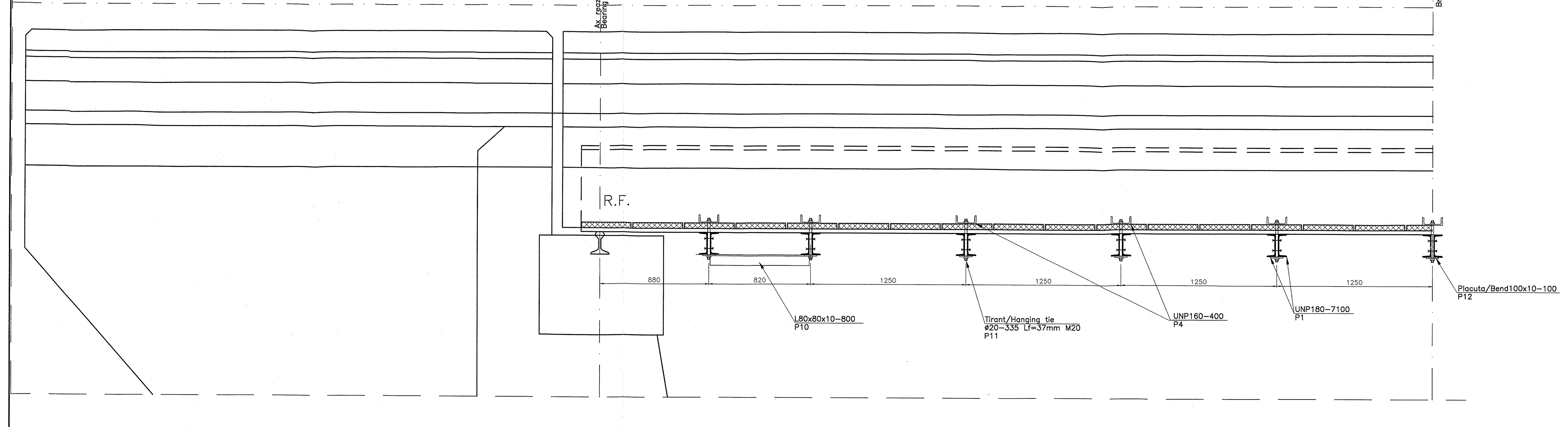
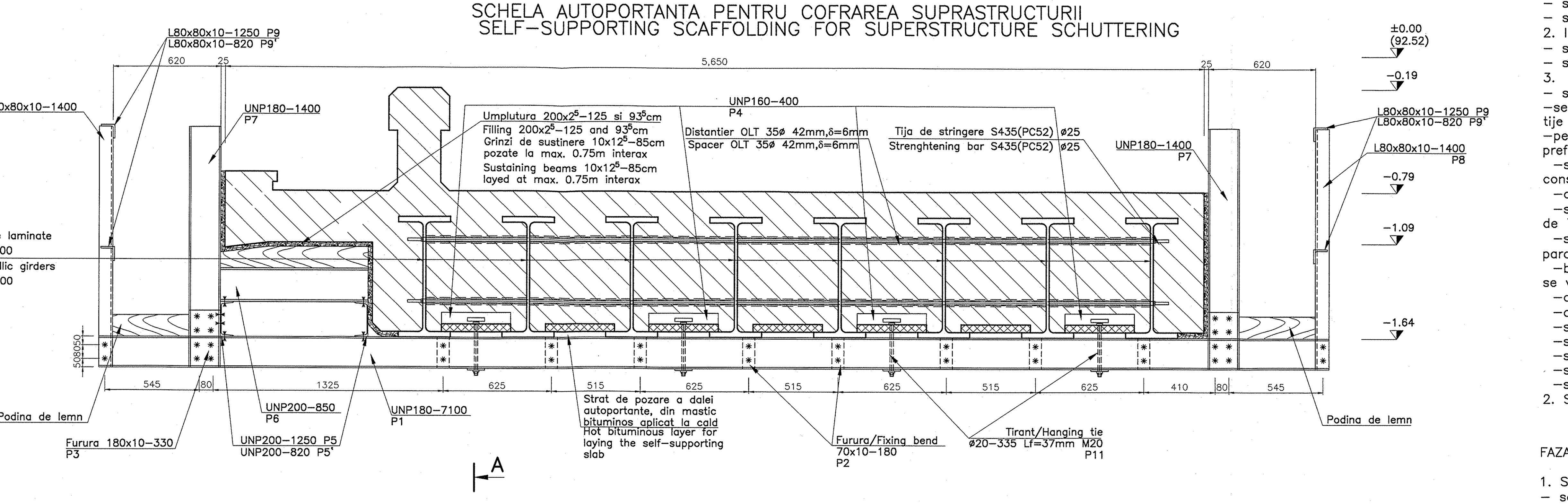
SECTIUNE A–A/SECTION A–A
sc 1:20

