Reference

380-kV-Kabeldiagonale, 50hertz







SHORT DESCRIPTION

Cable diagonal Berlin - Construction of a 6.7 km long cable tunnel with 4 shafts as supply / rescue shafts

THE PROJECT

As part of the grid reinforcement of the 380 kV cable diagonal Berlin, the construction of a new underground 380 kV line between the final pylon Rudolf-Wissel-Brücke and the Mitte transformer station by 50Hertz Transmission GmbH (50Hertz) is planned. The new line will serve to increase the transmission capacity and will replace the existing line upon completion.
As a result of a preliminary study, it was decided to construct a 6.7 km long, underground accessible tunnel tube to accommodate the two cable systems to be replaced.

Spatial classification
The 6.7 km long tunnel structure is divided into three successive sections from west to east by four shafts. The tunnel starts on the site of the final mast at the Rudolf-Wissel-Bridge and leads via the intermediate shafts at the Charlottenburg substation and the Tiergarten park to the final shaft at the Mitte substation.

SERVICES IN DETAIL

- Slurry shield tunnelling Ø 3.80m, inclination < 1.0%.
- single-shell segment support
- (Øi 3,0 m, D=27cm, W=1,2m) with Uniring
- Steel bar reinforcement, embedded seal
- anchor channels in every 2nd ring
- Construction of the excavation pits for the shafts with diaphragm walls and back-anchored underwater concrete invert (UWB)
- Shaft structures made of WU concrete as access structures and entry structures for the 380 kV cable route
- Shafts with steel staircases
- Construction of the lateral supply structures in sheet pile wall excavations
- turnkey construction incl. electrotechnical equipment, ventilation system, monorail system

CHALLENGES

- Construction in city centres with high environmental requirements
- Performance description was functional - lump sum.
- Turnkey service including electrotechnical equipment and ventilation technology.

SUSTAINABILITY

- Due to the location of the project in the centre of Berlin, disruptions due to site operations have to be minimised.
- Accommodation containers according to ENEV, on-site equipment with soot particle filters.
- The structure serves to supply Berlin with 380 kV high voltage.

FURTHER INFORMATION

- Installation of an aerial monorail
- Steel access stairs
- Emergency lift in the Charlottenburg shaft
- Interior fittings
- Cable supply structures in the existing substations

Map: © 50Hertz Transmission GmbH

FACTS

Location	Berlin , Germany
Status	Under construction
Construction volume (value of our services)	128 M EUR
Start of construction	August 2019
Completion	October 2030
Contracting entity	50 hertz Transmission GmbH, Heidestr. 2, 10557 Berlin
Project management	Markus Schönwälder
Planning	Entwurfsplanung: IMM und Sweco; Ausführungsplanung: Implenia Technical Design Office Köln und Raunheim, Technical Competence Center Mannheim

Concrete volume	20000 m^3
Reinforcement	700 to
TBM Tunnelling	✓
Tunnel length	6700 m
Diameter	3.8 m

SERVICES

- Tunnelling
- Civil engineering
- Concrete construction

https://implenia.com/en/references/detail/ref/kabeldiagonale-380-kv-50hertz-1/

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