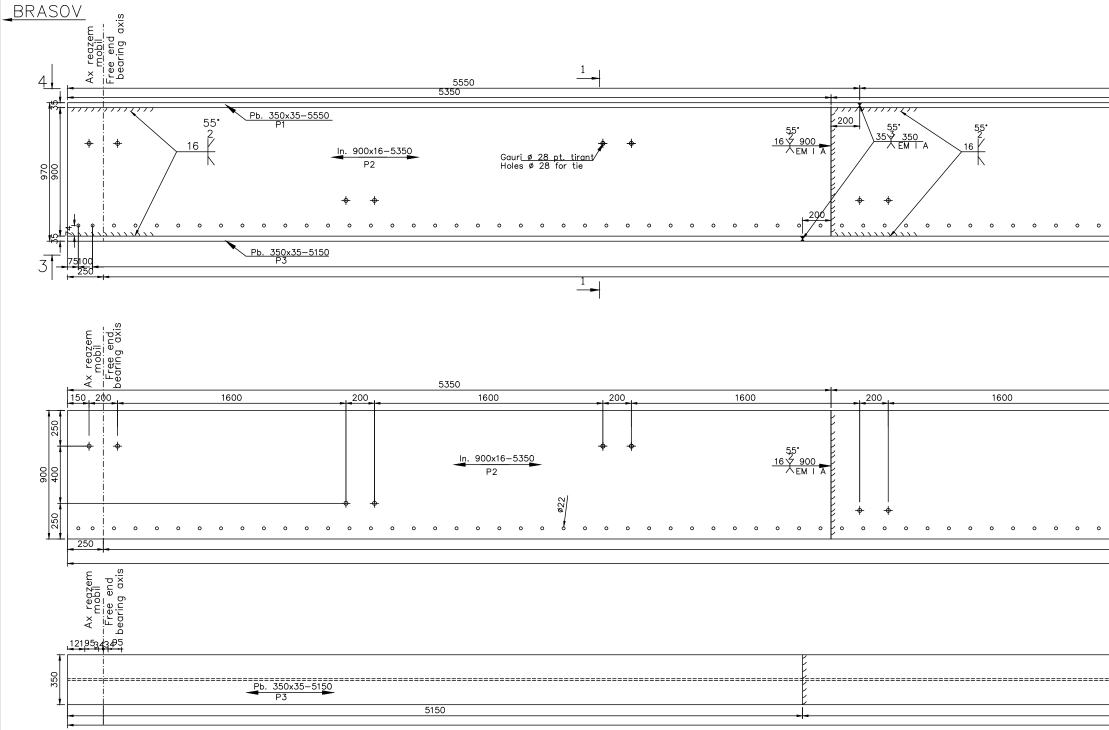
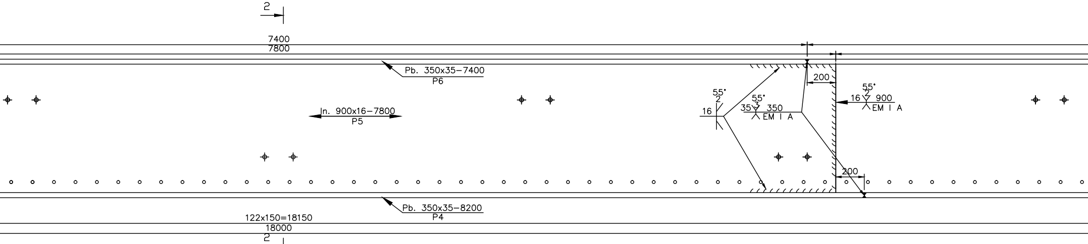

BRASOV
Ax reazem mobil
Free end bearing axis
4
3
1
5550
5350
35
970
900
Pb. 350x35–5550
P1
55°
2
16
In. 900x16–5350
P2
Gauri ø 28 pt. tirant
Holes ø 28 for tie
16 900
EM I A
200
35 350
Pb. 350x35–5150
P3
74
75 100
250
1600
150
400
ø22
12 195 34 34 95
350
5150

