-574.35
0+088.747	0.00	0.00	26.07	15.34	626.01	1215.71	-589.69
0+100.000	0.15	0.78	25.30	299.72	626.79	1515.43	-888.63
0+120.000	6.72	67.38	4.82	307.66	694.18	1823.09	-1128.91
0+126.692	12.20	63.30	0.84	18.93	757.48	1842.02	-1084.54
0+127.123	12.84	5.40	0.72	0.34	762.88	1842.35	-1079.47
0+127.556	13.59	5.72	0.62	0.29	768.60	1842.64	-1074.04
0+128.533	15.41	14.16	0.38	0.49	782.76	1843.13	-1060.37
0+128.540	15.43	0.11	0.38	0.00	782.88	1843.13	-1060.26
0+128.540	15.43	0.01	0.38	0.00	782.88	1843.13	-1060.25
0+139.213	27.96	231.50	0.00	2.03	1014.38	1845.17	-830.78
0+140.000	28.90	22.38	0.00	0.00	1036.77	1845.17	-808.40
0+160.000	52.10	809.91	0.00	0.00	1846.68	1845.17	1.51
0+180.000	68.97	1210.67	0.00	0.00	3057.35	1845.17	1212.19
0+180.556	69.62	38.54	0.00	0.00	3095.89	1845.17	1250.72
0+181.601	70.74	73.30	0.00	0.00	3169.19	1845.17	1324.02
0+181.612	70.74	0.79	0.00	0.00	3169.99	1845.17	1324.82
0+182.230	70.48	43.65	0.00	0.00	3213.63	1845.17	1368.47
0+182.234	70.48	0.30	0.00	0.00	3213.93	1845.17	1368.77
0+182.929	69.57	48.64	0.00	0.00	3262.58	1845.17	1417.41
0+183.620	68.46	47.67	0.00	0.00	3310.24	1845.17	1465.08
0+191.234	37.27	406.11	0.10	0.39	3716.35	1845.55	1870.79
0+200.000	22.48	268.93	4.84	20.23	3985.28	1865.79	2119.49
0+210.810	14.76	209.39	10.67	74.00	4194.67	1939.79	2254.88
0+211.520	12.31	9.61	12.03	8.06	4204.28	1947.85	2256.43
0+212.234	9.80	7.90	13.90	9.26	4212.18	1957.11	2255.07
0+220.000	0.00	40.25	49.37	216.14	4252.43	2173.25	2079.18
0+225.676	0.00	0.00	89.27	355.67	4252.43	2528.91	1723.52

0+239.117	0.63	4.65	47.12	813.90	4257.07	3342.81	914.26
0+239.831	1.22	0.66	44.24	32.63	4257.73	3375.44	882.29
0+240.000	1.36	0.22	43.59	7.40	4257.95	3382.85	875.10
0+240.541	1.82	0.86	41.69	23.09	4258.81	3405.93	852.88
0+260.000	26.16	280.05	1.83	380.53	4538.86	3786.46	752.40
0+260.117	26.04	3.05	1.77	0.21	4541.91	3786.67	755.24
0+267.732	17.15	165.76	1.41	11.86	4707.68	3798.53	909.15
0+268.422	17.31	11.90	1.63	1.05	4719.58	3799.58	920.00
0+269.117	17.72	12.17	1.76	1.18	4731.75	3800.76	930.99
0+269.120	17.72	0.05	1.76	0.01	4731.80	3800.76	931.04
0+269.746	18.18	11.24	1.79	1.11	4743.04	3801.87	941.16
0+269.804	18.22	1.05	1.79	0.10	4744.09	3801.98	942.11
0+275.307	17.59	100.03	1.64	9.11	4844.12	3811.09	1033.03
0+275.361	17.55	0.95	1.63	0.09	4845.07	3811.18	1033.89
0+276.566	17.01	19.60	1.39	2.09	4864.66	3813.27	1051.39
0+276.570	17.01	0.06	1.38	0.01	4864.73	3813.28	1051.45
0+280.000	15.97	56.57	0.73	3.63	4921.30	3816.91	1104.39
0+291.566	10.52	152.31	3.01	21.95	5073.61	3838.86	1234.75
0+292.117	10.43	5.77	2.96	1.64	5079.38	3840.50	1238.88
0+292.665	10.47	5.74	2.90	1.61	5085.12	3842.11	1243.01
0+300.000	9.34	71.31	3.65	24.68	5156.43	3866.79	1289.64
0+315.901	13.85	177.88	3.70	60.95	5334.31	3927.74	1406.57
0+316.233	13.97	4.63	3.47	1.19	5338.93	3928.93	1410.01
0+316.566	14.14	4.68	3.28	1.12	5343.61	3930.05	1413.56
0+316.566	14.14	0.00	3.28	0.00	5343.61	3930.05	1413.56
0+320.000	15.97	49.49	1.78	9.17	5393.10	3939.22	1453.89
0+323.466	16.43	53.96	1.82	6.59	5447.06	3945.80	1501.26
0+330.366	15.97	107.53	1.03	10.39	5554.59	3956.19	1598.40
0+330.366	15.97	0.00	1.03	0.00	5554.59	3956.19	1598.40
0+330.699	16.28	5.37	0.90	0.32	5559.96	3956.51	1603.44

0+331.032	16.66	5.48	0.78	0.28	5565.43	3956.79	1608.64
0+340.000	19.01	155.06	0.13	4.31	5720.49	3961.10	1759.39
0+354.267	18.23	261.13	0.38	3.73	5981.62	3964.84	2016.79
0+354.816	18.14	9.98	0.35	0.20	5991.60	3965.03	2026.57
0+355.366	18.25	10.02	0.33	0.19	6001.62	3965.22	2036.40
0+360.000	20.16	88.34	0.09	0.98	6089.96	3966.20	2123.76
0+370.366	12.95	171.62	0.51	3.11	6261.58	3969.31	2292.27
0+370.370	12.94	0.05	0.51	0.00	6261.62	3969.31	2292.31
0+371.167	12.33	10.07	0.64	0.46	6271.69	3969.77	2301.92
0+371.206	12.31	0.49	0.65	0.03	6272.18	3969.80	2302.38
0+380.000	11.29	103.07	1.95	11.58	6375.25	3981.38	2393.87
0+393.190	7.46	123.67	4.79	44.45	6498.92	4025.83	2473.09

## 5. OBRADA NA RAČUNALU

Za izradu idejnog projekta lokalne ceste korišten je AutoCAD Civil 3D koji znatno olakšava izradu programskog zadatka. U odnosu na ručno rješavanje, postupak na računalu je znatno brži i jednostavniji.

Prvi korak pri izradi idejnog rješenja je skeniranje geodetske podloge te slijedi iscrtavanje slojnica. Slojnice se iscrtavaju pomoću 3D poligonalnih linija te se postupkom triangulacije na tim linijama dobije trodimenzionalni model terena. Zatim definiramo koordinate točaka tangenti (dvije točke ta svaku tangentu) te ih definiramo na terenu. Na sjecištima tangenti definiramo kružne lukove i prijelazne krivine te na taj način definiramo horizontalni tok ceste.

