LEGENDA/LEGEND

NSS	nivel superior sina top of rail
h	suprainaltarea caii, in mm cant, in mm
AR	aliniament-racordare, punctul de trecere din aliniament in curba progresiva tangent to spiral, transition point from tangent to spiral
RC	racordare-curba, punctul de trecere din curba progresiva in curba circulara spiral to curve, transition point from spiral to circular curve
CR	curba-racordare, punctul de trecere din curba circulara in curba progresiva curve to spiral, transition point from circular curve to spiral
RA	racordare-aliniament, punctul de trecere din curba progresiva in aliniament spiral to tangent, transition point from spiral curve to tangent
Ti	tangenta de intrare point of change from tangent to circular curve
Te	tangenta de iesire point of change from circular curve to tangent
TC	punct de tangenta comuna intre doua curbe circulare common tangent point between two circular curves
R	raza curbei circulare, in m radius of circular curve, in m
T	tangenta curbei circulare, in m tangent of circular curve, in m
B	bisectoarea curbei circulare, in m bisector of circular curve, in m
C	lungimea curbei circulare, in m length of circular curve, in m
LR	lungimea curbei progresive, in m length of spiral, in m
Lh	lungimea rampei suprainaltarii, in m cant ramp length, in m
U	unghiul total de abatere, in grade centesimale total deflection angle, in centesimal degrees
Rv	raza curbei de racordare in plan vertical, in m radius of vertical curve, in m
Bv	bisectoarea curbei de racordare in plan vertical, in m bisector of vertical curve, in m
Tv	tangenta curbei de racordare din plan vertical, in m tangent of vertical curve, in m

CC = Cota capac camin / Manhole cover elevation

CT = Cota fund tub dren / Pipe bottom of collecting pipeline

DN = Diametru nominal tub de dren / Nominal diameter of collecting pipeline

Camin/Manhole

Camin cu schimbare de panta/Manhole with change of slope

Camin cu schimbare de diametru sau diametru si panta/
Manhole with change of DN or DN and slope

Camin/Manhole

Teava metalica de protectie / Metal pipe protection

Dren / Drain pipe

Fund sant de beton / Concrete ditch bottom

Acest plan anuleaza si inlocuieste planul nr. PT.03.01.22.SU.202 - 01/01
elaborat la data 01.2013
This layout plan canceled and replaced layout plan no. PT.03.01.22.SU.202 - 01/01
prepared on 01.2013

Verificator / Expert Checker / Expert	Cerința Requirement	Semnatura Signature	Referat / Expertiza Report / Expertise
NR. 1107		CHIRICA C. ANTON	Nr. 06628 BAICU D. MARIN

NR. 05985

MINISTERUL TRANSPORTURILOR

European Investment Bank

BENEFICIAR / BENEFICIARY :

COMPANIA NAȚIONALĂ DE CĂI FERATE "CFR" SA

PROIECTANT / DESIGNER: PÖYRY			Data Date	Semnatura Signature
Aprobat Approved	Şef de echipă Team leader	C. Teodorescu	01.2013	
Verificat Checked	Expert Cheie Key Expert	L. Mărculescu	01.2013	
Subcontractant / Subcontractor	VIOTOP			
Aprobat Approved	Adjunct Şef de echipă Deputy Team leader	A.M. Baicu	01.2013	
Proiectat Designed	Inginer Engineer	I. Branciu	01.2013	

"Reabilitarea liniei c.f. Frontieră - Curtici - Simeria, parte componentă a coridorului IV Pan - European pentru circulația trenurilor cu viteză maximă de 160 km/h"
Tronsonul 3: Gurasada - Simeria
"Rehabilitation of the Railway Line Border - Curtici - Simeria, component Part of the IV Pan - European Corridor for the Trains Circulation with maximum speed of 160 km/h"
Section 3: Gurasada - Simeria

