

**Project Info**

JUL

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01 / 07 / 22

CC

CCT2™ Bulk Rolls

#

1,125m<sup>2</sup>

V

Transverse layers

G

Macroom, Co.Cork, Ireland

H

Jons Civils Engineering Ltd & John Cradock Ltd JV

i

CCT2™ was used to provide scour protection to a watercourse diversion channel on the newly constructed N22 Baile Bhuirne to Macroom Road Development.

  
**JOHN CRADOCK LTD**





CONFORMS TO: SWS/GCMS

ASTM

STANDARD SPECIFICATION FOR

Completed works

In July 2022, Concrete Canvas (CC) GCCM\* was specified as a channel lining solution for a watercourse diversion channel located alongside a newly constructed section of the N22 dual carriageway.

The N22 Baile Bhuirne to Macroom Road Development will see the construction of a 22km Type 2 Dual Carriageway constructed offline of the existing N22 in County Cork in the south of Ireland. In 2020 the construction contract was awarded to a Joint Venture of Jons Civil Engineering Company Ltd and John Cradock Ltd with design work completed by Barry Transportation and Partners on behalf of Transport Infrastructure Ireland (TII) and Cork County Council.

The proposed N22 carriageway crosses several watercourses along its route. It was proposed that one such watercourse should be redirected into a large culvert underneath the dual carriageway and discharged downstream into a stilling basin and channel which required lining to prevent scour and erosion. The stilling basin is a deep section of the diversion which dissipates the hydraulic jump which occurs at the downstream end of the culvert.

The consulting engineer specified Concrete Canvas GCCM CCT2™ material to line the channel. CCT2™ is a [Type II](#) GCCM as defined in [ASTM D8364](#), it is suitable for use on soil subgrades and was chosen for this project to suit the abrasion, wear and loading requirements. CCT2™ is also certified by the British Board of Agrément (BBA) with durability in excess of 120 years when used in erosion control applications.

\*Geosynthetic Cementitious Composite Mat





CC Bulk Rolls delivered to site



Channel excavation



CCT2™ Bulk Rolls deployed using spreader beam



CCT2™ material laid transversely



CC layers secured together at 200mm intervals



Anchor trenches backfilled





*View of completed CCT2™ Channel*

Prior to installing the CCT2™ material, the contractor cut a trapezoidal open channel using a V-ditch bucket and excavator. All sharp rocks and protrusions were removed from the channel and any large voids within the invert were filled to ensure a uniform and smooth substrate prior to laying the CCT2™ material.

The Bulk Rolls were delivered to site and deployed using a spreader beam mounted on tracked plant machinery. The material was unrolled into the channel transversely and cut to specific profile length to eliminate wastage. The CC layers were overlapped by 100mm in the direction of water flow and were then screwed together at 200mm intervals using 30mm stainless screws.

The material was terminated into 300mm anchor benches on either side of the channel and fixed to the substrate using 250mm ground pegs prior to being backfilled with material to prevent water undermining the material. The material was fully hydrated at the end of every shift using water from the surrounding area.

In total over 1,125m<sup>2</sup> of CCT2™ was installed in 1 week with a team of five including the machine operator. As a result of installing Concrete Canvas on the N22 project, the contracting team saved time on-site, reduced the logistical footprint of the project and provided a long-term erosion control and scour solution for the watercourse diversion channel.