

KORALM, GRAZ - KLAGENFURT RAILWAY LINE, AICH - MITTLERN SECTION, CONTRACT SECTION 62.3 - JAUNTAL BRIDGE

Client: Austrian Railways Infrastructure AG
Development Period: 2017 to 2023

THE PROJECT

As one of the last sections of the Koralm Railway Line on the Carinthian side, the Jauntal Bridge was completed in December 2023. The abutments and pillars of the existing single-track bridge, built in 1961, could continue to be used after refurbishment. The bearing structure has been completely replaced by a new steel-concrete composite system. The 430 m long, 5-span Jauntal Bridge has a height of 96 m above the water level of the *Drau* river, making it one of the highest railway bridges in Europe. The steel substructure of the new bridge was prefabricated in three sections on the northern side, coupled to the existing structure and pushed southwards during a total service interruption.

OUR FUNCTION

For this project, BGG Consult was commissioned with consulting in the areas of geotechnics and hydrogeology in all project phases. Based on the results of underground investigations from 1957 and 1998, further explorations were carried out in 2018 with regard to the refurbishment of the abutments and pillars. Subsequently, the tender for the upgrade measures has been accompanied in the respective fields. This also required 3-dimensional finite element calculations to establish the stability of the abutments in the final state, which also included a deformation analysis. During construction, geotechnical support was provided for the special heavy construction measures.

Refurbishment Pillars and Abutments:

From an ecological and economic point of view, an important factor was, that the 60-year-old pillars and abutments, which were built for a single-track line with a relatively low design speed, could continue to be used for the double-track high-performance line ($v_{\max} = 250$ km/h). In addition to the examination of the building material of the old structure, investigations of the existing foundation dimensions and the subsoil underneath were all the more important. These included six core drillings, using small drilling rigs within the pillars, and ten dynamic probings in the area around the pillars, some of them carried out from of a floating pontoon.

Based on the stability and deformation analyses, extensive anchoring with prestressed anchors was necessary at the slope pillars and below the abutments (anchor ribs). Further, the foundation areas of the river pillars were improved, using low-pressure injections.



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*Slide-in of the steel structure
(old and new structure visible)*