

## Project Info



01 / 05 / 15



CC5™ Bulk Rolls



10,600m²



Transverse layers



Mooi River irrigation canal, Muden, South Africa



Medina Engineers & Dwenga Trading JV



CC5™ was used to remediate a failing irrigation canal



Completed installation

In May 2015, Concrete Canvas® GCCM\* (CC) was used to remediate the Mooi River irrigation canal in Muden, KwaZulu Natal, South Africa.

The canal was badly cracked leading to large amounts of water loss. Poured concrete was considered for the project, however some areas of the canal were only accessible by foot, which would have made a poured concrete installation difficult. In addition, CC minimised the interruption to the water supply for the residents along the canal who depend on it. The works were carried out by Medina Engineers and Dwenga Trading in a joint venture, with consultation from Element Consulting Engineers, for The Department of Rural Development and Land Reform.

Due to the profile varying between 2m and 3m a transverse layup was used to minimise wastage. To prepare the canal, any debris or vegetation was removed, crumbling concrete was removed from cracks and voids before they were filled, and anchor trenches were excavated along the shoulders of the canal. The CC5™ was mounted onto a spreader beam hung from a JCB 3DX Backhoe Loader and batched to specific profile length on site. The CC was unrolled across the channel, with the open edges placed into the anchor trenches. Subsequent lengths overlapped the previous by 100mm. Following installation, hydration was achieved with a 5000L water bowser and hose. 30 minutes after hydration knuckle joints were formed by folding the material back under itself, creating a 50mm wide knuckle. These joints were then hydrated again and compressed with sandbags. Once the material had set the anchor trenches were backfilled.

\*Geosynthetic Cementitious Composite Mat





Site prior to works



CC bulk rolls dispensed and cut to length on site



CC was laid transversely across canal width



Creating knuckle joints



Completed layout



Hydration and compression of joints

*Completed canal**Completed canal following reintroduction to water flow*

A total of 10,600m<sup>2</sup> of CC5™ were installed by a team of 12 people at rates of up to 240m<sup>2</sup> per day. The installation was carried out in temperatures of up to 36°C on a site with some access issues.

The use of CC also allowed the team to carry out the much needed improvement works on the canal without causing too much disruption to the local businesses who rely on the canal to irrigate their crops and land.

The Department of Rural Development and Land Reform were very pleased with the installation and Element Consulting Engineers is considering it for use on similar projects.