Canal & River Trust
Making life better by water

Design, Access and Heritage Impact Statement

Shipton Lift Bridge (Bridge 219), Oxford Canal

British Waterways, 2009

Phil Emery

Heritage Specialist

Canal & River Trust

August 2021

Introduction

This document has been produced to accompany a retrospective listed building consent application to Cherwell District Council for the removal of the timber deck of Shipton Lift Bridge (Bridge 219). This work was undertaken on 11 April 2021 as an emergency safety measure following engineering inspections that found the superstructure to be at risk of failure. A replacement deck is due to be installed as part of like-for-like repairs to the abutments and approach walls that are booked between January and March 2022 and will be covered by a separate listed building application. The lift-bridges on the Oxford Canal are all over 200 years old and recent collapses have shown the lift-bridges are close to the end of their working life. A Heritage Partnership Agreement, relating to the care of nineteen Grade II-listed lift-bridges on the Oxford Canal, was developed to reduce the risk of their collapse and to extend their future working lifespan.

The Applicant

The Canal & River Trust is a charitable trust that was set up in 2012 to look after a number of inland waterways of England and Wales. Previously it was known as British Waterways, and was government-owned.

The Trust is the custodian of approximately 2,000 miles of navigable canals and rivers, plus 2,708 listed structures and 46 scheduled monuments, considered one of the finest groups of industrial heritage in the world. The network also provides an important urban and rural habitat for various types of familiar and endangered wildlife.

A major function of the Trust is to provide and maintain navigable waterways, whilst conserving waterway heritage and environment. It also has a duty to provide a safe environment for the increasing number of boaters and visitors to the canal network. The inland waterways attract over 13 million people a year.

Site location and access

Shipton Lift Bridge (Bridge 219) is located on the Oxford Canal approximately 200m to the east of the eastern limits of the village of Shipton-on-Cherwell (Figures 1 & 2). It lies approximately 530m to the east of a similarly named canal bridge, Shipton Bridge (Bridge 220), a conventional masonry arch structure overlooked by Shipton-on-Cherwell Holy Cross Church (Figure 1). Some 120m to the west of Shipton Lift Bridge the Cherwell Valley Line crosses the canal (Bridge 219A) (Figure 1). The postcode is OX5 1JT. The Ordnance Survey National Grid Reference is 448501 216759. Public access to the bridge is confined two pedestrian routes – the towpath and a public footpath which crosses the bridge. The default position of the bridge is down.

