

HRE major work review template

Proforma for SAF consideration



Purpose – to document the results of the lens review undertaken for the identified structure and, based on this, offer recommendations for the proposed engineering solution for the structure.

The Structure

This section outlines the background to the structure and the issues identified with it.

Structure name	Asset ID	NH Priority Rank
Ulverscroft Road Bridge	MAR/40	P1

Structure Type	Grid Reference	Date of last assessment	Date of construction	Date of decommission
Overbridge	SK602056	2005 (BE4 – Pass)	c1880	1964

Brief description of structure
<p>MAR/40 is a two-span bridge carrying a public road (Ulverscroft Road) over the disused former Marefield Junction to Leicester Belgrave Road, a branch line of the Melton Mowbray to Market Harborough line (part of the Great Northern and London and North Western Joint Railway). It was opened in 1882 with Belgrave Road Station opened in 1883.</p> <p>The west span is constructed of concrete deck, and the east span is constructed of wrought iron girders and deck plates supported on brick abutments and a brick pier with brick wingwalls and brick parapets.</p> <p>The Great Northern and London and North Western Joint Railway was located almost entirely within Leicestershire. The line opened progressively between 1879 and 1883. The dominant traffic was iron ore and the agricultural produce of the area. Passenger usage was never considerable.</p> <p>The passenger service was withdrawn in 1953, although some residual workmen's services and summer holiday trains continued until 1964.</p> <p>The area under the bridge, along the disused railway line, is currently used as part of a scrap metal yard.</p>

Identified issues with structure
<p>In April 2022 a deck floor plate (east span) failure on the eastbound carriageway was reported by Leicester City Council (LCC). On further inspection, thirteen more deck floor plates were found in bad condition. The plates were repaired under emergency road closure. Although these minor works resolved the issue temporarily there is still a need for a long-term permanent solution due to the deteriorated floor deck plates and longitudinal girders.</p> <p>West deck is in good condition and does not require any works.</p> <p>Bridge marginally passed BE4 assessment in 2005 but since then the deck floor plates have deteriorated significantly. After inspection in April 2022, Jacobs concluded that bridge fails BE4 on qualitative assessment. A formal report in this regard is still in progress but in the meantime, Jacobs submitted the following comments:</p> <p><i>“The findings of the inspection were that the structure fails assessment by inspection; we would not be able to complete any quantitative assessment for this structure without undertaking a full assessment of the bridge. The assessment would require a detailed site investigation into the residual thickness of the existing plates. In order to establish the capacity of these plates in the 2005 assessment it was necessary to undertake a finite element analysis. Given the marginal results in 2005 and the continued deterioration of the plates, the structure would now likely fail.</i></p> <p><i>It is clear that the structure is carrying load from vehicles, however we would not be able to offer any load rating with respect to an assessment code. We can suggest that, based on engineering judgement, the structure is capable of carrying cars and other light vehicles (say limited to 3 tonnes) however this is not able to be backed up by calculation at this stage.”</i></p>

The next BE4 assessment is due in 2023.

There is no BD21 assessment present on the structure (responsibility of LCC) and currently no weight restriction is in place.

Lens Review

This section documents the results of the lens review undertaken for the identified structure

 New operational rail	<p>Are there any identified linkages with English, Welsh or Scottish government new rail restoration programmes? Include input from government officials where available.</p> <p>There are no known plans that might see anyone wanting to re-use this part of the old branch alignment for a railway.</p>
 Heritage Rail	<p>Are there any identified linkages with heritage rail restoration programmes? Include input from the HRA.</p> <p>There are no known plans. HRA have been approached for comments.</p>
 Active Travel	<p>Does the structure have potential to be repurposed for active travel use? Include input from Sustrans and the local authority and parish council. Are there any negative impacts of such active travel plans e.g. on ecology or heritage?</p> <p>Sustrans confirmed that they have no plans, at any stage, involving this structure.</p> <p>Structure has known possible future use within a 10 year time span - Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
 Environment and Ecology	<p>Does the structure hold significant value in ecological terms? Include input from relevant statutory body e.g. Natural England, and the local authority as well as outcomes of ecological assessment work conducted by Jacobs.</p> <p><i>Please append Ecology Survey reports</i></p> <p>Part of Site of Special Scientific Interest – Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Within SSSI Impact Risk Zone but criteria don't apply to this scheme as it is outside the area immediately under and adjacent to the bridge. In addition, no SACs, SPAs or Ramsars within 2km.</p> <p>Within a conservation area - Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>Within or near to a locally designated wildlife site - Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>Within or near to a local network recovery site - Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>Any designated habitats in the vicinity - Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>Any European Protected Species present - Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>Any identified wildlife corridor aspects - East span fenced off on both sides and west span fenced off on one side so no passage through is currently possible for larger ground mammals (e.g. badger). Structure not well connected on both sides to suitable bat foraging and commuting habitat. Better habitat to north of structure leading to trees and green space but scrapyards directly to south and urban commercial landscape. Considered unlikely to be a key wildlife corridor. Bat surveys to confirm use by bats as commuting/foraging corridor.</p> <p>Ecological survey outcomes – Further ecological surveys still to be undertaken but currently identified key constraints: surveys required to confirm if used as bat roost (summer and winter surveys); large population of pigeons under east span (likely to need pre-emptive measures to prevent nesting); ECoW: clearance of suitable reptile habitat, pre-construction badger checks, nesting birds.</p>



