

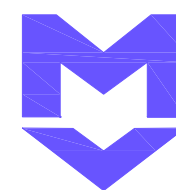
ЕВРОПЕЙСКИ СЪЮЗ
Европейски фонд
за регионално развитие



ОПЕРАТИВНА ПРОГРАМА
ТРАНСПОРТ 2007-2013
По-близо, по-близки...



НАЦИОНАЛНА
СТРАТЕГИЧЕСКА
РЕФЕРЕНТНА РАМКА
2007 – 2013



МЕТРО СОФИЯ



ТРЕТИ МЕТРОДИАМЕТЪР

МЕТРОТРАСЕ:

Автостанция Изток (МС1)

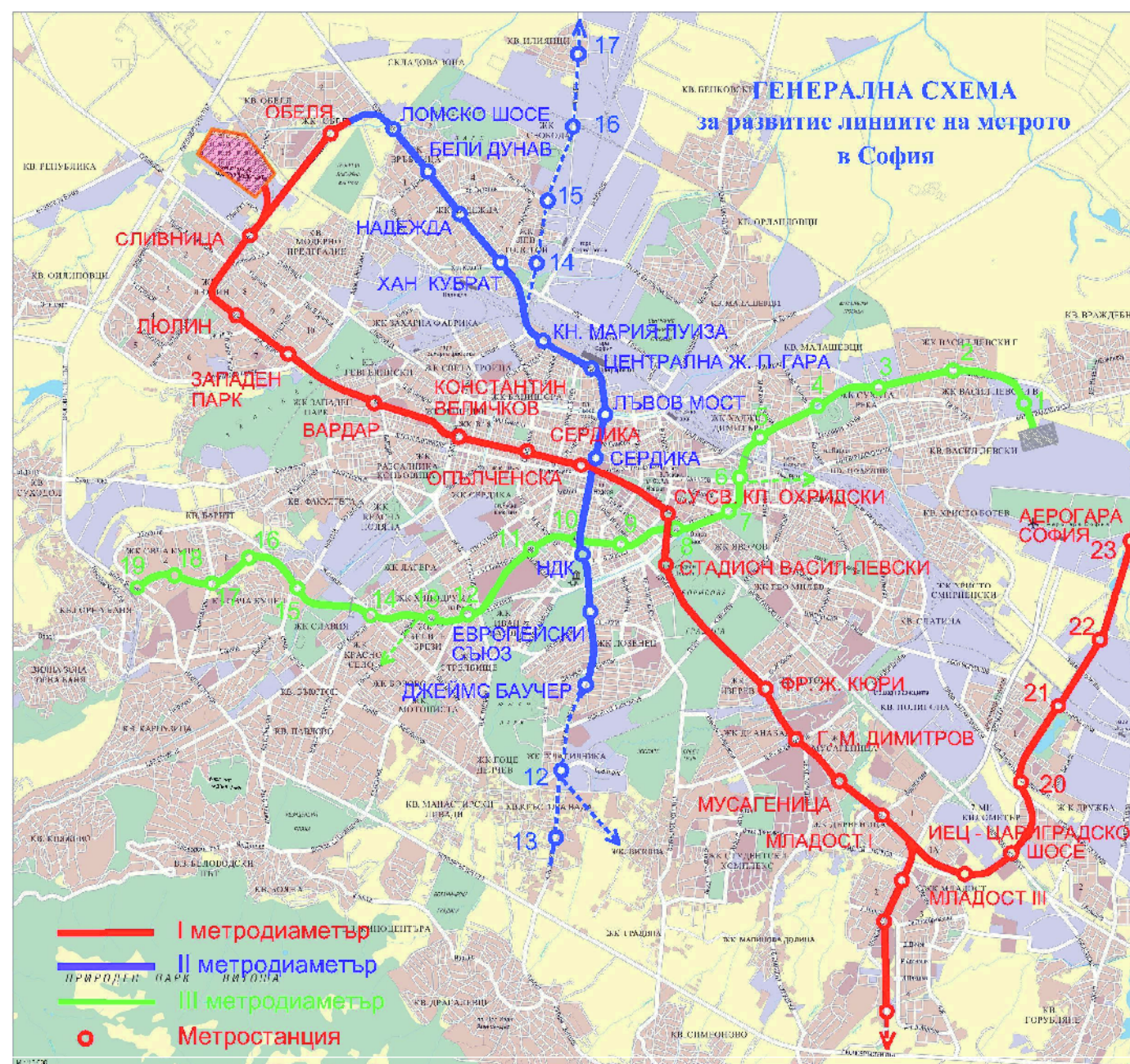
Крайния (МС 19)

ФАЗА: ИДЕЕН ПРОЕКТ

ЧАСТ: ТРАСЕ, ПРОФИЛ и ГЕОДЕЗИЯ

Инвеститор:
МЕТРОПОЛИТЕН ЕАД

Проектант:
МЕТРОПРОЕКТ Прага А.Д.



**МЕТРО СОФИЯ
ТРЕТИ МЕТРОДИАМЕТЪР**

МЕТРОТРАСЕ: Автостанция Изток (МС1)– Крайния (МС 19)

ФАЗА: ИДЕЕН ПРОЕКТ

ЧАСТ: ТРАСЕ, ПРОФИЛ и ГЕОДЕЗИЯ

ТОМ 1

ПРОЕКТАНТИ:
/ инж.Vladimír Pátek/

УПРАВИТЕЛ:
/ инж. Jiří Úlehla /

СОФИЯ
март 2013г.

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ОБЯСНИТЕЛНА ЗАПИСКА

Относно: Трасе, профил и геодезия

Обект: **МЕТРОТРАСЕ: от МС 1 (Автостанция Изток) до МС 19 - Крайния**

Новото трасе на Трети метродиаметър е с дължина 15828 m и е проектирано като самостоятелна система с параметри на леко метро, без релсова връзка със съществуващите трасета на метрото. Станционирането на трасето започва в източния край на първата стрелка в депото, което е част от този проект. Всички станции имат страничен перон и цялото трасе е проектирано за осово разстояние между осите на коловозите 3,700 m.

Между двете съществуващи трасета на метрото е осигурен трансфер в станциите МС10 НДК (Втори метродиаметър) и в МС 8 Орлов мост (Първи метродиаметър). Трасето обслужва районите в източната част (ж.к. “Васил Левски”) и, минавайки през централната част на града, ги свързва с градските части в западната част на града (ж.к. “Овча купел”).

Обръщане на подвижните състави е осигурено в станциите МС1 “Автостанция Изток” с единично съединение и в станция МС19 “Крайния” с двойна коловозна връзка 1:11-300 за междуюсно разстояние 4,75 m на бетонни траверси. Освен това на трасето до станциите МС16 “Президент Линкълн – Зеленика” и МС4 “Васил Кунчев” са поместени съединения за евентуална частична експлоатация и манипулационно единично съединение до станция МС10 НДК. Коловозните съединения се състоят от стрелки с ъгъл на отклонение 1:7,5 с радиус 190 m, което позволява скорост 40 km/h до отклонението. Съединенията са положени така, че при нормална експлоатация стрелките са преминавани по върха.

При проектиране на трасето са взети предвид всички действащи в момента регулации.

По трасето са проектирани деветнадесет станции, номерирани от 1 до 19.

Станция 1 – естакадна - (Автостанция Изток) се намира до автогарата на “БОТЕВГРАДСКО ШОСЕ”. Това позволява да бъде обслужен голям брой хора.

Станция 2 – естакадна - (Поп Груйо) се намира между улиците “СТАНИСЛАВДОСПЕВСКИ” и “ПОП ГРУЙО” на “ВЛАДИМИР ВАЗОВ”.

Станция 3 – естакадна - (Витиня) се намира на кръстовището на улиците “ВЛАДИМИР ВАЗОВ” и “ВИТИНЯ”.

Станция 4 – естакадна - (Васил Кънчев) се намира на кръстовището на улиците “ВЛАДИМИР ВАЗОВ” и “ВАСИЛ КЪНЧЕВ” до стадион “ВАСИЛ ЛЕВСКИ”.

Станция 5 – естакадна - (Панайот Хитов) се намира на кръстовището на улиците “ВЛАДИМИР ВАЗОВ” и “ПАНАЙОТ ХИТОВ”.

Станция 6 – тунелна - (парк Заимов) се намира на кръстовището на улиците “ЯНКО СAKЪЗОВ” и “ПЕРЛОВСКА РЕКА” до парка “ГЕН. ВЛАДИМИР ЗАИМОВ”.

Станция 7 – тунелна - (ул. Шипка) се намира на кръстовището на улиците “ЕВЛОГИ ГЕОРГИЕВ” и “ШИПКА” до Военната академия

Станция 8 – тунелна - (Орлов мост) се намира на кръстовището на улиците “ЕВЛОГИ ГЕОРГИЕВ” и “ЦАР ОСВОБОДИТЕЛ” до Орлов мост. Трансфер към Първи метродиаметър.

Станция 9 – тунелна - (П. Евтимий) се намира на кръстовището на улиците “ВАСИЛ ЛЕВСКИ”, “ПАТРИАРХ ЕВТИМИЙ” и “ГРАФ ИГНАТИЕВ”. Трансферен възел към трамвая.

Станция 10 – тунелна - (НДК) се намира на кръстовището на улиците “ПАТРИАРХ ЕВТИМИЙ” и “ВИТОША”. Трансфер към Втори метродиаметър.

Станция 11 – тунелна - (бул. Прага) се намира на кръстовището на улиците “СВ. ГЕОРГИ СОФИЙСКИ” и “ПЕНЧО СЛАВЕЙКОВ” до Медицински институт.

Станция 12 – тунелна - (България - Гешов) се намира на кръстовището на улиците “БЪЛГАРИЯ” и “Акад. Иван Евстатиев Гешов”. По този начин ще бъде осигурено транспортното обслужване на голям брой хора. Тук има силни трансферни връзки с автобуси и трамваи.

Станция 13 – тунелна - (Дойран) се намира на кръстовището на улиците “КЮСТЕНДИЛ” и “ДОЙРАН”.

Станция 14 – тунелна - (Красно село) се намира на кръстовището на улиците “ЦАР БОРИС III” и “ЖИТНИЦА”. Прекачване на трамваи.

Станция 15 – естакадна - (Президент Линкълн - Овча купел) се намира на кръстовището на улиците “ОВЧА КУПЕЛ” и “ПРЕЗИДЕНТ ЛИНКЪЛН”. Прекачване на трамваи.

Станция 16 – естакадна - (Президент Линкълн - Зеленика) се намира на “ПРЕЗИДЕНТ ЛИНКЪЛН” близо до “ЗЕЛЕНИКА”.

Станция 17 – естакадна - (Монтевидео) се намира на ул. “МОНТЕВИДЕО” в южната част на ж.к. “ОВЧА КУПЕЛ”.

Станция 18 – тунелна - (Мбал Доверие) се намира на ул. “Централна” в централната част на ж.к. “ОВЧА КУПЕЛ”.

Станция 19 – тунелна - (Крайния) се намира до ул. “ПРЕЗИДЕНТ ЛИНКЪЛН” в югозападната част на ж.к. “ОВЧА КУПЕЛ”.

Станциите са проектирани с надлъжен наклон 0,3 или 0,5 %. Максималния наклон е 4 % поради преминаването на трасето от естакадата в тунела.

Най-малкият радиус на вертикалната крива на трасето е 2000 m.

Най-малкият радиус на хоризонталната крива е 200 m, той е в участъка между станции MC1 MC2. Останалите радиуси са минимално 250 m. Всички криви с радиус, по-малък от 1600 m, се състоят от две преходни криви (клотоиди) и между тях кръгова крива с дължина минимално 20 m. Изключение правят радиусите 800 m в спирките, където не е използвана преходна крива. Максималната скорост на трасето е $V = 80 \text{ km/h}$, обаче на по-голямата част е възможна скорост $V = 65 \text{ km/h}$.

Разстояние между станциите:

MC1-1074,041 m-MC2-1171,563 m-MC3-902,945 m-MC4-687,222 m-MC5-808,200 m-MC6-719,957 m-MC7-586,325 m-MC8-889,151 m-MC9-708,684 m-MC10-794,340 m-MC11-1170, 755 m-MC12-736,057 m-MC13-699,234 m-MC14-1257,295 m-MC15-538,131 m-MC16-966,728 m-MC17-755,067 m-MC18-729,966 m-MC19.

На края на трасето са проектирани два обратни тупика.

По продължение на трасето е направена геодезическа снимка.

Исходни данни, използвани в проекта са: План, получен от „ГИС София“ ЕООД – “Географска информационна система – София”

3D модел на терена, получен от същата организация. Тези данни са в координатна система “Софийска координатна система”

В района на прокопаваните станции (предимно в централните градски райони) площта за измерване беше избрана с големина, достатъчна за очакваните бъдещи строителни работи. В района на естакадата бяха замерени точки на всеки 20 метра в предполагаемата ос на трасето. В района на станциите, разположени на естакадата, беше извършено подробно измерване на прилежащите площи. В района на бъдещото депо беше извършено тахиметрично заснемане на терена чрез квадратна мрежа по 50 метра.

Съставил
/ инж.Vladimír Pátek /

СПИСЪК НА СЪКРАЩЕНИЯТА

Gradient	Сбор или разлика от надлъжни наклони
Curve Start Gradient	Кота начало вертикална крива
Curve Start Chainage	Километраж начало вертикална крива
IP	Връх на циркулярна крива
D(Length)	Хоризонтално разстояние
Curve End Level	Кота край вертикална крива
Curve End Chainage	Километраж край вертикална крива
J (Gradient)	Надлъжен наклон
L (Length)	Дължина на преходна крива
CPI	Връх
IP Level	Кота връх вертикална крива
IP Chainage	Километраж връх вертикална крива
R	Радиус на циркуляр крива /хоризонтална или вертикална/
SC	Край на преходна крива
ST	Начало на преходна крива
TS	Начало на преходна крива
ВУ	Вентилационна станция
Начална шахта	Стартова шахта за механизирания щит
OBC	Основна водоотливна станция
TBC	Транзитна водоотливна станция
У-к	Участък от трасето на метропотока

ДАННИ ЗА ГЕОМЕТРИЧНИТЕ ПАРАМЕТРИ НА ОС ДЕСЕН КОЛОВОЗ

Horizontal Alignment

ДЕСЕН КОЛОВОЗ

У-к км. 0+000 до 15+801

Tangent Data

Begin on Straight Chainage	-0+038.853
Begin on Straight X	50603.813
Begin on Straight Y	50030.298
Straight End Chainage	0+115.266
Straight End X	50459.596
Straight End Y	49975.947
Length	154.119
Bearing	277.056

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	0+115.266
Transition Start X	50459.596
Transition Start Y	49975.947
Intersection Point X	50437.072
Intersection Point Y	49967.458
Transition End Chainage	0+151.266
Transition End X	50425.450
Transition End Y	49964.615
Transition Length	36.000
Transition RL Value	5400.000
Transition A Value	73.485
Chord Bearing	279.602
Chord Length	35.977

Circular Curve Data

Arc Start Chainage	0+151.266
Arc Start X	50425.450
Arc Start Y	49964.615
Arc Centre X	50389.734
Arc Centre Y	50110.301
Arc End Chainage	0+377.724
Arc End X	50246.500
Arc End Y	50065.760
Included Angle	96.112
Radius	150.000
Arc Length	226.458
Middle Ordinate	40.745
Chord Length	205.556
Hand of Arc	Right
Tangent	141.107
External	55.940
Chord Bearing	332.751

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	0+377.724
Transition Start X	50246.500
Transition Start Y	50065.760
Intersection Point X	50242.932
Intersection Point Y	50077.235
Transition End Chainage	0+413.724
Transition End X	50238.597
Transition End Y	50100.858
Transition Length	36.000
Transition RL Value	5400.000
Transition A Value	73.485
Chord Bearing	385.900
Chord Length	35.977

Circular Curve Data

Arc Start Chainage	0+452.196
Arc Start X	50123,195
Arc Start Y	50140,559
Arc Centre X	50908,299
Arc Centre Y	50294,223
Arc End Chainage	0+575.321
Arc End X	50108,919
Arc End Y	50262,732
Included Angle	9,798
Radius	800
Arc Length	123,125
Middle Ordinate	2,368
Chord Length	123,004
Hand of Arc	Right
Tangent	61,684
External	2,375
Chord Bearing	392,594

Tangent Data

Straight Start Chainage	0+413.724
Straight Start X	50238.597
Straight Start Y	50100.858
Straight End Chainage	0+951.098
Straight End X	50141.605
Straight End Y	50629.406
Length	537.373
Bearing	388.446

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	0+951.098
Transition Start X	50141.605
Transition Start Y	50629.406
Intersection Point X	50135.692
Intersection Point Y	50661.630
Transition End Chainage	1+000.098
Transition End X	50130.843
Transition End Y	50677.177
Transition Length	49.000
Transition RL Value	9981.300
Transition A Value	99.906
Chord Bearing	385.894
Chord Length	48.969

Circular Curve Data

Arc Start Chainage	1+000.098
Arc Start X	50130.843
Arc Start Y	50677.177
Arc Centre X	49936.348
Arc Centre Y	50616.637
Arc End Chainage	1+200.614
Arc End X	49993.553
Arc End Y	50812.140
Included Angle	62.667
Radius	203.700
Arc Length	200.517
Middle Ordinate	24.179
Chord Length	192.518
Hand of Arc	Left
Tangent	109.224
External	27.435
Chord Bearing	349.456

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	1+200.614
Transition Start X	49993.553
Transition Start Y	50812.140
Intersection Point X	49977.856
Intersection Point Y	50816.733
Trans-Trans Chainage	1+249.614
Trans-Trans X	49945.605
Trans-Trans Y	50822.083
Transition Length	49.000
Transition RL Value	9981.300
Transition A Value	99.906
Chord Bearing	313.017
Chord Length	48.969

Tangent Data

Straight Start Chainage	1+249.614
Straight Start X	49945.605
Straight Start Y	50822.083
Straight End Chainage	1+402.508
Straight End X	49794.773
Straight End Y	50847.103
Length	152.893
Bearing	310.465

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	1+402.508
Transition Start X	49794.773
Transition Start Y	50847.103
Intersection Point X	49771.095
Intersection Point Y	50851.031
Transition End Chainage	1+438.508
Transition End X	49759.219
Transition End Y	50852.745
Transition Length	36.000
Transition RL Value	30733.200
Transition A Value	175.309
Chord Bearing	310.018
Chord Length	35.999

Circular Curve Data

Arc Start Chainage	1+438.508
Arc Start X	49759.219
Arc Start Y	50852.745
Arc Centre X	49637.299
Arc Centre Y	50007.796
Arc End Chainage	1+528.183
Arc End X	49669.953
Arc End Y	50860.871
Included Angle	6.687
Radius	853.700
Arc Length	89.675
Middle Ordinate	1.177
Chord Length	89.634
Hand of Arc	Left
Tangent	44.879
External	1.179
Chord Bearing	305.779

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	1+528.183
Transition Start X	49669.953
Transition Start Y	50860.871
Intersection Point X	49657.962
Intersection Point Y	50861.330
Transition End Chainage	1+564.183
Transition End X	49633.965
Transition End Y	50861.742
Transition Length	36.000
Transition RL Value	30733.200
Transition A Value	175.309
Chord Bearing	301.541
Chord Length	35.999

Tangent Data

Straight Start Chainage	1+564.183
Straight Start X	49633.965
Straight Start Y	50861.742
Straight End Chainage	1+674.975
Straight End X	49523.189
Straight End Y	50863.645
Length	110.792
Bearing	301.093

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	1+674.975
Transition Start X	49523.189
Transition Start Y	50863.645
Intersection Point X	49493.181
Intersection Point Y	50864.160
Transition End Chainage	1+719.975
Transition End X	49478.193
Transition End Y	50863.743
Transition Length	45.000
Transition RL Value	22500.000
Transition A Value	150.000
Chord Bearing	300.138
Chord Length	44.996

Circular Curve Data

Arc Start Chainage	1+719.975
Arc Start X	49478.193
Arc Start Y	50863.743
Arc Centre X	49492.104
Arc Centre Y	50363.936
Arc End Chainage	1+829.224
Arc End X	49370.184
Arc End Y	50848.844
Included Angle	13.910
Radius	500.000
Arc Length	109.248
Middle Ordinate	2.981
Chord Length	109.031
Hand of Arc	Left
Tangent	54.843
External	2.999
Chord Bearing	291.274

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	1+829.224
Transition Start X	49370.184
Transition Start Y	50848.844
Intersection Point X	49355.634
Intersection Point Y	50845.186
Transition End Chainage	1+874.224
Transition End X	49326.895
Transition End Y	50836.568
Transition Length	45.000
Transition RL Value	22500.000
Transition A Value	150.000
Chord Bearing	282.409
Chord Length	44.996

Tangent Data

Straight Start Chainage	1+874.224
Straight Start X	49326.895
Straight Start Y	50836.568
Straight End Chainage	1+962.449
Straight End X	49242.388
Straight End Y	50811.228
Length	88.225
Bearing	281.454

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	1+962.449
Transition Start X	49242.388
Transition Start Y	50811.228
Intersection Point X	49223.230
Intersection Point Y	50805.484
Transition End Chainage	1+992.449
Transition End X	49213.631
Transition End Y	50802.684
Transition Length	30.000
Transition RL Value	60000.000
Transition A Value	244.949
Chord Bearing	281.613
Chord Length	30.000

Circular Curve Data

Arc Start Chainage	1+992.449
Arc Start X	49213.631
Arc Start Y	50802.684
Arc Centre X	48653.577
Arc Centre Y	52722.668
Arc End Chainage	2+067.619
Arc End X	49141.089
Arc End Y	50782.995
Included Angle	2.393
Radius	2000.000
Arc Length	75.170
Middle Ordinate	.353
Chord Length	75.166
Hand of Arc	Right
Tangent	37.590
External	.353
Chord Bearing	283.128

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	2+067.619
Transition Start X	49141.089
Transition Start Y	50782.995
Intersection Point X	49131.391
Intersection Point Y	50780.557
Transition End Chainage	2+097.619
Transition End X	49111.958
Transition End Y	50775.828
Transition Length	30.000
Transition RL Value	60000.000
Transition A Value	244.949
Chord Bearing	284.642

Tangent Data

Straight Start Chainage	2+097.619
Straight Start X	49111,958
Straight Start Y	50775,828
Straight End Chainage	2+573.097
Straight End X	48649,966
Straight End Y	50663,389
Length	475,477
Bearing	284,802

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	2+573.097
Transition Start X	48649,966
Transition Start Y	50663,389
Intersection Point X	48617,522
Intersection Point Y	50655,493
Transition End Chainage	2+623.097
Transition End X	48601,061
Transition End Y	50653,074
Transition Length	50
Transition RL Value	13500
Transition A Value	116,19
Chord Bearing	286,766
Chord Length	49,981

