Heritage statement for Eastham Bridge, Eastham, Worcestershire







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Heritage Statement for Eastham Bridge, Eastham, Worcestershire

Tim Cornah and Tom Vaughan Illustrations by Carolyn Hunt

Report

1 Background

1.1 Reasons for the project

A heritage statement was prepared for Eastham Bridge, Eastham, Worcestershire (NGR SO 65917 69060). It was commissioned by Worcestershire County Council, following the collapse of the Grade II listed structure on 24 May 2016, and discussions between Malvern Hills District Council and Historic England.

Following the collapse of a large section, the structural damage to the majority of the remaining bridge was so severe that most of it had to be demolished. This document details the history and significance of the bridge, the process through which the design of the new bridge evolved, and how the historic significance of the former structure is reflected in the new.

2 Aims

- To make an assessment of the significance of the Listed Building;
- To place the Listed Building in the context of its landscape;
- To explain and justify the existing and proposed repairs/rebuild, and their impact on the Listed Building;
- To ensure that the inevitable harm caused by the collapse of the Listed Building is mitigated as far as is reasonably possible.

3 Methods

3.1 Personnel

The project was led by Timothy Cornah (BA (hons.), MSc; ACIfA) who joined Worcestershire Archaeology in 2006 and has been practicing archaeology since 2003. The project manager responsible for the quality of the project was Tom Vaughan (BA (hons.); MA; MCIfA). Illustrations were prepared by Carolyn Hunt (BSc (hons.); PG Cert; MCIfA).

3.2 Documentary research

Documentary research for this project included the cartographic evidence, original documents for the bridge held by the owners of Eastham Court Farm, original documents relating to a rebuild of the bridge held at Worcestershire Archives and research undertaken by Eastham Historical Society.

Prior to fieldwork commencing a search was made of the Historic Environment Record (HER).

3.3 List of sources consulted

Cartographic sources

- 1839 Tithe Plan of Eastham (WRO ref X760-274) (Fig 2)
- 1840 Tithe Plan of Lindridge (HER; transcribed by David Gyatt)

- 1st edition, 1884, Ordnance Survey map, scale 25":1 mile
- 1903 Ordnance Survey map, scale 25":1 mile (Fig 3)
- 1949 Ordnance Survey map, scale 1:25,000

Documentary sources

- 1793 Toll bridge construction and accounts archive (held by Celia Adams, Eastham Court Farm)
- 1898 Bridge ownership transfer and reconstruction archive (WRO BA2324 ref 250-1)

Published and grey literature sources are listed in the bibliography (Section 11).

4 Context

4.1 Topography, geology and archaeological context

The site lies within the floodplain of the River Teme. The compound is within a field on the southern bank of the river, which the bridge spans. The bedrock geology of the area is recorded as Raglan Mudstone Formation, overlain by alluvium such as clay, silt, sand and gravel (BGS 2016)

The following is taken from a search of the Worcestershire HER with a radius of 500m centred on the bridge.

The earliest known activity within the area relates to the medieval era. Just outside the south-east corner of the site is a former castle motte of about 50m diameter and surrounded by a ditch of about 10m in width (WSM 00282). The ditch extended slightly into the site boundary. No specific date or documentary evidence for this earthwork is recorded. The field containing the monument is noted as Castle Tump Meadow on the Tithe plan of 1839 (Fig 2), although it is considered most likely to have been a watch tower to guard the river ford, rather than an actual castle.

A similarly broad medieval date is given to the settlement of Eastham, thought to have been centred on the current village to the south-west of the site, where earthworks indicate that it may have been a larger settlement in the medieval period which subsequently shrank (WSM 06703). The possible presence of a former moat (WSM 06704) around Eastham Court Farm (WSM 62135) also indicates a medieval date, although the current house is 17th century. The church of St Peter and Paul (WSM 08101), within the centre of the village, dates from the 12th century, although there is noted to have been a priest in Eastham at the time of the Domesday survey (Thorn and Thorn 1982). To the south of the church nave are the remains of a 14th century cross (WSM 37007). A holloway of a broadly medieval date leads towards the south-west from the south-west corner of the churchyard, a position maintained by the current road.