Slijedi izrada uzdužnog presjeka ceste kojeg definira niveleta. Niveleta se postavlja tako da se zadovolje geometrijski i sigurnosni elementi te odvodnja. Između tangenti se ubacuje kružna krivina određenog radijusa.

Sljedeći korak je definiranje poprečnog profila prometnice. Poprečnim presjekom su definirani: poprečni nagib i širina kolnika te pokosi usjeka i nasipa.

Na temelju definiranih horizontalnih i vertikalnih elemenata te osi ceste, izrađujemo koridor. On omogućuje uvid u poprečne presjeke u svim karakterističnim i zadanim točkama osi ceste. Time smo definirali cijelu dionicu ceste.

Izlazni podaci su računalni ispisi koordinatnih točaka osi, točaka svakog poprečnog presjeka te količina zemljanih radova po presjeku.

## **6. IZLAZNI PODACI IZ PROGRAMA**

## 6.1 Koordinatni račun glavnih točaka

Tablica 2. Koordinatni račun glavnih točaka

<u>Tangent Data</u>			
Description	PT Station	Northing	Easting
Start:	0+00.000	96.934	497.381
End:	0+00.681	97.482	497.785

<u>Tangent Data</u>			
Parameter	Value	Parameter	Value
Length:	0.681	Course:	N 36° 23' 36.4943" E

<u>Spiral Point Data</u>			
Description	Station	Northing	Easting
TS:	0+00.681	97.482	497.785
SPI:		119.019	513.660
SC:	0+40.681	127.511	524.042

<u>Spiral Curve Data: clothoid</u>			
Parameter	Value	Parameter	Value

Length:	40.000	L Tan:	26.754
Radius:	80.000	S Tan:	13.413
Theta:	14° 19' 26.2016"	P:	0.831
X:	39.751	K:	19.958
Y:	3.318	A:	56.569
Chord:	39.889	Course:	N 41° 09' 56.1198" E

Curve Point Data

Description	Station	Northing	Easting
SC:	0+40.681	127.511	524.042
RP:		65.589	574.694
CS:	0+87.556	145.192	566.733

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	33° 34' 17.5348"	Type:	RIGHT
Radius:	80.000		
Length:	46.875	Tangent:	24.132
Mid-Ord:	3.409	External:	3.560
Chord:	46.207	Course:	N 67° 30' 11.4633" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	0+87.556	145.192	566.733
SPI:		146.526	580.079
ST:	1+27.556	142.520	606.532

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.000	L Tan:	26.754
Radius:	80.000	S Tan:	13.413
Theta:	14° 19' 26.2016"	P:	0.831
X:	39.751	K:	19.958
Y:	3.318	A:	56.569
Chord:	39.889	Course:	S 86° 09' 33.1932" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+27.556	142.520	606.532
End:	1+28.540	142.372	607.506

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.985	Course:	S 81° 23' 13.5678" E



Tangent Data

Description	PT Station	Northing	Easting
Start:	1+28.540	142.372	607.506
End:	1+81.612	134.701	660.020

Tangent Data

Parameter	Value	Parameter	Value
Length:	53.071	Course:	S 81° 41' 19.1192" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+81.612	134.701	660.020
End:	1+82.234	134.606	660.635

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.622	Course:	S 81° 15' 35.3162" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	1+82.234	134.606	660.635
SPI:		131.549	680.519
SC:	2+12.234	133.366	690.461

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 87° 37' 12.0123" E

Curve Point Data

Description	Station	Northing	Easting
SC:	2+12.234	133.366	690.461
RP:		177.633	682.370
CS:	2+39.117	145.584	713.959

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	34° 13' 41.6549"	Type:	LEFT
Radius:	45.000		
Length:	26.883	Tangent:	13.856
Mid-Ord:	1.993	External:	2.085
Chord:	26.485	Course:	N 62° 31' 38.9210" E

---

Spiral Point Data

Description	Station	Northing	Easting
CS:	2+39.117	145.584	713.959
SPI:		152.679	721.157
ST:	2+69.117	170.712	730.076

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 32° 40' 29.8542" E

---

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+69.117	170.712	730.076
End:	2+69.804	171.328	730.380

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.687	Course:	N 26° 18' 53.1581" E

---

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+69.804	171.328	730.380
End:	2+75.361	176.400	732.650

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.557	Course:	N 24° 06' 17.2110" E

---

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+75.361	176.400	732.650
End:	2+76.566	177.482	733.181

Tangent Data

Parameter	Value	Parameter	Value
Length:	1.206	Course:	N 26° 10' 00.0932" E

---

Spiral Point Data

Description	Station	Northing	Easting
TS:	2+76.566	177.482	733.181

SPI:		201.495	744.979
SC:	3+16.566	211.696	753.689

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.000	L Tan:	26.754
Radius:	80.000	S Tan:	13.413
Theta:	14° 19' 26.2016"	P:	0.831
X:	39.751	K:	19.958
Y:	3.318	A:	56.569
Chord:	39.889	Course:	N 30° 56' 19.7187" E

Curve Point Data

Description	Station	Northing	Easting
SC:	3+16.566	211.696	753.689
RP:		159.750	814.530
CS:	3+30.366	221.368	763.508

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 53' 01.0902"	Type:	RIGHT
Radius:	80.000		
Length:	13.800	Tangent:	6.917
Mid-Ord:	0.297	External:	0.298
Chord:	13.783	Course:	N 45° 25' 56.8399" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	3+30.366	221.368	763.508
SPI:		229.922	773.840
ST:	3+70.366	241.357	798.027

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.000	L Tan:	26.754
Radius:	80.000	S Tan:	13.413
Theta:	14° 19' 26.2016"	P:	0.831
X:	39.751	K:	19.958
Y:	3.318	A:	56.569
Chord:	39.889	Course:	N 59° 55' 33.9610" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+70.366	241.357	798.027
End:	3+71.206	241.716	798.787

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.840	Course:	N 64° 41' 53.5865" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+71.206	241.716	798.787
End:	3+93.190	250.584	818.903

Tangent Data

Parameter	Value	Parameter	Value
Length:	21.984	Course:	N 66° 12' 39.5038" E

Alignment: os 001 (2)-Left-3.000

Description:

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+00.000	98.714	494.966
End:	0+00.681	99.262	495.371

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.681	Course:	N 36° 23' 36.4943" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	0+00.681	99.262	495.371
SPI:		121.102	511.468
SC:	0+41.431	129.833	522.142

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.750	L Tan:	27.253
Radius:	83.000	S Tan:	13.662
Theta:	14° 03' 54.2823"	P:	0.832
X:	40.505	K:	20.334
Y:	3.320	A:	58.157
Chord:	40.636	Course:	N 41° 12' 34.4495" E