Figure 1 Shipton Lift Bridge (Bridge 219), Site location

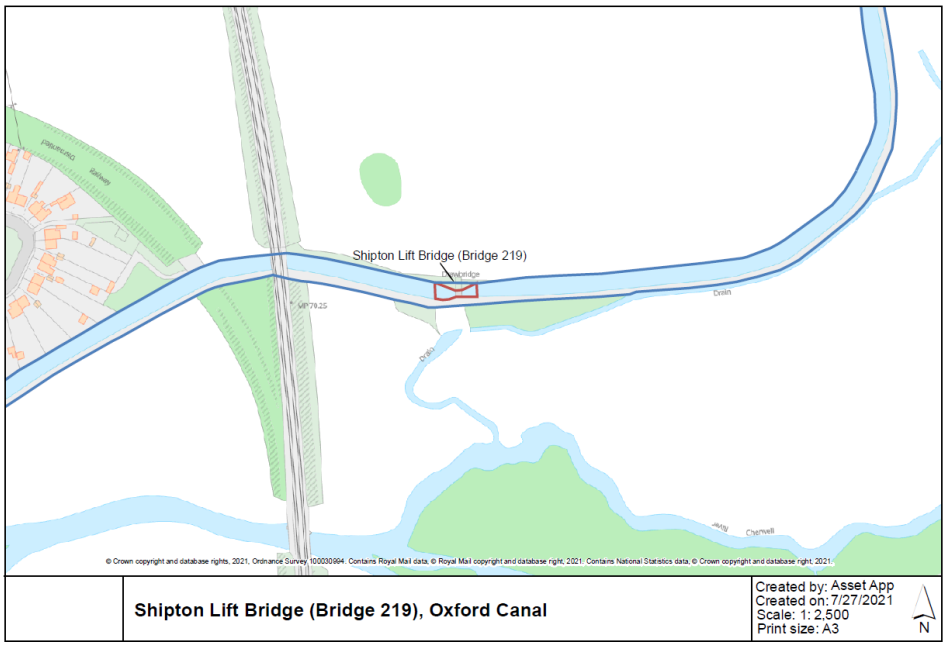

Figure 2 Shipton Lift Bridge (Bridge 219), detailed site location

Historical context

The timber lift-bridges on the Oxford Canal are quintessential of the vernacular of this waterway. The main engineer for the Oxford Canal was James Brindley. When he died in 1772 his assistant Samuel Simcock took over. James Barnes was appointed resident engineer in 1786 to complete the works from Banbury to Oxford. These lift-bridges were an affordable means of providing accommodation crossings where farms had been severed by the new canal. Timber lift-bridges are present on other waterways such as the Northampton Arm of the Grand Junction Canal, but these are of a different design.

There are 21 lift-bridges remaining on the Oxford Canal, from north of Claydon to Oxford. Originally there would have been many more (95 according to the Oxford Canal Conservation Area Statement produced by Cherwell). The brick abutments with stone fenders and copings have been repaired over time, and the timber lift-bridges replaced. There are still in places remnants of where former lift-bridges once stood but have since been removed, in the form of the abutment or brick 'narrow'.

Some of those lift-bridges are on a 'right of way' or provide essential access to farmers while others have become obsolete and are kept permanently in the up position.

Within the last seven years, the most significant works to the lift-bridges on the Oxford Canal are as follows:

- Bridge 193 (Chisnell) had a partial collapse of the northern approach wall on the offside in July 2013. Its other wing walls were later found to have also partially collapsed and its abutments to have become unstable. The bridge was repaired in 2016.

- Bridge 215 (Caravan) collapsed on 26 August 2014 damaging heavily the offside abutment that slid into the waterway, blocking the navigation and rendering this bridge unusable.

- At Bridge 231 (Drinkwater's) the southern approach wall on the towpath (west) side had failed and rotated, and the balancing of the timber superstructure had become challenging. At the outset of the project to repair Bridge 231 in January 2020, the offside abutment collapsed following dewatering to enable the repairs and was rebuilt using new bricks, but incorporating the original limestone rubbing stones. In November 2020 a replacement deck with enhanced load-bearing capacity was installed at Bridge 231. At the same time the structure was converted to manual hydraulic operation.

- Repairs to Bridge 233 (Wolvercote), which commenced in March 2021, are due to resume in January 2022 in association with works to convert the bridge to hydraulic operation.

In response to the structural failures at Bridges 193 and 215 in 2013 and 2014 respectively, a major works project was set up by the Trust to identify whether any of the other lift-bridges on the Oxford Canal were at risk of collapse. The Trust's engineers commissioned divers to undertake under-water surveys which revealed extensive areas of voiding and cracking within the wing walls and abutments. Seven bridges were identified to be at risk of collapse and eight bridges to require long-term repair solutions. In the meantime, four bridges (173, 193, 219 and 233) were identified for emergency holding repairs to prevent another collapse. In February 2015 an Emergency Holding Repairs Agreement was produced by the Trust's Heritage Advisor and signed by the Conservation Officer for Cherwell District Council. These repairs did not require listed building consent and were carried out in March 2015. The specification for these temporary repairs followed the principles of minimum intervention and maximum retention of the existing fabric, ensuring preservation of the lift-bridges (deck, abutments, wingwalls). The repairs were the minimum required to prevent imminent collapse of the wingwalls and abutments, with the view of returning to site within 4-5 years of the agreement to carry out long-term repairs. In 2017 the Trust's heritage Advisor drafted a Heritage Partnership Agreement, which was issued to Cherwell District Council.

