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The Road, Rail and Parkland Bridges of Bishop Auckland, Co Durham: an assessment of the historical and archaeological evidence

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THE ROAD, RAIL AND PARKLAND BRIDGES OF BISHOP AUCKLAND, Co DURHAM:

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SUMMARY
This report describes and discusses a corpus of 32 historic road, rail and parkland bridges that lie in and immediately around the town of Bishop Auckland in County Durham. Detailed descriptions and fabric analyses of each of the bridges are presented in gazetteer format, prefaced by a general discussion and overview that attempts to draw out themes, both local and national, in the story of the town's bridges, as well as highlighting significance. The report represents one aspect of the research undertaken by Historic England in support of the Bishop Auckland Heritage Action Zone (HAZ). It forms a supplementary volume to the Bishop Auckland Historic Area Assessment (HAA) which is the main research output required by the HAZ Delivery Plan.

CONTRIBUTORS
Fieldwork and photography was undertaken by Marcus Jecock, assisted by Rebecca Pullen. Various colleagues helped by drawing the author's attention to documentary material identified during the course of researches in to other aspects of Bishop Auckland's history, particularly Rebecca Pullen, Clare Howard, Dr Jayne Rimmer and Dr Lucy Jessop (who located the 1733 drawing of Newton Cap Bridge amongst the British Library's King George III Topographical Collection). Petra Wade and Sharon Soutar kindly produced Fig 1.

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ARCHIVE LOCATION
A selection of photographs taken during fieldwork (including all site photography reproduced in this report) will be deposited with the Historic England Archive in Swindon.

DATE OF INVESTIGATION
Field assessments were carried out between April 2019 and July 2020

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Cover (clockwise from top left): Newton Cap Bridge © Mr Alan Bradley. Source: Historic England Archive IOE01_03756_18; Jock's Bridge © Mr Alan Bradley. Source: Historic England Archive IOE01_06970_23; Newton Cap Viaduct. © Mr Bob Cottrell. Source: Historic England Archive IOE01_15605_13; Railway bridge DAE2/12 © Mr Brian Wilcockson. Source: Historic England Archive IOE01_01853_03

1. INTRODUCTION

In the Delivery Plan for the Bishop Auckland Heritage Action Zone or HAZ (Historic England 2019, 5), Historic England promised to carry out a study of Bishop Auckland's 'town bridges'. The original intention was that the study would simply form part of the planned Historic Area Assessment or HAA of the town (Howard 2020), but the amount of information and level of insight revealed by the bridges research led to the decision to issue a separate supplementary report. The bridges research continues to inform the HAA (Howard *et al* forthcoming), but the detailed findings are presented here in full.

The HAZ, one of 20 such projects currently operating nationally with the aim of informing heritage-led development and economic revival, is focused on the historic town centre of Bishop Auckland together with Auckland Castle and its Park to the immediate east. The present bridge study, however, has cast its net slightly more widely in order to understand and better contextualise the 16 bridges - four road, four rail and eight parkland bridges (one of the latter substantially ruinous and two no longer extant) - that happen to lie within the boundaries of the HAZ. An additional 16 bridges have been selected for study, comprising all remaining (historic) road and rail bridges within the modern civil parish of Bishop Auckland plus a selection of others that lie in a penumbra covering parts of the neighbouring settlements of Auckland St Andrew (South Church), Coundon Grange, Eldon and Escomb (Fig 1). For present purposes, 'historic' is defined as any bridge built before *circa* 1980. This is largely because for the purposes of statutory protection, Historic England is currently unable to recommend any built structure younger than 30 years old for 'Listing'. Minor footbridges (outside the Park) and those that lie on the town's golf course have also been excluded.

This approach has proved most beneficial with regard to rail bridges, since those within the area of the HAZ can now be usefully compared and contrasted to neighbouring examples built at the same time by the same architect - or at least the same company - on a particular line. This is particularly true for the first railway to arrive in Bishop Auckland: an extension of the world's earliest 'modern' railway (the Stockton & Darlington Railway or S&DR) westwards from Shildon. The extension was built by the S&DR as a subsidiary venture (the Bishop Auckland & Weardale Railway, normally abbreviated to BA&W). Design and construction seems to have started in the late 1830s, although the first stretch of line from Shildon to South Church did not open until 1842, and to Crook - including a station at Bishop Auckland itself - until a year later (Hoole 1974, 174). The line and permanent way infrastructure along its length therefore lie on the cusp between the first ('pioneering') and second ('heroic') ages of the four phases into which the history of modern railways in Britain can be divided: the former generally taken as ending in 1840, and the latter ten years later in 1850 (Historic England 2017, 2-3). The line west of Bishop Auckland was closed by British Rail in 1993, but remains operational as a Heritage Railway with its permanent way largely intact. The eight bridges and one culvert built by the BA&W between 1839 and 1843 between the northern portal of Shildon Tunnel and the outskirts of Escomb village to the immediate west of Bishop Auckland, all feature in the present study.

In contrast, it should be noted that the routes of two later branch lines that ran into Bishop Auckland – the Durham & Bishop Auckland Branch opened by the North Eastern Railway (NER) in 1856, and the Bishop Auckland & Ferryhill Branch opened by the same company in 1885 – have since closed and been in part repurposed for, or been otherwise affected by improvements consequent on, new orbital relief roads around the town. In the centre of the town and on its eastern outskirts, this has led to the loss in the last 30 years or so of four 19th-century railway road bridges (one across Princess Street and others beneath Station Approach, Tenters Street and Durham Road) plus the short tunnel that used to take the Durham branch beneath High Bondgate. These demolished bridges (and tunnel) are not reported on here, other than in passing. The good news is that a fifth road bridge, Newton Cap Viaduct on the Durham branch, also originally pencilled for demolition, was reprieved and converted to road use as part of the Toronto Bypass Scheme that opened in 1995. This was a pioneering decision, as a consequence of which Bishop Auckland can proudly claim to possess the first English example of a former railway bridge specifically adapted and widened for road traffic (CIHT nd). The viaduct, plus the six surviving bridges and one culvert at the Bishop Auckland end of the Ferryhill branch (defined as the stretch between Bishop Auckland station and the approximate northern limit of Auckland Park), all figure in the present study.

Other parts of the local rail network that formerly integrated the town with its hinterland, in particular with its collieries (for example, the Barnard Castle and Bishop Auckland Branch and the Haggerleases Branch), have similarly closed since the 1960s. Unfortunately, many if not all the bridges on those lines (at least in the immediate neighbourhood of Bishop Auckland) have already been removed. For that reason, these lines are excluded from the present study. This is despite the fact that the Haggerleases branch was opened by the S&DR as early as 1830 and is therefore arguably more important than the BA&W, belonging as it does firmly within the pioneering phase of Britain's railway history.

The widening of the study area beyond that of the HAZ has also increased the sample of road bridges in the study to seven. Of these, all bar one (Newton Cap Bridge across the River Wear) span the River Gaunless. This has enabled the bridge stock across a single river to be usefully compared and contrasted. The extant bridges mostly range in date from mid-18th century to the early to mid-20th century, although several occupy crossing points that documentary or circumstantial evidence suggests were probably bridged by the 16th century if not before. As with rail bridges, however, Bishop Auckland has lost a number of its historic road bridges in recent decades, particularly on its southern outskirts. For example, Fieldon Bridge across the Gaunless and the appropriately named Fieldon Small Bridge across a nearby unnamed stream, both feature on Ordnance Survey (OS) maps of 1856 (Ordnance Survey 1857e), but seem to have been demolished without record in the 1980s or 1990s, and for that reason are excluded from the present study. Fieldon Bridge was demolished as part of the upgrading of West Auckland Road; its modern replacement - Fylands Bridge – is also excluded from the present study on account of its recent construction date.

