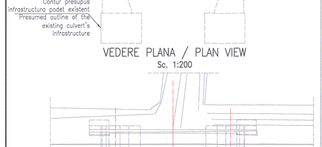
FAZA I– LUCRARI PREGATITOARE
STAGE I– PRELIMINARY WORKS

ELEVATIE LINIA II / TRACK II ELEVATION

Sc. 1:200

VEDERE PLANA / PLAN VIEW

Sc. 1:200



FAZA I: LUCRARI PREGATITOARE
Linia I – circulatie cu viteza normala;
Linia II – circulatie cu viteza normala;

1. Se amenajeaza drumul de acces si platforma tehnologica.
2. Se realizeaza organizarea de santier.
3. Se identifica, se planteaza si se pun in siguranta instalatiile de pe zona lucrarilor (cabluri SCB, TTR, BLA).
4. Se executa lucrari de protectie si/sau deviere instalatii de semnalizare si telecomunicatii.
5. Se executa lucrari temporare pentru asigurarea scurgerii apelor pe zona podetului.
6. Se executa lucrarile de protectie, deviere sau dezafectare a conductelor subtraversarte de podet. Aceste lucrari sunt prezentate in alta documentatie.

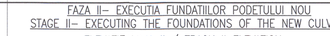
STAGE I: PRELIMINARY WORKS
Line I – traffic with normal speed
Line II – traffic with normal speed

1. Arranging the access road and the technological platform.
2. Making the site organization.
3. Identifying, pegging-out and securing the installations on the works' area (SCB, TTR, BLA cables).
4. Executing works for protecting and/or deflecting the signalling and telecommunication installations.
5. Executing temporary works for insuring the water discharge in the culvert area.
6. Executing the works for protecting, deflecting or dislocating the pipes undercrossed by the culvert. These works are presented in another documentation.

FAZA II– EXECUTIA FUNDATIILOR PODETULUI NOU
STAGE II– EXECUTING THE FOUNDATIONS OF THE NEW CULVERT

ELEVATIE LINIA II / TRACK II ELEVATION

Sc. 1:200



VEDERE PLANA / PLAN VIEW

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FAZA II: EXECUTIE FUNDATIE PODET NOU
Linia I – restricte de viteza de 50km/h;
Linia II – restricte de viteza de 50km/h;

1. Se executa lucrari de degajare, decolmatare si curatire albie.
2. Se demoleaza amenajarea existenta din amonte pe o lungime de aproximativ 1.50m (minim 0.50m) fata de podetul existent.
3. Se executa sapatura necesara realizarii fundatiei noului podet, mantanda-se sprijinii pe masura ce avansezza sapatura.
4. Se executa fundatiile noului podet si fundatiile aripilor din aval.

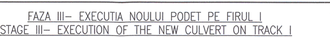
STAGE II: EXECUTING THE FOUNDATION OF THE NEW CULVERT
Line I – speed limit of 50km/h
Line II – speed limit of 50km/h

1. Executing works for releasing, unclogging and cleaning the riverbed.
2. Dismantling the existing upstream arrangement on a length of approximately 1.50m (at least 0.50m) compared to the existing culvert.
3. Executing the excavation needed for making the foundation of the new culvert, by mounting propping-up as the excavation progresses.
4. Executing the foundations of the new culvert and the foundations of downstream wings.

FAZA III– EXECUTIA NOULUI PODET PE FIRUL I
STAGE III– EXECUTION OF THE NEW CULVERT ON TRACK I

ELEVATIE LINIA II / TRACK II ELEVATION

Sc. 1:200



VEDERE PLANA / PLAN VIEW

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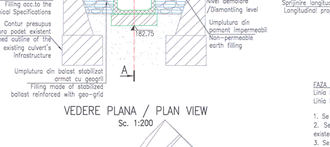

SECTIUNE A–A / SECTION A–A

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FAZA III: EXECUTIA NOULUI PODET PE FIRUL I;
Linia I – inchidere de circulatie feroviara;
Linia II – restricte de viteza de 30km/h;