Description of heritage asset and its setting

Shipton Lift Bridge (Bridge 219) is a Grade II-listed tilting canal bridge (list entry number 1211261, approximate extent outlined in red in Figure 2), located some 200m to the east of the eastern limits of the village of Shipton-on-Cherwell (Figure 1). The bridge lies within both the Oxford Canal conservation area and the Hampton Gay, Shipton-on-Cherwell and Thrupp conservation area. The deck is appreciably (c450mm) higher than both the towpath on the south side and the general ground level of the field on the north side.

The setting of this asset is rural, with the embankment of the Cherwell Valley Line effectively screening the modern outskirts of Shipton-on-Cherwell from westward views. Comparison of the present landscape context of Shipton Lift Bridge with that described by late 19th-century and early 20th-century Ordnance Survey maps indicates that the rural setting of the bridge has remained essentially unchanged since the construction of the railway line in the 1840s (Figures 3 & 4).

Figure 3 Ordnance Survey 6 inch to the mile map, surveyed 1875/6, published 1884

Figure 4 Ordnance Survey 25 inch to the mile map, surveyed 1919, published 1922

The bridge comprises abutment walls, some 3.02m apart, and adjoining approach (or wing) walls that expand from the "narrows" at the abutment to the full width of the canal. The abutments are constructed chiefly in brick and capped with concrete cast *in situ*. A substantial limestone rubbing stone that stands slightly proud of the brickwork face is extant on each end of each abutment (essentially quoins) and an additional rubbing stone is located centrally on the offside abutment only. The approach walls are in brick, capped with stone copings with a row of bullnose brick copings being present on the eastern offside wing walls.

The deck comprises eleven lateral planks supported upon six longitudinal beams connecting between (principal) lateral end-beams (Figure 5). Longitudinal steel tie rods, three in total, are located between the central pair of beams and between the two outer pairs. Each of the long raking counterweight beams is attached via a bracket to the side beam, and a pinion bolted to the flange of this bracket engages with the horizontal pivot rack set in concrete to form the hinge (Figure 5). A steel tie or straining bar connects via brackets between the upper end of the counterweight beam and the farthest end of the side beam. The scantlings, which include the handrail, are attached to the side beams and the counterweight beams (Figure 5).