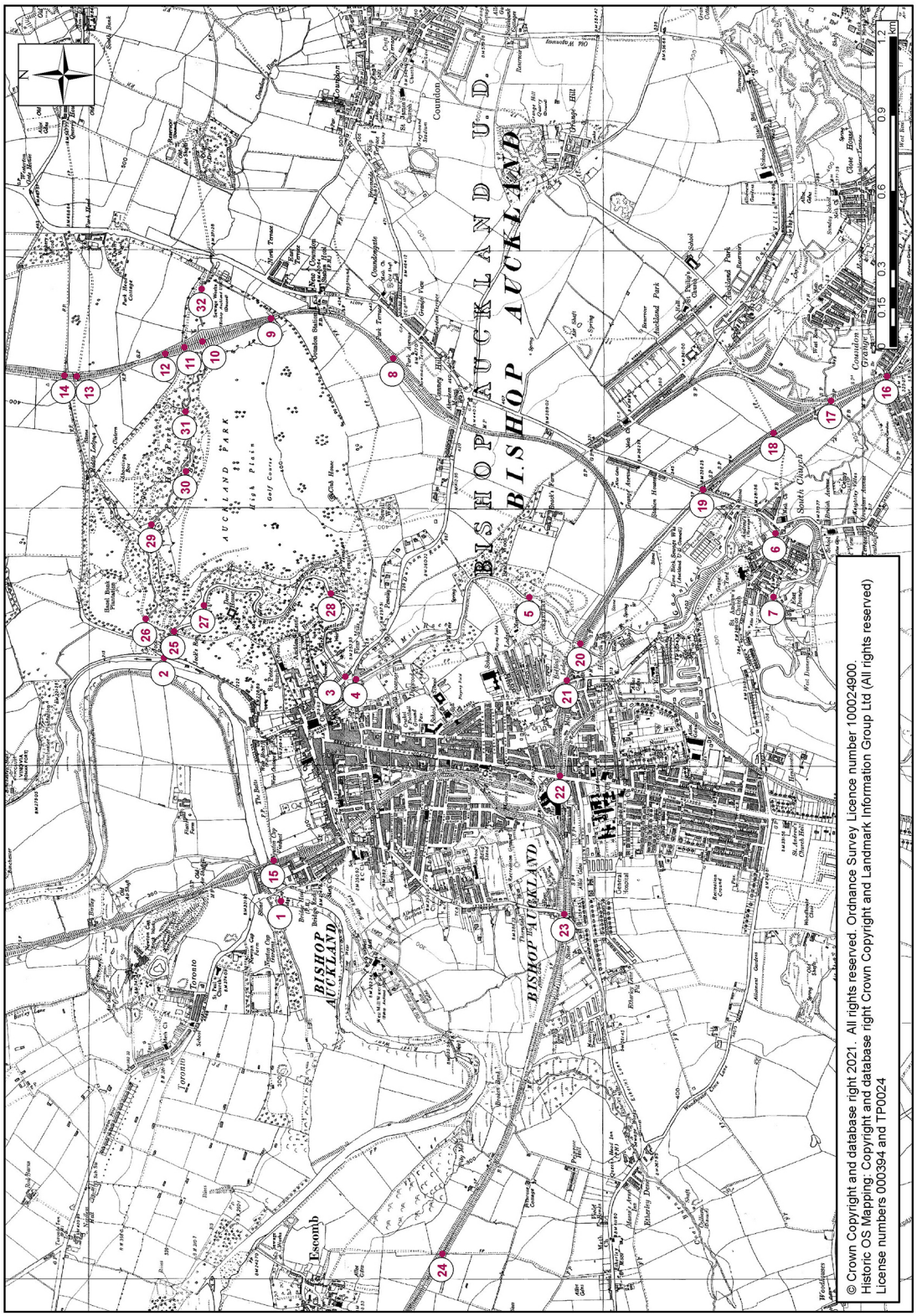

Fig 1. Map of Bishop Auckland showing the position and gazetteer nos. of bridges discussed in the report.

This theme of bridges being widened or replaced as traffic demands have increased through time is, of course, true not just for Bishop Auckland but of the country more widely. River bridges have historically been replaced for other reasons as well, such as becoming unsafe due to lack of proper maintenance or damage by flood. Within the town, these processes are demonstrated by both Gaunless Bridge and the (unnamed) B6282 bridge across the river at South Church. Both crossing points were arguably bridged by the 16th century, but the extant bridges are 18th- or 19th-century replacements of earlier structures. Since that time, both have been widened, but by the construction of what is effectively a second bridge alongside the old, rather than by wholesale replacement as with Fieldon/Fylands Bridge.

Newton Cap Bridge across the River Wear is undoubtedly the oldest and most important of Bishop's Auckland's extant road bridges, an importance reflected in the fact that is currently both a Scheduled Monument and a Grade-I Listed Building. Local tradition holds that it was built *circa* 1400 by Walter Skirlaw, Bishop of Durham (hence the alternative name of Skirlaw Bridge recorded on the most recent OS maps). However, from analysis of the fabric and close reading of what documentary evidence is readily available (mostly from secondary sources), the present study suggests that the extant bridge is not the work of Skirlaw but is rather a late 16th- or early 17th-century replacement of a medieval structure that may or may not have been the work of the bishop. Nevertheless, the historical significance of the bridge is undiminished: as the bridge with the longest span in the country (30.61m) at the time it was built, it remains an important engineering achievement worthy of both celebration and heritage protection.

The eight parkland bridges included in the study all lie within Auckland Park. They form an interesting sub-group that must be viewed against the evolution of the park from a productive landscape projecting the power and status of the medieval and early post-medieval bishops of Durham, to by the 18th century, an essentially ornamental one. This was firstly in the context of personal use by, and for the enjoyment of, the bishops, but increasingly thereafter for the enjoyment and leisure of a wider visiting public. As stated previously, however, the study excludes the 20th-century footbridges within that part of the Park that is now used as a golf course.

All 32 bridges in this study have been visited in the field (although visual inspection from all angles has not been possible in every case due to access restrictions) and had their history researched so far as is practicable from readily available documentary sources. Detailed descriptions and discussions of each will be found in Section 3 (Gazetteer) that forms the bulk of this report. Fourteen of the 32 bridges already have statutory protection as listed buildings; their National Heritage List for England (NHLE) numbers and grades are noted in the gazetteer, and their current List descriptions can be viewed in full by typing the NHLE number in to the online version of the List at https://historicengland.org.uk/listing/the-list/. However, please note: descriptions (and gradings) will be subject to review and possible amendment as a result of this report.

The gazetteer is arranged by bridge category in the sequence: road, rail, parkland. Road and parkland bridges are discussed according to geographical location, starting

with Newton Cap across the Wear and then proceeding north to south up the River Gaunless. Rail bridges are ordered in accordance with the direction of the Engineer's Line Reference (ELR) bridge-numbering system that the relevant railway company adopted for each line at the time of construction (or as subsequently adapted). Each bridge has also been allocated a number in the gazetteer which is used in the present report (see Fig 1) as a ready means of identification and cross-reference, particular where a bridge has no widely accepted proper name.

Glossary of bridge-related or specialist architectural and engineering terms

Abutment	The support wall at either end of a bridge which resists the horizontal thrust of the adjoining arch or arches
Archivolt	A moulded band above an arch
Arch ring(s)	The voussoirs visible in the arch face
Ashlar	Masonry made of large, well-dressed, square-cut stones; also often any finely-cut masonry
Bearing block	A large stone which transfers the load of a girder on to an abutment or pier
Centring	A temporary timber structure for supporting an arch while in the process of construction, dismantled after the keystone is laid
Chord	The main upper and lower members of a truss
Corbel/corbelled out	A stone (or brick) that projects out from the one below
Culvert	A small covered passage taking water under a road, *etc*
Cutwater	A projection at the base of a bridge pier, tapered or rounded to smooth the flow of water around the pier.
End pier	A pier at the end of a parapet or wing wall
Impost band	An ornamental band that sits between the top of an abutment or pier and the springing of an arch
Invert	The floor (often inverted arch) of a conduit
Jack arch	Typically a short-span arch (brick or concrete) between two girders
Keystone	The central stone in an arch ring that gives an arch its strength
Kingpost	The post at the apex of a King Post Truss

Parapet	The vertical continuation of a spandrel wall above deck level to protect those using the bridge and also those below
Pier	Any intermediate vertical support between abutments
Pilaster	A thin, flat, ornamental projection from the face of a wall made to resemble a column
Quoin	A large stone at the external angle/corner of a structure.
Railway overbridge	A bridge over the running tracks
Railway underbridge	A bridge under the running tracks
Rock-dressed	Stonework given a rough, textured, projecting surface
Skew arch	An arch which crosses a road/river/railway at an angle other than a right angle.
Skewback stone	A wedge-shaped stone from which an arch springs.
Soffit	The underside of an arch barrel
Span	The horizontal distance between any two vertical supporting members of a bridge.
Spandrel	That part of a bridge's elevation between the arch ring(s) and parapet
Springing	The point at which an arch starts
Stanchion	An upright post
String course	A decorative band within a larger area of masonry, often at a bridge's deck level
Training wall	A wall revetting the bank of a river or stream to confine and direct the flow
Truss	A framed or jointed structure designed to act as a beam
Voussoir	One of a ring of large trapezoidal masonry blocks in the face ring of an arch
Wing wall	A wall at the abutment of a bridge that extends beyond the bridge to retain earth behind the abutment; also the parapet above

2. BISHOP AUCKLAND'S BRIDGES: OVERVIEW AND DISCUSSION

2.1 Roman bridges

The earliest bridges in the Bishop Auckland area that we have evidence for are those erected by the invading Roman army in the mid- to late 1st century AD. These form part of a new road network, the primary purpose of which was military: to facilitate the rapid movement of soldiers and supplies and hence allow Rome more readily to control the newly conquered native tribes of northern England. For several years after the initial landing on the Kentish coast in AD 43, the Roman conquest of Britain had halted along the line of the Fosse Way that connects the legionary fortresses of Exeter and Lincoln. As part of a renewed push in to northern England in the late 60s and early 70s, new garrison forts were established at Piercebridge on the River Tees and at Binchester on the Wear, the latter just north of Bishop Auckland, to command the river crossings. These forts were connected by a road (later known as Dere Street) that issued from the legionary fortress at York and ran to a garrison fort at Corbridge on the Stanegate Frontier (what was later to become Hadrian's Wall, although work to build the Wall itself did not start until *circa* AD 122).

