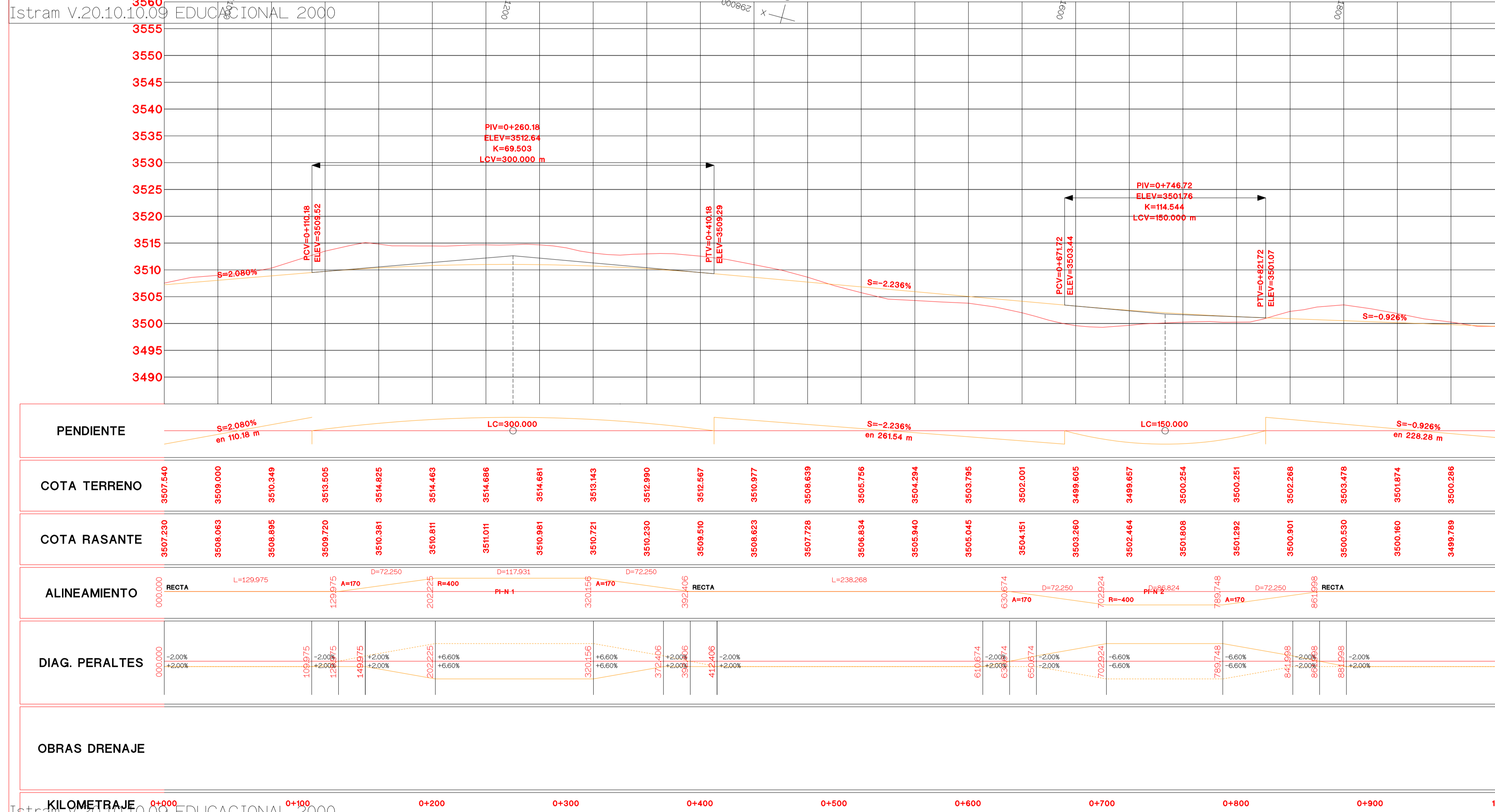


CUADRO DE ELEMENTOS DE CURVA

Nº	SENTIDO	ANG.	ABRIDO	PI	T	PC	Lc	PT	Evt	COORDENADAS UTM		PC	S-R
1	D	87°47'00"	400	0+081.90	133.170	0+193.975	117.931	0+392.404	12.134	764082.884	297749.540	7%	
2	I	-82°47'00"	400	0+744.338	116.827	0+856.314	86.824	0+954.988	8.595	764080.884	297750.710	7%	

E.E 1

#	Tipo	P.K.	Longitud	Xt	Yt	Azinut	Xc/I	Yc/I	Radio	Parametro
1	Recta	0+000.000	129.975	297878.926	764086.382	367.2760				
2	Cicloide	0+129.975	72.250	297815.018	764097.700	367.2760	297815.018	764097.700	170.000	
3	Cicloide	0+202.225	117.931	297791.416	764104.933	373.0286	298146.043	7641205.303	400.000	
4	Cicloide	0+320.156	72.250	297749.361	764115.3974	391.7847		7641226.033	170.000	
5	Recta	0+392.406	238.268	297744.404	764125.033	397.5442				
6	Cicloide	0+630.674	72.250	297735.211	764146.4124	397.5442	297735.211	764146.4124	170.000	
7	Cicloide	0+702.924	86.824	297730.259	764153.1717	391.7847	297733.577	764148.769	400.000	
8	Cicloide	0+789.748	72.250	297709.879	764162.400	377.9763	297681.344	764168.748	170.000	
9	Recta	0+861.998	500.910	297681.344	764168.748	377.2288				
10	Cicloide	1+362.908	68.643	297469.683	764214.742	372.2288	297469.683	764214.742	155.000	



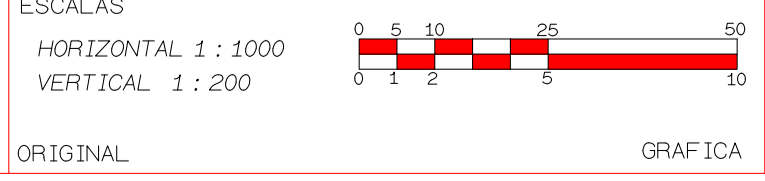
KILOMETRAJE 0+000 0+100 0+200 0+300 0+400 0+500 0+600 0+700 0+800 0+900 1+000



