Tunnel Silberberg









SHORT DESCRIPTION

The New Railway Line of the German Railway System from Ebensfeld to Erfurt is part of the “Deutsche Einheit” Track No. 8 expansion and new railway project that runs from Nuremberg to Berlin. It is the connecting link between the Nuremberg to Coburg expansion and the Bebra to Erfurt expansion and will continue to the new Erfurt to Leipzig/Halle railway line.

THE PROJECT

The 7,407 meter long Silberberg Tunnel runs from construction km 57.0+05 to 64.3+96 and affects the communities of Altenfeld, Gehren, Gillersdorf, Grossbreitenbach and Moehrenbach. The area of the excavated cross-section is 130 m^2 to 180 m^2 and has a usable tunnel cross-section of 92 m^2.

CHALLENGES

The tunnelling drive begins at the intermediary access galleries in Moehrenbach and Altenfeld, which are 352 meters and 760 meters long, respectively. The main section of the railway tunnel starts at the end of these galleries. The intermediary galleries will later serve as emergency exits. The rescue plan concept calls for eight emergency exits to be placed at distances of up to 1,000 meters from one another. They will lead to drivable galleries (total length of 3,213 meters), a 22

meter deep shaft and a 70 meter long pedestrian gallery to bring people out into the open air.

The tunnel, which will be driven in layers of clay-silt schist, quartzite and grey-wacke, as well as sandstone and volcanic rock, will be primarily constructed in the drill & blast method and, in part, using an excavator with a divided tunnel face. Depending on the excavation class, commonly used securing means such as SN anchors, Swellex rock bolts, self-drilling anchors and tunnel face bolts as well as spiles, arch supports and reinforced shotcrete in various thicknesses, shall be installed. A vaulted crown/invert and/or a face wedge has been planned in some sections of the project.

SUSTAINABILITY

Crossing below industrial facilities and residential areas, as well as special protective measures for environmental and water protection increase the demands placed on the tunnelling works.

The excavated muck is used for landscaping Ilmsenberg and Reischeltal.

FURTHER INFORMATION

Key data

- **Realisation** 2009 - 2013
- **Total length** 7,407 m
- **Breakout cross-section** 130 - 180 m^2
- **Geology** Clay-silt schist, quartzite and greywacke, sandstones, vulcanite

Implenia under construction
Implenia Construction GmbH,
Civil engineering
Landsberger Straße 290 a, D-80687 Munich

Task

- Technically responsible
- ARGE Participation 40%

Services rendered

- Tunneling

Building method

- Drill & Blast Method, Excavator Drive
- L = 7,407 m, A = 130 - 180 m^2
- In-situ concrete inner lining with umbrella-type seal or waterproof “all-round” seal
- Various galleries walkable/drivable, total length = 4,395 m
- Shaft 22 m deep

Project participants
Owner

Deutsche Bahn, DB Netz AG RB South East
Engineer
Obermeyer, ILF, Arcadis
ARGE
ARGE Tunnel Silberberg

FACTS

Location	Großbreitenbach , Germany
Status	completed
Construction volume (value of our services)	222 M EUR
Start of construction	January 2009
Completion	December 2013

SERVICES

Tunnelling

Transport tunnels