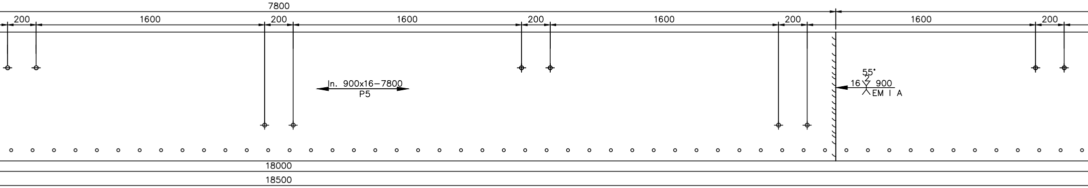
ELEVATIE GRINDA METALICA TIP 1
ELEVATION OF THE METALLIC GIRDER TYPE 1

Sc.1: 20


2
7400
7800
Pb. 350x35–7400
P6
200
55°
2
16
900
EM I A
55°
2
16
55°
3
35
350
EM I A
In. 900x16–7800
P5
200
Pb. 350x35–8200
P4
122x150=18150
18000
2

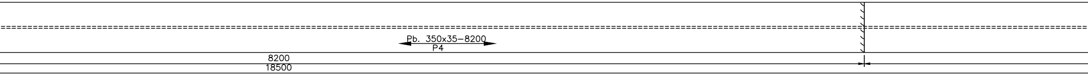
DETALII PENTRU INIMA GRINZII METALICE TIP 1
DETAILS FOR THE METALLIC GIRDER WEB TYPE 1

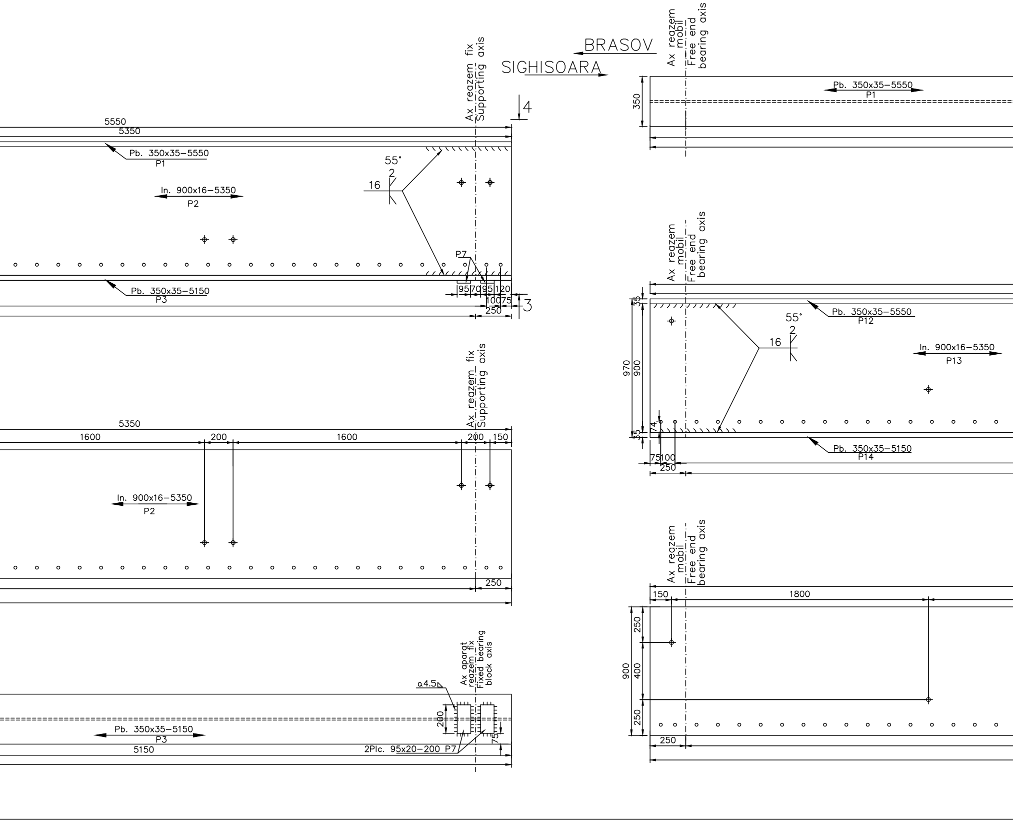
Sc.1: 20


7800
200
1600
200
1600
200
1600
200
1600
200
55°
2
16
900
EM I A
In. 900x16–7800
P5
18000
18500