DIRECCION DE DESARROLLO

ISPOL

ESCALAS
HORIZONTAL 1 : 1000
VERTICAL 1 : 200
ORIGINAL

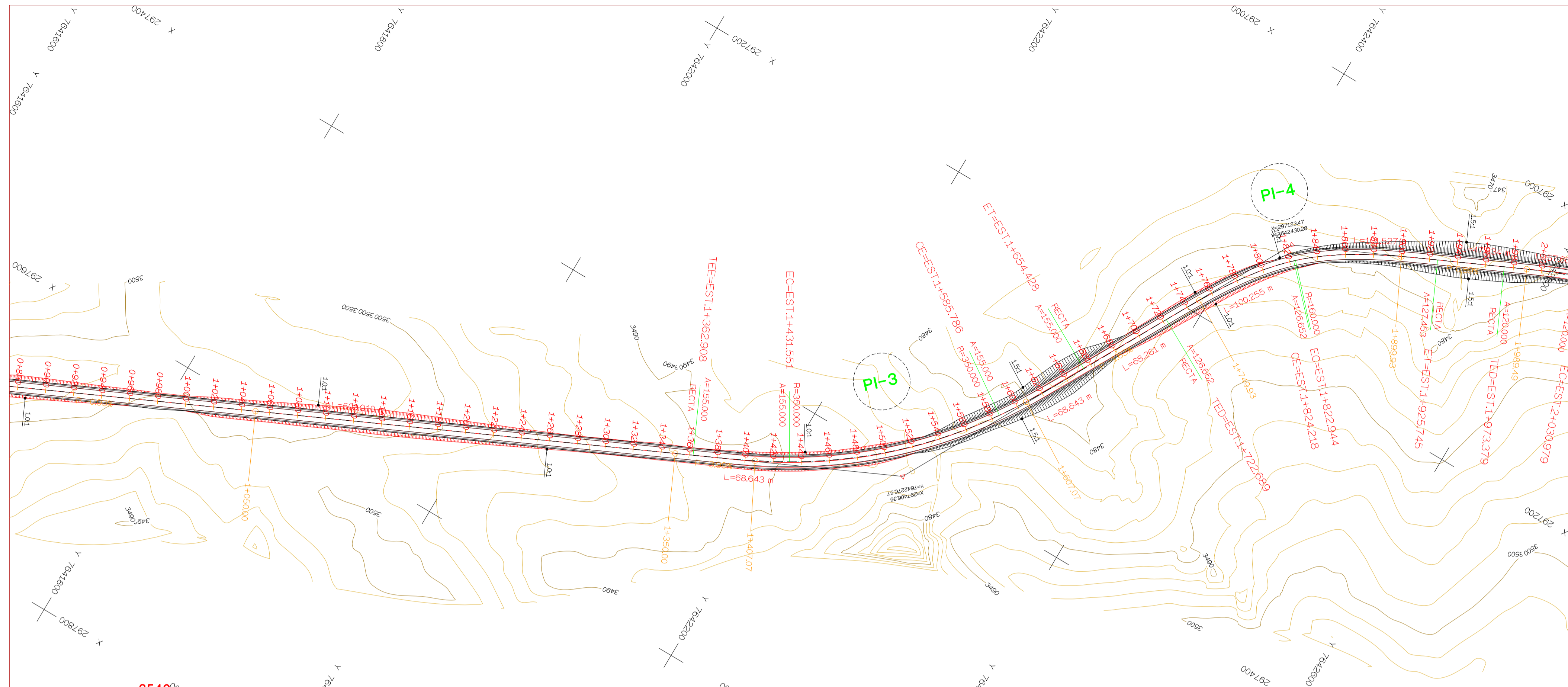


PROYECTO : AUTOPISTA DE AQUI A ALLI
TRAMO : PRIMERO

NOMBRE PLANO : C. GRANDE - PAICHO SUD U.A.J.M.S.
UNIV. CRUZ BENITEZ ROGER

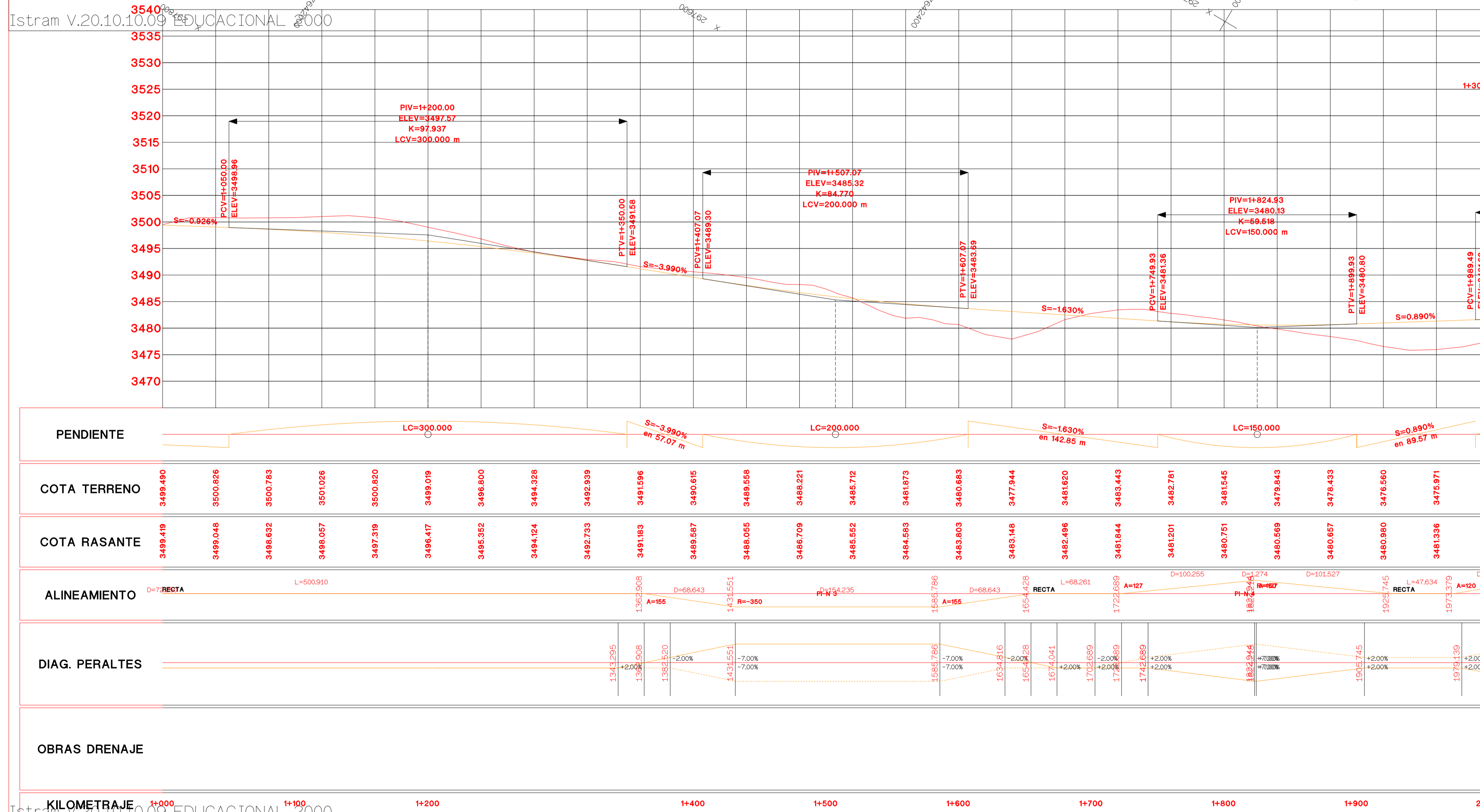
DIRECCION GENERAL DEL PROYECTO : EL UNO
DIRECCION TECNICA DEL PROYECTO : EL OTRO

FECHA : 20/10/2020
Nºmero : 1
Hoja : de



CUADRO DE ELEMENTOS DE CURVA

Nº	SENTIDO	FRG.	RIGID.	PI	T	PC	LC	PT	Cx	COORDENADAS UTM	PC	S/R
										NORTE	ESTE	
1	D	27°24'00"	400	0+000.000	133.170	0+000.000	117.931	0+000.000	12.134	764002.982	297708.540	7%
2	I	-24°44'00"	400	0+744.330	116.827	0+744.330	86.824	0+744.330	8.595	764003.044	297707.700	7%
3	I	-30°30'00"	350	1+000.000	149.859	1+000.000	164.235	1+000.000	19.113	764003.088	297708.540	7%
4	D	30°30'00"	400	1+000.000	104.259	1+000.000	127.4	1+000.000	11.238	764003.074	297708.540	7%
5	D	47°37'00"	250	2+000.000	121.136	2+000.000	118.965	2+000.000	17.030	764007.934	297708.540	7%



#	Tipo	PK	Longitud	Xt	Yt	Azimt.	Xo/l	Yo/l	Radio	Parametro
9	Recta	0+861.998	500.910		7641086.748	372.298				
10	Cirolote	1+362.908	68.643	297469.683	7642140.742	372.298	297469.683	7642140.742	155.000	
11	Cirolote	1+431.551	154.235	297438.674		368.984	297137.458	7642023.708	-350.000	
12	Cirolote	1+585.786	68.643	297333.959	7642313.403	372.298	297274.688	7642348.114	155.000	
13	Recta	1+654.438	68.351	297274.688	7642348.114	331.972				
14	Cirolote	1+722.689	100.255	297214.708	7642380.708	331.972	297214.708		126.652	
15	Cirolote	1+822.944	1.274	297132.440	7642437.238	351.624	297248.441	7642547.438	160.000	
16	Cirolote	1+824.218	101.527	297131.566	7642380.708	351.624	297079.584	7642524.847	127.453	
17	Recta	1+925.745	47.634	297079.584	7642524.847	372.3376				
18	Cirolote	1+973.379	57.600	297059.532	7642568.055	372.3376	297059.532	7642568.055	120.000	
19	Cirolote	2+030.979	118.965	297037.320	7642621.163	379.6713	297274.688	7642699.644	250.000	
20	Cirolote	2+149.944	57.600	297027.739	7642738.618	379.6713	297041.050	7642794.624	120.000	
21	Recta	2+207.544	134.744	297041.050	7642794.624	17.990				
22	Cirolote	2+342.288	69.131	297077.216	7642824.424	17.990	297077.216	7642824.424	96.606	