Circular Curve Data

Arc Start Chainage	2+623.097
Arc Start X	48601,061
Arc Start Y	50653,074
Arc Centre X	48561,743
Arc Centre Y	50920,196
Arc End Chainage	2+687.278
Arc End X	48537,055
Arc End Y	50651,327
Included Angle	15,133
Radius	270
Arc Length	64,181
Middle Ordinate	1,905
Chord Length	64,03
Hand of Arc	Right
Tangent	32,243
External	1,918
Chord Bearing	298,263

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	2+687.278
Transition Start X	48537,055
Transition Start Y	50651,327
Intersection Point X	48520,445
Intersection Point Y	50652,852
Transition End Chainage	2+737.278
Transition End X	48487,66
Transition End Y	50658,959
Transition Length	50
Transition RL Value	13500
Transition A Value	116,19
Chord Bearing	309,759
Chord Length	49,981

Tangent Data

Straight Start Chainage	2+737.278
Straight Start X	48487,66
Straight Start Y	50658,959
Straight End Chainage	2+858.674
Straight End X	48368,316
Straight End Y	50681,188
Length	121,397
Bearing	311,724

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	2+858.674
Transition Start X	48368,316
Transition Start Y	50681,188
Intersection Point X	48335,509
Intersection Point Y	50687,299
Transition End Chainage	2+908.674
Transition End X	48318,961
Transition End Y	50689,112
Transition Length	50
Transition RL Value	16685
Transition A Value	129,17
Chord Bearing	310,134
Chord Length	49,988

Chord Length	30.000
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Circular Curve Data

Arc Start Chainage	2+908.674
Arc Start X	48318,961
Arc Start Y	50689,112
Arc Centre X	48282,58
Arc Centre Y	50357,401
Arc End Chainage	3+164.385
Arc End X	48078,762
Arc End Y	50621,624
Included Angle	48,783
Radius	333,7
Arc Length	255,71
Middle Ordinate	24,195
Chord Length	249,5
Hand of Arc	Left
Tangent	134,502
External	26,087
Chord Bearing	282,563

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	3+164.385
Transition Start X	48078,762
Transition Start Y	50621,624
Intersection Point X	48065,558
Intersection Point Y	50611,439
Transition End Chainage	3+214.385
Transition End X	48040,756
Transition End Y	50589,155
Transition Length	50
Transition RL Value	16685
Transition A Value	129,17
Chord Bearing	254,991
Chord Length	49,988

Tangent Data

Straight Start Chainage	3+214.385
Straight Start X	48040,756
Straight Start Y	50589,155
Straight End Chainage	3+258.226
Straight End X	48008,144
Straight End Y	50559,854
Length	43,841
Bearing	253,402

Circular Curve Data

Arc Start Chainage	3+258.226
Arc Start X	48008,144
Arc Start Y	50559,854
Arc Centre X	46404,141
Arc Centre Y	52345,12
Arc End Chainage	3+380.681
Arc End X	47915,007
Arc End Y	50480,372
Included Angle	3,248
Radius	2400
Arc Length	122,455
Middle Ordinate	0,781
Chord Length	122,441
Hand of Arc	Right
Tangent	61,241
External	0,781
Chord Bearing	255,026

Tangent Data

Straight Start Chainage	3+380.681
Straight Start X	47915,007
Straight Start Y	50480,372
Straight End Chainage	3+401.896
Straight End X	47898,523
Straight End Y	50467,016
Length	21,215
Bearing	256,65

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	3+401.896
Transition Start X	47898,523
Transition Start Y	50467,016
Intersection Point X	47875,208
Intersection Point Y	50448,127
Transition End Chainage	3+446.896
Transition End X	47863,259
Transition End Y	50439,065
Transition Length	45
Transition RL Value	31500
Transition A Value	177,482
Chord Bearing	257,332
Chord Length	44,998

Circular Curve Data

Arc Start Chainage	3+446.896
Arc Start X	47863,259
Arc Start Y	50439,065
Arc Centre X	47440,296
Arc Centre Y	50996,831
Arc End Chainage	3+573.681
Arc End X	47755,868
Arc End Y	50371,999
Included Angle	11,531
Radius	700
Arc Length	126,785
Middle Ordinate	2,868
Chord Length	126,612
Hand of Arc	Right
Tangent	63,566
External	2,88
Chord Bearing	264,461

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	3+573.681
Transition Start X	47755,868
Transition Start Y	50371,999
Intersection Point X	47742,478
Intersection Point Y	50365,237
Transition End Chainage	3+618.681
Transition End X	47715,277
Transition End Y	50352,579
Transition Length	45
Transition RL Value	31500
Transition A Value	177,482
Chord Bearing	271,591
Chord Length	44,998

Tangent Data

Straight Start Chainage	3+618.681
Straight Start X	47715,277
Straight Start Y	50352,579
Straight End Chainage	4+158.470
Straight End X	47225,881
Straight End Y	50124,843
Length	539,789
Bearing	272,273

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	4+158.470
Transition Start X	47225,881
Transition Start Y	50124,843
Intersection Point X	47198,676
Intersection Point Y	50112,184
Transition End Chainage	4+203.470
Transition End X	47185,288
Transition End Y	50105,425
Transition Length	45
Transition RL Value	31666,5
Transition A Value	177,951
Chord Bearing	271,594
Chord Length	44,998

Circular Curve Data

Arc Start Chainage	4+203.470
Arc Start X	47185,288
Arc Start Y	50105,425
Arc Centre X	47502,422
Arc Centre Y	49477,237
Arc End Chainage	4+244.323
Arc End X	47149,374
Arc End Y	50085,966
Included Angle	3,696
Radius	703,7
Arc Length	40,853
Middle Ordinate	0,296
Chord Length	40,847
Hand of Arc	Left
Tangent	20,432
External	0,297
Chord Bearing	268,389

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	4+244.323
Transition Start X	47149,374
Transition Start Y	50085,966
Intersection Point X	47136,397
Intersection Point Y	50078,44
Transition End Chainage	4+289.323
Transition End X	47110,939
Transition End Y	50062,566
Transition Length	45
Transition RL Value	31666,5
Transition A Value	177,951
Chord Bearing	265,184

Tangent Data

Straight Start Chainage	4+289.323
Straight Start X	47110,939
Straight Start Y	50062,566
Straight End Chainage	4+624.640
Straight End X	46826,403
Straight End Y	49885,15
Length	335,317
Bearing	264,506

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	4+624.640
Transition Start X	46826,403
Transition Start Y	49885,15
Intersection Point X	46785,584
Intersection Point Y	49859,698
Transition End Chainage	4+696.640
Transition End X	46766,681
Transition End Y	49844,994
Transition Length	72
Transition RL Value	25106,4
Transition A Value	158,45
Chord Bearing	262,315
Chord Length	71,966

Circular Curve Data

Arc Start Chainage	4+696.640
Arc Start X	46766,681
Arc Start Y	49844,994
Arc Centre X	46980,69
Arc Centre Y	49569,691
Arc End Chainage	4+924.924
Arc End X	46643,296
Arc End Y	49657,765
Included Angle	41,678
Radius	348,7
Arc Length	228,284
Middle Ordinate	18,515
Chord Length	224,23
Hand of Arc	Left
Tangent	118,402
External	19,553
Chord Bearing	237,095

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	4+924.924
Transition Start X	46643,296
Transition Start Y	49657,765
Intersection Point X	46637,228
Intersection Point Y	49634,519
Transition End Chainage	4+996.924
Transition End X	46629,951
Transition End Y	49587,047
Transition Length	72
Transition RL Value	25106,4
Transition A Value	158,45
Chord Bearing	211,874
Chord Length	71,966

Tangent Data

Straight Start Chainage	4+996.924
Straight Start X	46629,951
Straight Start Y	49587,047
Straight End Chainage	5+019.523
Straight End X	46626,527
Straight End Y	49564,709
Length	22,599
Bearing	209,683

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	5+019.523
Transition Start X	46626,527
Transition Start Y	49564,709
Intersection Point X	46624,002
Intersection Point Y	49548,233
Transition End Chainage	5+044.523
Transition End X	46622,568
Transition End Y	49540,025
Transition Length	25
Transition RL Value	15000
Transition A Value	122,474
Chord Bearing	210,125
Chord Length	25

Chord Length	44,998
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Circular Curve Data

Arc Start Chainage	5+044.523
Arc Start X	46622,568
Arc Start Y	49540,025
Arc Centre X	46031,517
Arc Centre Y	49643,27
Arc End Chainage	5+077.099
Arc End X	46616,094
Arc End Y	49508,102
Included Angle	3,456
Radius	600
Arc Length	32,576
Middle Ordinate	0,221
Chord Length	32,572
Hand of Arc	Right
Tangent	16,292
External	0,221
Chord Bearing	212,738

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	5+077.099
Transition Start X	46616,094
Transition Start Y	49508,102
Intersection Point X	46614,217
Intersection Point Y	49499,983
Transition End Chainage	5+102.100
Transition End X	46610,124
Transition End Y	49483,826
Transition Length	25
Transition RL Value	15000,153
Transition A Value	122,475
Chord Bearing	215,35
Chord Length	25

Tangent Data

Straight Start Chainage	5+102.100
Straight Start X	46610,124
Straight Start Y	49483,826
Straight End Chainage	5+123.910
Straight End X	46604,769
Straight End Y	49462,683
Length	21,811
Bearing	215,792

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	5+123.910
Transition Start X	46604,769
Transition Start Y	49462,683
Intersection Point X	46601,495
Intersection Point Y	49449,757
Transition End Chainage	5+143.910
Transition End X	46599,939
Transition End Y	49443,275
Transition Length	20
Transition RL Value	16074
Transition A Value	126,783
Chord Bearing	215,528
Chord Length	20

Circular Curve Data

Arc Start Chainage	5+143.910
Arc Start X	46599,939
Arc Start Y	49443,275
Arc Centre X	47381,433
Arc Centre Y	49255,654
Arc End Chainage	5+287.859
Arc End X	46579,016
Arc End Y	49301,049
Included Angle	11,402
Radius	803,7
Arc Length	143,949
Middle Ordinate	3,221
Chord Length	143,757
Hand of Arc	Left
Tangent	72,168
External	3,234
Chord Bearing	209,299

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	5+287.859
Transition Start X	46579,016
Transition Start Y	49301,049
Intersection Point X	46578,451
Intersection Point Y	49291,065
Transition End Chainage	5+317.859
Transition End X	46577,694
Transition End Y	49271,079
Transition Length	30
Transition RL Value	24111
Transition A Value	155,277
Chord Bearing	202,806
Chord Length	30

Tangent Data

Straight Start Chainage	5+317.859
Straight Start X	46577,694
Straight Start Y	49271,079
Straight End Chainage	5+431.167
Straight End X	46573,406
Straight End Y	49157,852
Length	113,307
Bearing	202,41

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	5+431.167
Transition Start X	46573,406
Transition Start Y	49157,852
Intersection Point X	46572,143
Intersection Point Y	49124,496
Transition End Chainage	5+481.167
Transition End X	46570,129
Transition End Y	49107,975
Transition Length	50
Transition RL Value	15000
Transition A Value	122,474
Chord Bearing	204,178
Chord Length	49,985

Circular Curve Data

Arc Start Chainage	5+481.167
Arc Start X	46570,129
Arc Start Y	49107,975
Arc Centre X	46272,329
Arc Centre Y	49144,241
Arc End Chainage	5+801.030
Arc End X	46384,553
Arc End Y	48866,022
Included Angle	67,877
Radius	300
Arc Length	319,863
Middle Ordinate	41,63
Chord Length	304,926
Hand of Arc	Right
Tangent	177,028
External	48,338
Chord Bearing	241,653

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	5+801.030
Transition Start X	46384,553
Transition Start Y	48866,022
Intersection Point X	46369,086
Intersection Point Y	48859,784
Transition End Chainage	5+851.030
Transition End X	46337,231
Transition End Y	48849,927
Transition Length	50
Transition RL Value	15000
Transition A Value	122,474
Chord Bearing	279,129
Chord Length	49,985

Tangent Data

Straight Start Chainage	5+851.030
Straight Start X	46337,231
Straight Start Y	48849,927
Straight End Chainage	6+013.312
Straight End X	46182,199
Straight End Y	48801,958
Length	162,283
Bearing	280,897

Circular Curve Data

Arc Start Chainage	6+013.312
Arc Start X	46182,199
Arc Start Y	48801,958
Arc Centre X	47040,5
Arc Centre Y	46028,009
Arc End Chainage	6+096.056
Arc End X	46103,512
Arc End Y	48776,377
Included Angle	1,814
Radius	2903,7
Arc Length	82,743
Middle Ordinate	0,295
Chord Length	82,74
Hand of Arc	Left
Tangent	41,374
External	0,295
Chord Bearing	279,99

Tangent Data

Straight Start Chainage	6+096.056
Straight Start X	46103,512
Straight Start Y	48776,377
Straight End Chainage	6+252.102
Straight End X	45955,813
Straight End Y	48726,023
Length	156,047
Bearing	279,083

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	6+252.102
Transition Start X	45955,813
Transition Start Y	48726,023
Intersection Point X	45921,082
Intersection Point Y	48714,182
Transition End Chainage	6+307.102
Transition End X	45903,413
Transition End Y	48709,342
Transition Length	55
Transition RL Value	24750
Transition A Value	157,321
Chord Bearing	280,38
Chord Length	54,991

Circular Curve Data

Arc Start Chainage	6+307.102
Arc Start X	45903,413
Arc Start Y	48709,342
Arc Centre X	45784,488
Arc Centre Y	49143,343
Arc End Chainage	6+378.964
Arc End X	45832,888
Arc End Y	48695,953
Included Angle	10,166
Radius	450
Arc Length	71,862
Middle Ordinate	1,434
Chord Length	71,785
Hand of Arc	Right
Tangent	36,007
External	1,438
Chord Bearing	288,056

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	6+378.964
Transition Start X	45832,888
Transition Start Y	48695,953
Intersection Point X	45814,654
Intersection Point Y	48693,98
Transition End Chainage	6+433.964
Transition End X	45778,02
Transition End Y	48692,27
Transition Length	55
Transition RL Value	24750
Transition A Value	157,321
Chord Bearing	295,733
Chord Length	54,991

Tangent Data

Straight Start Chainage	6+433.964
Straight Start X	45778,02
Straight Start Y	48692,27
Straight End Chainage	6+721.019
Straight End X	45491,278
Straight End Y	48678,883
Length	287,055
Bearing	297,03

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	6+721.019
Transition Start X	45491,278
Transition Start Y	48678,883
Intersection Point X	45457,92
Intersection Point Y	48677,326
Transition End Chainage	6+771.019
Transition End X	45441,451
Transition End Y	48674,976
Transition Length	50
Transition RL Value	13185
Transition A Value	114,826
Chord Bearing	295,018
Chord Length	49,98

Circular Curve Data

Arc Start Chainage	6+771.019
Arc Start X	45441,451
Arc Start Y	48674,976
Arc Centre X	45478,629
Arc Centre Y	48413,91
Arc End Chainage	6+934.010
Arc End X	45297,046
Arc End Y	48605,131
Included Angle	39,349
Radius	263,7
Arc Length	162,99
Middle Ordinate	12,493
Chord Length	160,408
Hand of Arc	Left
Tangent	84,193
External	13,114
Chord Bearing	271,32

Spiral Curve Data: CLOTHOID

Transition Start Chainage	6+934.010
Transition Start X	45297,046
Transition Start Y	48605,131
Intersection Point X	45284,95
Intersection Point Y	48593,645
Transition End Chainage	6+984.010
Transition End X	45263,05
Transition End Y	48568,495
Transition Length	50
Transition RL Value	13185
Transition A Value	114,826
Chord Bearing	247,622
Chord Length	49,98

Tangent Data

Straight Start Chainage	6+984.010
Straight Start X	45263,05
Straight Start Y	48568,495
Straight End Chainage	7+034.313
Straight End X	45230,015
Straight End Y	48530,559
Length	50,303
Bearing	245,61

Spiral Curve Data: CLOTHOID

Transition Start Chainage	7+034.313
Transition Start X	45230,015
Transition Start Y	48530,559
Intersection Point X	45208,081
Intersection Point Y	48505,37
Transition End Chainage	7+084.313
Transition End X	45195,957
Transition End Y	48493,983
Transition Length	50
Transition RL Value	12500
Transition A Value	111,803
Chord Bearing	247,732
Chord Length	49,978

Circular Curve Data

Arc Start Chainage	7+084.313
Arc Start X	45195,957
Arc Start Y	48493,983
Arc Centre X	45024,753
Arc Centre Y	48676,162
Arc End Chainage	7+280.778
Arc End X	45016,877
Arc End Y	48426,286
Included Angle	50,029
Radius	250
Arc Length	196,465
Middle Ordinate	19,052
Chord Length	191,448
Hand of Arc	Right
Tangent	103,621
External	20,624
Chord Bearing	276,991

Spiral Curve Data: CLOTHOID

Transition Start Chainage	7+280.778
Transition Start X	45016,877
Transition Start Y	48426,286
Intersection Point X	45000,203
Intersection Point Y	48426,811
Transition End Chainage	7+330.777
Transition End X	44967,14
Transition End Y	48431,185
Transition Length	50
Transition RL Value	12499,921
Transition A Value	111,803
Chord Bearing	306,25
Chord Length	49,978

Tangent Data

Straight Start Chainage	7+330.777
Straight Start X	44967,14
Straight Start Y	48431,185
Straight End Chainage	8+157.844
Straight End X	44147,215
Straight End Y	48539,636
Length	827,067
Bearing	308,372

Circular Curve Data

Arc Start Chainage	8+157.844
Arc Start X	44147,215
Arc Start Y	48539,636
Arc Centre X	44461,921
Arc Centre Y	50918,913
Arc End Chainage	8+237.844
Arc End X	44068,095
Arc End Y	48551,446
Included Angle	2,122
Radius	2400
Arc Length	80
Middle Ordinate	0,333
Chord Length	79,996
Hand of Arc	Right
Tangent	40,004
External	0,333
Chord Bearing	309,433

Tangent Data

Straight Start Chainage	8+237.844
Straight Start X	44068,095
Straight Start Y	48551,446
Straight End Chainage	8+264.069
Straight End X	44042,225
Straight End Y	48555,749
Length	26,225
Bearing	310,494

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	8+264.069
Transition Start X	44042,225
Transition Start Y	48555,749
Intersection Point X	44009,279
Intersection Point Y	48561,23
Transition End Chainage	8+314.069
Transition End X	43992,682
Transition End Y	48562,327
Transition Length	50
Transition RL Value	12685
Transition A Value	112,628
Chord Bearing	308,403
Chord Length	49,978

Circular Curve Data

Arc Start Chainage	8+314.069
Arc Start X	43992,682
Arc Start Y	48562,327
Arc Centre X	43975,874
Arc Centre Y	48309,184
Arc End Chainage	8+511.501
Arc End X	43810,136
Arc End Y	48501,264
Included Angle	49,542
Radius	253,7
Arc Length	197,432
Middle Ordinate	18,964
Chord Length	192,487
Hand of Arc	Left
Tangent	104,019
External	20,496
Chord Bearing	279,449

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	8+511.501
Transition Start X	43810,136
Transition Start Y	48501,264
Intersection Point X	43797,506
Intersection Point Y	48490,366
Transition End Chainage	8+561.501
Transition End X	43774,522
Transition End Y	48466,201
Transition Length	50
Transition RL Value	12685
Transition A Value	112,628
Chord Bearing	250,496

Tangent Data

Straight Start Chainage	8+561.501
Straight Start X	43774,522
Straight Start Y	48466,201
Straight End Chainage	8+704.931
Straight End X	43675,674
Straight End Y	48362,271
Length	143,43
Bearing	248,405

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	8+704.931
Transition Start X	43675,674
Transition Start Y	48362,271
Intersection Point X	43652,67
Intersection Point Y	48338,084
Transition End Chainage	8+754.931
Transition End X	43640,234
Transition End Y	48327,023
Transition Length	50
Transition RL Value	15000
Transition A Value	122,474
Chord Bearing	250,173
Chord Length	49,985

Circular Curve Data

Arc Start Chainage	8+754.931
Arc Start X	43640,234
Arc Start Y	48327,023
Arc Centre X	43440,818
Arc Centre Y	48551,151
Arc End Chainage	8+783.949
Arc End X	43617,657
Arc End Y	48308,813
Included Angle	6,158
Radius	300
Arc Length	29,017
Middle Ordinate	0,351
Chord Length	29,006
Hand of Arc	Right
Tangent	14,52
External	0,351
Chord Bearing	256,789

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	8+783.949
Transition Start X	43617,657
Transition Start Y	48308,813
Intersection Point X	43590,692
Intersection Point Y	48289,136
Transition End Chainage	8+833.949
Transition End X	43575,435
Transition End Y	48282,081
Transition Length	50
Transition RL Value	24000,099
Transition A Value	154,92
Chord Bearing	264,068
Chord Length	49,973

Circular Curve Data

Arc Start Chainage	8+833.949
Arc Start X	43575,435
Arc Start Y	48282,081
Arc Centre X	43180,843
Arc Centre Y	48977,995
Arc End Chainage	8+878.895
Arc End X	43535,735
Arc End Y	48261,021
Included Angle	3,577
Radius	800
Arc Length	44,946
Middle Ordinate	0,316
Chord Length	44,94
Hand of Arc	Right
Tangent	22,479
External	0,316
Chord Bearing	268,951

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	8+878.895
Transition Start X	43535,735
Transition Start Y	48261,021
Intersection Point X	43526,772
Intersection Point Y	48256,585
Transition End Chainage	8+908.895
Transition End X	43508,684
Transition End Y	48248,05
Transition Length	30
Transition RL Value	24000
Transition A Value	154,919
Chord Bearing	271,535
Chord Length	30

Chord Length	49,978
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Tangent Data

Straight Start Chainage	8+908.895
Straight Start X	43508,684
Straight Start Y	48248,05
Straight End Chainage	8+988.668
Straight End X	43436,539
Straight End Y	48214,008
Length	79,773
Bearing	271,933

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	8+988.668
Transition Start X	43436,539
Transition Start Y	48214,008
Intersection Point X	43392,952
Intersection Point Y	48193,441
Transition End Chainage	9+060.669
Transition End X	43373,005
Transition End Y	48180,269
Transition Length	72,001
Transition RL Value	18266,607
Transition A Value	135,154
Chord Bearing	268,922
Chord Length	71,936

Circular Curve Data

Arc Start Chainage	9+060.669
Arc Start X	43373,005
Arc Start Y	48180,269
Arc Centre X	43512,628
Arc Centre Y	47968,446
Arc-Arc (Same Hand) Chainage	9+144.152
Arc-Arc (Same Hand) X	43312,045
Arc-Arc (Same Hand) Y	48123,785
Included Angle	20,949
Radius	253,7
Arc Length	83,482
Middle Ordinate	3,426
Chord Length	83,106
Hand of Arc	Left
Tangent	42,122
External	3,473
Chord Bearing	252,425

