# Wienerwald-Tunnel

## SHORT DESCRIPTION

The Wienerwald Tunnel is an integral part of the new high speed railway line between Vienna and St. Pölten.

## THE PROJECT

The whole **Wienerwald tunnel** construction has been divided into the following three sections:

- two single-track tunnel tubes, L = 2 x 10,770 m driven by a TBM;
- a 2,356 m long, double-track tunnel section with widened tunnel area in conventional tunnelling method and
- earth works of about 2 million $m^3$ of solid material, renovation of dumpsite for domestic waste, roadway construction, canalisation and concrete engineering.

The ground cover above the tunnel crown varied between 6 - 190 m throughout the approximately 13 km long tunnel alignment. The tunnel runs through layers of silt-, clay- and sandstone as well as marl layers and marlstone. Water seepage of up to 5 l/s was also encountered during tunnel drive.

The 10.77 km long tunnel tubes were driven with two 10.69 m diameter hard rock tunnel boring machines. Both tunnel

tubes are connected with 25 cross passages. The tunnel has a slight upward inclination of 0.3 %.

In addition to the 2,356 m conventionally driven tunnel of the eastern section, the scope included the construction of 3 galleries, 2 shafts and an emergency exit shaft. In order to reduce the risk of settlement in relevant sections of the tunnel alignment, tunnel excavation was carried out with side wall drifts. After completion of the tunnel drive a sealing membrane and a reinforced concrete inner lining was installed.

## CHALLENGES

- Simultaneous drive with two Hard Rock TBMs
- Spoil gallery with a slope of 31.6 %, L = 520 m, A = 14.80 $m^2$
- Emergency ventilation cavern, A = 168 $m^2$

## SUSTAINABILITY

Approx. 50 % of the muck from the TBM was reused as filler material for a 10 km long railway embankment. The rest (about 2 million cubic meters of solid mass) was deposited as replacement material or landfill of a former dumpsite for domestic waste.

## FURTHER INFORMATION

**Basic Data**

- Construction period: 2004 - 2010
- Total length: 13.13 km
- Cross section: 90 – 168 m2
- Geology: Silt-, clay, sandstone and marl layers and marlstone.

**Implenia on site**
Implenia Construction GmbH,
Civil Engineering
Landsberger Straße 290 a, D-80687 Munich

**Task**
Part of commercial leadership
Participation on consortium 30 %

**Work performed**
Tunneling

**Construction method**

- Hard Rock TBM Ø = 10.69 m
- L = 2x 10,770 m, A = 90 $m^2$
- Inner concrete segment lining, t = 35 cm, b = 2.25 m
- In total 25 cross passages, every 500 m
- Conventional excavator and drill & blast drive, L = 2,356 m, A = 80 - 250$m^2$

**Involved in Project**

Client
Austian Federal Railway AG

Design
Implenia Construction GmbH
Structural Design (in JV)

Contractor
ARGE Tunnel Wienerwald

## FACTS

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|---|---|
| **Location** | Westportal Wienerwaldtunnel , Austria |
| **Status** | completed |
| **Construction volume (value of our services)** | 341 M EUR |
| **Start of construction** | December 2003 |
| **Completion** | May 2010 |
| **TBM Tunnelling** | ✓ |

## SERVICES

Tunnelling

Transport tunnels

https://implenia.com/en/references/detail/ref/wienerwald-tunnel/

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