KILOMETRAJE 1+000 1+100 1+200 1+400 1+500 1+600 1+700 1+800 1+900 2+000



ASTURIAS

DIRECCION DE DESARROLLO

ISPOL

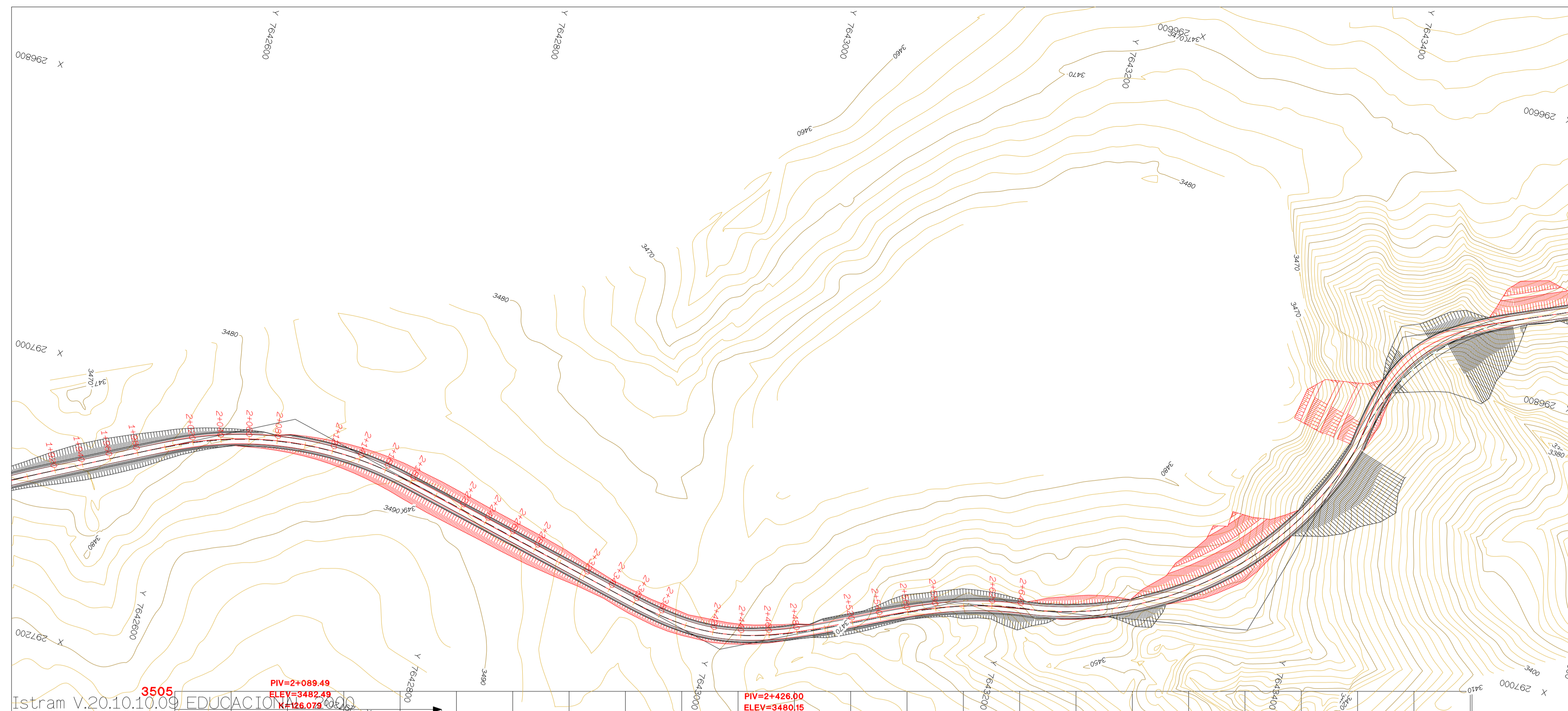
ESCALAS
HORIZONTAL 1 : 1000
VERTICAL 1 : 200
ORIGINAL

PROYECTO : AUTOPISTA DE AQUI A ALLI
TRAMO : PRIMERO

NOMBRE PLANO : **C. GRANDE - PAICHO SUD U.A.J.M.S.**
UNIV. CRUZ BENITEZ ROGER

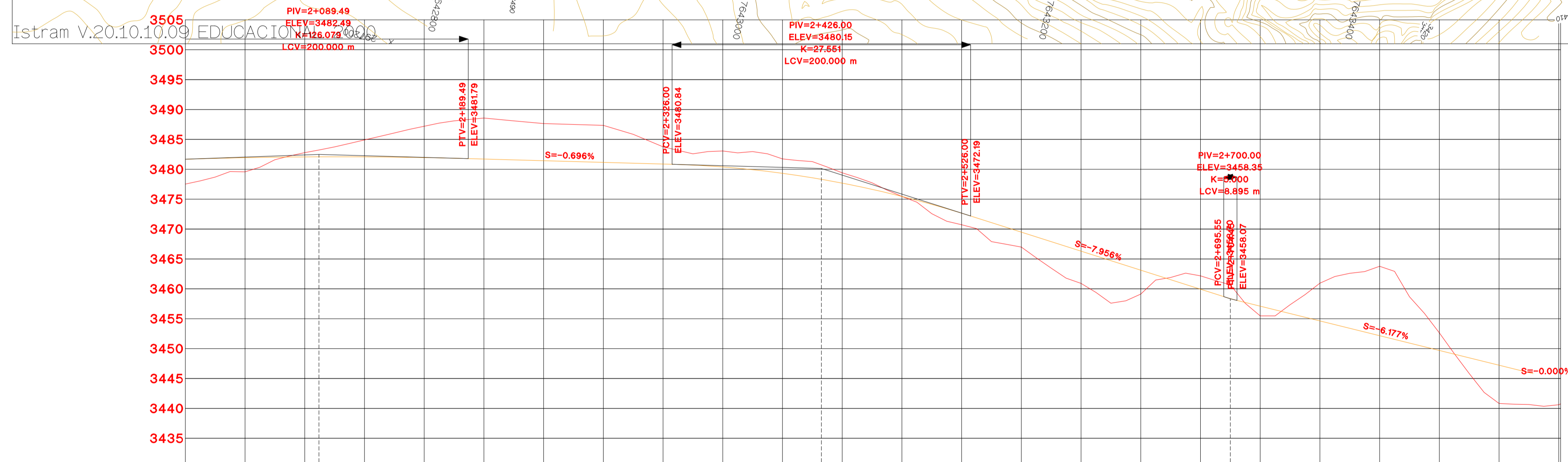
DIRECCION GENERAL DEL PROYECTO: **EL UNO**
DIRECCION TECNICA DEL PROYECTO: **EL OTRO**