Curve Point Data

Description	Station	Northing	Easting
SC:	0+41.431	129.833	522.142
RP:		65.589	574.694
CS:	0+90.064	148.177	566.434

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	33° 34' 17.5348"	Type:	RIGHT
Radius:	83.000		
Length:	48.633	Tangent:	25.037
Mid-Ord:	3.537	External:	3.694
Chord:	47.940	Course:	N 67° 30' 11.4633" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	0+90.064	148.177	566.434
SPI:		149.549	580.156
ST:	1+30.814	145.486	606.981

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.750	L Tan:	27.253
Radius:	83.000	S Tan:	13.662
Theta:	14° 03' 54.2823"	P:	0.832
X:	40.505	K:	20.334
Y:	3.320	A:	58.157
Chord:	40.636	Course:	S 86° 12' 11.5229" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+30.814	145.486	606.981
End:	1+31.790	145.339	607.947

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.977	Course:	S 81° 23' 13.5678" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+31.790	145.339	607.947
End:	1+84.865	137.667	660.464

Tangent Data

Parameter	Value	Parameter	Value
Length:	53.075	Course:	S 81° 41' 19.1192" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+84.865	137.667	660.464
End:	1+85.499	137.571	661.091

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.634	Course:	S 81° 15' 35.3162" E

Curve Point Data

Description	Station	Northing	Easting
PC:	1+85.499	137.571	661.091
RP:		145.478	662.306
PT:	1+86.889	137.480	662.476

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 57' 20.8089"	Type:	LEFT
Radius:	8.000		
Length:	1.390	Tangent:	0.697
Mid-Ord:	0.030	External:	0.030
Chord:	1.388	Course:	S 86° 14' 15.7207" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+86.889	137.480	662.476
End:	2+12.735	138.028	688.317

Tangent Data

Parameter	Value	Parameter	Value
Length:	25.847	Course:	N 88° 47' 03.8749" E

Curve Point Data

Description	Station	Northing	Easting
PC:	2+12.735	138.028	688.317
RP:		146.027	688.147
PCC:	2+14.012	138.157	689.585

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 08' 34.1265"	Type:	LEFT
Radius:	8.000		
Length:	1.277	Tangent:	0.640
Mid-Ord:	0.025	External:	0.026
Chord:	1.275	Course:	N 84° 12' 46.8116" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	2+14.012	138.157	689.585
RP:		177.633	682.370

PCC: 2+37.985 149.053 710.541

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	34° 13' 41.6549"	Type:	LEFT
Radius:	40.130		
Length:	23.973	Tangent:	12.356
Mid-Ord:	1.777	External:	1.859
Chord:	23.619	Course:	N 62° 31' 38.9210" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	2+37.985	149.053	710.541
RP:		154.750	704.925
PT:	2+39.262	150.017	711.375

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 08' 34.1265"	Type:	LEFT
Radius:	8.000		
Length:	1.277	Tangent:	0.640
Mid-Ord:	0.025	External:	0.026
Chord:	1.275	Course:	N 40° 50' 31.0303" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+39.262	150.017	711.375
End:	2+65.109	170.856	726.665

Tangent Data

Parameter	Value	Parameter	Value
Length:	25.847	Course:	N 36° 16' 13.9670" E

Curve Point Data

Description	Station	Northing	Easting
PC:	2+65.109	170.856	726.665
RP:		175.589	720.216
PT:	2+66.499	172.042	727.387

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 57' 20.8089"	Type:	LEFT
Radius:	8.000		
Length:	1.390	Tangent:	0.697
Mid-Ord:	0.030	External:	0.030
Chord:	1.388	Course:	N 31° 17' 33.5626" E

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Tangent Data

Description	PT Station	Northing	Easting
Start:	2+66.499	172.042	727.387
End:	2+67.128	172.606	727.665

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.629	Course:	N 26° 18' 53.1581" E

---

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+67.128	172.606	727.665
End:	2+72.681	177.675	729.933

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.553	Course:	N 24° 06' 17.2110" E

---

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+72.681	177.675	729.933
End:	2+73.940	178.805	730.489

Tangent Data

Parameter	Value	Parameter	Value
Length:	1.259	Course:	N 26° 10' 00.0932" E

---

Spiral Point Data

Description	Station	Northing	Easting
TS:	2+73.940	178.805	730.489
SPI:		203.156	742.453
SC:	3+14.690	213.644	751.407

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.750	L Tan:	27.253
Radius:	83.000	S Tan:	13.662
Theta:	14° 03' 54.2823"	P:	0.832
X:	40.505	K:	20.334
Y:	3.320	A:	58.157
Chord:	40.636	Course:	N 30° 58' 58.0484" E

---

Curve Point Data

Description	Station	Northing	Easting
SC:	3+14.690	213.644	751.407



RP: 159.750 814.530  
 CS: 3+29.008 223.679 761.595

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 53' 01.0902"	Type:	RIGHT
Radius:	83.000		
Length:	14.318	Tangent:	7.177
Mid-Ord:	0.309	External:	0.310
Chord:	14.300	Course:	N 45° 25' 56.8399" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	3+29.008	223.679	761.595
SPI:		232.474	772.217
ST:	3+69.758	244.069	796.745

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	40.750	L Tan:	27.253
Radius:	83.000	S Tan:	13.662
Theta:	14° 03' 54.2823"	P:	0.832
X:	40.505	K:	20.334
Y:	3.320	A:	58.157
Chord:	40.636	Course:	N 59° 52' 55.6313" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+69.758	244.069	796.745
End:	3+70.637	244.445	797.540

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.880	Course:	N 64° 41' 53.5865" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+70.637	244.445	797.540
End:	3+92.661	253.329	817.693

Tangent Data

Parameter	Value	Parameter	Value
Length:	22.024	Course:	N 66° 12' 39.5038" E

Alignment: os 001 (2)-Right-3.000

Description:

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<u>Tangent Data</u>			
Description	PT Station	Northing	Easting
Start:	0+00.000	95.154	499.796
End:	0+00.681	95.702	500.200

<u>Tangent Data</u>			
Parameter	Value	Parameter	Value
Length:	0.681	Course:	N 36° 23' 36.4943" E

---

<u>Curve Point Data</u>			
Description	Station	Northing	Easting
PC:	0+00.681	95.702	500.200
RP:		90.956	506.640
PT:	0+01.547	96.370	500.751

<u>Circular Curve Data</u>			
Parameter	Value	Parameter	Value
Delta:	06° 11' 56.8406"	Type:	RIGHT
Radius:	8.000		
Length:	0.866	Tangent:	0.433
Mid-Ord:	0.012	External:	0.012
Chord:	0.865	Course:	N 39° 29' 34.9146" E

---

<u>Tangent Data</u>			
Description	PT Station	Northing	Easting
Start:	0+01.547	96.370	500.751
End:	0+38.532	123.598	525.782

