PROJECT REPORT

North portal

Brenner Base Tunnel Contract Section H21 Sill Gorge

Data and facts

Company	PORR Bau GmbH
Type	Tunneling, Steel construction
Runtime	08.2020 - 12.2024
Principal	Brenner Basistunnel BBT SE

Project report online

www.porr-group.com

PROJECT REPORT

Complex infrastructure project

Construction lot H21 Sill Gorge forms the northern portal of the Brenner Base Tunnel and connects Innsbruck Central Station with what will be the world's longest underground railway link. Over a stretch of around 600 metres between the southern end of the main railway station and the "Viller Berg" portal, as well as an adjoining tunnel section, PORR carried out a technically highly complex infrastructure project in an extremely sensitive environment. Nestled between the motorway, existing railway infrastructure, power stations and the unspoilt Sill Gorge, the challenge was to precisely coordinate a wide variety of structures whilst simultaneously meeting the highest standards of construction quality, logistics and environmental sustainability.

The construction project combined tunnelling, civil engineering, hydraulic engineering, specialised groundworks and landscaping into a holistic overall concept. The scope of the project included, amongst other things, three steel composite bridges, a cable-stayed bridge for pedestrians, a 132-metre-long tunnel constructed using the cut-and-cover method, two tunnel tubes driven using mining techniques, a retaining wall approximately 280 metres long on bored pile foundations, and extensive earthworks and hydraulic engineering works. The highest quality of exposed concrete was required for all visible structures, ensuring that the engineering works blend harmoniously into the Alpine landscape.

The geological conditions in the area of the "Viller Berg" tunnel portal proved particularly challenging. Unexpected rock formations necessitated a comprehensive adjustment to the excavation support system. Thanks to innovative solutions, detailed 3D borehole surveys and an optimised construction sequence model, the changed conditions were overcome without affecting the completion date. At the same time, numerous construction phases had to be coordinated in parallel, whilst work in the river area was only possible during the low-water winter months.

With around 37,500 m³ of concrete, 4,500 tonnes of reinforcing steel, 537 tonnes of steel structures and 306 bored piles with a total length of around 3,600 running metres, the H21 Sill Gorge construction lot ranks among the most significant infrastructure projects in Austrian tunnelling and civil engineering. At the same time, the course of the River Sill has been ecologically enhanced and the surrounding area sustainably developed through extensive renaturation measures. The on-schedule completion in December 2024 underlines PORR's expertise in the successful delivery of technically challenging large-scale projects in the fields of tunnelling and transport infrastructure.

Project in figures

- 36,500 m³ of concrete
- 4,000 t of reinforcing steel
- 537 t of steelwork
- 306 bored piles totalling 3,600 running metres
- 600 m of new track
- 130 m of tunnel constructed using the cut-and-cover method
- 3 composite steel bridges + 1 cable-stayed bridge
- 280 m bored pile retaining wall

Impressions

Image notes

1 General view of construction lot H21, Sill Gorge, Innsbruck

2 Harmonious integration of the tunnel portal into the landscape

3 Precision steelwork for the north portal of the Brenner Base Tunnel

Do you have questions about the project or would you like to learn more? Feel free to contact us for further information.

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