

Jebel Ali Terminal 4, Phase 1

In December 2013 a joint venture of BAM International and BAM Contractors (BAM) has been awarded the design and construct contract for the Terminal phase 1 extension of the Jebel Ali port in Dubai, UAE. The contract comprises a 500m long Quay Wall, a 2.7 km causeway towards the offshore harbour facility and a 440m long Bridge as part of the causeway. DMC conducted the design of the quay wall, causeway and revetments as well as various hydrodynamic and environmental studies.

Main client

DP World

Client

BAM International and BAM Contractors JV

Type of contract

Design & Construct

Completion

2014 (design)

Location

Jebel Ali, Dubai, UAE

Construction costs

100 mio USD

Consultancy Fees

Category 5 (see page 2)

Services

Detailed design

Scope

Design of general cargo Quay,
access causeway and bridge



Jebel Ali Terminal 4, Phase 1

Project description

The Jebel Ali Terminal 4, Phase 1, is located opposite to the operational container Terminal 2, in the vicinity of a LNG import terminal and the shipping fairway to Jebel Ali. Part of the design comprises a 500m long quay wall, the bottom level in front of the quay wall is at -18.0m DMD with a top level at +4.1m. The quay has been designed to accommodate ULCV's in the future.

Terminal 4 is situated in the lee of an existing reclamation. At the eastside a new breakwater will be constructed. This breakwater is connected to the shore by a 440m long Bridge to ensure that the water quality (temperature and salinity) at neighbouring intake and outfall structures is not adversely affected. The Bridge is part of an access road that runs from Terminal 2 over the access corridor to the new Terminal 4. The existing detached breakwater north of the DUSUP LNG Terminal as well as the small jetty facilities east of the planned quay wall have been partly removed.

Scope of work

DMC's scope comprised the overall design management, technical studies, quay wall design, causeway design and bridge detailed design drafting.

The quay wall consisted of a block wall with an effective quay length of 500m. Design has been done with in-house developed software BlockWall. The quay wall was designed such that it could be easily extended for future development. The quay wall can accommodate future ULCV up to 18.000 TEU.

The bridge will be part of the causeway with an approximate total length of 2,420m. The 440m, dual Carriageway Bridge will be founded on rock foundations. The gravity piers significantly reduce the interface with buried gas lines from the LNG facility. The piers will be located at 40m intervals which promotes water flow through the port.

The revetment consists of rock armoured slopes on either side of the causeway. The required rock armour varied along the causeway from 4-6 ton at the northern section to 0.3-1 ton towards the shore line on the southern section.

DMC conducted several environmental studies using Mike21 software to determine design conditions in the harbour basin and along the outer revetment of the causeway. Other studies comprised mooring and berthing studies and design of the navigational aids.

Consultancy Fees: 1: 50.000€ 2: 50 - 150.000€ 3: 150 - 300.000€ 4: 300 - 600.000€ 5: > 600.000€

