

Project Info



02 / 10 / 17



CC8™ Bulk Rolls



1,000m²



Transverse layers



Silkstone Mine Water Treatment Works, Silkstone, Barnsley



JN Bentley



CC8™ was used to reline a channel at Mine Water Treatment Works to provide a robust, impermeable and flexible lining solution.



The Coal Authority



Completed channel at the Silkstone Mine Water Treatment Works, Barnsley

In October 2017, Concrete Canvas® GCCM* (CC) was used to line a channel, at the Silkstone Mine Water Treatment Works (MWTW) in Silkstone, Barnsley.

The channel had previously been lined with HDPE which had been damaged in recent flood events leading to the possibility of untreated water from the mine adit entering the nearby stream prior to the reed bed treatment system required for active filtration of the water. CC was proposed to reline the channel to provide a robust, impermeable lining solution that could be fixed to various surfaces throughout the channel.

The works were carried out by JN Bentley for the Coal Authority, with Consultation services provided by JBA Bentley.

Before installation of the CC material could commence, there was a lot of ground preparation that had to be done. JN Bentley's team began by removing the build-up of ochre from the channel and regraded the channel along its entire length. Once this work had been completed, three new weirs were built within the channel out of breeze block and brick, which would be lined with CC later on in the installation. The channel is separated from a small stream via a row of gabion baskets and a number of these needed to be repaired or replaced prior to covering in CC.

*Geosynthetic Cementitious Composite Mat





Build-up of ochre from the mine was contaminating the water



The stream and gabion wall were overgrown



The original HDPE lining had disintegrated and come away



The channel was excavated to remove all ochre traces



The substrate was then re-graded to provide a smooth surface for installation



Bulk rolls of CC were delivered to site



CC was attached to the gabion baskets using hog rings



Flexibility of CC allowed for easy covering of complex sections



The material was laid transversely across the full width of the channel



The joints were then sealed to further prevent ingress



Following hydration, soil was laid and reeds planted



Completed channel in use



Completed gabion basket



Termination detail around existing infrastructure



View of the channel from the adjacent stream



Section of the completed channel

Once groundwork had been completed and the channel profiled, CC8 was delivered to site in bulk roll format on dedicated flat bed wagons to help the contractor with the unloading of the material. The channel was lined from the gabion baskets along the entire width of the channel, terminating in an anchor trench. Subsequent layers of CC were overlapped by 100mm and secured in a variety of ways, including pneumatic hog ringing to the gabion baskets, shot fired nails to the new weir structures and stainless steel screws via an autofed screwdriver. The material was then secured in place with GMS pegs on each overlap into the anchor trench, before being hydrated at the end of each day using water from the nearby stream.

Once the CC installation was complete, a soil substrate was laid over half of the channel bed, and reeds planted across the channel floor. These reeds serve as an active filtration system, helping to remove the ochre from the water before it enters the stream.

“Throughout the design and construction of the Silkstone project Concrete Canvas provided an excellent level of technical and practical advice and support. Everything went as expected during installation of the canvas. The finished product has provided a sound lining system to the refurbished lagoon and reed bed which will greatly improve the ability to maintain and desludge the scheme in future years.”

Rob Culledge
Senior Project Manager
JN Bentley