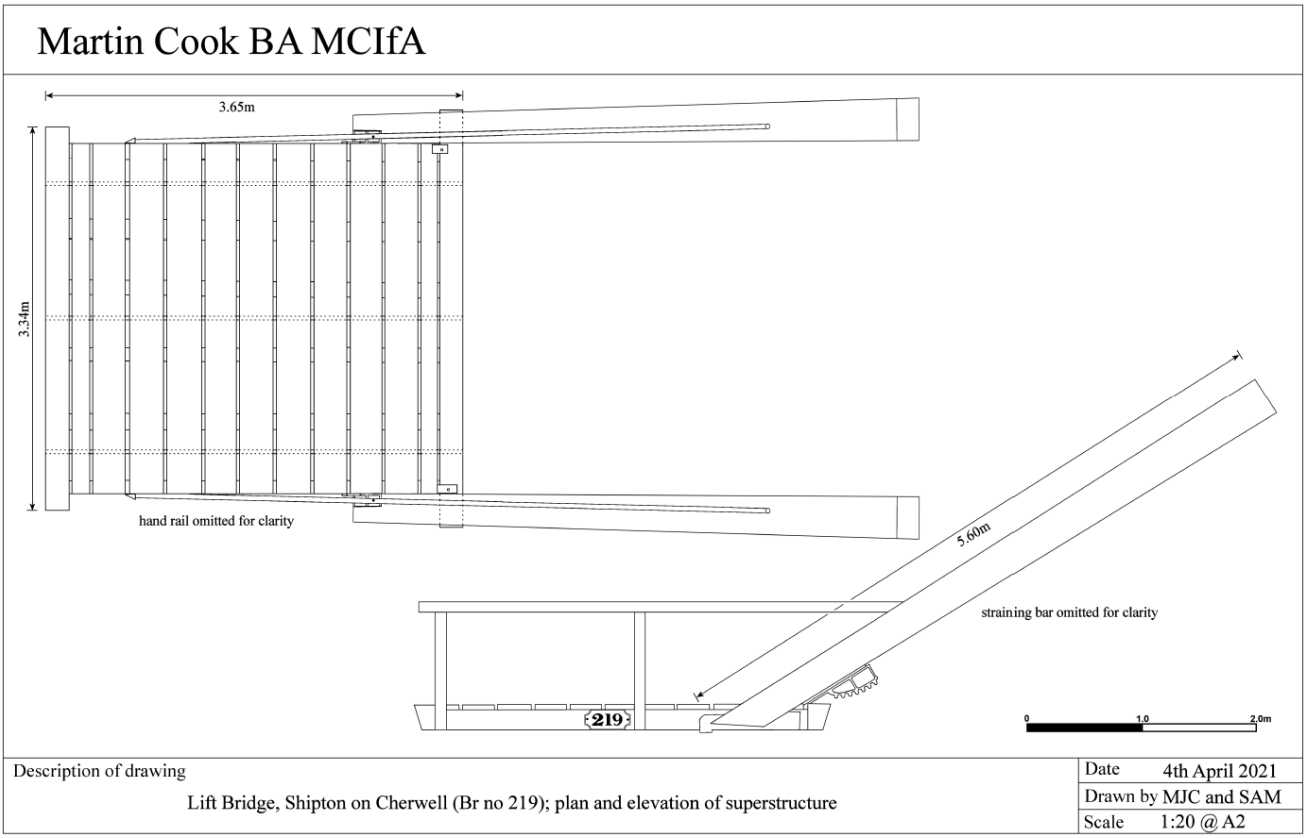

Figure 5 Deck of Shipton Lift Bridge (Bridge 219), plan and elevation

Assessment of significance (based partly on draft Heritage Partnership Agreement)

An assessment of heritage values of the Oxford lift-bridges is given below, based on those presented in Historic England's Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (2008).

The Oxford Canal is an early and supreme example of a contour canal, linking Oxford with Coventry via Banbury and Rugby. The Act to build it was passed in 1769 but its engineer, James Brindley, died shortly after, in 1772. By 1774 it had only reached Napton. The section between Napton and Banbury was built between 1775 and 1778 under Samuel Simcock who had been Brindley's assistant. James Barnes was appointed in 1786 to continue the works from Banbury to Oxford, once additional funds had been found. He completed it by 1790, but as funds had become stretched, the southern part is reputed to have been built cheaply. It is also the section that, with the competition from the Grand Junction Canal and then the railway, saw the biggest drop in boat movement and was threatened with complete closure in the mid-20th century. The northern section between Hawkesbury and Braunston was straightened in the 1830s to shorten the route and address the competition from the Grand Junction Canal.

There are 21 lift-bridges remaining on the Oxford Canal, from north of Claydon to Oxford. Originally there would have been many more (95 according to the Oxford Canal Conservation Area Statement produced by Cherwell District Council). The brick abutments with stone fenders and copings have been repaired over

time, and the timber lift-bridges replaced. In places there are still remnants of where former lift-bridges once stood but have since been removed, in the form of the abutment or brick.

Cherwell's Oxford Canal Conservation Area Statement describes lift-bridges as follows.

"The bridge consists of a timber-framed boarded deck attached to a diagonal pair of heavy balance beams extending over the offside abutments. In addition, there are iron rods on either side of the bridge and a fairly ephemeral railing. Beneath the beams and attached to the top of the abutments are interlocking segments of cast-iron gearing." (6.42)

Cherwell's Oxford Canal Conservation Area Statement states that:

"the lift bridges in fields have become the iconic symbols of the canal. (6.30) That these timber bridges give the Oxford Canal much of its "visual and architectural character" (6.40) and that although there are timber lift bridges elsewhere on the canal network, these are "quite distinct" (6.41).

The timber lift-bridges have strong evidential value as they are remnants of the canal age and are also of historical value as examples of simple, affordable construction at a time when the canal company faced financial constraints.

Even though the bridge decking is made of timber, which by nature would over time be expected to be renewed, the special interest of the structure lies in the tilting design for the deck that is of a different design to other timber lift-bridges found on the network and is intrinsic to the Oxford Canal. A document in the Warwickshire county archive reveals that six bridges were rebuilt between 1824 and 1850 alone, two were abandoned or removed (202 and 242), and one was rebuilt in bricks (243).

