

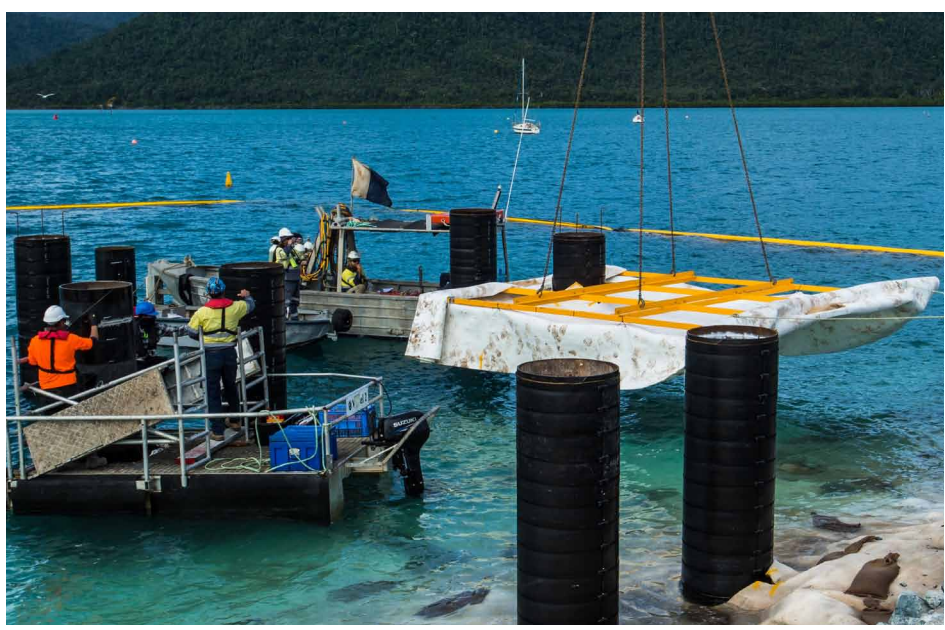
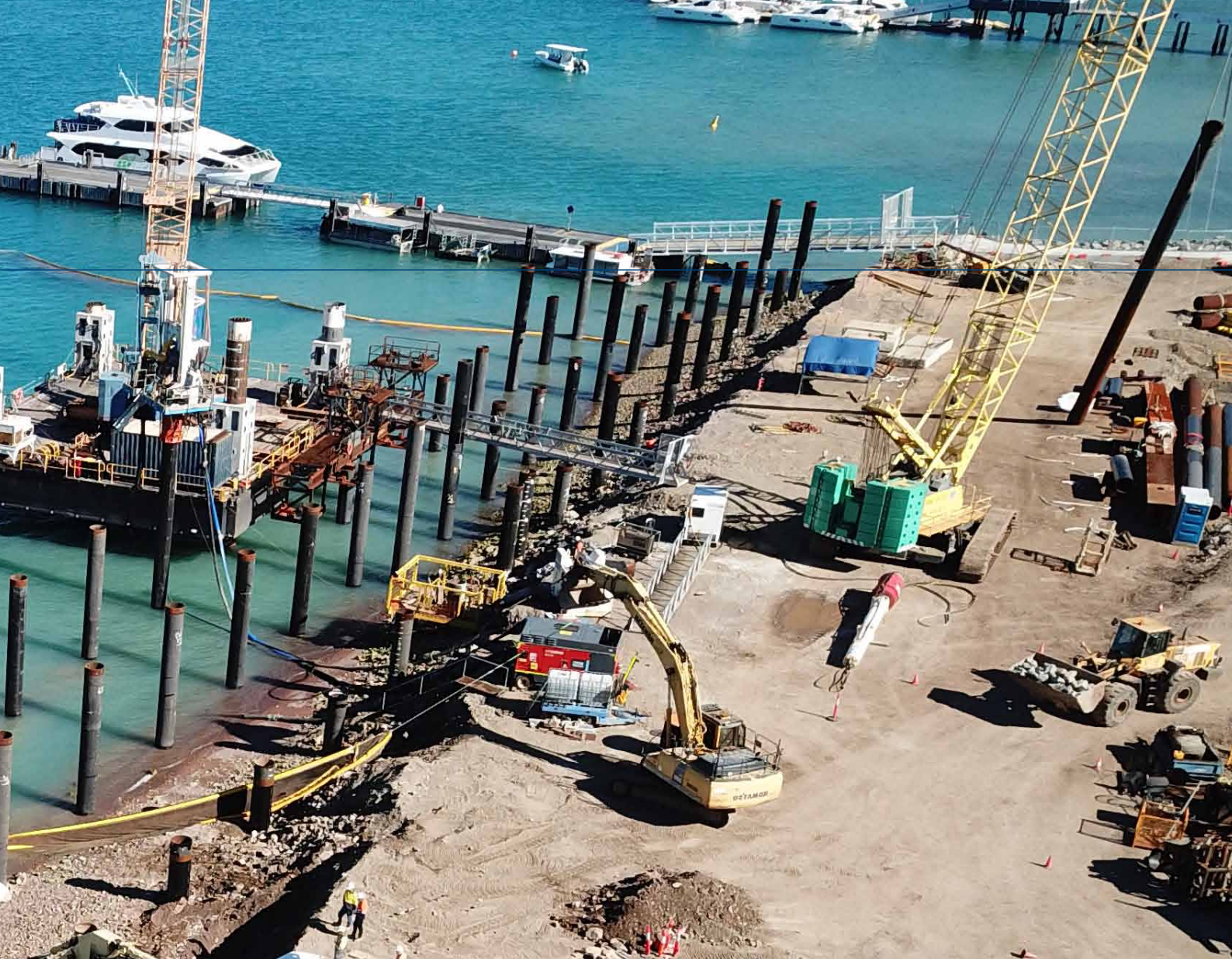
## Shute Harbour Jetty Revetment Works



