

## Project Info



01 / 10 / 15



CC8™ Batched Rolls



4,000m<sup>2</sup>



Longitudinal layers



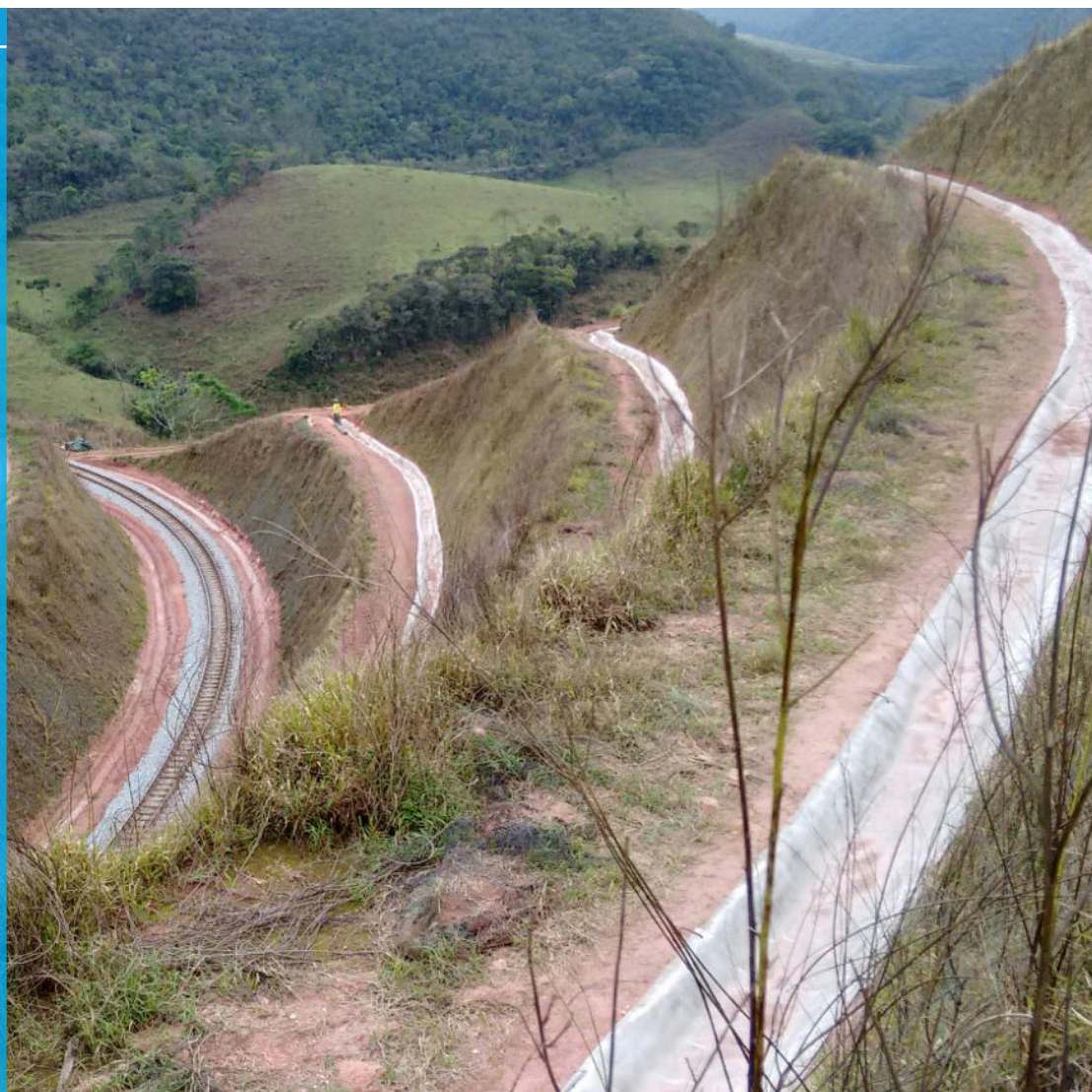
Liberdade, Minas Gerais,  
Brazil



Portex Engenharia



CC8™ was used to line  
a series of channels  
alongside a railway.



Completed installations

In October 2015, Concrete Canvas® GCCM\* (CC) was used to line a series of channels located along a railway in Liberdade, Minas Gerais, Brazil. There were severe access issues as several of the channels were cut into steep slopes on either side of the railway. Poured concrete was considered, however this would have required lengthy line closures and complex, costly logistics. The railway runs through an area of National Park under preservation (APP) which meant it was advantageous to use CC due to the environmental benefits. The works were carried out by Portex Engenharia for VLI, one of Brazil's largest private rail concessions. The CC material was supplied by SPI Engenharia e Representações.

To prepare the site for installation, vegetation was removed from the invert and the channel graded to profile. Batched rolls of CC8™ were delivered to site and manually transported to the channels. For the channels located higher up the slope, a rope and pulley system was used, assisted by a small backhoe. The batched rolls were laid longitudinally with subsequent lengths overlapping the previous by 100mm. Each layer was pegged every 2m on the shoulder of the channel, and the overlaps were jointed with 25mm screws at 150mm intervals.

In total, 4000m<sup>2</sup> of CC8™ were installed at speeds of up to 300m<sup>2</sup> a day by 7 people. The installation was carried out during the rainy season and in temperatures of up to 35°C. The client was very impressed with the speed and safety of the install, noting that this was the first incident free installation they'd had with this volume of concrete infrastructure. Due to the logistical methods developed by the contractors and the ability to manually transport batched lengths of CC, there was no requirement for line closures or possession during the installation.

\*Geosynthetic Cementitious Composite Mat







*Removing vegetation from invert*



*Grading channels*



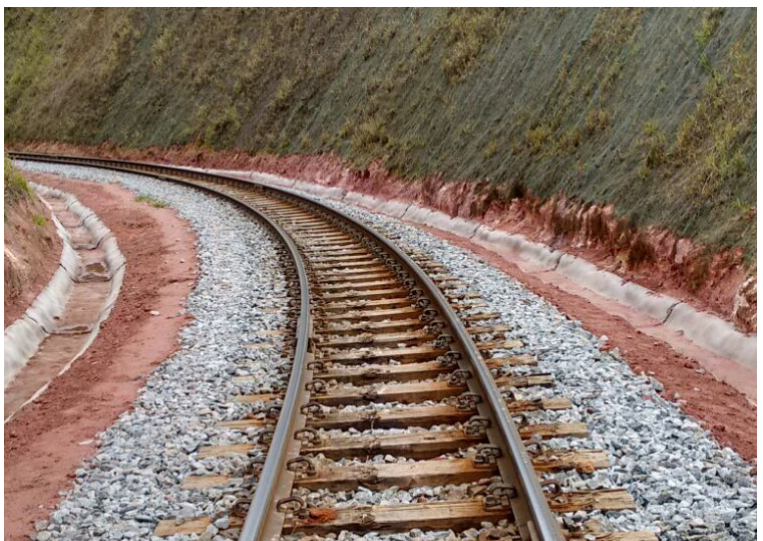
*Batched rolls delivered to site*



*CC laid longitudinally*



*CC immediately after hydration*



*Two finished channels*





Junction detail



Small section of slope protection installed



Stepped section

*“This application was not only practical, and fast, and we had many rainy days during the process with not one stoppage, and it was the safest job and the lowest accident rate we have ever experienced in our company.”*

**Thiago Lisboa**  
Manager  
VLI

*“The second day, when we came back to the site, we were amazed - the CC was hard and in place, we could not believe it.”*

**Diego Ferreira**  
Manager  
Portex Terraplanagem