



# Arnside Viaduct

## Cumbria, United Kingdom



## Project

Arnside Viaduct is a 51 span bridge that was originally built in 1856 and consisted of a single track rail line that connects Arnside with Cumbria over the Kent estuary near Morecambe Bay. Subsequently this was widened to accommodate a second line and has undergone further maintenance over the years to strengthen the supports. The steelwork had deteriorated over the years to such an extent that the superstructure was in need of a complete replacement and had to be carried out during a 16 week closure to the line in the spring/summer of 2011.

The 477m long bridge is constructed of tubular cast iron piles which were subsequently encased in brickwork and concrete for additional protection and a superstructure that supported the Carnforth & Whitehaven line.

To help with the limited time frame in which the project had to be completed, the superstructure was replaced with prefabricated deck girder units which were fabricated and painted at the Mabey Bridge facilities in Chepstow, South Wales and then transported to site in Cumbria for erection and installation. Minor transport and erection damage was repaired on site using the shop applied system.

Sherwin-Williams was asked to supply an anti-corrosion coating system that would protect the project for a minimum of 25 years in a saline environment (the project was only 7.9m above water level) Sherwin-Williams also provided an anti-slip deck coating for the superstructure modules which have proven track records in the North Sea offshore industry.

**Substrate:** Steel blast cleaned to Sa2½.

**Requirements:** 25 years external corrosion protection.

**Specification:** Steelwork – Macropoxy™ L574, Macropoxy™ M922, Acrolon™ C137V2. Decks – Macropoxy™ C425V2, Epidek™ M153.

**Area Coated:** Approximately 1,200 tonnes of prefabricated deck girder units.

**Customer:** Mabey Bridge (applicator), May Gurney (main contractor), Ramboll (engineers), UK Department for Transport (client).

## System

Sherwin-Williams worked with Mabey Bridge to provide a paint system that could be applied in-shop to help maintain productivity whilst providing the long-term anti-corrosive properties that are essential for this type of project.

Sherwin-Williams offered full specification/technical and practical advice from the early project stages and carried out regular site visits for the two-year duration of the project. This helped to ensure that the work was completed on time to the satisfaction of all interested parties.

### Coatings used for the corrosion protection were:

| Product         | Highways Agency item number | Product type      |
|-----------------|-----------------------------|-------------------|
| Macropoxy™ L574 | NR Item No. 7.1.2           | Blast primer      |
| Macropoxy™ M922 | NR Item No. 7.2.3           | Glass flake epoxy |
| Acrolon™ C137V2 | NR Item No. 7.3.1           | Special finish    |

### Coatings used for the anti-slip decks were:

| Product                          | Highways Agency item number | Product type                     |
|----------------------------------|-----------------------------|----------------------------------|
| Macropoxy™ C425V2                | NR Item No. 7.1.4           | Zinc phosphate primer/build coat |
| Epidek™ M153                     | NR Item No. 5.12.1          | Extra heavy duty deck coating    |
| Epidek™ M153 anti-slip aggregate | NR Item No. 5.12.3          | Anti-slip aggregate              |

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