

Project Info



July 2018



CC13™ Wide Rolls



570m²



Transverse layers



Blaencwm, Wales



Jim Davies Civil Engineering Ltd



CC used to provide erosion protection to a channel at a former colliery site in South Wales



The Coal Authority

Jacobs



CC lined channel in Blaencwm, South Wales

In July 2018, Concrete Canvas® GCCM (CC) was specified by the Coal Authority as an erosion protection liner to a series of drainage channels in Blaencwm, South Wales.

Blaencwm is a village lying at the head of the Rhondda Fawr valley, formerly the site of two collieries which were closed in the 1960s. The historical mining legacy of the area means that water management is critical to maintain the stability of the surrounding valley.

In order to protect local residential properties from landslip, a 120 linear metre drainage channel was excavated at the foot of the southern face. Measuring 4m wide and 1.5m deep, the high-capacity channel required protection to prevent scour of the invert from surface run-off. The channel was cut using plant and a v-bucket. Spoil material was used to raise the height of the batter adjacent to the track and to backfill anchor trenches.

The groundworks and deployment of the CC was completed by Jim Davies Civil Engineering Ltd (JD Civils), term contractor for the Coal Authority.

*Geosynthetic Cementitious Composite Mat





Site located in a remote area of South Wales valleys

Two-wide rolls measuring 2.2m in width were used for this project, halving the jointing requirements and reducing installation time. The CC Wide Rolls were deployed using spreader beam equipment and can be laid longitudinally or transversely to the channel. On this project, a transverse layup was used to accommodate corners and bends in the channel.

On this project, a transverse layup was used to accommodate corners and bends in the channel. The Wide Rolls were deployed across the channel width, with the leading edge secured within an anchor trench on the far side shoulder. The material was cut to the required length and the trailing edge also secured in a shoulder anchor trench using 250mm galvanised steel ground pegs. Subsequent layers of CC were laid so as to overlap the last by 100mm, with the overlapping layers of material then secured using stainless steel auto-fed screws.

Following installation, the material was hydrated at the end of each working day and the anchor trenches backfilled to prevent wind and water ingress beneath the material edges and provide a neat termination.



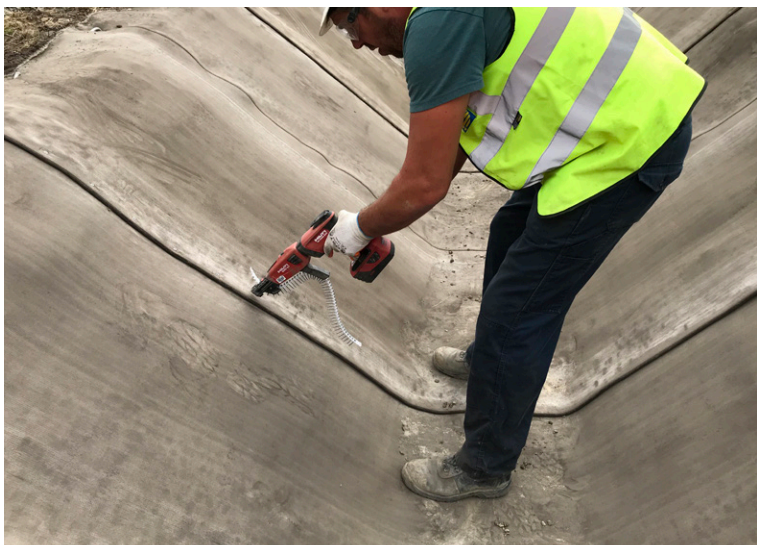
CC Wide Rolls deployed from specialist spreader beam



CC Wide Roll lengths deployed transversely across channel



Works carried out by a team of three



CC jointed using stainless steel screws at overlaps



Wide Rolls reduces joint details required and associated ancillaries



CC secured within anchor trenches using ground pegs



Hydration of CC following installation



Anchor trenches backfilled to prevent ingress and provide neat termination



CC termination against existing stone inlet



CC was able to easily accomodate protruding drainage pipes



Erosion protection for outlet



Completed lined section of channel



Completed CC lined drainage channel in Blaencwm

A total of 570m² of CC13™ 2-Wide Rolls were installed by a team of three (two groundworkers and one excavator operator) over a period of two weeks.

JD Civils were impressed with the rates of installation and reduction in ancillary requirements. The Coal Authority are also happy with the outcome of the project.

The week after the project was completed, the area experienced heavy rain events. However, the surface run-off was safely and efficiently diverted into the channel and carried to the nearby Rhondda River, where it was discharged.

CC is installed at ten-times the rate of alternative concrete solutions and will provide long-lasting and environmentally friendly erosion protection to the channels and, in turn, the surrounding area.