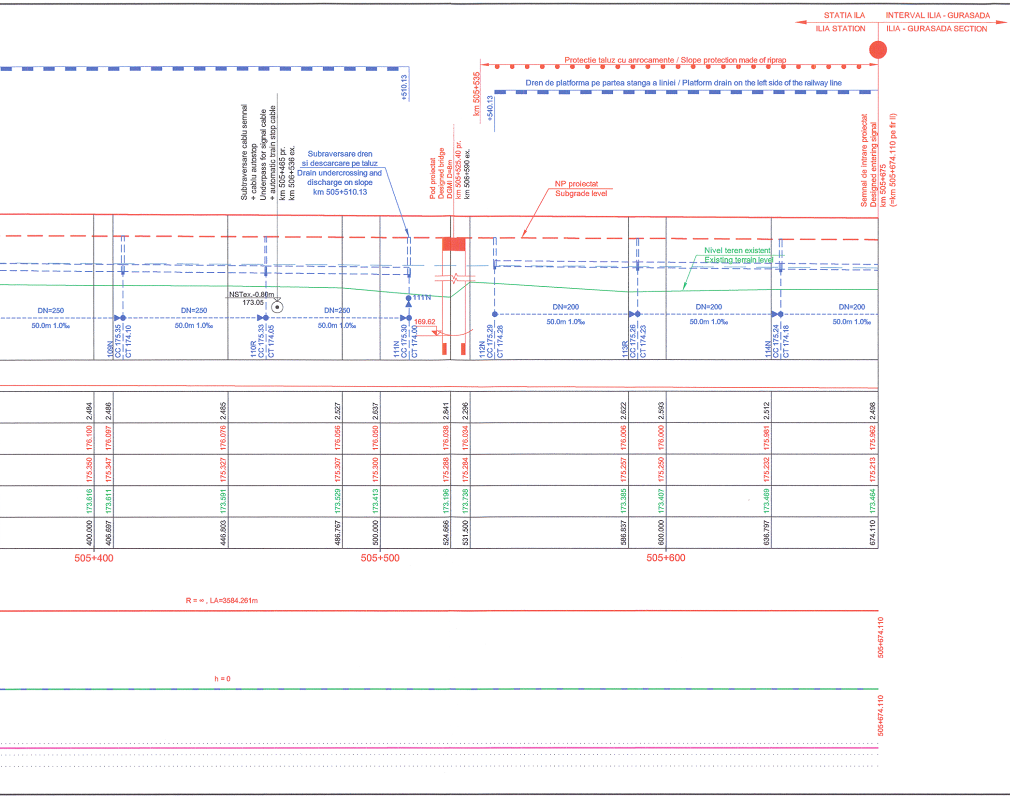
Project 9i
35311.1

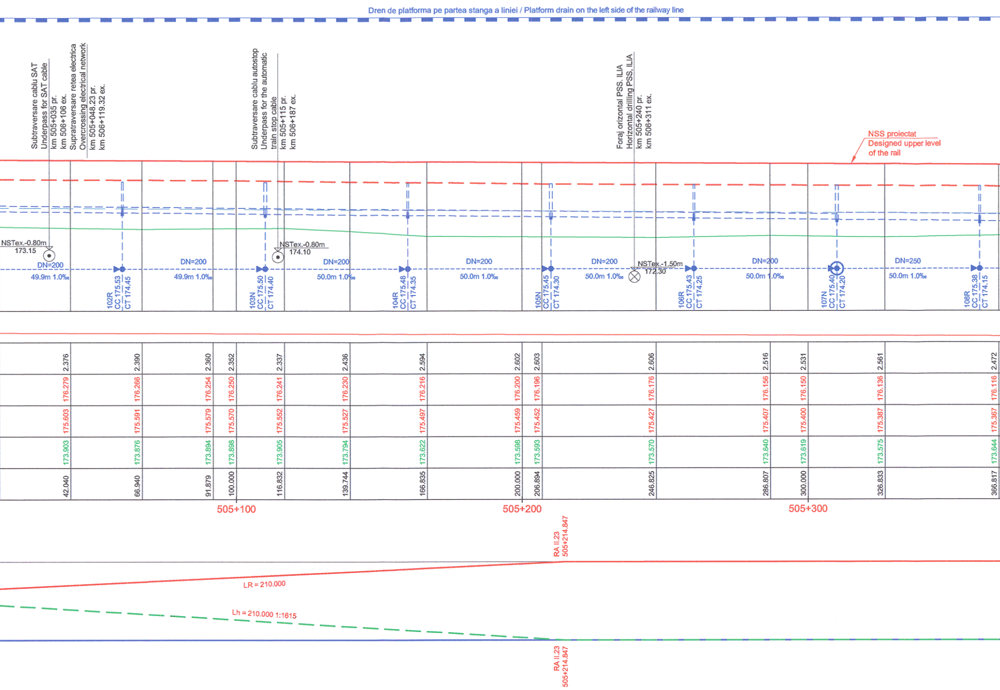
Faza / Phase:
PTH+CS / TD+TS

Denumire desen / Drawing name:

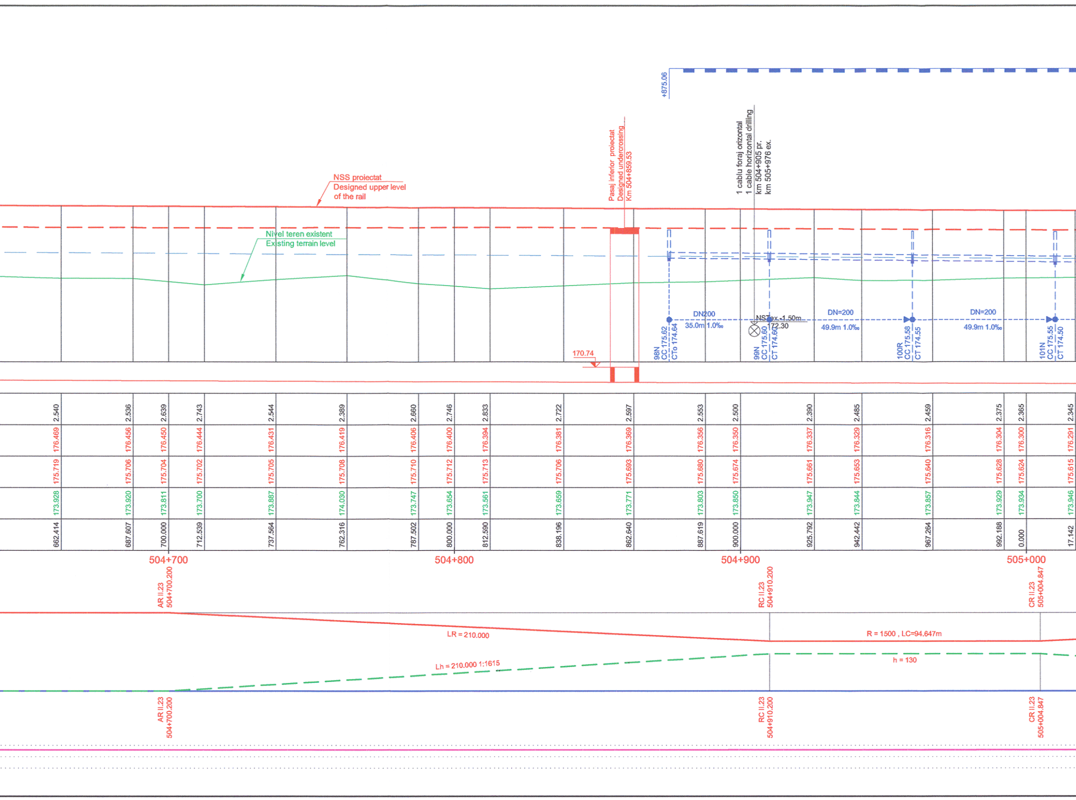
Profil longitudinal fir II - Stația Ilia / Ilia Station - Longitudinal profile track II
km 502+520.00 - km 505+675.00

