



STEELS TABLE

REINFORCING STEEL:

- B450C (weldable)
- Bending diameter $d_{B\phi}$:
- ϕ Bar $\leq \phi 20 \rightarrow d_{B\phi} = 6\phi$
- ϕ Bar $\geq \phi 26 \rightarrow d_{B\phi} = 8\phi$

Legend measures:

MATERIAL TABLE

TUNNEL INVERT CONCRETE:

- Type C2
- $f_{ck} \geq 30$ MPa
- Water/cement ratio < 0.50
- Minimum structural Class S3/S4
- Exposure class related to environmental conditions: XA2
- Cement type CEM III/V
- Class of chloride content Cl 0.20
- ϕ max aggregate = 32 mm

TUNNEL CROWN CONCRETE:

- Type C1
- $f_{ck} \geq 30$ MPa
- Water/cement ratio < 0.50
- Minimum structural Class S4/S5
- Exposure class related to environmental conditions: XA2
- Cement type CEM III/V
- Class of chloride content Cl 0.20
- ϕ max aggregate = 32 mm

REINFORCING STEEL:

- B450C: controlled by establishment
- Weldable

LEAN CONCRETE:

- Type I
- $f_{ck} \geq 12$ MPa
- Cement type CEM I/V

LEGEND

RP = REFERENCE PLANE
 EX = EXCAVATIONS PLANE
 PC = CENTERS PLANE

D					
C					
B					
A					
Index	Date	Modification/Revision	Projectant	Approved Consultant	Approved CFR

GUVERNUL ROMANIEI / ROMANIAN GOVERNMENT
 PROIECT FINANATAT DE UNIUNEA EUROPEANA / EUROPEAN UNION FINANCED PROJECT

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

Approbat	Șef proiect	R. Liuzza	
Approbat	Coordonator Secțiune 1	C. Gambelli	
Verificat	Tunel Expert	C. Gambelli	
Elaborat	Proiectant	C. Gambelli	

SUBCONSULTANT / SUBCONSULTANT

Reabilitarea liniei de cale ferată Brașov - Simeria, parte componentă a coridorului IV Pan European, pentru circulația trenurilor cu viteză maximă de 160 km/h. Secțiune 1 Brașov - Sighisoara

Project/Project 2004/RO16/PA/003
 Fața / Phase: P.Th. / T.D.

Denumire desen / Drawing Title: **MURENI TUNNEL ENTRANCE ARCHITECTURE SIDE**

Tunnel entrance portal: sections with and without niches - Reinforcements
 Portalul de intrare în tunel: secțiuni cu și fără nișe - Armături

Lot	Scale / Scara	Lot	Scale / Scara
01	variat / various	01	variat / various

Lot: 01, Scale: variat / various, No.: 0080