PROJECT REPORT

Frankfurt a. M.
Central railway station Frankfurt am Main

Data and facts

Company	PORR Spezialtiefbau GmbH
Type	Underpinning
Runtime	01.2019 - 12.2021
Principal	Franz Kassecker GmbH, Waldsassen

Project report online

www.porr.de

DSV underpinning along a 400-metre section of tunnel

400-metre tunnel beneath the station

Two new underground ducts, up to 2.60 m deep, were constructed to accommodate the technical infrastructure. Each tunnel was approximately 400 m long and runs within the existing station grounds. Before new cables and technical installations could be fitted, the necessary conditions for the tunnel structures had to be created in the area of the existing foundations.

DSV underpinning along the entire route

The foundations of the adjacent existing structures did not extend deep enough into the subsoil to allow for the construction of the new tunnels. For this reason, underpinning using the jet grouting method (DSV) was employed along the entire length of the tunnel. The DSV structures were positioned on both sides of the tunnels and served to underpin the existing foundations. In some sections, additional DSV bases were constructed to connect the individual underpinning structures to one another and to reinforce them. The work was carried out in sections along the entire length of the tunnel and was adapted to the existing structural elements.

Work beneath the historic station building

The works took place within an existing station building. The existing building fabric, the building's current use as well as the limited space available determined how the works were carried out. In addition, the foundation works had to be coordinated with the existing foundation structures. As only limited existing documentation was available, individual work steps were adapted to the actual geometric conditions encountered on site. Consequently, the underpinning works and structural extensions were carried out within a transport structure that remained in use.

Complex underground site logistics

Accessibility to the construction site presented a particular challenge. The ground surface could only be reached after a distance of around 400 metres. Material transport, the movement of equipment and site operations therefore had to be organised along the tunnel route. The individual construction phases were co-ordinated with the other works taking place in the station. Step by step, the conditions for the installation of the new electrical systems were thus created.

The foundation for the technical infrastructure

Even before cable routes and technical installations could become operational, the tunnel structures and underpinning works for the new infrastructure were constructed beneath Frankfurt Central Station. The DSV underpinning works, the DSV base slabs and the construction work along the tunnel route laid the groundwork for the subsequent modernisation measures. This created a further section of Frankfurt Central Station's technical infrastructure beneath the station building.

Impressions

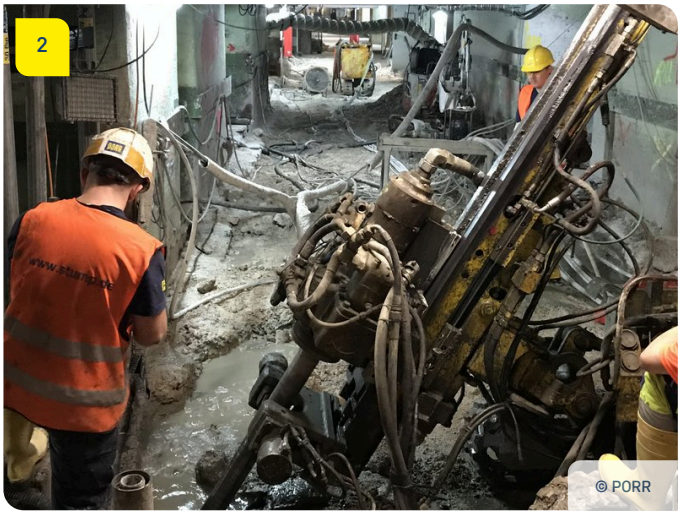

Image notes

1

Frankfurt, central railway station

Jet grouting site facilities in front of the railway station.

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2

The surface of the site could only be reached after 400 metres with electrically powered machines.

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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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