

Bridge GA
SCALE: 1:100

Strategy

Where individual elements do not lend themselves to various repair solutions due to technical or constructional constraints or where the heritage value is such that only a restorative approach is deemed acceptable one solution will be proposed which aims to meet the requirements of the LBC process. In such cases a justification of the proposal will be provided alongside a narrative of why one approach is deemed viable in lieu of two alternatives.

The information within this page provides a view on the extent of the Eastern bank approach structure. Although not exhaustive the typical conditions of primary elements are described briefly below;

Repair Justification

Bottom Chord Steelwork – Paint loss and heavily corroded steelwork with some total section loss to Southern extent. Multiple failure of rivets within connections to vertical steelwork.
Top Chord Steelwork – Paint loss and heavily corroded steelwork with major section losses to Northern and Southern extents. Multiple failure of rivets with connections to vertical steelwork.
Vertical Steelwork – Paint loss minor corrosion throughout with some examples of 50% section loss. Multiple failure of rivets with connections to top and bottom chord steelwork.
Cross Bracing – Paint loss and minor corrosion throughout with some example of 50% section loss.
Masonry Embedment – The end bearing to the East & West extents of the trusses is formed via embedment within the masonry embankment construction and are at high risk from uncontrolled corrosion. At present the condition of steelwork within these embankments cannot be fully assessed but poses a major risk to the wider structure.

The approach is a highly visible element and is one of the first interactions with the bridge from the Eastern bank. The structure is also of vital importance for the long-term life of the structure providing support of pedestrians and vehicle access and egress onto the bridge. In the short term as part of the reopening of the structure it is likely to be at its most heavily loaded and its condition and capacity is therefore of vital importance. In its current condition the residual strength cannot be assessed appropriately due to the extent of corrosion, section loss and failure of rivets.

Options such as strengthening plates, although feasible do not offer a long-term viable solution and are likely to add significant weight to the structure without guaranteeing long term structural performance. Likewise, wholesale removal and replacement pose a risk to the heritage of the structure in terms of visual, cultural and historic structural standing. In order to maintain long term structural integrity and performance of the structure it is therefore proposed that the following works are undertaken;

