



STEELS TABLE

REINFORCING STEEL:

- B450C (weldable)
- Bending diameter d_{b1} :
- ϕ Bar $\leq \phi 20 \rightarrow d_{b1} = 6\phi$
- ϕ Bar $\geq \phi 26 \rightarrow d_{b1} = 8\phi$

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

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

CLIENT / CLIENT

ITALFER / Scot / Wilson / OBERMEYER PLANEN + BERATEN GmbH / TECNIC Consulting Engineers

CONSULTANT / CONSULTANT

Approved	Self project	R. Liuzza	Date	Signature
Approved	Project manager			
Approved	Coordinator Section 1	C. Gambelli		
Verified	Tunnel Expert	C. Gambelli		
Checked	Tunnel Expert	C. Gambelli		
Elaborated	Designer	C. Gambelli		

SUBCONSULTANT / SUBCONSULTANT

Reabilitarea liniei de cale ferata Brasov - Simeria, parte componenta a coridorului IV Pan European, pentru circulatia trenurilor cu viteza maxima de 160 km/h. Sectiunea 1 Brasov - Sighisoara

Rehabilitation of the railway line Brasov - Simeria, component Part of the IV Pan-European Corridor, for the trains circulation with maximum speed of 160 km/h. Section 1 Brasov - Sighisoara

Project/Project 2004/RO16/PA/003

Faza / Phase: P.Th. / T.D.

Denumire desen / Drawing Title: **ARCHITA 2 TUNNEL**
 Tunnel entrance portal: sections with and without niches - Reinforcements
 Portalul de intrare in tunel: sectiuni cu si fara nise - Armaturi

Codificare / Codification System	Scara / Scale	LOT	Nr. / No
E A 5 1 0 1 C 1 4 B B G A 0 9 0 0 0 0 9 0	variat / various		