VEDERE 3–3 / VIEW 3–3

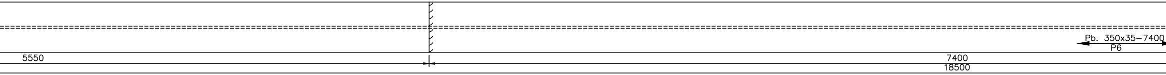
Sc.1: 20


Pb. 350x35–8200
P4
8200
18500


BRASOV
SIGHISOARA
Ax reazem fix
Supporting axis
Ax reazem mobil
Free end bearing axis
5550
5350
Pb. 350x35–5550
P1
In. 900x16–5350
P2
Pb. 350x35–5150
P3
55°
2
16
P7
95
70
95
120
100
75
250
3
4
350
Pb. 350x35–5550
P12
In. 900x16–5350
P13
Pb. 350x35–5150
P14
970
900
35
74
75
100
250
1600
200
1600
200
150
In. 900x16–5350
P2
250
150
1800
250
400
250
900
Ax aparat reazem fix
Fixed bearing block axis
a4.5
200
75
Pb. 350x35–5150
P3
5150
2Plc. 95x20–200 P7

VEDERE 4–4/ VIEW 4–4

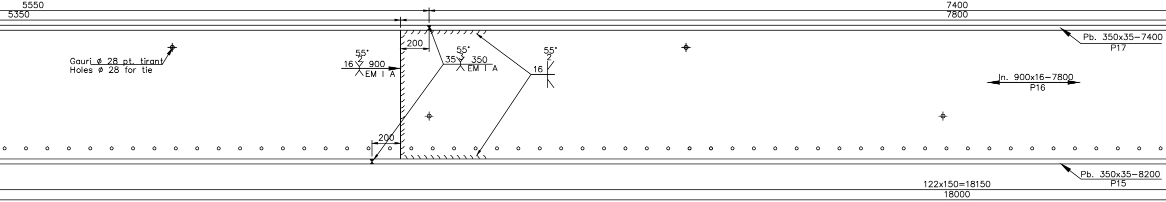
Sc.1: 20



Pb. 350x35–7400
P6
5550
7400
18500

ELEVATIE GRINDA METALICA TIP
ELEVATION OF THE METALLIC GIRDER

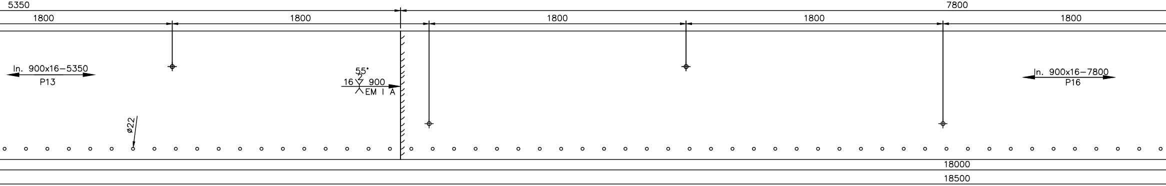
Sc.1: 20



5550
5350
7400
7800
200
Gauri ø 28 pt. tirant
Holes ø 28 for tie
55°
2
16 900
EM I A
55°
3
35 350
EM I A
55°
2
16
Pb. 350x35–7400
P17
In. 900x16–7800
P16
200
Pb. 350x35–8200
P15
122x150=18150
18000