Circular Curve Data	
Arc-Arc (Same Hand) Chainage	9+144.152
Arc-Arc (Same Hand) X	43312,045
Arc-Arc (Same Hand) Y	48123,785
Arc Centre X	43552,16
Arc Centre Y	47937,831
Arc End Chainage	9+198.878
Arc End X	43282,606
Arc End Y	48077,739
Included Angle	11,472
Radius	303,7
Arc Length	54,727
Middle Ordinate	1,232
Chord Length	54,653
Hand of Arc	Left
Tangent	27,438
External	1,237
Chord Bearing	236,215

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	9+198.878
Transition Start X	43282,606
Transition Start Y	48077,739
Intersection Point X	43271,534
Intersection Point Y	48056,409
Transition End Chainage	9+270.878
Transition End X	43254,603
Transition End Y	48011,456
Transition Length	72
Transition RL Value	21866,4
Transition A Value	147,873
Chord Bearing	225,447
Chord Length	71,955

Tangent Data

Straight Start Chainage	9+270.878
Straight Start X	43254,603
Straight Start Y	48011,456
Straight End Chainage	9+291.414
Straight End X	43247,364
Straight End Y	47992,239
Length	20,536
Bearing	222,932

Spiral Curve Data: CLOTOHIOID	
Transition Start Chainage	9+291.414
Transition Start X	43247,364
Transition Start Y	47992,239
Intersection Point X	43237,964
Intersection Point Y	47967,28
Transition End Chainage	9+331.414
Transition End X	43233,577
Transition End Y	47954,691
Transition Length	40
Transition RL Value	32148
Transition A Value	179,299
Chord Bearing	222,404
Chord Length	39,999

Circular Curve Data

Arc Start Chainage	9+331.414
Arc Start X	43233,577
Arc Start Y	47954,691
Arc Centre X	43992,51
Arc Centre Y	47690,205
Arc End Chainage	9+409.347
Arc End X	43211,536
Arc End Y	47879,972
Included Angle	6,173
Radius	803,7
Arc Length	77,933
Middle Ordinate	0,944
Chord Length	77,902
Hand of Arc	Left
Tangent	38,997
External	0,946
Chord Bearing	218,262

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	9+409.347
Transition Start X	43211,536
Transition Start Y	47879,972
Intersection Point X	43208,387
Intersection Point Y	47867,015
Transition End Chainage	9+449.347
Transition End X	43202,737
Transition End Y	47840,953
Transition Length	40
Transition RL Value	32148
Transition A Value	179,299
Chord Bearing	214,119
Chord Length	39,999

Tangent Data

Straight Start Chainage	9+449.347
Straight Start X	43202,737
Straight Start Y	47840,953
Straight End Chainage	9+545.536
Straight End X	43182,358
Straight End Y	47746,948
Length	96,189
Bearing	213,591

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	9+545.536
Transition Start X	43182,358
Transition Start Y	47746,948
Intersection Point X	43175,287
Intersection Point Y	47714,331
Transition End Chainage	9+595.536
Transition End X	43170,499
Transition End Y	47698,388
Transition Length	50
Transition RL Value	16000
Transition A Value	126,491
Chord Bearing	215,249
Chord Length	49,986

Circular Curve Data

Arc Start Chainage	9+595.536
Arc Start X	43170,499
Arc Start Y	47698,388
Arc Centre X	42864,009
Arc Centre Y	47790,386
Arc End Chainage	9+902.227
Arc End X	42964,907
Arc End Y	47486,709
Included Angle	61,014
Radius	320
Arc Length	306,691
Middle Ordinate	36,044
Chord Length	295,087
Hand of Arc	Right
Tangent	166,272
External	40,619
Chord Bearing	249,071

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	9+902.227
Transition Start X	42964,907
Transition Start Y	47486,709
Intersection Point X	42949,081
Intersection Point Y	47481,451
Transition End Chainage	9+952.226
Transition End X	42916,714
Transition End Y	47473,439
Transition Length	50
Transition RL Value	15999,927
Transition A Value	126,491
Chord Bearing	282,894
Chord Length	49,986

Tangent Data

Straight Start Chainage	9+952.226
Straight Start X	42916,714
Straight Start Y	47473,439
Straight End Chainage	10+110.762
Straight End X	42762,823
Straight End Y	47435,346
Length	158,536
Bearing	284,552

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	10+110.762
Transition Start X	42762,823
Transition Start Y	47435,346
Intersection Point X	42730,407
Intersection Point Y	47427,322
Transition End Chainage	10+160.762
Transition End X	42714,711
Transition End Y	47421,81
Transition Length	50
Transition RL Value	13185
Transition A Value	114,826
Chord Bearing	282,54
Chord Length	49,98

Circular Curve Data

Arc Start Chainage	10+160.762
Arc Start X	42714,711
Arc Start Y	47421,81
Arc Centre X	42802,02
Arc Centre Y	47172,983
Arc End Chainage	10+201.373
Arc End X	42677,575
Arc End Y	47405,473
Included Angle	9,804
Radius	263,7
Arc Length	40,611
Middle Ordinate	0,781
Chord Length	40,571
Hand of Arc	Left
Tangent	20,346
External	0,784
Chord Bearing	273,615

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	10+201.373
Transition Start X	42677,575
Transition Start Y	47405,473
Intersection Point X	42662,869
Intersection Point Y	47397,601
Transition End Chainage	10+251.373
Transition End X	42635,088
Transition End Y	47379,15
Transition Length	50
Transition RL Value	13185
Transition A Value	114,826
Chord Bearing	264,689
Chord Length	49,98

Tangent Data

Straight Start Chainage	10+251.373
Straight Start X	42635,088
Straight Start Y	47379,15
Straight End Chainage	10+271.812
Straight End X	42618,063
Straight End Y	47367,842
Length	20,439
Bearing	262,677

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	10+271.812
Transition Start X	42618,063
Transition Start Y	47367,842
Intersection Point X	42590,252
Intersection Point Y	47349,371
Transition End Chainage	10+321.812
Transition End X	42575,636
Transition End Y	47341,418
Transition Length	50
Transition RL Value	14250
Transition A Value	119,373
Chord Bearing	264,538
Chord Length	49,983

Circular Curve Data

Arc Start Chainage	10+321.812
Arc Start X	42575,636
Arc Start Y	47341,418
Arc Centre X	42439,363
Arc Centre Y	47591,727
Arc End Chainage	10+540.027
Arc End X	42364,136
Arc End Y	47316,834
Included Angle	48,744
Radius	285
Arc Length	218,215
Middle Ordinate	20,631
Chord Length	212,924
Hand of Arc	Right
Tangent	114,77
External	22,241
Chord Bearing	292,633

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	10+540.027
Transition Start X	42364,136
Transition Start Y	47316,834
Intersection Point X	42348,048
Intersection Point Y	47321,237
Transition End Chainage	10+590.027
Transition End X	42316,779
Transition End Y	47332,823
Transition Length	50
Transition RL Value	14250
Transition A Value	119,373
Chord Bearing	320,728

Tangent Data

Straight Start Chainage	10+590.027
Straight Start X	42316,779
Straight Start Y	47332,823
Straight End Chainage	10+611.282
Straight End X	42296,848
Straight End Y	47340,207
Length	21,255
Bearing	322,59

Circular Curve Data

Arc Start Chainage	10+611.282
Arc Start X	42296,848
Arc Start Y	47340,207
Arc Centre X	41461,709
Arc Centre Y	45086,252
Arc End Chainage	10+736.001
Arc End X	42178,827
Arc End Y	47380,487
Included Angle	3,303
Radius	2403,7
Arc Length	124,719
Middle Ordinate	0,809
Chord Length	124,705
Hand of Arc	Left
Tangent	62,374
External	0,809
Chord Bearing	320,938

Tangent Data

Straight Start Chainage	10+736.001
Straight Start X	42178,827
Straight Start Y	47380,487
Straight End Chainage	10+888.768
Straight End X	42033,017
Straight End Y	47426,063
Length	152,767
Bearing	319,287

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	10+888.768
Transition Start X	42033,017
Transition Start Y	47426,063
Intersection Point X	42004,357
Intersection Point Y	47435,022
Transition End Chainage	10+933.768
Transition End X	41989,785
Transition End Y	47438,517
Transition Length	45
Transition RL Value	15016,5
Transition A Value	122,542
Chord Bearing	317,856
Chord Length	44,991

Circular Curve Data

Arc Start Chainage	10+933.768
Arc Start X	41989,785
Arc Start Y	47438,517
Arc Centre X	41911,914
Arc Centre Y	47114,03
Arc End Chainage	11+113.809
Arc End X	41812,024
Arc End Y	47432,429
Included Angle	34,347
Radius	333,7
Arc Length	180,041
Middle Ordinate	12,069
Chord Length	177,865
Hand of Arc	Left
Tangent	92,27
External	12,522
Chord Bearing	297,82

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	11+113.809
Transition Start X	41812,024
Transition Start Y	47432,429
Intersection Point X	41797,705
Intersection Point Y	47427,937
Transition End Chainage	11+158.809
Transition End X	41769,744
Transition End Y	47417,046
Transition Length	45
Transition RL Value	15016,5
Transition A Value	122,542
Chord Bearing	277,785
Chord Length	44,991

Chord Length	49,983
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Tangent Data

Straight Start Chainage	11+158.809
Straight Start X	41769,744
Straight Start Y	47417,046
Straight End Chainage	11+186.635
Straight End X	41743,815
Straight End Y	47406,946
Length	27,826
Bearing	276,354

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	11+186.635
Transition Start X	41743,815
Transition Start Y	47406,946
Intersection Point X	41712,692
Intersection Point Y	47394,823
Transition End Chainage	11+236.635
Transition End X	41696,667
Transition End Y	47390,369
Transition Length	50
Transition RL Value	12500
Transition A Value	111,803
Chord Bearing	278,476
Chord Length	49,978

Circular Curve Data

Arc Start Chainage	11+236.635
Arc Start X	41696,667
Arc Start Y	47390,369
Arc Centre X	41629,64
Arc Centre Y	47631,216
Arc End Chainage	11+390.504
Arc End X	41545,315
Arc End Y	47395,867
Included Angle	39,182
Radius	250
Arc Length	153,869
Middle Ordinate	11,745
Chord Length	151,452
Hand of Arc	Right
Tangent	79,459
External	12,324
Chord Bearing	302,312

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	11+390.504
Transition Start X	41545,315
Transition Start Y	47395,867
Intersection Point X	41513,753
Intersection Point Y	47407,175
Transition End Chainage	11+440.692
Transition End X	41499,552
Transition End Y	47416,381
Transition Length	50,188
Transition RL Value	18250
Transition A Value	135,093
Chord Bearing	326,829
Chord Length	50,151

Circular Curve Data

Arc Start Chainage	11+440.692
Arc Start X	41499,552
Arc Start Y	47416,381
Arc Centre X	41865,984
Arc Centre Y	48127,526
Arc End Chainage	11+572.316
Arc End X	41388,023
Arc End Y	47486,003
Included Angle	10,474
Radius	800
Arc Length	131,625
Middle Ordinate	2,706
Chord Length	131,476
Hand of Arc	Right
Tangent	65,961
External	2,715
Chord Bearing	335,527

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	11+572.316
Transition Start X	41388,023
Transition Start Y	47486,003
Intersection Point X	41380,003
Intersection Point Y	47491,978
Transition End Chainage	11+602.317
Transition End X	41364,191
Transition End Y	47504,226
Transition Length	30,001
Transition RL Value	24000,373
Transition A Value	154,921
Chord Bearing	341,56
Chord Length	30

Tangent Data

Straight Start Chainage	11+602.317
Straight Start X	41364,191
Straight Start Y	47504,226
Straight End Chainage	11+715.421
Straight End X	41274,776
Straight End Y	47573,489
Length	113,104
Bearing	341,958

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	11+715.421
Transition Start X	41274,776
Transition Start Y	47573,489
Intersection Point X	41256,328
Intersection Point Y	47587,779
Transition End Chainage	11+750.421
Transition End X	41246,952
Transition End Y	47594,72
Transition Length	35
Transition RL Value	28105
Transition A Value	167,645
Chord Bearing	341,495
Chord Length	34,999

Circular Curve Data

Arc Start Chainage	11+750.421
Arc Start X	41246,952
Arc Start Y	47594,72
Arc Centre X	40769,159
Arc Centre Y	46949,334
Arc End Chainage	11+791.641
Arc End X	41213,208
Arc End Y	47618,385
Included Angle	3,268
Radius	803
Arc Length	41,22
Middle Ordinate	0,264
Chord Length	41,216
Hand of Arc	Left
Tangent	20,615
External	0,265
Chord Bearing	338,936

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	11+791.641
Transition Start X	41213,208
Transition Start Y	47618,385
Intersection Point X	41203,487
Intersection Point Y	47624,837
Transition End Chainage	11+826.641
Transition End X	41183,768
Transition End Y	47637,314
Transition Length	35
Transition RL Value	28105
Transition A Value	167,645
Chord Bearing	336,377
Chord Length	34,999

Tangent Data

Straight Start Chainage	11+826.641
Straight Start X	41183,768
Straight Start Y	47637,314
Straight End Chainage	11+854.426
Straight End X	41160,289
Straight End Y	47652,171
Length	27,785
Bearing	335,915

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	11+854.426
Transition Start X	41160,289
Transition Start Y	47652,171
Intersection Point X	41126,438
Intersection Point Y	47673,59
Transition End Chainage	11+914.426
Transition End X	41108,716
Transition End Y	47682,797
Transition Length	60
Transition RL Value	21222
Transition A Value	145,678
Chord Bearing	334,115
Chord Length	59,981

Circular Curve Data

Arc Start Chainage	11+914.426
Arc Start X	41108,716
Arc Start Y	47682,797
Arc Centre X	40945,594
Arc Centre Y	47368,958
Arc End Chainage	12+076.171
Arc End X	40953,389
Arc End Y	47722,572
Included Angle	29,112
Radius	353,7
Arc Length	161,745
Middle Ordinate	9,205
Chord Length	160,339
Hand of Arc	Left
Tangent	82,312
External	9,451
Chord Bearing	315,959

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	12+076.171
Transition Start X	40953,389
Transition Start Y	47722,572
Intersection Point X	40933,38
Intersection Point Y	47723,013
Transition End Chainage	12+136.171
Transition End X	40893,443
Transition End Y	47720,503
Transition Length	60
Transition RL Value	21221,998
Transition A Value	145,678
Chord Bearing	297,803
Chord Length	59,981

Tangent Data

Straight Start Chainage	12+136.171
Straight Start X	40893,443
Straight Start Y	47720,503
Straight End Chainage	12+355.722
Straight End X	40674,325
Straight End Y	47706,729
Length	219,55
Bearing	296,003

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	12+355.722
Transition Start X	40674,325
Transition Start Y	47706,729
Intersection Point X	40640,99
Intersection Point Y	47704,633
Transition End Chainage	12+405.722
Transition End X	40624,369
Transition End Y	47705,257
Transition Length	50
Transition RL Value	12500
Transition A Value	111,803
Chord Bearing	298,125
Chord Length	49,978

Circular Curve Data

Arc Start Chainage	12+405.722
Arc Start X	40624,369
Arc Start Y	47705,257
Arc Centre X	40633,673
Arc Centre Y	47955,084
Arc End Chainage	12+552.227
Arc End X	40487,755
Arc End Y	47752,087
Included Angle	37,307
Radius	250
Arc Length	146,505
Middle Ordinate	10,655
Chord Length	144,418
Hand of Arc	Right
Tangent	75,424
External	11,13
Chord Bearing	321,023

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	12+552.227
Transition Start X	40487,755
Transition Start Y	47752,087
Intersection Point X	40474,209
Intersection Point Y	47761,824
Transition End Chainage	12+602.227
Transition End X	40449,207
Transition End Y	47783,896
Transition Length	50
Transition RL Value	12499,971
Transition A Value	111,803
Chord Bearing	343,921
Chord Length	49,978

Tangent Data

Straight Start Chainage	12+602.227
Straight Start X	40449,207
Straight Start Y	47783,896
Straight End Chainage	12+697.414
Straight End X	40377,848
Straight End Y	47846,893
Length	95,187
Bearing	346,043

Circular Curve Data

Arc Start Chainage	12+697.414
Arc Start X	40377,848
Arc Start Y	47846,893
Arc Centre X	37926,669
Arc Centre Y	45070,364
Arc End Chainage	12+802.428
Arc End X	40298,148
Arc End Y	47915,268
Included Angle	1,805
Radius	3703,7
Arc Length	105,014
Middle Ordinate	0,372
Chord Length	105,011
Hand of Arc	Left
Tangent	52,511
External	0,372
Chord Bearing	345,141

Tangent Data

Straight Start Chainage	12+802.428
Straight Start X	40298,148
Straight Start Y	47915,268
Straight End Chainage	12+841.894
Straight End X	40267,834
Straight End Y	47940,538
Length	39,466
Bearing	344,238

Spiral Curve Data: CLOTHOID

Transition Start Chainage	12+841.894
Transition Start X	40267,834
Transition Start Y	47940,538
Intersection Point X	40244,775
Intersection Point Y	47959,759
Transition End Chainage	12+886.894
Transition End X	40233,819
Transition End Y	47969,99
Transition Length	45
Transition RL Value	17999,984
Transition A Value	134,164
Chord Bearing	345,432
Chord Length	44,994

Circular Curve Data

Arc Start Chainage	12+886.894
Arc Start X	40233,819
Arc Start Y	47969,99
Arc Centre X	40506,808
Arc Centre Y	48262,355
Arc End Chainage	12+939.348
Arc End X	40197,934
Arc End Y	48008,196
Included Angle	8,348
Radius	400
Arc Length	52,454
Middle Ordinate	0,86
Chord Length	52,416
Hand of Arc	Right
Tangent	26,265
External	0,861
Chord Bearing	351,993

Spiral Curve Data: CLOTHOID

Transition Start Chainage	12+939.348
Transition Start X	40197,934
Transition Start Y	48008,196
Intersection Point X	40188,4
Intersection Point Y	48019,782
Transition End Chainage	12+984.348
Transition End X	40170,667
Transition End Y	48043,987
Transition Length	45
Transition RL Value	18000
Transition A Value	134,164
Chord Bearing	358,555
Chord Length	44,994

Tangent Data

Straight Start Chainage	12+984.348
Straight Start X	40170,667
Straight Start Y	48043,987
Straight End Chainage	13+080.291
Straight End X	40113,967
Straight End Y	48121,382
Length	95,943
Bearing	359,748

Spiral Curve Data: CLOTHOID

Transition Start Chainage	13+080.291
Transition Start X	40113,967
Transition Start Y	48121,382
Intersection Point X	40098,203
Intersection Point Y	48142,901
Transition End Chainage	13+120.291
Transition End X	40089,905
Transition End Y	48153,332
Transition Length	40
Transition RL Value	20148
Transition A Value	141,944
Chord Bearing	358,906
Chord Length	39,997

Circular Curve Data

Arc Start Chainage	13+120.291
Arc Start X	40089,905
Arc Start Y	48153,332
Arc Centre X	39695,714
Arc Centre Y	47839,761
Arc End Chainage	13+195.546
Arc End X	40038,838
Arc End Y	48208,514
Included Angle	9,511
Radius	503,7
Arc Length	75,255
Middle Ordinate	1,405
Chord Length	75,185
Hand of Arc	Left
Tangent	37,698
External	1,409
Chord Bearing	352,465

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	13+195.546
Transition Start X	40038,838
Transition Start Y	48208,514
Intersection Point X	40029,076
Intersection Point Y	48217,598
Transition End Chainage	13+235.546
Transition End X	40008,846
Transition End Y	48234,976
Transition Length	40
Transition RL Value	20148
Transition A Value	141,944
Chord Bearing	346,024
Chord Length	39,997

Tangent Data

Straight Start Chainage	13+235.546
Straight Start X	40008,846
Straight Start Y	48234,976
Straight End Chainage	13+337.546
Straight End X	39931,473
Straight End Y	48301,44
Length	102
Bearing	345,181

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	13+337.546
Transition Start X	39931,473
Transition Start Y	48301,44
Intersection Point X	39906,139
Intersection Point Y	48323,204
Transition End Chainage	13+387.546
Transition End X	39892,513
Transition End Y	48332,744
Transition Length	50
Transition RL Value	12685
Transition A Value	112,628
Chord Bearing	343,09
Chord Length	49,978

Circular Curve Data

Arc Start Chainage	13+387.546
Arc Start X	39892.513
Arc Start Y	48332.744
Arc Centre X	39746.934
Arc Centre Y	48124.969
Arc End Chainage	13+809.615
Arc End X	39526.556
Arc End Y	48250.654
Included Angle	105.912
Radius	253.700
Arc Length	422.069
Middle Ordinate	82.826
Chord Length	375.052
Hand of Arc	Left
Tangent	278.424
External	122.974
Chord Bearing	285.952

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	13+809.615
Transition Start X	39526.556
Transition Start Y	48250.654
Intersection Point X	39518.291
Intersection Point Y	48236.163
Transition End Chainage	13+859.615
Transition End X	39504.699
Transition End Y	48205.708
Transition Length	50.000
Transition RL Value	12685.000
Transition A Value	112.628
Chord Bearing	228.814
Chord Length	49.978

Tangent Data

Straight Start Chainage	13+859.615
Straight Start X	39504.699
Straight Start Y	48205.708
Straight End Chainage	13+881.284
Straight End X	39495.868
Straight End Y	48185.921
Length	21.669
Bearing	226.723

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	13+881.284
Transition Start X	39495.868
Transition Start Y	48185.921
Intersection Point X	39482.261
Intersection Point Y	48155.430
Transition End Chainage	13+931.284
Transition End X	39474.125
Transition End Y	48140.916
Transition Length	50.000
Transition RL Value	13750.000
Transition A Value	117.260
Chord Bearing	228.652
Chord Length	49.982

Circular Curve Data

Arc Start Chainage	13+931.284
Arc Start X	39474.125
Arc Start Y	48140.916
Arc Centre X	39234.211
Arc Centre Y	48275.327
Arc End Chainage	14+153.275
Arc End X	39303.015
Arc End Y	48009.073
Included Angle	51.390
Radius	275.000
Arc Length	221.991
Middle Ordinate	22.098
Chord Length	216.013
Hand of Arc	Right
Tangent	117.443
External	24.028
Chord Bearing	258.206

Spiral Curve Data: CLOTOHIOID

Transition Start Chainage	14+153.275
Transition Start X	39303.015
Transition Start Y	48009.073
Intersection Point X	39286.866
Intersection Point Y	48004.900
Transition End Chainage	14+203.274
Transition End X	39253.955
Transition End Y	47999.522
Transition Length	50.000
Transition RL Value	13749.899
Transition A Value	117.260
Chord Bearing	287.759
Chord Length	49.981