1. Se scoate de sub tensiune firul I si se asigura protectia electrica.
2. Se sectionezza si se dezmantelezza linia, se demonteazza suprastructura c.f. pe zona podetului existent, pe firul I.
3. Se montezza sprijinii pe tabler si in axul dintre cele doua linii de cale ferata.
4. Se dezafectezza tablierul existent de pe linia I.
5. Se executa sapaturile necesare si se demoleazza partial elevatiile infrastructurilor existente, conform proiectului.
6. Se montezza primele 4 elementele prefabricate tip C3EN ale podetului pe firul I pana la limita permisa de tablierul existent pe linia II. Ultimul element se montezza in pauze de circulatie feroviara si inchidere de tensiune pe linia II.
7. Se realizezza rocordarea cu terasamentul din axul cu aripi prefabricate tip A3EN.
8. Se executa umplutura cu balast stabilizat si sprijini, armat cu geogrile.
9. Se executa hidroizolatia si sistemul drenant corespunzatoare firului I.
10. Se executa umplutura conform caietului de sarcini, se refac terasamentul si calea pe zona firului I.
11. Se montezza sprijinii in lungul liniei I.
12. Se montezza suprastructura CF pe linia I pe podia proiectata si se rocordezza la capete in plan orizontal si in plan vertical la situatia existenta.
13. Se asigura continuitatea circuitelor de cale, se asigura electrozizarea sinelor si protectia catodica.
14. Se repune sub tensiune linia de contact si se deschide circulatia in trepte de viteza pana la Vmax = 30km/h conform normelor in vigoare.

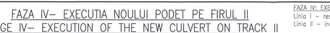
STAGE III: EXECUTING THE NEW CULVERT ON TRACK I
Line I – railway traffic closure
Line II – speed limit of 30km/h

1. Cutting off the voltage of track I and ensuring the electric protection.
2. Sectioning and removing the voltage of the line, dismantling the railway superstructure on the existing culvert area, on track I.
3. Mounting propping on the deck and in the axle between the two railway lines.
4. Dealocating the existing deck on line II.
5. Executing the needed excavations and partially dismantling the elevation of the existing infrastructures, according to the design.
6. Mounting the first 4 precast elements type C3EN of the culvert on track I up to the level allowed by the existing deck on line II. The last element is mounted during railway traffic breaks and voltage closure on line II.
7. Making the connection with the downstream embankment by help of precast wings type A3EN.
8. Making the fillings with stabilized and propped ballast, reinforced with geo-grids.
9. Executing the waterproofing and the draining system corresponding to track I.
10. Executing the filling according to the technical specifications, renewing the embankment and the track on the area of track I.
11. Mounting propping along line I.
12. Mounting the railway superstructure on line I on the designed position and connecting at the ends in horizontal and vertical plan to the existing situation.
13. Ensuring the continuity of track circuits, ensuring the rails' electric insulation and the cathode protection.
14. Restoring the voltage to the contact line and opening the traffic in speed levels up to Vmax = 30km/h according to the norms in force.

FAZA IV– EXECUTIA NOULUI PODET PE FIRUL II
STAGE IV– EXECUTION OF THE NEW CULVERT ON TRACK II

ELEVATIE LINIA II / TRACK II ELEVATION

Sc. 1:200



VEDERE PLANA / PLAN VIEW

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TEHNOLOGIA DE POZARE A PREFABRICATELOR:
–pe betonul de fundatie intarit se astern 2cm de mortar de ciment pentru nivelare si 1cm pentru pozare;
–prefabricatele se ceeazza in amplasament, dupa care se ridica si se observa urma lasata pe stratul de mortar presupus. In cazul in care nu s-a realizat cezarea pe toata suprafata, se completezza cu mortar de ciment de poze.
Operatia se repeta pana cand se obtine rezemarea pe toata suprafata.
PREFABRICATED ELEMENTS LAYING TECHNOLOGY:
–2cm cement mortar for levelling and 1cm for laying are placed on the concrete foundation concrete;
–the prefabricated elements are placed on site, after than there are rising and the track leaved on the fresh mortar layer is observed. If the laying is not done on the whole surface, cement mortar is cast on.
The operation is repeated till the whole supporting surface is obtained.