Roman bridges are known or suspected where Dere Street crosses both the Tees and the Wear. At Piercebridge, the Tees has migrated northwards since Roman times and the silted remains of the southern end of a bridge were discovered and excavated during gravel extraction in the 1970s (Cool and Mason (eds) 2008). It comprised a series of masonry piers supporting a horizontal timber deck, and dated to the early 3rd century. It must therefore have replaced an earlier bridge (or bridges), which on the evidence of road alignments and timber posts noted in the river bed seems to have occupied a different site a few hundred metres upstream. It is unclear on present evidence whether this earlier bridge was built entirely of timber, or whether the posts that have been seen are rather piled foundations for masonry piers. Similarly slight remains of a bridge at Binchester are thought to lie in the bed of the Wear immediately north of the fort, visible when water levels are low (Dymond 1961, 138-9); no detailed inspection or archaeological recording has yet been attempted, but the presence of worked stone suggests that it may have been of similar construction to the 3rd-century example at Piercebridge.

Early antiquarians believed that Dere Street ran in a straight line between Piercebridge and Binchester. Indeed such an alignment, at least as far north as Bishop Auckland, is supported by the position of modern Newgate Street south of the market place, which does indeed lie on a direct line drawn between the two forts. However, there is less certainty and agreement over the course the road took north of the town. If, as used to be thought, it continued on the direct line, this would have entailed a steep descent down on to the floor of the Wear valley (probably in the vicinity of the present Wear Chare) followed by a double crossing of the river (always assuming that 2000 years ago the Wear flowed in a single channel in something akin to its present position). Such a route seems unlikely on both logistical and strategic grounds, since it would have entailed steep gradients and multiple crossings of a major river. Instead, it must be more plausible that, as has already been suggested

by others (*eg* Drury 2012, 4), somewhere at the northern end of Newgate Street the Roman road deviated to the east and passed over the gentler southern slopes of the Wear valley where that river is joined by the River Gaunless, to approach Binchester from the south-east. In addition to avoiding steep gradients, this would have the advantage of needing only the crossing of a much smaller river (the Gaunless) *en route* to Binchester, followed by a single bridging of the Wear north of the fort as Dere Street exited to resume its course towards Corbridge. There is no direct evidence to corroborate this conjecture, but the idea is supported by reports of finds of Roman burials in Auckland Park. Roman law prohibited human interment within settlements and forts, and accordingly burials were often sited alongside roads leading to them. A Roman urned-cremation burial was discovered during the construction of Bishop Trevor's bridge (gazeteer no. 25) across the Gaunless in Auckland Park in 1757 (Mackenzie and Ross 1834, 294n), while further cremations and what may have been part of a stone tomb were reportedly found in the same vicinity just before the Second World War when a sewer pipe was being laid (Steer 1938, 173). It must be a distinct probability, therefore, that Dere Street crossed the Gaunless at or close to the site of the present parkland bridge (although it is, of course, possible that it did so *via* a ford rather than a bridge).

However, the crossing in Auckland Park is only one of two probable Dere Street bridges across the Gaunless in Roman times: the road's projected line south of Newgate Street also intersects with the modern course of the river close to the site of Fieldon (now Fylands) Bridge. This raises the possibility that the latter structure may be the most recent incarnation of bridge at a crossing point in use since Roman times, with the position of the crossing shifting slightly as bridges have decayed and been replaced or the river has altered course. Minor Roman bridges of this sort are likely to have been constructed entirely in timber, possibly with stone abutments (Dymond 1961, 148).

2.2 Early Medieval period

Roman bridges would have remained as visible features in the landscape well into the early medieval period. However, it is unlikely that many were actively maintained or repaired much beyond the early 5th century which is when the Roman army officially withdrew from the province of *Britannia*. As bridges decayed, it is probable the roads that approached them were abandoned or, if the route remained important and in use, the road was simply diverted to the nearest fording place.

Documentary and place-name evidence shows that bridges were once more being constructed in England by the 8th century (they may even have existed in considerable numbers at this time). However, there is little physical evidence for new constructions before the early 11th century. What little archaeological evidence there currently is suggests that Anglo-Saxon bridges were timber-girder affairs similar to their Roman predecessors, supported on timber (perhaps occasionally stone) piers; they were definitely not of stone-arch construction (Harrison 2004, 24-9 and 99-105).

2.3 Medieval bridges

Nationally, evidence of bridge-building – both documentary references and surviving structures - becomes more common from the 12th and 13th centuries. Bridges were still often timber at this time, but stone-arch bridges were being built in the south of England by the late 11th century. The earliest documented stone-arched bridge in northern England is Framwellgate Bridge across the River Wear at Durham, commissioned by Ranulf Flambard, Bishop of Durham between 1099 and 1128 (Harrison 2004, 110-12). Flambard's bridge is no longer extant, but its early 15th-century replacement does survive (Fig 2) and is a good model for the style of vaulted bridge (*ie* consisting of arches supported on a series of stone ribs) that was the typical product of medieval masons. As can be seen at Framwellgate, bridge arches were not constructed with a single ring of voussoirs, but consisted of multiple rings laid one above the other. In the north of England three rings are typical: a first order consisting of a series of discrete arch ribs, a second order that comprises the arch proper, and a third-order counter arch. The technique enabled masons to construct arches of considerable span (Framwellgate has spans of around 27m). Framwellgate is also a good example of northern English medieval bridges in another respect: the rings progressively corbel out from each other and are characterised by deep chamfers.

Bishop Auckland lies 13.5km upstream from Durham as the crow flies. The earliest documentary evidence for a bridge across the Wear here dates from the early 14th century (Jervoise 1931, 35), but it is possible that a bridge existed by the second half

Fig 2. Framwellgate Bridge, Durham. Note the triple arch rings visible on the elevation, with the first ring made up of a series of discrete ribs (visible under the soffit of the arch). © Mr Bob Cottrell. Source: Historic England Archive IOE01_03605_35

of the 12th century which is when Bishop Hugh de Puiset built his Hall (the later Auckland Castle) in the town then known as North Auckland (Drury 2012, 5). After all, a bridged crossing of the river close to an episcopal residence would have been very desirable if Hugh or his successors wanted ready access upstream to other estates they held within the Forest of Weardale.

In the absence of specific and comprehensive documentation, it is obviously not possible to be certain how many versions of Newton Cap Bridge there have been, or indeed the dates they were constructed. A quick glance at a map, however (*eg* Fig 3), offers strong support for the idea that the present structure is not the earliest. This is indicated by the orientation of the extant structure to the roads that connect with either end, which feature conspicuous double bends in their final approaches rather than meeting with the bridge head-on. Although topography may have some part to play in this (the north bank of the Wear is particularly steep here) and on the south bank the road may have had to respect pre-existing croft boundaries of properties fronting High Bondgate, the relationship of the bridge to its approach roads does raise the suspicion that the latter have at some time been re-routed in order to connect with a re-positioned bridge; alternatively, the bridge replaced an earlier ferry or ford that lay slightly to the west. That said, the southern bridgehead has undoubtedly occupied its present position for at least 500 years and probably several