The village developed through the post-medieval era with Eastham Court Farm constructed in the early 17th century. The Old Rectory Cottage (WSM 37008) is likely to be of late 16th century date, although it has previously been suggested it was part of an earlier monastic precinct. Also registered are two sets of agricultural buildings. One is a barn north-west of the church (WSM 05936) and the other are those associated with Eastham Court Farm (WSM37010). Eastham bridge itself and its associated toll house (WSM 37006) are noted to have been constructed by 1793, and modified at various later dates (Figs 3 and 6). These details shall be further described below. The latest feature of note is the site of a former Second World War pill box on the northern side of the bridge (WSM 17803).

4.2 Building history

A significant collection of original documents relating to the construction of the bridge in 1792 are in the ownership of Eastham Court Farm (reproduced as Plate 1 to Plate 5, courtesy of Celia Adams), and have been summarised by the Eastham Historical Society (Eastham Historical Society n/d). The documents are considered to have been part of the correspondence of the Reverend Christopher Whitehead.

One document (Plate 1) states that the bridge was to be built at a spot called Whitcombes Ford, where people had previously been "going through the water at the hazard of their lives". The bridge was to consist of three arches with piers of stone, at an estimated cost of £600, though half of this was for a toll house as seen on later mapping on the northern side of the river. Further more detailed estimates of costing and materials exist (Plate 2), which included 130,000 bricks for the construction of the bridge. Ashlar was detailed for the "springing of the arches" (Plate 3), stone coping for the side walls and "backing up the arches with rubble stone work". Two sketches of the bridge location and one of the arches compare favourably with the bridge as it stood before the recent collapse (Plate 4). A list details those who had contributed to paying for the bridge, along with the amount of their contribution (Plate 5).

A painting of 1830-1853 shows the northern half of the eastern elevation of the bridge and the toll house adjacent on the north bank (Plate 6; Figs 3 and 6), which was demolished in the early 20th century.

Further information includes the source of the bricks, the Brick Works identified on the 1st edition Ordnance Survey map of 1884 and the 1903 edition, *c* 200m north of the river; the stone, from Orelton three miles downstream; and lime, also made locally from an outcrop of tufa. It further details the contract with Thomas Nelson, the bridge's builder, the timescale for its construction and the toll rates (Eastham Historical Society u/d).

Records available at Worcestershire Archives detail the reconstruction of the bridge which commenced in August 1898 and had been completed by May 1899, when the bridge was bought by Worcestershire County Council. A detailed specification set out by the council catalogues the works required, from removing elements of the old structure to its rebuilding (primarily the southern half). The new bricks were specified as "the best Staffordshire Brindle bricks" and the old bricks were to be taken down to be reused in the inner part of the bridge. Cement mortar using best heavy Portland was to be used. Tie rods running through the bridge were to be repaired and reused where possible, so must have been present before this point. The document also details the construction of a temporary footbridge whilst the works take place (WRO BA5512 ref 250-1). Various documents exist documenting Thomas Vale of Stourport as the contractor to undertake the repairs, at a cost of £503 (WRO BA2324 ref 250-1). The scope of the intended rebuild is indicated on a surviving proposed elevation drawing (Plate 7, WRO BA2324 ref 250-1).

Further repair works were undertaken in 1994 including repointing, brickwork repairs and a diver inspection of the underwater foundations (Eastham Historical Society u/d; Plate 8).

5 The listed bridge prior to collapse

Detail of the construction and development of the bridge is given within a previous archaeological survey (Cornah and Vaughan 2017), though its two key phases are summarised below. The bridge as remaining after its collapse is shown on (Plate 9 to Plate 20).

5.1 1793 bridge

The bridge as it remained before its collapse kept the general shape and layout of its first phase. This can be seen by the two original piers within the river, with the northern bridge head also original. These positions demonstrate that the bridge was designed with three arches, the central arch being slightly wider than the two others. Only about one third of this phase of the bridge remained after the 1898 rebuild.

