Project Info

FEB 22 — 22 / 02 / 18

CC — CC8™ Bulk Rolls

— 275m²

Transverse layers

Al-Hofuf, Saudi Arabia

FOQSCO

i — CC used to line a section of channel in a trial to compare its benefits to those of precast concrete

FOQSCO

Completed installation in Al-Hofuf, Saudi Arabia

Project Introduction

In February 2018, Concrete Canvas® GCCM* (CC) was specified as a channel lining solution for an agricultural irrigation channel in Al-Hofuf, Saudi Arabia.

The client had specified precast concrete for other channels in their network, and had decided to specify CC for this project, at the recommendation of the contractor, FOQSCO. The project was treated as a trial, with a section of channel to be lined with CC in order to evaluate its benefits in comparison to the precast concrete solution installed in other areas.

The key aims of the project was to establish whether CC was a better solution for this application, with specific focus on its ability to provide erosion protection and weed suppression.

*Geosynthetic Cementitious Composite Mat

Specifying Concrete Canvas® GCCM

On this project, there were several benefits to specifying CC over precast concrete including its speed and ease of installation, the significant material savings and reduction in vehicles and heavy plant required on site for installation.

CC can also be installed in live watercourses, which allowed for this installation to take place without the need for damming within the channel or diversion of the water flow.

With the existing precast concrete solution, the client was seeing an ongoing issue with weed growth within the channel which was causing blockages, reducing flow and creating a risk of flooding.

The harsh environment of Saudi Arabia also meant the precast sections were prone to rapid deterioration, whereas CC is suitable for use in extreme climates, including hot, dry conditions.

Bulk rolls of CC8™ were specified for this project. The works were carried out by FOQSCO for Al Hassa Irrigation & Drainage Authority (HIDA), also known as Saudi Irrigation Organisation (SIO).

Channel prior to works

The channel was excavated and regraded prior to installation

Anchor trenches were prepared using shovels where required

Prepared anchor trenches

Installing Concrete Canvas® GCCM

Prior to installation, the channel was cleared of any loose rocks and vegetation before being levelled and graded using a backhoe and shovels. Anchor trenches were then cut into the shoulders of the channel.

The bulk rolls of CC8™ were transported to the site and deployed from a spreader beam hung from the backhoe. The geosynthetic was deployed transversely across the channel and cut to length in-situ. The edges of each length of CC were secured within the anchor trenches using ground pegs. Additional layers were placed so as to overlap the last by 100mm and jointed with stainless steel screws.

Existing concrete culverts on each end of the channel were easily accommodated during the CC installation, with the geosynthetic screwed to the surrounding substrate and concrete structure to provide a neat termination detail.

Once the installation was completed, the CC was hydrated using a water tank with hose and pump system. The process was repeated two hours later to ensure adequate hydration in the environmental drying conditions. The anchor trenches were then backfilled with soil.

CC lengths were laid transversely across channel profile

Overlapping joints were jointed with stainless steel screws

Vertical lengths of CC installed at the end of the channel

Completed CC lined channel section following hydration

Project Outcome

A total of 275m² of CC8™ were installed by a team of six people over just two days, a drastic reduction in installation time compared to precast concrete.

The client was very happy with the outcome of the project and with Concrete Canvas® as a solution. The client will continue to monitor the installation over the coming months to establish CC's long-term benefits over precast concrete sections.

CC lined channel in Al-Hofuf,1 year after project completion