Tunnel Engineering Consultants

Project identification

Schelde tunnel Oosterweel Link

Type of project

Immersed tunnel

Client

COTU; consortium of Besix (BE), DEME (BE), Jan de Nul (BE), BAM (NL)

In co-operation with

SBE (BE) & Tractebel (BE)

Project assignment

Detailed Design and Engineering of the permanent structures

Country

Belgium

Location

Antwerp

Project duration

2018-2025

Project phase

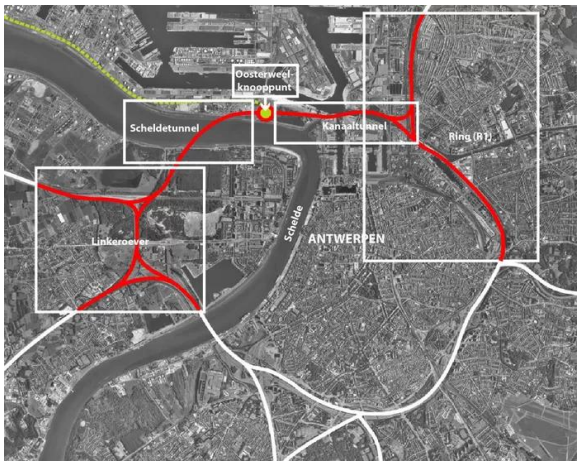
Tender, Final & Detailed Design, Site Engineering

Construction cost

Approx. € 560 million (excl. VAT)

Consultancy fee

Approx. € 8 million (TEC partner Haskoning) (excl. VAT)



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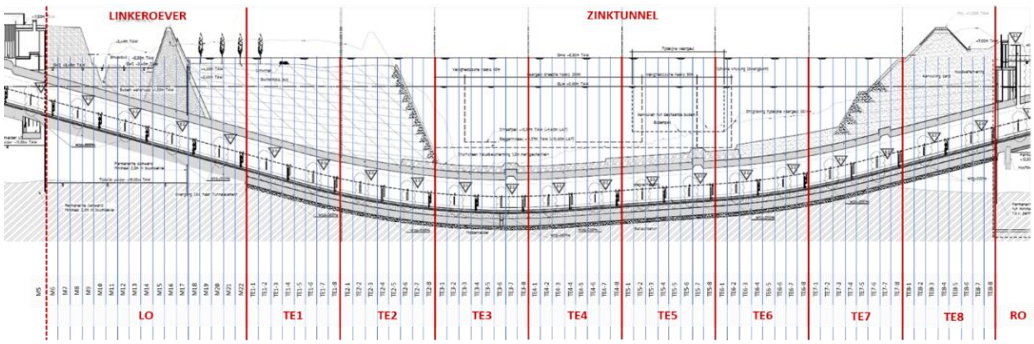
Immersed tunnel

Project description

The Schelde tunnel is part of the Oosterweel link in Antwerp Belgium which comprises the Northern and Western extension and upgrading (North/East) of the ring road in Antwerp representing an investment of app. € 6 billion. The Schelde tunnel is an immersed tunnel under the river Schelde with an immersed section of 1280m consisting of 8 tunnel elements of 160m each. The tunnel elements are built in a construction basin in the harbour of Zeebrugge and transported over the North Sea and the Westerschelde to the project site. The cross section consists of 2 traffic tubes with 3 lanes each, a bicycle tube and an escape/service gallery between the traffic tubes. The approach ramps on the left and right bank have lengths of resp. 486m and 140m and are partly designed as permanently controlled dewatered polders, using the Boom clay as a cut-off. The open and closed ramp on the left bank is built in an open dewatered building pit with a shallow foundation. The closed ramp on the right bank comprises diaphragm walls for the temporary building pit and the foundation for the permanent structure. The challenges for the immersed tunnel are the very high surcharge loads at both embankments (dikes for flood protection), the subsoil of over-consolidated clay (Boom clay) and the tidal difference of more than 5 meters during immersion.



Scope of work

TEC-partner Haskoning is the managing member of the JV STURINO and responsible for the design of the immersed tunnel. The services are provided for the (winning) tender design, integrated design with MEP, detailed design and site engineering. For the project all parties work in a full integrated 3D BIM model for both internal communication and for cooperation with external parties for example the MEP designers.

Note:

TEC-partner Witteveen+Bos is one of the two parties in the temporary trading associations (JV) THV ROTS and THV ATLAS. Witteveen+Bos performed the complete study into the closure of the Antwerp Ring Road on behalf of the Owner “Lantis” (Project organization of the Belgium Public Works Department) and involved since 2012. Witteveen+Bos prepared the reference design and the contract documents for the Schelde tunnel. During realization of the project Witteveen+Bos provides services to the Owner as Design Reviewer and Site Engineer.