The bridge river was spanned by three elliptical brick arches, one and a half bricks length in depth. These arches were further supported by rough stonework on their upper side and two oculi within the spandrels above the two piers to allow flood water through, though only one of this phase remained. The fill within the bridge was compacted clay marl, visible within the section closest to the northern bank. This was held in place by flanking walls either side, also of one and a half brick lengths in width. This wall had a brickwork string course at broadly road surface height and was limestone capped.

Stone work detailing was used elsewhere on the bridge, most noticeably at the base of the piers where triangular shaped 'cut water' buttresses were used, topped with pyramid shaped capping. Keystones were also used at the centre of the bridge. All of these details were in limestone, a rock type which was available locally. Sandstone ashlar, also available locally, was visible on the northern side closest to the bank at water level.

The flanking walls splayed outwards on the northern side, a style copied during the repair work on the southern side. The flanking walls ended at a brick pillar.

5.2 1898 rebuild

This phase involved the rebuild of the southern half of the bridge, with the southernmost arch replaced from the top of the southern pier within the river. The southern support of the arch where it met the bank was also entirely replaced and it was dug back into the bank. The whole structure above this was replaced with the interior filling being concrete and rubble and the side being purple engineering bricks, the same as the new southern arch. The parapet walls were replaced as far as the centre of the bridge, though some of the interior fill was replaced as far as the northern oculi. These repairs maintained the general character of the 1793 bridge, although without the use of a keystone in the southern arch.

The extent of the works can be seen from a late 20th century photograph of the bridge (Plate 8), which compares closely with the intended repairs (Plate 7), the only significant visual difference being a change in the height of the side wall.

6 Significance assessment

6.1 Designation

As of 2016 there were 377,587 listed building entries in England. Listed buildings are classified into three grades:

Grade I buildings are of exceptional interest. Just 2.5% of listed buildings are Grade I.

Grade II* buildings are particularly important buildings of more than special interest. 5.8% of listed buildings are Grade II*.

Grade II buildings are of special interest warranting every effort to preserve them. Over 90% of all listed buildings are in this grade (HE 2018)

The bridge was designated as Grade II listed in 1952 and described as follows within the listing information (Historic England List Entry Numbers 1081429 and 1081439):

Road bridge over the River Teme. 1793 with mid- to late C19 repairs. Part red brick, part red and blue brick with sandstone ashlar dressings. Three elliptical arches of regular size, the central one is larger than the outer two; the central and north arch have stone keyblocks; two circular flood outlets in central spandrels and short angled buttresses to central piers; two-course band beneath parapet which is splayed at both ends and terminated by square piers with pyramidal capping. The bridge was originally in private ownership and a toll was charged for crossing it; in [1898] it was bought by the County Council and freed from toll.

A **high**, though not the highest, degree of significance can be given to the building based upon its listed status.

6.2 Historic Significance

The documents outlined in section 4.2 are in themselves a remarkable survival for such a structure. Their complete documentation of the construction of the bridge from details of payments from locals to the commission of materials and details of construction lend a **high** degree of historic significance both locally and regionally. This is only added to by further documentation of the repairs of the bridge in the late 19th century.

6.3 Architectural significance

The architectural significance could be considered as **moderate** in respect of the broad design of the bridge being relatively un-remarkable and not uncommon in its use of triple arches, oculi to relieve flood water and the broad design of its parapet walls. Its architectural significance is greatly increased by its details of materials, all of which are known from the documentation to have been locally sourced for the original structure. The use of local craftsmen in construction of this bridge would make many of its design details unique to this structure, though likely to be comparable to others. The significance of the locality of the materials and design details were reduced by the bridge having been partially rebuilt in the late 19th century using non-local materials.

6.4 Significance of setting

The use of local materials in the original phase of the bridge set the building very directly within its geological landscape, as well as the post-medieval archaeological landscape of resource exploitation and production. Tied in with this is its part within the post-medieval and later road infrastructure of Eastham and the county of Worcestershire more widely. Its significance within its setting could therefore said to be **high**.

6.5 Summary of significance

A **high** degree of significance could be ascribed to the building based upon its designation alone, but this is backed up by the detailed historic record relating to the reasons for, payments for and construction of the original bridge, all of which add weight to the significance of its architectural details and setting.

