



GEOFABRICS CASE STUDY



PREVENTING POND BANK EROSION WITH CONCRETE CANVAS

PRODUCTS USED

CONCRETE CANVAS®

Concrete Canvas (CC) is a flexible, concrete filled geocomposite that hardens when hydrated to form a thin, durable, waterproof and fire-resistant erosion control layer - it is the original concrete on a roll.

- Used for a wide range of applications including channel lining, slope protection, and capping secondary containment bunds
- A cost-effective alternative to conventional materials such as non-structural shotcrete
- Allows concrete construction without the need for plant or mixing equipment - simply unroll and position CC, and then just add water
- Typically 10 times faster and easier to install than conventional solutions
- Uses up to 95% less material than other erosion control applications – a single pallet of CC can cover the same area as two 17T mixer trucks, making it an eco-friendly alternative that produces minimal waste
- Available in bulk and smaller batch rolls



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PROJECT DESCRIPTION

The Golden Bay Cement facility, located at Portland on the western side of Whangarei Harbour in Northland, New Zealand, contains a water storage pond. The prevailing winds are a problem for the exposed pond embankment whose shoreline does not have much in the way of soil stabilisation cover. Wind induced waves have been eroding the banks adversely affecting three sides of the pond.

A non-structural shotcrete application, initially considered, was found to be expensive. Concrete Canvas CC5 (Type I) thick waveband was suggested as a cost-effective solution that offers long-life protection against erosion of the exposed embankments.

OUR SOLUTION

Concrete Canvas is the world's first patented Geosynthetic Cementitious Composite Mat (GCCM) and the first to exceed the requirements of ASTM D8364 for Type I, Type II and Type III applications. ASTM D8364 is an important resource for clients, consultants and contractors wishing to ensure the GCCM used on their project is fit for purpose over the entire life of the structure.

Having first worked with the installation contractor, United Civil, on the quantity of the CC5 strips required for the project, Geofabrics then provided on-site training on the first day of construction that covered the full installation process.

The pond was initially lowered to ensure the full extent of the waveband zone could be covered in the dry. The side slopes were trimmed smooth and an anchor trench excavated along the crest of the embankment. CC5 was unrolled and cut into 301cm long strips which were positioned in the anchor trench and then laid down the slope. CC5 was secured in the anchor trench using 250mm steel fixing pegs at each overlap. CC5 at the bottom was folded over by 100mm and pegged at each overlap with an additional peg inserted in the middle of the folded section. The adjacent CC5 overlaps were joined using an approved adhesive sealant and pegged at a 200mm spacing. The completed sections, at the end of each workday, were hydrated at a minimum rate of 3.5L per m² using water pumped directly out of the pond.

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850
lineal metres
of CC5 installed



3m
wide waveband
running the full
length of three pond
embankments

10X
faster and easier to
install, on average



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