

## Dormac - Dock Quay

KwaZulu-Natal, South Africa

Construction of a quay wall for marine engineering company Dormac's new floating dock at their marine works facility in KwaZulu-Natal.



### The project

A new facility to dock a floating dock was required with 12.5m CD water depth. This required dredging of 90000m<sup>3</sup> and the construction of a 185m quay wall.

Additional works incorporated the closing in of an unused slipway and earthworks, paving and revetment works.

## The challenge

Working on the edge of the Durban Harbour and hence being exposed to tidal conditions and to the "moods" of the ocean was one of the challenges faced. Accommodating the tides, the crew worked around the clock and laid down a high-spec working platform for the piling rigs. This was an exacting job but when it was complete we were able to work without the risk of tidal inundation.

Another challenge was the positioning and tolerance of the piles in relation to the jet grout columns. It was critical to get the positioning spot on to ensure a vertical face to the quay wall. Our works department came up with a very innovative idea to manufacture custom-built guides and frames to assist us in positioning the piles in accordance with the fine tolerances.

The works had to be carried out in a shortened contract period in a very confined construction site. Dredging works had to be co-ordinated with quay wall and peripheral works to prevent interference.

## The solution

The quay wall construction was shortened with the method used and then accelerated further by using high specification guides.

Scope of works included: 171 x 900mm diameter CFA piles 24m deep; 171 x 1200mm diameter jet grout columns 16m deep; 65 x 63mm steel tie bars, which had to be fixed to various deadman anchors incorporating pairs of 900mm x 10m CFA piles, existing slipway retaining walls and existing reinforced concrete slabs; and a 180m long x 5m high quay wall capping beam.

A challenging yet successful aspect of the job was the construction of the 3m deep reinforced capping beam incorporating the tie bars, and the hanging of the precast fender panels, creating an aesthetically pleasing and erosion-resistant face to the quay wall.

## Project facts

### Owner(s)

Dormac

### Keller business unit(s)

Keller South Africa

### Main contractor(s)

Franki Geotechnical (Pty) Ltd.

### Solutions

Marine structures

### Markets

Infrastructure

### Techniques

CFA piles (auger cast)

Jet grouting

### Email address

[info.za@keller.com](mailto:info.za@keller.com)