7 Replacement bridge design and rebuild

The bridge has been a safe link between Eastham and the North of the River Teme since it replaced the ford in 1793, and has been a feature of the village. The bridge was historically a vital link in the village and farming community of the surrounding area, including schools, farms and families either side of the river that had significant detours to go about their business. Replacing the bridge retains this close link to the villages and farms on the North of the river (Burroughs, August 2016)

The designs as shown below for the proposed replacement bridge (Figures 1 - 2) were carried out to allow for the brickwork and copings of the original bridge to be re-incorporated to either side. The detail of the re-constructed elements was undertaken in meetings with the WCC Strategic Planning Officer, Malvern Hills District Council and Historic England, and utilising record photographs and computer reconstruction modelling. The bridge as rebuilt can be seen on (Plate 21 to Plate 30) below.

An important element of the design of the rebuild of the bridge was to retain aspects of the original structure (Burroughs September 2016). Construction of the new bridge was designed to be sympathetic to the former bridge, and retain features such as the original brickwork, the approaches to both sides and the abutment walls. Consultation continued with the relevant parties and meetings were held with Historic England to agree the detail of copings, brickwork details and such. The brickwork and a few copings from the collapsed bridge were stored for re-use on the replacement bridge (Burroughs August 2016)

Whilst extensive rebuild of the bridge and replacement with modern elements was agreed as necessary, elements of the original structure were partially retained and consolidated. This included base of the original bridge head set into the bank on the northern side of the river as well as one of the bridge piers, also on the northern side. On the southern side, the bridge head as replaced in the 1890s was also partially retained (Plate 22 to Plate 24). The structure was built as a single span between the banks and therefore not requiring any works within the river, allowing the two original bridge pier bases within the river bed to be consolidated and retained. This element of retention allows for a continued scrutiny of the original materials which can be read in conjunction with the archaeological and historical record as previously created (Cornah and Vaughan 2018).

Retaining the same general dimensions and position for the rebuild was an important part of retaining aspects of the historic bridge as it is a significant feature on the approach to and from the village (Plate 25 and Plate 26). The replacement was not intended to change the nature of the approach as it replicated the style and size. This continued all the previous visual aspects without blocking any previously accessible views from the approaches to the bridge or above or below the structure. The wing-walls were re-built to retain the appearance from the approach from both the A443 and the Eastham Lane. (Burroughs August 2016). The replacement bridge retained a camber peaking at its centre, though not to the degree of the original. This degree of camber was reduced in order to improve visibility, whilst retaining something of the original broad aspect of the structure.

The remaining elements of the bridge prior to its collapse and the remarkable original records are rare in detailing a structure built from geological elements of the immediate landscape. The lime for the mortar was manufactured from an outcrop of local limestone tufa (Eastham Historical Society u/d), the same material used in the construction of the church of St Peter and Paul within Eastham. However, due to successive rebuild and repair phases, the mortar bonding the bricks was variable. That associated with the 1890s and later rebuilds were of concrete. For current the rebuild, lime mortar was chosen in order to visually retain this geological aspect encapsulated within the original bridge. The lime mortar colour was chosen to suit the areas of the original structure, following on site visits with the conservation officer. Repairs to original surviving elements of the bridge, all work to clad the pile caps and the construction of the curved masonry on the outside of the precast deck was constructed using NHL5 Lime mortar with NHL3.5 being used for the approach wing walls. The lime mortar strength was decided upon in discussion with the TAA in regard to works in and out of flood levels to reduce risk of wash-out of mortar.

The bricks are known to have been manufactured on a site in view of the bridge to its north-east (Plate 21) are particularly rare in detailing a structure built from geological elements of the immediate landscape. All brickwork used was from the original bridge following it being recovered from the river and cleaned off at the Tenbury Wells depot. As a result, no imported brick was used for the rebuild.

Below the double string course of the original bridge, the brick coursing was of English garden wall bond, although with between one and five stretcher courses between header courses. The parapet and wing walls were consistently of three stretcher courses, as is more typical of English garden wall bond. This bond type was used in the reconstruction of the bridge (Plate 27 and Plate 28)

The flanking wall of the original bridge had a double depth brick string course at broadly road surface height on their exterior side, as noted previously and within the listing. This feature was recreated within the rebuild as a string course which extended from the base of the bridge span around the revetment walls cladding the pile caps (Plate 29 and Plate 30).

