Crown Dock

Hull

Anchors were required to provide stability to a new sheet piled wall at Crown Dock, Hull.

The project

Due to years of corrosion, the existing sheet piled wall needed to be reinforced. BMMJV designed a new sheet piled wall, but the design required anchors to take 440kN axial loading and the alluvial soils were soft clays and loose sands, overlying firm clays. Typical anchors would not generate the load required, so Keller elected to use their SBMA anchors which allows multiple anchors to be installed in the same bore. Keller's design consisted of a five stage SBMA with 5 No. 3m fixed lengths and minimum 15m free length (30.5m overall length). All anchors were tested to 660kN.

The challenge

Access to drill the bores was hampered by the requirement to keep the waterway open to traffic, so a crawler based rig from a jack up barge was excluded, and on land dipper style rigs could not the used due to the buildings at the anchor locations. Tides also affected the access times and Keller had to work around them.

The solution

Keller developed a bespoke “Mast Off” A frame mounted mast to drill the 30.5m long anchors, which were bolted to a hanging platform (suspended form the sheet piles) and the sheet piles themselves. A electrically operated hoist was developed to eliminate manual handling of the drilling equipment.

Project facts

Owner(s)
Port of Hull

Keller business unit(s)
Keller UK

Main contractor(s)
BMMJV (BAM Nuttall/Mott Macdonald)

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