<u>Tangent Data</u>			
Parameter	Value	Parameter	Value
Length:	36.986	Course:	N 42° 35' 33.3350" E

---

<u>Curve Point Data</u>			
Description	Station	Northing	Easting
PC:	0+38.532	123.598	525.782
RP:		118.184	531.671
PCC:	0+39.667	124.376	526.606

<u>Circular Curve Data</u>			
Parameter	Value	Parameter	Value
Delta:	08° 07' 29.3609"	Type:	RIGHT
Radius:	8.000		

Length: 1.134                      Tangent: 0.568  
 Mid-Ord: 0.020                    External: 0.020  
 Chord: 1.133                        Course: N 46° 39' 18.0154" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	0+39.667	124.376	526.606
RP:		65.589	574.694
PCC:	0+84.169	141.162	567.136

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	33° 34' 17.5348"	Type:	RIGHT
Radius:	75.950		
Length:	44.502	Tangent:	22.910
Mid-Ord:	3.236	External:	3.380
Chord:	43.868	Course:	N 67° 30' 11.4633" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	0+84.169	141.162	567.136
RP:		133.201	567.932
PT:	0+85.303	141.194	568.269

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	08° 07' 29.3609"	Type:	RIGHT
Radius:	8.000		
Length:	1.134	Tangent:	0.568
Mid-Ord:	0.020	External:	0.020
Chord:	1.133	Course:	N 88° 21' 04.9112" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+85.303	141.194	568.269
End:	1+22.289	139.637	605.222

Tangent Data

Parameter	Value	Parameter	Value
Length:	36.986	Course:	S 87° 35' 10.4084" E

Curve Point Data

Description	Station	Northing	Easting
PC:	1+22.289	139.637	605.222
RP:		131.644	604.885

PT: 1+23.154 139.553 606.083

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	06° 11' 56.8406"	Type:	RIGHT
Radius:	8.000		
Length:	0.866	Tangent:	0.433
Mid-Ord:	0.012	External:	0.012
Chord:	0.865	Course:	S 84° 29' 11.9881" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+23.154	139.553	606.083
End:	1+24.147	139.405	607.064

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.993	Course:	S 81° 23' 13.5678" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+24.147	139.405	607.064
End:	1+77.215	131.734	659.575

Tangent Data

Parameter	Value	Parameter	Value
Length:	53.068	Course:	S 81° 41' 19.1192" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+77.215	131.734	659.575
End:	1+77.826	131.641	660.179

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.611	Course:	S 81° 15' 35.3162" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	1+77.826	131.641	660.179
SPI:		128.507	680.562
SC:	2+08.826	130.415	691.001

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 87° 43' 22.2970" E

Curve Point Data

Description	Station	Northing	Easting
SC:	2+08.826	130.415	691.001
RP:		177.633	682.370
CS:	2+37.501	143.448	716.065

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	34° 13' 41.6549"	Type:	LEFT
Radius:	48.000		
Length:	28.675	Tangent:	14.780
Mid-Ord:	2.125	External:	2.224
Chord:	28.250	Course:	N 62° 31' 38.9210" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	2+37.501	143.448	716.065
SPI:		150.897	723.623
ST:	2+68.501	169.382	732.765

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 32° 46' 40.1389" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+68.501	169.382	732.765
End:	2+69.246	170.050	733.095

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.745	Course:	N 26° 18' 53.1581" E

Tangent Data

Description	PT Station	Northing	Easting
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Start: 2+69.246 170.050 733.095  
 End: 2+74.806 175.126 735.366

Tangent Data

Parameter	Value	Parameter	Value
Length:	5.561	Course:	N 24° 06' 17.2110" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+74.806	175.126	735.366
End:	2+75.958	176.159	735.874

Tangent Data

Parameter	Value	Parameter	Value
Length:	1.152	Course:	N 26° 10' 00.0932" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	2+75.958	176.159	735.874
SPI:		185.088	740.261
SC:	2+90.853	189.449	742.597

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	14.895	L Tan:	9.930
Radius:	210.333	S Tan:	4.965
Theta:	02° 01' 43.2114"	P:	0.044
X:	14.893	K:	7.447
Y:	0.176	A:	55.972
Chord:	14.894	Course:	N 26° 50' 08.6754" E

Curve Point Data

Description	Station	Northing	Easting
SC:	2+90.853	189.449	742.597
RP:		185.671	749.649
PT:	2+91.939	190.369	743.174

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	07° 46' 46.4219"	Type:	RIGHT
Radius:	8.000		
Length:	1.086	Tangent:	0.544
Mid-Ord:	0.018	External:	0.018
Chord:	1.085	Course:	N 32° 04' 14.8013" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+91.939	190.369	743.174
End:	3+14.424	208.569	756.378

Tangent Data

Parameter	Value	Parameter	Value
Length:	22.486	Course:	N 35° 57' 38.0122" E

Curve Point Data

Description	Station	Northing	Easting
PC:	3+14.424	208.569	756.378
RP:		203.871	762.853
PCC:	3+15.057	209.066	756.769

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	04° 31' 48.2825"	Type:	RIGHT
Radius:	8.000		
Length:	0.633	Tangent:	0.316
Mid-Ord:	0.006	External:	0.006
Chord:	0.632	Course:	N 38° 13' 32.1535" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	3+15.057	209.066	756.769
RP:		159.750	814.530
PCC:	3+28.158	218.248	766.091

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 53' 01.0902"	Type:	RIGHT
Radius:	75.950		
Length:	13.102	Tangent:	6.567
Mid-Ord:	0.282	External:	0.283
Chord:	13.085	Course:	N 45° 25' 56.8399" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	3+28.158	218.248	766.091
RP:		212.087	771.193
PT:	3+28.791	218.632	766.594

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	04° 31' 48.2825"	Type:	RIGHT
Radius:	8.000		

Length:	0.633	Tangent:	0.316
Mid-Ord:	0.006	External:	0.006
Chord:	0.632	Course:	N 52° 38' 21.5262" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+28.791	218.632	766.594
End:	3+51.277	231.560	784.992

Tangent Data

Parameter	Value	Parameter	Value
Length:	22.486	Course:	N 54° 54' 15.6675" E

Curve Point Data

Description	Station	Northing	Easting
PC:	3+51.277	231.560	784.992
RP:		225.015	789.591
CS:	3+52.363	232.123	785.920

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	07° 46' 46.4219"	Type:	RIGHT
Radius:	8.000		
Length:	1.086	Tangent:	0.544
Mid-Ord:	0.018	External:	0.018
Chord:	1.085	Course:	N 58° 47' 38.8785" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	3+52.363	232.123	785.920
SPI:		234.393	790.316
ST:	3+67.257	238.645	799.310

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	14.895	L Tan:	9.930
Radius:	210.333	S Tan:	4.965
Theta:	02° 01' 43.2114"	P:	0.044
X:	14.893	K:	7.447
Y:	0.176	A:	55.972
Chord:	14.894	Course:	N 64° 01' 45.0043" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	3+67.257	238.645	799.310



