

Project Info



05 / 2013



CC8 Bulk Rolls



335sqm



Vertical layers



Cloudhill Quarry,
Derby, UK



DHRA



CC trialled as an alternative to shotcrete in providing surface erosion protection to sandstone.



Completed section of slope lined with CC5

In May 2013, Concrete Canvas (CC) was trialled as an alternative to shotcrete to provide surface erosion protection to sections of sandstone overburden at a limestone quarry site in Derby, UK. Reinforcing the sandstone overburden would allow the quarry site to conduct additional excavation and blasting, maximising the potential yield of the site and helping to ensure its continued operation for an additional 10 years.

CC8 bulk rolls of 125sqm were delivered to site and suspended from spreader beam equipment using a 3.5T telescopic forklift. The CC was batched to specific lengths to match individual heights from the ground level to the top of the overburden using a cut-off saw. This ensured that there was no wastage as each length was tailored to match the rock face exactly. Using a rough terrain cherry picker, each length was then initially hung from the top onto the rock face using 250mm steel ground pegs, folding the top edge by 50mm to ensure a neat termination and to reduce the risk of water ingress between the CC and the substrate. Subsequent layers of CC were then positioned with an overlap of 100mm to the adjacent layer. These overlapped sections were then screwed together with 30mm stainless screws at 200mm intervals using an auto-fed screwdriver. The CC layer was then secured to the rock face at 2m intervals along the overlaps and at void points using 100mm long rock bolts with 20mm washers to ensure intimate contact between the CC and reduce void spaces. Once the CC had been secured, it was then hydrated using water from a 4000 gallon dust suppression tank. Post set, the CC layer was draped in Geobrug Deltax wire mesh and the rock face stabilised using a GEWI thread bar system with load bearing plates and nuts.

Successful blasting of the rock face took place two weeks later with no signs of slope deterioration from either blast or the period of weathering since installation. Concrete Canvas also proved to be **60% less expensive** than the traditionally used shotcrete option and saved Breedon Aggregates over £14,000. **The 335sqm trial installation was completed in two days using a crew of three.**





The installation site was suffering from severe surface erosion



CC8 delivered to site in bulk rolls



Unset CC8 cut to length using a disk cutter



CC8 hung from top of rock face using 250mm steel ground pegs



Adjacent lengths of CC overlapped by 100mm



Adjacent lengths of CC fixed using autofeed screwdriver



CC fixed to rock face at 2m intervals using 100mm rock bolts



CC hydrated water from a 4000 gallon dust suppression tank



Post-set CC was draped in a wire mesh and the rock face stabilised using a thread bar system. Sections of slope were later blasted.

"The installation of Concrete Canvas was a new one for DHRA but proved to be quick and cost effective. There is no mess, no clean down of machinery and is I believe environmentally friendly and could prove to be a useful alternative to spray-crete in difficult access situations."

*Simon Jackson
DHRA Geotechnical Ltd.
Industrial Rope Access Contractors*