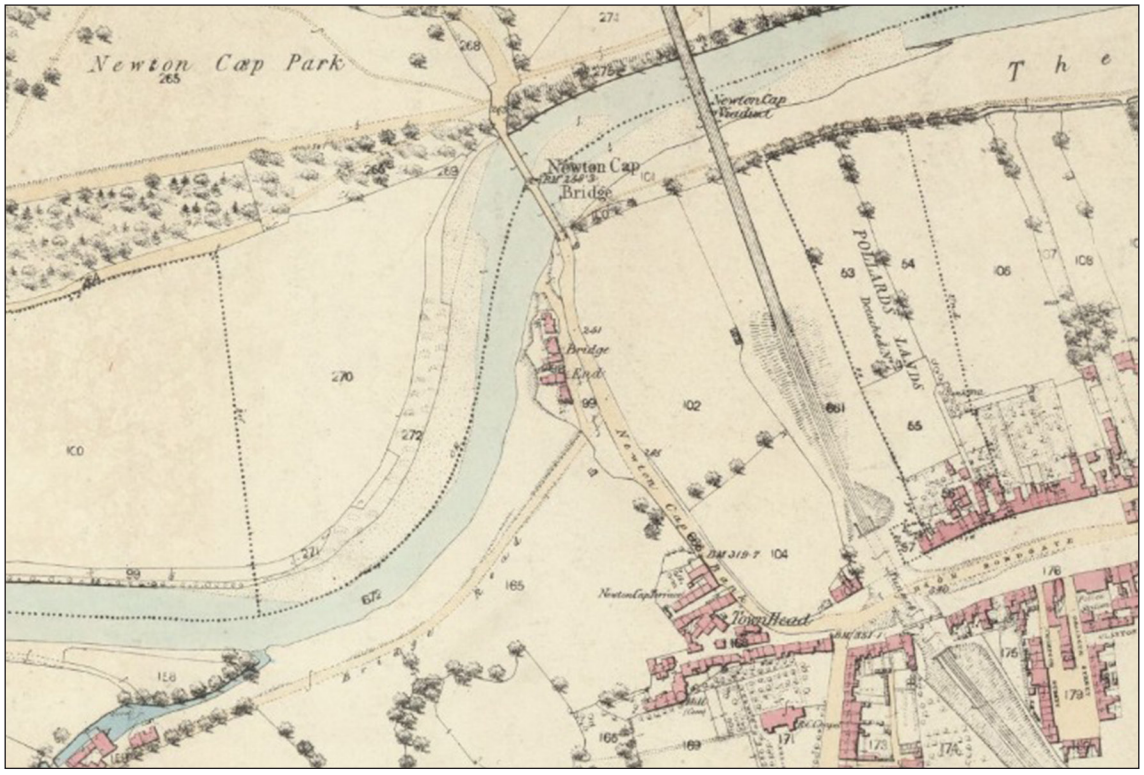

Fig 3. Part of what is probably the earliest accurate, detailed map of Newton Cap Bridge, showing the discontinuity between the approach roads and present angle and position of the bridge. (Reproduced from the 1857 County Series 1:2500 Ordnance Survey map, with the permission of the National Library of Scotland under Creative Commons Attribution (CC-BY) licence: https://maps.nls.uk/index.html).

centuries longer, for there is good evidence that in the medieval period a gatehouse stood across it (Thompson 1901; and see gazetteer, especially Fig 5). Gatehouses are thought to have been a common medieval feature controlling access across bridges in urban areas, but Newton Cap is one of reportedly only five nationally for which we have physical or documentary evidence (Cook 1998, 62).

It is often claimed that the extant bridge at Newton Cap is the work of one of de Puiset's medieval successors, Walter Skirlaw (in office from 1388 to 1406), but investigation by the present study has failed to uncover any evidence that links the structure conclusively to Bishop Skirlaw. Rather, the available evidence suggests that the extant structure more likely dates from the early post-medieval period around 1600 (see gazetteer for detailed arguments and references). The antiquary, John Leland, who embarked upon several tours of England between 1535 and 1543, did, however, see the current structure's immediate predecessor (quite possibly the bridge traditionally attributed to Skirlaw), describing it as 'an exceeding fair bridg of one arch upon Were' (Toulmin Smith (ed) 1964, 71). The reference to a single arch is problematical as the valley floor here is over 60m wide, well beyond the technical expertise of medieval masons to cross in a single span. A possible explanation may be that the bridge Leland saw was actually approached at either end by lengthy causeways that extended part-way out across the valley, and probably featured small flood arches at their base which escaped his attention. Since such causeways would have impeded the flow of water and been prone to damage, particularly when the river was in spate, this might go some way towards explaining why there are reports of this medieval bridge being 'in decay' only a few years after Leland saw it (although it goes almost without saying that any bridge over water will deteriorate without regular maintenance).

Bridges must also have existed in the Bishop Auckland area across the town's other river – the Gaunless - early in the medieval period, if only to afford the bishops of Durham easy and reliable access between their cathedral and new palace, and from that palace to more southerly parts of their diocese. It is for this reason that we can be reasonably confident that there must have been a bridge on the site of the present Gaunless Bridge (gazetteer no. 4) on the east side of Bishop Auckland market place by the 12th century or shortly thereafter, even though the earliest good evidence at this location is Saxton's map of 1576. Some have claimed that Gaunless Bridge is the same as the 'Brig of one great Arch on Gaundeless' also seen by Leland some 35-40 years previously, but as Leland was travelling to Bishop Auckland from Darlington, the bridge he journeyed over is more likely to be a predecessor of the present unnamed bridge that carries the modern B6282 across the river at South Church (gazetteer no. 6). The extant bridges at both locations are no earlier than the 18th century, but both occupy crossing points of demonstrable and considerable antiquity (see gazetteer for further discussion and details).

In all likelihood, there was also a second bridge across the Gaunless at South Church by the late 13th century (assuming that bridge no. 6 existed by this time as well). It is associated with the foundation of a Dean's House and Prebends' College on the south bank there in 1293: the Dean and prebends would have required constant access across the river to their church (St Andrew's) on the north bank. A small stone-arch

bridge (the sometimes-called Deanery Bridge; gazetteer no. 7) still stands on the assumed route. The extant structure cannot be securely dated from its surviving fabric, but based on its narrow width and simple form it has been suggested that it dates from the 18th century; it could well be earlier.

2.4 Post-medieval road bridges

The most impressive and significant of Bishop Auckland's extant road bridges is, of course, Newton Cap (gazetteer no. 1) across the River Wear. We have already noted that a bridge existed at Newton by the early 14th century if not before, and that the extant structure, widely believed to be the work of Bishop Skirlaw toward the end of that century, was more probably built some two centuries later, *circa* 1600. The historical evidence linking Skirlaw to the bridge is actually very weak when examined critically (see gazetteer); moreover, a medieval date for the present structure is not supported by the fabric which not only lacks the ribs that are a characteristic of medieval bridges (especially those of large span) but also the fine detailing and corbelling-out of the arch rings such as may be seen at nearby Framwellgate (Fig 2) and other demonstrably medieval bridges in the north of England (eg Barnard's Castle and Yarm). Notwithstanding the revised date suggested here, the present bridge is still a remarkable engineering achievement: it boasts the longest span (at 30.61m) of any bridge in England at the time of its construction (whether reckoned as *circa* 1400 or 1600). Furthermore, it is highly probable that the southern approach causeway, although much re-built, retains at least some medieval fabric including, as already stated, elements of a gatehouse.

What of Bishop Auckland's post-medieval bridges across its lesser river, the Gaunless? As mentioned above, the Gaunless was probably already bridged in at least three places in the medieval period. With the possible exception, however, of the small 'Deanery Bridge' (gazetteer no. 7) at South Church, none of the present structures pre-dates the mid-18th century. This ties in very much with the national picture. Across Britain the 18th century was a time of great investment in transport infrastructure generally: it saw the advent of turnpike trusts, of cross-country canal-building, and, of course, developments in early railways including at the turn of the century the first experiments in steam-powered locomotion.

The manner in which bridges on the road network were paid for and maintained was also evolving, and many were rebuilt during the century. In the medieval period, bridges had generally been the gift of rich individuals or the church, paid for and maintained by bequests, endowments, levies or tolls of various forms and duration - such as pontage grants, by which the King or his proxies conveyed the right to named administrators, for a set period of time, to charge tolls on those using a bridge, specifically to fund repair. In 1530, the Statute of Bridges reinforced the role of civil administrators by giving them power to levy rates on property owners within their jurisdictions for the upkeep of bridges where it could not be established that a specific person or institution was otherwise directly liable. The system was overseen by Justices of the Peace (JPs) sitting in Quarter Session. Over the ensuing centuries, this led to county administrators assuming responsibility for the maintenance and repair of an increasing number of bridges, and even on occasion

to levying rates for the construction of new bridges in places where none had existed previously. Bridges built or adopted in this manner were known as 'shire' or 'county' bridges. The process accelerated toward the end of the 18th century following the 'Glasburne (Glusburn) Judgment' of 1780, in which the West Riding authorities were indicted for failing to maintain a bridge they had recently erected in the township of that name. The ruling determined the principle that 'if a man build a bridge, and it becomes useful to the County in general, the County shall repair it' (Chalkin 1998, 93-131; Harrison 2004, 184-220).

Although direct evidence has not been found, it was in all probability the Bowes and Sunderland Bridge Turnpike Trust (aka the Bowes, Barnard Castle & Bishop Auckland Trust), first constituted by Act of Parliament in 1747, that was responsible for erecting the earliest phase of the present Gaunless Bridge (gazetteer no. 4); certainly the style of the earliest fabric appears broadly 18th-century in date. If so, the preceding (possibly medieval) bridge was presumably deficient in some way – perhaps damaged by flood – and in need of complete replacement. However, when the bridge was almost doubled in width in 1822, it was at the instruction of JPs, indicating that in the intervening years it had come to be reckoned a county bridge. The origins of the unnamed bridge carrying what is now the B6282 across the Gaunless at South Church (gazetteer no. 6), are likewise uncertain. A bridge existed here certainly by 1768 - and quite possibly 200 years before that when, as we have heard, it is likely to be that traversed and described by the antiquary, John Leland. If so, the bridge had also become a county bridge by the time of its replacement in 1835 (possibly re-using the foundations and lower courses of its immediate predecessor; see gazetteer). As county bridges, the 19th-century elements of both these structures were almost certainly designed and construction overseen by the architect, Ignatius Bonomi, who served as Durham County Surveyor of Bridges between 1813 and 1850. The bridge at South Church was not widened until the first half of the 20th century.

