

Project Info



August 2015



CC8™ Bulk Rolls



1375m²



Transverse layers



Tazin Lake,
Saskatchewan



PBN - Nuna
Contracting Joint
Venture



CC used to remediate a
dam structure at a weir
for SaskPower



Completed CC weir dam

Between August - September 2015, Concrete Canvas® (CC) GCCM* was used to create a new weir for SaskPower at Tazin Lake in Saskatchewan, one of Canada's southern Provinces which borders with Montana and North Dakota in the USA.

Preliminary designs provided by the client included bin walls or refacing the existing weir with a fiberglass liner. Both options would require considerable excavation works into the lake bed prior to installation, and significant labour efforts. The extensive work required for these solutions would also take a considerable amount of time to carry out.

Concrete Canvas Ltd's Canadian sales and distribution partner, Nuna Innovations Inc. recognised that the client had not yet found the best solution for the project and proposed an alternative design which combined a sheet pile wall and CC, eliminating the majority of excavation and preparatory works as well as decreasing the overall project schedule required for the alternative methods. With Tetra Tech's support, Nuna were successful in presenting the advantages of CC to SaskPower and the design was chosen and CC specified for the project.

Despite the savings for labour costs and time being heavily influential in the specification of CC in this instance, the material was also chosen due to the logistical issues presented by the site location. The limitations for accessing the site with large plant and equipment would have made the alternative installation methods very complex to carry out, while CC could be airlifted by helicopter to site, eliminating road-access complications entirely.

*Geosynthetic Cementitious Composite Mat





Site prior to works



Limited working area on site



CC bulk rolls were airlifted to site



Bulk rolls were deployed transversely across weir dam



Sealing joints



Completed project

Prior to installation, a sheet pile wall was driven along the length of the weir. Excavation and replacement of the existing lakebed was carried out up to a depth of 300mm before the dam structure was built using locally sourced sand and gravel which was built up and compacted in layers until the desired dam was completed.

A geotextile was then laid over the weir before the installation team laid the CC transversely across the weir in pre-cut 11m lengths. Each layer was anchored on both sides in a 500mm deep trench which was later filled with rip-rap. Layers of CC were overlapped by 100mm and sealed with a Sikaflex 1A sealant and screwed at 300mm intervals. Once the installation was completed along the length of the weir, the CC was hydrated using a gas-powered water pump which drew water from the lake.

Installation was carried out in inclement weather conditions, including light rain and temperatures of between 15° - 22°C. CC is workable for 2 hours following hydration, allowing it to be hydrated in wet weather, and cannot be overhydrated. The installation was carried out successfully despite limited site access and restrictions at the installation site due to a cofferdam on one side. The use of CC simplified the installation process and reduced risk by avoiding in-lake excavations.

The works were completed in 8 days, with a delay slowing the installation process due to a small failure of the subgrade. To rectify the issue, eight panels of CC were cut and removed in order for the team to excavate and replace the underlying fill material. The CC was then replaced. A total of 1375m² of CC8™ was installed at rates of approximately 150-180m² per day by a crew of six.

“The installation was successful and CC went in as expected. The real test will be in the long term performance and resistance to ice action.”

SaskPower