

Project Info



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CC5™ Bulk Rolls



5,000m²



Transverse and Vertical layers



MAA Refinery, Kuwait



Kuwait National Petroleum Company (KNPC)



CC5 was installed as channel lining solution to provide erosion protection and effective water management.



Completed channel lining installation

In October 2019, Concrete Canvas® (CC) GCCM* was specified as a channel lining solution to provide erosion protection and an efficient water management system for rain water.

The project site is located at Mina Al Ahmadi (MAA) Refinery in Kuwait, owned by Kuwait National Petroleum Company (KNPC), one of the world's top refiners.

The channels in question are situated close to some of the refinery's sensitive infrastructure. Sections of channel already exist and are lined with pre-cast concrete block sections. The client wanted to extend the channel to provide a more extensive water management system.

A solution was sought that could be quickly installed for this purpose.

Concrete Canvas® (CC) was specified as the preferred solution as it would save installation time and disruption on site. The works were carried out by Hot Engineering for KNPC and M/s Al-Kulaid.

*Geosynthetic Cementitious Composite Mat





Site prior to works



Channels were excavated and profiled prior to works



Existing concrete channel



Anchor trenches dug by hand at toe of slope



CC deployed via spreader beam



Anchor trenches backfilled with poured concrete



Ongoing installation on section of newly excavated channel

Prior to the installation, the channels were excavated and profiled and the soil within channels was compacted. Anchor trenches were dug on channel shoulders. The specified 5mm thick CC variant (CC5™) was delivered to site in bulk rolls.

The material was deployed transversely across the channel profiles. Edges of CC were captured within the anchor trenches and secured using galvanised J pegs. Subsequent layers of the material were positioned so as to overlap the previous by 100mm, with overlaps shingled in the direction of water flow within channels. Overlaps were then jointed using stainless steel screws, staggered at 50mm and 100mm from the edge of the material. Following installation, the material was hydrated using water tankers and hose. The anchor trenches were later backfilled with poured concrete to prevent ingress for greater impermeability and to provide a neater termination.

A total of 5000m² of CC5™ were installed by a team of six, with up to 800m² installed per day in temperatures of 24°C in medium humidity and dry conditions. The client was happy with the outcome of the project and will consider CC for future projects.

"We were pleased with the result and the speed of installation. We highly recommended CC for emergency works to deploy quick solutions."

Mazen H. Bibi
Team Leader, Proj. Coord. EPC PKG (4) - CFP
Kuwait National Petroleum Company