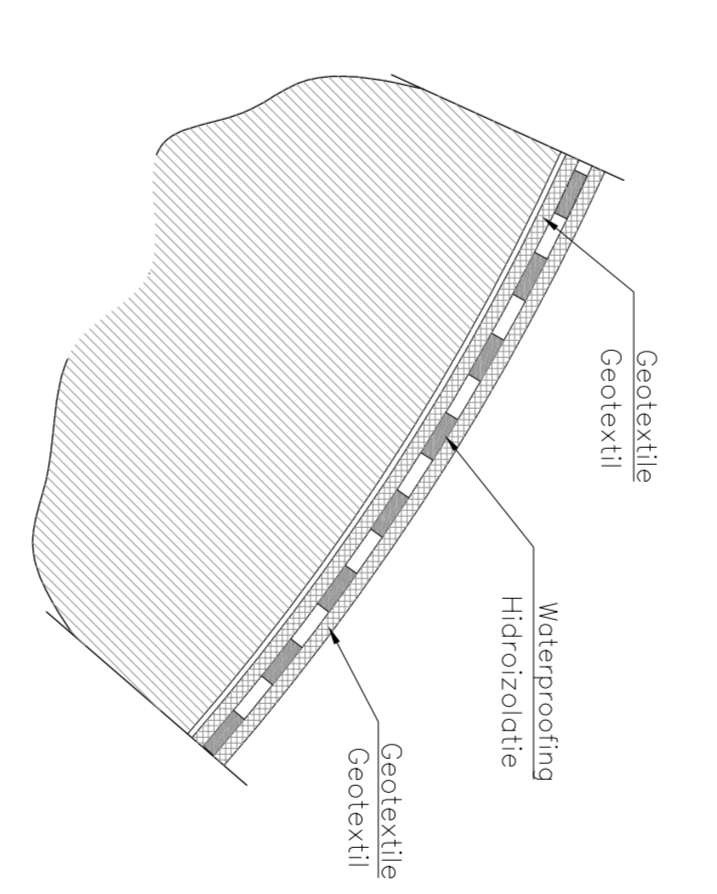


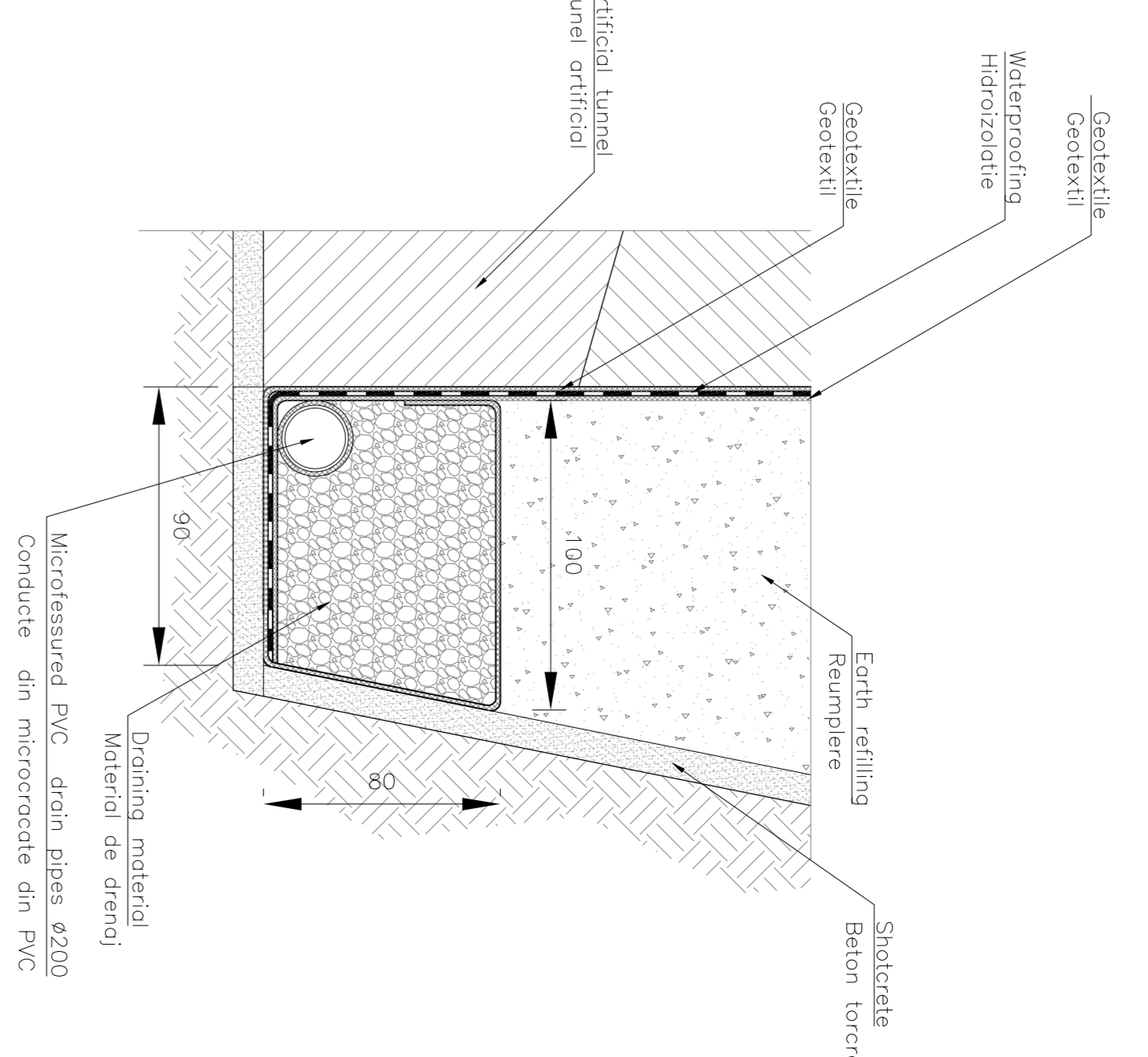
WATERPROOFING TUNNEL CROWN DETAIL  
DETALIUL CORONA TUNELULUI HIDROIZOLATIEI

Scale/Scara 1:20



WATERPROOFING PIER DETAIL  
DETALIUL PILONILOR HIDROIZOLATIEI

Scale/Scara 1:20



MATERIAL TABLE

Code	Description	Specification
<b>TUNNEL INNER CONCRETE</b>		
1	Type C2	
2	100 >= 30 MPa	
3	Min. cement content 350 kg/m³	
4	Min. aggregate content 537 kg/m³	
5	Exposure class related to environmental conditions MX2	
6	Class of chloride content 0.20	
7	φ max aggregate = 32 mm	
<b>TUNNEL DRAIN CONCRETE</b>		
1	Type C1	
2	100 >= 30 MPa	
3	Water/cement ratio 0.230	
4	Min. cement content 300 kg/m³	
5	Exposure class related to environmental conditions MX2	
6	Class of chloride content 0.20	
7	φ max aggregate = 32 mm	
<b>REFERENCE SHEET</b>		
1	Precast, covered by endowment	
<b>LEAN CONCRETE</b>		
1	Type 1	
2	100 >= 17 MPa	
3	Cement type CEM I/V	

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

**CLIENT / CLIENT**  
CFR  
CN.C.F. "C.F.R." S.A.

**CONSULTANT / CONSULTANT**  
TECNIC  
OBERMEYER  
Civil Engineers

**GOVERNMENT / GOVERNMENT**  
ROMANIA  
EUROPEAN UNION FINANCED PROJECT

