

The Multi Service Group.



Europakai

Hamburg, Germany



The extension of the Europakai was needed to secure Hamburg's position as Germany's most important container port for ocean-going vessels. Since modern Container vessels have a draught of 15 m and require quay lengths of over 300 m, the existing quay wall was extended by 330 m.

The quay wall was raised 22.1 m above the harbor ground, which was more than 5 m above normal river water level. Bilfinger Berger's subsidiary F+Z from Hamburg proposed a value engineering design, based on a driven sheet pile wall covered by a cast in-situ reinforced concrete deck. The 21 m wide deck with its 18 m crane tracks is founded on fender piles, the sheet pile wall, driven concrete piles and bored displacement piles.

The sheet pile wall is tied back with 44 m long battered piles. Furthermore the wall is slightly inclined (10:1) to reduce the water impact generated by ship propellers and bow thrusters and to prevent erosion at the foot of the sheet pile wall.

F+Z's own jack-up barge in combination with a specially designed hydraulic driving template was used to guarantee required tight installation tolerances for sheet pile driving independently from any tidal movements. Pre-drilling of relief holes between the sheet's webs into the very hard clay allowed a faster and more accurate sheet pile installation.

To monitor deformations during the extensive sand-filling operation, selected battered piles were fitted with strain gauges and inclinometer tubes.

Quantities:

1,000,000 m³ Sandfill

330 m Inclined, Driven Sheet Pile Wall (up to 30 m long)

44 m long Battered Driven Piles

Contract Value (net):

11 Mio EURO

Construction Period:

09/1996 – 04/1998

Client:

City of Hamburg

Germany

Services:

Driven Piles

Contact:

F+Z Baugesellschaft mbH

Kanalstraße 44

22085 Hamburg

GERMANY

Tel.: +49-40-227247-0

Fax: +49-40-227247-24

www.fz-bau.de