Scara / Scale	Revizia / Revision	Cod desen / Drawing Code	Nr / No
1:1000 ; 1:100	1/05.2013	PT.03.01.22.SU.202	01/01


STATIA ILA
ILIA STATION
INTERVAL ILIA - GURASADA
ILIA - GURASADA SECTION
Protectie taluz cu anrocamente / Slope protection made of riprap
Dren de platforma pe partea stanga a liniei / Platform drain on the left side of the railway line
+510.13
km 505+535
+540.13
Subtraversare cablu semnal
+ cablu autostop
Underpass for signal cable
+ automatic train stop cable
km 505+465 pr.
km 506+536 ex.
Subraversare dren
si descarcare pe taluz
Drain undercrossing and
discharge on slope
km 505+510.13
Pod proiectat
Designed bridge
DGMI D=8m
km 505+525.40 pr.
km 506+590 ex.
NP proiectat
Subgrade level
Semnal de intrare proiectat
Designed entering signal
km 505+675
(=km 505+674.110 pe fir II)
Nivel teren existent
Existing terrain level
NSTex.-0.80m
173.05
111N
169.62
DN=250
50.0m 1.0‰
DN=250
50.0m 1.0‰
DN=250
50.0m 1.0‰
DN=200
50.0m 1.0‰
DN=200
50.0m 1.0‰
DN=200
50.0m 1.0‰
109N
CC 175.35
CT 174.10
110R
CC 175.33
CT 174.05
111N
CC 175.30
CT 174.00
112N
CC 175.29
CT 174.28
113R
CC 175.26
CT 174.23
114N
CC 175.24
CT 174.18
2.484
2.486
2.485
2.527
2.637
2.841
2.296
2.622
2.593
2.512
2.498
176.100
176.097
176.076
176.056
176.050
176.038
176.034
176.006
176.000
175.981
175.962
175.350
175.347
175.327
175.307
175.300
175.288
175.284
175.257
175.250
175.232
175.213
173.616
173.611
173.591
173.529
173.413
173.196
173.738
173.385
173.407
173.469
173.464
400.000
406.697
446.803
486.767
500.000
524.666
531.500
586.837
600.000
636.797
674.110
505+400
505+500
505+600
R = ∞ , LA=3584.261m
505+674.110
h = 0
505+674.110

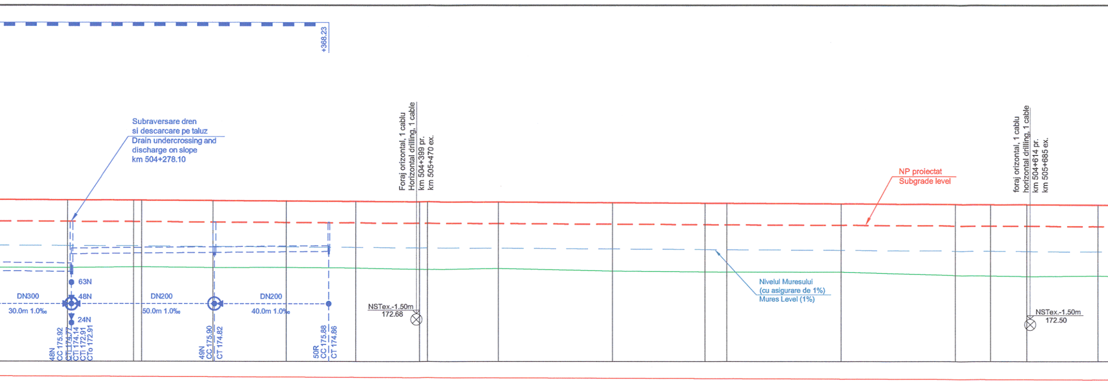

Dren de platforma pe partea stanga a liniei / Platform drain on the left side of the railway line
Subtraversare cablu SAT
Underpass for SAT cable
km 505+035 pr.
km 506+106 ex.
Supratraversare retea electrica
Overcrossing electrical network
km 505+048.23 pr.
km 506+119.32 ex.
Subtraversare cablu autostop
Underpass for the automatic
train stop cable
km 505+115 pr.
km 506+187 ex.
Foraj orizontal PSS. ILIA
Horizontal drilling PSS. ILIA
km 505+240 pr.
km 506+311 ex.
NSS proiectat
Designed upper level
of the rail
NSTex.-0.80m
173.15
NSTex.-0.80m
174.10
NSTex.-1.50m
172.30
DN=200
49.9m 1.0‰
102R
CC 175.53
CT 174.45
DN=200
49.9m 1.0‰
103N
CC 175.50
CT 174.40
DN=200
50.0m 1.0‰
104R
CC 175.48
CT 174.35
DN=200
50.0m 1.0‰
105N
CC 175.45
CT 174.30
DN=200
50.0m 1.0‰
106R
CC 175.43
CT 174.25
DN=200
50.0m 1.0‰
107N
CC 175.40
CT 174.20
DN=250
50.0m 1.0‰
108R
CC 175.38
CT 174.15
505+100
505+200
505+300
RA II.23
505+214.847
LR = 210.000
Lh = 210.000 1:1615
RA II.23
505+214.847

