

Press Information

METALLOCK FRACTURE REPAIRS GIVE LISTED BRIDGE NEW LEASE OF LIFE

When you have a Grade II Star listed cast iron bridge that develops fractures that need to be invisibly repaired, do you dismantle it and send it away or call in the experts to restore it in-situ. That was the predicament that the bridge department of Staffordshire County Council found themselves in with the Chetwynd Bridge over the River Tame on the A513 at Alrewas.

To dismantle, transport away for repair, repair, return it to site and re-assemble was prohibitive as far as cost and time were concerned. Instead Galliford Midlands who had been contracted by the County Council for extensive repairs asked Coventry firm Metallock Engineering to investigate and decide if their Metallock metal stitching repair would be a viable proposition.

The cast iron bridge, constructed in 1824, has three spans with a series of box sections, forming the outstand, supported on the cast iron girder structure. A combination of age, water ingress into some of the box sections and vibration caused a series of fractures to develop just above the lower corner joint. These extended nearly all the way along one side of the bridge and also for a considerable distance along the opposite side. Following an assessment of the problem by Metallock engineers, it was decided that the metal stitching technique, carried out in-situ, would provide an effective and long lasting repair without dismantling the bridge.

As the bridge carries a substantial amount of traffic between Alrewas and Tamworth, a Bailey bridge was erected alongside so that the team of Metallock engineers could carry out the fracture repairs without having to worry about traffic.

The Metallock process is accepted as a method of repairing cracked and broken castings across a wide range of industries. One of the main advantages of the process is that it is heat free and can be carried out in-situ or one of the company's workshops. Apertures are jig drilled across the crack to accept multi-dumbbell shaped keys manufactured from a ductile high tensile nickel alloy. The keys are peened into the apertures to become integral with the parent metal. Holes are then drilled and tapped along the line of the fracture and filled with studs, each one positioned to overlap its neighbour. This combination of keys and studs produces a rigid and pressure tight repair and final peening and hand dressing completes the operation. Once the repair has been dressed, a primer applied and finish painted it is practically undetectable.

For the Chetwynd Bridge, the team of four Metallock engineers spent 3 fairly severe winter months completing nearly 74 metres of fracture repairs. Additionally, the team carried out similar repairs to some strengthening ribs underneath the main deck, where other fractures had developed.

As the method by which the deck is supported has been modified - it is now cantilevered from the three main piers - the original cast iron grid no longer has to support the weight and the bridge is now in a condition to give many more years service.



Before Metallock repaired the 177-year old Chetwynd bridge over the River Tame there were serious cracks in the box sections along the two sides. Metallock cured the problem and the bridge lives on.

Metallock Engineering UK

Unit H 5
Pilgrims Walk
Prologis Park
Coventry
CV6 4QG
England
Phone: +44 (0) 24 7636 0084
Fax: +44 (0) 24 7636 0190
E-mail: sales@metallock.co.uk
www.metallock.co.uk

