

Project Info



06 / 03 / 17



CC8™ Bulk Rolls



225m²



Longitudinal layers



Buraydah, Al-Qassim,
Saudi Arabia



FOQSCO



CC8™ was used to protect the slopes of ponds to prevent the flow of rainwater from causing erosion.



Completed installation in Buraydah, Saudi Arabia

In March 2017, Concrete Canvas® GCCM* (CC) was used to protect a slope in Buraydah, Al-Qassim in Saudi Arabia. The aim of the project was to prevent the flow of rainwater from causing erosion on the slopes of ponds on the site.

Rip-rap was already being used on the site but replacing it was disregarded as a solution as it takes more time to install, is costlier and is not suitable for some conditions. The rip-rap had also come apart in some places during the storm season due to the water pressure and the way it had been installed. As a result, CC was chosen for the site due to its ease of use and speed of installation, including in difficult areas. The works were carried out by FOQSCO for Qassim Municipality, with input from consultants Khatib & Alami.

In preparation for the installation, sharp rocks were removed from the ground on site and initial leveling was done by hand. The ground was then compacted using plate compactors, and backfilling and leveling was then done again using sand.

The CC was then delivered to site in bulk rolls of CC8™, mounted onto a spreader beam and plant, and cut to length using hand tools. The lengths of CC were then transported to the top of the slope and unrolled by hand in a longitudinal layout, with layers overlapping by 100mm. The CC was fixed to the existing concrete at top of the slope using stainless steel bolts, and the edges laid in an anchor trench, and to the adjoining rip-rap using bolts and pegged inside the pre-dug trenches along the sides and bottom of the slope.

*Geosynthetic Cementitious Composite Mat





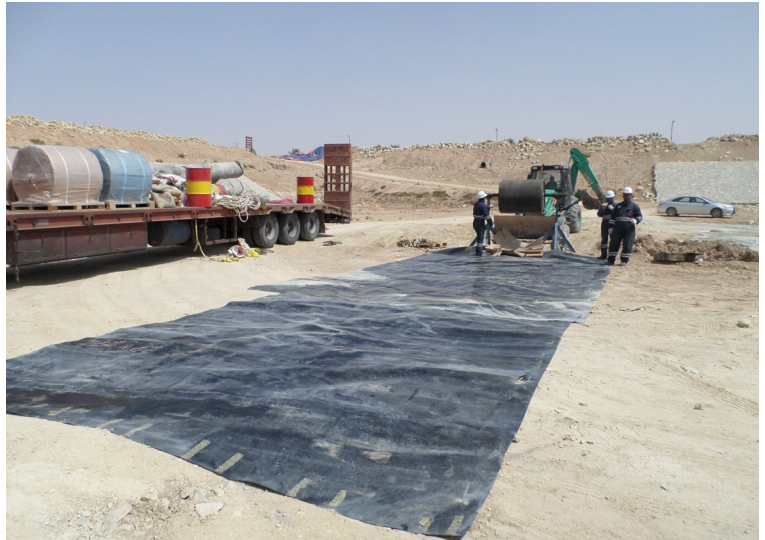
Slope prior to installation



Compacting the ground



Levelling the ground by hand and backfilling with sand



CC8™ was delivered to site and mounted onto a spreader beam



The CC was cut to length and transported to the slope in batches



Anchor trenches were dug using an excavator and by hand



The CC was laid longitudinally down the slope



CC was fixed to the existing concrete at the crest using steel bolts



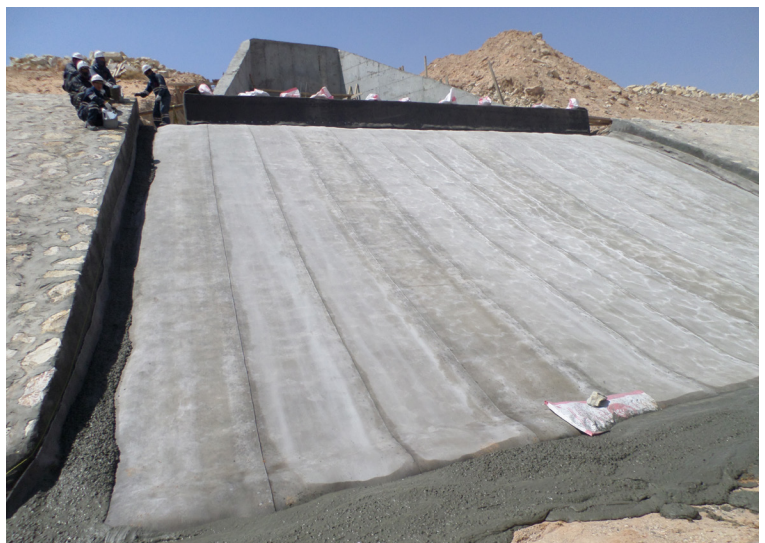
Stainless steel screws and sealant were used to seal the overlaps



CC was fixed in the trenches using anchor pegs



Hydration was given using hose pipes



Poured concrete was used to fill the trenches



The work team and finished installation

The CC layers were then jointed together using hot air blowers and rollers, and screwed together using stainless steel screws. Once the CC had been secured, all trenches were then filled with concrete to further secure the material and prevent water ingress. An adhesive layer was also applied on the sides and top of the slope for further impermeability. Hydration was given using a hose and water tank and repeated multiple times during the day and night due to the prevalent dry and hot conditions.

225m² of CC8™ were installed in 4 days by 10 people, working around 9 hours per day despite very dry, hot weather conditions. The project was a success in terms of time required and installation ease, as there was a drastic reduction in installation time and logistics, specifically in comparison to rip-rap. The installation will continue to be scrutinised during the next storm season; however, the consultants and clients were extremely pleased and are considering using CC instead of rip-rap for all similar future applications and sites.