FECHA: 20/10/2020
Número: **2**
Hoja: ___de___



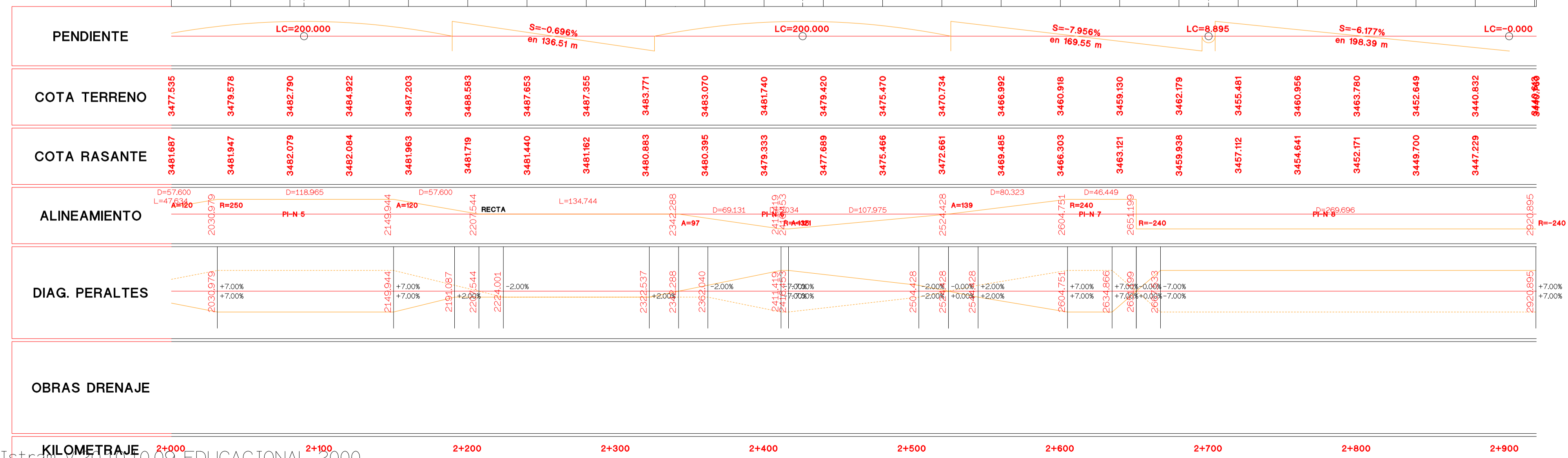
CUADRO DE ELEMENTOS DE CURVA

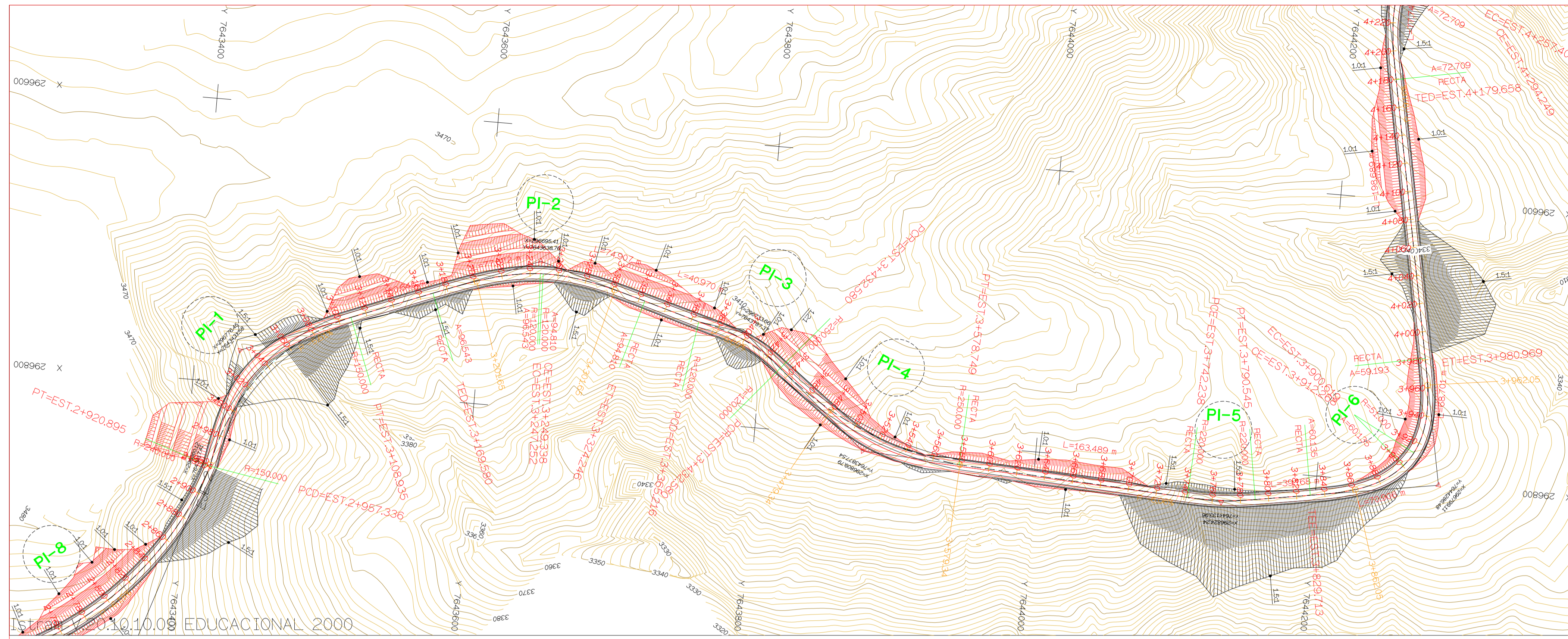
Nº	SENTIDO	FINCL.	RIGID.	PI	T	PC	Lc	PT	EAL	COORDENADAS L.T.P.		Pc	S/n
										NORTE	ESTE		
2	I	-8°47'00"	400	2+148.306	116.827	0+000.000	86.824	0+000.000	8.595	764980.000	297700.770	7%	
3	I	-8°47'00"	350	2+183.000	149.359	1+000.000	154.335	1+000.000	19.113	764979.600	297640.000	7%	
4	D	8°23'00"	150	2+183.000	104.258	1+710.000	1274	1+865.145	11.298	764940.170	29703.475	7%	
5	D	4°27'00"	135	2+183.000	121.136	1+873.370	118.965	2+107.544	17.030	764907.834	297000.000	7%	
6	I	-8°47'00"	250	2+428.545	100.459	2+148.200	5.034	2+428.428	11.242	764908.000	297000.000	7%	
7	D	8°23'00"	240	2+183.000	69.250	2+183.000	46.449	2+183.000	2.872	764908.200	297000.000	7%	
8	I	-8°23'00"	240	2+183.000	151.092	2+183.000	269.896	2+403.896	43.800	764907.400	297000.744	7%	



E.E 1

#	Tipo	PX	Longitud	Xt	Yt	Azmut	Xo1	Yo1	Radio	Parametro
18	Clotilde	1+973.379	57.600	297059.532	764256.053	374.375	297059.532	764256.053		120.000
19	Círculo	2+030.979	118.965	297037.320	764262.162	378.613	297274.662	764269.644	250.000	
20	Clotilde	2+149.944	57.600	297027.730	764273.818	399.955	297041.050	764279.462		120.000
21	Recta	2+207.544	134.744	297041.050	764279.462	17.2993				
22	Clotilde	2+342.288	69.131	297077.216	764292.424	17.2993	297077.216	764292.424		96.606
23	Círculo	2+411.419	5.034	297089.993	764292.160	0.9993	296955.009	764299.429	-135.000	
24	Clotilde	2+416.453	107.975	297089.978	764292.160	384.934	297059.488	764309.975		120.733
25	Clotilde	2+524.428	80.323	297059.488	764309.975	373.096	297059.488	764309.975		138.843
26	Círculo	2+604.751	46.449	297030.797	764317.480	383.838	297263.087	764326.236	240.000	
27	Círculo	2+651.199	269.896	297023.528	764322.654	391.440	296785.595	7643189.271	-240.000	