End: 3+68.058 238.987 800.033

Tangent Data

Parameter	Value	Parameter	Value
Length:	0.800	Course:	N 64° 41' 53.5865" E

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Tangent Data

Description	PT Station	Northing	Easting
Start:	3+68.058	238.987	800.033
End:	3+90.002	247.838	820.113

Tangent Data

Parameter	Value	Parameter	Value
Length:	21.944	Course:	N 66° 12' 39.5038" E

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## 6.2 Koordinatni račun detaljnih točaka osi

Tablica 3. Koordinatni račun detaljnih točaka osi

Alignment Name: os 001 (2)

Description:

Station Range: Start: 0+000.00, End: 39+319.00

Station Increment: 20.00

<b>Station</b>	<b>Northing</b>	<b>Easting</b>	<b>Tangential Direction</b>
0+000.00	96.9341m	497.3814m	N36° 23' 36"E
0+020.00	112.8053m	509.5462m	N39° 44' 05"E
0+040.00	127.0777m	523.5165m	N50° 14' 01"E
0+060.00	137.8276m	540.3202m	N64° 33' 13"E
0+080.00	144.0860m	559.2610m	N78° 52' 39"E
0+100.00	145.5641m	579.1623m	S88° 11' 06"E
0+120.00	143.6289m	599.0581m	S81° 53' 54"E

0+140.00	140.7156m	618.8448m	S81° 41' 19"E
0+160.00	137.8246m	638.6347m	S81° 41' 19"E
0+180.00	134.9335m	658.4246m	S81° 41' 19"E
0+200.00	132.5936m	678.2753m	S87° 57' 27"E
0+220.00	135.4132m	697.9422m	N69° 45' 14"E
0+240.00	146.2103m	714.5821m	N44° 18' 20"E
0+260.00	162.5823m	725.9505m	N28° 04' 43"E
0+280.00	180.5631m	734.6973m	N26° 16' 20"E
0+300.00	198.2035m	744.1087m	N31° 04' 58"E
0+320.00	214.2584m	755.9740m	N42° 57' 00"E
0+340.00	227.0891m	771.2535m	N56° 26' 35"E
0+360.00	236.8741m	788.6807m	N63° 44' 10"E
0+380.00	245.2630m	806.8334m	N66° 12' 40"E

### 6.3 Račun kota kolnika

Tablica 4. Račun kota kolnika

Corridor Name: KORIDOR0

Description:

Base Alignment Name: os 001 (2)

Station Range: Start: 0+000.00, End: 0+393.19

CHAINAGE 0+000.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	486.8980	104.6612	262.4036	-13.023m	Daylight
2	493.6450	99.6881	270.7853	-4.642m	Hinge
3	493.6458	99.6875	270.5853	-4.641m	EPS_Sub
4	494.4499	99.0948	270.8253	-3.642m	Back_Curb
5	494.5707	99.0058	270.8253	-3.492m	Top_Curb
6	494.6042	98.9811	270.6003	-3.450m	Flowline_Gutter
7	494.9665	98.7141	270.6273	-3.000m	ETW
8	494.9665	98.7141	270.2273	-3.000m	ETW_SubBase
9	499.7962	95.1541	270.4773	3.000m	Flange
10	499.7962	95.1541	270.0773	3.000m	ETW_SubBase
11	500.1585	94.8871	270.4503	3.450m	Flowline_Gutter
12	500.1920	94.8624	270.6753	3.492m	Top_Curb

13	500.3128	94.7734	270.6753	3.642m	Back_Curb
14	501.1169	94.1806	270.4353	4.641m	EPS_Sub
15	501.1178	94.1800	270.6353	4.642m	Hinge_Cut
16	502.2167	93.3700	273.3658	6.007m	Daylight

CHAINAGE 0+020.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	503.0499	118.2053	265.9998	-8.448m	Daylight
2	505.9772	115.7720	269.8064	-4.641m	Hinge
3	505.9780	115.7713	269.6064	-4.640m	EPS_Sub
4	506.7462	115.1327	269.8464	-3.641m	Back_Curb
5	506.8616	115.0368	269.8464	-3.491m	Top_Curb
6	506.8937	115.0102	269.6214	-3.449m	Flowline_Gutter
7	507.2397	114.7225	269.6484	-2.999m	ETW
8	507.2397	114.7225	269.2484	-2.999m	ETW_SubBase
9	513.1249	109.8305	269.4570	4.654m	Flange
10	513.1249	109.8305	269.0570	4.654m	ETW_SubBase
11	513.4710	109.5428	269.4300	5.104m	Flowline_Gutter
12	513.5031	109.5162	269.6550	5.145m	Top_Curb
13	513.6184	109.4203	269.6550	5.295m	Back_Curb
14	514.3867	108.7817	269.4150	6.294m	EPS_Sub
15	514.3874	108.7811	269.6150	6.295m	Hinge_Cut
16	516.0784	107.3755	274.0128	8.494m	Daylight

CHAINAGE 0+040.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	519.1255	132.3544	266.6045	-6.865m	Daylight
2	520.5474	130.6457	268.8274	-4.642m	Hinge
3	520.5480	130.6449	268.6274	-4.641m	EPS_Sub
4	521.1871	129.8770	268.8674	-3.642m	Back_Curb
5	521.2830	129.7617	268.8674	-3.492m	Top_Curb
6	521.3097	129.7297	268.6424	-3.450m	Flowline_Gutter
7	521.5975	129.3838	268.6694	-3.000m	ETW
8	521.5975	129.3838	268.2694	-3.000m	ETW_SubBase
9	526.1222	123.9466	268.4926	4.073m	Flange
10	526.1222	123.9466	268.0926	4.073m	ETW_SubBase
11	526.4100	123.6007	268.4656	4.523m	Flowline_Gutter
12	526.4367	123.5687	268.6906	4.565m	Top_Curb
13	526.5326	123.4534	268.6906	4.715m	Back_Curb
14	527.1716	122.6855	268.4506	5.714m	EPS_Sub
15	527.1723	122.6847	268.6506	5.715m	Hinge_Cut
16	528.0128	121.6747	271.2785	7.029m	Daylight

CHAINAGE 0+060.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	536.7588	145.3121	264.2016	-8.289m	Daylight
2	538.3258	142.0190	267.8485	-4.642m	Hinge
3	538.3262	142.0181	267.6485	-4.641m	EPS_Sub
4	538.7555	141.1160	267.8885	-3.642m	Back_Curb
5	538.8199	140.9805	267.8885	-3.492m	Top_Curb
6	538.8378	140.9429	267.6635	-3.450m	Flowline_Gutter
7	539.0312	140.5365	267.2905	-3.000m	ETW_SubBase
8	539.0312	140.5365	267.6905	-3.000m	Flange
9	542.0603	134.1705	267.5142	4.050m	Flange
10	542.0603	134.1705	267.1142	4.050m	ETW_SubBase
11	542.2537	133.7641	267.4872	4.500m	Flowline_Gutter
12	542.2716	133.7265	267.7122	4.542m	Top_Curb
13	542.3360	133.5910	267.7122	4.692m	Back_Curb
14	542.7653	132.6889	267.4722	5.691m	EPS_Sub
15	542.7657	132.6880	267.6722	5.692m	EPS
16	542.9337	132.3350	267.2812	6.083m	Daylight

