

A645 NEWLAND BRIDGE - FABRICATION & INSTALLATION OF TEMPORARY WORKS & BEARING INSTALLATION



Project Brief

Fabrication and installation of temporary works and jacking system. Removal of existing bearings. Supply, manufacture and installation of 8 no. guided, fixed and free bearings.

Project Team

Client:	ERYCC
Main Contractor:	PBS Construction (NE)
Bearing Specialist:	USL Ekspan
Jacking & Monitoring Specialist:	Mabey Hire

Background Information

Newland Bridge is a three span composite steel and concrete structure carrying two lanes of the A645 over the River Aire. The A645 links Goole and Selby, providing direct access from Goole Docks and the M62 motorway to Drax Power Station.

As a result of the embankment approaches, to the bridge structure, suffering up to 800mm of settlement since its construction in 1991, structural failings in the bridge had been identified and reported as requiring urgent repair. This ground movement had caused the abutments to be displaced towards the deck, and in doing so the longitudinal free bearings at the west end of the deck were beyond their operational limits and therefore non-functional. A complex, multi-directional jacking scheme for the structure was designed, developed and installed for controlled live monitoring throughout the bearing removal and installation process. This enabled safe execution of all temporary/permanent works and bridge repairs whilst safely dispelling the existing propping force in the deck.

USL Ekspan's Worksopce

USL Ekspan worked closely with Mabey Hire to undertake the manufacture and installation of temporary works, and the removal and replacement of the permanent bridge bearings on Newland Bridge.

USL Ekspan manufactured and installed the longitudinal and transverse hydraulic jacking system (jointly developed and designed by Mabey Hire and Arup) used to control movement of the bridge in multiple directions and enabled bearing removal from each of the four pier locations and the abutments. The replacement bearings were manufactured and supplied by USL Ekspan to suit existing fixing centres in the beams, and with oversize top plates to accommodate additional future translation requirements.

The successful removal and installation of Newland Bridge bearings is attributed to the critical and strategic planning of all site operations which worked parallel to the structural monitoring and control system installed by Mabey Hire. Controlled monitoring ensured the bridge structure remained within the prescribed tolerances throughout the duration of works with no out of tolerance, allowing USL Ekspan to execute all works on this project safely and on time.



Longitudinal jacking - temporary works



Removal of bearing on pier

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