



# SIKA AT WORK

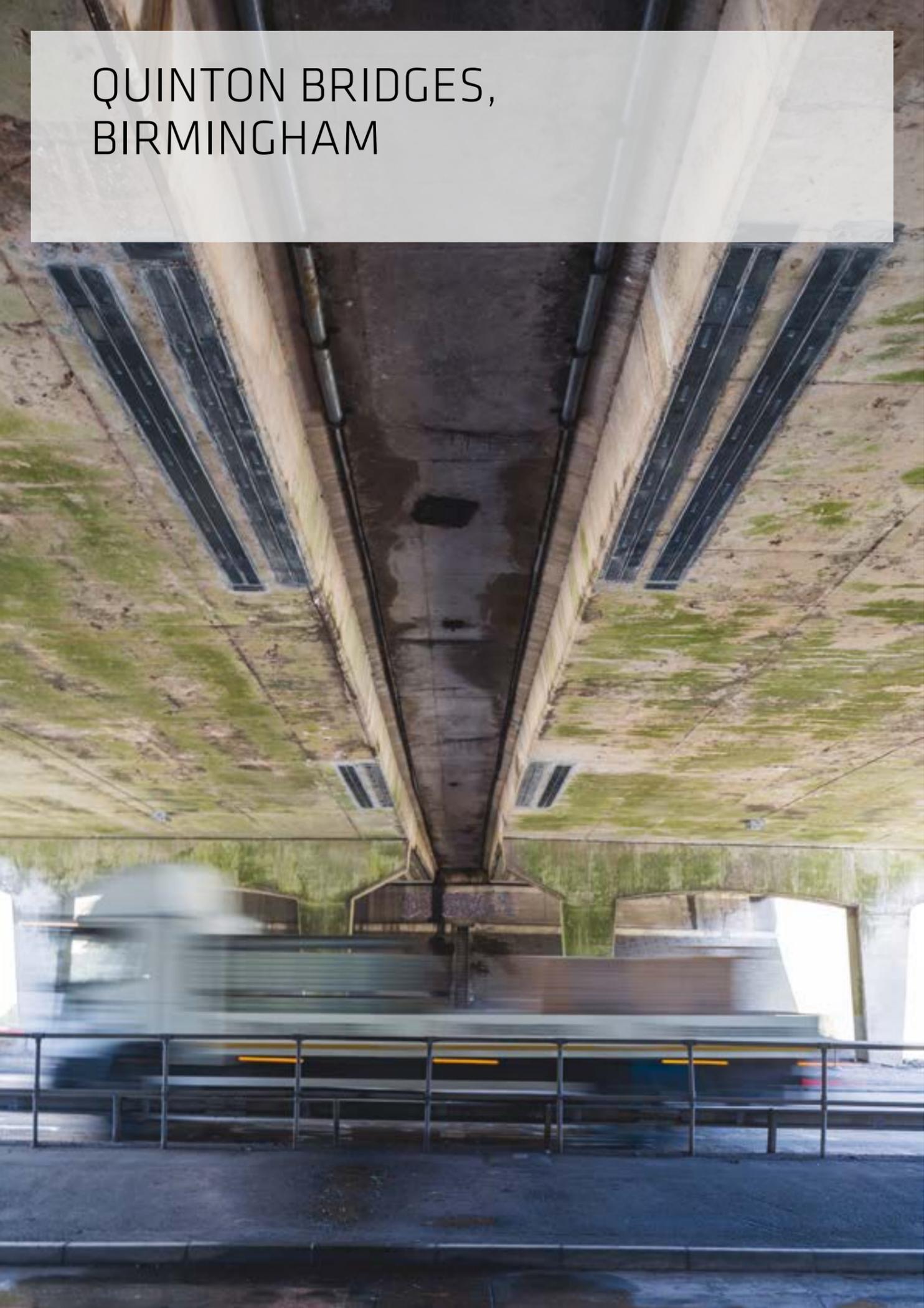
## QUINTON BRIDGES, BIRMINGHAM

REFURBISHMENT: Sika® CFRP Plates and Sikadur®

BUILDING TRUST



# QUINTON BRIDGES, BIRMINGHAM



## **SIKA CFRP PLATES SPECIFIED TO RESTRENGTHEN UK'S FIRST MAJOR EXTERNALLY BONDED REINFORCED BRIDGE.**

At the M5 junction 3 Quinton Interchange near Birmingham, a structural inspection showed de-bonding to one of the bridge's 192 steel plates - installed in 1975 as the UK's first ever major application of bonded external reinforcement. Appointed to replace all the steel plates to improve the bridge's resilience and prevent potential future weight restrictions, AMEY -consultants for the Highways Agency - turned to Sika for technical assistance and the possible use of Sika's prefabricated Carbon Fibre Reinforced Polymer (CFRP) plates

Specified at major strengthening projects throughout the UK transport structures - including the UK's largest ever application



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of carbon reinforcing at Embankment Underground Station in London – 725m<sup>2</sup> of Sika CFRP plates were specified and applied onto the two bridges that form the interchange over a six week timeframe.

Re-strengthening the in-situ bridge deck proved ideal as it provided Amey with a repair solution that minimised disruption to road users, an easy application process and ensured long term reinforcement with proven results. Designed to deliver high performance structural stability in demanding environments, the Sika CFRP plates were manufactured to meet the project's specific dimensional requirements.

To minimise disruption to the M5, specialist contractor Concrete Repairs Limited (CRL) completed the entire application process when traffic flows were at their lowest and with minimal lane closures. The project was carried out in a series of carefully planned shifts between 8pm and 6am from Monday to Thursday, and 24 hours a day at weekends from 8.30pm on Fridays through to 6am on Monday mornings.

To ensure structural bond of the plates, Sikadur® structural epoxy adhesive was applied to the underside of the substrate and the plate itself. Suitable for use in vertical and overhead configurations, the

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Please consult the Data Sheet prior to any use and processing.



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high-modulus, high-strength, structural epoxy adhesive offers exceptional tolerance to moisture to provide a reliable, durable and long term solution.

When positioning the plate, full contact of the adhesive to the two surfaces guaranteed a long-term bond before temporary supports were put in place whilst the adhesive cured. The excellent adhesive performance allowed installation to carry on throughout winter, with the skilled applicators adapting their processes to suit the low temperatures and prevent water condensation on the surfaces. To speed up the application, CRL covered each plate in a thermal blanket to enhance the curing process further and minimise delays.

As well as guaranteeing exceptional quality, the plates' bespoke Pre-Preg (pre-impregnated) manufacturing process also maximises efficiency with delivery of exact design dimensions in terms of length, width and thickness. Delivered to site ready for installation, the careful collaboration between Sika and CRL helped to simplify the application and meet the tight deadline.

The renovation of motorway bridges is essential to ensure journeys remain safe and reliable for all road users. For performance, effectiveness and efficiency, Sika's CFRP Composite Plates ensured a high quality restoration that has further strengthened Sika's reputation as a favorite for specifiers and contractors around the world.

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