

**SILTATION REDUCTION WORKS PETRONET LNG
KOCHI, INDIA**

COASTAL PROTECTION

Product: MacTube® , MacBag®

Problem

The Petronet LNG Ltd. Terminal at Puthuvypeen, Kochi, has a capacity of 5MT p/a to meet the great demand for natural gas power, fertilizers, petrochemicals and various other industries in the southern states of India. The LNG terminal is in an estuary where the Periyar River flows into the sea.

Repetitive dredging has been required to maintain access to the import/export trestle due to the ongoing accumulation of large amounts of silt. This maintenance commitment was starting to restrict the use of the trestle. A solution was required which:

- Protected the beach from erosion
- Reduced siltation at the LNG trestle
- Reduced siltation in the LNG Basin

Solution

Beach erosion was progressively removing the toe of the beach and a bund was proposed to protect it. MacTubes® were installed along the beach toe to replace the eroded volume, and also to provide erosion protection for the future. The tubes were filled with pumped slurried sand; the water component drains through the walls of the tube leaving the sand contained within the MacTube®. The beach could then be replenished behind this new protection system.

To address the siltation at the LNG trestle, a MacTube® groyne was installed approximately perpendicular to the shoreline. This interrupted the movement of silt towards the trestle, encouraging deposition away from the trestle.

To provide a long term solution for reducing siltation in the LNG basin, Maccaferri MacTubes® and MacBags® were used to extend the existing rubble mound breakwater towards the sea by approximately 500m. The breakwater was installed in a water depth of 1m near to the shore and 3.5m depth at its seaward end.

The protection bund and onshore groyne were straightforward to install due to their location. However, the breakwater structure is in the wave breaking zone, complicating the installation. An experienced team of four divers worked at the change of the tides to install the geotextile tubes with the aid of a hydraulic pumping systems. This limited the time available for construction.

For the offshore structures, the MacTubes® were floated into position using a pontoon and then filled insitu with pumped slurried sands.

Client:

PETRONET LNG LTD

Main contractor:

MACCAFERRI ENVIRONMENTAL SOLUTIONS PVT

Products used:

MACTUBE®, MACBAG®

Date of construction

JANUARY 2015



Deployment of MacTube® for the beach protection bund



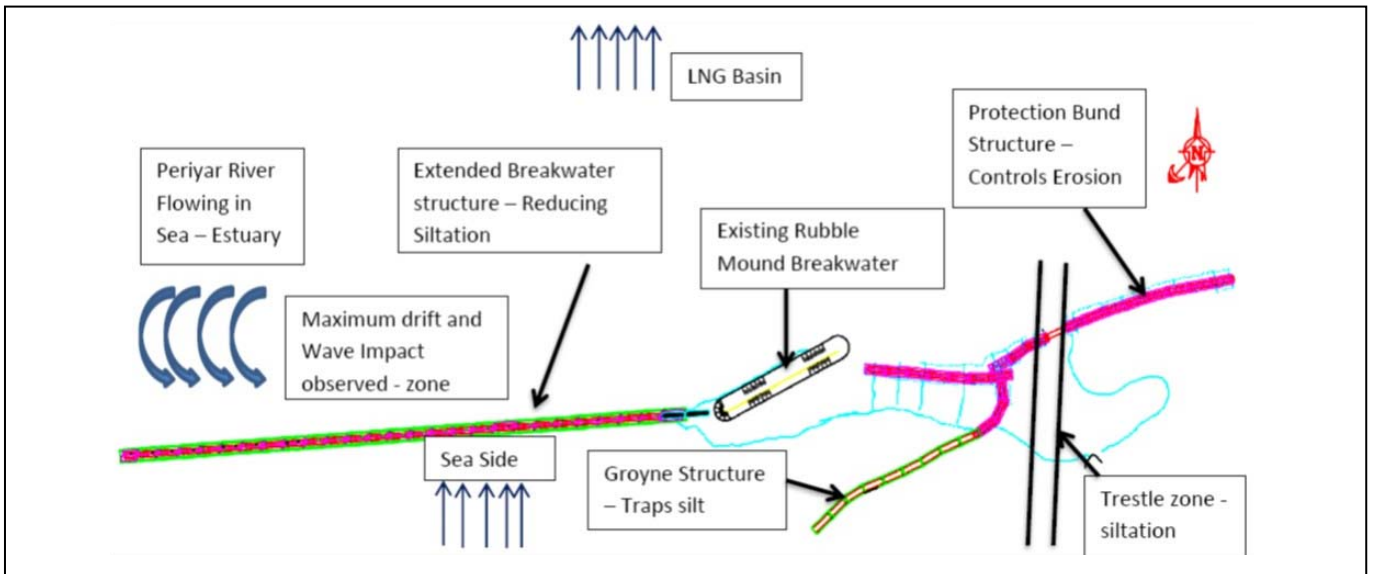
Protection bund nearing completion awaiting backfilling



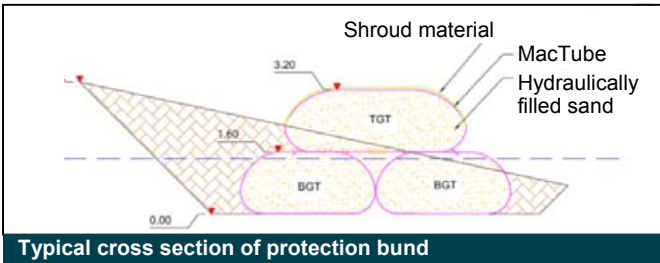
After construction of 500 m long protection bund structure



Groyne after construction



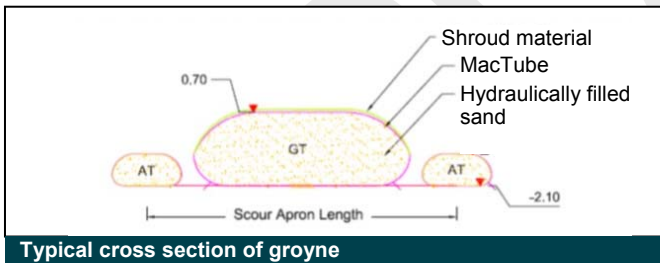
Plan of the project



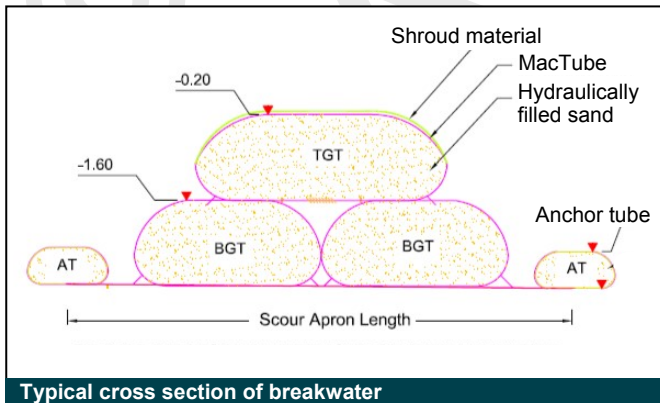
Typical cross section of protection bund



Transfer of tubes into the sea using pontoons



Typical cross section of groyne



Typical cross section of breakwater



During construction of breakwater

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