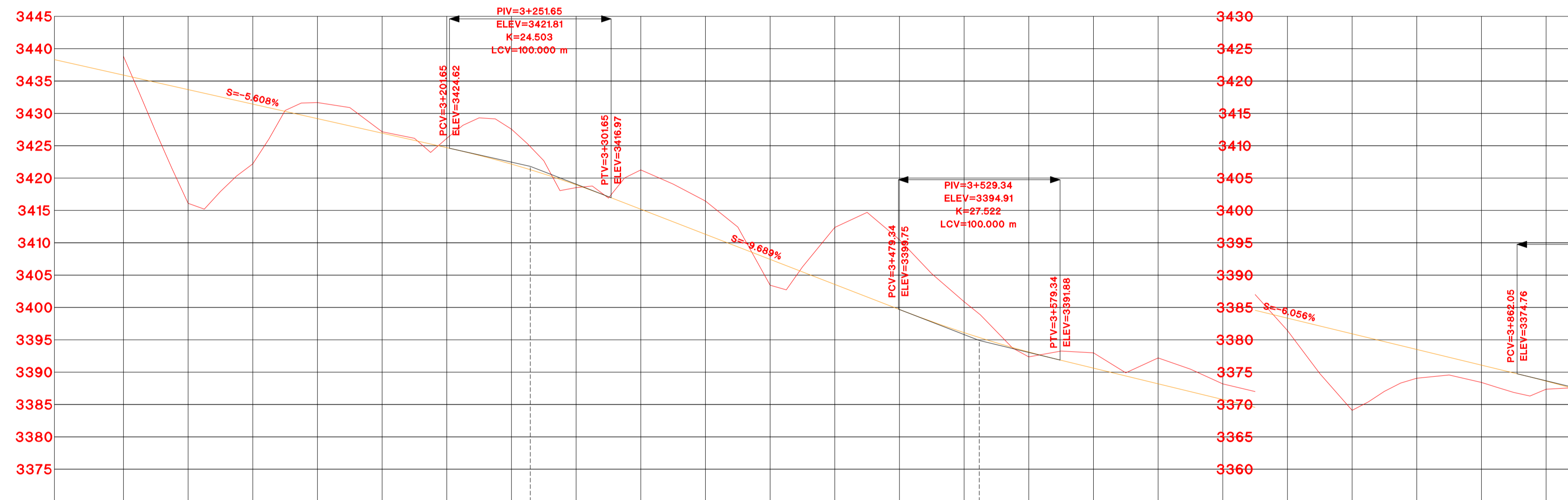




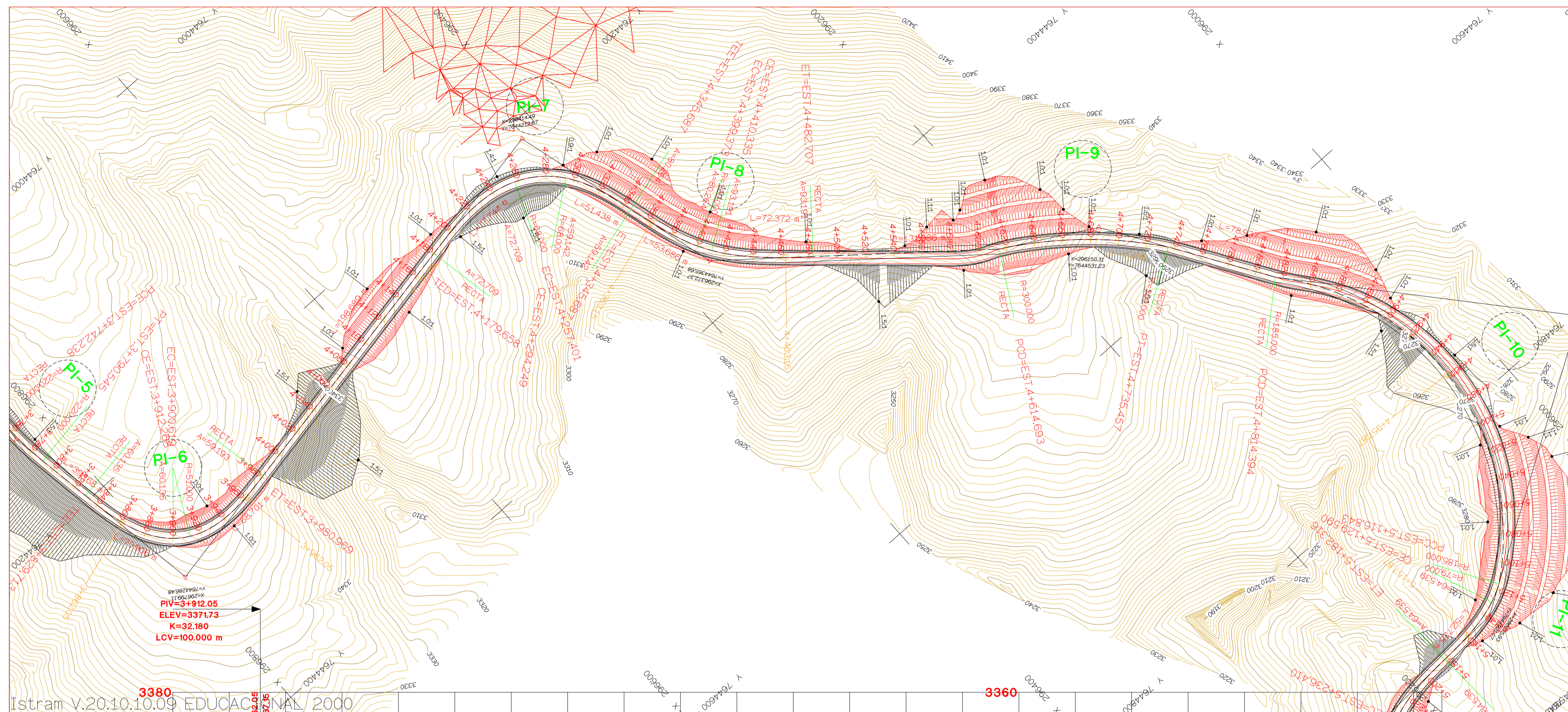
CUADRO DE ELEMENTOS DE CURVA

Nº	SENTIDO	RVC	RREDO	PI	T	PC	Lc	PT	Ext	COORDENADAS UTM		PI	S-R
										NORTE	ESTE		
1	D	89°11'	150	3+04.849	84.869	3+07.338	151.599	3+10.836	22.345	764341.683	39778.448	7%	0.359
2	D	37°38'	120	3+07.338	79.811	3+09.890	2.086	3+10.246	8.823	764341.707	39869.449	7%	0.359
3	D	37°38'	120	3+09.890	35.242	3+10.246	67.364	3+10.246	4.679	764371.371	39733.659	7%	0.359
4	I	-15°35'	250	3+10.246	82.771	3+10.246	146.169	3+10.246	13.346	764377.546	39609.790	7%	
5	I	-15°35'	220	3+10.246	24.251	3+10.246	48.307	3+10.246	1.333	764383.993	39624.291	7%	
6	I	-15°35'	81	3+10.246	91.150	3+10.246	15.648	3+10.246	27.705	764406.477	39799.959	7%	1.022
7	D	89°11'	68	3+10.246	102.608	3+10.246	38.647	3+10.246	28.182	764426.849	39441.493	7%	0.734

#	EJE 2	Tipo	PK	Longitud	Xc	Yc	Azmut	Xc/1	Yc/1	Radio	Parametro
1	Circulo	2+957.336	151.599	296860.121	764341.708	310.8848	296865.179	7643565.298	150.000		
2	Recta	3+108.935	60.645	296746.574	7643507.955	376.2634	296724.480	7643564.428		66.543	
3	Cirotolide	3+109.280	778.72	296724.480	7643564.428	376.2634	296724.480	7643564.428			
4	Circulo	3+247.252	2.086	296704.228	7643639.041	361.8695	296654.055	7643644.044	120.000		
5	Cirotolide	3+249.338	74.907	296704.144	7643641.124	361.8732	296717.227	7643714.555		94.810	
6	Recta	3+324.246	40.970	296717.227	7643714.555	1784.90					
7	Circulo	3+365.216	67.364	296728.560	7643753.023	603.60	296847.190	7643735.839	120.000		
8	Circulo	3+432.580	146.169	296756.394	7643814.300	44.6390	296655.369	7643975.575	-250.000		
9	Recta	3+578.749	103.489	296813.676	7643946.525	3.8868					
10	Circulo	3+742.238	48.307	296822.871	7644109.795	3.8868	296603.219	7644122.125	-220.000		
11	Recta	3+790.545	39.168	296820.290	7644157.899	389.6038					
12	Cirotolide	3+829.713	70.906	296813.024	7644195.338	389.6038	296813.024	7644195.338		60.136	
13	Circulo	3+900.619	11.648	296787.281	7644260.811	345.3498	296753.047	7644232.016	-51.000		
14	Cirotolide	3+912.268	68.701	296777.676	7644267.165	339.8085	296710.389	7644269.455		59.193	
15	Recta	3+980.969	198.689	296710.389	7644269.455	287.8265					
16	Cirotolide	4+179.658	77.744	296515.261	7644232.004	287.8265	296515.261	7644232.004		72.709	
17	Circulo	4+257.401	36.847	296438.640	7644232.004	324.3255	296463.990	7644295.133	68.000		
18	Cirotolide	4+294.249	51.438	296409.730	7644254.150	588.8181	296390.081	7644301.334		59.142	
19	Cirotolide	4+345.687	53.686	296390.081	7644301.334	382.8665	296390.081	7644301.334		80.264	

