CONCRETE CANVAS®

CHANNEL LINING

Project Info

- 17 / 10 / 17
- CC8™ Bulk Rolls
- 750m²
- Transverse layers
- Bristol, UK
- Alun Griffiths (Contractors) Ltd.
- CC8™ was used to line a newly created crest drainage channel along a newly constructed retaining wall, along with a smaller channel to extend an existing poured concrete channel.

GRIFFITHS
civil engineering and construction

CC8™ used to line a crest drainage channel along a newly constructed retaining wall

In October 2017, Concrete Canvas® GCCM* (CC) was used to provide crest drainage to a new retaining wall constructed to create a new bus lane as part of the North Fringe to Hengrove MetroBus Scheme in Bristol. A smaller channel was also lined as part of the works to extend an existing poured concrete channel.

The North Fringe to Hengrove MetroBus Scheme will provide an express bus service between the North and East Fringes of Bristol, through the City Centre and the South of the City via Bedminster to Hengrove Park, through use of segregated busways and bus lanes. The aim of the scheme is to reduce congestion, enhance public transport links in the area and support future economic development in the North Fringe area.

An open drainage channel was required behind the new retaining wall in order to intercept surface water runoff from the retained slope. Diverting this water helps prevent saturation of the soil behind the wall, reducing the load applied to the back of the retaining structure. The channels were previously specified as 150mm ST4 poured concrete as in an outdated detail drawing. The site overlooks a previous CC installation completed by Graham Construction for the M32, and it was decided to replace the poured concrete detail with CC to provide similar programme and cost savings for this project.

The works were carried out by Alun Griffiths (Contractors) Ltd. for West of England Travel.

*Geosynthetic Cementitious Composite Mat

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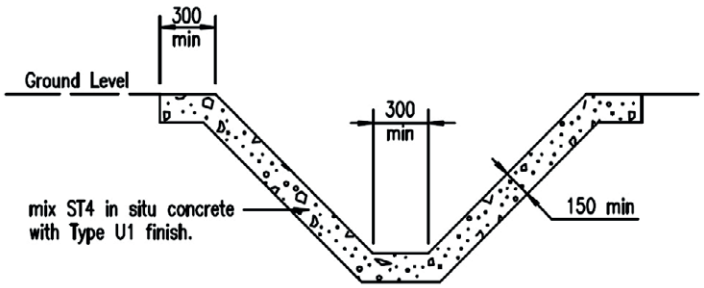

Type C (CONCRETE LINING)

Original poured concrete specification which was replaced with CC

Ditching bucket used to create channel profile

Bulk rolls of CC8™ were deployed from a spreader beam and excavator

Works commenced part way up channel

CC installed behind retaining wall working upstream

CC was hydrated at the end of each installation stage

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Completed CC channel behind retaining wall

Second phase of works heading towards existing CC behind retaining wall

Anchor trenches backfilled

Completed project

CC terminated into concrete headwall

Swale constructed in front of CC channel to collect highway surface water

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Completed installation

In preparation for the installation, the required channel profile was created using a ditching bucket. The specified CC8™ material was delivered to site in bulk rolls and laid transversely, with overlaps facing the direction of water flow. The CC was pinned in the pre-dug anchor trenches and jointed using screws along overlaps. This process was repeated along the full 270m length of the channel, which was hydrated following each stage of installation.

Standard advice is to commence installation of CC downstream and work towards the water source, lapping the CC material in the direction of water flow. However, on this occasion, it was necessary to begin the installation part way up the channel to enable construction to commence while the downstream channel layout was redesigned due to unforeseen changes. Once sections of the channel layout were agreed, the installation recommenced from the downstream end, working towards the in-situ material. The final layer was connected to the in-situ, hardened layer by pre-drilling pilot holes in the set material and screwing through the overlap joint into the unset CC.

A total of 750m^2 of CC8™ was installed by a team of 4 people in wet and muddy conditions. The channel preparation and CC installation was carried out piecemeal over a period of approximately 3 and a half weeks, to accommodate design changes and allow nearby civils works to be completed without delay.

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