**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 IS) Technical Specification for Integritability).

**NOTE:**  
- Integritatea structurilor de beton a tunelurilor artificiale și naturale, trebuie să rămână intactă în caz de incendiu (4.2.2.3 cerințe de protecție la foc pentru structuri SI) Specificații tehnice pentru integritabilitate).

**NOTE:**  
- Handrail shall be installed approximately at 1 m above walking providing a route to a safe area (4.2.2.7 Escape walkways IS).

**NOTE:**  
- Barș de mână trebuie să fie instalată aproximativ la 1 m deasupra corii de circulație oferind un traseu către zona sigură (4.2.2.7 escape walkways IS).

**NOTE:**  
- Escapes signs shall be installed on the side walls at a maximum distance between escape signs of 50m (4.2.2.9 Escape Signs IS).

**NOTE:**  
- Semnele de evacuare trebuie să fie instalate pe pereții laterali, la o distanță maximă între semne de evacuare de 50m (4.2.2.9 Escape Signs IS).

**PROJECT INFORMATION**  
Project/Proiect: Z04/R016/2019/002  
Faza/Phase: P.I.N. / I.D.

**DATE**  
Date: 2019

**SCALE**  
Scale: 1:50

**REVISIONS**

Rev.	Description	Date
01	Issue for approval	2019
02	Issue for construction	2019