Tangent Data

Straight Start Chainage	14+203.274
Straight Start X	39253.955
Straight Start Y	47999.522
Straight End Chainage	14+601.149
Straight End X	38861.288
Straight End Y	47935.358
Length	397.875
Bearing	289.688

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	14+601.149
Transition Start X	38861.288
Transition Start Y	47935.358
Intersection Point X	38828.338
Intersection Point Y	47929.974
Transition End Chainage	14+651.149
Transition End X	38811.742
Transition End Y	47928.769
Transition Length	50.000
Transition RL Value	14000.000
Transition A Value	118.322
Chord Bearing	291.583
Chord Length	49.982

Circular Curve Data

Arc Start Chainage	14+651.149
Arc Start X	38811.742
Arc Start Y	47928.769
Arc Centre X	38791.407
Arc Centre Y	48208.030
Arc End Chainage	14+817.435
Arc End X	38651.991
Arc End Y	47965.206
Included Angle	37.807
Radius	280.000
Arc Length	166.286
Middle Ordinate	12.254
Chord Length	163.853
Hand of Arc	Right
Tangent	85.676
External	12.815
Chord Bearing	314.276

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	14+817.435
Transition Start X	38651.991
Transition Start Y	47965.206
Intersection Point X	38637.527
Intersection Point Y	47973.511
Transition End Chainage	14+867.435
Transition End X	38610.202
Transition End Y	47992.627
Transition Length	50.000
Transition RL Value	14000.000
Transition A Value	118.322
Chord Bearing	336.969
Chord Length	49.983

Tangent Data

Straight Start Chainage	14+867.435
Straight Start X	38610.202
Straight Start Y	47992.627
Straight End Chainage	15+069.066
Straight End X	38444.991
Straight End Y	48108.213
Length	201.630
Bearing	338.864

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	15+069.066
Transition Start X	38444.991
Transition Start Y	48108.213
Intersection Point X	38417.625
Intersection Point Y	48127.360
Transition End Chainage	15+119.066
Transition End X	38403.121
Transition End Y	48135.504
Transition Length	50.000
Transition RL Value	12685.054
Transition A Value	112.628
Chord Bearing	336.773
Chord Length	49.979

Circular Curve Data

Arc Start Chainage	15+119.066
Arc Start X	38403.121
Arc Start Y	48135.504
Arc Centre X	38278.843
Arc Centre Y	47914.328
Arc End Chainage	15+479.364
Arc End X	38078.820
Arc End Y	48070.388
Included Angle	90.411
Radius	253.700
Arc Length	360.299
Middle Ordinate	61.318
Chord Length	330.774
Hand of Arc	Left
Tangent	218.101
External	80.862
Chord Bearing	287.385

Spiral Curve Data:CLOTOHIOID

Transition Start Chainage	15+479.364
Transition Start X	38078.820
Transition Start Y	48070.388
Intersection Point X	38068.558
Intersection Point Y	48057.235
Transition End Chainage	15+529.364
Transition End X	38050.730
Transition End Y	48029.050
Transition Length	50.000
Transition RL Value	12685.000
Transition A Value	112.628
Chord Bearing	237.997
Chord Length	49.978

Tangent Data

Straight Start Chainage	15+529.364
Straight Start X	38050.730
Straight Start Y	48029.050
Straight End Chainage	15+535.751
Straight End X	38047.316
Straight End Y	48023.653
Length	6.387
Bearing	235.906

Circular Curve Data

Arc Start Chainage	15+535.751
Arc Start X	38047.316
Arc Start Y	48023.653
Arc Centre X	37624.757
Arc Centre Y	48290.944
Arc End Chainage	15+562.831
Arc End X	38032.226
Arc End Y	48001.170
Included Angle	3.448
Radius	500.000
Arc Length	27.080
Middle Ordinate	.183
Chord Length	27.077
Hand of Arc	Right
Tangent	13.544
External	.183
Chord Bearing	237.630

Tangent Data

Straight Start Chainage	15+562.831
Straight Start X	38032.226
Straight Start Y	48001.170
Finish on Straight Chainage	15+621.087
Finish on Straight X	37998.465
Finish on Straight Y	47953.695
Length	58.255
Bearing	239.354

Circular Curve Data

Arc Start Chainage	15+621.087
Arc Start X	37998.465
Arc Start Y	47953.695
Arc Centre X	37753.983
Arc Centre Y	48127.560
Arc End Chainage	15+648.285
Arc End X	37981.720
Arc End Y	47932.275
Included Angle	5.772
Radius	300.000
Arc Length	27.198
Middle Ordinate	.308
Chord Length	27.189
Hand of Arc	Right
Tangent	13.608
External	.308
Chord Bearing	242.240

Tangent Data

Straight Start Chainage	15+648.285
Straight Start X	37981.720
Straight Start Y	47932.275
Finish on Straight Chainage	15+661.108
Finish on Straight X	37973.373
Finish on Straight Y	47922.541
Length	12.823
Bearing	245.126

Circular Curve Data

Arc Start Chainage	15+661.108
Arc Start X	37973.373
Arc Start Y	47922.541
Arc Centre X	38201.109
Arc Centre Y	47727.256
Arc End Chainage	15+688.306
Arc End X	37956.628
Arc End Y	47901.121
Included Angle	5.772
Radius	300.000
Arc Length	27.198
Middle Ordinate	.308
Chord Length	27.189
Hand of Arc	Left
Tangent	13.608
External	.308
Chord Bearing	242.240

Tangent Data

Straight Start Chainage	15+688.306
Straight Start X	37956.628
Straight Start Y	47901.121
Finish on Straight Chainage	15+828.306
Finish on Straight X	37875.491
Finish on Straight Y	47787.029
Length	140.000
Bearing	239.354

КОРДИНАТИ НА ГЛАВНИТЕ ТОЧКИ ОТ ОС ДЕСЕН КОЛОВОЗ

НОМЕР	Километраж	СЕВЕР	ИЗТОК	ОПИСАНИЕ	НОМЕР	Километраж	СЕВЕР	ИЗТОК	ОПИСАНИЕ
1	-38,853	50603,813	50030,298	PBT	41	4696,639	46766,681	49844,994	SC
2	115,266	50459,596	49975,947	TS	42	4924,924	46643,296	49657,765	CS
3	151,266	50425,450	49964,615	SC	43	4996,924	46629,951	49587,047	ST
4	377,724	50246,500	50065,760	CS	44	5019,523	46626,527	49564,709	TS
5	413,724	50238,597	50100,858	ST	45	5044,523	46622,568	49540,025	SC
6	951,098	50141,605	50629,406	TS	46	5077,099	46616,094	49508,103	CS
7	1000,098	50130,843	50677,177	SC	47	5102,099	46610,124	49483,826	ST
8	1200,614	49993,553	50812,140	CS	48	5123,910	46604,769	49462,683	TS
9	1249,614	49945,605	50822,083	ST	49	5143,910	46599,939	49443,275	SC
10	1402,508	49794,773	50847,103	TS	50	5287,859	46579,016	49301,049	CS
11	1438,508	49759,219	50852,745	SC	51	5317,859	46577,694	49271,079	ST
12	1528,183	49669,953	50860,871	CS	52	5431,166	46573,406	49157,852	TS
13	1564,183	49633,965	50861,742	ST	53	5481,166	46570,129	49107,975	SC
14	1674,975	49523,189	50863,645	TS	54	5801,029	46384,553	48866,022	CS
15	1719,975	49478,193	50863,743	SC	55	5851,029	46337,231	48849,927	ST
16	1829,224	49370,184	50848,844	CS	56	6013,312	46182,199	48801,958	PC
17	1874,224	49326,895	50836,568	ST	57	6096,055	46103,512	48776,377	PT
18	1962,449	49242,388	50811,228	TS	58	6252,102	45955,813	48726,023	TS
19	1992,449	49213,631	50802,684	SC	59	6307,102	45903,413	48709,342	SC
20	2067,619	49141,089	50782,995	CS	60	6378,964	45832,888	48695,953	CS
21	2097,619	49111,958	50775,828	ST	61	6433,964	45778,020	48692,270	ST
22	2573,096	48649,966	50663,389	TS	62	6721,019	45491,278	48678,883	TS
23	2623,096	48601,061	50653,074	SC	63	6771,019	45441,451	48674,976	SC
24	2687,277	48537,055	50651,327	CS	64	6934,009	45297,046	48605,131	CS
25	2737,277	48487,660	50658,959	ST	65	6984,009	45263,050	48568,495	ST
26	2858,674	48368,316	50681,188	TS	66	7034,312	45230,015	48530,559	TS
27	2908,674	48318,961	50689,112	SC	67	7084,312	45195,957	48493,983	SC
28	3164,384	48078,762	50621,624	CS	68	7280,777	45016,877	48426,286	CS
29	3214,384	48040,756	50589,155	ST	69	7330,777	44967,140	48431,185	ST
30	3258,226	48008,144	50559,854	PC	70	8157,844	44147,215	48539,636	PC
31	3380,680	47915,007	50480,372	PT	71	8237,844	44068,095	48551,446	PT
32	3401,896	47898,523	50467,016	TS	72	8264,069	44042,225	48555,749	TS
33	3446,896	47863,259	50439,065	SC	73	8314,069	43992,682	48562,327	SC
34	3573,681	47755,868	50371,999	CS	74	8511,501	43810,136	48501,264	CS
35	3618,681	47715,277	50352,579	ST	75	8561,501	43774,522	48466,201	ST
36	4158,470	47225,881	50124,843	TS	76	8704,931	43675,674	48362,271	TS
37	4203,470	47185,288	50105,425	SC	77	8754,931	43640,234	48327,023	SC
38	4244,323	47149,374	50085,966	CS	78	8783,948	43617,657	48308,813	CS
39	4289,323	47110,939	50062,566	ST	79	8833,948	43575,435	48282,081	SC
40	4624,639	46826,403	49885,150	TS	80	8878,895	43535,735	48261,021	CS

НОМЕР	Километраж	СЕВЕР	ИЗТОК	ОПИСАНИЕ	НОМЕР	Километраж	СЕВЕР	ИЗТОК	ОПИСАНИЕ
81	8908,895	43508,684	48248,050	ST	121	12076,171	40953,389	47722,572	CS
82	8988,668	43436,539	48214,008	TS	122	12136,171	40893,443	47720,503	ST
83	9060,669	43373,005	48180,269	SC	123	12355,721	40674,325	47706,729	TS
84	9144,151	43312,045	48123,785	PCC	124	12405,721	40624,369	47705,257	SC
85	9198,878	43282,606	48077,739	CS	125	12552,226	40487,755	47752,087	CS
86	9270,878	43254,603	48011,456	ST	126	12602,226	40449,207	47783,896	ST
87	9291,414	43247,364	47992,239	TS	127	12697,414	40377,848	47846,893	PC
88	9331,414	43233,577	47954,691	SC	128	12802,428	40298,148	47915,268	PT
89	9409,346	43211,536	47879,972	CS	129	12841,894	40267,834	47940,538	TS
90	9449,346	43202,737	47840,953	ST	130	12886,894	40233,819	47969,990	SC
91	9545,535	43182,358	47746,948	TS	131	12939,348	40197,934	48008,196	CS
92	9595,535	43170,499	47698,388	SC	132	12984,348	40170,667	48043,987	ST
93	9902,226	42964,907	47486,709	CS	133	13080,290	40113,967	48121,382	TS
94	9952,226	42916,714	47473,439	ST	134	13120,290	40089,905	48153,332	SC
95	10110,761	42762,823	47435,346	TS	135	13195,546	40038,838	48208,514	CS
96	10160,761	42714,711	47421,810	SC	136	13235,546	40008,846	48234,976	ST
97	10201,372	42677,575	47405,473	CS	137	13337,546	39931,473	48301,440	TS
98	10251,372	42635,088	47379,150	ST	138	13387,546	39892,513	48332,744	SC
99	10271,811	42618,063	47367,842	TS	139	13809,615	39526,556	48250,654	CS
100	10321,811	42575,636	47341,418	SC	140	13859,615	39504,699	48205,708	ST
101	10540,026	42364,136	47316,834	CS	141	13881,284	39495,868	48185,921	TS
102	10590,026	42316,779	47332,823	ST	142	13931,284	39474,125	48140,916	SC
103	10611,281	42296,848	47340,207	PC	143	14153,275	39303,015	48009,073	CS
104	10736,000	42178,827	47380,487	PT	144	14203,274	39253,955	47999,522	ST
105	10888,767	42033,017	47426,063	TS	145	14601,149	38861,288	47935,358	TS
106	10933,767	41989,785	47438,517	SC	146	14651,149	38811,742	47928,769	SC
107	11113,808	41812,024	47432,429	CS	147	14817,435	38651,991	47965,206	CS
108	11158,808	41769,744	47417,046	ST	148	14867,435	38610,202	47992,627	ST
109	11186,635	41743,815	47406,946	TS	149	15069,066	38444,991	48108,213	TS
110	11236,635	41696,667	47390,369	SC	150	15119,066	38403,121	48135,504	SC
111	11390,504	41545,315	47395,867	CS	151	15479,364	38078,820	48070,388	CS
112	11440,691	41499,552	47416,381	SC	152	15529,364	38050,730	48029,050	ST
113	11572,316	41388,023	47486,003	CS	153	15535,751	38047,316	48023,653	PC
114	11602,316	41364,191	47504,226	ST	154	15562,831	38032,226	48001,170	PT
115	11715,420	41274,776	47573,489	TS	155	15621,087	37998,465	47953,695	PC
116	11750,420	41246,952	47594,720	SC	156	15648,285	37981,720	47932,275	PT
117	11791,640	41213,208	47618,385	CS	157	15661,108	37973,373	47922,541	PC
118	11826,640	41183,768	47637,314	ST	158	15688,306	37956,628	47901,121	PT
119	11854,426	41160,289	47652,171	TS	159	15828,306	37875,491	47787,029	PAT
120	11914,426	41108,716	47682,797	SC					

ДАНИИ за ПРОФИЛ ПО ДЕСЕН КОЛОВОЗ
Vertical Alignment
1 Grade

Gradient	.000
Begin on Gradient Chainage	-0+038.853
Begin on Gradient Level	526.000
Gradient End Chainage	0+005.964
Gradient End Level	526.000
Gradient Length	44.817

2 Vertical Curve

IP Chainage	0+032.168
IP Level	526.000
Curve Start Gradient	.000
Curve End Gradient	2.620
Curve Start Chainage	0+005.964
Curve Start Level	526.000
Curve End Chainage	0+058.371
Curve End Level	526.687
Algebraic Difference	2.620
Curve Length	52.406
Vertical Radius	2000.000
Curve Type	Sag

3 Grade

Gradient	2.620
Gradient Start Chainage	0+058.371
Grade Start Level	526.687
Gradient End Chainage	0+380.304
Gradient End Level	535.122
Gradient Length	321.934

4 Vertical Curve

IP Chainage	0+427.370
IP Level	536.356
Curve Start Gradient	2.620
Curve End Gradient	-2.086
Curve Start Chainage	0+380.304
Curve Start Level	535.122
Curve End Chainage	0+474.435
Curve End Level	535.374
Algebraic Difference	-4.707
Curve Length	94.131
High/Low Chainage	0+432.711
High/Low Level	535.809
Vertical Radius	-2000.000
Curve Type	Hog
Sight Distance	89.917

5 Vertical Curve

IP Chainage	0+492.298
IP Level	535.001
Curve Start Gradient	-2.086
Curve End Gradient	-.300
Curve Start Chainage	0+474.435
Curve Start Level	535.374
Curve End Chainage	0+510.160
Curve End Level	534.947
Algebraic Difference	1.786
Curve Length	35.724
Vertical Radius	2000.000
Curve Type	Sag

6 Grade

Gradient	-.300
Gradient Start Chainage	0+510.160
Grade Start Level	534.947
Gradient End Chainage	0+716.998
Gradient End Level	534.327
Gradient Length	206.838

7 Vertical Curve

IP Chainage	0+731.998
IP Level	534.282
Curve Start Gradient	-.300
Curve End Gradient	-.900
Curve Start Chainage	0+716.998
Curve Start Level	534.327
Curve End Chainage	0+746.998
Curve End Level	534.147
Algebraic Difference	-.600
Curve Length	30.000
Vertical Radius	-5000.000
Curve Type	Hog
Sight Distance	351.875

8 Grade

Gradient	-.900
Gradient Start Chainage	0+746.998
Grade Start Level	534.147
Gradient End Chainage	0+913.142
Gradient End Level	532.652
Gradient Length	166.144

9 Vertical Curve

IP Chainage	0+928.142
IP Level	532.517
Curve Start Gradient	-.900
Curve End Gradient	-.300
Curve Start Chainage	0+913.142
Curve Start Level	532.652
Curve End Chainage	0+943.142
Curve End Level	532.472
Algebraic Difference	.600
Curve Length	30.000
Vertical Radius	5000.000
Curve Type	Sag

10 Grade

Gradient	-.300
Gradient Start Chainage	0+943.142
Grade Start Level	532.472
Gradient End Chainage	2+204.263
Gradient End Level	528.688
Gradient Length	1261.121

11 Vertical Curve

IP Chainage	2+232.166
IP Level	528.605
Curve Start Gradient	-.300
Curve End Gradient	.497
Curve Start Chainage	2+204.263
Curve Start Level	528.688
Curve End Chainage	2+260.070
Curve End Level	528.743
Algebraic Difference	.797
Curve Length	55.808
High/Low Chainage	2+225.263
High/Low Level	528.657
Vertical Radius	7000.000
Curve Type	Sag

12 Grade

Gradient	.497
Gradient Start Chainage	2+260.070
Grade Start Level	528.743
Gradient End Chainage	2+347.991
Gradient End Level	529.181
Gradient Length	87.921

13 Vertical Curve

IP Chainage	2+396.388
IP Level	529.421
Curve Start Gradient	.497
Curve End Gradient	1.880
Curve Start Chainage	2+347.991
Curve Start Level	529.181
Curve End Chainage	2+444.784
Curve End Level	530.331
Algebraic Difference	1.383
Curve Length	96.793
Vertical Radius	7000.000
Curve Type	Sag

14 Grade

Gradient	1.880
Gradient Start Chainage	2+444.784
Grade Start Level	530.331
Gradient End Chainage	2+643.677
Gradient End Level	534.070
Gradient Length	198.894

15 Vertical Curve

IP Chainage	2+687.278
IP Level	534.890
Curve Start Gradient	1.880
Curve End Gradient	-.300
Curve Start Chainage	2+643.677
Curve Start Level	534.070
Curve End Chainage	2+730.878
Curve End Level	534.759
Algebraic Difference	-2.180
Curve Length	87.200
High/Low Chainage	2+718.878
High/Low Level	534.777
Vertical Radius	-4000.000
Curve Type	Hog
Sight Distance	136.318

16 Grade

Gradient	-.300
Gradient Start Chainage	2+730.878
Grade Start Level	534.759
Gradient End Chainage	3+280.914
Gradient End Level	533.109
Gradient Length	550.037

17 Vertical Curve

IP Chainage	3+282.689
IP Level	533.104
Curve Start Gradient	-.300
Curve End Gradient	-.351
Curve Start Chainage	3+280.914
Curve Start Level	533.109
Curve End Chainage	3+284.463
Curve End Level	533.097
Algebraic Difference	-.051
Curve Length	3.549
Vertical Radius	-7000.000
Curve Type	Hog
Sight Distance	3988.720

18 Grade

Gradient	-.351
Gradient Start Chainage	3+284.463
Grade Start Level	533.097
Gradient End Chainage	3+500.383
Gradient End Level	532.340
Gradient Length	215.920

19 Vertical Curve

IP Chainage	3+522.629
IP Level	532.262
Curve Start Gradient	-.351
Curve End Gradient	.285
Curve Start Chainage	3+500.383
Curve Start Level	532.340
Curve End Chainage	3+544.875
Curve End Level	532.326
Algebraic Difference	.636
Curve Length	44.491
High/Low Chainage	3+524.932
High/Low Level	532.297
Vertical Radius	7000.000
Curve Type	Sag

20 Grade

Gradient	.285
Gradient Start Chainage	3+544.875
Grade Start Level	532.326
Gradient End Chainage	4+516.503
Gradient End Level	535.094
Gradient Length	971.628

21 Vertical Curve

IP Chainage	4+569.201
IP Level	535.244
Curve Start Gradient	.285
Curve End Gradient	-3.931
Curve Start Chainage	4+516.503
Curve Start Level	535.094
Curve End Chainage	4+621.900
Curve End Level	533.172
Algebraic Difference	-4.216
Curve Length	105.396
High/Low Chainage	4+523.626
High/Low Level	535.104
Vertical Radius	-2500.000
Curve Type	Hog
Sight Distance	100.530

22 Grade

Gradient	-3.931
Gradient Start Chainage	4+621.900
Grade Start Level	533.172
Gradient End Chainage	5+033.527
Gradient End Level	516.991
Gradient Length	411.628

23 Vertical Curve

IP Chainage	5+077.099
IP Level	515.279
Curve Start Gradient	-3.931
Curve End Gradient	-.300
Curve Start Chainage	5+033.527
Curve Start Level	516.991
Curve End Chainage	5+120.670
Curve End Level	515.148
Algebraic Difference	3.631
Curve Length	87.143
Vertical Radius	2400.000
Curve Type	Sag

24 Grade

Gradient	-.300
Gradient Start Chainage	5+120.670
Grade Start Level	515.148
Gradient End Chainage	5+352.534
Gradient End Level	514.452
Gradient Length	231.863

25 Vertical Curve

IP Chainage	5+382.534
IP Level	514.362
Curve Start Gradient	-.300
Curve End Gradient	.900
Curve Start Chainage	5+352.534
Curve Start Level	514.452
Curve End Chainage	5+412.534
Curve End Level	514.632
Algebraic Difference	1.200
Curve Length	60.000
High/Low Chainage	5+367.534
High/Low Level	514.430
Vertical Radius	5000.000
Curve Type	Sag

26 Grade

Gradient	.900
Gradient Start Chainage	5+412.534
Grade Start Level	514.632
Gradient End Chainage	5+700.139
Gradient End Level	517.221
Gradient Length	287.605

27 Vertical Curve

IP Chainage	5+715.139
IP Level	517.356
Curve Start Gradient	.900
Curve End Gradient	.300
Curve Start Chainage	5+700.139
Curve Start Level	517.221
Curve End Chainage	5+730.139
Curve End Level	517.401
Algebraic Difference	-.600
Curve Length	30.000
Vertical Radius	-5000.000
Curve Type	Hog
Sight Distance	351.874

28 Grade

Gradient	.300
Gradient Start Chainage	5+730.139
Grade Start Level	517.401
Gradient End Chainage	6+040.013
Gradient End Level	518.330
Gradient Length	309.874

29 Vertical Curve

IP Chainage	6+055.013
IP Level	518.375
Curve Start Gradient	.300
Curve End Gradient	-.300
Curve Start Chainage	6+040.013
Curve Start Level	518.330
Curve End Chainage	6+070.014
Curve End Level	518.330
Algebraic Difference	-.600
Curve Length	30.000
High/Low Chainage	6+055.013
High/Low Level	518.353
Vertical Radius	-5000.000
Curve Type	Hog
Sight Distance	351.872

