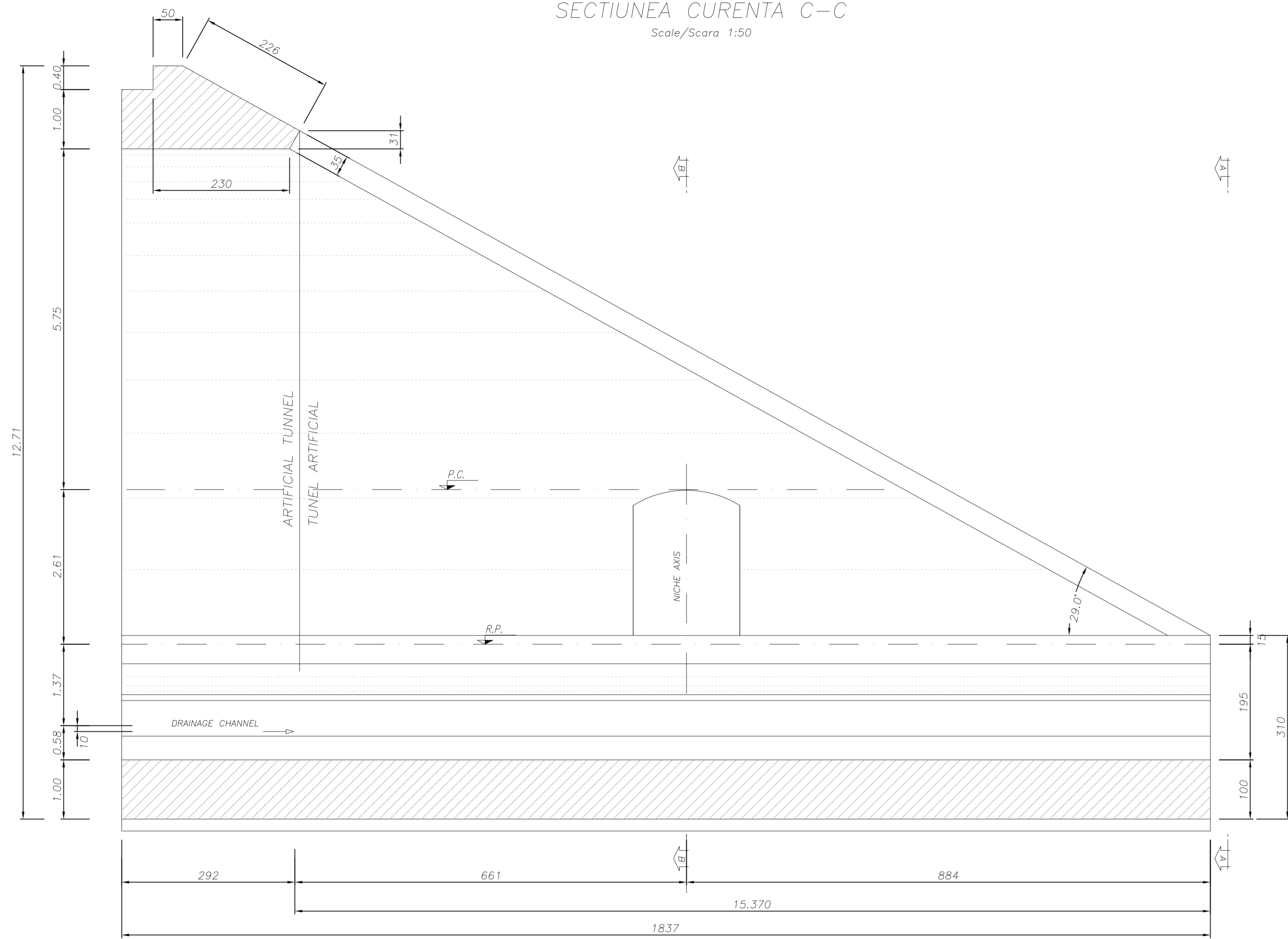
