

# Maritime work

Diaphragm wall - Piles - Earthworks - Ground anchors - Civil Engineering  
Sheet piles - Dredging

## SAFINA DRY DOCK - HYDROLIFT

DUBAI - UNITED ARAB EMIRATES



### Design and build of a launching facility



*Launching facility completed*

The Dubai Drydocks naval shipyard has extended its capacities by commissioning a hydrolift for the construction and repair of floating equipment. This structure was entirely completed by Solétanche Bachy acting as the main contractor under a design and build contract.

#### Design

The launching facility acts as a lift between sea level and the dock water level. It enables the vessel to be moved vertically

CLIENT:	DUBAI DRYDOCKS
SUPERVISING ENGINEER:	ROYAL HASKONING
DESIGN AND BUILD:	SOLETANCHE BACHY / NSCC JOINT VENTURE
DURATION OF WORKS:	11 MONTHS (2005/2006)

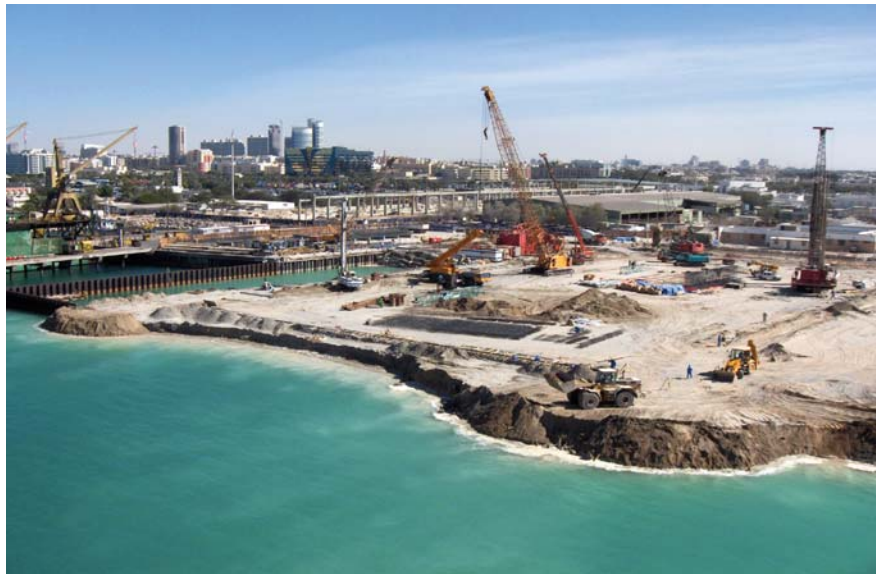
#### WORKS PERFORMED:

- Diaphragm walls: 17,000m<sup>2</sup>
- Concrete: 36,000m<sup>3</sup>
- Steel: 4,000t
- Piles, bridging elements and props: 1,300t
- CFA (continuous flight auger) and LDA (large diameter auger) piles: 500u

and horizontally and acts like a slipway but incorporating a reverse hydraulic process.

The structure comprises:

- one transfer platform (70m x 170m), set above sea level;
- a harbour basin (65m x 135m) that opens out to the sea;
- two abutments and a sill between, which support the 65m sea gate;
- one quay platform measuring 27m x 89m, which houses the pumping plant;
- two gates: a seaward caisson type gate and a landward modular gate;
- two mooring dolphins.



Global view of the site during works

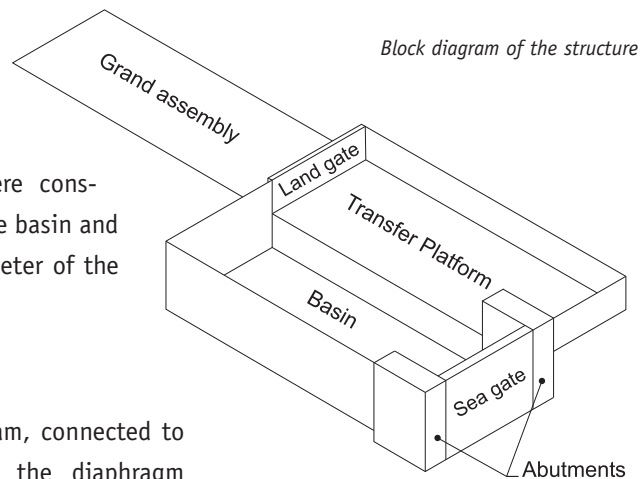
The conforming design envisaged sheet pile wall held by ground anchors to form the basin.

Solétanche Bachy came up with an alternative solution that replaces the sheet piles with diaphragm walls. The diaphragm wall was mostly cantilever and was constructed with T panels. The wall along the transfer platform was constructed using flat panels.

land construction of the diaphragm walls and pile installation.

Diaphragm walls were constructed all around the basin and also along the perimeter of the two abutments.

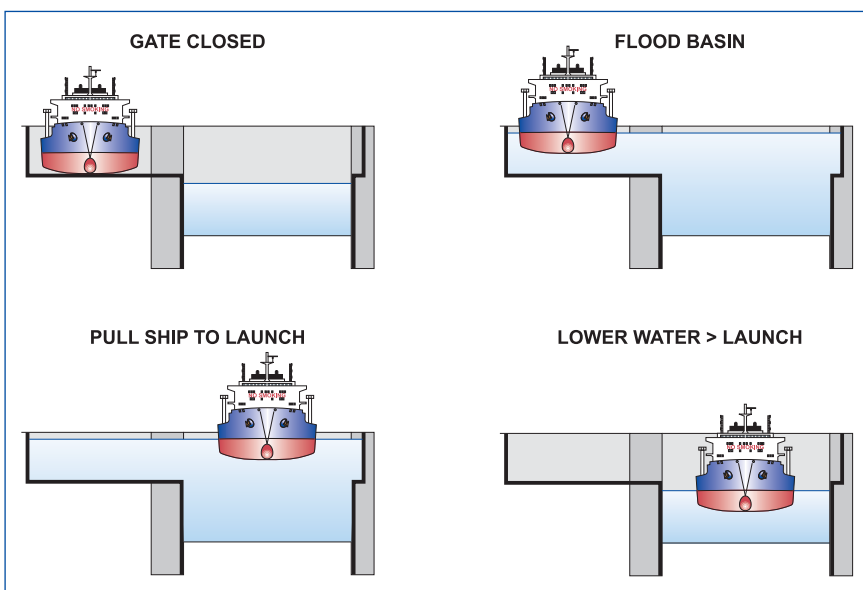
A sheet pile cofferdam, connected to cast-in clutches in the diaphragm wall, was constructed between the abutments, to allow the construction



Block diagram of the structure

### Construction

300,000m<sup>3</sup> of sand was first brought in to make a working platform for the



Schematic of the wet dock

of the sill and the abutments in the dry. The sill was founded on barrettes and concrete piles.

Dewatering of the sill and abutments was achieved with 10 deep wells. All works were done in the dry. Cast-in couplers were used to connect the diaphragm wall to the abutment structure.

Leaving a bund at the sea end allowed the basin excavation in the dry. Dredging to final depth was then carried out inside of the basin. The transfer platform is founded on CFA piles.