Proposal

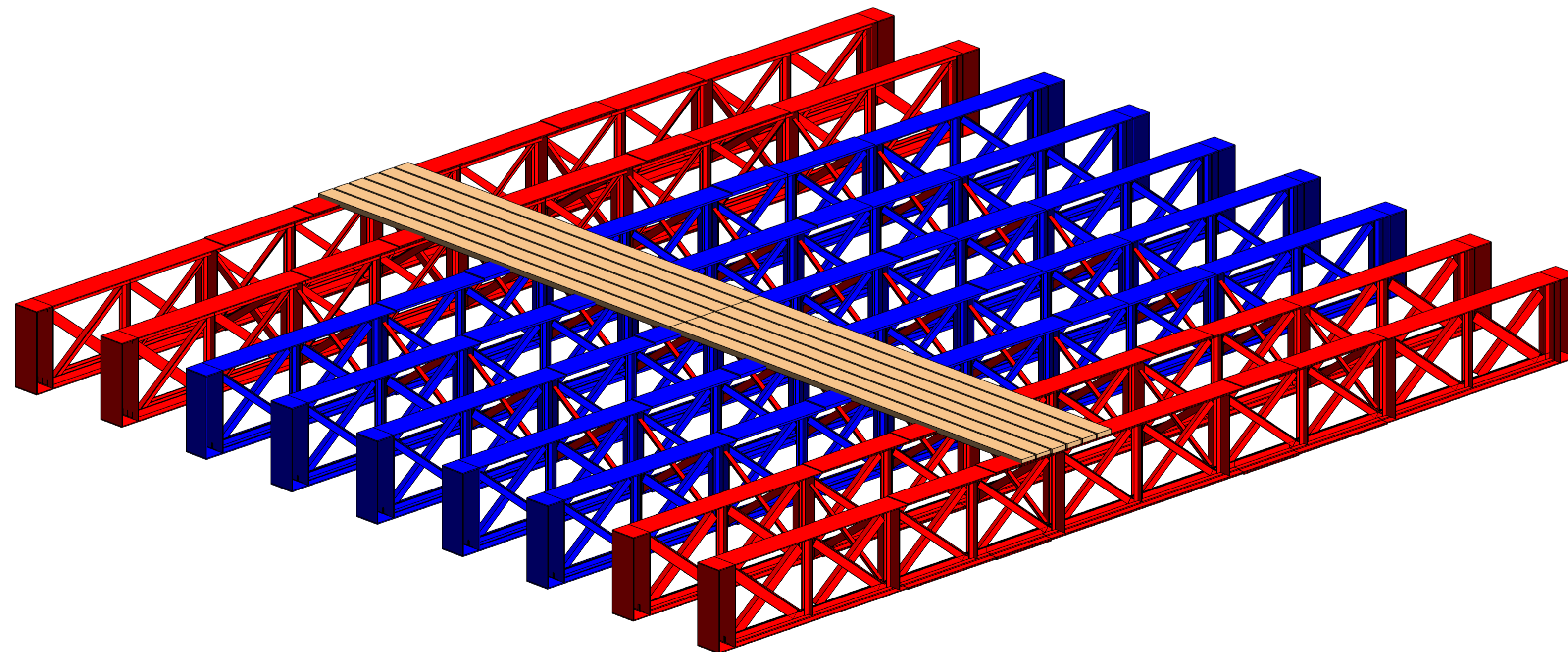
1. Remove all timber decking members and set aside for reuse.
2. Remove masonry to East & West end bearings to allow full inspection of truss ends.
3. Blast clean existing steelwork in-situ with sufficient containment to prevent loss of arisings into local environment.
4. Undertake thorough inspection of all elements to determine extent of corrosion and section loss throughout with an aim to identifying the extent of material to be reused. This is to be logged via marking plans and photographic evidence throughout.
5. Remove all primary steelwork elements; this should be undertaken by removal of a singular beam in its entirety or by partial removal of sections via breaking out of riveted connection points to be agreed with the engineer.
6. For the refurbished members the elements identified as suitable for reuse as item 4 should be utilized to replicate the structural arrangement, section sizes and dimensions of the original construction. Connections will be formed via dome headed standard or TCB bolts to replicate as much as possible the existing riveted details. It is envisaged that this will allow for the 4 refurbished elements to be constructed.
7. For the remaining 5 internal elements new trusses are to be fabricated which as closely as possible replicate the structural arrangement, section sizes and dimensions of the original construction. A typical layout with preliminary sections sizes have been present with final dimensions to be confirmed subject to final inspection of the existing construction.
8. Refurbished members are then to be placed at the outermost two members to the North & South of the Eastern approach to ensure that the most visible elements are visually unaffected by the works.
9. New members are to be placed within the remaining central locations, replicating the original arrangement.
10. Timber members are then to be reinstated over new and refurbished members with suitable waterproofing to underside to prevent trapped moisture. Fixing details for the timbers over are to as closely as possible replicate the existing condition, however previous installations need to be investigated for suitability.
11. Parapet and infill lattice work to be undertaken as described by others.