CHAINAGE 0+080.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	557.3394	153.8602	261.5499	-9.961m	Daylight
2	558.3655	148.6405	266.8695	-4.642m	Hinge
3	558.3657	148.6395	266.6695	-4.641m	EPS_Sub
4	558.5585	147.6593	266.9095	-3.642m	Back_Curb
5	558.5874	147.5121	266.9095	-3.492m	Top_Curb
6	558.5954	147.4712	266.6845	-3.450m	Flowline_Gutter
7	558.6822	147.0296	266.3115	-3.000m	ETW_SubBase
8	558.6822	147.0296	266.7115	-3.000m	Flange
9	560.0422	140.1120	266.5353	4.050m	Flange
10	560.0422	140.1120	266.1353	4.050m	ETW_SubBase
11	560.1291	139.6705	266.5083	4.500m	Flowline_Gutter
12	560.1371	139.6296	266.7333	4.542m	Top_Curb
13	560.1660	139.4824	266.7333	4.692m	Back_Curb
14	560.3587	138.5021	266.4933	5.691m	EPS_Sub
15	560.3589	138.5012	266.6933	5.692m	EPS
16	560.4316	138.1317	266.3167	6.068m	Daylight

CHAINAGE 0+100.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	579.4835	155.7008	260.3899	-10.142m	Daylight
2	579.3093	150.2029	265.8906	-4.641m	Hinge
3	579.3092	150.2019	265.6906	-4.640m	EPS_Sub
4	579.2776	149.2034	265.9306	-3.641m	Back_Curb
5	579.2728	149.0535	265.9306	-3.491m	Top_Curb
6	579.2715	149.0118	265.7056	-3.449m	Flowline_Gutter
7	579.2573	148.5620	265.7326	-2.999m	ETW
8	579.2573	148.5620	265.3326	-2.999m	ETW_SubBase
9	579.0094	140.7415	265.5369	4.825m	Flange
10	579.0094	140.7415	265.1369	4.825m	ETW_SubBase
11	578.9952	140.2917	265.5099	5.275m	Flowline_Gutter
12	578.9939	140.2500	265.7349	5.317m	Top_Curb
13	578.9891	140.1001	265.7349	5.467m	Back_Curb
14	578.9575	139.1016	265.4949	6.466m	EPS_Sub
15	578.9574	139.1006	265.6949	6.467m	Hinge_Cut
16	578.9561	139.0585	265.7791	6.509m	Daylight

CHAINAGE 0+120.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	600.0621	150.6817	262.4294	-7.124m	Daylight
2	599.7123	148.2243	264.9116	-4.642m	Hinge
3	599.7121	148.2233	264.7116	-4.641m	EPS_Sub
4	599.5714	147.2343	264.9516	-3.642m	Back_Curb
5	599.5502	147.0858	264.9516	-3.492m	Top_Curb
6	599.5443	147.0445	264.7266	-3.450m	Flowline_Gutter
7	599.4809	146.5990	264.7536	-3.000m	ETW
8	599.4809	146.5990	264.3536	-3.000m	ETW_SubBase
9	598.5300	139.9186	264.5849	3.748m	Flange
10	598.5300	139.9186	264.1849	3.748m	ETW_SubBase
11	598.4665	139.4731	264.5579	4.198m	Flowline_Gutter
12	598.4607	139.4318	264.7829	4.239m	Top_Curb
13	598.4395	139.2833	264.7829	4.389m	Back_Curb
14	598.2987	138.2943	264.5429	5.388m	EPS_Sub
15	598.2986	138.2933	264.7429	5.389m	Hinge_Cut
16	598.1673	137.3712	266.6056	6.321m	Daylight

CHAINAGE 0+140.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	619.5519	145.5560	264.4327	-4.892m	Daylight
2	619.5157	145.3086	263.9326	-4.642m	EPS
3	619.5156	145.3076	263.7326	-4.641m	EPS_Sub
4	619.3712	144.3191	263.9726	-3.642m	Back_Curb
5	619.3495	144.1707	263.9726	-3.492m	Top_Curb
6	619.3435	144.1294	263.7476	-3.450m	Flowline_Gutter
7	619.2784	143.6841	263.7746	-3.000m	ETW
8	619.2784	143.6841	263.3746	-3.000m	ETW_SubBase
9	618.4111	137.7471	263.2246	3.000m	ETW_SubBase
10	618.4111	137.7471	263.6246	3.000m	ETW
11	618.3461	137.3019	263.5976	3.450m	Flowline_Gutter
12	618.3400	137.2606	263.8226	3.492m	Top_Curb
13	618.3183	137.1122	263.8226	3.642m	Back_Curb
14	618.1739	136.1237	263.5826	4.641m	EPS_Sub
15	618.1738	136.1227	263.7826	4.642m	Hinge_Cut
16	617.8508	133.9118	268.2513	6.876m	Daylight

CHAINAGE 0+160.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	639.4532	143.4272	264.9429	-5.662m	Daylight
2	639.3057	142.4175	262.9021	-4.642m	EPS
3	639.3055	142.4165	262.7021	-4.641m	EPS_Sub
4	639.1611	141.4280	262.9421	-3.642m	Back_Curb
5	639.1394	141.2796	262.9421	-3.492m	Top_Curb
6	639.1334	141.2383	262.7171	-3.450m	Flowline_Gutter
7	639.0684	140.7931	262.7441	-3.000m	ETW
8	639.0684	140.7931	262.3441	-3.000m	ETW_SubBase
9	638.2010	134.8561	262.1941	3.000m	ETW_SubBase
10	638.2010	134.8561	262.5941	3.000m	ETW
11	638.1360	134.4108	262.5671	3.450m	Flowline_Gutter
12	638.1300	134.3696	262.7921	3.492m	Top_Curb
13	638.1083	134.2211	262.7921	3.642m	Back_Curb
14	637.9639	133.2326	262.5521	4.641m	EPS_Sub
15	637.9637	133.2316	262.7521	4.642m	Hinge_Cut
16	637.4531	129.7362	269.8172	8.174m	Daylight