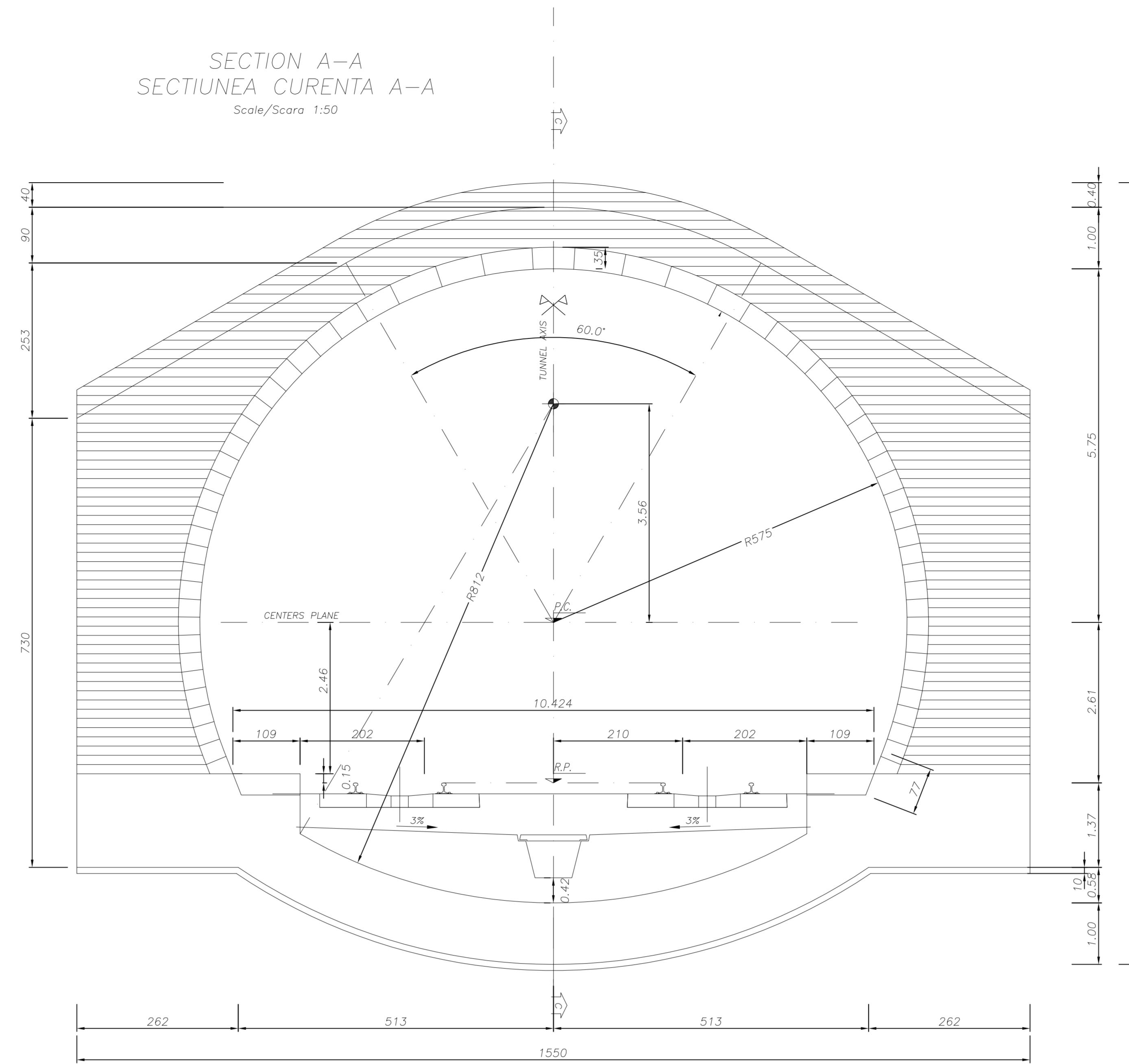