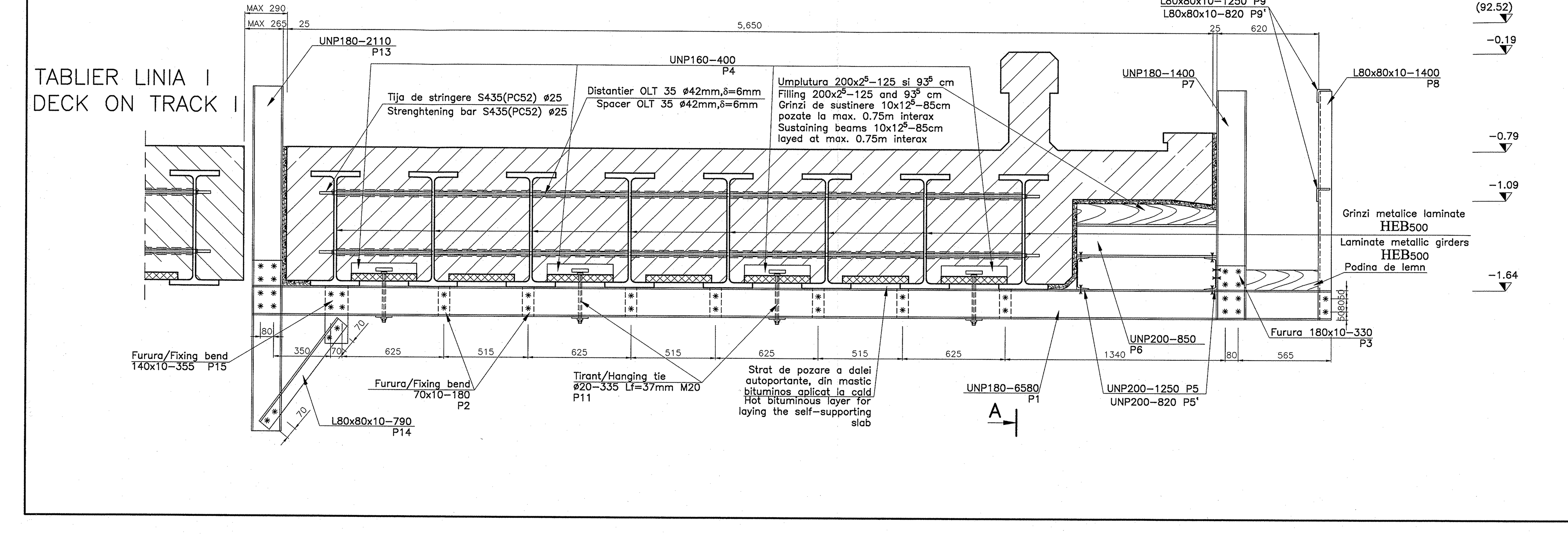


TABLIER FIR I
DECK ON TRACK I
SCHELA AUTOPORTANTA PENTRU COFRAREA SUPRASTRUCTURII
SELF-SUPPORTING SCAFFOLDING FOR SUPERSTRUCTURE SCHUTTERING



