

Stopping a water leak in the LIRE Sud tunnel

Search for solutions to stop the water leak and follow-up of the repair works

2015 - 2016



FRANCE - Paris

Client

EAU DE PARIS



The Project

The L.I.R.E. Sud tunnel (link between water reservoirs), connecting Porte de Sèvres and Porte d'Auteuil in Paris, accommodates a drinking water supply pipe 1200 mm in diameter belonging to EAU DE PARIS. The tunnel, internal diameter 3.1 m, was bored in 2001-2002 using an earth pressure balance (EPB) tunnel boring machine (TBM). The entire tunnel is bored through limestone.

The section crossing the river Seine and running parallel to the "Boulevard Périphérique" ring road was damaged in December 2014 by pile-driving works on the left bank of the river. A pile pierced the lining, opening a major continuous water inflow (flow rate of around 140 l/s), and damaged the drinking water pipe.

Our Services

TERRASOL, which had assisted EAU DE PARIS when the tunnel was excavated, was contracted to define solutions for stopping the water leak and to follow-up the repair works.

The solution adopted consisted in partial flooding of the tunnel between two shields to stop the flow, then grouting from the surface to create a watertight plug over the entire overburden depth down to the tunnel invert; this was intended both to reduce the fracture permeability in the limestone and to eliminate the preferred path formed in contact with the pile that had damaged the tunnel and the limestone.

The grouting played its role perfectly by stopping the water inflows and providing dry conditions for the repair works on the tunnel voussoirs.

Key features

- Expertise to search for solutions to stop the water leak and
- Follow-up of the repair works.