The design has been attributed to James Brindley although no evidence has yet been found to support this. The timber lift-bridge that is the furthest north (Bridge 141) is located just north of Claydon, between Napton and Banbury, the junction Samuel Simcock completed after James Brindley died. The majority of the remaining bridges are south of Banbury, the section built by James Barnes. A drawing in William Weston's (1763-1833) notebook depicts a drawbridge with a reference to the Oxford Canal but of a different design.

Given the timber lift-bridges are of a design that is unique to the Oxford Canal, and have very simple lines, they can also be considered to have strong aesthetic values. Although archive research has revealed that the bridge design has evolved over time with the current flat deck depicted in the early 20th century as being curved.

In addition to aspects of their history, form and appearance, the lift-bridges derive part of their heritage value from the long-established tradition and inherent simplicity of their operation. As historic structures with moving parts that need manual action by users to enable the passage of vessels, the lift-bridges of the Oxford Canal may be compared to locks, although the latter are considerably more numerous with 46 on the Oxford Canal, for example, and 1,715 across the Trust's network. The historical function of both classes of heritage asset is recalled through the experience of their operation in the present day, which substantially contributes to their communal value.

Nineteen of the lift-bridges are listed. Nos 237 and 238 were listed in 1972, the bulk in 1987/ 1988, with a further seven in 1992. The vast majority, fourteen, are in Cherwell (with a further three non-listed). Three are in Oxford (234, 237 -missing- and 238), one in South Northamptonshire (189) and one in Stratford on Avon (141). The three bridges that are not listed (in Cherwell: 164C, 205 and 221) are within a conservation area.

Designations for Shipton Lift Bridge

Shipton Lift Bridge (listing entry number 1211261) is listed Grade II and the Historic England listing description is as follows:

“Accommodation lift-bridge. L C18 origins, C19 and C20 alterations. Tilting, wooden plank deck with wooden hand rails and two balance beams set at a raking angle. Brick abutments with concrete sills. Brick wing walls with trailing edges and stone rubbing blocks on faces to canal. One of an important series of Oxford Canal lift-bridges, of a type now rare in England.”

Justification for proposed works

Inspection of Shipton Lift Bridge by engineers in late 2020 and early 2021 revealed that the timber deck including the balance beams were in an advanced state of decay, posing a risk to boaters. Whilst repair of the bridge was in the Trust’s programme of planned works, the prompt removal of the deck was considered necessary from a safety perspective. The default position of the bridge is ‘down’, which means that it requires raising to enable the passage of craft.

Description of works

On 11 April 2021, the balance beams and handrails were detached to enable the deck to be lifted using a crane mounted on a work boat. All of the dismantled items were stacked on the offside abutment, where they were recorded by an archaeologist on 4 May 2021. The metalwork was then recovered and secured at Nell Bridge Yard for recording and re-use on the replacement deck.

Figure 6 Dismantling of the deck on 11 April 2021

Figure 7 Temporary storage on offside abutment of dismantled deck elements

Assessment of Heritage Impact

The periodic replacement of life-expired bridge timbers, and in some cases entire deck assemblies, is a routine process to maintain these lift bridges in a safe operational state. The oak timbers of this dismantled deck are believed to have been felled in the late 20th century. This renewal is part of the working tradition of the Oxford Canal and is not in itself considered harmful to the heritage significance of the asset.

Ideally the installation of the replacement deck would immediately follow the removal of its predecessor. However, in this case there is an interim period of at least eleven months between these operations because of the emergency nature of the removal to make the structure safe. Following their archaeological recording, which ensured that any evidential value was captured and preserved, the timbers themselves have been discarded on account of their pronounced state of decay. The like-for-like replacement deck will be fabricated in advance of repairs to the bridge, which are currently planned for January-March 2021. The temporary absence of a fundamental element of the bridge causes temporary harm to its aesthetic and evidential values.

The key metalwork items, including the pair of rack and pinion hinges, the pair of straining bars and the pair of number plates, have been retained for re-use on the replacement deck, thus minimising the loss of historic fabric.