Constructing the new Pforzheim Tunnel

The historic Pforzheim Tunnel on the Karlsruhe–Mühlacker railway is around 900 m long and links communities in the Kämpfelbach Valley with the city of Pforzheim. The approach to Pforzheim’s main station begins directly after the railway exits the tunnel portal. The tunnel has been in use for more than 150 years and does not meet modern requirements, with track spacing of just 3.64 m. Once various options had been investigated, it was decided to decommission the existing tunnel and build a new, double-track tunnel. Principal construction began in August 2015, while the existing tunnel remained operational.

The new double-track bore is being dug alongside the current tunnel. It follows the requirements concerning track spacing and, in particular, complies with safety regulations and the specifications pertaining to emergency exit facilities. In addition, a base has been installed to seal the tunnel against groundwater. The new railway is being laid in the tunnel in the form of slab track. In the section near built-up areas of the city, a floating track system is intended to reduce noise and vibrations. The new tunnel is being constructed with a shotcrete lining using excavators, boring machinery and blasting. This involves cutting through solid rock for roughly 600 m and through loose rock and soil for around 300 m, protected by a pipe arch. This consists of several pipes arranged next to each other to provide greater stability.

To create the space necessary to construct the Ispringen approach, a 585 m stretch of the Königsbacher Landstrasse road was moved 15 m or so to the west, while still operational, and given a 7 m-wide carriageway and a 1.5 m-wide pavement. The junction with the Waisenrainweg road was also modified and a two-lane access road laid for the new emergency exit outlet.

Once the new tunnel has been commissioned, the old tunnel will be completely filled in. The existing track will be removed before this takes place. The material excavated to build the new tunnel is being stored and will be used to fill in the old tunnel.