TABLIER FIR II
DECK ON TRACK II
SCHELA AUTOPORTANTA PENTRU COFRAREA SUPRASTRUCTURII
SELF-SUPPORTING SCAFFOLDING FOR SUPERSTRUCTURE SCHUTTERING

TABLIER LINIA I
DECK ON TRACK I



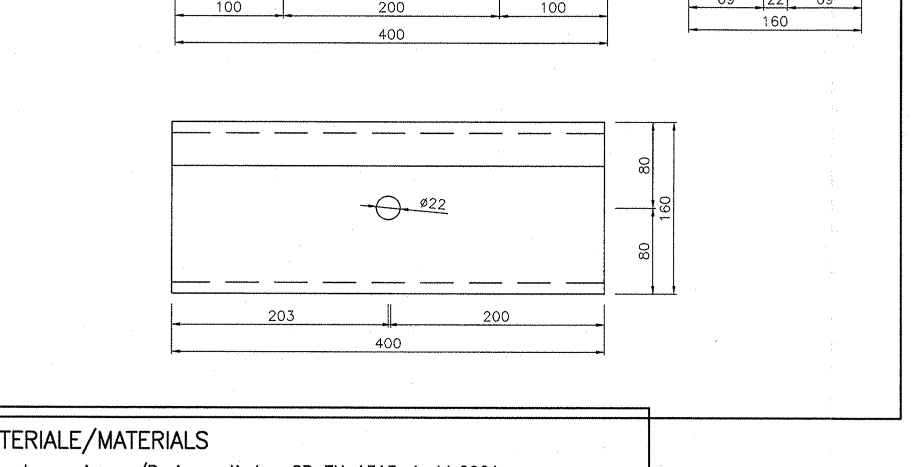
EXTRAS MATERIAL METALIC PENTRU SUSTINERE COFRAJ TABLIER FIR II
NECESSARY METALLIC MATERIAL FOR SUSTAINING THE SCHUTTERING FOR DECK II

POZITIE POSITION	DENUMIRE PIESA PIECE DENOMINATION	Buc. Pcs.	Dimensiuni Dimensions	Lungime Length	Greutati/Weights OL37 kg/m	kg
1	Profile U la cofraj tablier P1 U profiles at deck schuttering P1	22	UNP180	6.580	22.00	3184.72
2	Furura intre doua piese P2 Fixing bend between two pcs. P2	77	70x10	0.180	5.50	76.23
3	Furura de fixare P3 Fixing bend P3	11	180x10	0.330	14.13	51.30
4	Profil U de fixare P4 Fixing U profile P4	44	UNP 160	0.400	18.84	331.59
5	Profile U pentru trotuar(longrine) U profiles for sidewalk P5	16	UNP200	1.250	18.055	361.10
6	Profile U pentru trotuar(longrine) U profiles for sidewalk P5`	4	UNP200	0.820	18.055	59.225
7	Profile U pentru trotuar P6 U profiles for sidewalk P6	11	UNP200	0.850	18.055	168.82
8	Profile pentru cofraj tablier P7 Profiles for deck schuttering P7	11	UNP180	1.400	22.00	338.80
9	Stalp parapet P8 Handrail pole P8	11	L80x80x10	1.400	11.85	182.50
10	Mana curenta P9 Hand rail P9	16	L80x80x10	1.250	11.85	237.00
11	Mana curenta P9` Hand rail P9`	4	L80x80x10	0.820	11.85	38.87
12	Contravantuire inferioara P10 Lower brecing P10	2	L80x80x10	0.800	11.85	18.96
13	Tirant OB37 P11 OB37 hanging tie P11	44	Ø20	0.335	2.47	36.41
14	Placuta-saiba tirant P12 Bend-washer at hanging tie P12	44	100x10	0.100	7.85	34.54
15	Placuta-saiba tirant P13 Bend-washer at hanging tie P13	11	UNP180	2.110	22.00	510.62
16	Placuta-saiba tirant P14 Bend-washer at hanging tie P14	11	L80x80x10	0.790	11.85	102.30
17	Placuta-saiba tirant P15 Bend-washer at hanging tie P15	11	140x10	0.335	11	40.50
	TOTAL(kg)					5773.485
	Suruburi /Screws (3%) (kg)					173.515
	GREUTATE TOTALA/TOTAL WEIGHT					5947.00

