

CASE STUDY



A473 BRIDGEND INNER BYPASS BRIDGE, SOUTH WALES - BEARING REMOVAL & INSTALLATION



Job Brief

Supplied: Removal of 65 no rocker bearings.
Design, manufacture, supply and
installation of 65 no mechanical pot
bearings.

Project Team

Client: Bridgend County Borough
Council
Main Contractor: Dyer & Butler
Sub-Contractor: Ekspan
Start Date: March 2015
Completion Date: June 2015

Background Information

The A473 Bridgend inner bypass bridge spans the River Ogmore, in Bridgend, South Wales. The ageing structure, with nearly 50 years wear and tear carrying high volumes of traffic, had developed some significant problems which had been identified by Bridgend Council as requiring major repair and maintenance work. Repairs to the bridge's parapets, concrete supports and bearings were essential to ensure the structure remained durable and safe for continued use.

The steel bearings supporting the bridge deck were excessively corroded to the extent that some had 'seized', and were consequently deemed as being inadequate to accommodate the expansion and rotational forces which they were originally designed for. To alleviate this increased stress transferred into the bridge deck and supports, these bearings had to be replaced.

Ekspan's Workscope

Ekspan were contracted by Dyer & Butler to replace the existing 65 no Glacier steel rocker bearings with Ekspan BS5400 mechanical pot bearings on the West abutment, at the East and West piers of Bridgend inner bypass bridge. Due to the complexity of the structure's design and the existing bearing dimensions, the new installed bearings were designed and manufactured as bespoke pot bearings.

Works on this project included marking-up and prepping site for installation of temporary works / bridge propping; hydro demolition of bearing / bridge beams, piers and abutment; bearing removal; construction and installation of steelwork beams as plate/stool arrangements for the new pot bearings to be fixed to; bearing installation; concrete repairs works for encapsulation of steelworks and bearing top plates and base plate sockets; concrete repair to piers and abutments and final grouting of the new installed bearings.

The A473 dual carriageway remained open with lane restrictions whilst Ekspan worked to a very tight programme schedule - this together with the extreme complexity of the installation made precise and logistical planning crucial to ensure all site work operations were timely met.



Old rocker bearing corroded and no longer functional



Super props and jacks temporarily supporting the bridge deck



New installed mechanical pot bearing fixed to the bridge beam and bearing shelf