The stone coping and pier caps recovered on site and removed to the Tenbury Wells depot were deemed not suitable for reuse in the new bridge due to damage. As mentioned above, the use of local materials in the original phase of the bridge set the building very directly within its geological landscape. In the absence of the original material, the addition of similar coping stones and pier caps would add greatly to the setting of the bridge in its landscape and reflect the original structure more fully. A proposal for this is detailed in section 9.

8 Mitigation

A programme of archaeological works including building recording of the collapsed bridge was undertaken along with a watching brief on all associated groundworks (Cornah and Vaughan 2016). The building recording identified two broad phases for the bridge itself, as summarised above, whilst the watching brief identified the remains of the toll house on the northern side of the river as well as a section of original road surface on the southern side of the river.

Interpretation boards and a historical record have been incorporated next to the bridge in order to communicate the history and changes over time of the bridge.

9 Further work and finishes

As previously stated, the combination of the remaining elements of the bridge prior to its collapse and the remarkable original records are rare in detailing a structure built from geological and manufactured elements from the immediate landscape.

Whilst this is particularly true of the bricks and lime mortar, the same can also be said of the original parapet wall copings and arch key stones. These are recorded as having been quarried from Orleton 3 miles downstream (Eastham Historical Society u/d). A reinstatement of parapet wall (Plate 27 and Plate 28) copings would further set the new bridge within the local geological and archaeological landscape.

An important element of the design of the rebuild of the bridge was to retain aspects of the original structure (Burroughs September 2016 p16 paragraph 2). The reinstatement of the coping stones as close to their original material form would ensure sure that a further architectural aspect of the original structure was retained.

The collapse and subsequent demolition of the bridge unfortunately damaged most of the original copings. A selection was salvaged (Plate 31) and these will be used to design the new coping stones. Plates 18 and 31 show the design of the coping and pier caps in the 1793 structure. The replacement stone would mirror this as closely as possible and be agreed with the conservation team at Malvern Hills District Council. Pier caps will be placed on the end piers and coping will run across the tops of the wing walls and along the sides of the bridge on top of the existing brick work. The visualisations (Figures 1-2) are indicative only and the new pier caps will not stand as high, as they will be based the measurements of the salvaged pier cap held at The Ketch depot.

10 Acknowledgements

Worcestershire Archaeology would like to thank the following for their kind assistance in the successful conclusion of this project, Mark Mills (Contracts Project Manager, Worcestershire County Council), Jim Burgin (Heritage and Conservation Team Manager, Malvern Hills District Council), Celia Adams (Eastham Court Farm), Katriona Byrne (Inspector of Ancient Buildings and Areas, Historic England), and Adrian Scruby (Historic Environment Advisor, Worcestershire County Council).

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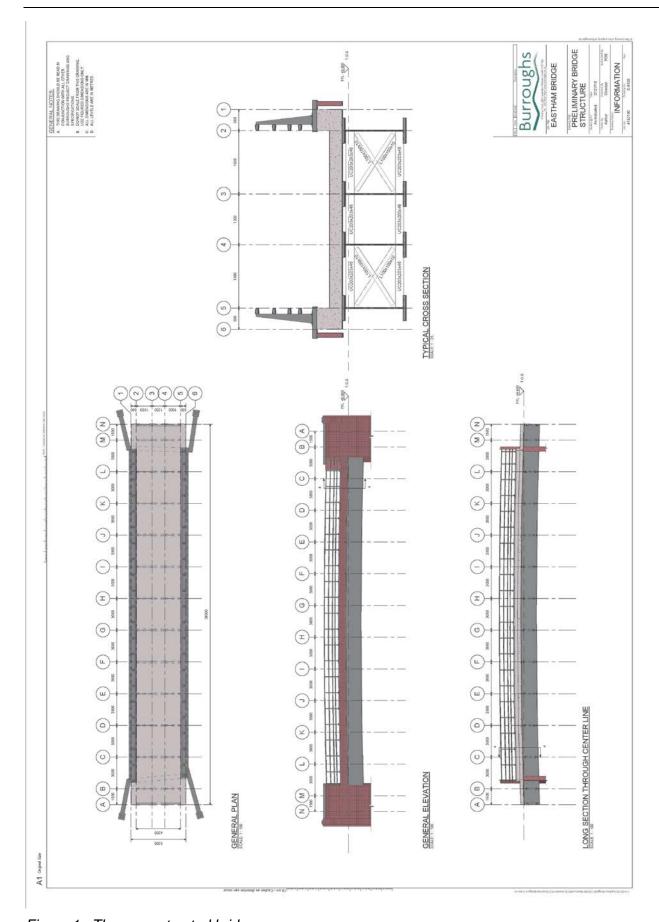