EXTRAS MATERIAL METALIC PENTRU SUSTINERE COFRAJ TABLIER FIR I
NECESSARY METALLIC MATERIAL FOR SUSTAINING THE SCHUTTERING FOR DECK I

POZITIE POSITION	DENUMIRE PIESA PIECE DENOMINATION	Buc. Pcs.	Dimensiuni Dimensions	Lungime Length	Greutati/Weights OL37 kg/m	kg
1	Profile U la cofraj tablier P1 U profiles at deck schuttering P1	22	UNP180	7.100	22.00	3436.40
2	Furura intre doua piese P2 Fixing bend between two pcs. P2	88	70x10	0.180	5.50	87.12
3	Furura de fixare P3 Fixing bend P3	22	180x10	0.330	14.13	102.59
4	Profil U de fixare P4 Fixing U profile P4	44	UNP 160	0.400	18.84	331.60
5	Profile U pentru trotuar(longrine) U profiles for sidewalk P5	16	UNP200	1.250	18.055	361.10
6	Profile U pentru trotuar(longrine) U profiles for sidewalk P5`	4	UNP200	0.820	18.055	59.23
7	Profile U pentru trotuar P6 U profiles for sidewalk P6	11	UNP200	0.850	18.055	168.82
8	Profile pentru cofraj tablier P7 Profiles for deck schuttering P7	22	UNP180	1.400	22.00	677.60
9	Stalp parapet P8 Handrail pole P8	22	L80x80x10	1.400	11.85	364.98
10	Mana curenta P9 Hand rail P9	32	L80x80x10	1.250	11.85	474.00
11	Mana curenta P9` Hand rail P9`	8	L80x80x10	0.820	11.85	77.74
12	Contravantuire inferioara P10 Lower brecing P10	2	L80x80x10	0.800	11.85	18.96
13	Tirant OB37 P11 OB37 hanging tie P11	44	Ø20	0.335	2.47	36.41
14	Placuta-saiba tirant P12 Bend-washer at hanging tie P12	44	100x10	0.100	7.85	34.54
	TOTAL(kg)					6231.10
	Suruburi /Screws (3%) (kg)					186.90
	GREUTATE TOTALA/TOTAL WEIGHT					6418.00

DETALII DEBITARE PIESA P4
DETAILS OF CUTTING PIECE P4
Sc. 1:5



MATERIALE/MATERIALS

Cherestea rasinoase/Resinous timber SR EN 1313–1+A1:2001
Cherestea fag/Beech timber SR EN 975–1:2000
Otel elemente sustinere cofraje S235 JR (SR EN10056–1:2000)
Steel in sustaining elements for schuttering S235 JR (SR EN10056–1:2000)

ASAMBLARE/ASSEMBLING

Suruburi cu cap hexagonal SR EN ISO 4017:2002
Hexagonal screw
Piulite cu cap hexagonal SR EN ISO 4032:2002
Hexagonal interior screw

