CONCRETE CANVAS®

CHANNEL LINING

Project Info

- 05 / 06 / 17
- CC5™ Bulk Rolls
- 18,000m²
- Transverse layers
- La Serena, 4th Region, Chile
- Agrotek Spa
- CC5™ was used to line an irrigation channel to eliminate water loss

Section of completed channel

In June 2017, Concrete Canvas® GCCM* (CC) was used to line a channel in La Serena, situated in the IV Region in Chile.

The aim of the project was to eliminate water losses from the irrigation channel, known as the Bellavista Channel, which was relied upon by the Bellavista Channel water community. The channel was 2.4km in length in total.

Alternatives considered for the project were HDPE pipes; however, for this channel and its flow velocity, the pipes would have needed to be much larger than those available to source locally to the site. Another option would have been to use two parallel pipes. Both options would have been very costly.

Another issue that faced the installation team was that they could only cut the water supply off for 8 days at a time, and this could only be done during the three winter months or the community's crops would die. As a result, a solution was required which could be installed quickly, with less time on site, and during winter months. CC5™ was specified for the project, with works carried out by Agrotek Spa for the Bellavista Channel water community.

*Geosynthetic Cementitious Composite Mat

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Site prior to works

Water pumped from existing channel prior to works

Removal of rocks and debris following excavation of channel

Excavation and formwork grading carried out in tandem

Laying of CC following completion of channel grading

A section of CC being laid behind a section of hydrated CC

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Aerial view of ongoing works shows various teams working on different sections of channel in stages

CC secured to concrete infrastructure using concrete screws

Sealant used to cover screws and prevent ingress at edges

Polyurethane sealant used to fill the CC edges

CC easily conformed to changes in channel profile

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Aerial view of completed channel

In preparation for the installation, the soil was replaced with a stabilised material, compacted and graded using channel forms to give an accurate shape according to the engineering design. The CC5 was delivered to site in bulk rolls which were loaded onto spreader beams and excavators. The material was unrolled transversely across the width of the channel, the edges fixed in anchor trenches using ground pegs and subsequent layers overlapped by 100mm and jointed using screws and polyurethane sealant to prevent ingress. Where the CC met existing concrete infrastructure, concrete screws were used to secure the material, and sealant was then used along the edge of the material, and over the screws to prevent ingress and eliminate any protrusions.

A team of anywhere up to 70 installers worked on the project at any one time, working on the 2.4km channel in sections, with 3 ground works forms, 11 backhoes, three 20T excavators and spreader beams available on site. While one team worked on re-grading and preparing the substrate, another team was laying material on a section of channel that the preparation team had just completed, and another team worked behind them hydrating the completed installation sections, and so on. This allowed the installation to progress at a much quicker rate than it otherwise would.

A total of 18,000m² of CC5™ was installed in 40 days, with the team working around 9 hours each day. Due to the way this project was carried out, with multiple smaller teams working at once in stations along the channel, the project was finished on time. As a result of the project's success, the client has specified CC for another project, and more similar projects with other clients have been specified as a direct result of the Bellavista Channel.

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