30 Grade

Gradient	-.300
Gradient Start Chainage	6+070.014
Grade Start Level	518.330
Gradient End Chainage	6+144.538
Gradient End Level	518.107
Gradient Length	74.525

31 Vertical Curve

IP Chainage	6+159.538
IP Level	518.062
Curve Start Gradient	-.300
Curve End Gradient	.300
Curve Start Chainage	6+144.538
Curve Start Level	518.107
Curve End Chainage	6+174.539
Curve End Level	518.107
Algebraic Difference	.600
Curve Length	30.000
High/Low Chainage	6+159.539
High/Low Level	518.084
Vertical Radius	5000.000
Curve Type	Sag

32 Grade

Gradient	.300
Gradient Start Chainage	6+174.539
Grade Start Level	518.107
Gradient End Chainage	6+795.741
Gradient End Level	519.970
Gradient Length	621.202

33 Vertical Curve

IP Chainage	6+855.241
IP Level	520.149
Curve Start Gradient	.300
Curve End Gradient	2.000
Curve Start Chainage	6+795.741
Curve Start Level	519.970
Curve End Chainage	6+914.741
Curve End Level	521.339
Algebraic Difference	1.700
Curve Length	119.000
Vertical Radius	7000.000
Curve Type	Sag

34 Grade

Gradient	2.000
Gradient Start Chainage	6+914.741
Grade Start Level	521.339
Gradient End Chainage	6+998.640
Gradient End Level	523.017
Gradient Length	83.899

35 Vertical Curve

IP Chainage	7+012.030
IP Level	523.285
Curve Start Gradient	2.000
Curve End Gradient	2.383
Curve Start Chainage	6+998.640
Curve Start Level	523.017
Curve End Chainage	7+025.419
Curve End Level	523.604
Algebraic Difference	.383
Curve Length	26.779
Vertical Radius	7000.000
Curve Type	Sag

36 Grade

Gradient	2.383
Gradient Start Chainage	7+025.419
Grade Start Level	523.604
Gradient End Chainage	7+239.126
Gradient End Level	528.695
Gradient Length	213.706

37 Vertical Curve

IP Chainage	7+280.777
IP Level	529.688
Curve Start Gradient	2.383
Curve End Gradient	.300
Curve Start Chainage	7+239.126
Curve Start Level	528.695
Curve End Chainage	7+322.428
Curve End Level	529.813
Algebraic Difference	-2.083
Curve Length	83.303
Vertical Radius	-4000.000
Curve Type	Hog
Sight Distance	138.707

38 Grade

Gradient	.300
Gradient Start Chainage	7+322.428
Grade Start Level	529.813
Gradient End Chainage	7+604.765
Gradient End Level	530.660
Gradient Length	282.337

39 Vertical Curve

IP Chainage	7+622.266
IP Level	530.712
Curve Start Gradient	.300
Curve End Gradient	.800
Curve Start Chainage	7+604.765
Curve Start Level	530.660
Curve End Chainage	7+639.766
Curve End Level	530.852
Algebraic Difference	.500
Curve Length	35.000
Vertical Radius	7000.000
Curve Type	Sag

40 Grade

Gradient	.800
Gradient Start Chainage	7+639.766
Grade Start Level	530.852
Gradient End Chainage	7+833.864
Gradient End Level	532.405
Gradient Length	194.099

41 Vertical Curve

IP Chainage	7+851.365
IP Level	532.545
Curve Start Gradient	.800
Curve End Gradient	.300
Curve Start Chainage	7+833.864
Curve Start Level	532.405
Curve End Chainage	7+868.865
Curve End Level	532.597
Algebraic Difference	-.500
Curve Length	35.001
Vertical Radius	-7000.000
Curve Type	Hog
Sight Distance	421.744

42 Grade

Gradient	.300
Gradient Start Chainage	7+868.865
Grade Start Level	532.597
Gradient End Chainage	8+157.227
Gradient End Level	533.463
Gradient Length	288.362

43 Vertical Curve

IP Chainage	8+198.962
IP Level	533.588
Curve Start Gradient	.300
Curve End Gradient	1.969
Curve Start Chainage	8+157.227
Curve Start Level	533.463
Curve End Chainage	8+240.697
Curve End Level	534.410
Algebraic Difference	1.669
Curve Length	83.470
Vertical Radius	5000.000
Curve Type	Sag

44 Grade

Gradient	1.969
Gradient Start Chainage	8+240.697
Grade Start Level	534.410
Gradient End Chainage	8+449.418
Gradient End Level	538.520
Gradient Length	208.721

45 Vertical Curve

IP Chainage	8+480.183
IP Level	539.126
Curve Start Gradient	1.969
Curve End Gradient	3.200
Curve Start Chainage	8+449.418
Curve Start Level	538.520
Curve End Chainage	8+510.948
Curve End Level	540.111
Algebraic Difference	1.231
Curve Length	61.530
Vertical Radius	5000.000
Curve Type	Sag

46 Grade

Gradient	3.200
Gradient Start Chainage	8+510.948
Grade Start Level	540.111
Gradient End Chainage	8+754.948
Gradient End Level	547.919
Gradient Length	244.000

47 Vertical Curve

IP Chainage	8+783.948
IP Level	548.847
Curve Start Gradient	3.200
Curve End Gradient	.300
Curve Start Chainage	8+754.948
Curve Start Level	547.919
Curve End Chainage	8+812.948
Curve End Level	548.934
Algebraic Difference	-2.900
Curve Length	58.000
Vertical Radius	-2000.000
Curve Type	Hog
Sight Distance	98.698

48 Grade

Gradient	.300
Gradient Start Chainage	8+812.948
Grade Start Level	548.934
Gradient End Chainage	8+954.168
Gradient End Level	549.357
Gradient Length	141.220

49 Vertical Curve

IP Chainage	8+988.668
IP Level	549.461
Curve Start Gradient	.300
Curve End Gradient	-2.000
Curve Start Chainage	8+954.168
Curve Start Level	549.357
Curve End Chainage	9+023.168
Curve End Level	548.771
Algebraic Difference	-2.300
Curve Length	69.000
High/Low Chainage	8+963.168
High/Low Level	549.371
Vertical Radius	-3000.000
Curve Type	Hog
Sight Distance	122.381

50 Grade

Gradient	-2.000
Gradient Start Chainage	9+023.168
Grade Start Level	548.771
Gradient End Chainage	9+105.196
Gradient End Level	547.130
Gradient Length	82.029

51 Vertical Curve

IP Chainage	9+151.196
IP Level	546.210
Curve Start Gradient	-2.000
Curve End Gradient	.300
Curve Start Chainage	9+105.196
Curve Start Level	547.130
Curve End Chainage	9+197.196
Curve End Level	546.348
Algebraic Difference	2.300
Curve Length	92.000
High/Low Chainage	9+185.196
High/Low Level	546.330
Vertical Radius	4000.000
Curve Type	Sag

52 Grade

Gradient	.300
Gradient Start Chainage	9+197.196
Grade Start Level	546.348
Gradient End Chainage	9+460.102
Gradient End Level	547.137
Gradient Length	262.906

53 Vertical Curve

IP Chainage	9+498.143
IP Level	547.251
Curve Start Gradient	.300
Curve End Gradient	2.202
Curve Start Chainage	9+460.102
Curve Start Level	547.137
Curve End Chainage	9+536.184
Curve End Level	548.089
Algebraic Difference	1.902
Curve Length	76.082
Vertical Radius	4000.000
Curve Type	Sag

54 Grade

Gradient	2.202
Gradient Start Chainage	9+536.184
Grade Start Level	548.089
Gradient End Chainage	9+873.696
Gradient End Level	555.521
Gradient Length	337.512

55 Vertical Curve

IP Chainage	9+902.226
IP Level	556.149
Curve Start Gradient	2.202
Curve End Gradient	.300
Curve Start Chainage	9+873.696
Curve Start Level	555.521
Curve End Chainage	9+930.757
Curve End Level	556.235
Algebraic Difference	-1.902
Curve Length	57.062
Vertical Radius	-3000.000
Curve Type	Hog
Sight Distance	134.798

56 Grade

Gradient	.300
Gradient Start Chainage	9+930.757
Grade Start Level	556.235
Gradient End Chainage	10+335.480
Gradient End Level	557.449
Gradient Length	404.723

57 Vertical Curve

IP Chainage	10+372.980
IP Level	557.561
Curve Start Gradient	.300
Curve End Gradient	1.800
Curve Start Chainage	10+335.480
Curve Start Level	557.449
Curve End Chainage	10+410.480
Curve End Level	558.236
Algebraic Difference	1.500
Curve Length	75.000
Vertical Radius	5000.000
Curve Type	Sag

58 Grade

Gradient	1.800
Gradient Start Chainage	10+410.480
Grade Start Level	558.236
Gradient End Chainage	10+626.069
Gradient End Level	562.117
Gradient Length	215.589

59 Vertical Curve

IP Chainage	10+663.569
IP Level	562.792
Curve Start Gradient	1.800
Curve End Gradient	.300
Curve Start Chainage	10+626.069
Curve Start Level	562.117
Curve End Chainage	10+701.069
Curve End Level	562.905
Algebraic Difference	-1.500
Curve Length	75.000
Vertical Radius	-5000.000
Curve Type	Hog
Sight Distance	172.250

60 Grade

Gradient	.300
Gradient Start Chainage	10+701.069
Grade Start Level	562.905
Gradient End Chainage	10+978.226
Gradient End Level	563.736
Gradient Length	277.158

61 Vertical Curve

IP Chainage	11+003.885
IP Level	563.813
Curve Start Gradient	.300
Curve End Gradient	1.326
Curve Start Chainage	10+978.226
Curve Start Level	563.736
Curve End Chainage	11+029.543
Curve End Level	564.153
Algebraic Difference	1.026
Curve Length	51.317
Vertical Radius	5000.000
Curve Type	Sag

62 Grade

Gradient	1.326
Gradient Start Chainage	11+029.543
Grade Start Level	564.153
Gradient End Chainage	11+301.019
Gradient End Level	567.754
Gradient Length	271.475

63 Vertical Curve

IP Chainage	11+321.679
IP Level	568.028
Curve Start Gradient	1.326
Curve End Gradient	.500
Curve Start Chainage	11+301.019
Curve Start Level	567.754
Curve End Chainage	11+342.339
Curve End Level	568.131
Algebraic Difference	-.826
Curve Length	41.321
Vertical Radius	-5000.000
Curve Type	Hog
Sight Distance	265.242

64 Grade

Gradient	.500
Gradient Start Chainage	11+342.339
Grade Start Level	568.131
Gradient End Chainage	11+541.315
Gradient End Level	569.126
Gradient Length	198.975

65 Vertical Curve

IP Chainage	11+572.316
IP Level	569.281
Curve Start Gradient	.500
Curve End Gradient	3.600
Curve Start Chainage	11+541.315
Curve Start Level	569.126
Curve End Chainage	11+603.317
Curve End Level	570.397
Algebraic Difference	3.100
Curve Length	62.002
Vertical Radius	2000.000
Curve Type	Sag

66 Grade

Gradient	3.600
Gradient Start Chainage	11+603.317
Grade Start Level	570.397
Gradient End Chainage	12+034.283
Gradient End Level	585.912
Gradient Length	430.967

67 Vertical Curve

IP Chainage	12+076.171
IP Level	587.420
Curve Start Gradient	3.600
Curve End Gradient	.808
Curve Start Chainage	12+034.283
Curve Start Level	585.912
Curve End Chainage	12+118.058
Curve End Level	587.758
Algebraic Difference	-2.792
Curve Length	83.775
Vertical Radius	-3000.000
Curve Type	Hog
Sight Distance	114.269

68 Grade

Gradient	.808
Gradient Start Chainage	12+118.058
Grade Start Level	587.758
Gradient End Chainage	12+293.094
Gradient End Level	589.172
Gradient Length	175.036

69 Vertical Curve

IP Chainage	12+322.918
IP Level	589.413
Curve Start Gradient	.808
Curve End Gradient	-.045
Curve Start Chainage	12+293.094
Curve Start Level	589.172
Curve End Chainage	12+352.741
Curve End Level	589.399
Algebraic Difference	-.852
Curve Length	59.647
High/Low Chainage	12+349.623
High/Low Level	589.400
Vertical Radius	-7000.000
Curve Type	Hog
Sight Distance	267.032

70 Grade

Gradient	-.045
Gradient Start Chainage	12+352.741
Grade Start Level	589.399
Gradient End Chainage	12+540.164
Gradient End Level	589.316
Gradient Length	187.423

71 Vertical Curve

IP Chainage	12+552.224
IP Level	589.310
Curve Start Gradient	-.045
Curve End Gradient	.300
Curve Start Chainage	12+540.164
Curve Start Level	589.316
Curve End Chainage	12+564.283
Curve End Level	589.347
Algebraic Difference	.345
Curve Length	24.118
High/Low Chainage	12+543.283
High/Low Level	589.315
Vertical Radius	7000.000
Curve Type	Sag

72 Grade

Gradient	.300
Gradient Start Chainage	12+564.283
Grade Start Level	589.347
Gradient End Chainage	12+809.330
Gradient End Level	590.082
Gradient Length	245.047

73 Vertical Curve

IP Chainage	12+821.026
IP Level	590.117
Curve Start Gradient	.300
Curve End Gradient	.768
Curve Start Chainage	12+809.330
Curve Start Level	590.082
Curve End Chainage	12+832.721
Curve End Level	590.207
Algebraic Difference	.468
Curve Length	23.392
Vertical Radius	5000.000
Curve Type	Sag

74 Grade

Gradient	.768
Gradient Start Chainage	12+832.721
Grade Start Level	590.207
Gradient End Chainage	12+994.333
Gradient End Level	591.448
Gradient Length	161.612

75 Vertical Curve

IP Chainage	13+031.707
IP Level	591.735
Curve Start Gradient	.768
Curve End Gradient	-.300
Curve Start Chainage	12+994.333
Curve Start Level	591.448
Curve End Chainage	13+069.081
Curve End Level	591.622
Algebraic Difference	-1.068
Curve Length	74.748
High/Low Chainage	13+048.081
High/Low Level	591.654
Vertical Radius	-7000.000
Curve Type	Hog
Sight Distance	226.660

76 Grade

Gradient	-.300
Gradient Start Chainage	13+069.081
Grade Start Level	591.622
Gradient End Chainage	13+440.461
Gradient End Level	590.508
Gradient Length	371.379

77 Vertical Curve

IP Chainage	13+506.739
IP Level	590.309
Curve Start Gradient	-.300
Curve End Gradient	2.351
Curve Start Chainage	13+440.461
Curve Start Level	590.508
Curve End Chainage	13+573.017
Curve End Level	591.868
Algebraic Difference	2.651
Curve Length	132.556
High/Low Chainage	13+455.461
High/Low Level	590.486
Vertical Radius	5000.000
Curve Type	Sag

78 Grade

Gradient	2.351
Gradient Start Chainage	13+573.017
Grade Start Level	591.868
Gradient End Chainage	14+112.253
Gradient End Level	604.546
Gradient Length	539.236

79 Vertical Curve

IP Chainage	14+153.275
IP Level	605.510
Curve Start Gradient	2.351
Curve End Gradient	.300
Curve Start Chainage	14+112.253
Curve Start Level	604.546
Curve End Chainage	14+194.297
Curve End Level	605.633
Algebraic Difference	-2.051
Curve Length	82.045
Vertical Radius	-4000.000
Curve Type	Hog
Sight Distance	139.566

80 Grade

Gradient	.300
Gradient Start Chainage	14+194.297
Grade Start Level	605.633
Gradient End Chainage	14+546.568
Gradient End Level	606.690
Gradient Length	352.271

81 Vertical Curve

IP Chainage	14+561.068
IP Level	606.734
Curve Start Gradient	.300
Curve End Gradient	.880
Curve Start Chainage	14+546.568
Curve Start Level	606.690
Curve End Chainage	14+575.568
Curve End Level	606.861
Algebraic Difference	.580
Curve Length	29.000
Vertical Radius	5000.000
Curve Type	Sag

82 Grade

Gradient	.880
Gradient Start Chainage	14+575.568
Grade Start Level	606.861
Gradient End Chainage	14+875.769
Gradient End Level	609.503
Gradient Length	300.200

83 Vertical Curve

IP Chainage	14+890.269
IP Level	609.631
Curve Start Gradient	.880
Curve End Gradient	.300
Curve Start Chainage	14+875.769
Curve Start Level	609.503
Curve End Chainage	14+904.769
Curve End Level	609.674
Algebraic Difference	-.580
Curve Length	29.000
Vertical Radius	-5000.000
Curve Type	Hog
Sight Distance	362.991

84 Grade

Gradient	.300
Gradient Start Chainage	14+904.769
Grade Start Level	609.674
Gradient End Chainage	15+072.153
Gradient End Level	610.176
Gradient Length	167.384

85 Vertical Curve

IP Chainage	15+119.066
IP Level	610.317
Curve Start Gradient	.300
Curve End Gradient	3.775
Curve Start Chainage	15+072.153
Curve Start Level	610.176
Curve End Chainage	15+165.979
Curve End Level	612.088
Algebraic Difference	3.475
Curve Length	93.826
Vertical Radius	2700.000
Curve Type	Sag

86 Grade

Gradient	3.775
Gradient Start Chainage	15+165.979
Grade Start Level	612.088
Gradient End Chainage	15+499.864
Gradient End Level	624.692
Gradient Length	333.885

87 Vertical Curve

IP Chainage	15+529.614
IP Level	625.815
Curve Start Gradient	3.775
Curve End Gradient	.800
Curve Start Chainage	15+499.864
Curve Start Level	624.692
Curve End Chainage	15+559.365
Curve End Level	626.053
Algebraic Difference	-2.975
Curve Length	59.501
Vertical Radius	-2000.000
Curve Type	Hog
Sight Distance	97.691

88 Grade

Gradient	.800
Gradient Start Chainage	15+559.365
Grade Start Level	626.053
End on Gradient Chainage	15+665.153
Gradient End Level	626.900
Gradient Length	105.789

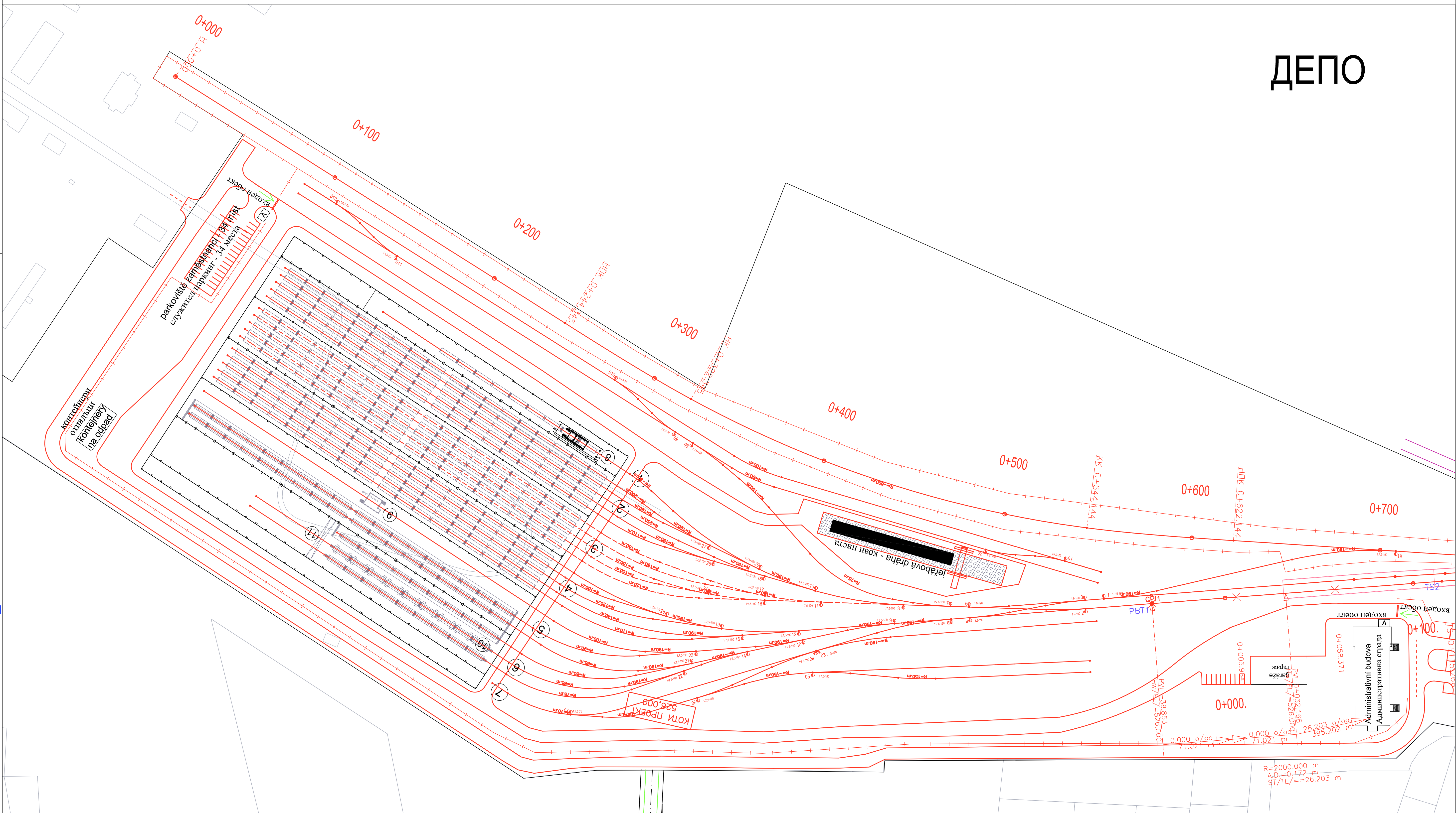
89 Vertical Curve

IP Chainage	15+676.153
IP Level	626.988
Curve Start Gradient	.800
Curve End Gradient	-.300
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Curve Start Level	626.900
Curve End Chainage	15+687.153
Curve End Level	626.955
Algebraic Difference	-1.100
Curve Length	22.000
High/Low Chainage	15+681.153
High/Low Level	626.964
Vertical Radius	-2000.000
Curve Type	Hog
Sight Distance	194.750

90 Grade

Gradient	-.300
Gradient Start Chainage	15+687.153
Grade Start Level	626.955
Gradient End Chainage	15+828.306
Gradient End Level	626.531
Gradient Length	141.152