LEGENDA SURUBURI
SCREW LIST

Surub/Screw M20 *

FAZA VI EXECUTIA TABLIERULUI PENTRU FIRUL I

1. In inchidere de linie si sub circulatie cu restrictie de viteza 30 km/h pe linia II:
– se scoate de sub tensiune si de demonteaza linia de contact de pe firul I;
– se demonteaza calea de pe podul provizoriu tip G18 de pe linia I;
2. In inchideri succesive de linie, pe ambele linii (pe linia II in ferestre de circulatie):
– se scoate de sub tensiune linia de contact, se detensioneaza si trage la stalp pe firul II;
– se scot din cale cu macarau refacandu–se terasamentul pana la platforma c.f., inclusiv drenurile ;
3. Sub circulatie cu restrictie de viteza de 30 km/h pe linia II si inchidere de linie pe linia I:
– se demoleaza reazemul provizoriu de pe pila existenta pe firul I;
–se monteaza grinzile metalice pe amplasamentul definitiv pe linia I, prin fixarea acestora cu distantieri si tije de stringere;
–pe talpa inferioara a grinzii metalice se pozeaza, pe un strat de mastic bituminos aplicat la cald, dalele prefabricate autoportante, iar rosturile se vor mata cu mortar de ciment M100;
–se monteaza schela autoportanta in vederea betonarii, avind cadre de rezistenta metalice montate in dreptul consolei de trotuar la max. 0.75m interax, iar pe latura din axul podului la max. 1.50m interax;
–cofrarea se va face cu panouri TEGO sprijinite pe dulapi orizontali si verticali (10x2,5cm)
–sustinerea schelei autoportante se realizeaza prin elemente metalice de rezistenta profil tip U18 avand lungimea de 7100mm, solidarizate de grinzile metalice cu tiranti verticali M20, prin intermediul unei corniere L80x80x10;
–se monteaza armatura conform planului de armare a suprastructurii precum si "ancorele" pentru pozarea parapetului metalic ;
–betonarea se va face in doua faze: de la centru spre margini conform schemei prezentate mai sus. Betonarea se va face in flux continuu fara a se lasa rosturi de betonare;
–dupa atingerea rezistentei la decofrare a betonului (min.0,5f_{cd}), suprastructura se decofreaza ;
–concomitent cu realizarea suprastructurii se vor completa prin betonare si zidurile de garda aferente liniei I;
–se realizeaza hidroizolatia pe suprastructura si rosturile intre aceasta si culei;
–se realizeaza sapa armata cu plase sudate tip STNB 17GQ283 cu ochiuri 100x100x6,
–se monteaza parapetul metalic, fixarea acestuia facindu–se prin suruburi.
–se reface terasamentul in zona podului.
–se reface calea cu sina tip 65;
2. Se redeschide circulatia pe linia I cu restrictie de viteza de 30km/h.

FAZA VII EXECUTIA TABLIERULUI PENTRU FIRUL II

1. Sub circulatie cu restrictie de viteza 30 km/h pe linia I si inchidere de linie pe linia II:
– se scoate de sub tensiune si de demonteaza linia de contact de pe firul II;
– se demonteaza calea de pe podul provizoriu tip G18 de pe linia II;
2. In inchideri succesive de linie, pe ambele linii (pe linia I in ferestre de circulatie):
– se scoate de sub tensiune linia de contact, se detensioneaza si trage la stalp pe firul I;
– se scot din cale cu macaraua C.F. podurile provizori G18 si fundatiile prefabricate de pe linia II refacandu–se terasamentul pana la platforma c.f., inclusiv drenurile ;
3. Sub circulatie cu restrictie de viteza de 30 km/h pe linia I si inchidere de linie pe linia II:
– se demoleaza reazemul provizoriu de pe pila existenta pe firul II;
Suprastructura se va executa in pozitie provizorie, la circa 30cm de axul definitiv al podului, inspre exterior dupa care se va ripa in amplasamentul definitiv.
–se monteaza grinzile metalice pe amplasamentul definitiv prin fixarea acestora cu distantieri si tije de stringere;
–pe talpa inferioara a grinzii metalice se pozeaza, pe un strat de mastic bituminos aplicat la cald, dalele prefabricate autoportante, iar rosturile se vor mata cu mortar de ciment M100;
–se monteaza schela autoportanta in vederea betonarii, avind elemente de rezistenta montate in dreptul consolei de trotuar la max. 0.75m interax, iar pe latura din axul podului la max. 1.50m interax;
–cofrarea se va face cu panouri TEGO sprijinite pe dulapi orizontali si verticali (10x2,5cm);
–sustinerea schelei autoportante se realizeaza prin elemente metalice de rezistenta profil tip U18 avand lungimea de 6580mm, solidarizate de grinzile metalice cu tiranti verticali M20, prin intermediul unei corniere L80x80x10;
–se monteaza armatura conform planului de armare a suprastructurii precum si "ancorele" pentru pozarea parapetului metalic;
–betonarea se va face in doua faze de la centru spre margini conform schemei prezentate mai sus. Betonarea se va face in flux continuu fara a se lasa rosturi de betonare;
–dupa atingerea rezistentei la decofrare a betonului (min.0,5f_{cd}), suprastructura se decofreaza si se ripeaza in amplasamentul definitiv;
–concomitent cu realizarea suprastructurii se vor complecta prin betonare si zidurile de garda aferente liniei II;
–se realizeaza hidroizolatia pe suprastructura si rosturile intre aceasta si culei;
–se realizeaza sapa armata cu plase sudate tip STNB 17GQ283 cu ochiuri 100x100x6;
–se monteaza parapetul metalic, fixarea acestuia facindu–se prin suruburi.
–se reface terasamentul in zona podului;
–se acopera rostul longitudinal dintre tabliere cu rost tip TW60/130;
–se reface calea cu sina tip 65 pe firul II, completind stratul de balast;
4. Se refac circuitele de cale, se pune sub tensiune linia de contact si se redeschide circulatia pe ambele linii in trepte de viteza conform instructiilor cf in vigoare;