Two other mid-18th-century road bridges also exist across the Gaunless. One (Bishop Trevor's bridge, gazetteer no. 25) lies within Auckland Park and so is discussed in section 2.6 below. The other - Jock's Bridge (gazetteer no. 2) - crosses the river on the very edge of Auckland Park just before it debouches in to the Wear. It used to be believed that the whole of Jock's Bridge dated from 1819, which is the date inscribed on the keystone of its eastern elevation. The current investigation, however, has pointed out that a bridge existed at this location as early as 1762 (DRO D/Bo/G 1/(i)) and also that, stylistically, the eastern elevation is very different from its western counterpart. The conclusion drawn is that the datestone refers to the rebuilding of the eastern parapet by Bishop Shute Barrington (in office 1791 to 1826) as part of his improvements to the Park, while the rest of the bridge fabric is earlier and quite possibly part of the bridge recorded in 1762.

Later bridges across the Gaunless comprise the 'cemetery' bridge (gazetteer no. 5), built in 1884, and the concrete-and-steel culvert at the base of the embankment that carries the mid-1920s Durham Road diversion over the river (gazetteer no. 3). The cemetery bridge is a steel-truss design that seems to be a mid-20th-century replacement of no special significance. The Durham Road bridge, however, is an

often overlooked but altogether more interesting construction, incorporating Art Deco design motifs typical of bridges of the 1920s and 1930s. Both structures are illustrative of improvements in bridge design and the use of new materials developed through the later 19th and early 20th centuries.

2.5 Railway Bridges

For the purpose of this report, a railway bridge is defined as any bridge built by a railway company regardless of whether it takes the railway across a river or over or under a road or other right of way. Right from the start, railway companies developed bespoke systems of asset numbering to keep track of the myriad bridges and tunnels on their networks. Over time, as companies merged or were taken over, these bespoke systems were standardised in to a single national system of unique three-digit alphabetic or four-digit alpha-numeric line codes followed by individual asset numbers, known as Engineer's Line References (ELRs): the first part of the code identifies the line or part-section thereof, and the ensuing number identifies each bridge or tunnel on the line in sequence from a specified start-point. Thus for example, Newton Cap Viaduct on the Durham & Bishop Auckland Branch built by the North Eastern Railway (NER) company in the 1850s was given the ELR DBA/7, meaning it was the seventh bridge (including station footbridges, etc) or tunnel on that branch when counting from the line's designated start-point at Bishop Auckland station. Not all line codes are as straightforward or readily deducible from the name of the branch. For instance, bridges built by the Bishop Auckland & Weardale (BA&W) company were originally prefixed BA&W, but following merger with the NER this was changed to DAE2 to reflect the line's incorporation in to a much longer route that now started at Darlington and ended at Eastgate in Weardale. The addition of the '2' to the line code denoted a sub-section of the longer route beginning at Shildon. It meant that bridges in that sub-section could retain their original final asset number: hence BA&W/4 became DAE2/4.

The bridges constructed by the BA&W between 1839 and 1843, starting with bridge DAE2/4 at Coundon Grange (gazetteer no. 16) in the east and ending with DAE2/12 just outside Escomb (gazetteer no. 24) in the west (Fig 1), are the earliest railway bridges to survive in the immediate vicinity of Bishop Auckland. They lie on the cusp between the first 'pioneering' and second 'heroic' ages in to which the history of the modern railway in this country can be divided (Historic England 2017, 2-3).

The BA&W was a sub-venture of what is probably the first modern railway company in the world, the Stockton & Darlington Railway (S&DR). It marked that company's expansion westward from Shildon (close to its original western terminus) and represented the start of a network of lines and spurs that eventually reached as far up Weardale as Westgate, although by 1843 construction had only progressed as far as Crook, some 8km north-west of Bishop Auckland. The line did much to open up the area's great mineral wealth, particularly coal but also lime and stone, to intensive commercial exploitation. The archives and operational procedures of the BA&W have not been researched in detail for this report, and the account that follows of how the company organised its bridge-building programme is based exclusively on the physical evidence of the bridges themselves augmented by early plans of those

structures now in the archives of Network Rail. It must be cautioned straightaway that what survives in Network Rail's Archive (NRA) is unlikely to represent all the BA&W engineering drawings that originally existed (or indeed those of other early railway companies); undoubtedly several, if not many, drawings have been lost, misplaced or mis-filed over time as companies merged or were taken over. In addition, because much of the time the present study has had to dedicate to documentary research has coincided with the COVID-19 pandemic and the associated constraints on accessing archive repositories in person, these drawings have only been seen as microfilmed, black and white copies, sometimes of poor quality.

Detailed analysis and discussion of the BA&W bridge stock is further complicated by the fact that few if any are now entirely as built. All metal-girder bridges have obviously been re-decked (probably on several occasions) since they were first built. Replacement of girders is part of routine maintenance, but there was a general programme of replacement of structural cast iron by wrought iron towards the end of the 19th century following a string of bridge collapses and the belated recognition that cast-iron members were unsuitable where subject to heavy loading. Furthermore, four underbridges (both stone-arch and metal-girder designs - DAE2/4, DAE2/6, DAE2/8 and DAE2/9; gazetteer nos. 16, 18, 20 and 21) plus one of the girder overbridges (DAE2/10; gazetteer no. 22) were widened later in the 19th century when the stretches of line on which they sit, originally laid as double-track, were upgraded to three or four tracks. In the case of the girder bridges, the evidence suggests that the abutments were also largely rebuilt when this happened. This is obviously inevitable in the case of an overbridge when at least one abutment will have to be re-located if the trackbed beneath is widened, but the need is less obvious when widening an underbridge where the existing abutments could, in theory at least, simply be extended laterally. Track quadrupling affected DAE2/4 and DAE2/6, both originally stone-arch designs, and was carried out by the creation of an extra running line either side of the existing track bed: this means that the primary bridge elevations are now totally or heavily obscured behind later work. Nevertheless, a series of tentative observations are offered below about factors that may have influenced the bridges the company built, based on the surviving physical evidence and plans.

Unlike later railway companies whose civil engineering departments would design the majority of structures when a new line was constructed, employing a limited template of architectural styles and motifs (*ie* a 'house style') before the build contracts were let to private contractors, the BA&W seems to have utilised a much more eclectic palette of designs, possibly even contracting out elements of the design work in the bargain. This is suggested by the degree of variation in the amount of architectural embellishment and differences in the chosen finish exhibited by the nine bridges on the line that feature in this study. Bridge design is of course partly a function of the requirements of the job, *ie* whether, say, a stone-arch or metal-girder design is the most appropriate engineering solution, but this does not readily explain, for example, the choice of a lenticular iron truss in the case of the accommodation overbridge DAE2/12 (gazetteer no. 24) which the BA&W constructed between Bishop Auckland and Escomb. It definitely does not account for the variations in the design of the stone-arched bridges. These range from the restrained semi-circular

arch of DAE2/4 with its plain voussoirs embellished by a simple half-round archivolt (Fig 53), to the segmental arch of underbridge DAE2/7 (gazetteer no. 19) with its highly ornamented stepped voussoirs and almost whimsical abutment stonework (Figs 56-59), to the grand Baroque portals of the bridge that takes the railway across the River Gaunless (DAE2/8; gazetteer no. 20) which features semi-circular arches, massive voussoirs and the use of deeply channelled rustication in the headwalls/spandrels (Fig 63). The choice of a segmental rather than semi-circular arch for DAE2/7 may have been dictated by the need to maximise headroom for traffic using the road passing through the arch (the existing road had to be sunk in to a cutting to enable the railway to pass over). However, if specifying a certain clearance for road traffic was the only consideration, then surely a girder bridge would have been a more sensible design option here; it certainly does not explain the decision to ornament the stonework differently to that seen on other bridges.

Notwithstanding stylistic differences such as these, several of the bridges do exhibit common technical devices. This is most evident in the stone-arched bridges that are 'skew', meaning that they cross the feature they intersect at a skewed angle (DAE2/4, 7 and 11; gazetteer nos. 16, 19 and 23). Skew arches present difficult engineering challenges as they impose forces on their abutments differently to those that cross an obstacle square-on. Engineers gradually developed their understanding of these forces and how to deal with them structurally through the second half of the 18th and first half of the 19th centuries. Indeed the S&DR had already constructed one skew bridge locally as early as 1830: that which took their Haggerleases Branch across the River Gaunless just outside that line's terminus (Rennison 1996, 84). By the beginning of the 1840s the engineers or contractors responsible for DAE2/4 and 7 were designing and cutting complex 3-dimensional stonework to tie the arch barrels to the abutments (*cf* Figs 54 and 60). (As up-close investigation of the arch springing of DAE2/11 was not possible, it is not known whether the abutments and arch barrels of that bridge are similarly integrated, although it seems likely they are). The fact that these three arches are skew may then also explain the choice of stepped voussoirs in the arch rings of DAE2/7 and 11, since that presumably also helped tie the rings to the spandrels. If so, this may represent a lesson learned from experience with the earlier DAE2/4, the voussoirs of which are not stepped but surmounted by a simple curved archivolt or drip-course, and whose spandrels evidence subsequent problems of movement (see gazetteer).