Location	Anchorage
Orientation	East/West
Element	Internal/External Masonry

LEGEND

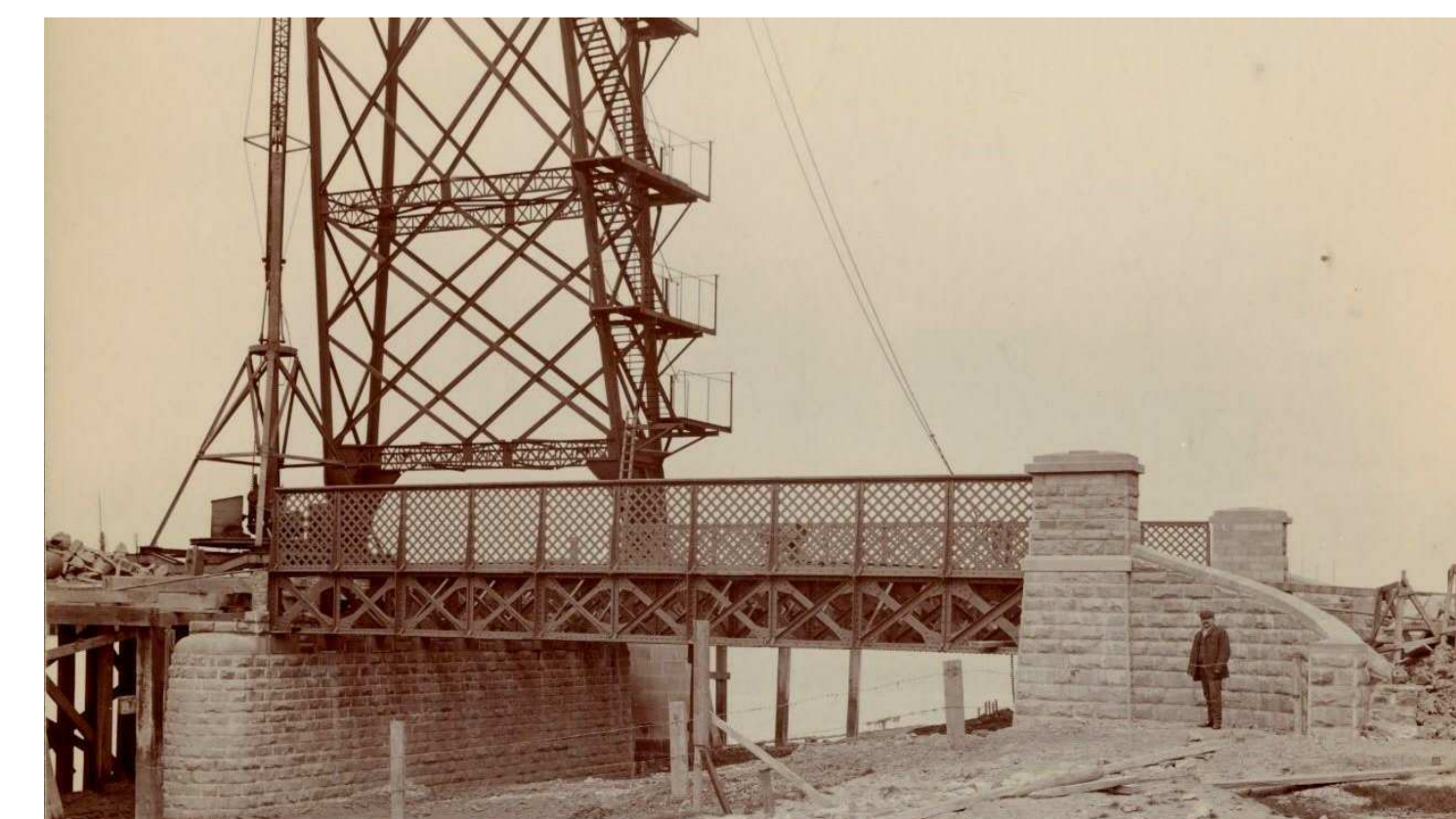
- - NEW STEELS
- - EXISTING STEELS FORMED INTO 4 REFURBISHED MEMBERS

REFER TO STRATEGY, REPAIR JUSTIFICATION AND PROPOSAL NOTES



Location	Approach
Orientation	East
Element	Multiple

Bridge Beams 3D View
SCALE:



GENERAL NOTES:

1. PLEASE DO NOT SCALE THIS DRAWING. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. THE MEMBER SIZES, LAYOUT AND DETAILS ETC. INDICATED ON THIS DRAWING ARE DERIVED FROM DRAWINGS OF THE ORIGINAL STRUCTURE AND ARE INDICATIVE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ALL DIMENSIONS ON SITE PRIOR TO FABRICATION OF ANY ITEM OF PERMANENT OR TEMPORARY WORKS AND FOR ENSURING THE SATISFACTORY FIT OF ALL ELEMENTS.
3. THE DETAILS AS INDICATED ON THIS DRAWING ARE PRELIMINARY ONLY AND SUBJECT TO AGREEMENT WITH CADW AND RECEIPT OF LBC APPROVAL.

Rev:	Description:	Date:	By:	Chkd:
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Status: **SUITABLE FOR REVIEW AND COMMENT** S3

Project: **Newport Transporter Bridge**

Orig Title: **East Landing Bridge GA**

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	07/10/19	MU	SAM	SAM

Scale: As indicated	Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
	072084 - CUR - ZZ - 00 - DR - S -						20009 -	

Model Name: 072084-CUR-00-ZZ-03-S16-0003_CENTRAL_Walkway