

Project information

 August, 2015

 CC8 Bulk

 1375 sq. m

 Transverse

 Tazin Lake,
Saskatchewan

 PBN Nuna
Contracting

 CC used to
armour and
waterproof weir
for SaskPower



In August and September of 2015, Concrete Canvas GCCM (CC) was used to create a new weir for SaskPower. CC was used as the armouring and water resistance layer of the weir, placed over a dam structure that was built from sand and gravel.

Preliminary design options provided by the client included either bin walls or refacing the weir with a fiberglass liner. Both required considerable excavation into the lake bed and significant labour effort. The extensive work would also require a significant amount of time to install.

Realizing that the client had not yet reached an ideal solution, CC was proposed in combination with a sheet pile wall as an easier alternative that eliminated the majority of excavation work and decreased the project schedule. With support from Tetra Tech, the advantages of CC were successfully presented to SaskPower.

Labour and time considerations were not the only reason that CC was specified for the project. Logistics and location were also important factors in product choice as everything was airlifted by helicopter to site.

Installation occurred in variable weather including light rain. Estimated temperature ranged from 15-22 degrees Celsius over a period of 8 days. Before CC was installed, a sheet pile wall was driven along the length of the weir. Excavation and replacement of existing lake bed for a depth of 300mm was completed, then the dam structure was built with local sand and gravel that was built up and compacted in layers.

The CC was laid perpendicular to the weir crest in full length sheets (11m) and anchored on both sides in a 0.5m deep trench which was subsequently filled with rip rap. Overlap seems were sealed with SikaFlex 1A sealant and screwed together at 0.3m intervals.

To hydrate, the CC was sprayed using gas powered water pump, drawing water from the lake.

Access to the installation area was very limited by the location of the coffer dam on one side and limited by reach of the excavator. Installation happened in stages. The geotextile was laid out first, then panels were placed within short reach of a CAT 314 that positioned rip rap in the anchor trench. The crew would complete a section and then move along the weir and repeat.

During the installation, there was a delay due to a small failure on the subgrade. This required excavation and replacement of the underlying fill material. Eight panels of CC were cut and replaced to complete the subgrade repair. A length of CC was placed transversely under the cut section to allow complete sealing of the repair.



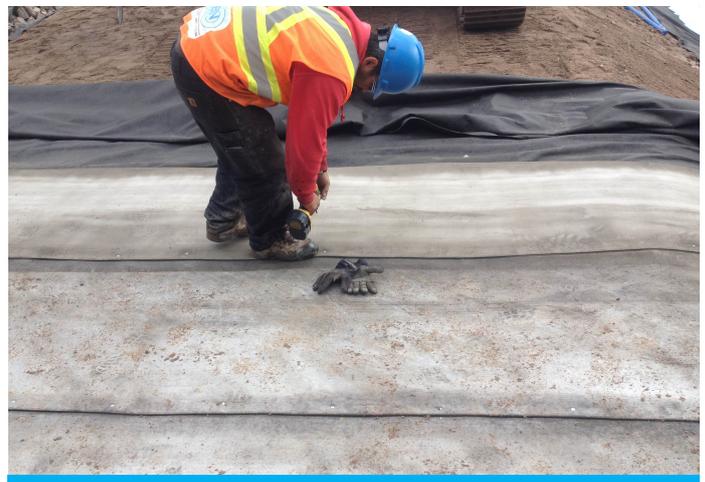
Limited working area on site



Site preparation



Unrolling Concrete Canvas



Securing overlapped CC joints

150-180 sq. m per day was placed by a 6 person crew. The typical work day was 12 hours. Overall the installation took 8 days.

The client commented that, "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."

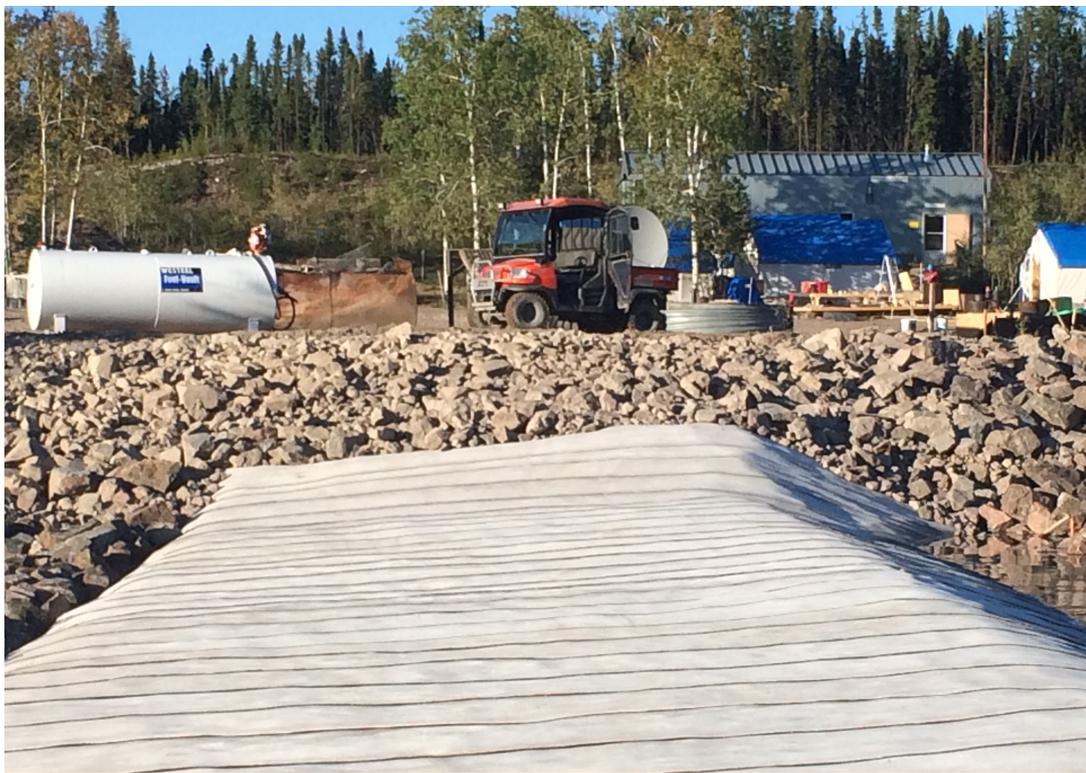
CC simplified the field work and reduced the risk by avoiding in-lake excavations. This is likely to have reduced the overall project schedule compared to the client's alternatives.



Rip rap placed to dissipate water flowing over weir



Completed weir -looking towards the lake side



Full view of completed weir