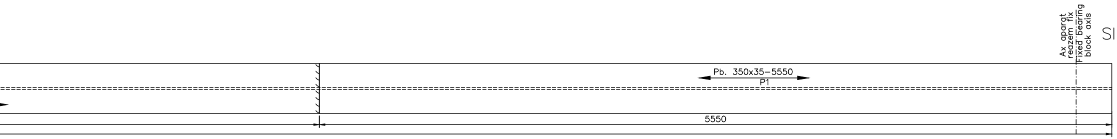
DETALII PENTRU INIMA GRINZII META
DETAILS FOR THE METALLIC GIRDER

Sc.1: 20

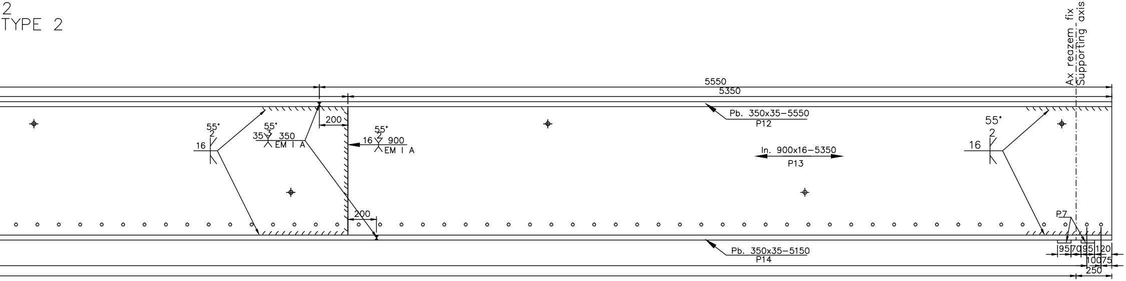


5350
7800
1800
1800
1800
1800
1800
In. 900x16–5350
P13
55°
2
16 900
EM I A
ø22
In. 900x16–7800
P16
18000
18500

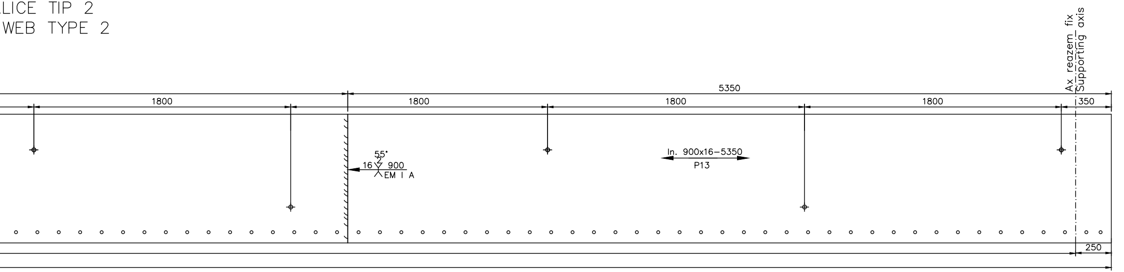
SIGHI


Ax aparat reazem fix
Fixed bearing block axis
Pb. 350x35–5550
P1
5550

2
TYPE 2


Ax reazem fix
Supporting axis
5550
5350
200
55°
2
16
55°
3
35
350
EM I A
55°
2
16
900
EM I A
Pb. 350x35–5550
P12
In. 900x16–5350
P13
55°
2
16
200
P7
Pb. 350x35–5150
P14
95
70
95
120
100
75
250

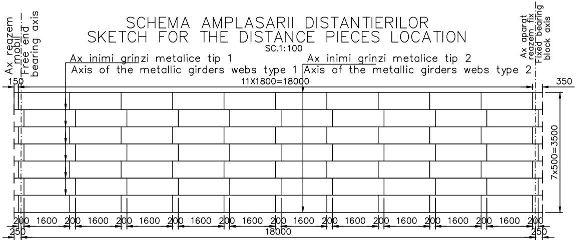
LICE TIP 2
WEB TYPE 2


Ax reazem fix
Supporting axis
5350
1800
1800
1800
1800
350
55°
2
16
900
EM I A
In. 900x16–5350
P13
250

