

Cogrie Viaduct - UK

Consultant: URS Scott Wilson. 2005



80 Priory Road,
Kenilworth,
Warwickshire
CV8 1LQ
UK: 01926 512222
Int: 00 44 1926 512222
office@proserveltd.co.uk
www.proserveltd.co.uk

Fabriform

Consultant URS Scott Wilson acting for Network Rail designed the scour protection system using concrete mattress to the Cogrie Viaduct bridge structure. Scour erosion around the bridge foundations had begun to jeopardise the bridge piers and so after an initial site survey Proserve engineers undertook the design of the concrete mattress scour protection system. After approval of all drawings, fabrication commenced as the toe trenches and existing stone gabions were excavated by the contractor. This Material was then used to form a flow diversion bund to approximately 1/3 of the river width to allow for workable conditions. After all levels were excavated/filled according to the design, the mattress fixings were then installed at the river walls and piers at 1m c/c.

A micro concrete mix was developed and checked using a Proserve flow cone (B65) and then set up for delivery and pumping. Divers co-ordinated the installation along with Proserve guidance commencing from pier 1. Upstream and downstream scaffold tube fixing points were installed and the mattress panels were prepared with 4.5m scaffold tubes in the end envelopes and mattress panels rolled up.

Rolls were lowered to their upstream fixings and attached to the upstream poles. Roll Bundles were then released and rolled out downstream, zipping to the adjacent mattress after the first panel. Ties were fixed at the river abutments and piers and the downstream pole was fixed to the bottom of the toe trench.

Once the 2 panels were installed, the first panel was pump filled commencing with the first upstream filler sleeve. Once the mix reached the second sleeve the pump hose was transferred, proceeding until full. Mattress laying and filling proceeded across river similarly, moving the flow protection bund along accordingly due to the high flows during laying.

Toe trench rock armour was then put into place and the mattress contact was checked to structure abutments. Gaps were filled with insitu micro concrete, protected by fabric sand bags from wash out.

