CONCRETE CANVAS®
Concrete on a Roll

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MADE IN UK

CONCRETE CANVAS®

Concrete on a Roll

DEFENCE CASE STUDIES

The Queen's Awards for Enterprise: International Trade 2019

Board of Trade Winner 2018

Winner Technical Innovation Award

Innovation Award ICE Wales Cymru Awards 2017

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RAIL ROAD MINING PETROCHEM AGRO PUBLIC WORKS UTILITIES DEFENCE DESIGN SHELTER

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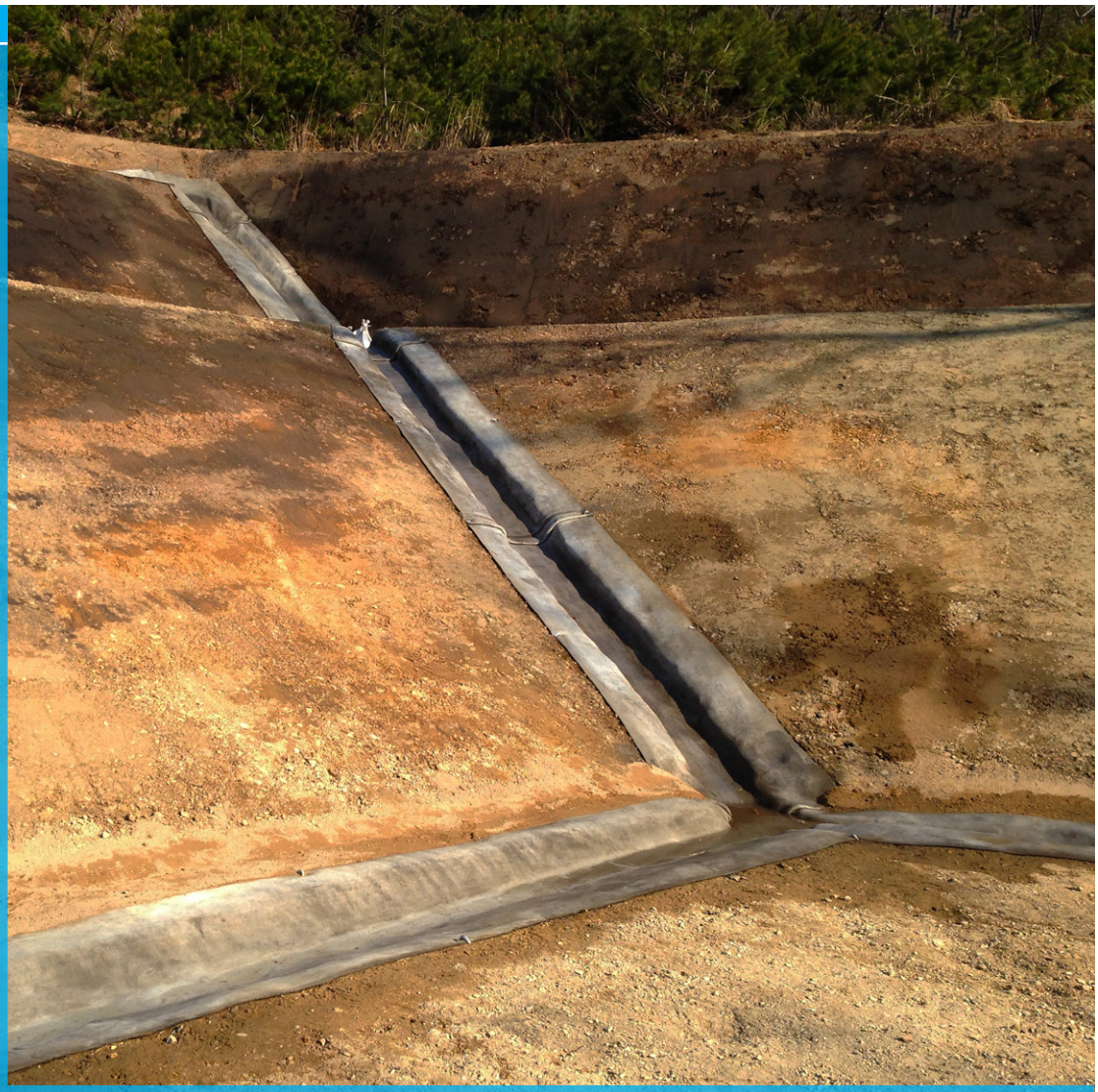
CHANNEL LINING

