

Maritime work

Diaphragm wall - Rigid inclusions - Barrettes - Anchors
Civil engineering - Monitoring

McDERMOTT TERMINAL

ALTAMIRA - STATE OF TAMAULIPAS - MEXICO



Construction of a terminal for constructing and launching offshore oil platforms



Aerial view of the worksite

Cimesa, a Soletanche Bachy subsidiary, was assigned the execution of the McDermott Terminal in Altamira. This terminal is intended for the fabrication and launching of offshore oil platforms with a maximum weight of 10,000t. The works include the construction of a quay diaphragm wall, soil improvement by rigid inclusions, and the foundations and civil engineering works for the two launch structures.

OWNER:	J. RAY McDERMOTT DE MÉXICO
GENERAL CONTRACTOR:	CIMESA - SOLETANCHE BACHY
INSPECTION BODY:	GEOGRUPO
WORK PERIOD:	2007 - 2009

MAIN QUANTITIES:

- Diaphragm wall: (1.0m thick): 6,900m²
- Anchors: 126 units (4 492m)
- Rigid inclusions (diam. of 0.4m, depth of 20m): 882 units
- Barrettes (2.7 x 0.8m, depth of 20m): 220 units

The terminal consists of:

- Two 200 linear metre fabrication and launch structures (Corredera 1 and Corredera 2). Each Corredera has three reinforced concrete beams founded on pairs of barrettes.

- Two structures called Cabeceras, built at the end of each Corredera; they consist of reinforced concrete blocks that are 2.5m high and have a surface area of 15 x 24.3m, founded on barrettes. This very sturdy structure was built because of the major loads created by the platforms when they are launched.

- A 300 linear metre quay made of diaphragm wall (1m thick and 22m deep). Stabilisation of the diaphragm wall in the typical section is based on a level of permanent ground anchors embedded into the head of the diaphragm wall. Stabilisation of the Cabecera (headwall) section of the diaphragm wall is ensured by the Cabecera itself as well as by the beams of the Correderas (slipways) which act as passive anchors.

Works phasing

- Creation of a work platform.
- Construction of the diaphragm wall for the quay.
- Construction of the rigid inclusions (bored using a Starsol conti-



View of the terminal in October 2008. Platforms being fabricated are visible on the two Correderas.

nuous flight auger) at the rear of the diaphragm wall, across a 14m-wide strip in order to limit the side pressures on the diaphragm wall and to avoid having the free length of the anchors being adversely affected by consolidation of the clay due to the new load exerted by the fill.

- Drilling and fitting the final high-capacity ground anchors.
- Construction of the capping beam.
- Tensioning of the ground anchors.
- Construction of the distribution layer over the rigid inclusions.
- Construction of the barrettes,

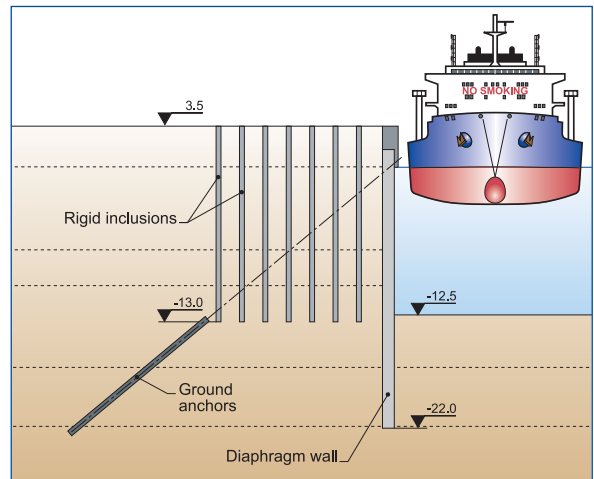
excavated using a hydraulic grab.

- Construction of the concrete beams for the Correderas.
- Construction of the concrete blocks for the Cabeceras.
- Placement of the metal plates used as the sliding surface.

Control units were placed on 11 ground anchors in order to monitor changes in the load over time. Inclinometers were placed in the diaphragm wall in order to monitor displacement of it during works and after completion.



Drilling and fitting the ground anchors



General cutaway view of the typical section