Of all the bridges on the BA&W, however, it is probably DAE2/12 (gazetteer no.24) that deserves most celebration. It is one of very few surviving examples nationally of a lenticular-truss railway bridge, and probably the earliest example both still in use and in its original position (Rennison 1977). That significance is already recognised in its current grade-II* listing (NHLE 1196464), but there is a story behind the bridge design that to date seems largely unexplored. The original engineering drawings for the bridge survive in the NRA (as recognised by Rennison; see gazetteer) and are signed 'John Storey | Darlington'. John Storey, perhaps the engineer, or else the draughtsman, appears to be otherwise unknown, but it is possible that he was related in some way to Thomas Storey (1789-1859) who in 1825 had succeeded George Stephenson as the S&DR's Chief Engineer, and who lived at St Helen's Auckland (Ruddock *et al* (eds) 2008, 668-9). Stephenson had already

successfully employed the lenticular truss design for the iron bridge that he built for the S&DR in 1824 across the River Gaunless between St Helen's Auckland and West Auckland. In 1842 this bridge was still in regular use. Thomas Storey must therefore have seen it if not travelled over it every day he went to work. Even excluding a direct relationship between him and his namesake John, given that the NRA plans also state that the contractor for the bridge was 'The Shildon Works Company' – almost certainly the company later known as the Shildon Wagon Works which from around 1840 was owned and operated directly by the S&DR - it must be highly probable that the inspiration for the bridge drew heavily on Stephenson's pioneering prototype.

All other railway bridges in the present study – those on the Durham & Bishop Auckland and Bishop Auckland & Ferryhill Branches - date to after 1850 and so belong to the third and fourth eras in to which the history of modern railways in England is commonly subdivided: these eras saw the consolidation (from the 1850s through to the 1870s) and then the final completion (by 1914) of the main rail network in Britain (Historic England 2017, 3). Although arguably of less significance in the national story of Britain's railways than those of the BA&W, these bridges are nevertheless fine examples of railway architecture and engineering in their own right, as recognised by the fact that many are already listed at Grade II. They are all the product of the same company - the North Eastern Railway - although built 30 years apart under different Chief Civil Engineers and accordingly exhibiting different styles and architectural finishes.

Newton Cap Viaduct (DBA/7; gazetteer no. 15), the one surviving bridge at the Bishop Auckland end of the Durham branch, was completed in 1854. The other bridges that formerly existed at the southern end of the Durham branch have all now been demolished, and so it is hard to know whether Newton Cap shared a common style with its immediate neighbours, but certainly it does with two other viaducts that still stand further north along the line at Durham and Belmont.

The seven bridges that survive on the final run-in to Bishop Auckland of the Ferryhill branch through Auckland Park (BIF5 to BIF/12; gazetteer nos. 8 - 14) were all designed and constructed in the year or two preceding the opening of that line in 1885. All draw very much on a common repertoire of architectural finishes – rock-faced stonework, stepped voussoirs and decorative 'saltire' caps to the end piers of the parapets and abutment wing walls (*eg* Fig 32), to name a few – but the present study has not undertaken research to see if these decorative tropes are specific to this particular branch or are representative of a more general NER house style of the 1880s. It could be, for example, that a higher degree of design and decorative finish was specified in order to overcome local objections to the line's passage through Auckland Park.

2.6 Parkland Bridges

Discounting the likelihood of a bridge – or at least a ford - across the Gaunless in Auckland Park in Roman times (above, section 2.1), the earliest evidence we have for bridges within the Park dates to medieval times. In 1338, for example, it is documented that carpenters repaired two bridges (which were possibly, therefore, all-

timber affairs) over *Coundonburn* and the unidentified *Eggisclyffburn* (the Park then may well have been larger than its current extent), while in the first half of the 15th century there is also mention in the bishops' accounts of the timber *Pybrig*. The latter reportedly stood near the '*Burnneyln* of Aukland' somewhere 'on the other side of the Gaunless'; *Burnneyln* is unlocated, but *Pybrig* was clearly also a parkland bridge for it required 'hachez hanging ... for keeping the stock within the Park' (Richley 1872, 8-9 and 13).

In terms of physical survival, the earliest bridge within the Park is that built across the Gaunless by Bishop Richard Trevor in 1757 (gazetteer no. 25). This lies on a carriage drive that Joseph Spence's sketch plan of the Park, produced just a few years earlier *circa* 1754 (YL OSB MSS 4), shows crossing the river at a ford a short distance downstream. As stated previously, the discovery of a Roman cremation urn during the bridge's construction, plus further tombs uncovered when a sewer pipe was laid nearby in 1939, raises the distinct possibility that Trevor's bridge reuses the site of an earlier Roman crossing, most probably that of Dere Street in its final southern approach to the fort of Binchester. Spence's plan does not show any bridges across watercourses elsewhere within the Park either in 1754. Assuming his sketch is accurate, then the bridge that carries the carriage drive across Coundon Burn (gazetteer no. 26) was probably also constructed in 1757 (although note there was a bridge somewhere across this burn as early as 1338). Unfortunately bridge no. 26 (more properly perhaps, a culvert) appears to have been re-decked a few years ago; very little of the original structure now survives.

A number of other small bridges or culverts survive within the Park (in varying states of disrepair) or else are known from historic maps and photographs. These lie across both the River Gaunless and the Coundon Burn, and are all seemingly to do with successive re-modellings of the Park as an ornamental landscape of pleasure. None is recorded before the 19th century, but while this does not mean that some cannot be earlier, maybe late 18th-century, most are likely to date from the early 1800s. Certainly the earliest incarnation of 'Green Bridge' (gazetteer no. 28) across the Gaunless is likely to date from *circa* 1810 for it lies on a path leading to a now demolished folly called The Temple which was reportedly built in that year (*The Northern Echo* 2018), while one of the four known foot- or carriage-drive bridges across Coundon Burn has the date 1827 inscribed on one of its keystones (gazetteer no. 32).

2.7 Summary of Significance

As will be appreciated from the previous discussion, all 32 bridges that feature in this study have played an important part in the historical development of Bishop Auckland. First, the several road bridges built across the rivers Wear and Gaunless since the 12th/13th centuries have allowed a town, founded by the bishops of Durham, to flourish and develop in to a regional centre of considerable economic, military and political significance. The arrival of the railway in 1842/3 provided further impetus, radically improving the means and lowering the cost of bulk transport. The lines built by the BA&W, and later in the century the NER, did much to integrate the town with its immediate hinterland at the same time as connecting

both into what rapidly became a national transport network; in so doing, they opened up ready new markets for the area's great mineral wealth, especially coal, which could now for the first time be transported easily and cheaply to destinations all across the country. Others of the town's bridges illustrate alternative national themes, such as the evolution of the bishops' private Park outside the town into a polite landscape, first for private and later, public, pleasure, and the levels of accommodation and deference still required in the penultimate decade of the 19th century to allow the railways to intrude upon that landscape.

Of the 32 bridges, 14 are already recognised as worthy of national designation as part of England's story. The present study has largely confirmed the inclusion of those 14 in the List, although in one case it has demonstrated that much of the significance has recently been lost through poorly informed repair and reconstruction (gazetteer no. 26). In several cases it has reinterpreted the hitherto accepted view of what that significance actually is (*eg* Newton Cap Bridge; gazetteer no. 1), or added to significance by showing that bridges have origins earlier than previously thought, or unrecognised associations with particular architects and engineers of note (*eg*, Jock's Bridge, Gaunless Bridge and railway bridge DAE2/12; gazetteer nos. 2, 4 and 24). Of the remaining 18 structures in the study that are not currently listed, probably the most interesting, whether from an historical or engineering perspective, are the unnamed bridge that takes the B6282 across the River Gaunless at South Church (gazetteer no. 6) and some of the original BA&W bridges that remain in use, almost 180 years after they were first erected, on what is now Network Rail's Bishop Line from Darlington (gazetteer nos. 16-24).