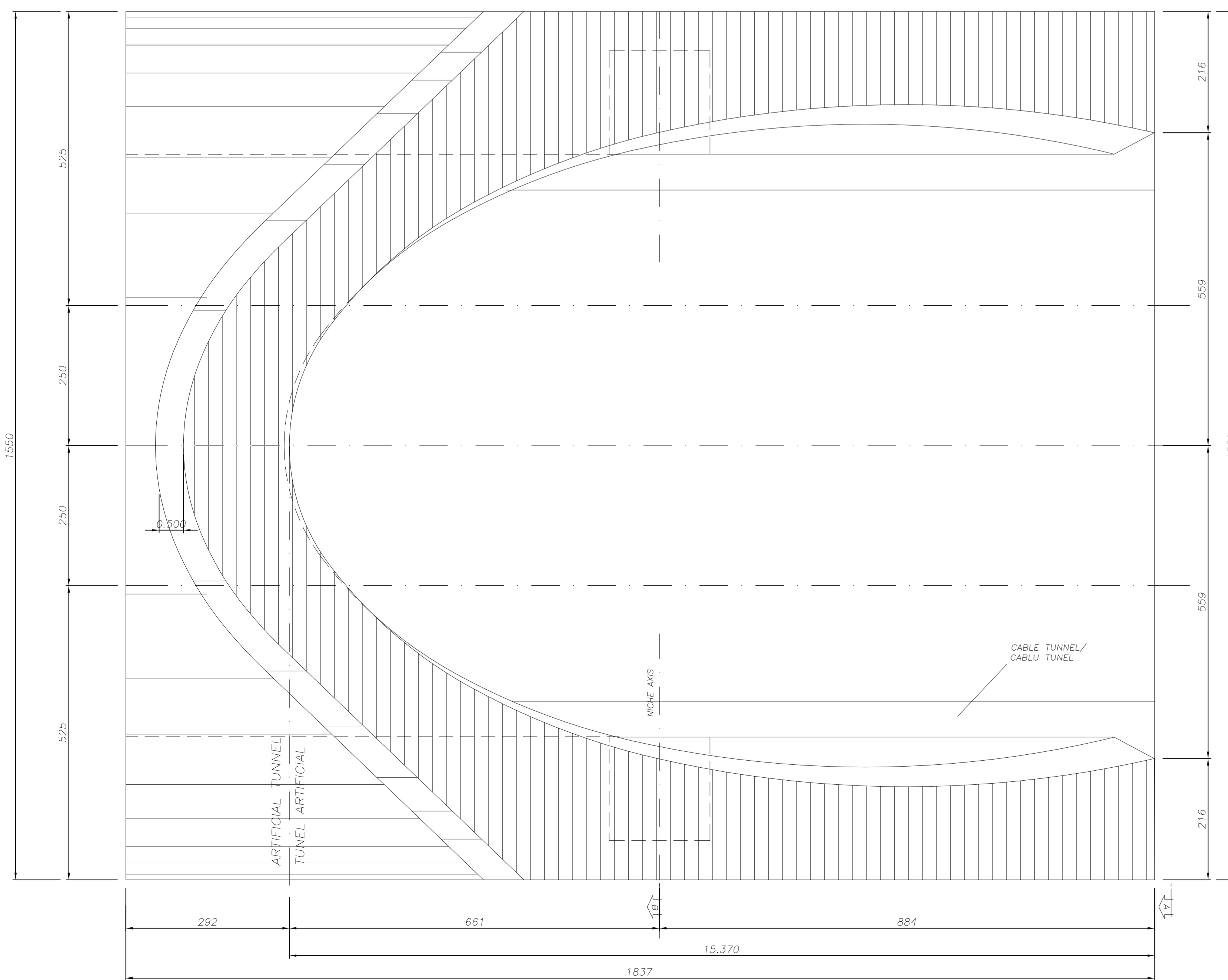
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SECTIUNEA CURENTA C-C  
Scale/Scara 1:50