Figure 1. The reconstructed bridge



Figure 2. Visualisation of the proposed bridge with stone pier caps and coping (Burroughs 2016)

Plates

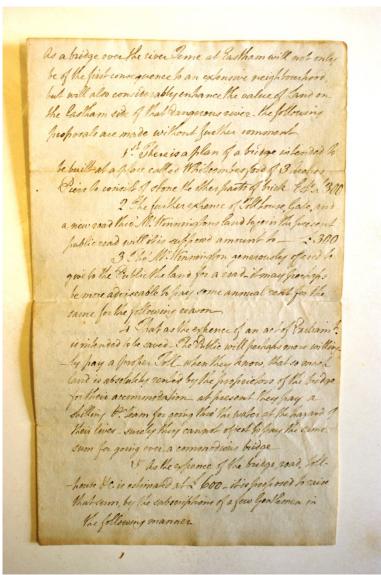


Plate 1 Original document relating to the construction of the bridge in 1792-3 (courtesy of Celia Adams)



Plate 2 Original document relating to the construction of the bridge in 1792-3, part of the correspondence of the Reverend Christopher Whitehead (courtesy of Celia Adams 2016)

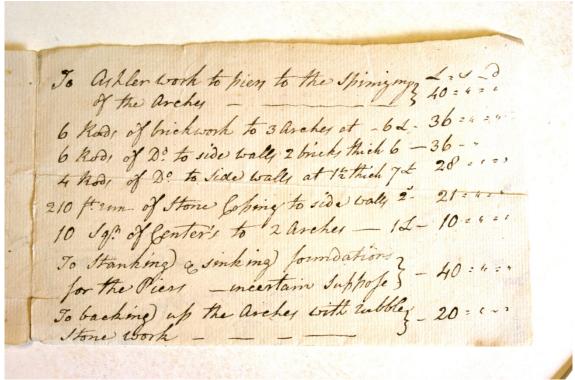


Plate 3 Original document relating to the construction of the bridge in 1792-3 (courtesy of Celia Adams)

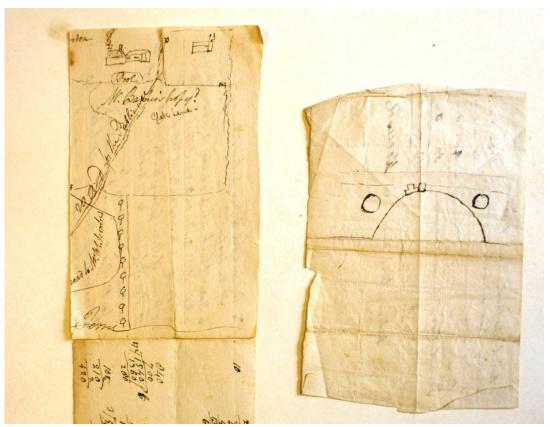


Plate 4 Original documents relating to the construction of the bridge in 1792-3 (courtesy of Celia Adams)

