CONCRETE CANVAS®
Concrete Impregnated Fabric...

ACID BARRIER

Project Info

- 01 / 06 / 2015
- CC8™ Bulk Rolls
- 250sqm
- Longitudinal layers
- Spence Mine Site, Antofagasta, 2nd region, Chile
- Arkad
- CC8™ used to collect water contaminated with sulphuric acid and direct it towards holding pits for later treatment.

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Completed installation

In June 2015, Concrete Canvas® GCCM* (CC) was used as an acid barrier to direct water contaminated with sulphuric acid to holding pits. Train carriages that have been used to transport sulphuric acid are required to be washed down after every use, and the runoff from this process is contaminated with sulphuric acid and is therefore a risk to the environment. Concrete slabs were considered for the project, however these would likely crack due to the vibrations from the trains travelling over them, which in turn would crack the polyuria liner that was specified as the primary barrier measure. Additionally only 3 weeks had been allocated for construction and it would not have been possible to complete a conventional concrete installation within this time.

The site is located at the Spence Copper Cathode Mine site in Antofagasta, 2nd Region, Chile, which is owned and run by BHP Billiton. The mine is situated 1,700m above sea level in Atacama desert, which is the driest desert in the world. Due to the remote location getting raw materials to site can be expensive, which is another reason why using CC is advantageous as a single bulk roll can effectively cover the equivalent area of two ready mix trucks.

To prepare the site two pre-cast concrete ditches were installed either side of the track, and the track ballast was re-graded to direct the contaminated runoff into the ditches. A blinding layer was then applied to prevent any sharp or protruding rocks from piercing the material or the polyuria layer.

*Geosynthetic Cementitious Composite Mat

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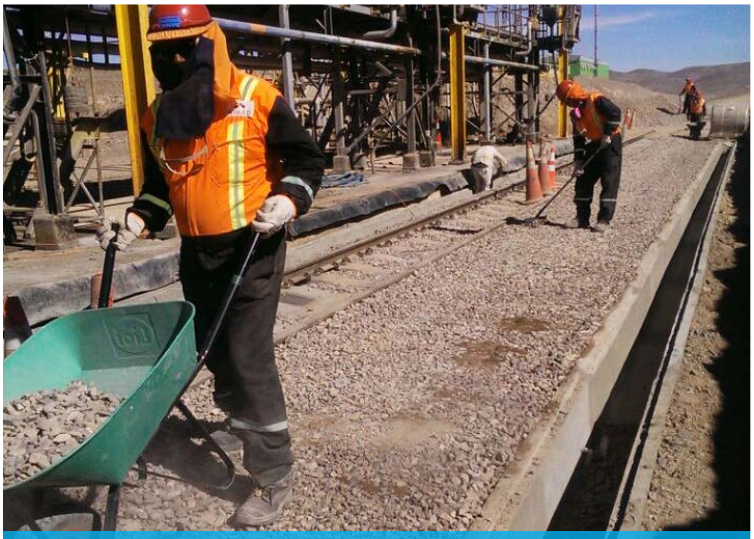
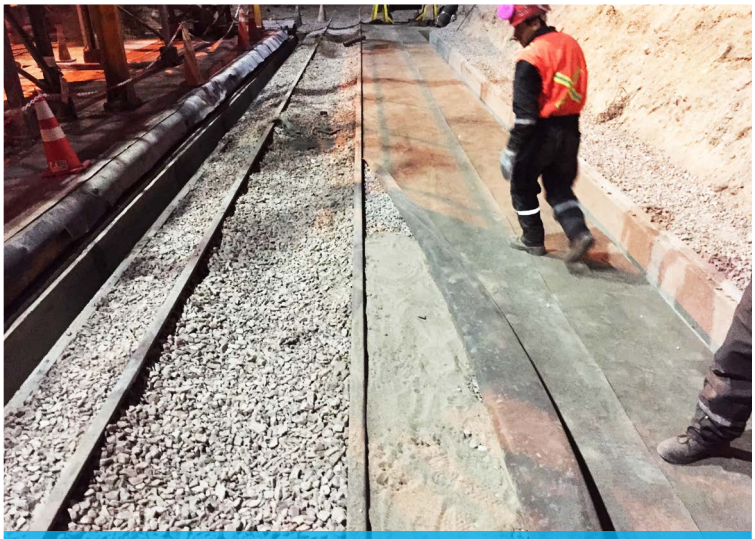
Site just after works began

First pre-cast concrete ditch installed


Re-grading the ballast


CC being laid

Bulk rolls of 8mm thick CC (CC8™) were delivered to site and mounted onto a spreader beam and unrolled along the track. Where any joints occurred the material was overlapped by 100mm, the CC under the overlap was hydrated and a bead of adhesive sealant was used to joint the material. Masonry screws were used to fix the CC to the pre-cast concrete ditch and the material was fully hydrated using a hose with spray nozzle attached. Once the CC was set, a layer of polyuria was spray applied.

In total, 250sqm of CC were installed in less than 20 hours, with only 3 days needed for the entire installation including polyuria lining, instead of the 3 weeks allowed. The client was extremely pleased with the speed of install and has already specified CC for use on another project.

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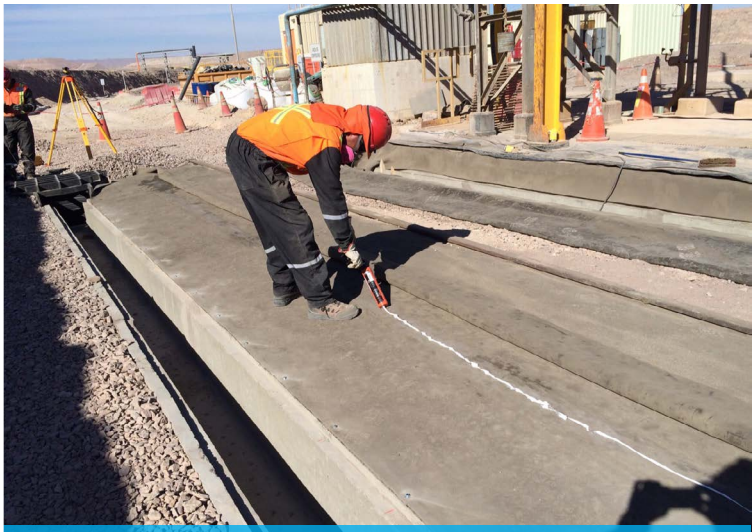
CC screwed to pre-cast concrete ditch



Sealing the overlaps

Hydrating the CC

Applying the polyuria layer

Trackway in use

The finished project

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