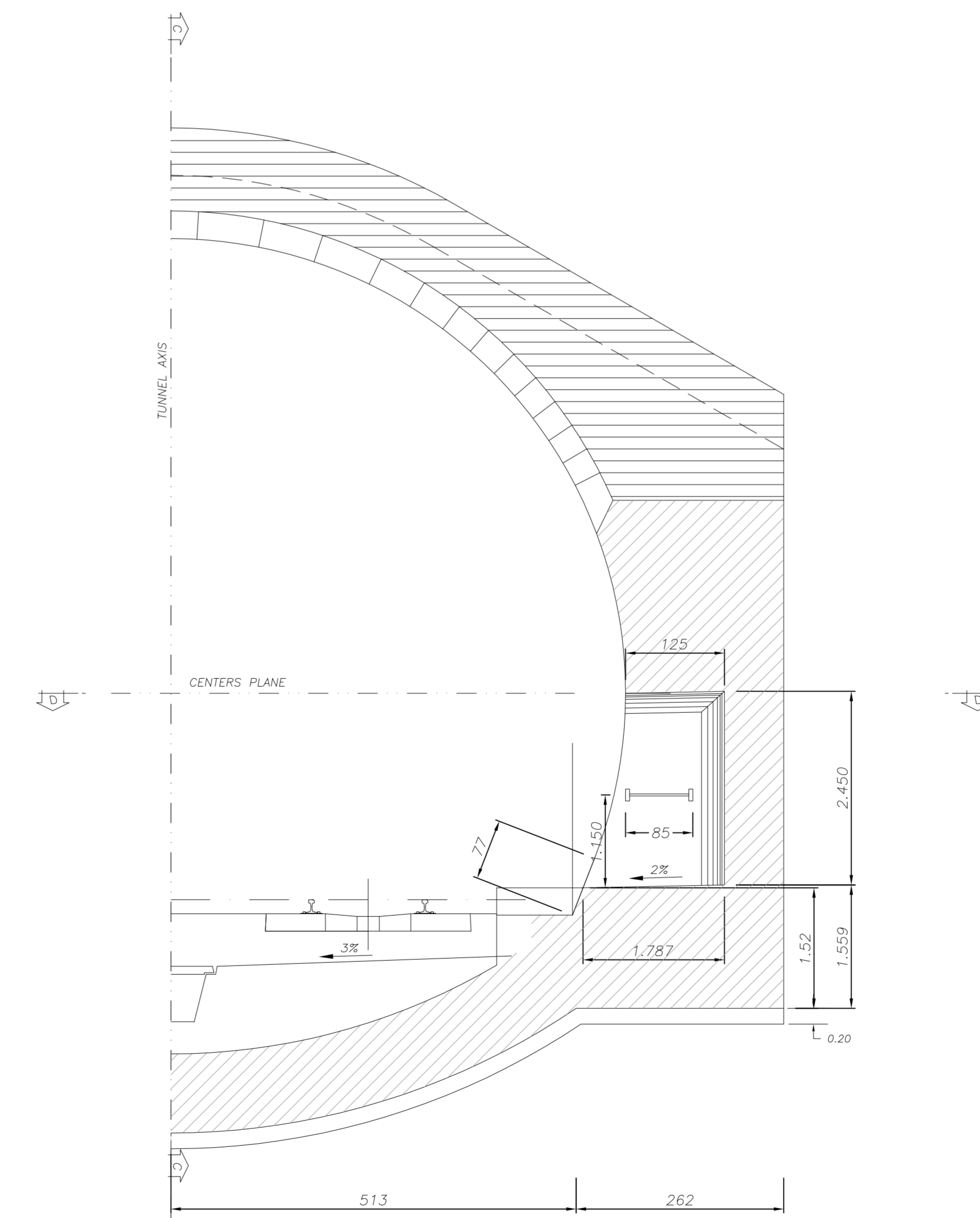
SECTION A-A  
SECTIUNEA CURENTA A-A  
Scale/Scara 1:50