ДЕПО



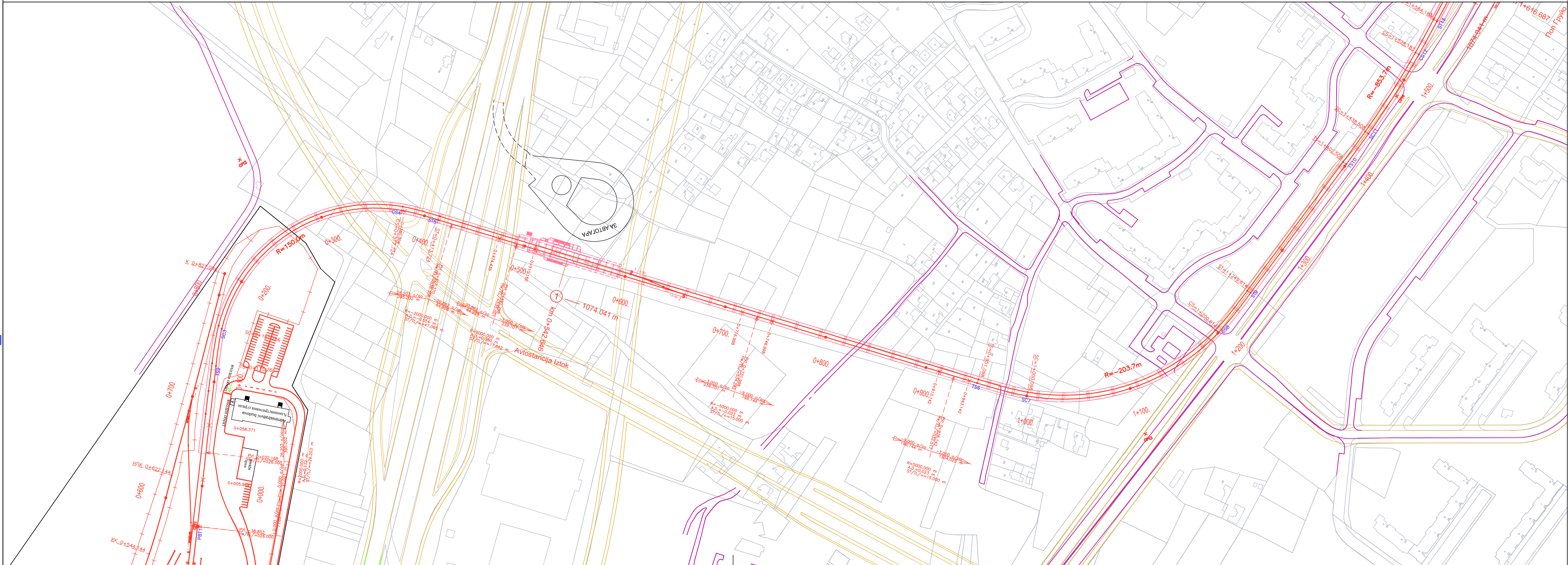
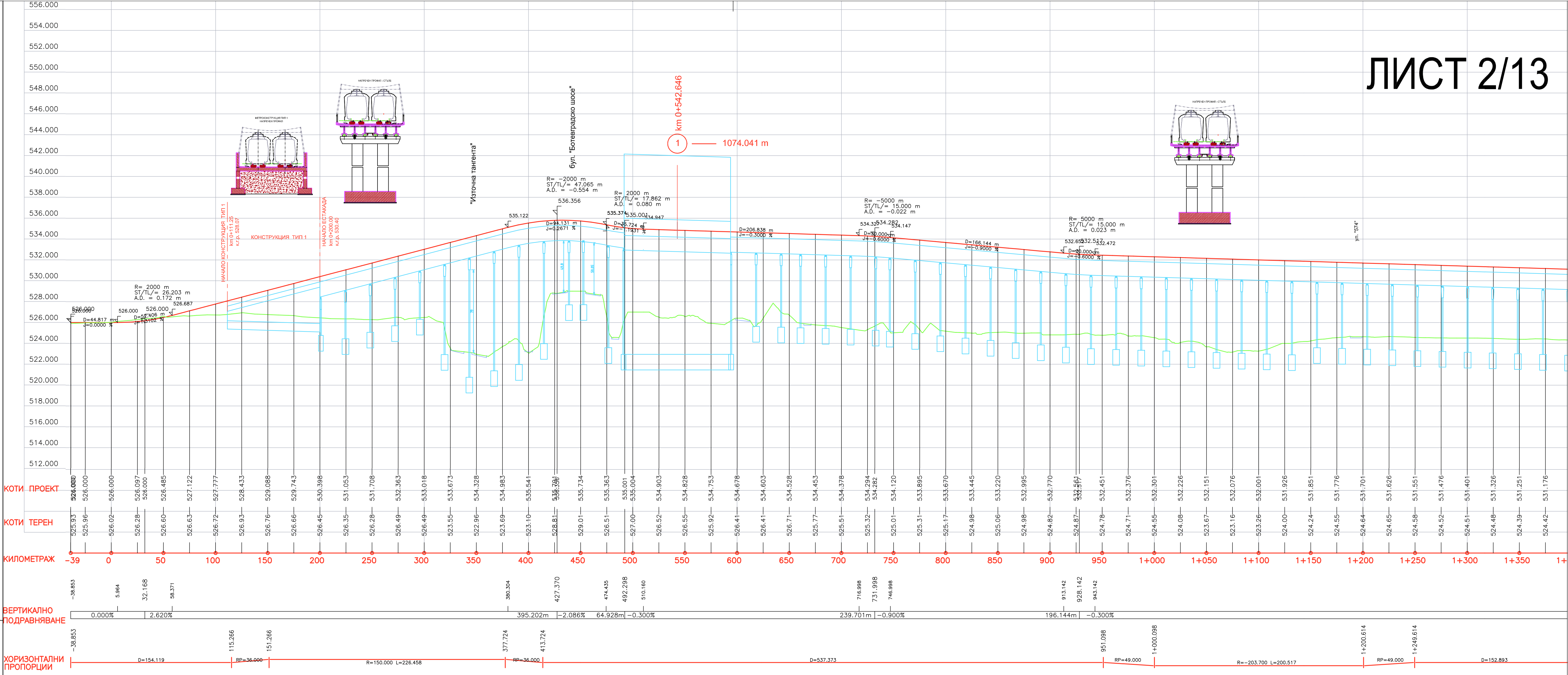
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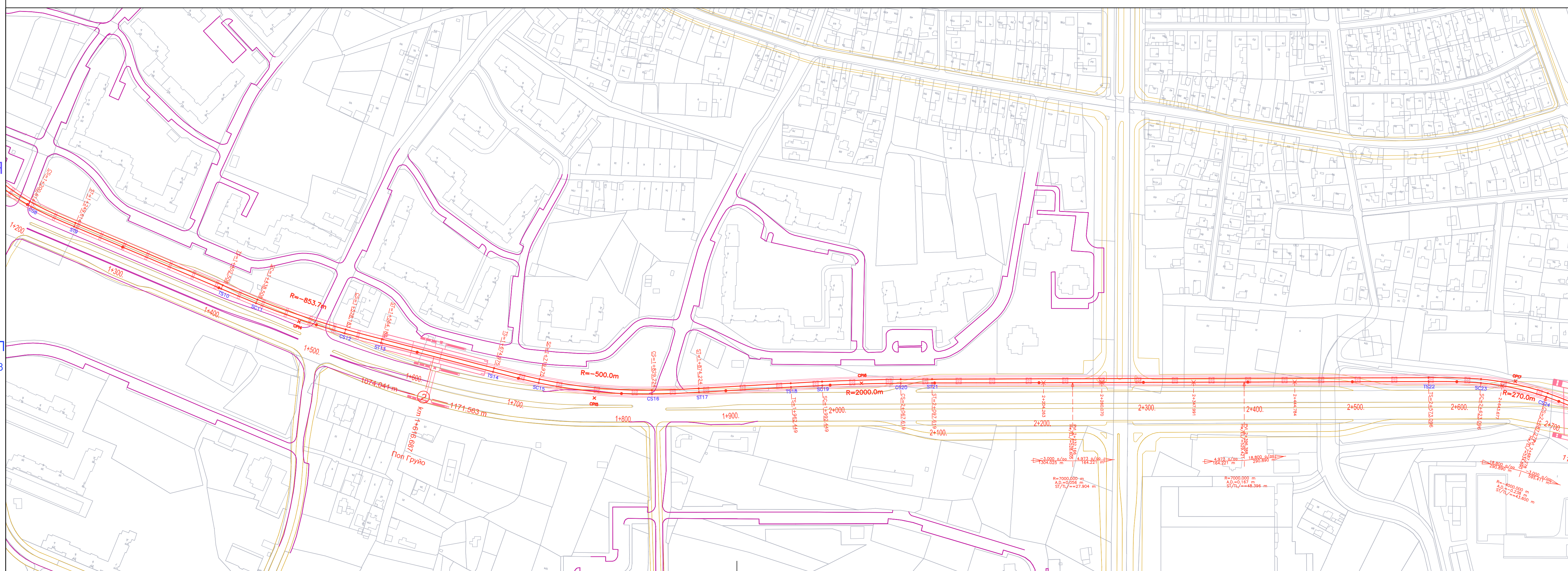
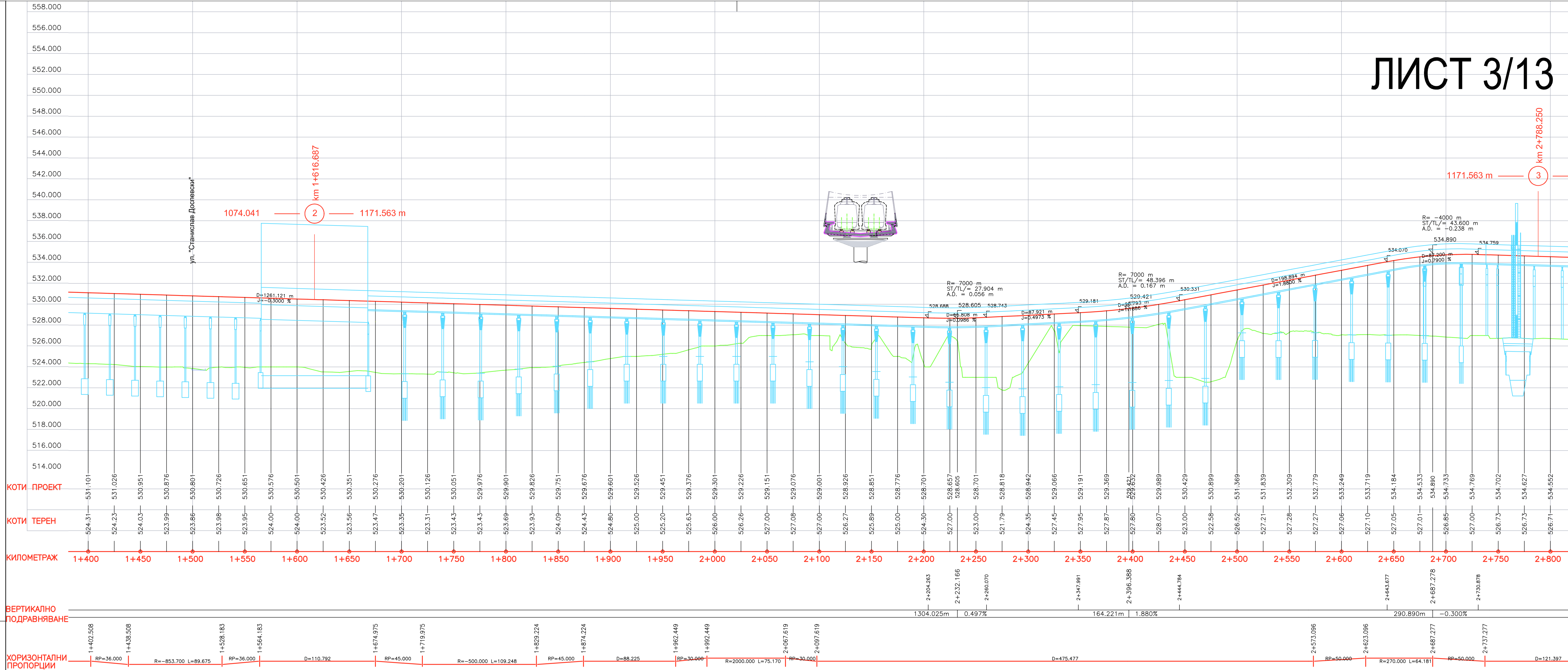


ТРЕТИ
МЕТРОДИАМЕТЪР

ТРАСЕ и ПРОФИЛ
У-к км. 0+000 до 15+828
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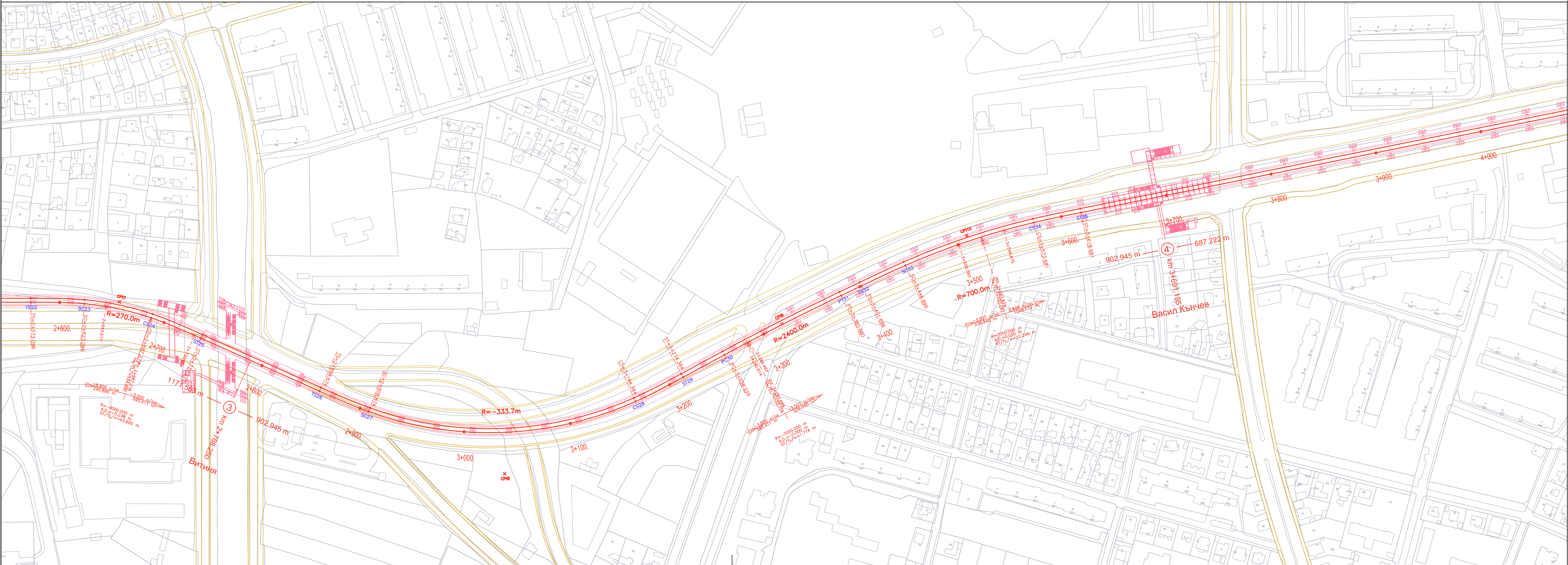
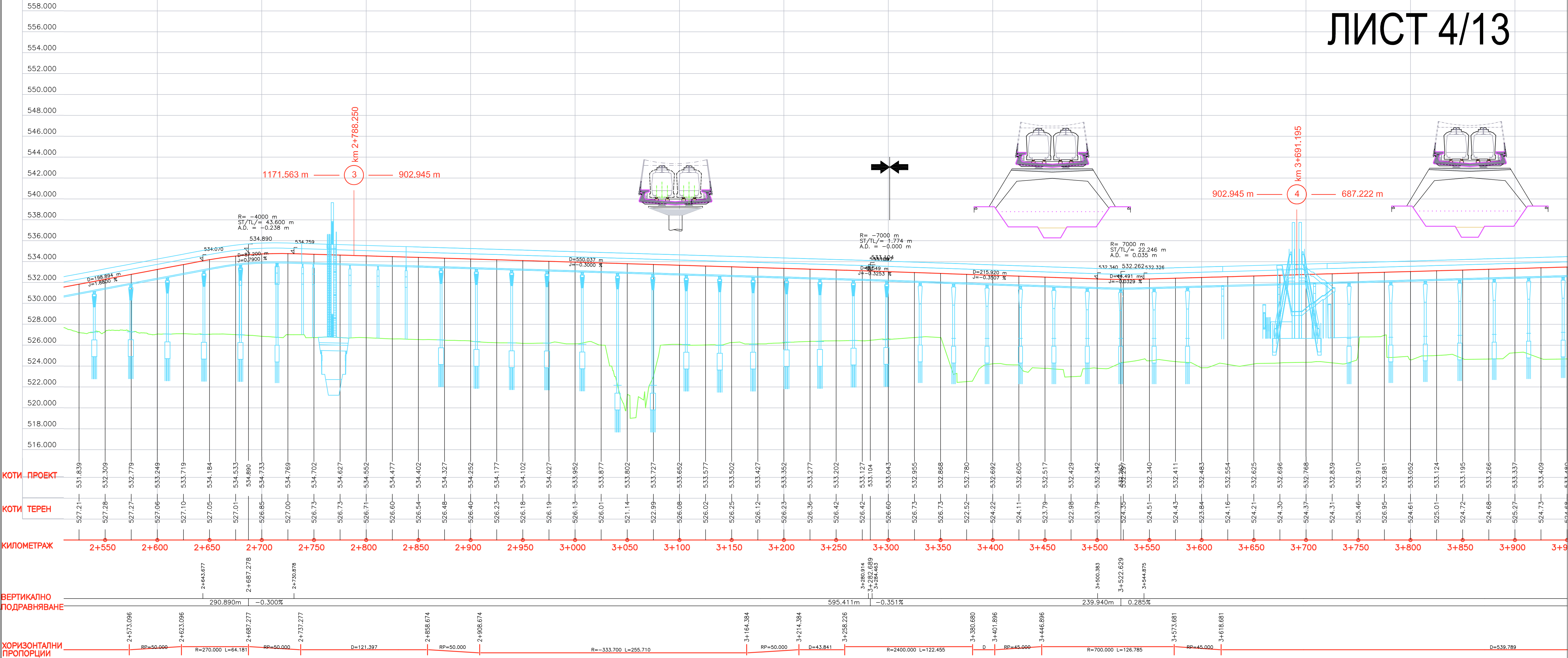
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МЕТРОПРОЕКТ

МЕТРОПРОЕКТ Прага А.Д.

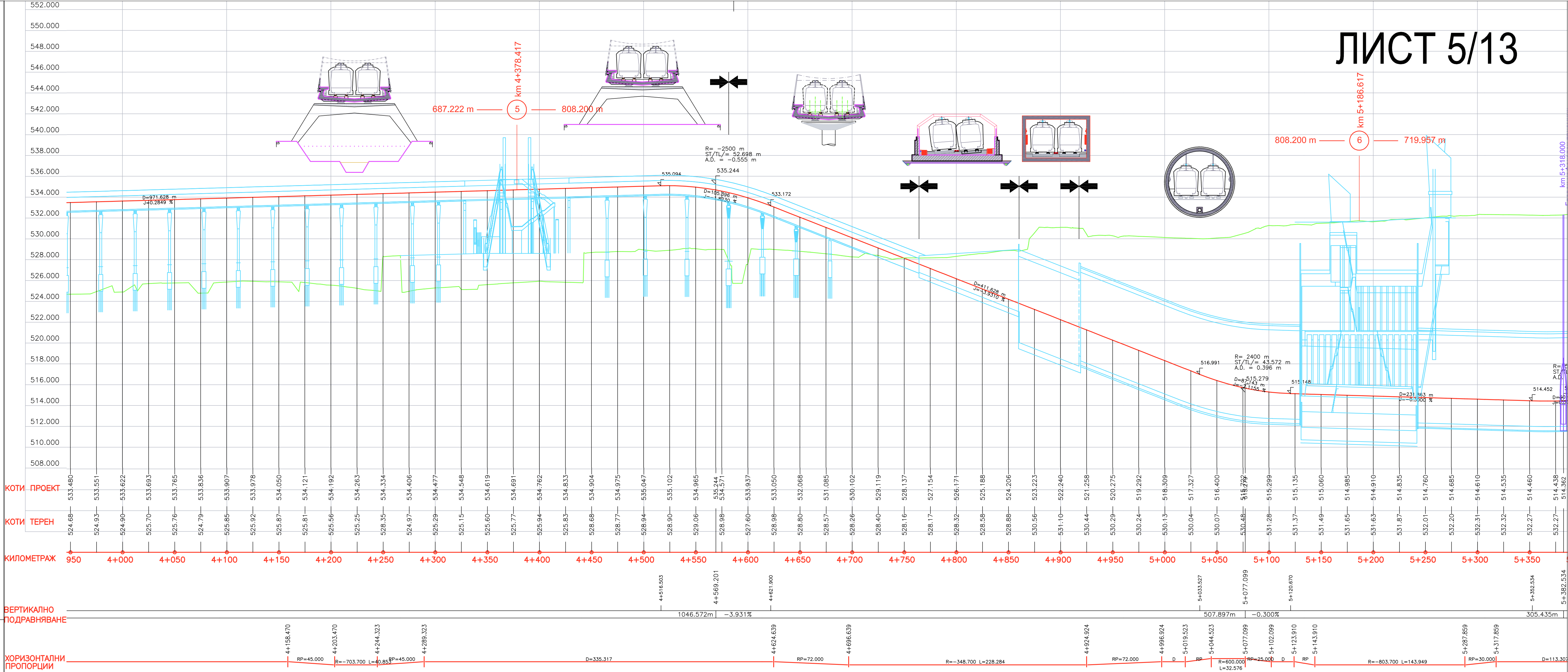


МЕТРО СОФИЯ
ТРЕТИ
МЕТРОДИАМЕТЪР

ТРАСЕ и ПРОФИЛ
У-к км. 0+000 до 15+828
ДЕСЕН КОЛОВОЗ
М = 1:2000/200



МЕТРОПРОЕКТ Прага А.Д.



