



## Project Information

### CANAL LINING

#### Project:

Stormwater Cut-off Canal  
Transnet Rail  
Tylden, Eastern Cape  
August 2019

#### Project Summary:

Erosion protection lining of a  
stormwater cut-off canal

#### Geosynthetics:

Concrete Canvas® CC8 - 3 850m<sup>2</sup>

#### Project Team:

Client - Transnet Freight Rail EL  
Contractor - Transnet Freight Rail  
EL  
Consultant - Transnet Geotechnical  
Supplier - Kaytech (J Maastrecht)



## CHALLENGE

Unexpected heavy rains resulted in erosion of recently tilled lands immediately upslope of a rail line cutting near the agricultural village of Tylden in the Queenstown district of the Eastern Cape. Transported sediments entered the cutting, contaminating the ballast stone leading to the loss of frictional interlock. A cut-off canal upstream of the cutting was required to prevent this and the erosion of the cutting embankment.

In addition a durable lining to the canal was needed to resist erosion, reduce maintenance requirements and ensure a drainable gradient is maintained along the minimal fall invert.

The remote location and restricted site access limited the use of conventional construction materials and provided an opportunity for alternative construction methods.

## A BETTER SOLUTION

Concrete Canvas® CC8 was readily accepted and specified because it provides an effective durable surface that is resistant to hydraulic erosion from high water flows and is able to withstand high point loads associated with farm animals. The 3-dimensional fibre matrix containing a specially formulated dry concrete mix with a hydrophilic geotextile cover and a PVC backing on the bottom surface also provides a watertight barrier and prevents water infiltration into the cutting embankment.



Completed earthworks



Installation of CC8



Installation - CC8 hydration process



Completed northbound canal

## OUTCOME

Concrete Canvas® CC8 was laid in transverse strips with tiled joints in the direction of flow effectively diverting stormwater flow away from the rail cutting and into the tributary feeding the Swart Kei River.

The CC8 proved to be an ideal alternative due to the following reasons:

- It was easy to handle and transport to a site having limited access.
- A small Transnet team after minimal training found it was quick and easy to install without the need for heavy, specialised equipment.
- Small sections can be installed with very low risk of damage if left exposed to water flow before completion
- After hydration the CC8 set to a highly resistant concrete-like finish.
- The fully installed cost of a Concrete Canvas® solution in these cases is often competitive against conventional concrete solutions.

For more information about our Geosynthetics and Installation guidelines please contact your local Kaytech sales office.

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