Heritage

Does the structure hold significant value in heritage terms? Include input from relevant statutory body e.g. Historic England, and the local authority as well as outcomes of heritage assessment work conducted by Jacobs.

Structure has significant Engineering / Architectural / historic merit - Yes No

Listed – Yes No

Locally listed (not Scotland) - Yes No

Near a registered park or garden - Yes No

Has the Historic Environment Record been consulted - Yes No

Rapid Heritage Assessment conducted - Yes No

Rapid Heritage Assessment outcomes – The bridge is not recorded by the Leicestershire and Rutland HER as a non-designated heritage asset. While the bridge retains some limited historical and evidential interest as part of the former Marefield to Leicester Belgrave Rd Line, it is a late bridge design which lacks any significant architectural or engineering merit and has been degraded by modern interventions into the historic fabric plus the erosion of its historic setting. The bridge does not warrant any formal heritage designation.

Other factors and considerations

This section documents any additional factors or considerations that have been taken into account as part of the review for the identified structure

Are there any other factors that affect the structure or the proposals for it?
No

Have transfer opportunities been considered? If yes, with who and why discounted
<p>Council confirmed that they will only accept the ownership of the structure if both spans are infilled, and road restraint system upgraded to the current standards by HRE.</p> <p>Has the structure been offered to the local authority? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Is there another suitable owner for the structure? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>

Is the structure protected under any Local Planning policies?
No contact with the Local Planning authority has been made yet.

Any significant Stakeholder comments	
Local Planning Authority Include dates and summary of correspondence	Any potential scheme will need to be discussed with the planning authority when the proposed works are clarified.
Local Highways Authority Include dates and summary of correspondence	In 2011, discussions were held with the Leicester City Council, the Highway Authority regarding joint bridge infilling, but this was declined by them due to lack of funds at the time.
Sub-national Transport Body	Not contacted as we are working directly with the highway team at LCC.
Community	
Landowners near to the structure or having access via the structure	Land on either side of the bridge has been sold. Area under the bridge is fenced off with no user accessing the area under the bridge. To the south there is a scrap yard and to the north an undeveloped area.
Other interested parties e.g. MP, local wildlife groups, local active travel groups, heritage groups etc	

Engineering Proposals

Based on the review work conducted, this section documents proposals for engineering solutions for the structure and highlights the recommended solution by HRE Engineers

Sustainable management considerations	
Structure forms a current transport link – road goes across it	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Structural deterioration issues	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Health, safety and/or environmental concerns	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Engineering options (please include all possible options, including the proposed remedy here)	Pro's	Con's	Estimated cost
Do Nothing		Recent deck floor plate failure and rapid deterioration of deck floor plates poses a risk to the travelling public. Structure fails BE4 so we cannot realistically consider this option.	£0
Do Minimum		Weight restriction could be imposed but this would not remove the risk of deck floor plate failure due to their poor condition and on-going deterioration. From a safety perspective we cannot realistically consider this option.	
Infilling of east span	Improved bridge capacity Infilling the structure is the most cost effective option Negligible future or whole life cost issues	No access under east deck.	£225k*
Strengthening (replace poor bridge elements) Replace all deck floor plates and repairs to longitudinal girders.	Improved bridge capacity to meet BE4 standard at 18t	Significant disruption. This will only give BE4 pass and future maintenance liability remains.	£350k*
Deck replacement	Full strength structure	Significant disruption, complicated design and costly option. Future maintenance liability remains.	£600k*
Corrugated sheet arch strengthening	Full strength structure	Future maintenance liability remains.	£350*
Strengthening with precast RC box	Full strength structure	Future maintenance liability remains.	£400*
Bridge demolition	Structure will be removed and no future maintenance liability.	No future access. Significant disruption. Complicated option due to the location. Due to the fact that the bridge carries a highway we cannot realistically consider this option.	£450*

**Prices are intended as rough estimates only*

Proposed remedy	Rationale	Estimated cost of remedy
TBC following discussion with SAF		

Responsible NH Engineer	[REDACTED], CEng MICE
Date of proforma completion	12/7/2022

Map and photos of site:



MAR/40

