CHAINAGE 0+180.00



<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	659.2533	140.6060	263.9577	-5.733m	Daylight
2	659.0956	139.5265	261.7759	-4.642m	EPS
3	659.0955	139.5255	261.5759	-4.641m	EPS_Sub
4	658.9511	138.5370	261.8159	-3.642m	Back_Curb
5	658.9294	138.3886	261.8159	-3.492m	Top_Curb
6	658.9234	138.3473	261.5909	-3.450m	Flowline_Gutter
7	658.8583	137.9020	261.6179	-3.000m	ETW
8	658.8583	137.9020	261.2179	-3.000m	ETW_SubBase
9	657.9910	131.9650	261.0679	3.000m	ETW_SubBase
10	657.9910	131.9650	261.4679	3.000m	ETW
11	657.9259	131.5198	261.4409	3.450m	Flowline_Gutter
12	657.9199	131.4785	261.6659	3.492m	Top_Curb
13	657.8982	131.3301	261.6659	3.642m	Back_Curb
14	657.7538	130.3416	261.4259	4.641m	EPS_Sub
15	657.7537	130.3406	261.6259	4.642m	Hinge_Cut
16	657.1219	126.0159	270.3671	9.012m	Daylight

CHAINAGE 0+200.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	678.6202	142.2650	257.8481	-9.678m	Daylight
2	678.5202	139.4599	260.6550	-6.871m	Hinge
3	678.5201	139.4589	260.4550	-6.870m	EPS_Sub
4	678.4845	138.4605	260.6950	-5.871m	Back_Curb
5	678.4792	138.3106	260.6950	-5.721m	Top_Curb
6	678.4777	138.2689	260.4700	-5.679m	Flowline_Gutter
7	678.4617	137.8192	260.4970	-5.229m	ETW
8	678.4617	137.8192	260.0970	-5.229m	ETW_SubBase
9	678.1684	129.5955	260.2912	3.000m	Flange
10	678.1684	129.5955	259.8912	3.000m	ETW_SubBase
11	678.1523	129.1458	260.2642	3.450m	Flowline_Gutter
12	678.1508	129.1041	260.4892	3.492m	Top_Curb
13	678.1455	128.9542	260.4892	3.642m	Back_Curb
14	678.1099	127.9558	260.2492	4.641m	EPS_Sub
15	678.1099	127.9549	260.4492	4.642m	Hinge_Cut
16	678.0322	125.7762	264.8093	6.822m	Daylight

CHAINAGE 0+220.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	693.1793	148.3264	252.2174	-13.764m	Daylight
2	695.6889	141.5226	259.4693	-6.512m	Hinge
3	695.6892	141.5217	259.2693	-6.511m	EPS_Sub
4	696.0349	140.5844	259.5093	-5.512m	Back_Curb
5	696.0868	140.4436	259.5093	-5.362m	Top_Curb
6	696.1012	140.4045	259.2843	-5.320m	Flowline_Gutter
7	696.2570	139.9823	258.9113	-4.870m	ETW_SubBase
8	696.2570	139.9823	259.3113	-4.870m	Flange
9	698.9804	132.5986	259.1146	3.000m	Flange
10	698.9804	132.5986	258.7146	3.000m	ETW_SubBase
11	699.1361	132.1764	259.0876	3.450m	Flowline_Gutter
12	699.1506	132.1373	259.3126	3.492m	Top_Curb
13	699.2025	131.9965	259.3126	3.642m	Back_Curb
14	699.5482	131.0592	259.0726	4.641m	EPS_Sub
15	699.5485	131.0583	259.2726	4.642m	EPS
16	699.8016	130.3722	258.5413	5.373m	Daylight

CHAINAGE 0+240.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	702.9321	157.5812	248.5569	-16.279m	Daylight
2	709.8998	150.7804	258.2934	-6.543m	Hinge
3	709.9005	150.7797	258.0934	-6.542m	EPS_Sub
4	710.6154	150.0819	258.3334	-5.543m	Back_Curb
5	710.7227	149.9772	258.3334	-5.393m	Top_Curb
6	710.7526	149.9480	258.1084	-5.351m	Flowline_Gutter
7	711.0746	149.6337	258.1354	-4.901m	ETW
8	711.0746	149.6337	257.7354	-4.901m	ETW_SubBase
9	716.7291	144.1147	257.9379	3.000m	Flange
10	716.7291	144.1147	257.5379	3.000m	ETW_SubBase
11	717.0511	143.8004	257.9109	3.450m	Flowline_Gutter
12	717.0809	143.7712	258.1359	3.492m	Top_Curb
13	717.1883	143.6665	258.1359	3.642m	Back_Curb
14	717.9032	142.9687	257.8959	4.641m	EPS_Sub
15	717.9039	142.9680	258.0959	4.642m	Hinge_Cut
16	718.2378	142.6421	259.0290	5.108m	Daylight

CHAINAGE 0+260.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	719.1261	166.2229	255.3729	-7.735m	Daylight
2	720.6528	165.4085	257.1032	-6.005m	Hinge
3	720.6536	165.4080	256.9032	-6.004m	EPS_Sub
4	721.5351	164.9378	257.1432	-5.005m	Back_Curb
5	721.6674	164.8672	257.1432	-4.855m	Top_Curb
6	721.7042	164.8476	256.9182	-4.813m	Flowline_Gutter
7	722.1012	164.6358	256.9452	-4.363m	ETW
8	722.1012	164.6358	256.5452	-4.363m	ETW_SubBase
9	728.5969	161.1705	256.7612	2.999m	Flange
10	728.5969	161.1705	256.3612	2.999m	ETW_SubBase
11	728.9940	160.9587	256.7342	3.449m	Flowline_Gutter
12	729.0308	160.9391	256.9592	3.491m	Top_Curb
13	729.1631	160.8685	256.9592	3.641m	Back_Curb
14	730.0445	160.3982	256.7192	4.640m	EPS_Sub
15	730.0454	160.3978	256.9192	4.641m	Hinge_Cut
16	732.0458	159.3306	261.4537	6.908m	Daylight

CHAINAGE 0+280.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	729.1444	183.3042	254.3400	-6.193m	Daylight
2	730.5365	182.6170	255.8924	-4.640m	Hinge
3	730.5374	182.6166	255.6924	-4.639m	EPS_Sub
4	731.4332	182.1744	255.9324	-3.640m	Back_Curb
5	731.5677	182.1080	255.9324	-3.490m	Top_Curb
6	731.6051	182.0895	255.7074	-3.448m	Flowline_Gutter
7	732.0086	181.8903	255.7344	-2.998m	ETW
8	732.0086	181.8903	255.3344	-2.998m	ETW_SubBase
9	737.3874	179.2352	255.5845	3.000m	Flange
10	737.3874	179.2352	255.1845	3.000m	ETW_SubBase
11	737.7909	179.0360	255.5575	3.450m	Flowline_Gutter
12	737.8283	179.0176	255.7825	3.492m	Top_Curb
13	737.9628	178.9512	255.7825	3.642m	Back_Curb
14	738.8586	178.5090	255.5425	4.641m	EPS_Sub
15	738.8595	178.5085	255.7425	4.642m	Hinge_Cut
16	740.2182	177.8378	258.7729	6.157m	Daylight

