Case Study

Sherbourne Bridge

Sherbourne Footbridge comprises both post-tensioned and traditionally reinforced concrete elements and spans the River Irwell in Salford. This project was awarded second place in the Asset Protection and Repair category at the prestigious Concrete Society awards.

The Concrete Society Awards NOMINATED

Location
Salford, UK

Client
Urban Vision Partnership Ltd

Completed
December 2014

Structure
Footbridge with post-tensioned elements

The Problem Identified

Extensive testing of the post-tensioned beams and conventionally reinforced pier structures was carried out. Chloride profiling, carbonation depth analysis and half-cell potential mapping, revealed significant corrosion damage and areas at high risk of future deterioration. Particular care was required to avoid any damage to post tensioning tendons during either investigation or treatment works.

The Solution Developed

CPT designed a DuoGuard™ hybrid anode system to halt ongoing corrosion and prevent further damage to the footbridge. Using an external power source, an impressed current was applied to stop active corrosion and render the steel passive. The DuoGuard anodes were then disconnected from the power source to self-generate a galvanic current, sufficient to maintain steel passivity and control corrosion. Due to the possibility of hydrogen embrittlement of the tendons, the impressed current phase of the hybrid treatment was closely monitored and controlled.

CPT also supplied a bespoke monitoring system, allowing the performance of the corrosion control system to all twelve beams to be individually checked and supervised.

In addition, concrete repairs and anti-carbonation coating works were carried out in accordance with BS EN1504.

The Benefits Provided

Corrosion related deterioration of Sherbourne footbridge has been halted. After the initial power up period using an external power source, the DuoGuard system is self-powered thus minimising future maintenance requirements and associated life costs.

Sherbourne Bridge anode installation

CPT Products Used

DuoGuard™

MN15 Reference Electrode

DuoCrete SD Mortar

CPT Monitoring System

CPA

ISOQAR REGISTERED UKAS MANAGEMENT SYSTEMS 0026
Certificate Number 10159
ISO 9001, ISO 14001

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