2.376	2.390	2.360	2.352	2.337	2.436	2.594	2.602	2.603	2.606	2.516	2.531	2.561	2.472
176.279	176.266	176.254	176.250	176.241	176.230	176.216	176.200	176.196	176.176	176.156	176.150	176.136	176.116
175.603	175.591	175.579	175.570	175.552	175.527	175.497	175.459	175.452	175.427	175.407	175.400	175.387	175.367
173.903	173.876	173.894	173.898	173.905	173.794	173.622	173.598	173.593	173.570	173.640	173.619	173.575	173.644
42.040	66.940	91.879	100.000	116.832	139.744	166.835	200.000	206.894	246.825	286.807	300.000	326.833	366.817

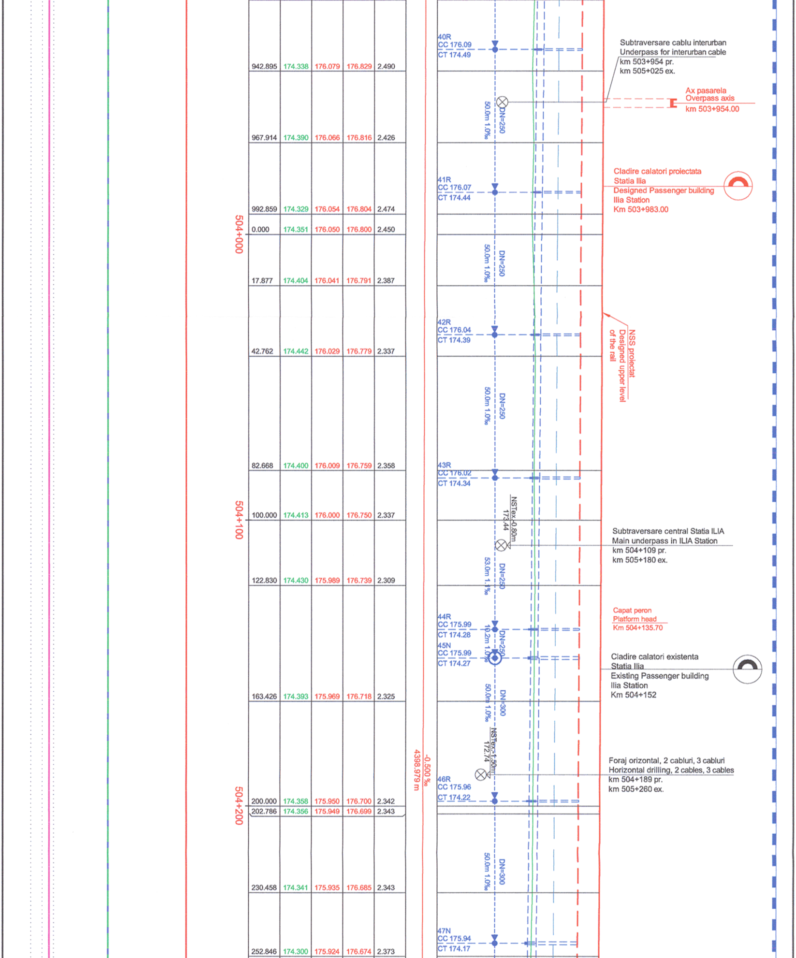

+875.06
1 cablu foraj orizontal
1 cable horizontal drilling
km 504+905 pr.
km 505+976 ex.
Pasaj inferior proiectat
Designed undercrossing
Km 504+859.53
NSS proiectat
Designed upper level
of the rail
Nivel teren existent
Existing terrain level
170.74
98N
CC 175.62
CTo 174.64
DN200
35.0m 1.0‰
99N
CC 175.60
CT 174.60
NST ex.-1.50m
172.30
DN=200
49.9m 1.0‰
100R
CC 175.58
CT 174.55
DN=200
49.9m 1.0‰
101N
CC 175.55
CT 174.50
504+700
504+800
504+900
505+000
AR II.23
504+700.200
RC II.23
504+910.200
CR II.23
505+004.847
LR = 210.000
R = 1500 , LC=94.647m
Lh = 210.000 1:1615
h = 130
AR II.23
504+700.200
RC II.23
504+910.200
CR II.23
505+004.847

2.540	2.536	2.639	2.743	2.544	2.389	2.660	2.746	2.833	2.722
176.469	176.456	176.450	176.444	176.431	176.419	176.406	176.400	176.394	176.381
175.719	175.706	175.704	175.702	175.705	175.708	175.710	175.712	175.713	175.706
173.928	173.920	173.811	173.700	173.887	174.030	173.747	173.654	173.561	173.659
662.414	687.607	700.000	712.539	737.564	762.316	787.502	800.000	812.590	838.196

