CASE STUDY: BRIGHTON BEACH GROYNES - UPDATE

BRIGHTON, SOUTH AUSTRALIA FEBRUARY 2017

CLIENT: CITY OF HOLDFAST BAY

ELCOROCK®

The ELCOROCK system consists of sandfilled geotextile containers built to form a stabilising, defensive barrier against coastal erosion.

The robustness and stability of Elcorock geotextile containers provide a solutions for other marine structures such as groynes and breakwaters. These structures extend out into the wave zone and provide marina and beach protection, sand movement control and river training. The size of the container can easily be selected based on the wave climate and other conditions ensuring stability under the most extreme conditions.

Elcorock vandal deterrent containers have a soft finish and the ability to blend into the existing environment creating a more visually acceptable, amenable structure. Adelaide's beaches are affected by a common phenomenon called longshore drift - the flow of water, in one direction, along a beach occurring as a result of winds and currents. In Adelaide longshore drift flows from south to north and it frequently erodes beaches over time, particularly during storm events when tides are high and sea is rough.

Without sand replenishment, the southern end of Adelaide's beaches will slowly erode and undermine existing infrastructure at the sea/land interface. The objective of Elcorock sand container groynes, laid perpendicular to the beach, is to capture some of the natural sand as well as dredged sand, that moves along the coast. Over time, this process builds up the beach, particularly between the groynes which results in the protection of the existing infrastructure.

Geofabrics met with the city of Holdfast Bay in the early stages of the project to discuss the product, durability and previous projects with a similar application. Due to recent weather events, the beach erosion was extensive and public pressure extreme. The city was therefore keen to accelerate installation to reduce risk of further damage to existing an rock revetment and the adjacent road.

The Elcorock coastal erosion system was selected due to its aesthetic appeal (in comparison to rock groynes), and its relatively low cost installation cost. The fill material was also able to be sourced directly from the beach.



> Brighton Beach Groynes



17/11/18 – 18 months after construction. Considerable sand build up shown to the south of the two groynes.



6/1/17 - prior to groyne construction. The beach is very narrow and the public were rarely able to use the beach.



6/4/17 - two months after groyne construction. Sand beginning to build up naturally around the groynes.

The two groynes were approximately 30 m long and spaced 50 m apart. Each groyne was made of 50, 2.5 m³ Elcorock sand containers.

Geofabrics provided guidance in both planning and installation stages, offering guidance on installation times and process. Geofabrics also assisted onsite during the initial two days of installation to ensure the bags were filled and installed correctly.

Since the Elcorock groynes were installed in February 2017 there has been significant build up of sand along Brighton Beach. Initially, the public were hesitant to back the groynes, likely due to lack of experience with these systems, however since construction the council have said that there have been no complaints. Many have become advocates of soft groyne fields and are lobbying government for more Elcorock groynes along Adelaide beaches.

Council also recently confirmed that members of the public were unable to walk along the beach at high tide prior to the groynes being installed. However since then, the beach has remained at a consistent high level to allow for year round use by the public.

Due to the immediate impact and success of the first two groynes in 2017, two more groynes were constructed in Feb 2019 continuing the groyne field at a 100m spacing with another two currently being constructed in November 2019. The plan is to construct another three, totalling nine groynes across a 900 m length of the beach to the north of the Brighton Jetty.



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