

# Efficient Foundations: The New Östrich Bridge Takes Shape

Foundations of a bridge abutment with TITAN micropiles



The existing Östrich Bridge in Dorsten, built in 1954, crosses the Wesel-Datteln Canal and is of great importance for both public and agricultural transport. Due to irreparable damage, the old structure had to be taken out of service and replaced by a new modern structure. The new bridge will be built as a steel tied-arch bridge, around 350 metres west of the previous bridge.

## The challenge

As part of the project planning for the new construction, the original intention was to establish the abutments of the new bridge using bored piles. However, the logistical requirements for implementing this type of foundation were not met: the only access to the opposite bank of the canal was via the existing, damaged bridge. This was no longer suitable for transporting heavy drilling equipment, and therefore an alternative solution was required.

## The solution

Instead, the foundations of the bridge abutments were implemented using TITAN

micropiles. In June 2024, preliminary test piles were installed and tested successfully with loads applied up to 2200 kN. The design and construction of the micropiles was optimised based on these test results. A key advantage of this solution: Micropiles require significantly smaller drilling equipment that could be easily transported across the damaged bridge.

A total of 27 TITAN 103/51 micropiles, each 25 metres in length, were installed by Brunnen- & Spezialtiefbau GmbH & Co. KG, Borken. The foundation piles were installed both vertically and inclined at 30° to the vertical in order to resist both axial and lateral loads. Since there was soft clay soil in the first 6 metres of drilling, a 7-metre long steel pipe was pre-installed in advance as a protective measure due to the high loads and the risk of the micropiles buckling. The micropiles were then drilled through the inserted steel pipe with a cross cut drill bit into the underlying sandy soils. The new Östrich Bridge is due to be completed in 2026 and will enable road traffic to cross without any weight restrictions as well as improved passage for inland waterway transport.

## Project:

Foundations of a bridge over the Wesel-Datteln Canal in Dorsten, Germany

## Construction period:

February 2025

## Client:

Waterways and Shipping Office (WSA), West German Canals

## Contractor:

Brunnen- & Spezialtiefbau GmbH & Co. KG, Borken

## Products used:

- 27 TITAN 103/51 micropiles  
L = approx. 25.00 m
- Cross Cut Drill Bits



Vertical and inclined micropiles secure the abutment against compressive and horizontal forces.



The micropiles were designed to be in a grid pattern which optimised the load distribution



Installing a micropile with the TITAN self-drilling system; drilling and grouting are carried out in a single step

**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.