



Barry Viaduct Refurbishment



Case Study

Background

The Barry Island Viaduct was built in 1880 and is an 18-span steel structure carrying both a single track of the BRY line between Barry and Barry Island Stations and a single track of the Barry Tourist Railway (steam heritage railway formally known as Vale of Glamorgan Railway Company). The whole deck is approximately 135m long x 7.3m wide between parapets.

The structure comprises 4 No. longitudinal main girders with cross bracing forming rail girders, supporting steel deck plates and longitudinal timbers fixed directly to the deck. The superstructure is supported on steel trestles and masonry abutments. There are double trestles with longitudinal cross bracing between spans 6 & 7 and spans 12 & 13. Trestles are at 24' 3" (7.39m) centres, the double trestles are 4' (1.22m) apart. This project covers the refurbishment of the existing viaduct including grit-blasting, painting and steelwork repairs.

Delivery

Working as the Principal Contractor for the refurbishment works, we managed and completed the following activities:

- Ecology survey and site investigations;
- Site clearance, vegetation clearance works (under the supervision of a qualified ecologist) and installation of site compound;
- Excavation and regrading works around the viaduct trestle bases;
- Removal of existing debris and cleaning of the viaduct deck;
- Erection of access scaffold and encapsulation;
- Grit-blasting and priming of existing trestles, outer deck parapet plates and underside of viaduct deck;

- Repairs/replacement of existing viaduct bearing stiffeners along with general repairs to other corroded elements on the viaduct spans and trestles;
- Final preparations and painting of the main viaduct structure and support trestles with an approved Network Rail paint system;
- Hand preparation and painting or renewal of the parapet handrail to viaduct.

Outcome

The original project tender was based on a previously developed design concept, during the tender period Centregreat Rail reviewed this and, with our approved specialist permanent works designers, developed an alternative bid that provided our client with an initial 60% saving on their pre-tender budget for the works. This involved Centregreat re-assessing the structure and providing a new Form AA and BA for the structure which was endorsed by the Network Rail Structures Engineer.



Client: Network Rail Investment Projects
Cardiff

Value: £3.25 million

Delivery Period: July 2017 – April 2018