

SEMMERING BASE TUNNEL, HYDROGEOLOGICAL PRESERVATION OF EVIDENCE

Client: Austrian Railways Infrastructure AG

Development Period: since 2015

THE PROJECT

The Semmering Base Tunnel with a length of 27 km is the centrepiece of the new Southern Railway Line between Vienna and Graz, which is expected to start operation in 2030. The environment-friendly traffic connection with a significantly reduced travel time improves the connection of the southern part of Austria considerably and strengthens the Baltic-Adriatic corridor.

The double tube tunnel runs between Gloggnitz (Lower Austria) and Mürzzuschlag (Styria) through geological highly demanding rock formations and is advanced from the tunnel portal Gloggnitz and from three intermediate advances. The construction is carried out by conventional methods (ATM) as well as by tunnel boring machines (TBM).

OUR FUNCTION

For this project, BGG Consult is commissioned, in a joint venture with two other engineering offices, with the implementation of a preservation of evidence in the field of hydrogeology during construction. This includes, during the advance works, a weekly record of hydrological data at 157 measuring points. The monitoring programme comprises level measurements in groundwater gauges and wells, spring discharge measurements, runoff measurements in brooks and rivers, readouts of data loggers as well as sampling for physicochemical and bacteriological analyses at selected locations.

Continuous Weekly Measurements in Alpine Terrain:

In order to understand the impact of the construction works on the groundwater regime in adequate detail, a comprehensive, close-meshed monitoring programme was stipulated by the permission decree. In addition to the challenges due to the consistent effort of four to six man-days per week, the measuring points are sometimes only accessible by snowshoes or alpine touring skis up to a for several months.

The data, recorded by the three teams, are entered in standardised forms and subsequently fed into a weekly updated database, which can be accessed by the whole project team through an internet-application.



Runoff measurement during extreme snow conditions