

Reading Bridge, Berkshire

Location	Reading Bridge, Berkshire (Over the River Thames)
Date	March 2015 - August 2015
Products	Carboplate, Adesilex PG1, Mapewrap C UNI-AX, Mapewrap 31, Maperod C Mapelastic, Elastocolor Paint
Project Type	Structural Strengthening & Refurbishment
Owner	Reading Borough Council
Contractor	VolkerLaser

The Background

Supporting a three lane highway and two footways over the River Thames, Mapei products delivered major strengthening works to this historical sprandel arch structure; an essential part of the strategic transport network for the Berkshire area. Built using an early form of reinforced concrete during the 19th Century, Reading Bridge has received only minor work since opening in 1923.

The structure was now in need of major strengthening works in order to extend its longevity, ensuring the busy bridge could remain a strategic route for thousands of motorists that rely on this vital transport link; carrying 24,000 vehicles every day.

The Project

Having served the town for over 90 years, Reading Bridge required bonding carbon fibre reinforcement to the deck, thickening the R.C. abutment walls, deck waterproofing and protective coating to the structure - all of which Mapei were able to assist with.



Contractors, VolkerLaser, were awarded the contract to repair, strengthen and extend the remaining life of this critical infrastructure asset for client Reading Borough Council. The council's consulting engineers for the scheme were Peter Brett Associates. Mapei were able to provide the products for the innovative solutions required to strengthen the structure without compromising its original aesthetic. Mapei Carboplate was bonded to the soffit of the bridge deck slab and beams with Adesilex PG1 adhesive. The pultruded carbon fibre plates, available in 3 sizes, are light weight with high modulus and excellent endurance strength.

Highly stressed spandrel columns were wrapped with Mapewrap C UNI-AX, a high strength, unidirectional carbon fibre fabric wrap, to increase their shear capacity. The wrap was bonded to the columns with Mapewrap 31 adhesive. To overcome the difficulty of strengthening the ends of the spandrel columns 'in bending' where they join to the main arch and top deck beams, the bending moments at these points were designed to redistribute loads to other parts of the structure.

During a two-week closure, the road construction was stripped back to the bridge deck and Maperod C, pultruded carbon fibre rods pre-impregnated with epoxy resin, were inserted into slots cut into the top surface of the deck at the transverse beam supports to strengthen the deck slab in the hogging regions. Mapelastic was used to provide protection to the carbon fibre against ultraviolet light.

The final aesthetics to the structure's elevations was completed with Elastocolor Paint, Mapei's elastomeric and crack-bridging permanently flexible coating. Impermeable to water and highly resistant to sunlight, ageing and aggressive chemicals the coating will significantly assist in the preservation of the bridge's appearance.

VolkerLaser completed the project on time and to a high standard and as such were shortlisted for the Construction News Awards for Structural Specialists of the Year. The bridge now offers a safer, more durable and trusted route across the River Thames serving well into the future.

View our website for the complete range of Mapei products, or contact our technical team for further information on 01462 421333.



