



Norrströmstunnel (S) Water & Frost Protection

Country	Sweden
Type	Railway Tunnel
Client	Trafikverket (Swedish Transport Administration)
Main Contractor	NCC Sverige AB
Designer	WSP
Execution of the work	Renesco a.s.
Construction Period	2012-2013

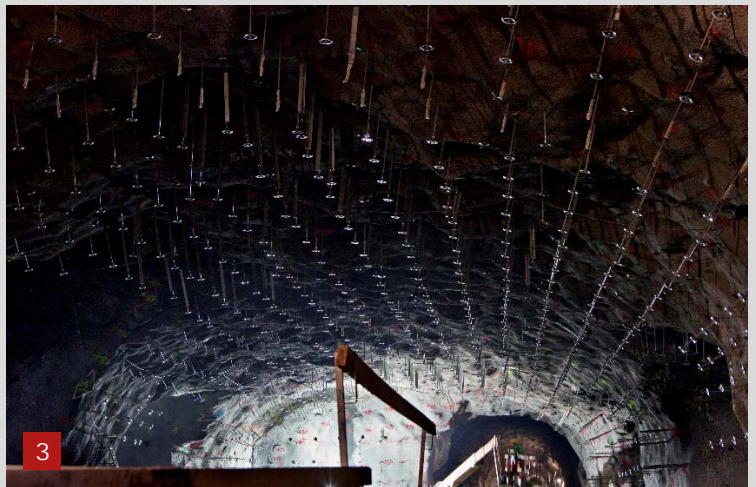
Project Description

Stockholm City Line is a 6km long commuter train tunnel running between Tomtebodavägen and Stockholm South, with two new stations at Odenplan and T-Centralen.

Scope of Service

The construction includes a 1.5mm waterproofing sheet membrane, Low-Density-Polyethylene (LDPE) including a one-side surface roughness, two color, behind a mesh reinforced shotcrete (90mm) suspended from the anchor bolts, building a tent inside the shotcrete supported rock-structure. The requirements for waterproofing and construction were according to BV Tunnel (Swedish standard).

- Specialised drilling service
- Length of holes \approx 600 mm
- Installation of anchor bolts by glue
- Installation of nuts and plates
- Installation of sheet membrane including all detailing
- Installation of reinforcement



1. Shotcrete application direct onto the membrane
2. Waterproofing system, detailing
3. Galvanized anchor bolts