

Project Info



16 / 11 / 21



CCX-B™ Rolls



76m²



Transverse and Longitudinal layers



Soil Mechanics & Hydraulics Laboratory, Hyderabad, Pakistan.



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CCX-Barrier™ (CCX-B™) used to line a pond and quantify impermeability.

Completed pond lining works

In November 2021, CCX-B™ GCCB* was used to line a pond located at the Soil Mechanics & Hydraulics Laboratory in Hyderabad, Pakistan. The objective for installing CCX-B™ was to test and quantify its impermeability. This was achieved by measuring the rate of seepage through the liner versus evaporation over a 28 day period.

CCX-B™ is a Type II GCCM** as defined in ASTM D8364 - Standard Specification for GCCMs. It is suitable for lining hydraulic and containment structures with soil subgrades, making it applicable to for this study. ASTM D8364 is the only internationally recognised GCCM specification standard and lists erosion control applications by three classifications, Type I, Type II and Type III. It defines the minimum performance values required for each type based on the use of test methods that are specific to GCCM materials. ASTM D8364 is an important resource for clients, consultants and contractors wishing to ensure the GCCM used on their project is fit for purpose.

*Geosynthetic Cementitious Composite Barrier

**Geosynthetic Cementitious Composite Mat





Planned pond works before installation



Completed pond earthworks



CCX-B™ deployed with the aid of an excavator and spreader frame



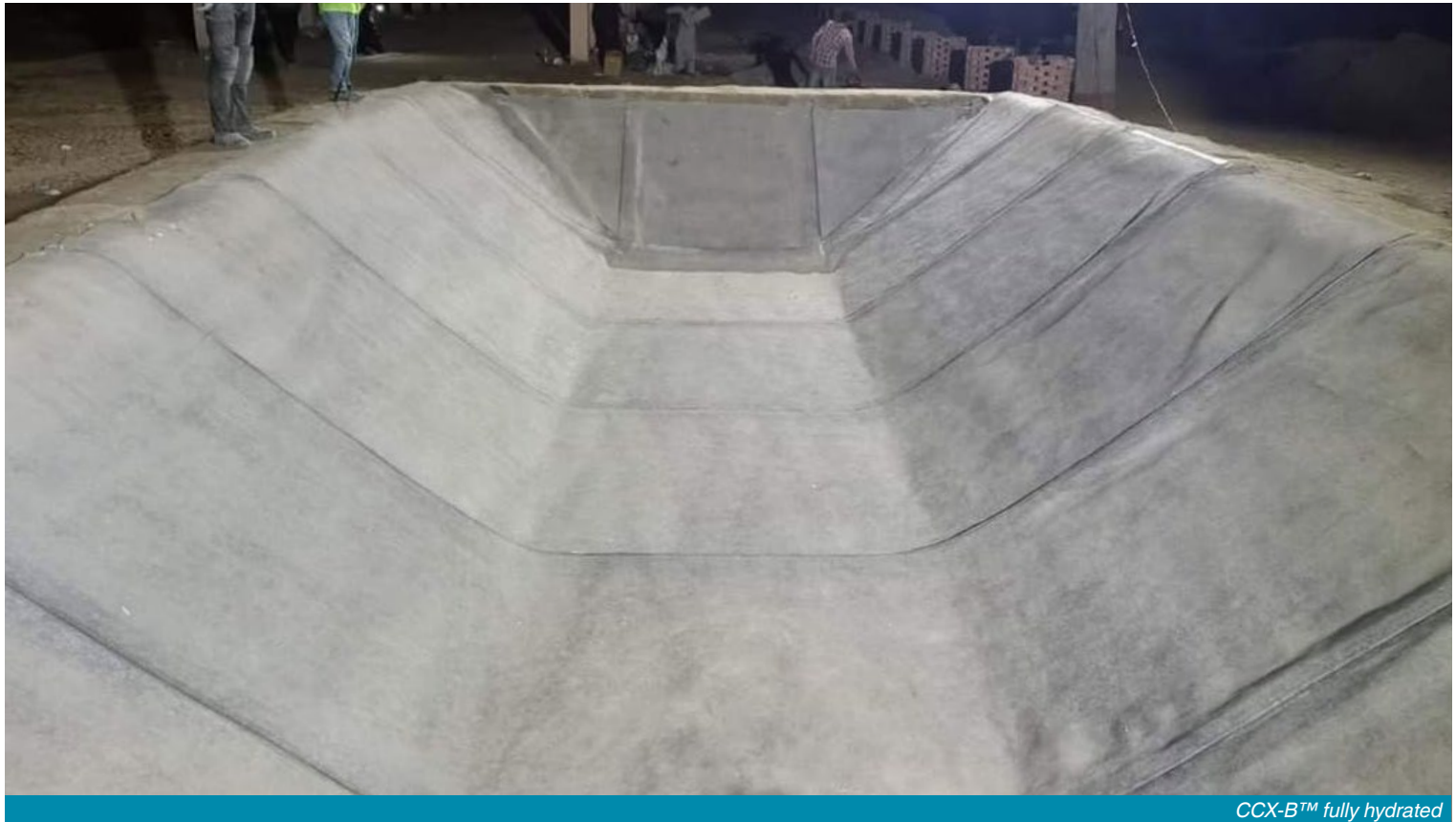
CCX-B™ laid transversely and anchored



Geomembrane backing of CCX-B™ thermally welded



Top CCX-B™ overlaps secured with sealant



CCX-B™ fully hydrated

Prior to CCX-B™ being installed, ground works had to be carried out to create a pond with internal dimensions 10m long by 5m wide by approximately 2m deep. A cut to fill exercise was conducted to create a pond that was approximately 50% below natural ground level. The excavated material was used to create a well compacted pond perimeter above ground measuring about 500mm in width at the top.

Once the pond profile was completed, CCX-B™ rolls were lifted into position using a spreader beam, unrolled and cut to the desired lengths using box cutters. Due to the crest of the pond being too narrow, an anchor trench couldn't be dug to secure the CCX-B™ ends. The edge distance was subsequently extended by 300mm and secured with 12mm galvanised, round head steel anchor pegs at each end.

CCX-B™ was overlapped by 100mm and the 1mm thick LLDPE geomembrane backing thermally welded using a Leister Twinny T. The top of the cement filled CCX™ geotextile layer was sealed using a single 8mm diameter bead of Soudaseal adhesive. Prior to application of the adhesive, the CCX™ geotextile layers were brushed to remove any excess cement dust.

Due to the remoteness of the location, there was no access to mains electricity and so the CCX-B™ had to be hydrated via a water pump operated by a generator. At the time of installation temperatures were approximately 30°C. Hydration was carried out 3 times at 30 minute intervals after nightfall to ensure saturation.

With the ground works being carried out the day before installation, 76m² of CCX-B™ were installed in approximately 6 hours by 6 people.