

Project Info



01 / 10 / 2019



CC5™ Bulk Rolls



9,600m²



Vertical layers



Pan Arab Highway
Section 1, Chtaura -
Lebanon



ROUSSE / CET &
Hourie JV



CC5™ used to provide
erosion protection to a
stretch of slopes either
side of the Pan Arab
Highway



CC Slope Protection installation alongside the Pan Arab Highway in Lebanon

Following the success of a trial in 2016, Concrete Canvas® GCCM* (CC) was specified as an erosion protection solution to a slope alongside the Pan Arab Highway in the Bekaa region of Lebanon.

The slopes in question run either side of Sections 1 and 2 of the Pan Arab Highway Lot A. At their highest points, the slopes measure approximately 25m.

Shotcrete was also considered for the project but would have been significantly more time consuming to install. Shotcrete would also be likely to create rebound, leading to a costly clean up and would also potentially require lane closures due to the proximity of the slopes to the road itself. CC was ultimately chosen due to the speed, ease and cleanliness of the installation process, as well as its ability to provide a durable solution for erosion and vegetation control.

The works were carried out by CET & Hourie JV and ROUSSE.

In preparation for the installation, any large, protruding sharp rocks, tree stumps, roots and vegetation were removed in order to prevent damage to the material's PVC membrane backing during installation, and to prevent the development of void space beneath the material. No further ground preparation was required as CC's flexibility was able to easily conform to the varying profile of the slope.

*Geosynthetic Cementitious Composite Mat





First section of slope protection installation in progress



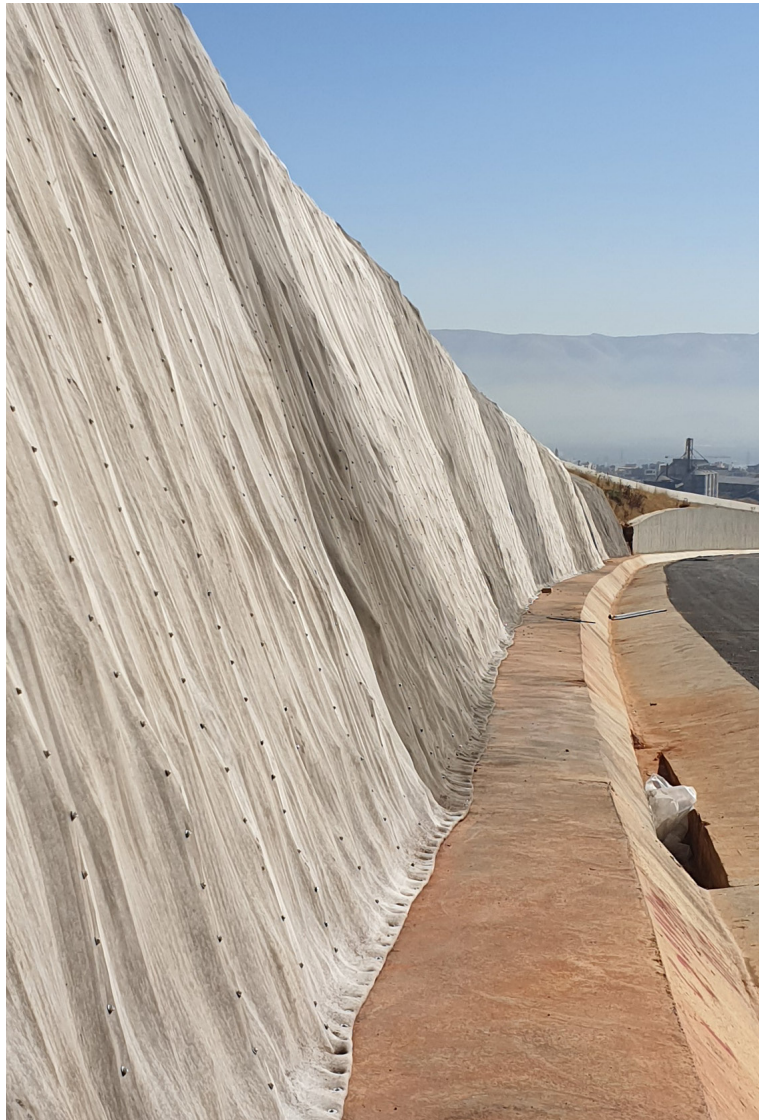
CC bulk rolls deployed from plant mounted spreader beam



Overlapping layers thermally bonded and reinforced with anchor bolts



Concrete backfilled anchor trenches for ingress prevention & neat termination



CC secured to concrete below with shot fired nails



New installation and original trial installation on either side of Pan Arab Highway



A total of 9600m² of CC5™ were installed as a slope protection solution alongside a stretch of the Pan Arab highway in Lebanon

Bulk rolls of the specified CC5™ were delivered to the site and mounted onto a spreader beam hung from a truck crane which was positioned at the base of the slope for safer deployment. The CC was lifted and positioned at the top of the slope, with the edge of the material secured at the crest within an anchor trench using ground pegs. The material was then unrolled down the face of the slope, with the installation team manually assisting with the positioning of the material to ensure subsequent layers overlapped the last by 100mm. Overlapping layers were thermally bonded and the joints then reinforced using concrete bolts, positioned at 100mm intervals. Where CC met existing concrete infrastructure, shot-fired concrete nails were used to secure the material. Once the installation was completed, the CC was hydrated before the anchor trenches were backfilled with ready-mix concrete to prevent ingress of water beneath the material.

A total of 9600m² of CC5™ were installed in less than 30 working days by a team of eight people. The works were carried out in temperatures of between 18°C and 28°C, and often in rainy conditions. Despite the steep nature of the slope and its proximity to the highway, no lane possession was required, with access provided by the service lanes. The client was happy with the results and are planning to specify CC for further projects in the near future.