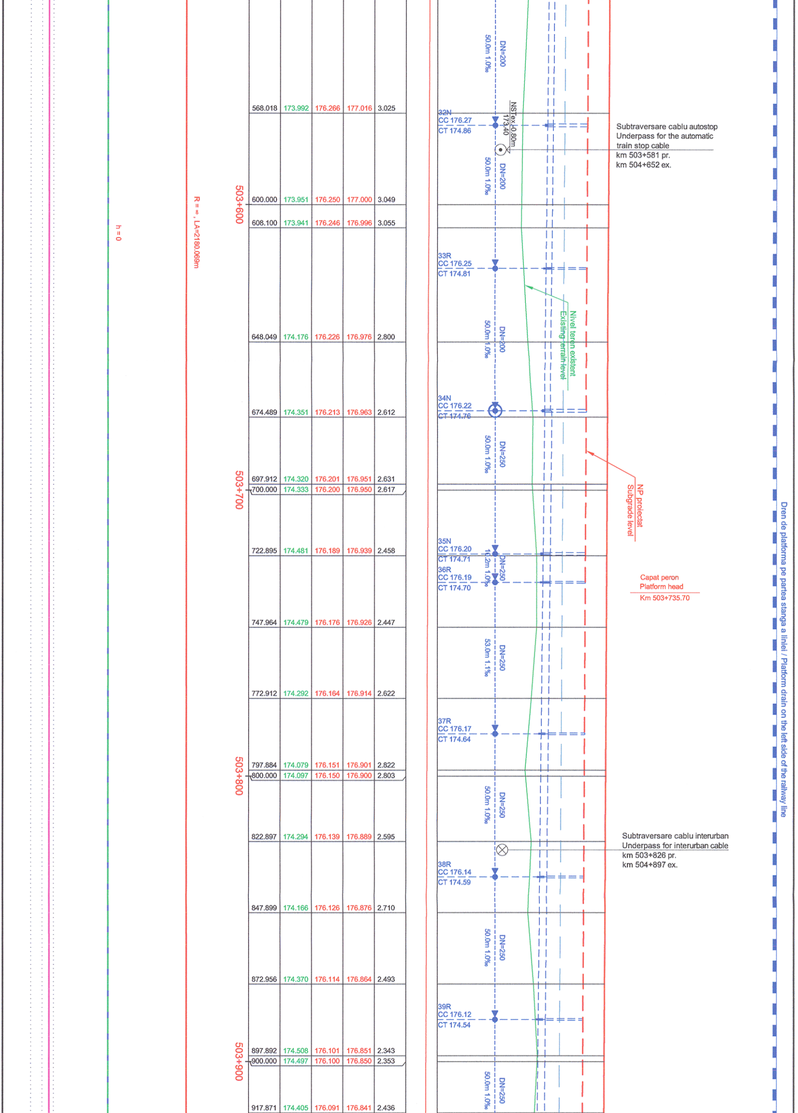
2.597	2.553	2.500	2.390	2.485	2.459	2.375	2.365	2.345
176.369	176.356	176.350	176.337	176.329	176.316	176.304	176.300	176.291
175.693	175.680	175.674	175.661	175.653	175.640	175.628	175.624	175.615
173.771	173.803	173.850	173.947	173.844	173.857	173.929	173.934	173.946
862.640	887.619	900.000	925.792	942.442	967.264	992.188	0.000	17.142


+368.23
Subraversare dren
si descarcare pe taluz
Drain undercrossing and
discharge on slope
km 504+278.10
Foraj orizontal, 1 cablu
Horizontal drilling, 1 cable
km 504+399 pr.
km 505+470 ex.
foraj orizontal, 1 cablu
horizontal drilling, 1 cable
km 504+614 pr.
km 505+685 ex.
NP proiectat
Subgrade level
Nivelul Muresului
(cu asigurare de 1%)
Mures Level (1%)
63N
DN300
30.0m 1.0‰
48N
24N
48N
CC 175.92
CTi 174.77
CTi 174.14
CTi 172.91
CTo 172.91
DN200
50.0m 1.0‰
49N
CC 175.90
CT 174.82
DN200
40.0m 1.0‰
50R
CC 175.88
CT 174.86
NSTex.-1.50m
172.68
NSTex.-1.50m
172.50

2.370	2.342	2.339	2.350	2.328	2.329	2.362	2.366	2.320	2.394	2.406	2.409	2.393	2.488	2.500	2.513	2.481
176.662	176.650	176.649	176.636	176.623	176.611	176.600	176.599	176.586	176.566	176.550	176.546	176.526	176.506	176.500	176.494	176.481
175.912	175.900	175.899	175.886	175.874	175.861	175.850	175.849	175.836	175.816	175.800	175.796	175.776	175.756	175.750	175.744	175.731
174.291	174.308	174.309	174.286	174.296	174.282	174.238	174.232	174.266	174.172	174.144	174.137	174.133	174.018	174.000	173.981	174.000
276.874	300.000	302.786	327.756	353.387	377.686	400.000	402.749	427.708	467.657	500.000	507.631	547.597	587.601	600.000	612.722	637.603
	504+300					504+400				504+500				504+600		