SOARA

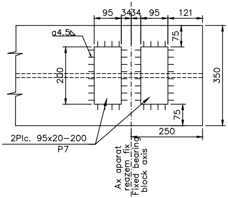
SCHEMA AMPLASARII DISTANTIERILOR
SKETCH FOR THE DISTANCE PIECES LOCATION

SC.1:100


Ax reazem mobil
Free end bearing axis
Ax aparat reazem fix
Fixed bearing block axis
Ax inimi grinzi metalice tip 1
Axis of the metallic girders webs type 1
Ax inimi grinzi metalice tip 2
Axis of the metallic girders webs type 2
150
11X1800=18000
350
7x500=3500
200 1600 200 1600 200 1600 200 1600 200 1600 200 1600 200 1600 200 1600 200 1600 200 1600 200
250
18000
250

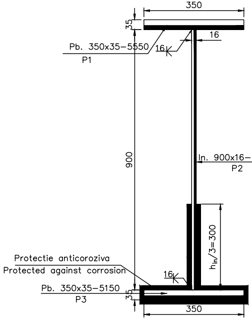
DETALIU DE MONTARE PLACUTE APARAT DE REAZEM FIX
DETAIL TO MOUNT THE FIXED BEARING BLOCK PLATES

sc. 1:10


95
34
34
95
121
a4.5
75
200
350
75
250
2Plc. 95x20-200
P7
Ax aparat reazem fix
Fixed bearing block axis

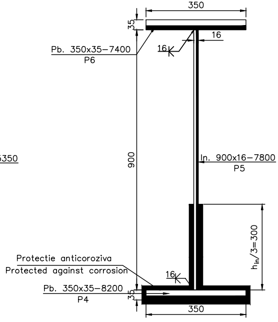
SECTIIUNE 1-1
1-1 SECTION

SC. 1:10


350
35
16
Pb. 350x35-5550
P1
16
900
In. 900x16-5350
P2
$h_{in}/3=300$
Protectie anticoroziva
Protected against corrosion
16
Pb. 350x35-5150
P3
35
350

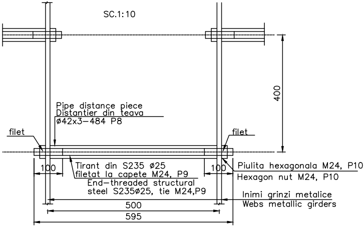
SECTIIUNE 2-2
2-2 SECTION

SC. 1:10


350
35
16
Pb. 350x35-7400
P6
16
900
In. 900x16-7800
P5
$h_{in}/3=300$
Protectie anticoroziva
Protected against corrosion
16
Pb. 350x35-8200
P4
35
350

DETALIU DE PRINDERE A GRINZILOR METALICE
DETAIL FOR METALLIC GIRDERS FASTENING

SC.1:10


400
Pipe distance piece
Distantier din teava
ø42x3-484 P8
filet
filet
100
100
Tirant din S235 ø25
filetat la capete M24, P9
End-threaded structural
steel S235ø25, tie M24,P9
Piulita hexagonala M24, P10
Hexagon nut M24, P10
Inimi grinzi metalice
Webs metallic girders
500
595

MATERIALE
(- OL37 EP STAS 12187-88 elementele grinzilor metalice.)
- $S275J_3G_3$ EN 10025/2004

NOTA

Placutele de la aparatele de reazem se vor samfrena cu un unghi de 60°.
Gaurile din inima pentru armatura de rezistenta vor fi alezate.

NOTE

The plates of the bearing blocks will be chamfered at an angle of 60°.
The web holes for the strong reinforcements will be bored.

ELEMENTE DE ASAMBLARE
-Piulita M24 STAS 4971-88 Clasa de precizie 'C'
-Saiba STAS 5200/4-91-24-OL 34

ASSEMBLY ELEMENTS
-Nut M24 STAS 4971-88 Precision class 'C'
-Washer STAS 5200/4-91-24-OL 34

EXTRAS DE M
O GRINDA METAL
MEASURING M.
METALLIC GIRDER

Poz. Pos.	Denumire Name	Dimensiuni Dimension
P1	Pb. superioara Upper band steel	350x35-5550
P2	Inima Web	900x16-5350
P3	Pb. inferioara Lower band steel	350x35-5150
P4	Pb. inferioara Lower band steel	350x35-8200
P5	Inima Web	900x16-7800
P6	Pb. superioara Upper band steel	350x35-7400
P7	Placute ap.fix	95x20-200