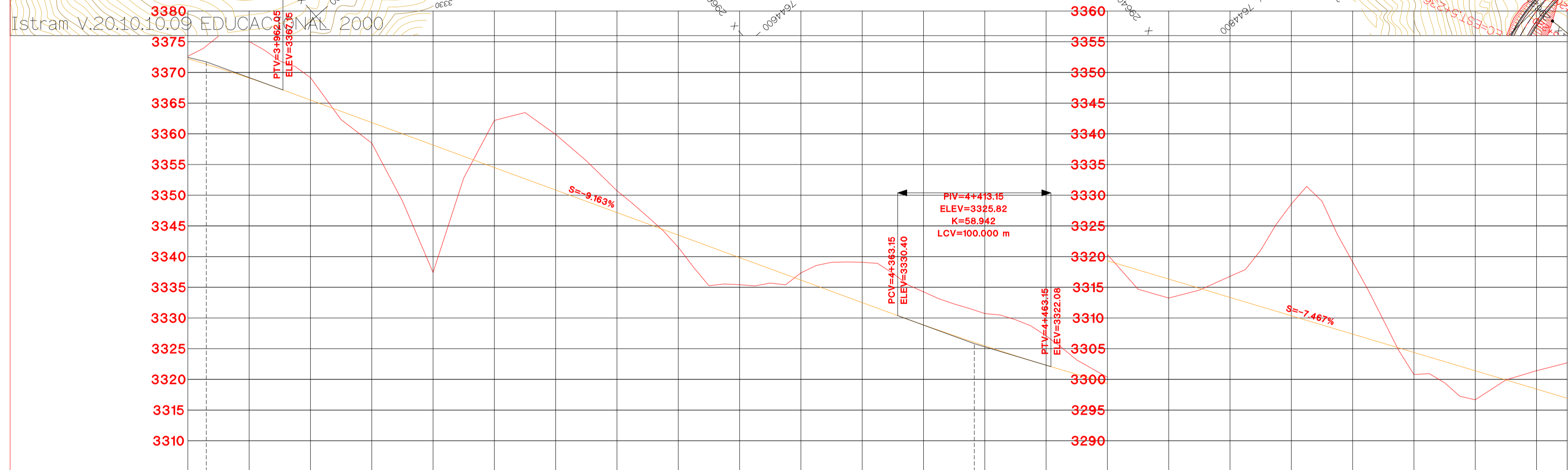


PK	3+000	3+100	3+200	3+300	3+400	3+500	3+600	3+700	3+800	3+900																
PENDIENTE	S=-5.608% en 244.32 m																									
COTA TERRENO	3440.760	3438.819	3416.108	3422.207	3431.679	3427.184	3426.162	3427.572	3418.550	3421.289	3416.461	3403.445	3412.385	3410.483	3400.896	3392.370	3392.991	3392.201	3388.188	3381.450	3369.112	3374.075	3373.417	3372.375	3372.838	
COTA RASANTE	3438.319	3435.926	3433.683	3431.440	3429.197	3426.953	3424.710	3422.467	3418.971	3415.191	3411.316	3407.440	3403.565	3399.689	3396.114	3392.520	3389.630	3388.207	3385.785	3383.363	3380.941	3378.518	3376.096	3373.674	3372.252	3372.239
ALINEAMIENTO	R=150 PI-N 1 D=151.599 RECTA L=60.645 A=9° D=77.672 D=20.086 D=74.907 PI-N 2 R=120 RECTA L=30.970 D=67.364 PI-N 3 R=250 PI-N 4 D=146.169 RECTA L=163.489 PI-N 5 R=220 PI-N 6 D=39.168 A=6° D=70.906																									
DIAG. PERALTES	+7.00% +7.00% 3+089.935 +7.00% +2.00% 3+117.435 +2.00% +2.00% 3+151.632 +2.00% +2.00% 3+251.650 +7.00% +7.00% 3+300.000 +7.00% +2.00% 3+324.246 +7.00% +2.00% 3+365.216 +7.00% +7.00% 3+398.689 +7.00% +7.00% 3+432.580 -0.00% +0.00% 3+471.170 -7.00% -7.00% 3+529.340 -7.00% -7.00% 3+568.249 -7.00% -7.00% 3+591.249 -7.00% -7.00% 3+614.049 -7.00% -7.00% 3+636.847 -7.00% -7.00% 3+659.645 -7.00% -7.00% 3+682.443 -7.00% -7.00% 3+700.000 -2.00% -2.00% 3+742.238 -2.00% -7.00% 3+790.545 -7.00% -7.00% 3+829.713 -7.00% -2.00% 3+870.545 -7.00% -2.00% 3+912.268 -7.00% -2.00% 3+980.969 -7.00% -2.00%																									
OBRAS DRENAJE																										