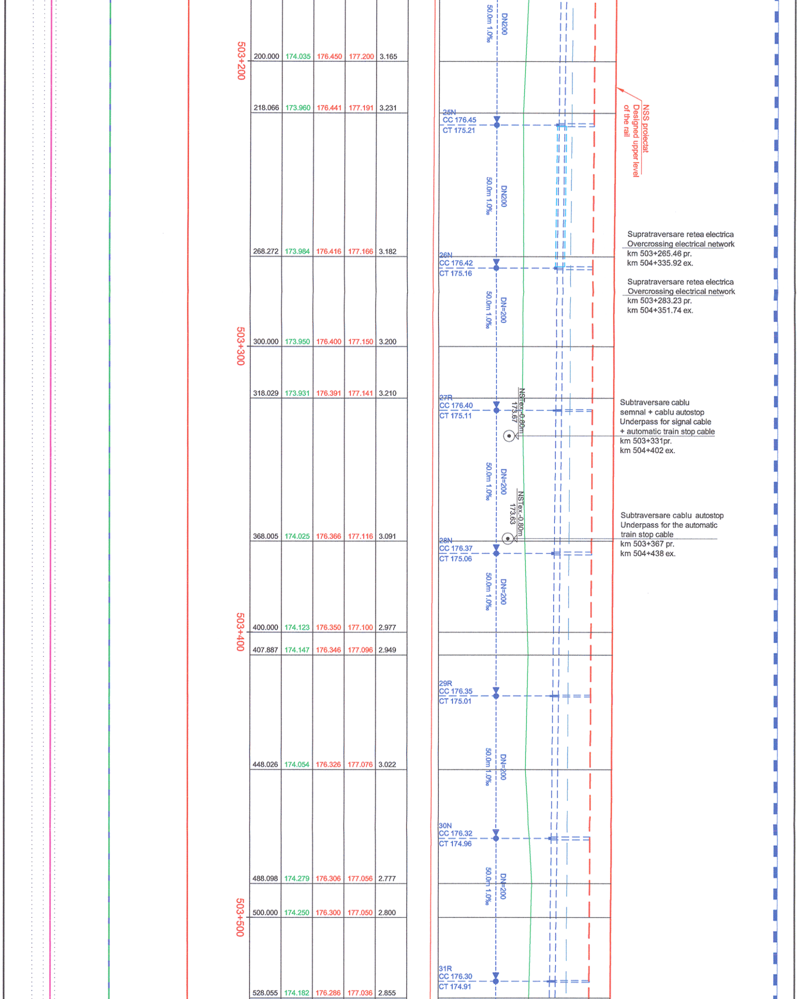

40R
CC 176.09
CT 174.49
Subtraversare cablu interurban
Underpass for interurban cable
km 503+954 pr.
km 505+025 ex.
Ax pasarela
Overpass axis
km 503+954.00
DN=250
50.0m 1.0‰
41R
CC 176.07
CT 174.44
Cladire calatori proiectata
Statia Ilia
Designed Passenger building
Ilia Station
Km 503+983.00
504+000
DN=250
50.0m 1.0‰
42R
CC 176.04
CT 174.39
NSS proiectat
Designed upper level
of the rail
DN=250
50.0m 1.0‰
43R
CC 176.02
CT 174.34
504+100
NSTex-0.80m
173.44
Subtraversare central Statia ILIA
Main underpass in ILIA Station
km 504+109 pr.
km 505+180 ex.
DN=250
53.0m 1.1‰
Capat peron
Platform head
Km 504+135.70
44R
CC 175.99
CT 174.28
DN=250
10.2m 1.0‰
45N
CC 175.99
CT 174.27
Cladire calatori existenta
Statia Ilia
Existing Passenger building
Ilia Station
Km 504+152
DN=300
50.0m 1.0‰
NSTex-1.50m
172.74
Foraj orizontal, 2 cabluri, 3 cabluri
Horizontal drilling, 2 cables, 3 cables
km 504+189 pr.
km 505+260 ex.
-0.500 ‰
4398.979 m
46R
CC 175.96
CT 174.22
504+200
DN=300
50.0m 1.0‰
47N
CC 175.94
CT 174.17

942.895	174.338	176.079	176.829	2.490
967.914	174.390	176.066	176.816	2.426
992.859	174.329	176.054	176.804	2.474
0.000	174.351	176.050	176.800	2.450
17.877	174.404	176.041	176.791	2.387
42.762	174.442	176.029	176.779	2.337
82.668	174.400	176.009	176.759	2.358
100.000	174.413	176.000	176.750	2.337
122.830	174.430	175.989	176.739	2.309
163.426	174.393	175.969	176.718	2.325
200.000	174.358	175.950	176.700	2.342
202.786	174.356	175.949	176.699	2.343
230.458	174.341	175.935	176.685	2.343
252.846	174.300	175.924	176.674	2.373



Dren de platforma pe partea stanga a liniei / Platform drain on the left side of the railway line
Subtraversare cablu autostop
Underpass for the automatic train stop cable
km 503+581 pr.
km 504+652 ex.
Subtraversare cablu interurban
Underpass for interurban cable
km 503+826 pr.
km 504+897 ex.
Capat peron
Platform head
Km 503+735.70
NP proiectat
Subgrade level
Nivel teren existent
Existing terrain level
NSTex-0.80m
173.40
32N
CC 176.27
CT 174.86
33R
CC 176.25
CT 174.81
34N
CC 176.22
CT 174.76
35N
CC 176.20
CT 174.71
36R
CC 176.19
CT 174.70
37R
CC 176.17
CT 174.64
38R
CC 176.14
CT 174.59
39R
CC 176.12
CT 174.54
DN=200
50.0m 1.0‰
DN=200
50.0m 1.0‰
DN=200
50.0m 1.0‰
DN=250
50.0m 1.0‰
DN=250
10.2m 1.0‰
DN=250
53.0m 1.1‰
DN=250
50.0m 1.0‰
DN=250
50.0m 1.0‰
DN=250
50.0m 1.0‰
503+600
503+700
503+800
503+900
R = ∞ , LA=2180.069m
h = 0