3. GAZETTEER

Gazetteer No. 1: Newton Cap Bridge

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 20471 30250

NRHE HOB UID: 24242

NHLE UID: 1005581 and 1292118

Current Listed Status: Scheduled and Grade I

Within Conservation Area: Yes

Within Registered Park & Garden: No

Bridge Owner: Durham County Council

Other IDs: Durham HER no. D37438; Laurie bridge no. 2

History/Description:

Newton Cap Bridge is a two-arched masonry road bridge, centred at NZ 20471 30250, that crosses the River Wear immediately west of Bishop Auckland. It connects Bishop Auckland (and therefore also the Bishop of Durham's residence in that town) with routes northwards and also westwards upstream along the valley of the Wear (where in the medieval period the Bishop had additional landholdings). The bridge crosses the river close to the cusp of a bend where the meandering but generally hitherto easterly flowing Wear passes through a narrow gap between blocks of higher ground to north and south and thereafter adopts a more north-easterly course towards Durham. The bridge is aligned almost due north-south but crosses the river at a slightly skew angle. When in normal flow, the river now passes entirely under the southern arch, but map evidence shows this has not always been the case (*eg* Ordnance Survey 1857b). The bridge is currently both a Scheduled Monument and Grade-I listed building (NHLE 1005581 and 1292118); it also lies within the Bishop Auckland Conservation Area.

The bridge comprises two segmental arches (the southern with a slightly pointed crown) approached at either end by short causeways (Fig 4). The span of the southern arch is in the order of 28m, of the northern arch 30.5m (stated measurements vary, but a drawing from 1733 (Fig 5) records the spans of the arches as 91ft 5in (27.86m), and 100ft 5in (30.61m)). Both arches have three main arch rings, composed of multiple small, well-dressed, voussoirs, of varying shapes and sizes but on the whole tending towards the thin and rectangular; the second and third rings are each corbelled out slightly from the ring below. The northern arch actually has a fourth arch ring laid flush with the third, but this extra ring is on the

Fig 4. The eastern (downstream) elevation of Newton Cap Bridge. (© Historic England/Marcus Jecock)

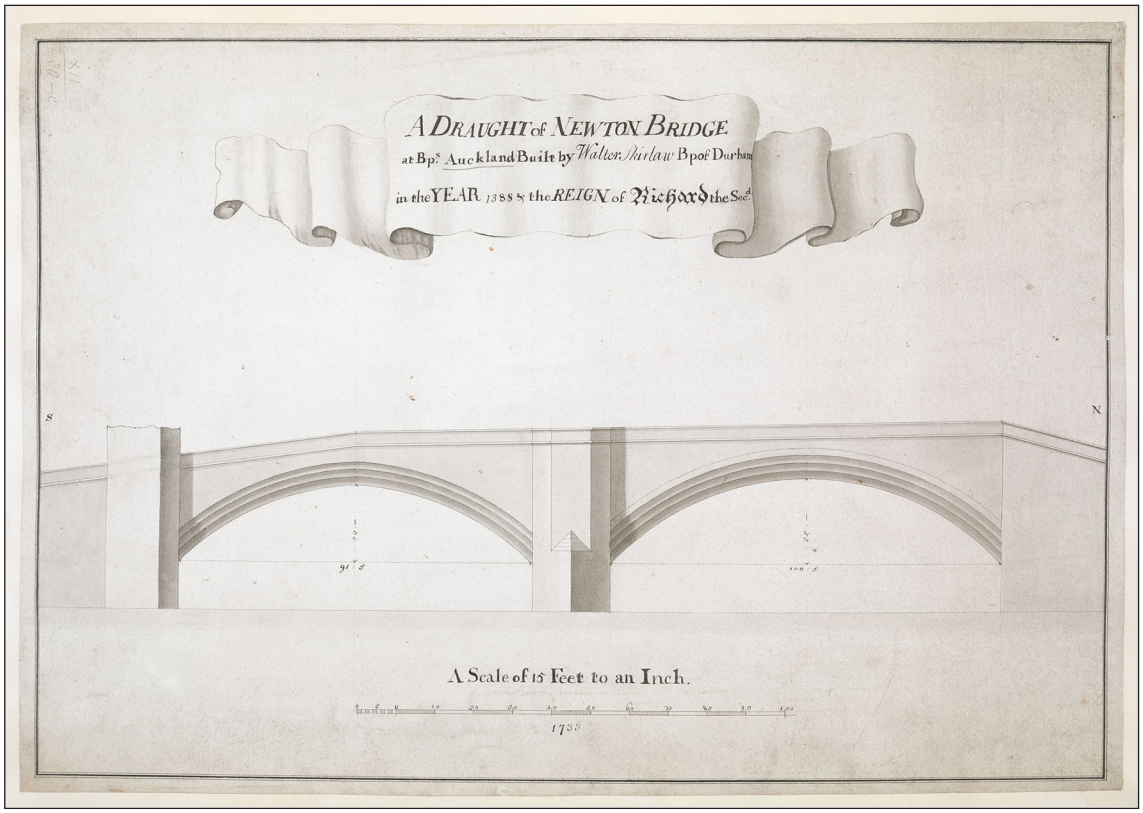

Fig 5. The east elevation of Newton Cap Bridge as drawn in 1733 (BL Maps K.Top.12.30.c). Note the slightly humpbacked form of the southern arch and the possible remains of a gateway structure above the south abutment. (© British Library Board)

Fig 6. The northern arch of Newton Cap Bridge from the east. Note the fourth arch ring, and the off-centre voussoirs close to the springing from the pier with signs of patching in the spandrel above. (© Historic England/Marcus Jecock)

Fig 7. The western (upstream) elevation of Newton Cap Bridge. (© Historic England/ Marcus Jecock)

whole much more crudely constructed with voussoirs that are less regular in shape and occasionally extend out in to the spandrels; some on the eastern elevation, close to the springing from the central pier, are also laid off-centre to the radius of the arch. The latter may be at least partly attributable to later repair work as they seem continuous with an area of patching visible in the spandrel above (Fig 6). The spandrels, which are brought flush with the outer arch ring, are mostly composed of roughly squared blocks laid in irregular horizontal courses; on the western elevation some of the courses rise up as they approach the crown of the southern arch (Fig 7). Areas of more regular coursing appear mostly attributable to later patching and rebuilding (*cf* above).

The stonework of the abutments and central pier is, in contrast, larger and much more regular, being almost of ashlar quality although scarred by time and weathering. This is particularly true of the lower levels (further evidence, perhaps, that the superstructure is much rebuilt, or alternatively simply evidence that the main load-bearing elements exposed to the force of the river were always of more robust construction). Abutments and pier also project or splay out from the faces of the bridge at obtuse angles; the splays on the pier continue outwards to form large pointed cutwaters against both up- and downstream elevations (Fig 8). The cutwaters rise vertically for a height of several metres to a narrow string course. On the east elevation, this string course starts level with the top of the third arch ring of the southern arch, but since the springing of the northern arch is higher than that of its southern cousin, the string course steps up by one or two stone courses on the north side of the eastern cutwater and seems to maintain this new level all the way round the western cutwater. The implications of this (if any) for the design or phasing of the bridge are unclear. Above the string course, the cutwaters terminate in half-hips, while the pier elevations continue up as broad pilaster strips to parapet level where they form trapezoidal pedestrian refuges (Fig 6). The pier (plus the cutwaters integral with it) has a chamfered set-back just above normal river level; the very base of the pier is now protected from scour by a modern concrete 'girdle' and therefore is not visible even at times of low water. A higher course of projecting stonework visible on the face of the pier one course below the springing of the southern

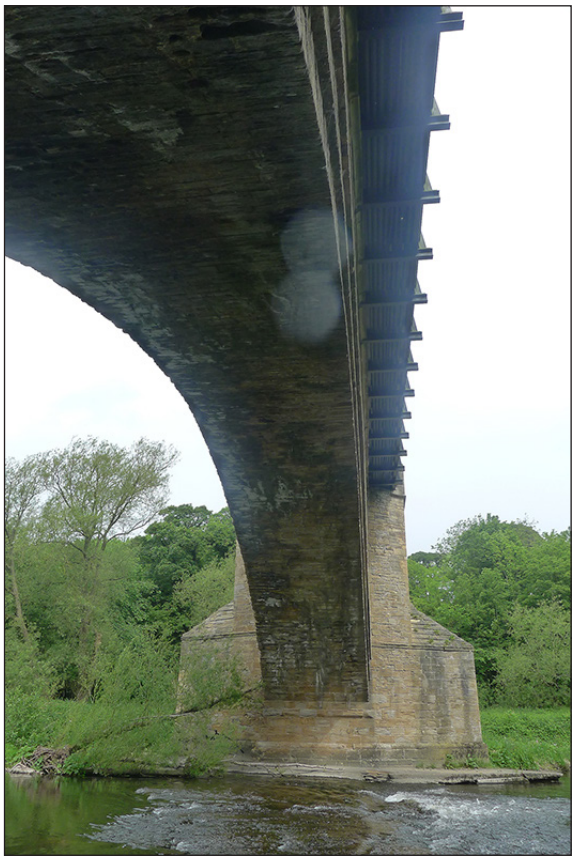

Fig 8. The underside of the southern arch and the central pier of Newton Cap Bridge seen from the south. (© Historic England/Marcus Jecock)

Fig 9. The face of the southern abutment of Newton Cap Bridge. (© Historic England/Marcus Jecock)

arch is probably the support for the timber centring that would have been necessary to construct the arch rings. In contrast, the face of the southern abutment (Fig 9) has three chamfered step-backs, and also exhibits what may be described as a narrow string course (confined to the width of the arch barrel only) at the level of the springing. The reason for these differences, and whether they imply the pier and abutment are of different dates, is again unclear. Since, however, the third step back on the abutment appears to be at the same level as the projecting course on the pier, it likely fulfilled a similar purpose although strangely the upper surface of the projecting course appears horizontal (the pier was only viewable from distance) rather than chamfered as on the abutment. Difficulties in accessing the north bank of the river mean it has not been possible to determine whether similar features exist on the face of the northern abutment and north face of the central pier.