TOTAL PENTRU UN TABLIER: 6
TOTAL FOR 1 DECK: 6 girders

EXTRAS DE M
O GRINDA METAL
MEASURING M.
METALLIC GIRDER

Poz. Pos.	Denumire Name	Dimensiuni Dimension
P12	Pb. superioara Upper band steel	350x35-5550
P13	Inima Web	900x16-5350
P14	Pb. inferioara Lower band steel	350x35-5150
P15	Pb. inferioara Lower band steel	350x35-8200
P16	Inima Web	900x16-7800
P17	Pb. superioara Upper band steel	350x35-7400
P7	Placute ap.fix	95x20-200

TOTAL PENTRU UN TABLIER: 2
TOTAL FOR 1 DECK: 2 girders

ATERIAL PENTRU
LICA OL37—EP TIP 1
ATERIAL FOR UNE
RS OL37—EP TYPE 1

Nr. buc. asemenea Pieces	Greutate,Weight S 245 J_3 G_3		
	kg/ml	kg/buc.	Total(kg)
2	96.163	533.705	1068.00
2	113.04	604.764	1240.50
2	96.163	495.240	990.50
1	96.163	788.540	788.54
1	113.04	881.70	881.70
1	96.163	711.610	711.60
2	14.915	2.983	6.00
		Total partial	5686.80
		Spor 3% pt. sudura	170.60
		Total pt. 1buc. grinda	5860.00

grinzi x 5860kg=35160kg
x 6860kg=35160kg

ATERIAL PENTRU
LICA OL37—EP TIP 2
ATERIAL FOR UNE
S OL37—EP TYPE 2

Nr. buc. asemenea Pieces	Greutate,Weight S 245 J_3 G_3		
	kg/ml	kg/buc.	Total(kg)
2	96.163	533.705	1068.00
2	113.04	604.764	1240.50
2	96.163	495.240	990.50
1	96.163	788.540	788.54
1	113.04	881.70	881.70
1	96.163	711.610	711.60
2	14.915	2.983	6.00
		Total partial	5686.80
		Spor 3% pt. sudura	170.60
		Total pt. 1buc. grinda	5860.00

grinzi x 5860kg=11720kg
x 5860kg=11720kg

(TOTAL OL37—EP=46880kg)
TOTAL $S275J_3G_3$=46880g

EXTRAS DE MATERIAL PENTRU SOLIDARIZAREA GRINZILOR METALICE PENTRU UN TABLIER DE CALE FERATA SIMPLA
TABLE OF MATERIALS TO JOIN THE METALLIC GIRDERS FOR SINGLE TRACK RAILWAY BRIDGE DECK

Poz. Pos.	Denumire Name	Dimensiuni Dimension	Nr. buc. asemenea Pieces	Greutate,Weight S 245 J_3 G_3		
				kg/ml	kg/buc.	Total(kg)
P8	Distantier teava	ø42x3—484	77	2.88	1.40	107.40
P9	Tirant S235	ø25, L=595	77	3.85	2.30	176.50
P10	Piulite	M24	154	—	0.10	15.40
P11	Saibe	M24	154	—	0.023	3.60
					Total (kg)	310.00

TOTAL POD (2 TABLIERE): 2 x 310.00kg=620.00kg
TOTAL BRIDGE (2 DECKS): 2 x 310.00kg=620.00kg

NOTA

1.La executia in uzina a grinzilor metalice sudate se vor respecta cu strictete prevederile STAS 9407—75.
2.In uzina se va aplica o protectie anticoroziva pe talpile inferioare si pe o treime din inima grinzilor metalice.
3.Protectia anticoroziva se va executa dintr—un strat de baza alcatuit dintr—o pelicula de zinc de 80µm grosime si doua straturi de invelis poliuretanic, fiecare de 85µm.
Stratul de baza si un invelis poliuretanic se vor aplica in uzina, urmand ca ultimul strat poliuretanic sa fie aplicat pe santier dupa finalizarea lucrarilor la suprastructura.
4.Pregatirea suprafetelor metalice in vederea aplicarii procedeelor de protectie anticoroziva se face prin:
—Perierea de rugina cu ajutorul unor perii de sarma.
—Spalarea suprafetelor metalice.
—Degresarea cu solventi organici prin stergere sau cu emulsii.
—Dupa degresare se spala cu jet de apa pentru indepartarea urmelor de detergent. Solutia pentru degresare va fi aleasa astfel incat sa nu afecteze mediul.
Curatirea suprafetelor se va face conform gradului SA 1 1/2.