568.018	173.992	176.266	177.016	3.025
600.000	173.951	176.250	177.000	3.049
608.100	173.941	176.246	176.996	3.055
648.049	174.176	176.226	176.976	2.800
674.489	174.351	176.213	176.963	2.612
697.912	174.320	176.201	176.951	2.631
700.000	174.333	176.200	176.950	2.617
722.895	174.481	176.189	176.939	2.458
747.964	174.479	176.176	176.926	2.447
772.912	174.292	176.164	176.914	2.622
797.884	174.079	176.151	176.901	2.822
800.000	174.097	176.150	176.900	2.803
822.897	174.294	176.139	176.889	2.595
847.899	174.166	176.126	176.876	2.710
872.956	174.370	176.114	176.864	2.493
897.892	174.508	176.101	176.851	2.343
900.000	174.497	176.100	176.850	2.353
917.871	174.405	176.091	176.841	2.436


503+200
503+300
503+400
503+500
NSS proiectat
Designed upper level
of the rail
25N
CC 176.45
CT 175.21
26N
CC 176.42
CT 175.16
27R
CC 176.40
CT 175.11
28N
CC 176.37
CT 175.06
29R
CC 176.35
CT 175.01
30N
CC 176.32
CT 174.96
31R
CC 176.30
CT 174.91
DN200
50.0m 1.0‰
DN200
50.0m 1.0‰
DN=200
50.0m 1.0‰
DN=200
50.0m 1.0‰
DN=200
50.0m 1.0‰
DN=200
50.0m 1.0‰
DN=200
50.0m 1.0‰
NSTex.-0.80m
173.67
NSTex.-0.80m
173.63

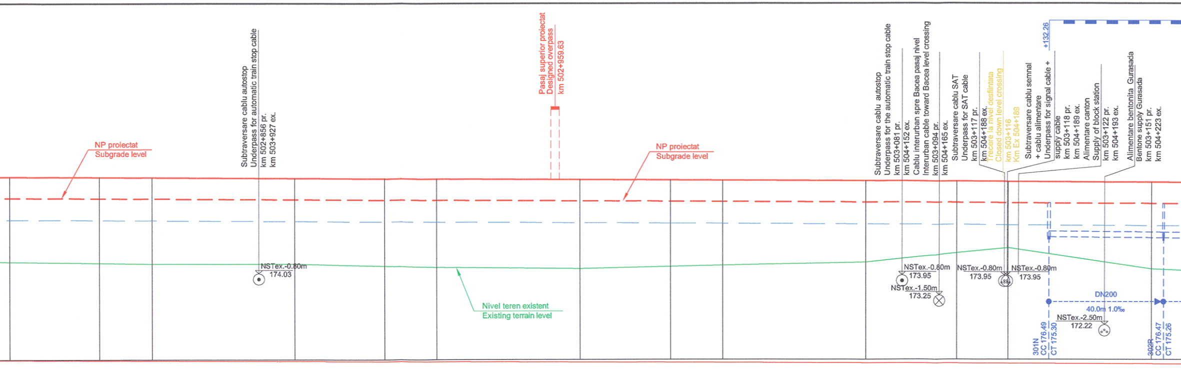
Supratraversare retea electrica
Overcrossing electrical network
km 503+265.46 pr.
km 504+335.92 ex.

Supratraversare retea electrica
Overcrossing electrical network
km 503+283.23 pr.
km 504+351.74 ex.

Subtraversare cablu
semnal + cablu autostop
Underpass for signal cable
+ automatic train stop cable
km 503+331pr.
km 504+402 ex.

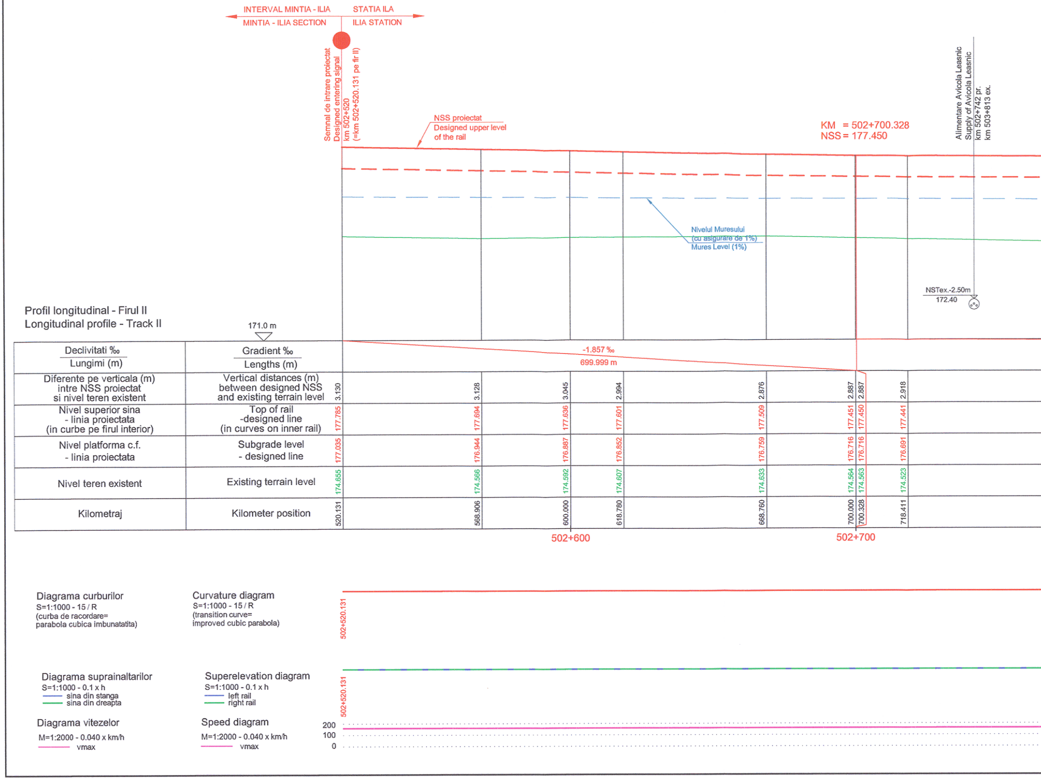
Subtraversare cablu autostop
Underpass for the automatic
train stop cable
km 503+367 pr.
km 504+438 ex.

