

# Laverock Hall Bridge



Laverock Hall Overbridge was suffering typical corrosion problems associated with leaking bridge deck joints, exhibiting significant concrete spalling as a result of chloride induced steel reinforcement corrosion. Northumberland County Council have an obligation to maintain a number of structures distributed over a wide geographical area.

Location <b>Cramlington, UK</b>	Client <b>Northumberland City Council</b>
Completed <b>July 2006</b>	Structure <b>Dual Carriageway Overbridge</b>



## The Problem Identified

Deterioration of the beams was visible due to the corrosion activity and technical analysis showed chloride levels in the concrete were likely to lead to further corrosion problems.



## The Solution Developed

Northumberland County Council were keen to have a low maintenance, long term solution to the reinforcement corrosion problems at Laverock Hall Bridge. A DuoGuard™ hybrid anode system was designed to halt ongoing corrosion and prevent further damage. Using an external power source, an impressed current was applied to stop active corrosion and render the steel passive. The DuoGuard 500 anodes were then disconnected from the power source to self-generate a galvanic current, sufficient to maintain steel passivity and control corrosion.

Monitoring equipment and measurement probes were installed in the treated zones to allow remote monitoring of system performance. Results obtained from the monitoring system have indicated a potential anode lifetime of 50+ years.





## The Benefits Provided

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



Temporary impressed current phase

## CPT Products Used

 <b>DuoGuard™ 500</b>	 <b>MN15 Reference Electrode</b>	 <b>DuoCrete SD Mortar</b>
 <b>GAN 1 Monitoring System</b>		



ISO 9001  
Cert No. 10159