FAZA IV: EXECUTIA NOULUI PODET PE FIRUL II;
Linia I – restricte de viteza de 30km/h;
Linia II – inchidere de circulatie feroviara;

1. Se scoate de sub tensiune firul II si se asigura protectia electrica.
2. Se sectionezza si se dezmantelezza linia, se demonteazza suprastructura c.f. pe zona podetului existent, pe firul II.
3. Se dezafectezza tablierul existent de pe linia II.
4. Se executa sapaturile necesare si se demoleazza partial elevatiile infrastructurilor existente, conform proiectului.
5. Se montezza elementele prefabricate tip C3EN ale podetului pe firul II pana la limita permisa de tablierul existent pe linia I. Ultimul element se montezza in pauze de circulatie feroviara si inchidere de tensiune pe linia I.
6. Se realizezza rocordarea la amenajerea existenta din axul.
7. Se executa umplutura cu balast stabilizat.
8. Se demontezza sprijinile de pe tabler si din axul dintre cele doua linii de cale ferata.
9. Se executa hidroizolatia si sistemul drenant corespunzatoare firului I.
10. Se executa umplutura conform caietului de sarcini, se reface terasamentul si calea in zona firului II.
11. Se demontezza sprijinile din lungul liniei I.
12. Se montezza suprastructura CF pe linia II pe podia proiectata si se rocordezza la capete in plan orizontal si in plan vertical la situatia existenta.
13. Se asigura continuitatea circuitelor de cale, se asigura electrozizarea sinelor si protectia catodica.
14. Se repune sub tensiune linia de contact si se deschide circulatia in trepte de viteza pana la Vmax = 30km/h conform normelor in vigoare.

STAGE IV: EXECUTING THE NEW CULVERT ON TRACK II
Line I – speed limit of 30km/h
Line II – railway traffic closure

1. Cutting off the voltage of track II and ensuring the electric protection.
2. Sectioning and removing the voltage of the line, dismantling the railway superstructure on the existing culvert area, on track II.
3. Dealocating the existing deck on line II.
4. Executing the needed excavations and partially dismantling the elevation of the existing infrastructures, according to the design.
5. Mounting the precast elements type C3EN of the culvert on track II until it is complete. The first element is mounted during railway traffic breaks and voltage closure on line I.
6. Making the connection with the existing downstream arrangement.
7. Making the filling with stabilized ballast.
8. Dismantling the propping on the deck and in the axle between the two railway lines.
9. Executing the waterproofing and the draining system corresponding to track I.
10. Executing the filling according to the technical specifications, renewing the embankment and the track on the area of track II.
11. Dismantling the propping along line I.
12. Mounting the railway superstructure on line II on the designed position and connecting at the ends in horizontal and vertical plan to the existing situation.
13. Ensuring the continuity of track circuits, ensuring the rails' electric insulation and the cathode protection.
14. Restoring the voltage to the contact line and opening the traffic in speed levels up to Vmax = 30km/h according to the norms in force.

FAZA IV: ALTE TIPURI DE LUCRARI
Linia I – circulatie cu viteza normala;
Linia II – circulatie cu viteza normala;

1. Se executa lucrari de reparatie si curatire a amenajari existente din amonte.
2. Se executa pereul in podet, intre aripi si in amenajarea din amonte, asigurand conectarea la situatia existenta.
3. Se montezza parapetul de pod.
4. Se montezza scarile de acces pe terasament din aval.
5. Se dezafectezza platformele, accesele din zona de lucru si organizarea de santier.

STAGE V: OTHER TYPES OF WORKS
Line I – traffic with normal speed
Line II – traffic with normal speed

1. Executing works for repairing and cleaning the existing upstream arrangement.
2. Executing the plotching in the culvert, between wings and in the upstream arrangement, while ensuring the connection to the existing situation.
3. Mounting the handrail on the culvert.
4. Mounting the access stairs on the downstream embankment.
5. Deallocating the platforms, the accesses from the work area and the site organization.

