

Project Info



04 / 04 / 13



CC13™ Bulk Rolls



920m²



Transverse layers



Skewen, South Wales, UK



AMCO on behalf of Network Rail



CC was used to replace a dilapidated corrugated half pipe, used for water management, which had corroded.



The completed channel

In April 2013, Concrete Canvas GCCM* (CC) was specified on behalf of Network Rail (NR) to reline a 220m long dilapidated drainage ditch running adjacent to a busy rail line in Skewen, South Wales. AMCO, who have previously installed CC on several other NR projects, were the principle contractor on these works. The ditch had originally been lined 30 years previously with corrugated steel half-pipe that had since deteriorated to the point that vegetation growth through missing sections was limiting flow capacity. The bottom section of the half pipe had come away from the ditch profile in sections and the integrity of the channel and banks were being compromised. As the ditch experienced very high flow rates during seasonal run off from the surrounding valleys, CC13 was specified.

The project presented several challenges for conventional concrete solutions. The speed of install was critical, as work required lane closure and traffic management measures for an adjacent residential area. Using CC, the project was completed in less than 8 weeks, significantly quicker and resulting in less disruption for local residents than the poured or precast concrete alternatives.

The CC was able to accommodate an adjacent tree-line separating the channel from a nearby railway embankment, which avoided the need for removal and re-grading of the profile typically required for standard concrete options. Using CC also meant that there was no need to take possession of the train line as would have been the case if shotcrete or other sprayed solutions had been specified.

*Geosynthetic Cementitious Composite Mat





The corroded corrugated steel liner, showing signs of dilapidation



Ground preparation



CC8 delivered to site in bulk rolls



CC was able to be tailored around existing infrastructure



CC was fixed in place using steel ground pegs and backfilling



CC was able to be tailored easily around an existing culvert wall



Completed ditch section



CC was backfilled at the crest of the ditch, providing a neat termination

There were concerns of risk to the local ecology and fish-life downstream. Approval was granted for CC use following an assessment of the washout materials. Unlike many standard concretes, CC is able to be laid directly into live water courses due to its low alkaline reserve and minimal wash out. The EA also appreciated that CC closely follows the natural contours of a ditch profile, resulting in an organic finish sympathetic to the surrounding environment. The textured fibre top surface will attract moss growth, whilst importantly preventing root growing vegetation, mitigating future maintenance.

The ditch was operational over the course of the installation, with water flow redirected around dammed sections of the channel whilst the CC was being laid. A type 1 aggregate was loosely spread across the bottom of the invert to consolidate the soft ground and vegetation in the channel removed prior to lining with CC. Bulk rolls of CC13 were delivered to site and batched to specific profile length, reducing wastage. The CC was laid transversely before securing at the crests with steel ground pegs and joining adjacent layers with screws.

CC provided a rapid, easy to install and durable lining solution which addressed the time-critical and ecological challenges of this project. Work was completed quickly, ensuring minimal disruption to local residents and without requiring possession of the adjacent trainline. Network Rail and the EA were satisfied that there would be negligible impact on the local ecology, whilst the durability of the CC13 will ensure the stability of the channel and minimal required maintenance for years to come.