

Coastal CASE STUDY: Keeping sand in its rightful place

The use of sand-filled geo-synthetic containers in marine structures is a relatively new science.

However much experience has been gained since the mid-1980s from estuarine and open coastal installations along the New Zealand and Australian coastlines.

At Waihi Beach in the Bay of Plenty, a problem with the fluctuating directional flow of the stream outfall was causing erosion of the beach area. This was having a detrimental effect on both residential properties to the south and the Waihi Surf Club to the north.

Installing two 1.2m diameter sand-filled tubes manufactured from Terrafix 1200R has successfully stopped the erosion to both boundaries and has allowed the build-up and retention of sand. The success of the project led to a further section of sand tube being installed at the south end of the beach.

On the shore esplanade at McMillan Reserve, Katikati, damage from wave action called for extra protection from more than 150m of 1.2m diameter sand-filled tubes to provide a "soft" solution for the problem of beach access. As planned, sand is now building up in front of the tubes, solving an ongoing problem.

At Port Motueka, Nelson - to offset the need for ongoing dredging of the channel - sand deflection groyne tubes were installed, manufactured from a composite 150kN/m woven inner fabric and a non-woven outer layer. A total of 750m of 1.55m diameter tubes were put in place, with around 40% installed under water. The structure has been providing a sand barrier since 1995 and ongoing inspections have shown no sign of the tubes degrading.

In areas where the tube is in the tidal water zone, the geotextile fabric has provided an ideal surface for colonisation by marine growth.

These projects and others have provided Maccaferri NZ and the manufacturer of the Terrafix material, Soil Filters Australia with significant experience in the use of geosynthetic sand tubes during the past 15 years. For further information on coastal and erosion protection works, contact Maccaferri NZ on 0800 606020.



At Waihi Beach, sand tubes were used to protect residential properties and the surf club.



At Port Motueka, sand deflection groyne tubes were used to stop sand build-up in the channel.

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