PHASE VI EXECUTION OF THE PLATFORM FOR LANE I

1. In line closure and under traffic with speed limit of 30km/h on lane II:
- the contact line on lane I is removed off tension and demounted;
- the track is demounted off the temporary bridge type G18 on lane I;
2. In successive line closures, on both lanes (on lane II in dead traffic hours):
- the contact line is removed off tension, detensioned and is drawn to pole on lane II;
- The temporary bridges G18 and the pre-fabricated foundations on lane I are taken out of track with the derrick, rebuilding the embankment until r.t platform, including the drains;
3. Under traffic with speed limit of 30km/h on lane II and line closure on lane I:
- the temporary support is demolished off the existent pier on lane I;
-the metallic beams are mounted on the final location on lane I, by fixing them with separators and compression rods;
-on the inferior shoe of the metallic beam there are laid, on a layer of bituminous cement hot-applied, the self-handling prefabricated slabs, and the joints will be caulked with cement mortar M100;
-the self handling scaffold is mounted for concreting, having metallic resistance frames mounted past the footway bracket, at max. 0.75m inter-axis, while on the arm of the bridge axis at max. 1.50m inter-axis;
-the casting will be made with TEGO boards, supported on horizontal and vertical planks (10x2,5cm)
-the support of the self-handling scaffold is realized through metallic elements of resistance, profile type U18, with a length of 7100mm, interlocked by the metallic beams with vertical rods M20, through a corner iron L80x80x10;
-the fixture is mounted according to the armament plan of the superstructure, as well as the "anchors" for laying the metallic railing;
-the concreting is made in two phases: from center to edges, according to the plan presented above. The concreting will be made in continuous flow, without leaving behind marks of concreting;
-after achieving the striking resistance of the concrete (min.0,5f/cd), the superstructure is stripped;
-at the same time with realizing the superstructure, the guard walls related to lane I will be completed through concreting;
-the waterproofing is realized on the superstructure and the joints between the superstructure and abutments;
-the bit reinforced with netting (type STNB 17GQ283 with meshes of 100x100x6) is realized,
-the metallic railing is mounted, its fastening being made through bolts.
-the embankment is rebuilt in the area of the bridge.
-the track is rebuilt with rail type 65;
2. The traffic is re-opened on lane I with speed limit of 30km/h.