200.000	174.035	176.450	177.200	3.165
218.066	173.960	176.441	177.191	3.231
268.272	173.984	176.416	177.166	3.182
300.000	173.950	176.400	177.150	3.200
318.029	173.931	176.391	177.141	3.210
368.005	174.025	176.366	177.116	3.091
400.000	174.123	176.350	177.100	2.977
407.887	174.147	176.346	177.096	2.949
448.026	174.054	176.326	177.076	3.022
488.098	174.279	176.306	177.056	2.777
500.000	174.250	176.300	177.050	2.800
528.055	174.182	176.286	177.036	2.855


NP proiectat
Subgrade level
Subtraversare cablu autostop
Underpass for automatic train stop cable
km 502+856 pr.
km 503+927 ex.
NSTex.-0.80m
174.03
Pasaj superior proiectat
Designed overpass
km 502+959.63
Nivel teren existent
Existing terrain level
NP proiectat
Subgrade level
Subtraversare cablu autostop
Underpass for the automatic train stop cable
km 503+081 pr.
km 504+152 ex.
Cablu interurban spre Bacea pasaj nivel
Interurban cable toward Bacea level crossing
km 503+094 pr.
km 504+165 ex.
Subtraversare cablu SAT
Underpass for SAT cable
km 503+117 pr.
km 504+188 ex.
Trecere la nivel desfiintata
Closed down level crossing
km 503+116
Km Ex 504+189
Subtraversare cablu semnal
+ cablu alimentare
Underpass for signal cable +
supply cable
km 503+118 pr.
km 504+189 ex.
Alimentare canton
Supply of block station
km 503+122 pr.
km 504+193 ex.
Alimentare bentonita Gurasada
Bentone supply Gurasada
km 503+151 pr.
km 504+223 ex.
+132.26
NSTex.-0.80m
173.95
NSTex.-1.50m
173.25
NSTex.-0.80m
173.95
188
NSTex.-0.80m
173.95
DN200
40.0m 1.0‰
NSTex.-2.50m
172.22
301N
CC 176.49
CT 175.30
302R
CC 176.47
CT 175.26

2.985	3.019	3.038	3.007	3.066	3.100	3.132	3.042	2.990	2.861	2.520	2.328	3.050
177.416	177.400	177.391	177.366	177.350	177.341	177.316	177.300	177.291	177.266	177.250	177.241	177.216
176.666	176.650	176.641	176.616	176.600	176.591	176.566	176.550	176.541	176.516	176.500	176.491	176.466
174.431	174.382	174.352	174.358	174.284	174.241	174.183	174.258	174.301	174.405	174.730	174.913	174.166
768.596	800.000	818.566	868.512	900.000	918.361	968.364	0.000	18.203	68.111	100.000	117.939	168.087
	502+800			502+900			503+000			503+100		

Profil longitudinal - Firul II
Longitudinal profile - Track II


INTERVAL MINTIA - ILIA
MINTIA - ILIA SECTION
STATIA ILA
ILIA STATION
Semnal de intrare proiectat
Designed entering signal
km 502+520
(=km 502+520.131 pe fir II)
NSS proiectat
Designed upper level
of the rail
KM = 502+700.328
NSS = 177.450
Alimentare Avicola Leasnic
Supply of Avicola Leasnic
km 502+742 pr.
km 503+813 ex.
Nivelul Muresului
(cu asigurare de 1%)
Mures Level (1%)
NSTex.-2.50m
172.40
171.0 m
-1.857 ‰
699.999 m
502+600
502+700
502+520.131
502+520.131
200
100
0

Declivitati ‰ / Lungimi (m)	Gradient ‰ / Lengths (m)	-1.857 ‰ / 699.999 m							
Diferente pe verticala (m) intre NSS proiectat si nivel teren existent	Vertical distances (m) between designed NSS and existing terrain level	3.130	3.128	3.045	2.994	2.876	2.887	2.887	2.918
Nivel superior sina - linia proiectata (in curbe pe firul interior)	Top of rail -designed line (in curves on inner rail)	177.785	177.694	177.636	177.601	177.509	177.451	177.450	177.441
Nivel platforma c.f. - linia proiectata	Subgrade level - designed line	177.035	176.944	176.887	176.852	176.759	176.716	176.716	176.691
Nivel teren existent	Existing terrain level	174.655	174.566	174.592	174.607	174.633	174.564	174.563	174.523
Kilometraj	Kilometer position	520.131	568.906	600.000	618.780	668.760	700.000	700.328	718.411

Diagrama curburilor
S=1:1000 - 15 / R
(curba de racordare=
parabola cubica imbunatatita)

Curvature diagram
S=1:1000 - 15 / R
(transition curve=
improved cubic parabola)

Diagrama suprainaltarilor
S=1:1000 - 0.1 x h
sina din stanga
sina din dreapta

Superelevation diagram
S=1:1000 - 0.1 x h
left rail
right rail

Diagrama vitezelor
M=1:2000 - 0.040 x km/h
vmax

Speed diagram
M=1:2000 - 0.040 x km/h
vmax