



## LAMINGTON VIADUCT EMERGENCY BRIDGE REPAIRS AND SCOUR WORKS

**Project Location:** South Lanarkshire, Scotland

**Project Timeframes:**  
1st January 2016 to 1st July 2016

**Client:** Network Rail

**AmcoGiffen Discipline/Sector:**  
Infrastructure

### Project Overview

As a four span 101-metre bridge, the Lamington Viaduct is the largest of 4 west coast mainline carrying railway bridges that crosses the river Clyde. Following Storm Frank's widespread flooding and disruption to Scotland on the 30th December 2015, the Clyde reached its highest-ever recorded level of 3.12m above datum.

After a train reported a dip in the track over the viaduct, examinations discovered that pier 2 had lost structural integrity. AmcoGiffen, with Network Rail agreement, closed the line to all traffic. We were subsequently contracted to secure the viaduct, produce the design and delivery of a reactive solution, and safeguard the structure against future issues.

### AmcoGiffen's Scope of Works

Mobilising on New Year's Day – shortly after the blockage was reported – our team's first job was to secure the viaduct. Creating a bespoke design solution, which required works to Pier 2, Pier 3, the North Abutment and all 4 spans, our overall scope of works included:

- 17,000 tonnes of rock armour protection
- Underwater concrete pour of 400m<sup>3</sup>
- Replacement of 4 bearings
- Installation of 133 soil nails
- Installation of concrete jackets
- Bridge deck lifting
- A new insitu cast concrete nosing to the upstream side of the pier 3
- Associated grouting works
- Grey bank protection upstream to both embankments



Awarded a commendation at the saltire awards in 2016 for 'the greatest contribution to civil engineering' this scheme not only brought back into service a failing railway bridge but re-opened a main transport artery that is the spine of the rail network in the UK.



## Innovation Applied

When providing emergency, reactive works, every job is entirely unique and always depends on a combination of rapid planning, industry expertise and circumstantial innovation.

With the risk of collapse apparent while securing the viaduct, an exclusion zone was declared to prevent anyone working on or below the viaduct. As a further precaution, overhead lines were cut before and after the viaduct, as its collapse might have brought these wires down onto anyone working close to the viaduct.

This risk was mitigated, to an extent, by the rock armour upstream of the pier and construction of the causeway. The viaduct could only be considered secure when mass concrete had filled the void below the piers.

## Benefits Provided

Reopening the bridge to traffic just over a month after the incident, AmcoGiffen worked diligently to ensure all works were complete in record time, successfully reopening the West Coast Mainline 2 weeks ahead of programme.

Benefits of the project included:

- Prevention of additional damage to the structure, railway, and surrounding areas
- Increased safety of the line
- Preservation of South Lanarkshire's heritage rich infrastructure

Further benefits provided by AmcoGiffen:

- A robust and comprehensive understanding of the technical scope
- A strong commitment to around the clock health and safety
- The ability to promptly adjust to project modifications
- A client-first commitment and excellence driven philosophy



## Project Contact

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