PHASE VII EXECUTION OF THE PLATFORM ON LANE II

1. under traffic with speed limit of30km/h on lane I and line closure on lane II:
- The contact line on lane II is removed off tension and demounted;
- The track is demounted off the temporary bridge type G18 on lane II;
2. in successive line closures, on both lanes (on lane I in dead traffic hours):
- The contact line is removed off tension, detensioned and is drawn to pole on lane I;
- The temporary bridges G18 and the pre-fabricated foundations on lane II are taken out of track with the R.T. derrick, rebuilding the embankment until r.t platform, including the drains;
3. under traffic with speed limit of 30km/h on lane I and line closure on lane II:
- The temporary support is demolished off the existent pier on lane II;
The superstructure will be executed in a temporary position, at about 30cm of the definitive axis of the bridge, into the exterior and then it will be flitted in the final location.
- The metallic beams are mounted on the final location, by fixing them with separators and compression rods;
- on the inferior shoe of the metallic beam there are laid, on a layer of bituminous cement hot-applied, the self-handling prefabricated slabs, and the joints will be caulked with cement mortar M100;
-the self handling scaffold is mounted for concreting, having metallic resistance frames mounted past the footway bracket, at max. 0.75m inter-axis, while on the arm of the bridge axis at max. 1.50m inter-axis;
- the casting will be made with TEGO boards, supported on horizontal and vertical planks (10x2,5cm);
-the support of the self-handling scaffold is realized through metallic elements of resistance, profile type U18, with a length of 6580mm, interlocked by the metallic beams with vertical rods M20, through a corner iron L80x80x10;
- the fixture is mounted according to the armament plan of the superstructure, as well as the "anchors" for laying the metallic railing;
- the concreting is made in two phases: from center to edges, according to the plan presented above. The concreting will be made in continuous flow, without leaving behind marks of concreting;
- after achieving the striking resistance of the concrete (min.0,5f/cd), the superstructure is stripped;
- at the same time with realizing the superstructure, the guard walls related to lane II will be completed through concreting;
- the waterproofing is realized on the superstructure and the joints between the superstructure and abutments;
- the bit reinforced with netting (type STNB 17GQ283 with meshes of 100x100x6) is realized,
- the metallic railing is mounted, its fastening being made through bolts.
- the embankment is rebuilt in the area of the bridge;
-the longitudinal joint between the platforms is covered with joint type TW60/130;
- the track is rebuilt with rail type 65 on lane II, completing the ballast layer;
4. The track circuits are rebuilt, the contact line is put under tension, and the traffic is reopened on both lanes, in velocity speeds, according to the rt instructions into forc

STĂNILĂ R. NICOLAE
ROMÂNIA MTCT
Nr. 06889

B			
A			
	Data Date	Modificare Modification / Revision	

BENEFICIAR/ BENEFICIARY : ROMANIAN RAILWAY NATIONAL COMPANY
AUTORITATEA DE IMPLEMENTARE/ IMPLEMENTUNG AUTHORITY
Ministerul Transporturilor
Ministry of Transports
AUTORITATEA CONTRACTANTA / CONTRACTING AUTHORITY
Ministerul Economiei si Finantelor Oficiul de Plati si Contractare Phare
Ministry of Economy and Finances Phare Payments &Contracting Office
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Contract / Contract: 1303/2007
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Faza / Phase: PTH/DDE TP/DD

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Verificat Checked	Ing. Ioan Dachin	Data / Date : 05.2009
Sef echipa Team leader	Ing. Stelian Vara-Oros	

PORTOFOLIU DE PROIECTE PHARE CES 2005 / PHARE CES 2005 PROJECTS PORTFOLIO
LOT 1
Asistenta tehnica pentru pregatirea unor lucrari de reabilitare pentru tuneluri si poduri de cale ferata
Technical assistance for preparing rehabilitation works required by railway tunnels and bridges
Denumire desen / Drawing Title :
Sucursala RCF/Railway district BUCURESTI.Linia cf 100/Railway line 100Bucuresti-Videle
POD / BRIDGE KM 20+474
SCHELA AUTOPORTANTA TABLIERE / DECKS SELF-SUPPORTING SCAFFOLDDING
Cod desen / Drawing Code: PD 4
Nr. / No: 15