

Project Info



06 / 08 / 21



CC8™ Bulk Rolls



700m²



Vertical layers



Itaara, Brazil



ROXOR Services and
Equipment Lease
EIRELI



CC8™ used to prevent
erosion of soils at the
base of a transmission
tower



Installation in progress

In August 2021, Concrete Canvas® GCCM* (CC) was used to provide slope protection at the base of a transmission tower, preventing surface erosion of the surrounding soils. The site is located in the central region of the state of Rio Grande Do Sul, Brazil.

The works were carried out by ROXOR Services and Equipment Lease EIRELI for EVOLTZ VI – Campos Novos Transmissora de Energia S.A. An erosion protection solution was required to prevent erosion of the soils around the tower as the poor vegetation cover was allowing soil to erode away in storm events. Among the possible solutions, the use of gabions and shotcrete were considered. The practicalities of transporting these materials to the steep, remote location of the tower made the use of these solutions unfeasible, unlike the use of GCCM. GCCMs allow for easier installation and are more time efficient and easier to transport through the forest.

Concrete Canvas® is the original GCCM and the first product to declare conformance to ASTM D8364 - Standard Specification for GCCMs. This 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 Mat





Process of installing CC

CC8™ is a Type II GCCM as defined in ASTM D8364 and was chosen for this project to suit the abrasion, wear and loading requirements.

Prior to installation, sharp or unstable rocks were removed from the slope, along with vegetation, by using shovels, hoes and sickles. On the crest, a barrier was built with bags of soil-cement to act as a diversion channel for surface runoff. CC8™ Bulk Rolls were supplied for the project, but were batched on site to suit manual handling limitations when working on such a steep slope. The site batched rolls were transported by pick up truck before being moved into position by hand. The CC was fixed to the crest with anchor bolts and clamps, and adjacent layers were overlapped and jointed using stainless steel screws. Soil nails and anchor bolts were used to profile the CC to the slope and prevent the material from curing with voids beneath. For hydration, a water tank was used and the CC was hydrated 3 times in a 4 hour period.

The installation took about 10 days, working 8 hour shifts with rope access. The project was a success, the customer was extremely satisfied, and are considering using CC for other transmission tower erosion protection works.



Vegetation was removed prior to installation of CC



CC delivered to site in Bulk Rolls



Bulk Rolls batched on site to suit handling limitations



Overlapped edges were screwed together using an auto-fed screwdriver



CC terminated around concrete plinths using clamping bar



anchors and plates used to ensure CC conforms to the slope profile



Installing CC



Completed Installation