

## WAIHI BEACH THREE MILE CREEK GROyne WAIHI BEACH

### COASTAL EROSION PROTECTION GROyne

#### Products: ELCOROCK Containers

#### Problem

Stormwater runoff at the mouth of Three Mile Creek has been a major cause of erosion of the frontal dunes and foreshore encroaching into the Western Bay of Plenty District Council reserve area and private properties along the beach. Previous erosion protection methods along the creek had now exceeded their useful life and were considered to be in a state of disrepair. After researching the problem it was decided that the most effective solution would be to construct training groyne to direct the flow of water seaward of the dunes reducing the erosion around the mouth of the creek.

#### Solution

ELCOROCK was chosen as the best solution as it was seen as a "soft engineering" option - environmentally and user friendly while being extremely robust to withstand the harsh abrasive conditions found in a coastal environment. An additional advantage was the use was in-situ sands with ELCOROCK reducing the likelihood of contamination of the beach from imported material. Specialised filling equipment, consisting of a Hopper system with J-Bin filling and lifting attachments were supplied by Maccaferri NZ Ltd to assist the contractor in achieving a consistent and attractive finish. ELCOROCK is manufactured from a specially designed vandal deterrent geotextile that has the ability to trap up to 4kg of sand per square meter improving the abrasive resistance of the structure as well as the resistance to UV damage. The resulting structure; improves the amenity of the site by providing a low visual impact finish that blends into the existing environment and a user friendly surface for public to walk, sit and climb on.



Three Mile Creek



Seaward extension of the training works

Client name:

WESTERN BAY OF PLENTY DISTRICT COUNCIL

Main contractor name :

HIGGINS CONTRACTORS MT MAUNGANUI

Consultant:

TONKIN & TAYLOR

Products used:

0.75m<sup>3</sup>, 2.5m<sup>3</sup> ELCOROCK CONTAINERS,  
ELCOMAX 600R, ELCOROCK PATCH KITS

Construction date:

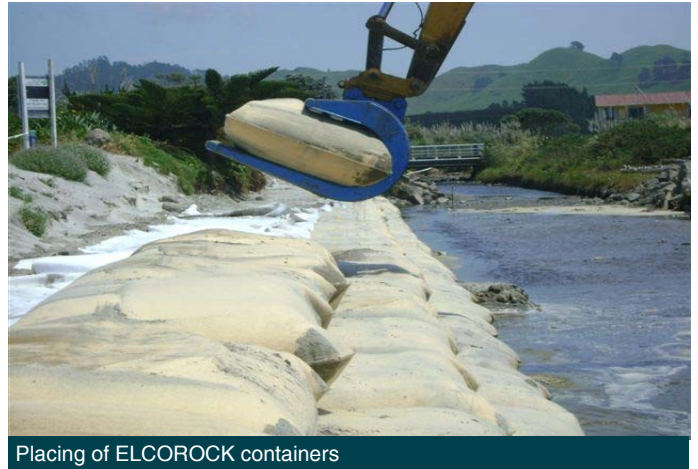
MID OCT - END NOV 2009



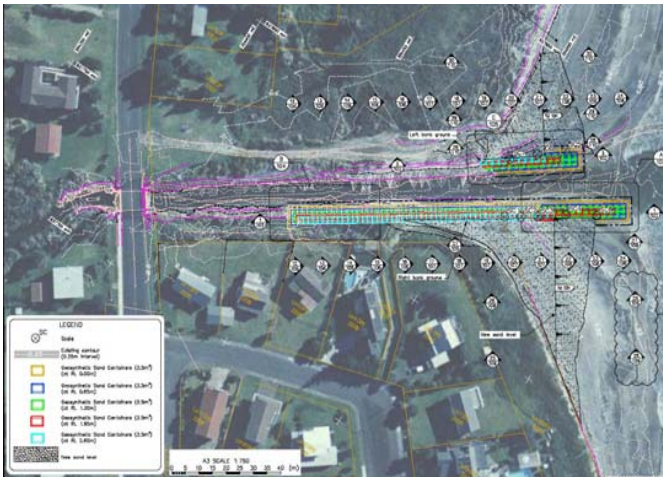
Filling of 2.5m<sup>3</sup> ELCOROCK containers

## Construction

The structure was constructed over a 4 week period with an additional week either side for site establishment and clean up. A crew of four was able to achieve a filling rate of up to 5 x 2 medium sized containers per hour using filling equipment. Hydraulic compaction was achieved by using a generator and pump to saturate the sand with sea water as it moved through the hopper system into the 2.5m<sup>3</sup> ELCOROCK containers. The average filling rate excluded the time to place the containers. The containers were filled and placed by using the specially designed J-Bin connected to the digger. The smaller 0.75m<sup>3</sup> bags were filled using a small digger and custom made filling frames. The 0.75m<sup>3</sup> containers were then closed using a prayer seam before being placed on site.



Placing of ELCOROCK containers



Site view of Three Mile Creek at Waihi Beach



ELCOROCK wall



ELCOROCK structure in use



Final ELCOROCK wall structure

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