NOTA:
1. Lucrarile la podet se vor corela cu lucrarile de supratructura c.f. si cu lucrarile de linie de contact.
2. Restrictia de viteza se va ridica dupa executia lucrarilor de ridicare a nivelete si aducerea liniilor la pozitia proiectata.
3. Modificarea tehnologiei de executie se poate adopta functie de datelor constructorului cu aprobarea proiectantului si respectarea conditiilor de realizare a lucrarilor definitive prevazute in caietele de sarcini.
4. Orice neconcordanta intre elementele ovule in vedere la elaborarea proiectului si teren va fi anuntata proiectantului pentru adaptare la situatia existenta.
5. Forma definitiva a podetului se va stabili dupa decapertarea terenului pana la fundatia existenta. Adaptarea proiectului se va face de catre proiectant.
6. Elementele prefabricate trebuie so corespunda cerintelor din SREN 206-1/2002.
7. Pentru trasarea lucrarilor se vor folosi co repere in plan axele liniilor c.f. iar co repere de nivel cota NSS(Pr.) 188.00m.
8. Inainte de inceperea executiei se va contacta proprietarul conducteior din zona podului ior impreuna cu acesta se vor identifica si pune in siguranta toate conductele. Dezasemenea, pe toata durata executiei se va solicita prezenta unui specialist din partea proprietarului conducteior pentru supravegherea lucrariior;
9. Lucrarile cuprinse in tehnologia de executie pentru prezentul pod se vor corela cu lucrarile de la pozitiile km 490+201.5 si km 490+480.
10. Lucrarile in pod vor fi executate obligatoriu inainte de lucrarile la linie.

NOTE:
1. The culvert works will be correlated with the railway superstructure works and with the contact line works.
2. The speed limit will be removed after the level lifting works and after bringing the lines to the designed position.
3. The modification of the execution sequence may be adopted depending on the constructor's endowment with the designer's approval and while observing the final works' execution conditions provided in the Technical Specifications.
4. Any incongruity between the elements taken into account when preparing the design and the site will be announced to the designer so that he can adapt to the existing situation.
5. The culvert's final shape will be determined after digging till the existing foundation. The design adaptation will be adapted by the designer.
6. The precast elements have to observe the requirements specified in SREN 206-1/2002.
7. For setting out the works, the axes of the railway lines will be utilised as reference marks in plan and the NSS(Dsg.)(top of the rail) of 188.00m.
8. Before starting the execution, the owner of the lines from the bridge area will be contacted and together with him, all pipes will be identified and secured. Also, during the entire execution period, the presence of a specialist nominated by the owner of pipes will be necessary in order to supervise the works.
9. The works comprised in the execution sequence for this bridge will be correlated with the works from kilometer positions 490+201.5 and km 490+480.
10. The culvert works will be carried–out obligatorily before the line works.

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INGINER
VERIFICATOR PROIECTE
RĂZVAN I. IONUT RADU

Prezentul plan anuleaza si inlocuieste versiunea anterioara
This plan cancels and replaces previous version

Verificator / Expert Checker / Expert	Cerinta Requirement	Semnatura Signature	Referat / Expertiza Report / Explained

European Investment Bank

MINISTERUL TRANSPORTURILOR

BENEFICIAR / BENEFICIARY :
CFR
COMPANIA NAȚIONALĂ DE CĂI FERATE "CFR" SA

PROIECTANT / DESIGNER: PÖYRY

			Data Date	Semnatura Signature
Aprobat Approved	Sef de echipa Team leader	C. Teodorescu	01.2013	
Verificat Checked	Expert Cheie Key Expert	R. Tudoraşcu	01.2013	

Subcontractant / Subcontractor: VIOTOP

Aprobat Approved	Adjunct Sef de echipa Deputy Team leader	A.M. Baicu	01.2013	
Proiectat Designed	Inginer Engineer	R.Tănăsescu	01.2013	

"Reabilitarea liniei c.f. Frontier ß - Curtici - Simeria, parte componentă a Coridorului IV Pan - European pentru circula ţia trenurilor cu viteză maximă de 160 km/h"
Transonal 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

Proiect 9i 35311.1

Faza / Phase: PTH+CS / TD+TS

Denumire desen / Drawing name:
TEHNOLOGIE DE EXECUTIE / TECHNOLOGICAL PROCESS
PODET / CULVERT
KM.PR.(DSG.) 490+240.00 / KM.EX.(EX.) 490+247.00

Scara / Scale	Revizia / Revision	Cod desen / Drawing Code	Nr / No
1:200	1 / 04.2013	PT.03.02.23.PO.02.04	04