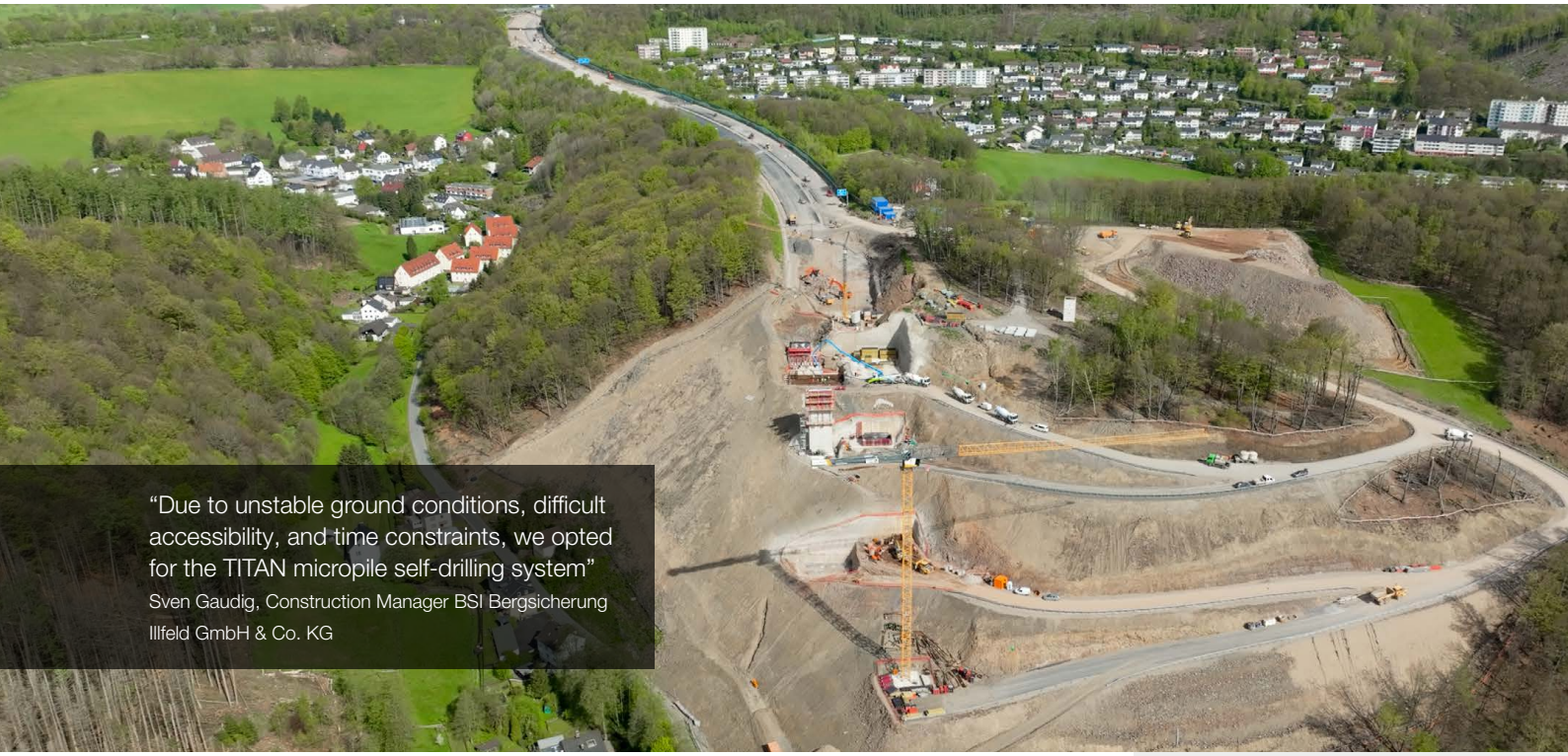
JOB REPORT

It stood before and will stand again: The Rahmede Valley Bridge of the A45

Temporary excavation support with TITAN micropiles



"Due to unstable ground conditions, difficult accessibility, and time constraints, we opted for the TITAN micropile self-drilling system"
Sven Gaudig, Construction Manager BSI Bergsicherung Illfeld GmbH & Co. KG

The Rahmede Valley Bridge along the A45 motorway, completed in 1968, spanned the Rahmede Valley and State Road 530, north of Lüdenscheid. In December 2021, it was permanently closed due to irreparable structural damage and eventually demolished on 7 May 2023.

The challenge

The new Rahmede Valley Bridge will be 453 metres long, 70 metres high, and 31.75 metres wide. The bridge superstructure will consist of two sections, one for each direction of travel, with a total of eight piers.

For the construction of each pier, eight excavation pits had to be created in challenging terrain, which required temporary support through anchored shotcrete walls.

The solution

In the early phase of the project, temporary safety measures, such as fences and debris barriers were necessary for the ground investigations. Due to the difficult accessibility and unstable ground conditions, TITAN micropiles from FRIEDR. ISCHEBECK GmbH (TITAN 40/16) were used to anchor the debris barriers and prevent rockfall.

During the subsequent construction of the bridge piers, more than 10,000 linear metres of TITAN micropiles (TITAN 30/11 and TITAN 40/16) were used for the temporary shotcrete support of the excavation pits. Sven Gaudig, Construction Manager at BSI Bergsicherung Illfeld GmbH & Co. KG, states: "Due to unstable ground conditions, difficult accessibility, and time constraints of this project, we opted for the TITAN micropile self-drilling system."