Project Info

- 14 / 04 / 2014
- CC8™ Batched Rolls
- 65m²
- Longitudinal layers
- Aibano training field, Takashima-shi, Shiga-Prefecture, Japan
- 105th Engineer Company, Japanese Ground Self Defence Force
- CC8™ used to line a network of channels at a military shooting range



Completed installation

In April 2014, Concrete Canvas® GCCM* (CC) was specified to line a network of small drainage channels at Aibano training field in Takashima-shi, Shiga-Perfecture, Japan. The client was the Japanese Ground-Self Defence Force (Camp Imazu) and the installation was completed by the 105th Engineer Company. CC was selected due to the speed and ease of installation and overall cost effectiveness compared to precast concrete. CC also offered significant installation advantages as the channel consisted of numerous tight corners and junctions which would have been extremely complex to construct using precast concrete.

Vegetation was removed from the channels before being graded to profile. The man portable batch rolls of CC8™ were positioned longitudinally with a 100mm knuckle joint overlap in the direction of water flow. Screws were used to secure overlap joints and steel ground pegs were utilised to fix the CC to the substrate. The CC was secured at the toe of the slope with an anchor trench and then back filled. All joints and non-anchor trenched edges were weighed down with sandbags during setting.

In total 65m² of CC8™ were installed to an very high standard on a complex project in 6 hours, by a team of 7 military engineers, without the use of heavy plant. The batched rolls enabled installation using only standard hand tools and manual labour. The project was deemed a huge success and the client is likely to repeat the order.

*Geosynthetic Cementitious Composite Mat

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CHANNEL LINING

The channels following ground preparation

The CC was laid longitudinally

Ground pegs were inserted through knuckle joints

A knuckle joint pegged, screwed and weighed down whilst setting

CC navigating a tight corner with an anchor trench on one side

Completed installation

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CHANNEL LINING

Project Info

- 07 / 05 / 11
- CC5™ Bulk Rolls
- 2,900m²
- Vertical layers
- Classified
- Classified
- CC specified as a surfacing material for a 2.3m high bund surrounding a remote storage facility

Completed installation

In May 2011, Concrete Canvas® GCCM* (CC) was specified as the surfacing material for a 2.3m high bund surrounding a remote storage facility. A total of 2900sqm of 5mm thick (CC5™) was installed on a sand base in order to protect the bund against the effects of wind, rain and long term environmental degradation.

CC was specified over conventional lining solutions such as shotcrete or reinforced concrete due to the cost and time savings offered as well as additional site specific benefits.

The traverse batters were excavated to a maximum of 30º to the vertical ensuring surface flow was directed into the 600mm wide spoon drains at the base of the bund. A 50mm sand base course was applied to the traverse prior to the installation of the CC to allow free drainage. The CC was supplied as 200m² bulk rolls and installed on site using plant mounted spreader beams. The material was unrolled into position and fixed into the batters using 500mm soil pins with washers. Each CC layer was anchored top and toe of the batter by a minimum of 300mm and overlapped 100mm between adjacent sheets. Weep holes were drilled into the base of the CC at 3m centres once the CC had set.

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GABIONS

Project Info

- 01 / 06 / 11
- CC8™ Bulk rolls
- 565m²
- Hog-ringed double 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 installation

In June 2011, Concrete Canvas® GCCM* (CC) was used 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.

Bulk rolls of CC8™ were delivered to site and cut to the required length using hand tools. Two lengths of CC were then 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 local water supply and hose equipment.

In total, 565m² of CC8™ was used in the installation. 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.

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Dust Suppression

CC has been used in several areas as a dust suppression surface around Helicopter Landing Sites. Benefits include: speed of installation, durability, and good coverage, as CC will conform to the underlying ground conditions.

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EXPEDIENT RESURFACING

03.05.11 Trackway Trial : Melk, Austria

As part of a Concrete Canvas® GCCM* (CC) demonstration for the Austrian military, two layers of CC13™ were trialled as an expedient surface on top of a layer of compacted aggregate. The CC was laid in a tee-shape to provide a track-way and hard-standing for 20ft sea containers to prevent damage, sinking and corrosion. The total loading on the material consisted of a forklift and container with approximately gross weight of 13T. Initial results showed that the material was an effective trackway and hard standing surface. The area is now being repeatedly trafficked by various types of wheeled vehicles to ascertain the material's long-term durability.

CC13™ Bulk roll on spreader beam

Cutting CC onsite using powered disc cutter

CC layers were screwed together using standard wood screws

Hydrating the first CC layer, prior to installing the second

Hydrated CC allowed to set for 2 hours

13T load driven onto hardened CC trackway

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SANGAR REINFORCEMENT

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