

Bearing Replacement

A14 Orwell Bridge - Phase 4



FREYSSINET
SUSTAINABLE TECHNOLOGY

Client
Highways Agency
Principle Contractor
Jackson Civil Engineering
Consultants
Atkins
Value
£185,000
Contract Duration
24 Weeks
Works Completed
February 2011

The A14 Orwell Bridge, completed in 1982, is situated to the South East of Ipswich, Suffolk. It is a 1.3km, eighteen span continuous twin post-tensioned concrete box girder viaduct, carrying the A14 Trunk Road over the River Orwell estuary.

The scheme, part of the Highways Agency Area 6 Framework, was the scheduled replacement of two mechanical bearings supporting the North box on Pier Line 5, along with associated temporary works to facilitate jacking of the deck and to control the potential release of stored energy within the existing bearings. Pier Line 5 is approximately 35 metres high.

Freyssinet Ltd was appointed by Principle Contactor Jackson Civil Engineering to design, manufacture and install the new bearings. Jacking and monitoring of the deck was also included within Freyssinet's scope of works. The bearing replacement works were carried out over the weekend of 11th-14th February 2011, during a 52hour closure of the North Deck, carrying the Eastbound A14.

Prior to the possession, innovative temporary works were put in place to enable a controlled life of the deck, 3no jacking systems coupled with a computerised monitoring system were installed and commissioned. The main lifting jacks were positioned on the pier top acting to the underside of the deck with a maximum uplift capacity of 3500Tonnes.

Due to the reduced capacity of the bridge box at the jacking point, a further 2 sets of jacks were installed within the bridge box to effectively brace the box and resist the forces induced via the main lifting jacks. The sets of internal jacks used were Vertical Strut Jacks with a maximum capacity of 2240Tonnes and Diagonal Strut Jacks with a maximum capacity of 1400Tonnes.

Once the deck had been jacked to the required height, the existing bearings were removed and replaced with 2no new mechanical sliding bearings, designed and manufactured by Freyssinet Ltd. Each bearing weighed approximately 3Tonnes and had a vertical capacity of 1600Tonnes at SLS.

The deck was handed back to the Client 2 hours ahead of schedule. Works were completed to the satisfaction of the Highways Agency and Jackson Civil Engineering, on time and within budget.



- 1 The A14 Orwell Bridge
- 2 Jacking system within the bridge box
- 3 View from below the bridge
- 4 New bearing in place

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