# ARNOLDSTEIN - HERMAGOR RAILWAY LINE, RENEWAL OF THE GAIL BRIDGE

**Client:** Austrian Railways Infrastructure AG
**Development Period:** 2017 to 2019

## THE PROJECT

The single-track railway line Arnoldstein - Hermagor branches off the Rudolfs Railway Line (Villach - Italy) in Arnoldstein and runs through the *Gail* valley via Hermagor to Kötschach-Mauthen. Currently, the complete infrastructure of this line is being renewed. This includes the electrification and the construction of modern stations, stops and park-and-ride systems.
In the course of the refurbishment, the 124 years old *Gail* Bridge was newly built. Since auxiliary construction measures were not possible in the river bed, the new bridge was prefabricated at the river bank and lifted to the final position as a whole. The exchange of the bridges had to be completed during a rail service interruption of three weeks.

## OUR FUNCTION

For this project, BGG Consult was put in charge of the geotechnical consulting during the design and construction phase. For this, underground investigations in form of core drillings, dynamic probings and soil mechanical laboratory tests were planned, supervised and evaluated. Based on these, a Geotechnical Expert's Report was prepared. Subsequently, our office accompanied the tender and construction design phases. This included, among other things, stability analyses in connection with the setting up of the heavy-duty crane and the placement of the bridge structures. During construction, an expert's supervision was done on site.

*Construction of the abutments below the existing structure:*
The abutments of the new bridge are situated next to the existing ones towards the river, within the axis of the track. This required a construction below the existing bridge. Lacustrine deposits with a thickness of several metres at the foundation level demanded a deep foundation within the underlaying quaternary gravel and sand and a coarse rockslide mass. Due to the limited working height, the foundation could not be accomplished with large-scale bored piles. Therefore, micro piles were used. Again, this method turned out to be challenging because of the high pore volume of the rockslide mass with regard to the high amount of required grouting material, despite of the use of fabric jackets.
A competent geotechnical supervision of the project during the whole design and building process has been crucial for a successful and timely completion of the project.

*Lifting the new bridge structure into position*