CHAINAGE 0+300.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	738.0461	201.8582	252.2785	-7.079m	Daylight
2	740.1334	200.5999	254.7158	-4.642m	Hinge
3	740.1343	200.5994	254.5158	-4.641m	EPS_Sub
4	740.9898	200.0836	254.7558	-3.642m	Back_Curb
5	741.1183	200.0062	254.7558	-3.492m	Top_Curb
6	741.1540	199.9846	254.5308	-3.450m	Flowline_Gutter
7	741.5394	199.7523	254.5578	-3.000m	ETW
8	741.5394	199.7523	254.1578	-3.000m	ETW_SubBase
9	747.4126	196.2118	254.3864	3.858m	Flange
10	747.4126	196.2118	253.9864	3.858m	ETW_SubBase
11	747.7980	195.9794	254.3594	4.308m	Flowline_Gutter
12	747.8337	195.9579	254.5844	4.350m	Top_Curb
13	747.9622	195.8805	254.5844	4.500m	Back_Curb
14	748.8178	195.3647	254.3444	5.499m	EPS_Sub
15	748.8186	195.3642	254.5444	5.500m	Hinge_Cut
16	749.9613	194.6753	257.2129	6.834m	Daylight

CHAINAGE 0+320.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	751.4656	218.4552	252.0214	-6.159m	Daylight
2	752.5765	217.4211	253.5391	-4.642m	Hinge
3	752.5772	217.4204	253.3391	-4.641m	EPS_Sub
4	753.3084	216.7397	253.5791	-3.642m	Back_Curb
5	753.4182	216.6375	253.5791	-3.492m	Top_Curb
6	753.4488	216.6091	253.3541	-3.450m	Flowline_Gutter
7	753.7781	216.3025	253.3811	-3.000m	ETW
8	753.7781	216.3025	252.9811	-3.000m	ETW_SubBase
9	758.9384	211.4989	253.2049	4.050m	Flange
10	758.9384	211.4989	252.8049	4.050m	ETW_SubBase
11	759.2678	211.1923	253.1779	4.500m	Flowline_Gutter
12	759.2983	211.1639	253.4029	4.542m	Top_Curb
13	759.4081	211.0617	253.4029	4.692m	Back_Curb
14	760.1393	210.3810	253.1629	5.691m	EPS_Sub
15	760.1400	210.3803	253.3629	5.692m	Hinge_Cut
16	761.3954	209.2117	256.7932	7.407m	Daylight

CHAINAGE 0+340.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	768.3853	231.4131	251.8156	-5.189m	Daylight
2	768.6876	230.9575	252.3624	-4.642m	Hinge
3	768.6881	230.9566	252.1624	-4.641m	EPS_Sub
4	769.2404	230.1241	252.4024	-3.642m	Back_Curb
5	769.3233	229.9991	252.4024	-3.492m	Top_Curb
6	769.3463	229.9644	252.1774	-3.450m	Flowline_Gutter
7	769.5951	229.5894	252.2044	-3.000m	ETW
8	769.5951	229.5894	251.8044	-3.000m	ETW_SubBase
9	773.5983	223.5542	252.0234	4.242m	Flange
10	773.5983	223.5542	251.6234	4.242m	ETW_SubBase
11	773.8471	223.1792	251.9964	4.692m	Flowline_Gutter
12	773.8701	223.1444	252.2214	4.734m	Top_Curb
13	773.9530	223.0194	252.2214	4.884m	Back_Curb
14	774.5052	222.1869	251.9814	5.883m	EPS_Sub
15	774.5058	222.1861	252.1814	5.884m	Hinge_Cut
16	775.3362	220.9342	255.1858	7.386m	Daylight

CHAINAGE 0+360.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	786.4036	241.4887	250.6809	-5.146m	Daylight
2	786.6270	241.0360	251.1857	-4.641m	Hinge
3	786.6274	241.0351	250.9857	-4.640m	EPS_Sub
4	787.0695	240.1393	251.2257	-3.641m	Back_Curb
5	787.1359	240.0047	251.2257	-3.491m	Top_Curb
6	787.1543	239.9674	251.0007	-3.449m	Flowline_Gutter
7	787.3535	239.5638	251.0277	-2.999m	ETW
8	787.3535	239.5638	250.6277	-2.999m	ETW_SubBase
9	790.0082	234.1838	250.8777	3.000m	Flange
10	790.0082	234.1838	250.4777	3.000m	ETW_SubBase
11	790.2073	233.7803	250.8507	3.450m	Flowline_Gutter
12	790.2258	233.7429	251.0757	3.492m	Top_Curb
13	790.2921	233.6084	251.0757	3.642m	Back_Curb
14	790.7342	232.7125	250.8357	4.641m	EPS_Sub
15	790.7346	232.7116	251.0357	4.642m	Hinge_Cut
16	791.5192	231.1217	254.5817	6.415m	Daylight

CHAINAGE 0+380.00

<b>POINT</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>OFFSET</b>	<b>STRING CUT</b>
1	804.2427	251.1400	248.2280	-6.423m	Daylight
2	804.9611	249.5103	250.0090	-4.642m	Hinge
3	804.9615	249.5094	249.8090	-4.641m	EPS_Sub
4	805.3645	248.5953	250.0490	-3.642m	Back_Curb
5	805.4250	248.4580	250.0490	-3.492m	Top_Curb
6	805.4418	248.4199	249.8240	-3.450m	Flowline_Gutter
7	805.6233	248.0081	249.8510	-3.000m	ETW
8	805.6233	248.0081	249.4510	-3.000m	ETW_SubBase
9	808.0435	242.5179	249.7010	3.000m	Flange
10	808.0435	242.5179	249.3010	3.000m	ETW_SubBase
11	808.2250	242.1061	249.6740	3.450m	Flowline_Gutter
12	808.2419	242.0680	249.8990	3.492m	Top_Curb
13	808.3024	241.9307	249.8990	3.642m	Back_Curb
14	808.7053	241.0166	249.6590	4.641m	EPS_Sub
15	808.7057	241.0157	249.8590	4.642m	Hinge_Cut
16	809.2382	239.8077	252.4993	5.962m	Daylight

#### 6.4 Vertikalni tok trase

Tablica 5. Vertikalni tok trase

Vertical Alignment: NIVELETA

Description:

Station Range: Start: 0+000.00, End: 39+319.00

<b>PVI</b>	<b>Station</b>	<b>Grade Out</b>	<b>Curve Length</b>
0.00	0+000.00	-4.89%	
1.00	0+159.89	-5.88%	41.344m
<b>Vertical Curve Information:(crest curve)</b> <hr/> PVC Station:      0+139.21    Elevation:            263.738m PVI Station:        0+159.89    Elevation:            262.726m PVT Station:        0+180.56    Elevation:            261.510m High Point:          0+139.21    Elevation:            263.738m Grade in:            -4.89%    Grade out:            -5.88% Change:              0.99%    K: Curve Length:      41.344m			

	Passing Distance:	Stopping Distance:
2.00	0+393.19	

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