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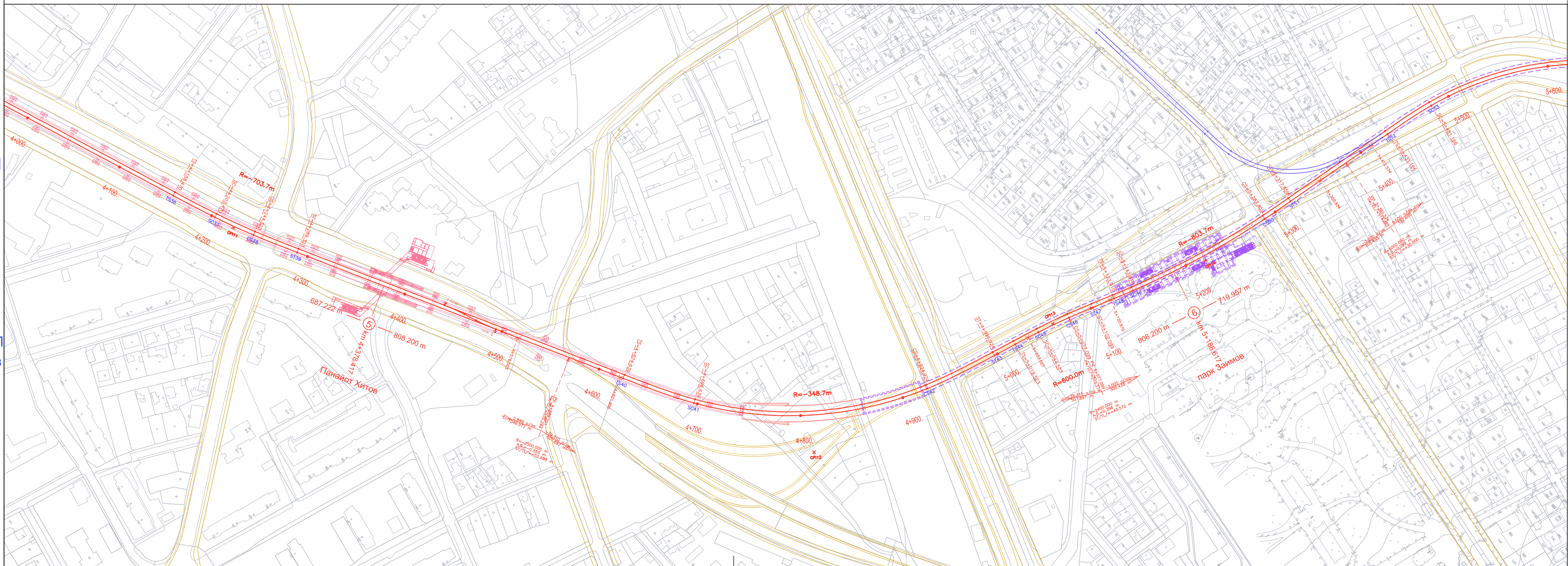
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ТРАСЕ и ПРОФИЛ

У-к км. 0+000 до 15+828

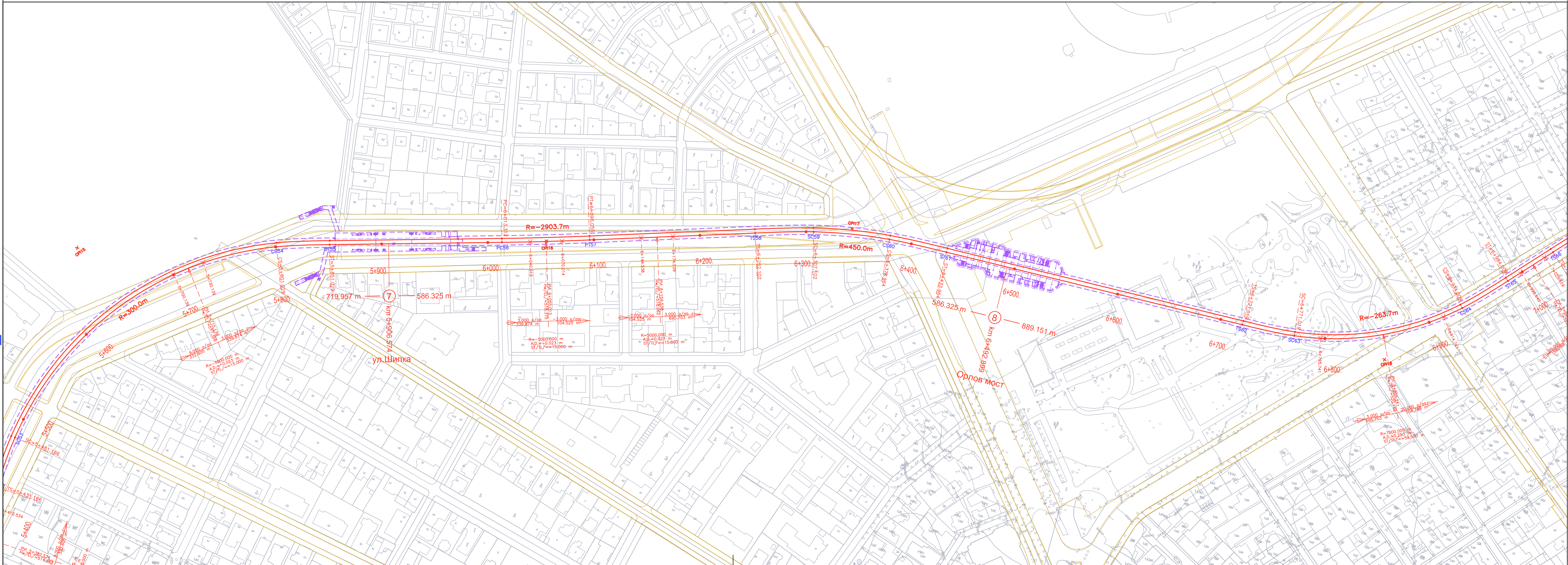
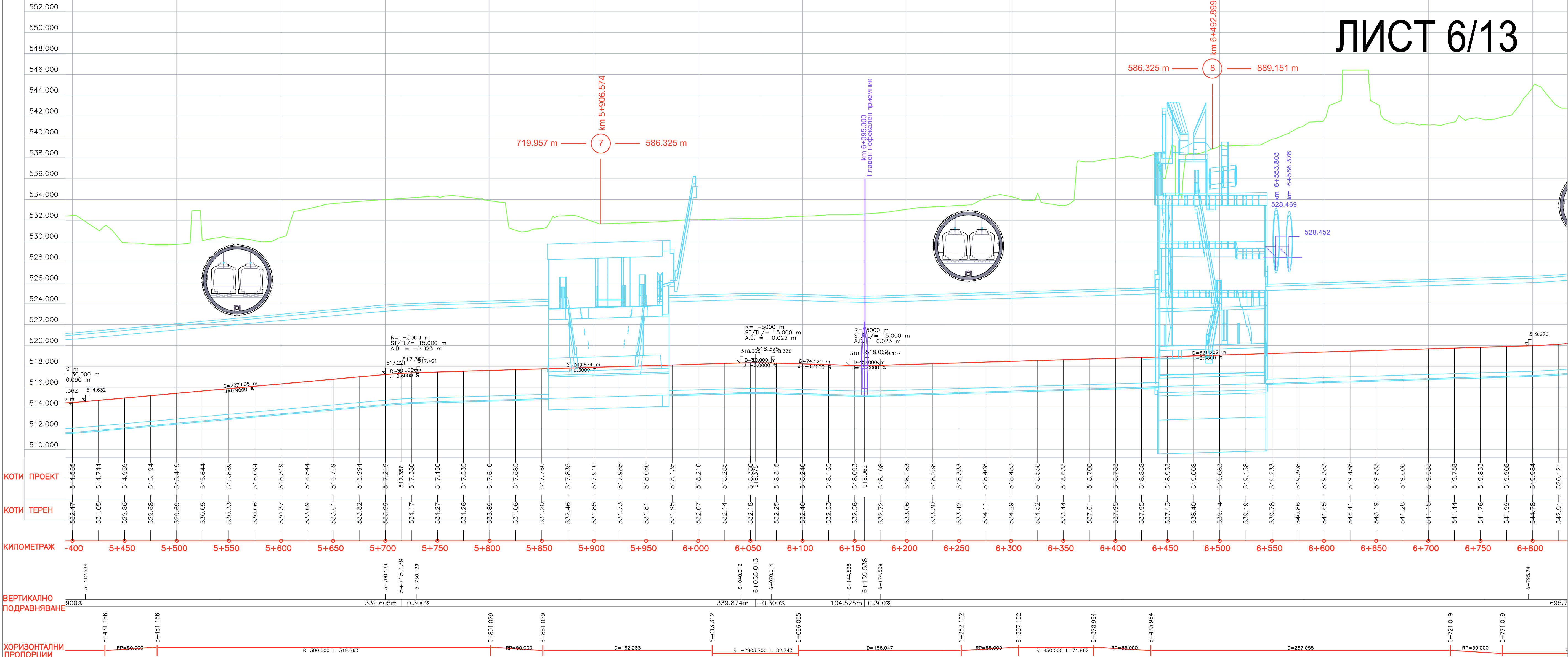
ДЕСЕН КОЛОВОЗ

M = 1:2000/200





МЕТРОПРОЕКТ Прага А.Д.



МЕТРО СОФИЯ

ТРЕТИ МЕТРОДИАМЕТЪР

ТРАСЕ и ПРОФИЛ

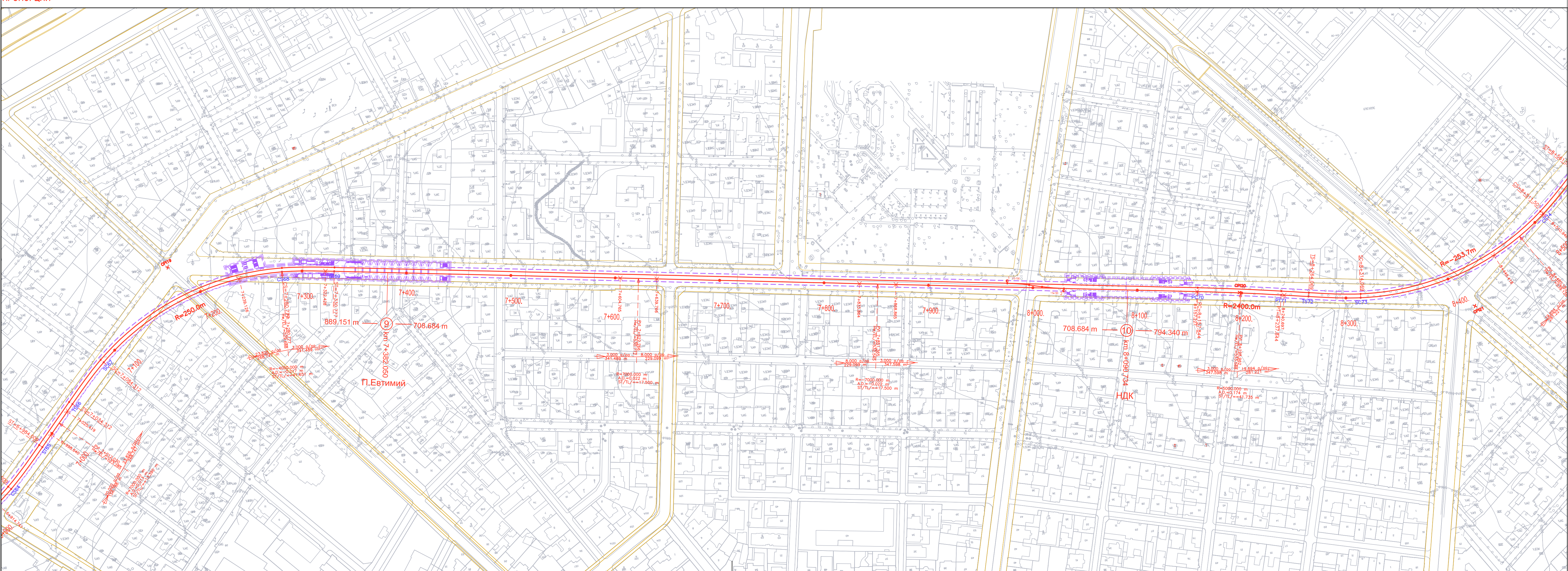
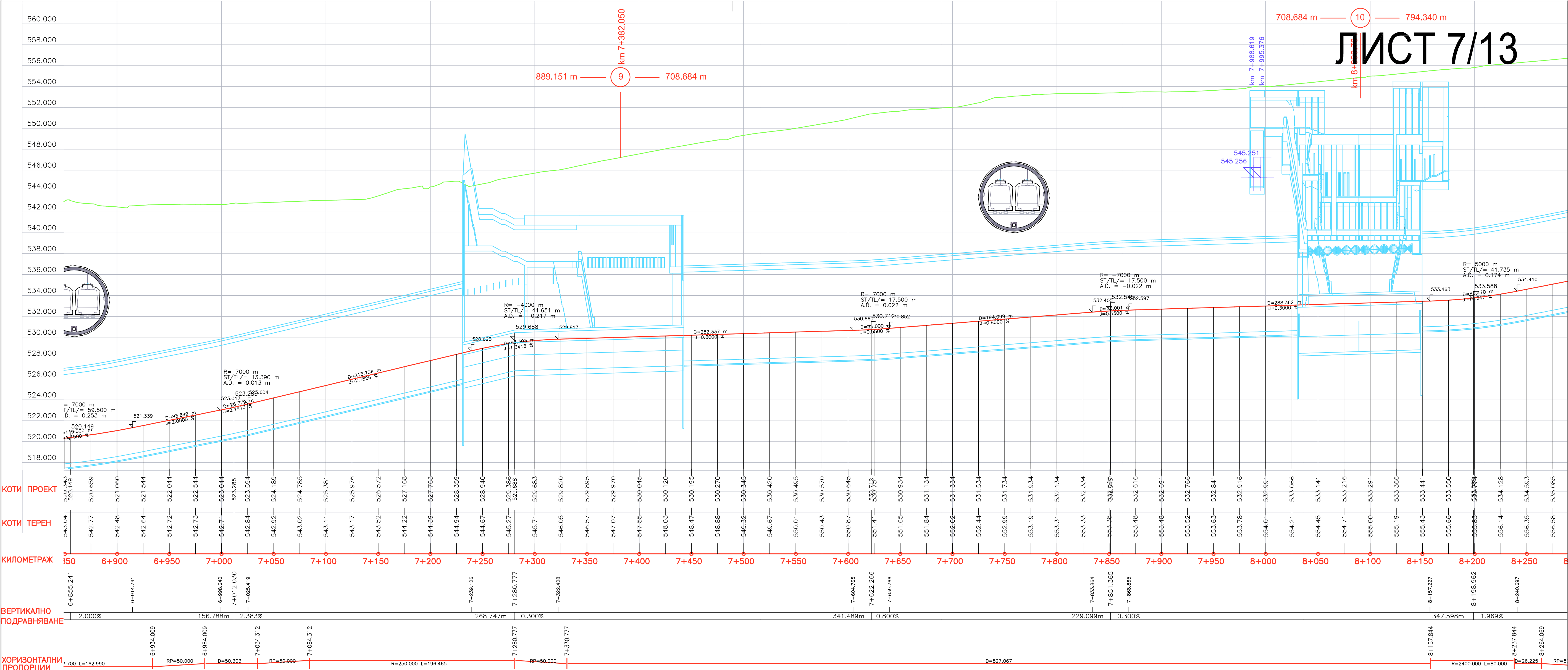
У-к км. 0+000 до 15+828

ДЕСЕН КОЛОВОЗ

M = 1:2000/200



МЕТРОПРОЕКТ Прага А.Д.

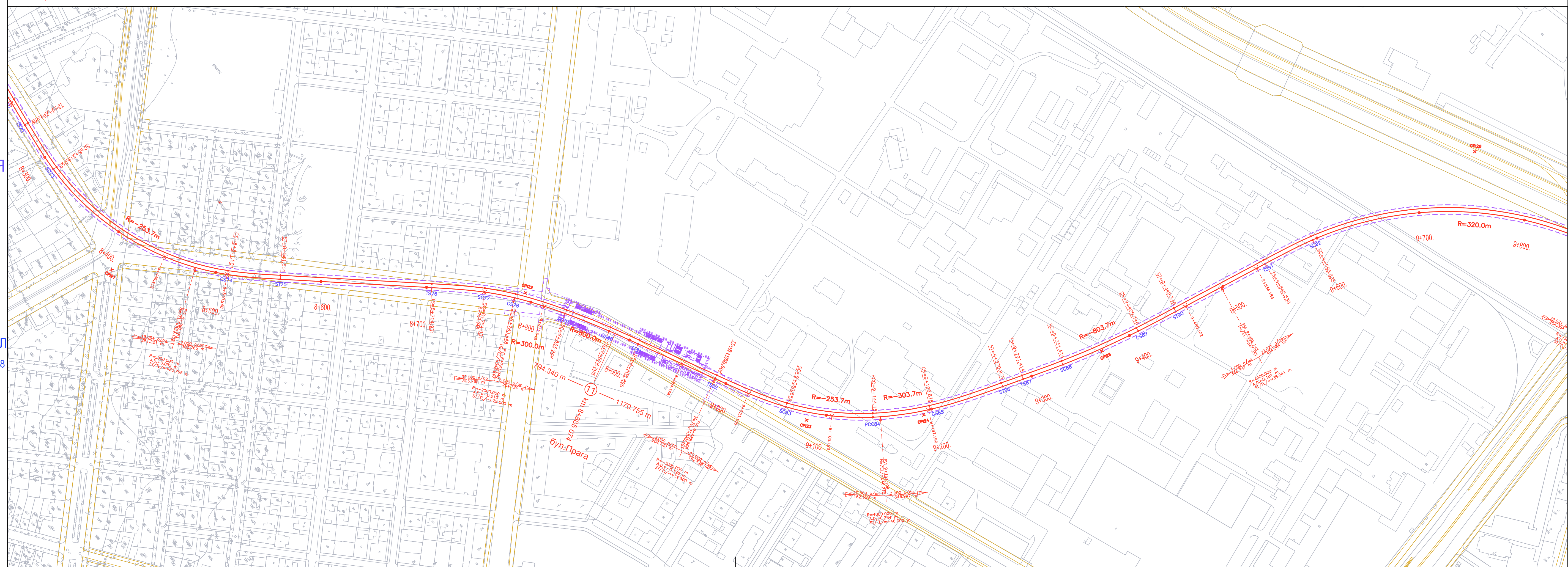
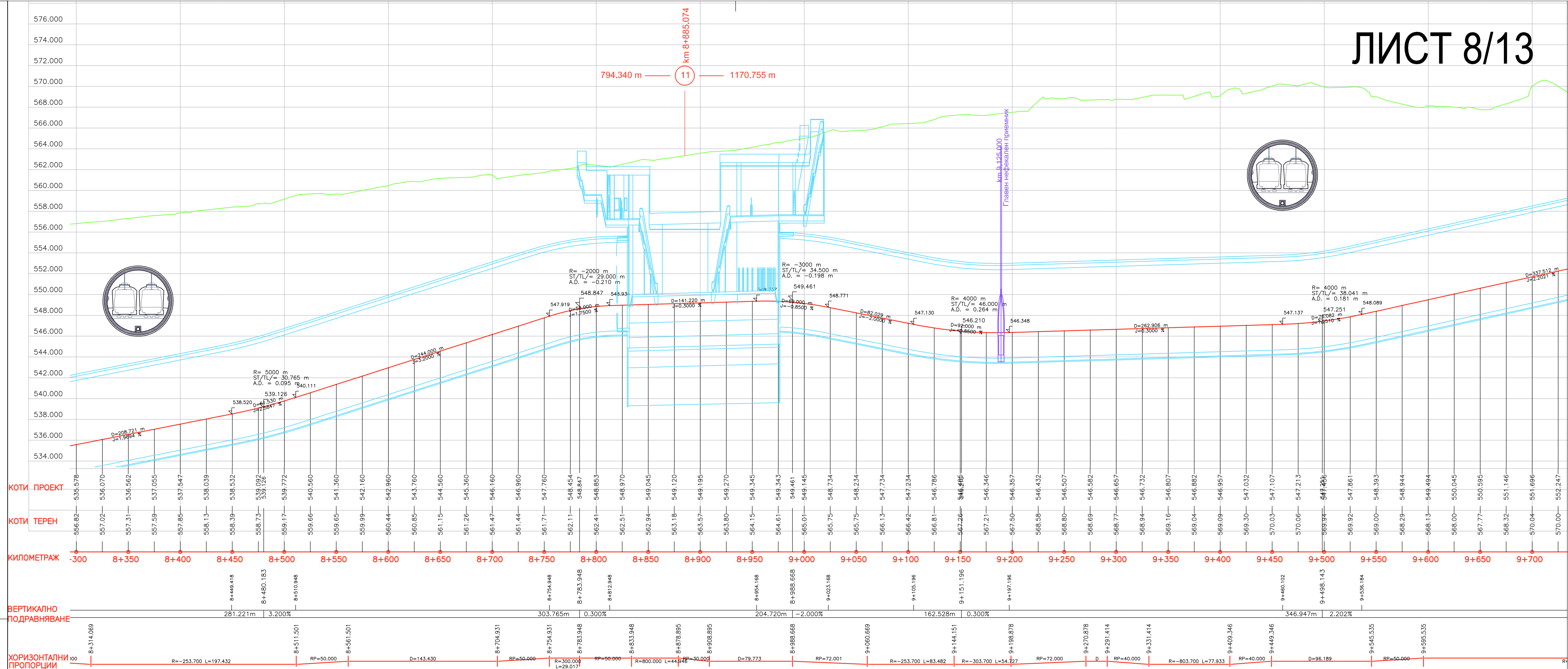


ЛИСТ 7/13



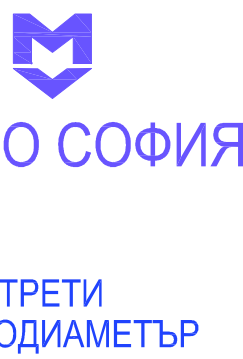
ТРЕТИ
МЕТРОДИАМЕТЪР

ТРАСЕ и ПРОФИЛ
У-к км. 0+000 до 15+828
ДЕСЕН КОЛОВОЗ
M = 1:2000/200



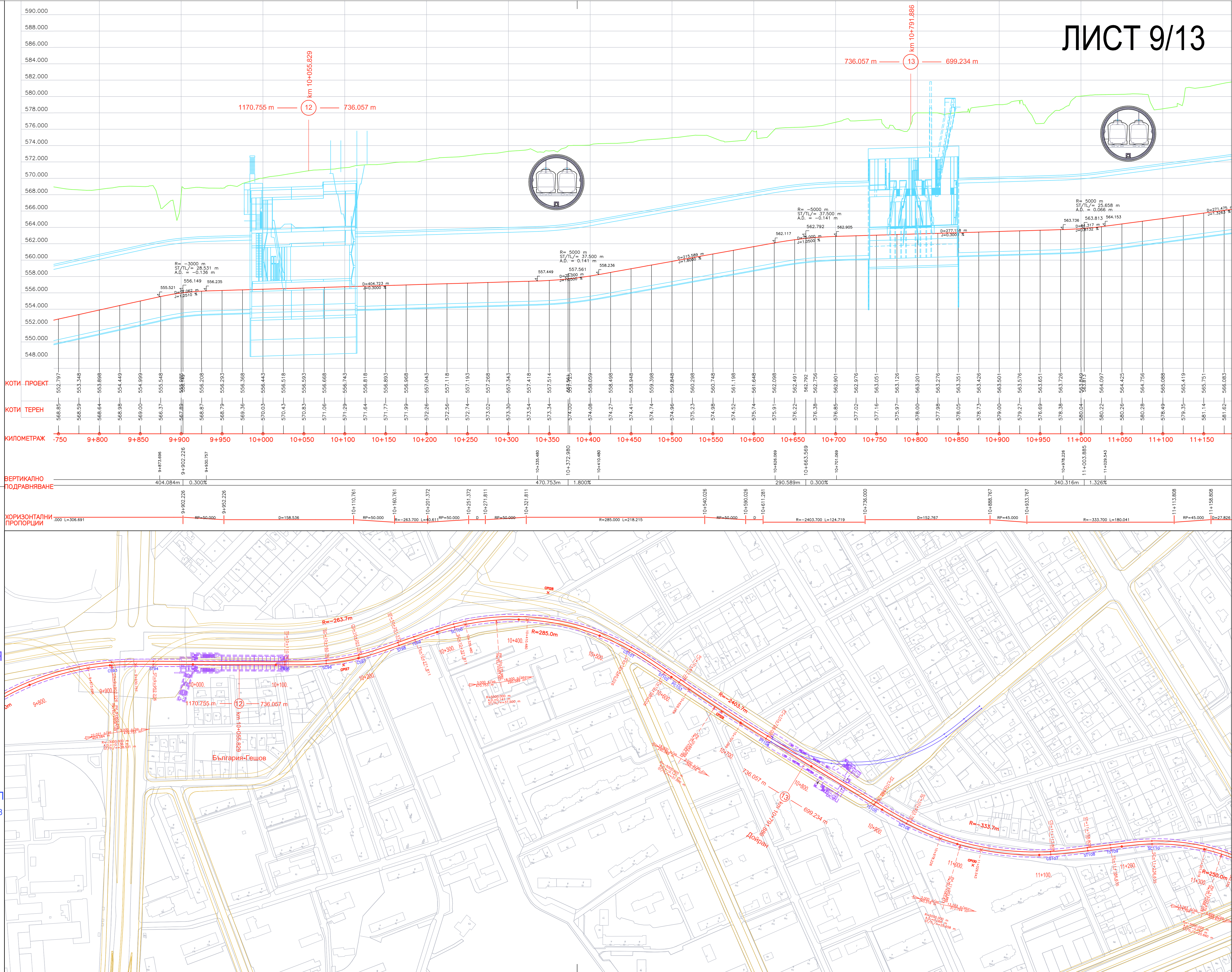


МЕТРОПРОЕКТ Прага А.Д.