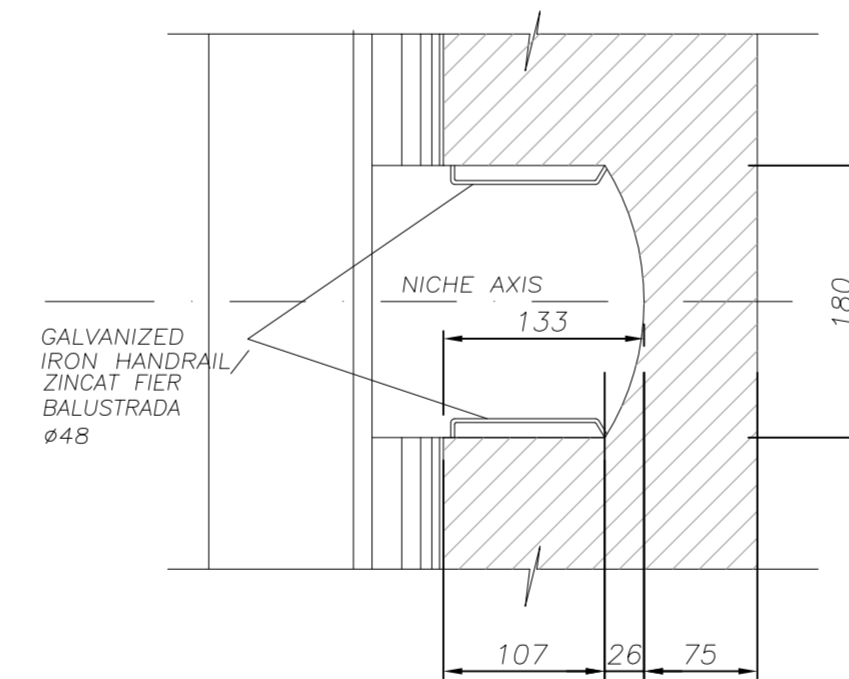
PLAN  
Scale/Scara 1:50



SECTION WITH SHELTER STAFF NICHE B-B  
SECTIUNEA CU NISE PENTRU ADAPOSTUL PERSONALULUI B-B  
Scale/Scara 1:50



SECTION D-D  
SECTIUNEA CURENTA D-D  
Scale/Scara 1:50



**MATERIAL TABLE**

**TUNNEL INERT CONCRETE:**

- Type C2
- $f_{ck} >= 30$  MPa
- Water/cement ratio  $< 0.50$
- Minimum structural Class S3/S4
- Exposure class related to environmental conditions: XA2
- Cement type CEM II/V
- Class of chloride content Cl 0,20
- $\phi$  max aggregate = 32 mm

**TUNNEL CROWN CONCRETE:**

- Type C1
- $f_{ck} >= 30$  MPa
- Water/cement ratio  $< 0.50$
- Minimum structural Class S4/S5
- Exposure class related to environmental conditions: XA2
- Cement type CEM II/V
- Class of chloride content Cl 0,20
- $\phi$  max aggregate = 32 mm

**REINFORCING STEEL:**

- B500 controlled by establishment
- Weldable

**LEAN CONCRETE:**

- Type I
- $f_{ck} >= 12$  MPa
- Cement type CEM I/V

**LEGEND**

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

**NOTE:**

The integrity of the concrete structures of the artificial and natural tunnels have to be maintained in case of fire (4.2.2.3 Fire protection requirements for structure STI Technical Specification for interoperability).

**NOTA:**

Integritatea structurilor de beton a tunelului artificial si natural, trebuie sa ramana intacta in caz de incendiu (4.2.2.3 cerintele de protectie la foc pentru structuri STI Specificatii tehnice pentru interoperabilitate).

**NOTE:**

Handrail shall be installed approximately at 1 m above walkway providing a route to a safe area (4.2.2.7. Escape walkways TS).

**NOTA:**

Bara de mâna trebuie sa fie instalata aproximativ la 1 m deasupra coii de evacuare oferind un traseu într-o zona sigura (4.2.2.7 evacuare traseu STI).

**NOTE:**

Escape signs shall be installed on the side walls at a maximum distance between escape signs of 50m (4.2.2.9 Escape Signage TS).

**NOTA:**

Semnele de evacuare trebuie sa fie instalate pe peretii laterali, la o distanta maxima intre semne de evacuare de 50m (4.2.2.9 Escape Signage STI).

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

GUVERNUL ROMANIEI ROMANIAN GOVERNMENT

PROIECT FINANȚAT DE UNIUNEA EUROPEANĂ EUROPEAN UNION FINANCED PROJECT

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

CLIENT / CLIENT

ITALFERR Scot Wilson OBERMEYER PLANEN - BERATUN 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			
Interim Elaborated	Project Designer	C. Gambelli		

**SUBCONSULTANT / SUBCONSULTANT**

Reabilitarea liniei de cale ferata Brasov - Simeria, parte componentă a coridorului IV Pan European, pentru circulația trenurilor cu viteză maximă de 160 km/h. Secțiunea 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/RO/16/PA/002

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

Denumire desen / Drawing Title: MURENI TUNNEL

ENTRANCE ARCHITECTURE SIDE

Tunnel entrance portal: formwork sections

Portalul de intrare in tunel: sectiuni de cofraje

Codificare / Codification System	Scara / Scale	LOT	Nr. / No
E A 5 1 0 1 C 1 6 B B G A 1 0 0 0 0 0 7 0	variat / various		