



CONCRETE CANVAS® *Concrete on a Roll*

GABION CASE STUDIES



The Queen's Awards
for Enterprise:
International Trade
2019



Board of Trade
Winner
2018



Winner
Technical Innovation Award



ICE Wales Cymru Project Awards
Innovation Award
ICE Wales Cymru Awards 2017



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DEFENCE



DESIGN



SHELTER

Concrete Canvas® is a Geosynthetic Cementitious Composite Mat (GCCM), part of a revolutionary new class of construction materials. It is a flexible, concrete filled geosynthetic that hardens on hydration to form a thin, durable, water proof and fire resistant concrete layer. Essentially, it's concrete on a roll. The material is predominantly used for erosion control applications such as ditch lining and slope protection, offering a faster, more cost effective alternative to conventional concrete.

Concrete Canvas® User Benefits

Rapid Install

CC can be laid at a rate of 200sqm/hour, up to 10 times faster than conventional concrete solutions. CC has a working time of 2 hours after hydration and can be installed in wet weather conditions, reducing programme disruption.

Easy To Use

CC is available in man portable rolls for applications with limited access. The concrete is pre-mixed so there is no need for mixing, measuring or compacting. Just add water.

Low Project Cost

The speed and ease of installation mean CC is more cost-effective than conventional concrete, with less logistical complexity.

Eco-Friendly

CC is a low mass, low carbon technology which uses up to 95% less material than conventional concrete for many applications. Up to 200sqm can be delivered on a single pallet; enough to replace two full mixer trucks.

Concrete Canvas® Key Proper-

Erosion Protection

CC prevents surface erosion from weathering and has twice the abrasion resistance of OPC.

Conforms To Profile

CC has excellent drape characteristics, allowing the material to conform to the organic profile of a ditch making it more homogeneous with the surrounding environment.

Plant Not Re-

CC can be supplied in man portable rolls eliminating the need for plant on site and allowing for installation in areas with restricted access. Prior to hydration, CC layers can be cut to length using basic hand tools, eliminating wastage.

Reduced Maintenance

CC acts as an effective weed inhibitor, preventing costly maintenance required for unlined ditches.

Ageing

Moss can grow on the fibrous top surface of CC resulting in it 'greening over', helping the ditch to blend in with its surroundings. CC has a minimum design life of 50 years when installed correctly.

The following pages contain a collection of case studies highlighting the advantages of using Concrete Canvas® GCCM to cover gabions.



Concrete Canvas® Gabion Reinforcement

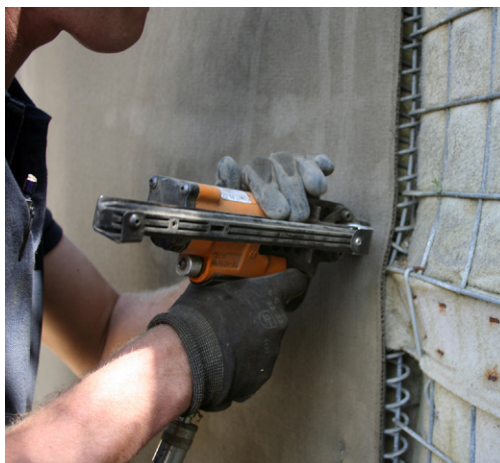
Concrete Canvas® GCCM* (CC) can be used to rapidly repair damaged and unstable gabion walls to provide long-term protection. CC can also be used to upgrade new or existing structures to provide a durable solution that will last for decades. CC can be rapidly applied by hand with no specialist equipment. CC is delivered in man portable lengths that are easily fixed to the gabion structures. Once hydrated, CC hardens to form a strong, durable, fire proof surface that protects and holds the structure together.

Features of CC Gabion Reinforcement

1. Prevents loss of fill if the geo-textile is degraded by UV degradation, weathering, vandalism and/or enemy fire in military applications.
2. Securely ties together multi-level gabion walls preventing movement.
3. Prevents water ingress which causes the fill to slump due to water saturation and the migration of fines.
4. Gabions can be capped with CC to prevent the fill being blown by wind or rotor wash in military applications.
5. Can be painted to improve the appearance of gabions.

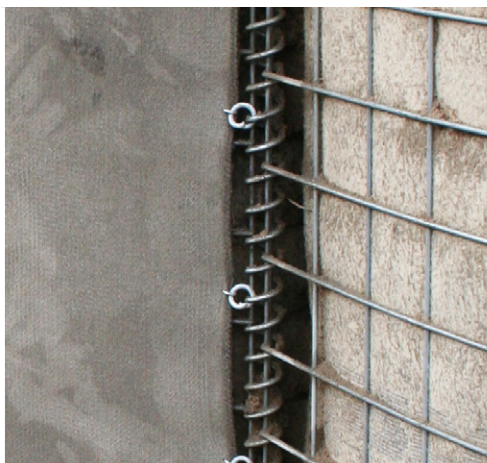


Applications Methods



Pneumatic Hogringing

A fast method of application, where a compressor and pneumatic tool are available.



Pigtail Fixing

Using factory-fitted 'pig tail' fixings, the CC can be rapidly clipped on to gabions in the field. Requires no equipment.



Wire Fixing

CC can be fixed to the spiral columns using wire. This method is versatile and requires no equipment.

*Geosynthetic Cementitious Composite Mat

Project Info



01 / 03 / 12



CC13™ Bulk Rolls



Vertical layers



Derby, UK



Jackson Civils



A perimeter of gabion defences, installed to protect against flood waters from the River Derwent in Derby, required remediation work due to erosion, vandalism and degradation caused by UV exposure.

Jackson



[CLICK TO WATCH VIDEO](#)

Completed CC-lined gabion



Degraded gabion flood defences, damaged from weathering and vandalism

*Geosynthetic Cementitious Composite Mat





Dispensing 20m pre-cut rolls of CC13 on site before cutting to length



Fixing CC to gabion structures using re-bar staples



Hog ringed CC layers



Flush seamed joints between hog ringed CC layers



Hydrated CC prior to backfilling toe anchor trench



Completed CC lined gabion section

Project Info



01 / 06 / 11



CC8™ Bulk Rolls



565m²



Longitudinal layers



Queensland, Australia



Australian Army Engineers



CC was chosen to cap a gabion wall system to prevent washout of material during inclement weather conditions.



Completed gabion capping

In June 2011, Concrete Canvas® GCCM* (CC) was chosen by the Australian Army to cap a gabion system they had installed in Queensland, Australia. The area is prone to heavy rain, extreme heat and winds reaching cyclone levels and this harsh weather had caused slump and fill washout from the gabions, reducing their effective operational lifespan.

565m² of CC8™ were delivered to site and cut to the required length using hand tools. Two lengths were laid on top of each gabion section, overlapped by 100mm, and secured to the gabion's steel mesh frame using hog rings. The CC was hydrated using a nearby water supply and hose equipment.

The Australian Army were very pleased with the end results, and were impressed at how quickly and easily CC was installed using only a small installation team, basic hand tools and water.



CC cap provides protection from inclement weather and high winds

*Geosynthetic Cementitious Composite Mat



