

Project Info



30 / 08 / 16



CC5™ Bulk Rolls



500m²



Vertical layers



Highway A24,
Nó da Régua,
Peso da Régua, Portugal



Rodio Portugal SA



Protection of a slope
next to Highway A24,
joining on to existing
concrete infrastructure.



Each bulk roll was positioned at the top of the slope and unrolled downwards

In August 2016, Concrete Canvas® GCCM* (CC) was used to protect two slopes located at Highway A24, Nó da Régua, Peso da Régua, Portugal. Part of each slope had previously been lined with concrete using more conventional methods, however, to continue the protection of the remaining slopes an alternative was sought. Shotcrete was considered, however the rebound would have necessitated closing the adjacent highway lanes, creating issues to existing traffic.

Vegetation and any large rocks were removed, with the slope being excavated previously. Bulk rolls of CC5™ (5mm thickness) were the chosen solution for this installation. The CC was mounted onto a spreader beam and hung from a truck crane stationed at the base of each slope. Each bulk roll was positioned at the top of the slope and unrolled downwards, with the installation team ensuring an overlap of 100mm was created between layers. The Concrete Canvas was attached to the existing concrete infrastructure on the one side with masonry screws. The CC was fixed at the crest with 380mm ground pegs inserted every 1m. The overlaps were screwed at 200mm intervals with 30mm stainless screws down the face of the slope, alternating so every other screw was closer to the edge, forming a triangular shape. Hydration was achieved using two 1000ltr water tanks with spray nozzle attached, with re-hydration an hour later due to the clear weather conditions and high temperatures of 40°C. CC can not be over hydrated.

In total, 480m² of CC5™ was installed by 4 people in under three (8hr) days on the slopes which were difficult to access. Rodio Portugal SA were impressed with the speed and ease of installation, and will consider CC for use in future projects. The adjacent lanes were able to remain open for the duration of the installation, with no traffic disruption caused.

*Geosynthetic Cementitious Composite Mat





The Concrete Canvas was attached to the existing concrete infrastructure on the one side with masonry screws



The CC was mounted onto a spreader beam and hung from a truck crane stationed at the base of each slope



380mm ground pegs were inserted every 1m



Vegetation and any large rocks were removed, prior to installation



Holes were cut for any protruding elements



Every other screw was closer to the edge, forming a triangular shape



Hydration was achieved using two 1000ltr water tanks with spray nozzle



Face plates were used to anchor a wire mesh in place



The completed installation of slope 1 - 320m²



In total, 480m² of CC5™ (Slope 1 - 320m² & Slope 2 - 160m²) was installed by 4 people in under 3 (8hr) days on both slopes with restricted access

The client was very happy with CC's method of operation, with the simplicity and cleanness of its application, making it a possible contender for use in future projects. The lead engineer of the site, pointed out several advantages in the use of Concrete Canvas®:

"The simplicity in application; the industrialization of the application process; the speed on installation; the non-risk of over hydrating the concrete; the low safety risks associated; the easiness on the material transportation; and finally, the reduced industrial waste resulting from the application."

Carlos Costa
Lead Engineer, Rodio Portugal SA

CC was a more cost effective solution compared to shotcrete, as it allowed a reduced lane possession that would result in a high cost for the client due to the restraint on surrounding traffic. CC also represented a much more eco-friendly solution as the works were in an area that has some environmental and landscape integration demands. Both contractor and end client had only positive comments about the product and its application, now they want to study it's behavior over time to arrive at the conclusion of considering CC as an alternative to more conventional methods.