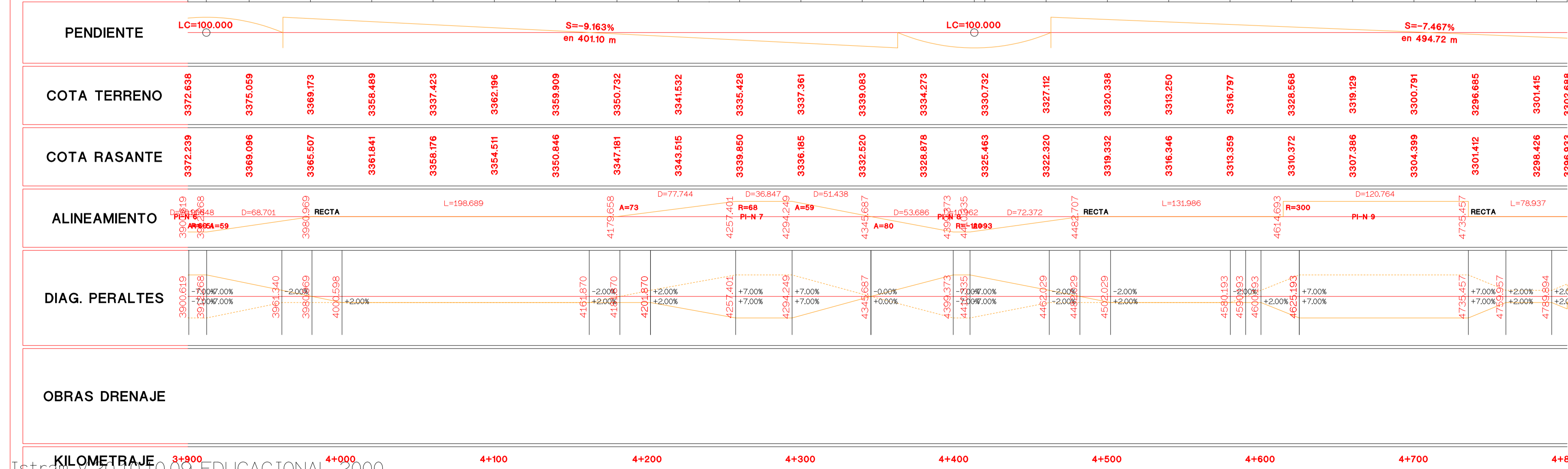


CUADRO DE ELEMENTOS DE CURVA

Nº	SENTIDO	RNG.	RADIO	PI	T	PC	LC	PT	Ext.	COORDENADAS UTM		PI	S/A
										NORTE	ESTE		
1	D	89°07'4"	150	3+234.589	84.869	3+207.336	151.599	3+208.936	22.345	7644333.603	394774.445	7%	
2	D	87°58'1"	120	3+347.383	79.811	3+388.500	2.086	3+432.860	8.823	7644368.787	394884.408	7%	0.359
3	D	87°57'50"	120	3+388.500	35.242	3+465.238	67.364	3+432.860	4.679	7644367.371	394733.858	7%	0.359
4	I	10°34'50"	250	3+432.860	82.771	3+432.860	146.169	3+474.749	13.346	7644387.545	394808.790	7%	
5	I	10°34'50"	250	3+474.749	24.251	3+474.749	48.307	3+470.245	1.333	7644393.363	394884.235	7%	
6	I	89°02'34"	51	3+505.762	91.150	3+505.762	116.648	3+600.389	27.705	7644408.477	394794.005	7%	1.022
7	D	89°02'34"	51	3+600.389	102.805	3+600.389	36.947	3+642.860	28.182	7644412.881	394844.992	7%	0.734
8	I	10°34'40"	120	3+642.860	73.460	3+642.860	10.952	3+642.860	7.420	7644408.878	394732.388	7%	0.359
9	D	87°58'40"	300	3+642.860	72.327	3+642.860	120.764	3+736.487	8.595	7644403.227	394633.311	7%	
10	D	89°02'40"	185	3+736.487	216.915	3+736.487	301.449	3+814.449	100.092	7644404.003	394637.303	7%	
11	D	89°02'30"	79	3+814.449	44.138	3+814.449	13.747	3+814.449	3.391	7644401.078	394638.859	7%	0.613



E.E. 2	E.E. 2	PK	Longitud	Xt	Yt	Azimut	Xc1	Yc1	Radio	Parametro
12	Círculo	3+829.713	70.000	296813.924	7644196.539	389.608	296813.924	7644196.539		60.135
13	Círculo	3+900.619	11.648	296787.281	7644260.615	330.888	296787.281	7644260.615		50.193
14	Círculo	3+912.268	68.701	296777.676	7644267.160	330.888	296777.676	7644267.160		50.193
15	Recta	3+980.969	198.689	296710.389	7644269.451	287.909				
16	Círculo	4+170.658	77.744	296515.261	7644232.004	287.909	296515.261	7644232.004		72.709
17	Círculo	4+257.401	36.847	296438.640	7644232.004	324.321	296438.640	7644232.004		68.000
18	Círculo	4+294.249	51.438	296409.730	7644254.150	368.818	296409.730	7644254.150		59.142
19	Círculo	4+345.687	53.686	296390.081	7644201.334	368.818	296390.081	7644201.334		80.264
20	Círculo	4+399.373	10.962	296372.556	7644251.777	368.818	296372.556	7644251.777		-120.000
21	Círculo	4+410.335	72.372	296366.441	7644261.187	368.818	296366.441	7644261.187		93.191
22	Recta	4+482.707	131.986	296315.503	7644412.185	343.943				
23	Círculo	4+614.693	120.764	296213.336	7644466.746	332.843	296213.336	7644466.746		300.000
24	Recta	4+736.457	78.937	296122.686	7644574.299	363.695				
25	Círculo	4+814.394	301.449	296080.071	7644640.745	384.269	296080.071	7644640.745		185.000
26	Círculo	5+115.843	13.747	296105.963	7644908.686	64.699	296105.963	7644908.686		79.000
27	Círculo	5+129.590	52.725	296118.215	7644914.882	75.789	296118.215	7644914.882		64.539
28	Círculo	5+182.316	54.095	296170.021	7644923.174	90.978	296170.021	7644923.174		64.539
29	Círculo	5+236.410	168.561	296223.093	7644931.984	74.612	296223.093	7644931.984		-77.000