# SHUTE HARBOUR JETTY REVETMENT WORKS

In a first of its kind application in Australia customized panels of Mirafi® PET2000/100 geotextiles were installed as reinforcement under a rock armour revetment to accommodate differential revetment subgrade settlements and anticipated hydraulic and storm surge demands. The design required specially fabricated geotextile panels that were required to be positively connected together to be installed down the revetment and along the seabed.

Panel profiles had to accommodate piles supporting a concrete platform along the entire seawall length without exerting lateral pressure on the piles.



Heavy duty nonwoven geotextile being lowered over the pile as a cap closure round the pile to prevent upward silt migration contaminating the revetment stone



# RESTORATION UNDERWAY

Shute Harbour is an important logistical gateway to the offshore Whitsunday Island hotels and Great Barrier Reef off Airlie Beach in northern Queensland, Australia. In late March 2017 the area was decimated by Cyclone Debbie and Shute Harbour suffered major damage.

As part of ongoing reconstruction works a major redesign and reconstruction of the seawall and jetties was undertaken.

The design required construction of a rock armour revetment with piles supporting a concrete jetty. Extremely soft seabed conditions beneath the toe supporting the revetment required the revetment and toe to be reinforced and supported by a 2000kN/m high tenacity PET geotextile that was designed to perform as a reinforced tension membrane below the toe rock and displaced seabed mud.

Varied soil conditions along the length of the revetment required the geotextile be positively connected and meet stipulated connection strengths.





Layout plan of revetment with fabricated Mirafi® PET2000/100 kN/m customized panels

# INNOVATIVE SOLUTION

To accommodate these requirements TenCate proposed supply of specially fabricated Mirafi® PET 2000/100 kN/m panels, each customized in length and profile to ensure tension on the fabric would not exert lateral stress on the piles as the fabric was stressed by the weight of the toe rock as it absorbed and neutralized the seabed settlement below the toe.

Individual panels were designed and fabricated with an innovative interconnected loop system designed to facilitate a positive connection between panels that met the transfer strength specified by the consultant in a form that could be connected both above and below water.

This was achieved through a series of video dialogue with the contractor and consulting engineer and pre-delivery testing to ensure the solutions proposed would meet the specified technical requirements and the contractor's installation plan.

Each panel delivered to site was specifically sized and custom fabricated according to the laydown design schedule. Delivery of the panels were scheduled and loaded in such a way that the first panel unloaded on site was the first panel installed and subsequent panels similarly sequenced.

Aside from interruptions by a saltwater crocodile and a hammerhead shark intent on inspecting the underwater works installation proceeded as planned.

TenCate develops and produces quality products that increase performance, reduce cost, and deliver measurable results by working with our customers to provide advanced solutions.

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