PROJECT REPORT

Berlin
ABC Tower

Data and facts

Company	PORR Spezialtiefbau GmbH, pde Integrale Planung GmbH
Type	Foundations, Sealing slabs, Turnkey construction pits, Building preparation, General planning
Runtime	08.2019 - 09.2021
Principal	MonArch Dritte Projektentwicklungsgesellschaft mbH & CO. KG

Project report online

www.porr.de

Construction pit completed for the

tallest residential building in Berlin

Hemmed in by Alexanderstrasse, the Gruner Tunnel and the Alexa shopping centre, the ABC Tower construction pit is one of the most exciting projects to be tackled by specialist civil engineering company PORR Spezialtiefbau. A relatively slender tower has been planned for the 60 x 25m site. The construction pit descends 21m into the ground, to allow for 4 basement floors that will house the building technology and provide additional space for tenants' use. The fourth basement floor provides access to the adjacent underground parking garage of the Alexa mall.

Challenges presented by geology, geography and time

The high groundwater level prevalent in Berlin, sandy soil and a necessarily narrow construction pit, restricted by the busy Alexanderstrasse, Gruner Strasse and the Gruner Tunnel, presented major challenges for the specialist civil engineering team. Just 1,800 lorry loads were required to remove 27,000m³ of excavated material for the construction pit. In this narrow, inner-city construction pit, logistical challenges had to be factored into every detail of the execution planning for the project.

The future high-rise's stability is ensured by a floor slab up to 4m thick in combination with 44 large-diameter bored piles, each measuring 1.2m across, and an in-situ concrete diaphragm wall up to 40m in depth. Given the conditions on site, this represents an outstandingly economical and secure solution. Combined plate-pile foundations are particularly suitable for taller structures located on soft or settlement-prone soil types.

The waterproof trough was constructed as an in-situ concrete diaphragm wall extending up to 40m into the soil, in combination with a deep-anchored, medium-height jet-grouted floor between 2m and 4m thick. The anchoring comprised 230 micropiles bored to depths of up to 45m. These micropiles will also serve to anchor the base plate after the groundwater control system is switched off. The construction pit walls are supported by a double-layer steel reinforcing structure with pipe diameters up to 1,200mm.

General planning by PORR

PORR subsidiary pde Integrale Planung GmbH was awarded the contract for general planning, sustainability and construction preparation as well as the execution planning for the tower.

Impressions

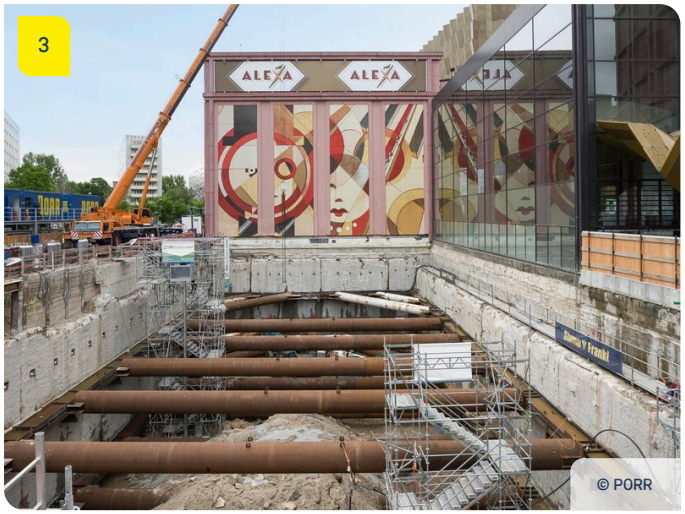

Image notes

1

ABC-Tower, Berlin

At Alexanderplatz in Berlin, special civil engineering has completed the construction pit for Berlin's tallest skyscraper: The ABC Tower.

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The high groundwater level in Berlin, the sandy soil and the narrow inner-city construction pits made the special civil engineering measures a major challenge.

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ABC-Tower, Berlin

View into the construction pits: The future high-rise building will be given stability by an almost 4 m thick floor slab in combination with 44 large bored piles and the up to 40 m deep in-situ concrete diaphragm wall.

4

ABC-Tower, Berlin

With a total depth of 21 metres, the construction pit offers space for 4 basement floors. On the 4th basement level, there will be a transition to the adjacent, already existing underground car park of the Alexa Mall.

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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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