KILOMETRAJE 3+800 4+000 4+100 4+200 4+300 4+400 4+500 4+600 4+700 4+800



ASTURIAS

DIRECCION DE DESARROLLO

ISPOL

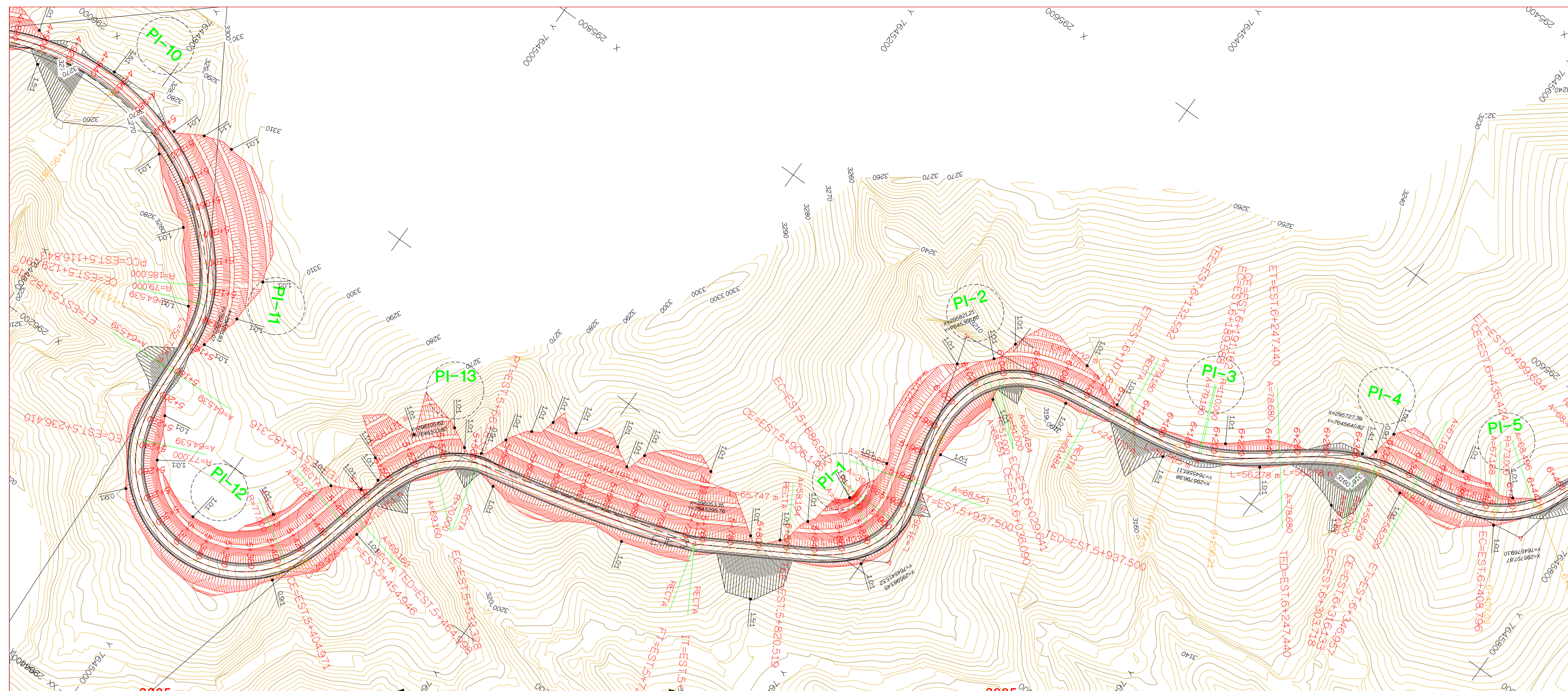
ESCALAS
HORIZONTAL 1 : 1000
VERTICAL 1 : 200
ORIGINAL GRAFICA

PROYECTO : AUTOPISTA DE AQUI A ALLI
TRAMO : PRIMERO

NOMBRE PLANO : C. GRANDE - PAICHO SUD U.A.J.M.S.
UNIV. CRUZ BENITEZ ROGER

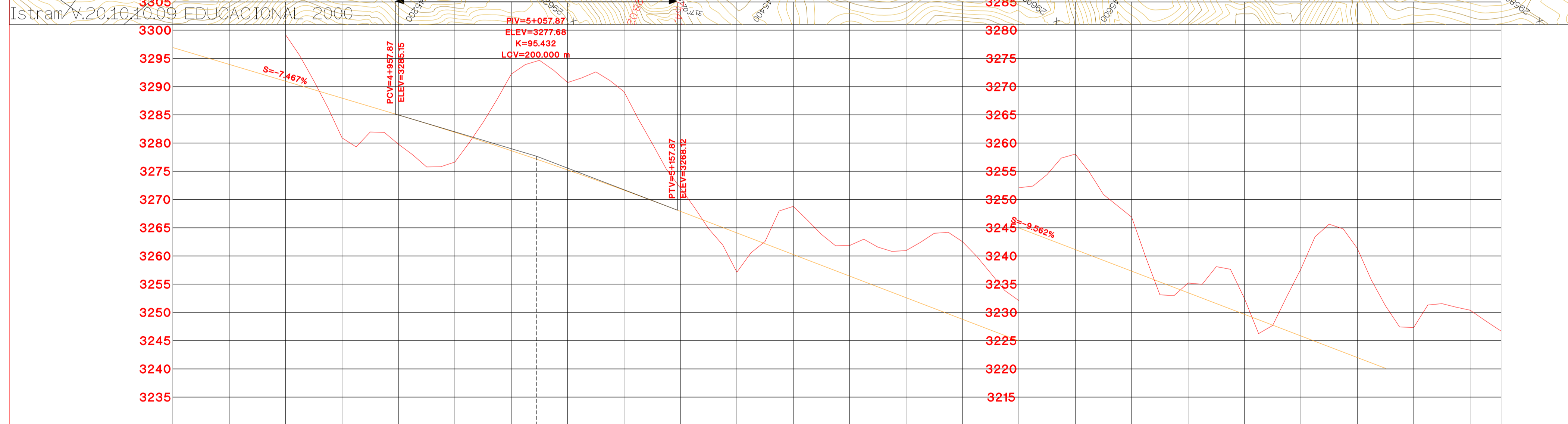
DIRECCION GENERAL DEL PROYECTO : EL UNO
DIRECCION TECNICA DEL PROYECTO : EL OTRO

FECHA : 20/10/2020
Nº Hoja : 5



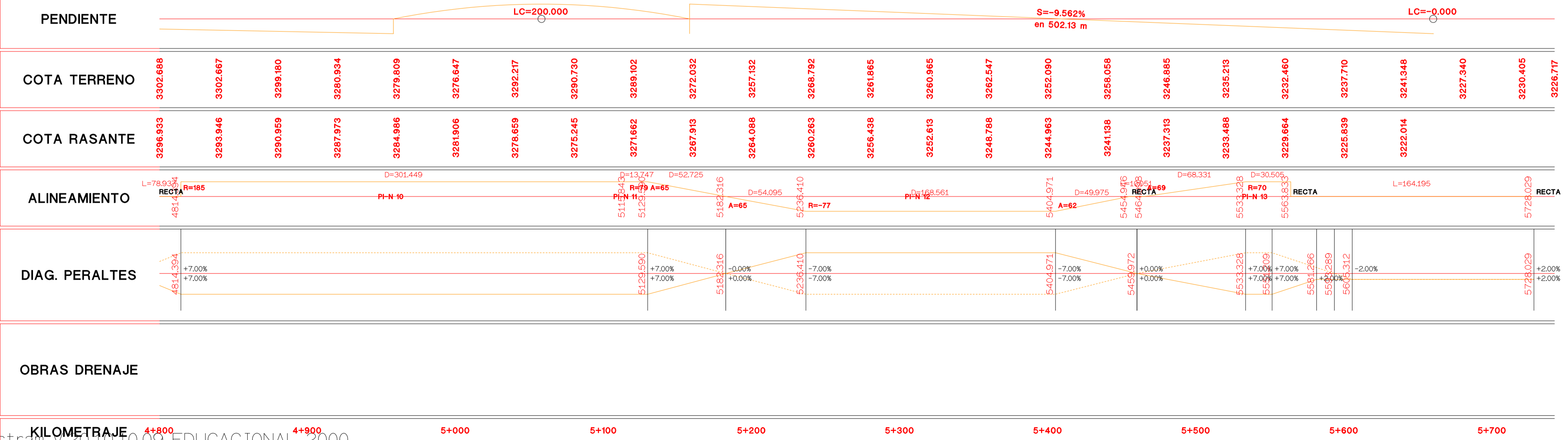
CUADRO DE ELEMENTOS DE CURVA

Nº	SENTIDO	ANG.	RADIO	PI	T	PC	Lc	PT	Ext	COORDENADAS UTM	PI	S-R	
										NORTE	ESTE		
4	I	167°04'	250	3+020.00	82.771	3+020.00	146.169	3+070.749	13.346	7643977.648	28668.790	7%	
5	I	173°45'	220	3+706.30	24.251	3+742.206	48.307	3+790.545	1.333	7644033.963	28670.405	7%	
6	I	173°04'	51	3+806.70	91.150	3+807.70	11.648	3+808.869	27.705	7644036.477	28670.405	7%	
7	D	87°30'30"	68	4+026.92	102.806	4+026.92	36.847	4+063.767	28.182	7644032.888	28670.405	7%	
8	I	167°04'	120	4+067.76	73.460	4+067.76	10.962	4+078.722	7.420	7644036.878	28670.405	7%	
9	D	27°04'	300	4+080.00	72.327	4+080.00	120.764	4+200.764	8.595	7644036.027	28670.405	7%	
10	D	167°04'	185	4+141.88	216.915	4+141.88	301.449	4+443.334	100.092	7644034.655	28670.405	7%	
11	D	30°30'30"	79	5+104.70	44.138	5+104.70	13.747	5+118.447	3.391	7644031.075	28670.405	7%	
12	I	167°04'	77	5+098.60	590.395	5+098.60	168.561	5+267.156	491.911	7644031.333	28670.405	7%	
13	D	67°30'12"	70	5+033.87	73.252	5+033.87	30.505	5+064.377	12.718	7644033.898	28670.405	7%	



E.E 2

#	Tipo	P.K.	Longitud	Xt	Yt	Aziut.	Xo/i	Yo/i	Radio	Parametro
24	Recta	4+735.457	78.937	296122.686	7644574.299	363.6962				
25	Círculo	4+814.394	301.449	296080.071	7644640.745	354.2897	296219.351	7644762.507	185.000	
26	Círculo	5+115.843	13.747	296105.963	7644508.688	64.6956	296147.610	7644841.555	79.000	
27	Círculo	5+125.990	52.725	296118.215	7644654.885	75.7989	296170.025	7644923.172		64.539
28	Círculo	5+182.348	54.095	296170.025	7644923.172	96.9732	296170.025	7644923.172		64.539
29	Círculo	5+236.410	168.561	296223.093	7644931.983	74.6109	296193.193	7645002.944	-77.000	
30	Círculo	5+404.971	49.975	296233.681	7645068.438	338.2484	296186.741	7645084.895		62.033
31	Recta	5+454.946	10.051	296186.741	7645084.895	314.8982				
32	Círculo	5+464.998	68.331	296176.953	7645087.176	314.8982	296176.953	7645087.176		69.160
33	Círculo	5+533.328	30.505	296114.459	7645112.976	345.6911	296100.471	7645165.732	70.000	
34	Recta	5+563.833	164.195	296096.491	7645137.331	363.7962				



KILOMETRAJE 4+800 4+900 5+000 5+100 5+200 5+300 5+400 5+500 5+600 5+700

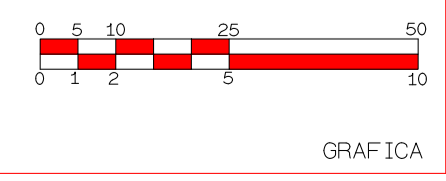


ASTURIAS

DIRECCION DE DESARROLLO

ISPOL

ESCALAS
 HORIZONTAL 1 : 1000
 VERTICAL 1 : 200
 ORIGINAL



PROYECTO : AUTOPISTA DE AQUI A ALLI
 TRAMO : PRIMERO

NOMBRE PLANO : **C. GRANDE - PAICHO SUD U.A.J.M.S.**
 UNIV. CRUZ BENITEZ ROGER

DIRECCION GENERAL DEL PROYECTO : **EL UNO**

DIRECCION TECNICA DEL PROYECTO : **EL OTRO**

FECHA : 20/10/2020
 N.º : 6
 Hoja ___ de ___