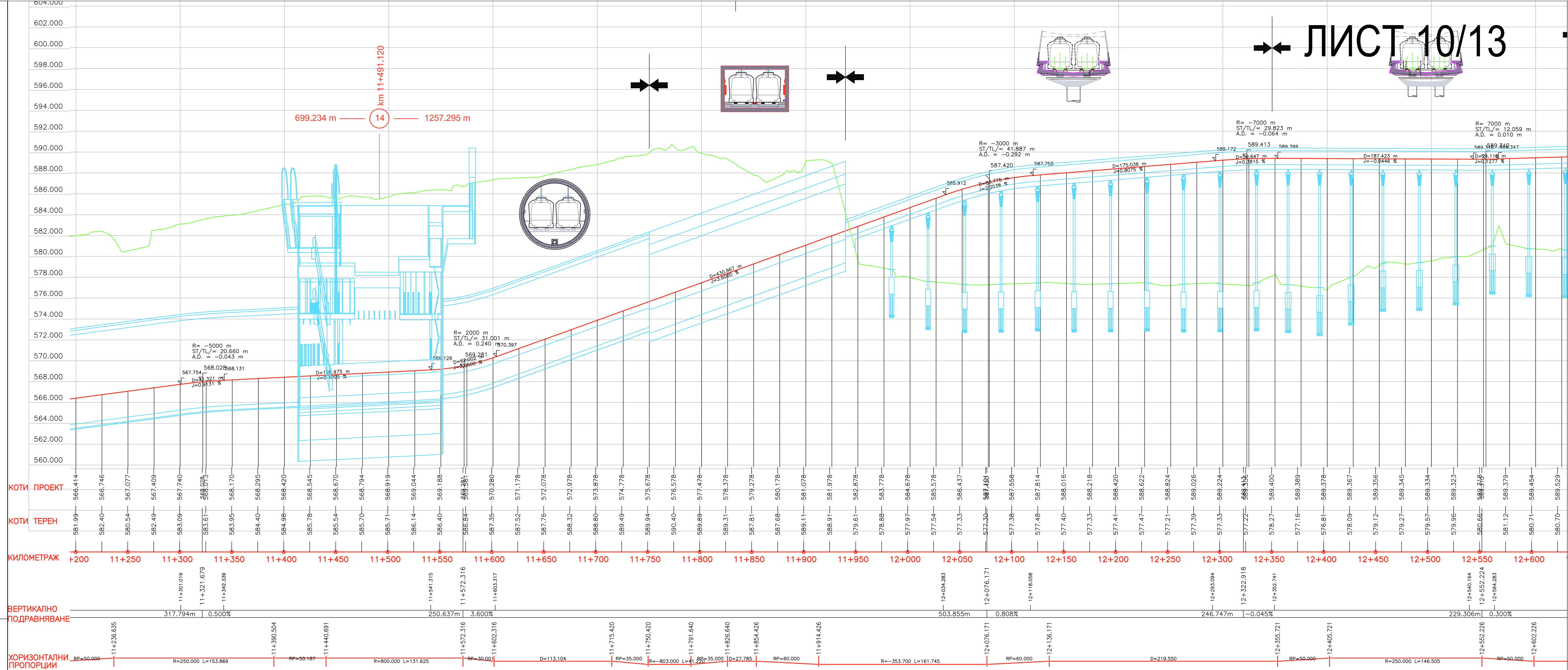
ТРЕТИ
МЕТРОДИАМЕТЪР

ТРАСЕ и ПРОФИЛ
У-к км. 0+000 до 15+828
ДЕСЕН КОЛОВОЗ
M = 1:2000/200





МЕТРОПРОЕКТ Прага А.Д.

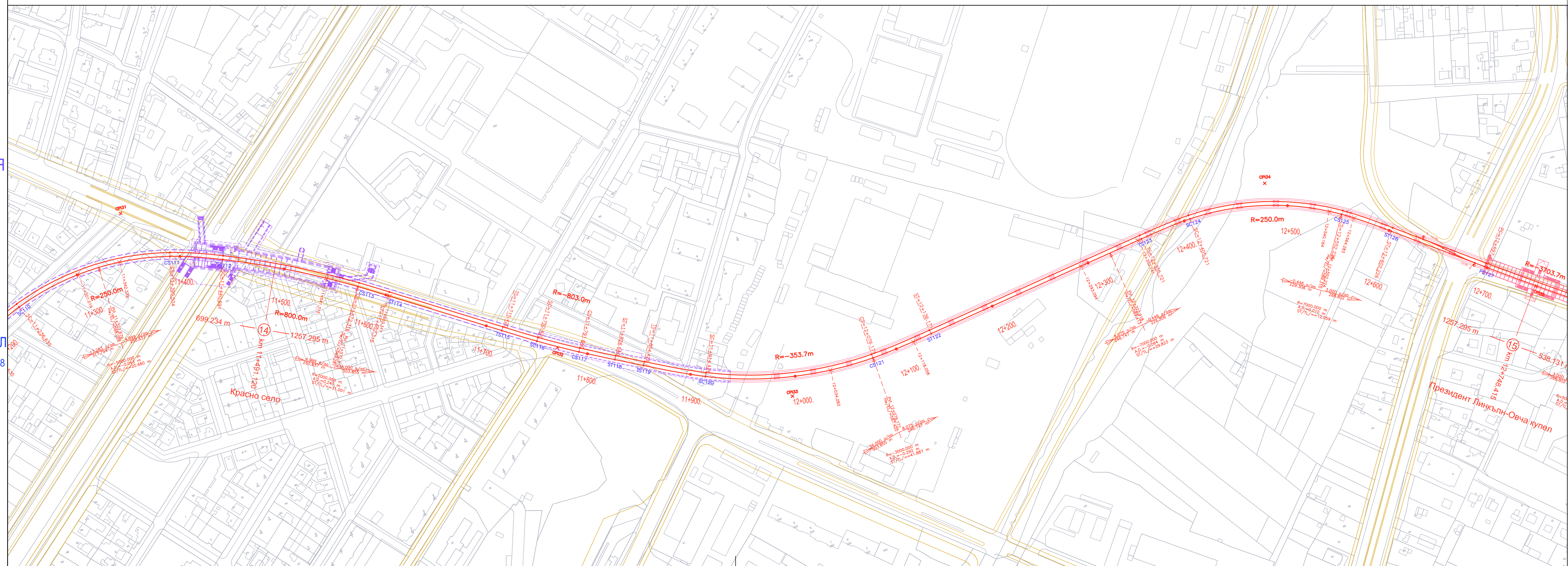


ЛИСТ 10/13



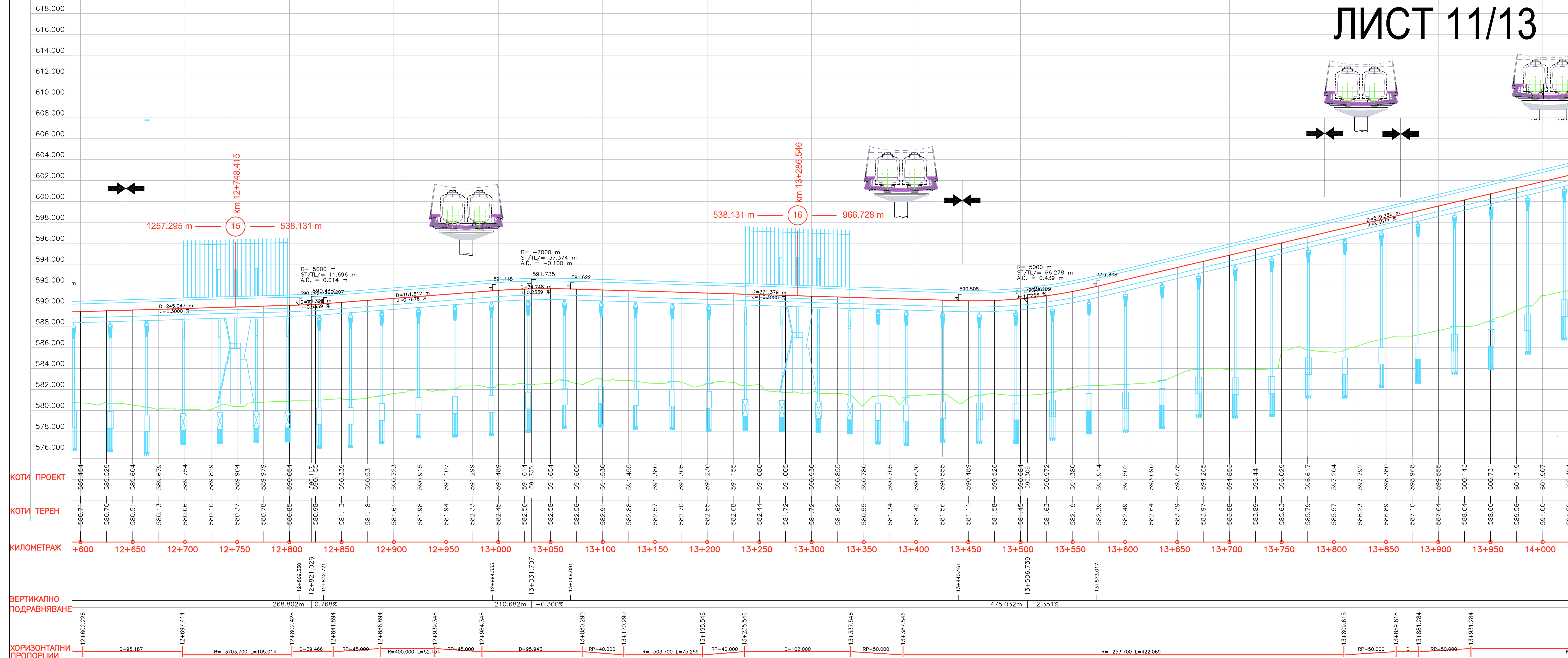
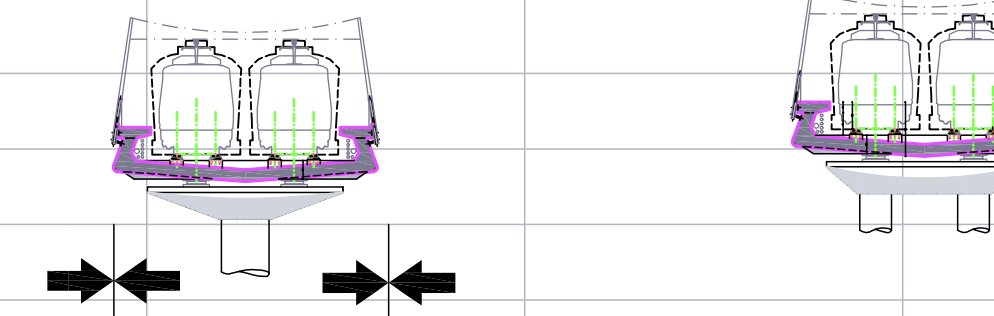
ТРЕТИ МЕТРОДИАМЕТЪР

ТРАСЕ и ПРОФИЛ
У-к км. 0+000 до 15+828
ДЕСЕН КОЛОВОЗ
M = 1:2000/200

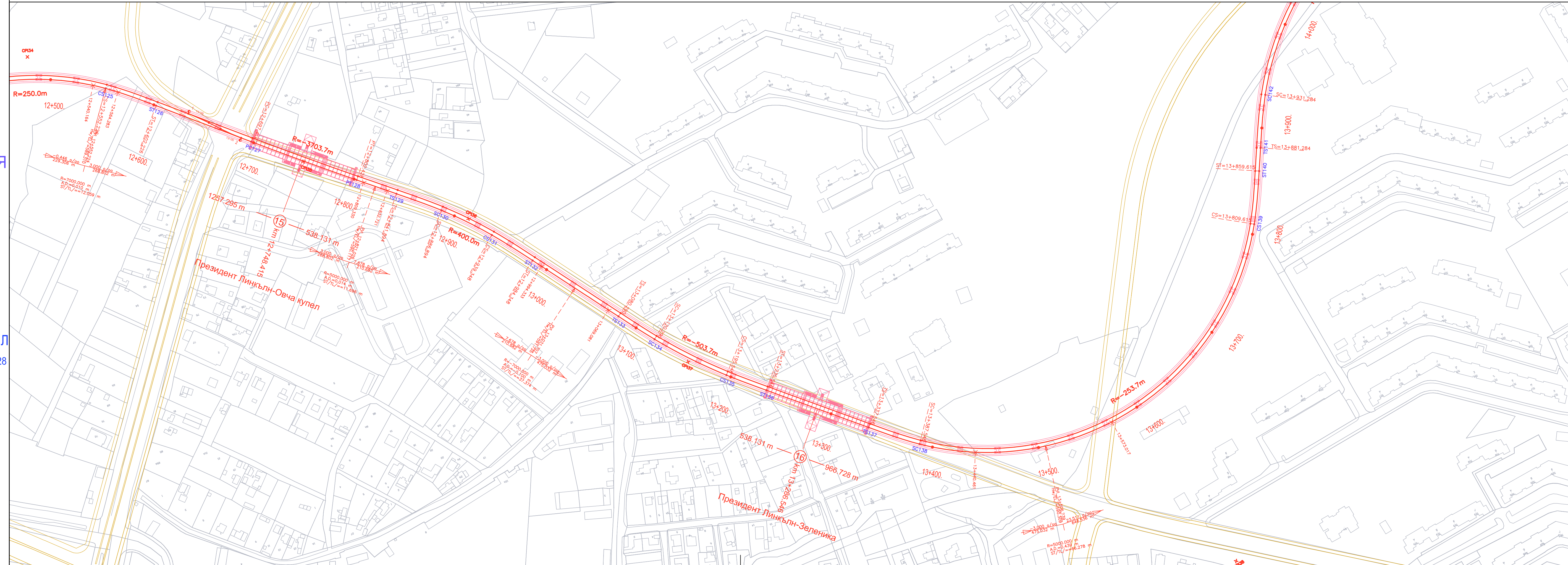


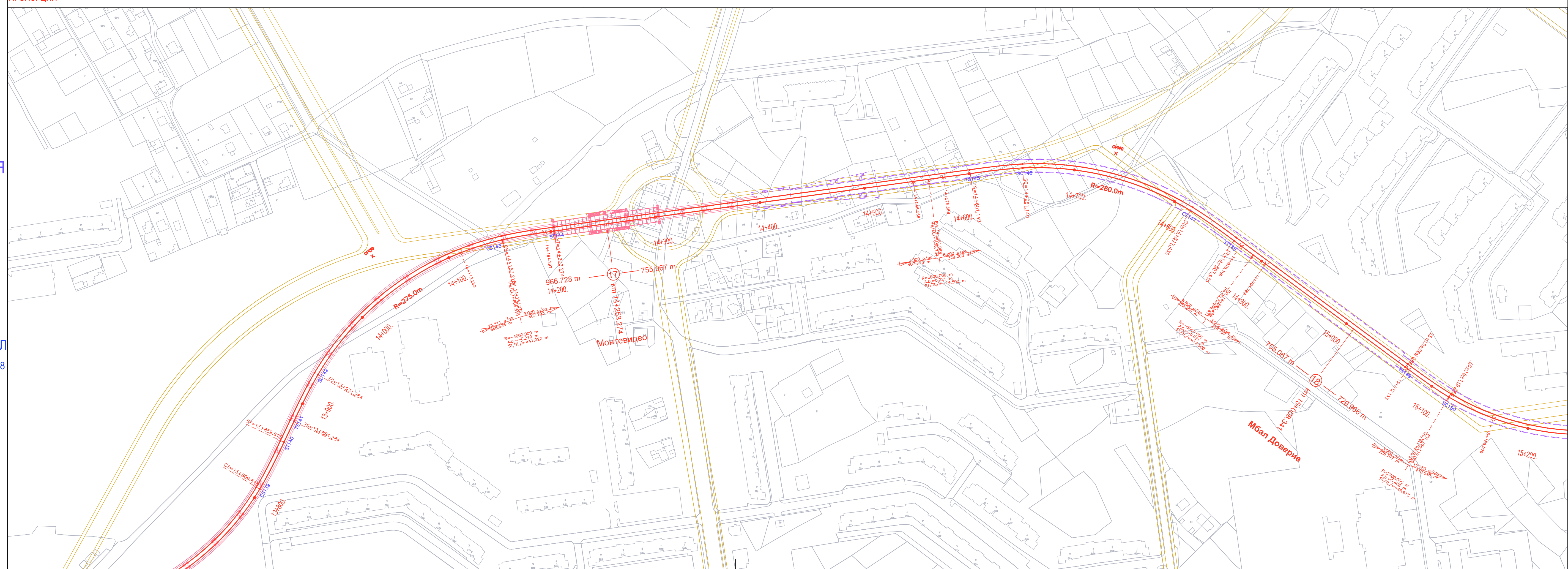


МЕТРОПРОЕКТ Прага А.Д.



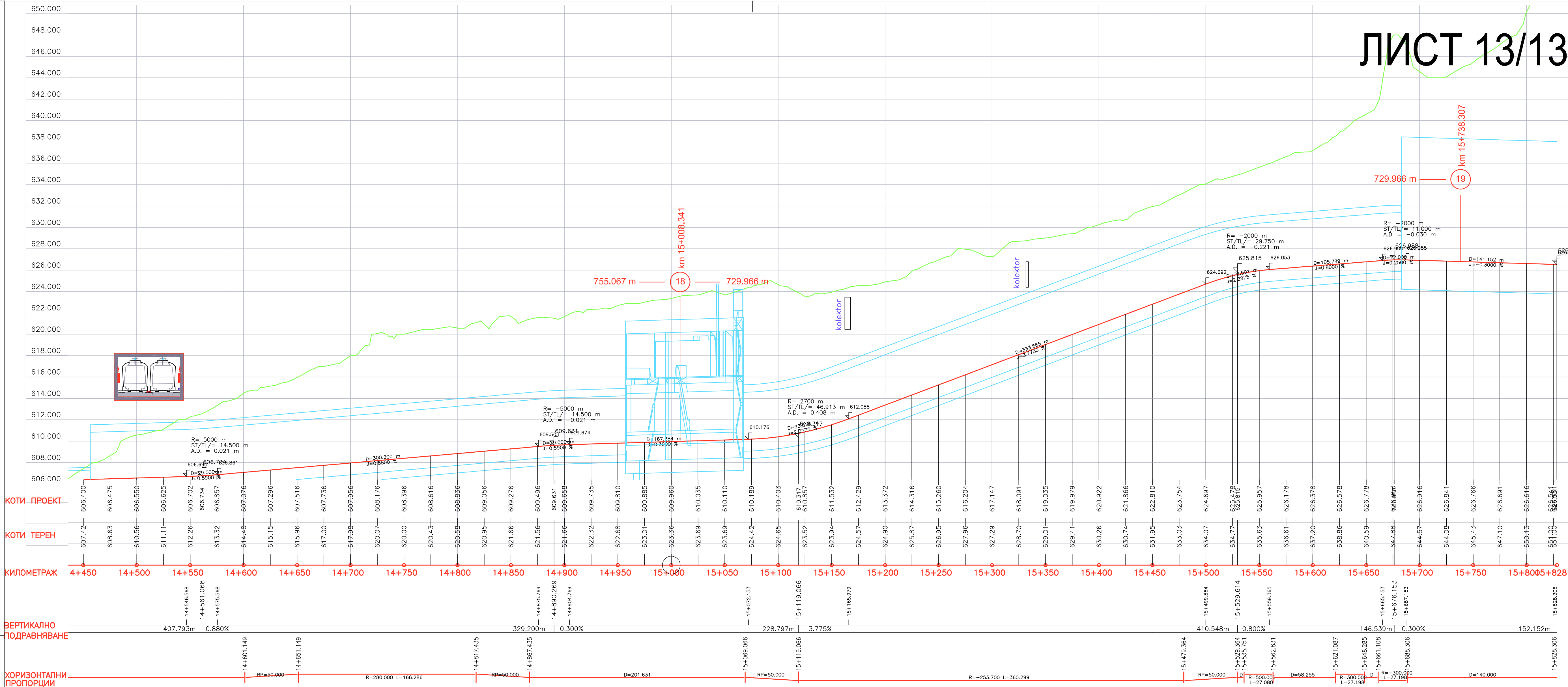
ТРАСЕ и ПРОФИЛ
У-к км. 0+000 до 15+828
ДЕСЕН КОЛОВОЗ
M = 1:2000/200







МЕТРОПРОЕКТ Прага А.Д.



МЕТРО СОФИЯ
ТРЕТИ
МЕТРОДИАМЕТЪР

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