



Engineering Services ■■



**ECS was recently commissioned by the Environment Agency to design, supply and install a new bridge at their site at Mapledurham on the river Thames. Unlike traditional bridge structures however, this one is made from an innovative, maintenance free, composite material with a 50 year guarantee.**

This bridge replacement contract had to achieve a number of objectives; to improve the capacity of the local access routes to the Mapledurham weir and lock complex which is part of a much larger refurbishment project taking place across a number of sites on the River Thames and to upgrade the size and strength of the existing bridge structure, which had insufficient capacity for modern vehicles.

**InfraCore** inside

# Mapledurham FRP Bridge

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To achieve these objectives, the project required an innovative solution that would also take account of the many challenges involved in replacing the bridge; such as the remote site location, limited vehicle access and short time frames required for installation.

To meet these challenges ECS turned to a highly innovative bridge construction technology invented by Fibrecore Europe. Fibrecore uses Fibre Reinforced Polymer (FRP) to build complete bridge structures at its plant in Holland. The bridge deck is moulded in a single piece, with a bonded anti slip wearing surface. The FRP deck is custom manufactured to have the most efficient combination of strength and stiffness for the particular bridge span and loading required, in this case 13 metre span and 60 tonne loading.

The design results in FRP bridge decks that

are around one third the weight of steel or concrete equivalents, offering savings on civils and installation costs. Infracore bridge deck sections up to 48 metres long can be manufactured in a single moulded piece. With no physical joints, and no exterior paint finish required, the bridge decks are maintenance free and are expected to have a service life in excess of 100 years.

Use of the FRP technology and off-site manufacturing approach meant that the composite bridge deck could be constructed and delivered in a very short period of time. After several successful projects, ECS is now the nominated agent and supplier for Infracore products to the UK.

The use of a lightweight deck meant that ECS was able to deliver the bridge to site by floating it on a barge down the River

Thames. The installation itself was relatively straightforward, with site preparation taking up a large proportion of the build time. Once the foundation preparation was completed, and the new Infracore Bridge was craned off the water, the actual installation was completed within a day – a key advantage in utilising a pre-built bridge solution.

ECS's installation of this new bridge provided the Environment Agency with greatly improved access to the weir and lock complex, which in turn allowed additional vital maintenance work in the area to be completed. It also provided a new structure that will last for the next century with little or no maintenance, giving the Environment Agency a rapid solution with very long term benefits.



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Water Control ■■ Site Services ■■  
Environmental ■■ Fabrications ■■

