

Sluiskiltunnel, Netherlands

A new bored road tunnel underneath the Gent-Terneuzen Canal



The Sluiskiltunnel is a bored tunnel underneath the Gent-Terneuzen Canal, near the small town of Sluiskil in the south-western province of Zeeland in the Netherlands. The new tunnel is an addition to the old swing bridge across the canal.

The project consists of six kilometres of main road, including two junctions, two bored tunnels (each measuring 1145 metres in length with a diameter of approximately 10 meters) and two access ramps with a service building each.

In order to meet the main project goal to build a quality tunnel, on time and with minimal failure costs; a multi-disciplinary 3D model was made to check the interfaces between the main disciplines. The 3D model included the civil structure, architectural detailing, electrical and mechanical systems and tunnel installations.

At the outset a course volume reservation was modelled for the technical installations in the service buildings. Later, all mechanical and electrical installations were designed

and modelled in detail by the corresponding companies in order to perform detailed clash detections. The result was a 3D model of the civil structure with many concrete openings, which was then used to generate all concrete shape drawings. The civil and architectural model was also used for visualisations and solar analysis, which enabled us to design sun screens at the tunnel exits, to prevent drivers being blinded by the sun.

Client:
Provincie Zeeland

Contractor:
BAM-TBI

Design team:
BAM Infraconsult, Wayss & Freytag
Ingenieurbau, Mobilis, Croon

Type of contract: D&B

Value: €210m

Completion: May 2015

Contract period: 2011- 2015

Key Features:

- Project scope
 - Bored tunnel, length 2 x 1145 meters
 - Tunnel diameter approx. 10 meters
 - Two access ramps
 - Two service buildings
 - Two junctions
- Multi-disciplinary 3D/BIM-model, including:
 - Civil Structure
 - Architectural detailing
 - Electrical & Mechanical Systems
 - Traffic installations
- Shorter lead times and early hand over
- Reduced costs

BIM stage and approach

The 3D model also enabled us to perform sight line analysis from a driver's perspective, and for generating CCTV-images to design the optimal camera layout in the tunnel.

The use of 3D/BIM models has resulted in:

- Lead time reduction
- A significant decrease in failure costs
- Early hand-over
- A satisfied client