NOTE

1.The prvisions STAS 9407—75 will be strictly observed when the welded metallic girders are manufactered in the factory.
2.In the plant, corrosion protection will be applied on the lower flanges and on one third of the web of metallic girders.
3.The protection against corrosion will consist in a primary layer made of a zinc membrane (80µm thickness) and two polyurethane covering layer, each of 85µm thickness. The primary layer and the first polyurethane covering layer will be applied in the factory and the second polyurethane layer will be applied on site, after completing the superstructure works.
finalizarea lucrarilor la suprastructura.
4.Preparing the metallic surfaces in order to apply the corrosion—proof procedures shall be made by:
—Rust removal using wire brushes.
—Washing the metallic surfaces.
—Organic solvent degreasing by wiping or using emulsions.
—After degreasing, the surface is washed by water jet to eliminate the detergent stains. The solution selected for degreasing shall not affect the environment. Cleaning the surfaces is made according to the SA 1 1/2.

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D					
C					
B					
A	12.2011	Revizia 1 1 Revision	Campan Maria		
Indice Index	Data Date	Modificare Modification/Revision	Proiectant Designer	Aprobat Consultant Approved Consultant	Aprobat CFR Approved CFR

GUVERNUL ROMANIEI
ROMANIAN GOVERNMENT

PROIECT FINANŢAT DE UNIUNEA EUROPEANĂ
EUROPEAN UNION FINANCED PROJECT

CLIENT / CLIENT

C.N.C.F. "C.F.R." - S.A.

ITALFERR
GRUPPO FERROVIE DELLO STATO
Joint Venture leader

Scott Wilson

OBERMEYER
PLANEN + BERATEN GmbH

TECNIC
Consulting Engineers

CONSULTANT / CONSULTANT

			Data Date	Semnătură Signature
Aprobat Approved	Şef proiect Project manager	R. Liuzza		
Aprobat Approved	Coordonator Secţiune 1 Section 1 Coordinator	C. Gambelli		
Verificat Checked	Expert Cheie Checking Expert	V. Kallidromitis		

SUBCONTRACTANT / SUBCONTRACTOR

Aprobat Approved	Responsabil Subconsultant Subconsultant Responsible	A. Dinulescu Stanciu	11.2011	
Întocmit Elaborated	Proiectant Designer	Campan Maria	11.2011	

Reabilitarea liniei de cale ferata Braşov - Simeria, parte componentă a coridorului IV Pan European, pentru circulaţia trenurilor cu viteza maximă de 160 km/h,
Tronsonul : Braşov - Sighişoara
Rehabilitation of the railway line Braşov - Simeria, component Part of the IV Pan-European Corridor, for the trains circulation with maximum speed of 160 km/h,
Section : Braşov - Sighişoara

Proiect/Project
2004/RO/16/P/PA/003

Faza / Phase:
D.E. / E.D.

Denumire desen / Drawing Title : INTERVAL / SECTION RACOS
Viaduct Km 220+762.028 - D=2x55.0m+80.0m+55.0m +11.7m+2x18.0m-GRINZI METALICE TABLIER D=18.00m
Bridge Km 220+762.028 - D=2x55.0m+80.0m+55.0m +11.7m+2x18.0m-METALLIC GIRDERS DECK D=18.00m

Codificare / Codification System	Scara / Scale 1:20;1:10;1:100	LOT / LOT	Nr. / No 01 / 01

E	A	5	1	0	1	E	1	1	B	C	P	V	0	2	1	3	0	0	6	1

297X2750