

CASE STUDY

Footbridge Refurbishment

MAKERS

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PROJECT

Westone Bridge, Northampton

STRUCTURE

Steel Bridge & Concrete Piers

CLIENT

Redefine International

CONTRACT VALUE

£750,000 circa

CONTRACT



Westone Bridge is a multi-section pedestrian footbridge linking a large residential area to the West of the Weston Favell Shopping Centre in Northamptonshire. The footbridge - which crosses above the busy A43 dual carriageway – was closed for 26 weeks to undergo a complete programme of refurbishment and transformation carried out by Makers.

The walkway comprises eight sections, the largest single section of which is 17.5m long. During a total 4-lane highway closure & traffic diversion over three consecutive nights, six of the bridge's steel sections were lifted off and taken to an off-site location where they underwent complete refurbishment and structural enhancement.

The footbridge structure – built in 1975 - had a domed steel and perspex canopy which enclosed the walkway and had been neglected for many years along with its concrete supports. The design of the structure and its tunnel-like enclosure made it extremely difficult to clean and maintain its exterior both by its physical shape and by virtue of the fact that it crosses a busy public highway that is in constant use.



Before



Before

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Accreditations



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Major Repair to Piers



Piers Repaired & Coated



Asphalt Deck Removal

Following the removal of six of the bridge's steel sections, the remaining 13 in-situ reinforced concrete piers had to undergo substantial concrete repairs having not been afforded the protection from the elements by any protective coatings. Large areas of concrete were broken away from the piers and following surface preparation of the exposed corroding reinforcement, shuttering was built around the tops of the piers and the concrete repaired using Sika's pre-bagged Armorcrete flowable concrete repair mortar. The exposed corner steels on many of the vertical faces of the supporting columns were also repaired using hand-placed, Sika's Monotop concrete repair mortars.

Once repaired – and following the application of Sika's Ferrogard 903 migratory corrosion inhibitor as part of the corrosion management strategy for the concrete elements, Sika's 2mm thick Monotop surface levelling mortar was applied to add additional theoretical concrete cover as well as to mask the repaired areas and provide a suitably smooth surface for the final application of Sika's 550W elastomeric anti-carbonation coating.

Following removal of the 50mm-thick asphalt wearing course of the footbridge walkways, badly corroded steel members on various sections of the bridge had to be completely removed and replaced. The bridges were then grit-blasted back to bare metal, primed and re-painted with a three-coat Jotun protective paint system. The decks were replaced with a maintenance-free composite decking system. Highways-compliant 'EKKI' hardwood timber rails were fixed the full length both sides of the bridge with a galvanised mesh panel fixed over the top for additional safety. The handrails were also raised 100mm in height along both sides of the bridge to ensure compliance with safety regulations.



Composite Deck Replacement



Hand rail increased by 100mm



Safety Mesh Installed

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