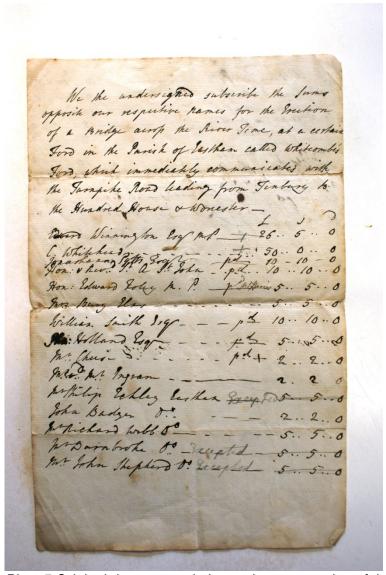


Plate 5 Original document relating to the construction of the bridge in 1792-3 (courtesy of Celia Adams)



Plate 6 Watercolour by William Lea, between 1830 and 1853, view north-west (reproduced in Douglas Opperman 2000; from Museums Worcestershire collections)

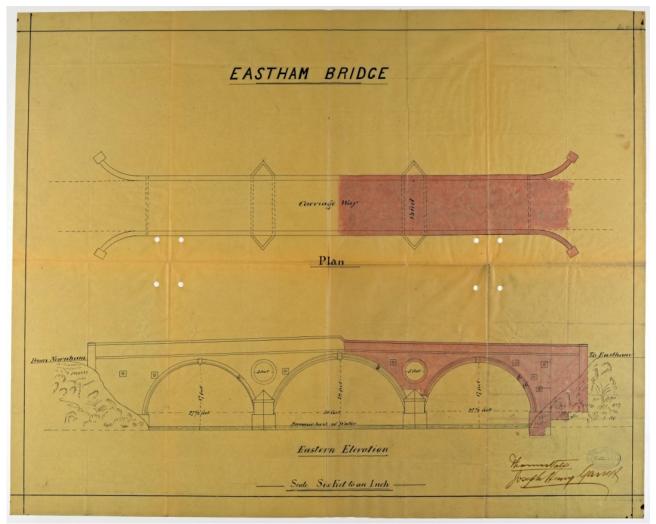


Plate 7 Illustration showing the intended 1890s repairs (in pink; identified as the eastern elevation, but it is actually the western elevation; WRO BA2324 ref 250-1)



Plate 8 Late 20th century picture of the bridge, looking north-west (Douglas Opperman 2000)



Plate 9 The collapsed bridge looking west along the Teme towards Tenbury, no scale



Plate 10 The collapsed bridge, from the south bank, view north-west, no scales



Plate 11The collapsed bridge, from the south bank, view north-west, no scales



Plate 12 The collapsed bridge, from the south bank, view north-east, no scales



Plate 13 The north spring of the 1793 bridge and northern pier after the removal of much of the structure, showing the original infill, ashlar blockwork at its base and stonework backing the brick arch, from the south bank, view north-west, no scales



Plate 14 Detail of the 1793 construction of the oculi, looking north-east, no scale



Plate 15 Detail of the 1793construction, looking north-west, no scale



Plate 16 Detail of the 1793 construction, looking north-east, no scale



Plate 17 The bridge after the removal of loose material, showing the original infill and details of the central piers, from the south bank, view north-east, no scales



Plate 18 Detail of the 1793 flanking walls, looking west, no scale



Plate 19 The 1898 south spring of the bridge and southernmost pier, after the removal of loose material, showing the 1898 infill, from the north bank, view south, no scales



Plate 20 The 1898 south spring of the bridge and flanking wall, looking west, no scales



Plate 21 View of the rebuilt bridge, looking north



Plate 22 View of the rebuilt bridge, looking south-west



Plate 23 View of the rebuilt bridge with consolidated pier below, looking south



Plate 24 View of the rebuilt bridge with consolidated pier below, looking north-west



Plate 25 View of the rebuilt bridge approach, looking north away from Eastham



Plate 26 View of the rebuilt bridge approach, looking south towards Eastham



Plate 27 View of the rebuilt bridge wing walls, looking south-west



Plate 28 View of the rebuilt bridge wing walls, looking south



Plate 29 View of the rebuilt bridge revetment walls with the two brick depth string course visible, looking north-west



Plate 30 View of the rebuilt bridge revetment walls with the two brick depth string course visible, looking west



Plate 31 The salvaged copings



Plate 32 The new coping will match the original bridge as closely as possible