CONCRETE CANVAS®

CHANNEL LINING

Project Info

- 14 / 08 / 18
- CC13™ Bulk Rolls
- 250m²
- Transverse layers
- Aberbargoed, South Wales, UK
- Jim Davies Civil Engineering Ltd
- CC13™ Bulk Rolls used to line naturally formed drainage channels to prevent further erosion

JIM DAVIES CIVIL ENGINEERING LTD.

Completed section of channel

In October 2018, works began on a channel lining project which utilised Concrete Canvas® (CC) GCCM* to provide erosion control measures to a series of existing non-formalised channels, and potential new drainage channels to a tip site in Aberbargoed, South Wales, UK.

Concrete Canvas Ltd. was approached by Caerphilly County Borough Council to propose a solution to drainage requirements on the site.

The tip area is serviced by a 2.5m wide reinforced concrete channel running along the southern perimeter of the site. This existing channel was in good condition; however, there were a number of water-logged areas surrounding the channel which had created erosion, resulted in the natural formation of open channels. These channels were heavily eroded and required formalising and aligning to the mouth of the concrete channel in order to improve water management on the site.

CC was selected for this project due to its ability to conform to the ground profile, minimising the preparation works required in formalising the channels. The rate of abrasion of CC is significantly lower than conventional OPC poured concretes. The ease of installation and on site logistics also provided practical benefits.

*Geosynthetic Cementitious Composite Mat

CONCRETE CANVAS®
+44 (0) 345 680 1908 info@concretecanvas.com www.concretecanvas.com

CC is also BBA certified for with a minimum design life of 120 years in a UK climate, providing exceptional weathering performance, chemical resistance and UV resistance. The product also provides excellent weed suppression and can withstand flow rates in excess of 8.6m/s.

While site access was restricted, it was possible to deliver materials via a single full lorry load. The 13mm thick CC product (CC13™) was supplied in Bulk Rolls.

The works were carried out by Jim Davies Civil Engineering Ltd (JD Civils) on behalf of Caerphilly County Borough Council.

The ground was prepared by regulating the existing channels on site. The old channels were either backfilled or cut with a v-ditch bucket attached to an excavator. All large and protruding rocks were removed from the newly formed channel profiles and all voids were filled to create a flat surface ready to receive the CC13™ material.

The CC Rolls were suspended from a spreader beam mounted on the excavator and deployed transversely across the channel width.

At the points where two channels met and intercepted, the CC13™ easily conformed to the shape of the channels and junction details. The CC was captured in the anchor trenches using 250mm galvanised steel ground pegs. Where jointing was required, 300mm stainless steel screws were inserted at 200mm centres using an auto-fed screw gun.

At the end of each day's work, the CC was hydrated using a 1000L bowser and armoured hose pipe. Once the CC was fully hydrated along completed sections, the anchor trenches were backfilled.

Aerial view of site - existing channel shown in yellow, naturally formed open channels and water-logged areas shown in blue

+44 (0) 345 680 1908 info@concretecanvas.com www.concretecanvas.com

CHANNEL LINING

Naturally formed channels had formed as a result of erosion

CC was specified to prevent further erosion and provide water management

Existing concrete channel termination

Natural channel running alongside original concrete channel

Termination of CC lined channels into existing concrete channel

Section of drainage channel system created and lined for water management

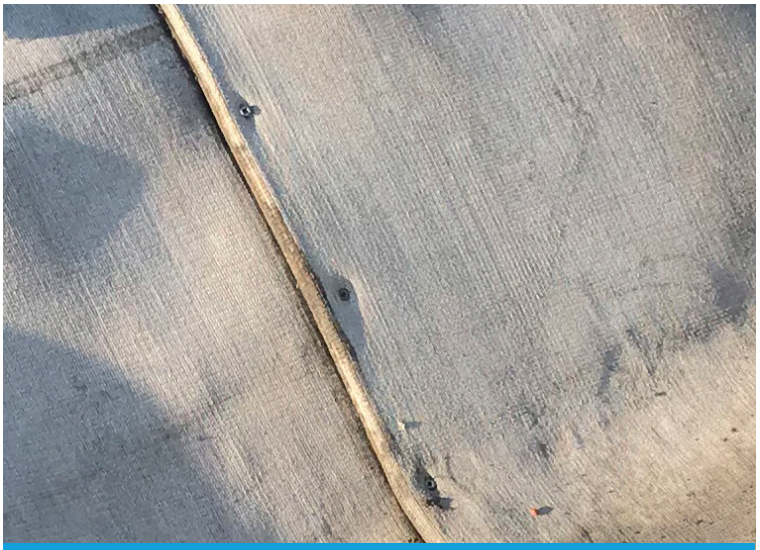
+44 (0) 345 680 1908 info@concretecanvas.com www.concretecanvas.com

CHANNEL LINING

Material termination at source of natural water channel

CC allowed installation with minimal groundwork & conforms to channel profile

Anchor trenches were backfilled following hydration of CC



CC jointed using screws

Junction detail

Section of channel lined using transverse layup

CONCRETE CANVAS®

+44 (0) 345 680 1908 info@concretecanvas.com www.concretecanvas.com

Panoramic view of new drainage channels

Further sections of channel

A total of 250m^2 of CC13™ Bulk Rolls were installed in just over two weeks by a team of four people, on a site with access restrictions.

The installation of CC will provide long-term, durable erosion control and effective water management on the site and will assist in preventing formation of further natural channels and water logging. CC has a durability in excess of 120 years and will greatly reduce the requirement for maintenance of these channels.

CONCRETE CANVAS®

+44 (0) 345 680 1908 info@concretecanvas.com www.concretecanvas.com