AMCO·GIFFEN

Case Study

Princess Alexandra Way
Bridge Repairs

Location	Heysham, Lancashire
Client	EDF Energy
Project Scope	Design and Build
Project Value	£2,700,000
Project Timeline	2018 - 2020

As a primary route to Heysham Power Station, the maintenance and responsibility of the structure has been adopted by EDF Energy as principal users of the road. AmcoGiffen were contracted from the design stage of the project, allowing the teams to understand the complete capacities and constraints of the bridge and therefore, providing fully considered solutions and services in the process.

Project Outline

The bridge is a 3-span structure with a superstructure of steel / concrete composite design supported on reinforced concrete abutments and piers. The existing structure consisted of a half-joint detail at the piers, this caused combined loads from the beams of two adjacent spans to be transmitted to the piers through a single bearing.

As the bridge is occasionally subjected to abnormal loading by vehicles for EDF Energy, the energy provider commissioned a structural assessment which identified contained problems at the end of each span. The failure of movement joints in the road surface was found to be creating heavy water ingress. This water ingress, coupled with the localised failure of the protective paint system, had led to significant corrosion build up and section loss, to both the mechanical bearings and the end portions of the deck beams.

The assessment report went further, analysing the effects of vehicle exposure specific to EDF operations and recognised that although the bridge in its existing state was capable of supporting the applied loads, further deterioration would quickly result in the bridge becoming unsafe for use.

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Project Innovations and Value Engineering

Entrusted to deliver and manage the structural design of the project, AmcoGiffen were able to work closely with EDF Energy to emplace a number of recommendations and value added solutions:

- Early environmental checks - analysed potential disruptions or constraints to construction
- Reduction in costs - We mobilised our internal steelwork fabrication team to deliver the post grit blast inspection
- Value engineering - when faced with delays in EDF approval and final decisions on the water main, AmcoGiffen overlapped the water main works with the steelworks, which ensured the project was still delivered on programme

Scope of Works

During this project, AmcoGiffen's teams worked with EDF Energy to bring a fully considered and efficient solution to suit both the client, key stakeholders and the local communities:

TAILORED DESIGN & ENGINEERING

Early detection and implementation of multiple solutions to the client benefit:

- Bearings replacement initial solution
- Temporary Works Designs developments in accordance to Permanent Design

KEY STAKEHOLDER MANAGEMENT

AmcoGiffen owned the communication and liaison with statutory bodies and organisations such as:

- BT / Openreach and Electricity North West for services running over the bridge
- Local Authority Lancashire Council
- Wildlife Trust
- Network Rail

SUPPLY CHAIN ENGAGEMENT

Drawing upon resources and relationships to provide a premier service:

- CSL for scaffold and painting system
- CSL / Harrisons Engineering for steelworks
- Ekspan for bearings design and development alterations required to complete the works

SUSTAINABILITY AND ENVIRONMENT

Working with multiple stakeholders to manage and mitigate:

- Waste
- Biodiversity
- Resource management
- Economic and social benefits to local communities

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