The installation of the system approved by the building authorities can be carried out in hard-to-reach areas using small equipment, which proved to be a significant advantage on the steep slopes of the Rahmede Valley.

The initial phase of the new bridge is expected to be completed by mid-2026, and vehicles will once again traverse the Rahmede Valley Bridge. It will stand again!

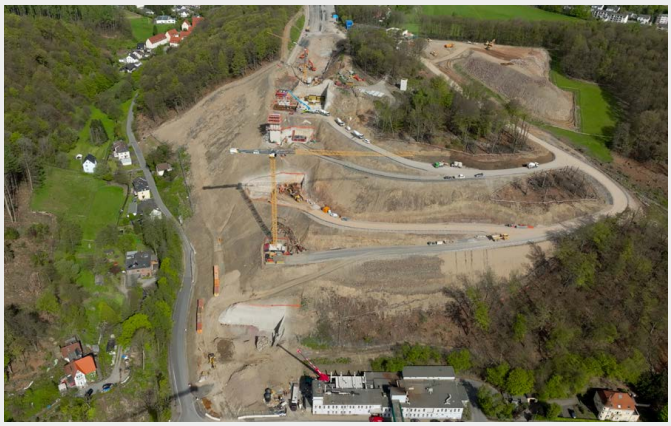
Project:
Temporary excavation support, Rahmede Valley Bridge, Lüdenscheid, Germany

Execution:
October 2023 - April 2024

Client:
Autobahn GmbH des Bundes, Westphalia Branch

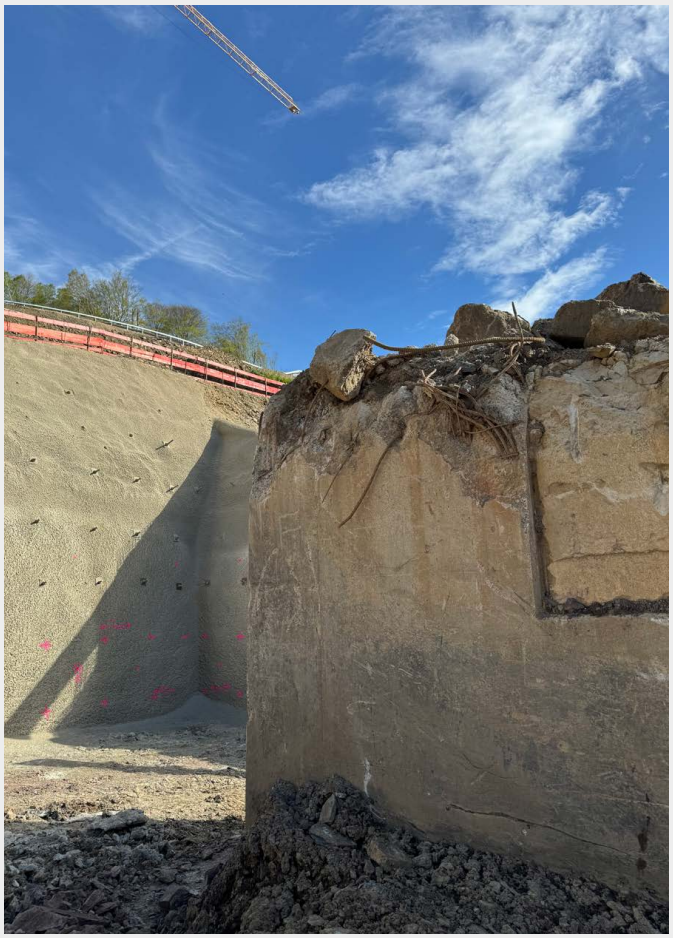
Contractors:
- SALMEN Fels-, Ingenieur- und Spezialtiefbau GmbH, Meschede (foundation and installation of debris barriers)
- BSI Bergsicherung Illfeld GmbH & Co. KG, Harztor (excavation support)

Products used:
- 450 TITAN 30/11 micropiles
- 2,950 TITAN 40/16 micropiles
- Carbide button drill bits

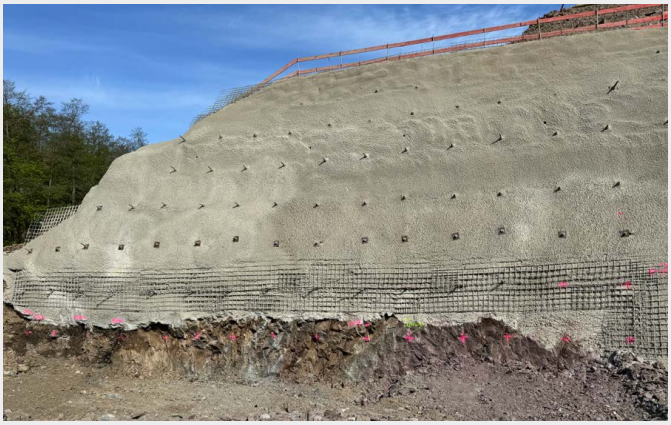


A view from above the large construction site, facing Dortmund

Shotcrete walls anchored with TITAN micropiles, protect the excavation pits for the bridge piers



Old and new: one of the old bridge piers still stands



TITAN micropiles and steel mesh with shotcrete

The self-drilling system was easily installed in difficult-to-access locations

Would you like to find out more about TITAN micropiles?
We would be happy to advise you about your project. Simply get in touch with us. We look forward to hearing from you.

FRIEDR. ISCHEBECK GMBH
Loher Str. 31–79 | DE-58256 Ennepetal | Phone +49 2333 8305-0 | www.ischebeck.com