

Project Info



Summer 2018



CC8™ Batched Rolls



1250m²



Transverse layers



Aberdeen Western
Peripheral Route/
Balmedie-Tipperty project,
Aberdeenshire, Scotland



AWPR/B-T CJV



CC used to provide
erosion control & scour
resistance to a series
of drainage channels
used to divert surface
water run-off from the
new constructed dual
carriageway.



Completed channel lining installation in the AWPR-BT Fastlink Section

In July 2018, Concrete Canvas® GCCM* (CC) was used to line a series of drainage channels on the Aberdeen Western Peripheral Route/ Balmedia-Tipperty (AWPR/B-T) project in Scotland. The AWPR/B-T is a major infrastructure project that will significantly improve travel in north east Scotland. It involves the construction of a new dual carriageway which is projected to cost £745 million and create an alternative route from north to south Aberdeen, bypassing the city.

The project is being delivered by Transport Scotland on behalf of the Scottish Government and in partnership with Aberdeen City Council and Aberdeenshire Council and will include 58km of new road, 40km of new side roads, and 30km of access tracks. It will also include 12 junctions, two river crossings at the River Dee and the River Don, and a bridge over the Aberdeen to Inverness Railway. As part of the drainage works, numerous drainage channels were installed at the boundaries off the dual carriageway to direct surface run-off water into culvert headwalls and diversion channels. The slopes in some areas were very steep with limited access for heavy machinery and mobile equipment.

The contractor, AWPR/B-T CJV, originally considered using a combination of rip rap and geotextile for a series of drainage channels, however the steep and varying slopes around the site would have made this very difficult and time consuming. CC was specified as an alternative to provide a long-term, durable solution which would also provide weed suppression within the channels to prevent blockages and reduce future maintenance.

The CC was delivered to site in man-portable batched rolls of CC8™, allowing for easy transportation on site without the need for large plant equipment.

*Geosynthetic Cementitious Composite Mat





Dual carriageway on the AWPR/B-T



Channel prior to installation



CC installed on steep slope



CC terminated into culvert headwall behind diversion channel



CC installed around headwall



CC lined channels



Completed CC lined drainage channels

Prior to installation the channel was excavated and compacted to profile using an excavator and V bucket. A 150mm x 150mm anchor trench was created on either side of the channel to allow the leading edge of the CC to be buried so as to prevent undermining. The CC batched rolls were then unrolled before being cut to specific profile length with a utility knife, minimising material wastage.

The contractor laid the CC transversely to accommodate changes in profile, overlapping layers by 100mm in the direction of water flow. The overlaps were screwed together at 200mm intervals with 30mm stainless steel screws. The installers then inserted 250mm steel ground pegs through each overlap in the anchor trenches on either side of the channel and the anchor trench was subsequently backfilled with material as an extra precaution against undermining. Following each day's work, the CC was hydrated with a minimum of 6 liters/m² as required for CC8™. The material cannot be overhydrated and has a working time of 1-2 hours after hydration. Just 24 hours after hydration, the material had reached 80% strength, but will continue to gain strength over time.

Despite the steep and varying slopes and difficult to access areas on site, the contractor achieved installation rates of over 250m² per day. In total, 1250m² of CC8™ were installed within 1 week. The contractor and client were impressed with the speed and ease of installation which allowed them to complete the installation much quicker than the original specification of riprap and geotextile.