CC HYDRO™
Concrete Impregnated Containment

BUND LINING

Project Info

- 11 / 04 / 17
- CCH5™ Bulk & Batched Rolls
- 100m²
- Transverse and Longitudinal layers
- Gazeley, UK
- Barhale
- 100m² CC Hydro™ trial, remediation to a concrete diesel bund

love every drop anglianwater

IOS INTEGRATED OPERATIONAL SOLUTIONS

Barhale

The CCH5™ was thermally welded with a Twinny T, a heat gun with slot nozzle was also used in other areas

In April 2017, CC Hydro™ was used to remediate a concrete diesel bund at Gazeley, UK. This particular diesel bund along with a disused Surge Vessel were identified as a test area to trial innovative materials as the site sits within the wider area of Anglian Waters 'Shop Window' town of Newmarket. Concrete Canvas entered this system through the Water Innovation Network - a delivery partnership between Anglian Water and Allia, driving innovation within the water industry. The 'Shop Window' is a real-world location where Anglian Water drive innovation through collaboration across their business, supply chain and the entire man-made water cycle in order to create a microcosm of what a future water company looks like, today. Other typical solutions for this type of remediation would be sprayed liners or poured concrete. CC Hydro™ helps maintain volume capacity. The works were carried out by Barhale as part of Anglian Water's IOS Alliance.

CC Hydro™ is a concrete impregnated geotextile that hardens on hydration to form a durable, fibre reinforced concrete layer for the containment of liquids including fuels, oils and other chemicals. The system provides a high performance, armoured, impermeable barrier for lining applications including berms, bund floors and drainage channels. CC Hydro™ consists of a 3-dimensional fibre matrix containing a specially formulated dry concrete mix. The fibre matrix acts to contain the dry concrete, aids hydration during wetting and provides fibre reinforcement once set. This concrete layer protects a hydrocarbon resistant geomembrane bonded to the rear surface which provides a minimum impermeability of $k = 1 \times 10^{-12}$ m/s. A 100mm welding strip allows for efficient thermal welding and rapid on-site quality control and testing.

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BUND LINING

The main diesel bund prior to installation

The CCH5™ was hung vertically using steel clamping bars

Additional PVC for corner details were welded with a heat gun

Joints were triple track welded where possible

Using CC Hydro™ significantly reduces CO^2 and contractor burden

Upstands/terminations were hand-welded

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CC Hydro™ installed and welded prior to hydration

Installation was carried out in clear weather conditions. The existing water within the bund was removed and the concrete surfaces brushed clean. The CCH5™ was hung vertically using a steel clamping bars and mechanical anchors. Joints were triple track welded where possible, and hand welded in corners and around upstands/terminations with a hand-held heat gun and slot nozzle to standard geomembrane installation details. Hydration was achieved via an on-site bowser.

100m^2 of CCH5™ was installed in 6 days by 4 people, in an area with fairly constrained access. The Disused Surge Vessel trial (2.5m x 2.5m x 0.9m) took 2 days and the Main Diesel Bund (10.6m x 4m x 0.9m) took 4 days. This included preparation works and final grouting/detailing works

The trial was deemed a success. Replacing and remediating concrete with CC Hydro™ provides Anglian Water with CO^2 reductions, they are currently preparing a business case to use CC Hydro™ and this solution on other bunds within their network.

The ease of which CC Hydro™ can be installed result in it being more cost-effective than conventional solutions. Up to 200m^2 of CC can be supplied on a pallet, replacing two 17 ton ready-mix lorries - significantly reducing logistics, environmental impact of construction work and reducing contractor burden of civil projects.

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