PROJECT REPORT

Tecklenburg
Exterheide viaduct

Data and facts

Company	PORR Spezialtiefbau GmbH
Type	Foundations
Runtime	07.2016 - 06.2017
Principal	Max Bögl Stiftung GmbH

Project report online

www.porr.de

Frankipile NG® for the replacement motorway bridge

Foundations for bridge piers and abutments

For the deep foundations, just under 600 Frankipiles NG® were installed in two construction phases. The piles have a diameter of 61 cm and were driven to depths of up to 20 m. The foundations serve to transfer the loads from the bridge piers and abutments of the new replacement structure. The previous bridge, dating from 1966, also had its foundation work carried out on Frankipile NG® piles.

Subsoil with varying soil conditions

The subsoil conditions at the site are characterised by different soil layers. Beneath the fill, clays and silts of varying consistencies were encountered. Below these lie load-bearing sands as well as semi-solid to solid marl clay. The Frankipiles NG® were driven into the load-bearing sands or the marl clay. In addition, groundwater conditions had to be taken into account, as the water was under tension in the area of the water-bearing sand layer.

Test piles and static load tests

Before the actual pile fabrication began, test piles were driven into both the sand and the marl clay. One month later, static load tests were carried out to verify the bearing capacity. The results served as the basis for the subsequent installation of the structural piles.

Dynamic load tests during construction

In addition to the static load tests, the bearing capacity of the structural piles was verified during construction. To this end, dynamic load tests were carried out at every second structural centreline. The tests served to monitor the foundation elements during the construction phase.

Supplementary subsoil improvement using CMC columns

CMC columns were also used in the area of one abutment. The work was carried out by BVT DYNIV®. The subsoil improvement complemented the foundation solution in the designated areas of the structure.

Foundation for the replacement of the Exterheide viaduct

Following completion of the work on the western bridge, traffic was diverted and the existing eastern bridge was subsequently subjected to dismantling. The second construction phase then began. By constructing the pile foundations, PORR special civil engineering laid the groundwork for the replacement of the Exterheide viaduct on the A1.

Impressions

Image notes

1 In zwei Bauabschnitten werden knapp 600 FRANKIPFÄHLE NG® hergestellt.

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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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