A narrow ashlar string course runs at deck level and separates the spandrels from the parapets above. This is most clearly seen on the western elevation (a modern pedestrian cantilevered walkway obscures the eastern elevation). The string course is horizontal over the northern arch, but rises from the southern abutment towards the crown of the southern arch and less perceptibly drops down again afterwards toward the central pier. This indicates that the southern approach on to the bridge was originally lower than its northern counterpart, and the southern arch slightly humpbacked. It is clear the southern causeway has subsequently been raised in order to level out the deck. Apart from a short section above the western cutwater, the parapets consist of stone of a different colour to the rest of the bridge and must be modern replacements; a course or two of older stonework survives, however, between the string course and the base of the modern parapet (Fig 7). Because the parapets are modern, it is likely the coping is, too, and an inscription cut in to the western parapet recording the leap of one Edward Palfrey from the bridge in to the river below in 1744 - a fall or dive of some 48 feet (14.63m) which he amazingly survived (Surtees 1922, 11) – is therefore likely to be restored (as suggested by the current listing description). The modern pedestrian walkway that obscures the eastern parapet and string course is partly supported on the abutments and central pedestrian refuge - sections of the parapets of which have been cut away to receive it - but is also cantilevered out on girders set in to the top of the spandrels. Straight joins visible in the parapet walling of the western central pedestrian refuge indicate that a similar walkway once existed against the upstream elevation of the bridge (Fig 7; and see below).

Much of the west wall of the southern causeway to the bridge batters out slightly, but a short stretch just prior to the southern abutment and the totality of the east wall are vertical (perhaps because a set of stone steps of L-plan - accessed via a stile in the parapet wall - which lead down from the bridge to the south bank, serve to buttress the latter). Nevertheless, a number of steel tie rods and anchor plates are visible inserted into both walls of the causeway to stabilise it: these were manufactured by the Clay Cross Company, and bear a narrow range of dates indicating the repair work dates from the mid- to late 1980s. There is no similar access between bridge and north bank; accordingly the northern causeway could not be inspected in detail, although a slight corbelling out is visible just below deck level on the eastern elevation to ease the approach on to the bridge from the north. The fact that the roads leading on and off the bridge do not approach it head-on, but do so via double bends (Figs 3 and 10), is strong evidence that either a ford or ferry existed here before the bridge, or the first bridge stood at a slightly different place or angle, and the roads were realigned to meet it when the present structure was erected.

Fig 10. The northern approach to Newton Cap Bridge. (© Historic England/ Marcus Jecock)

The bridge is often claimed as the work of Walter Skirlaw, Bishop of Durham between 1388 and 1405 (*eg* the 1733 BL drawing (Fig 5); Richely 1872, 177). The source for the attribution is unclear, but the association was already current by the late 16th century when Camden wrote:

> *'Aukland ... pulcherrimumque pontem pretendit, quem Gualterus Skirlaw Episcopus, circa annum 1400, construxit'*
> or 'Auckland ... and nearby a most beautiful bridge which Bishop Walter Skirlaw built about the year 1400' (Camden 1587, 499).

However, neither of Skirlaw's modern biographers (Tait 1897; Snape 2004) - nor Harrison (2004, 113) in his recent study of medieval English bridges - repeats the claim, although they do mention the bishop's association with bridges elsewhere in the Durham diocese, namely Yarm Bridge across the Tees, and Shincliffe Bridge on the Wear downstream from Bishop Auckland just above Durham. The medieval bridge at Yarm still stands, albeit widened (NLHE 1105658); the medieval bridge at Shincliffe was damaged beyond repair by flood in 1753, but its ruins were sketched before demolition (DUL NSR Planfile C 14/5). Stylistically, neither can be said to

be a close comparator for the extant bridge at Newton Cap, nor indeed can the allegedly 14th-century Sunderland Bridge which crosses the Wear midway between Bishop Auckland and Durham. Unlike Newton Cap, all three have/had multiple, comparatively short spans plus vaulted arches (*ie*, arches supported on stone ribs).

Other commentators are likewise cautious about attributing the extant Newton Cap Bridge to Skirlaw, saying that stylistically it could date anytime between the 14th and 16th centuries (Surtees 1922, 10; Pevsner and Williamson 1983, 107; Anon nd). Indeed, better comparisons lie with probable 15th- or 16th-century bridges elsewhere in the north of England, such as Twizel Bridge over the River Till (a tributary of the Northumberland Tweed) and Barnard Castle and Piercebridge Bridges on the upper Tees on the southern edge of Co Durham, both less than 21km distant from Bishop Auckland. All three bridges are similar to Newton Cap in having triple arch rings and large spans. However, Twizel and Barnard Castle are vaulted (the ribs accounting for the first of their three arch rings), and for that reason, Piercebridge, without ribs, is the better comparator. That bridge is thought to be early 16th-century in date, since in the 1530s or 1540s the antiquary, John Leland, reported it as 'late made new' (Toulmin Smith (ed) 1964, 77). If Newton Cap is of similar date, however, it is difficult to reconcile with Camden's contention that the bridge standing in 1587 was built by Bishop Skirlaw – a statement repeated in the first English translation of the work by Philemon Holland (Camden 1610, 738) which was based on Camden's own final Latin revision of 1607. It may be, therefore, that the present bridge was constructed at the very end of the 16th century (and the 1607 and 1610 editions of Camden were not updated to reflect the fact), or else dates from shortly after 1607. All that can currently be said for certain is that the extant structure existed by the early 18th century for it was drawn in 1733 (Fig 5). The fact that the drawing's title repeats the bridge's attribution to Skirlaw is probably best explained as an anachronistic reference based on knowledge of Camden but not on the bridge's subsequent history.

Whatever the date of the present structure, a bridge existed on the site before Skirlaw's time, for one of his predecessors, Bishop Kellawe, granted indulgences in 1314 to pay for the construction of a bridge at Newton (Jervoise 1931, 35), while 'Newtonbridge' is also referenced in an account of repairs to a nearby weir in 1387-8 (Fordyce 1857, 552n). It has been suggested that the bridge marks the site where Roman Dere Street crossed the Wear, even that the bridge that Skirlaw reputedly rebuilt or replaced ***circa*** 1400 was the surviving Roman structure (*eg*, Richley 1876, 186) and that the central pier encapsulates Roman masonry (*eg*, Cockerill 2005, 45), but there is no real evidence to support such claims. The line of Dere Street as it approaches Bishop Auckland market place from the south almost certainly lies beneath the modern Newgate Street, which accords with a straight line drawn between the Roman forts at Piercebridge (*Magis* or *Morbium*) on the Tees to the south and Binchester (*Vinovia* or *Vinovium*) on the Wear immediately north of the town. Most modern commentators concur that it is far more probable that upon arriving at what is today Bishop Auckland town centre, Dere Street continued on to Binchester by deviating to the east and following a now lost route through Auckland Park and along the side of the Wear valley.

Surprisingly Newton Cap Bridge is not mentioned by name by Leland who visited Co Durham sometime between 1535 and 1543, and indeed stayed in Bishop Auckland using the town as a base from which to conduct journeys out in to the surrounding neighbourhood (Toulmin Smith (ed) 1964, 69-71). Leland commonly reported on the bridges he saw on his travels, but at first sight apparently not Newton Cap Bridge. A close reading of his text, however, suggests that the bridge may be equated with the first (unnamed) bridge of the two discussed in the paragraph:

> 'Betwixt Akeland and Binchester is an exceeding fair bridg of one arch apon Were. There is another a little above Duresme caullid Thunderland [*sic*] Bridge' (*ibid*, 71).

Taken literally, this wording would seem to suggest that Leland travelled over the first bridge whilst journeying to Binchester, but since that is geographically impossible (both it and Bishop Auckland lie on the south bank), the couplet is probably better understood as a list of the bridges that then stood across the Wear between Bishop Auckland and Durham. If this reading is accepted, then the Newton Cap Bridge Leland saw cannot be the present structure since it is described as 'of one arch'. This suggests that at that time the bridge comprised a single arch, probably spanning the width of the river when in normal flow, approached from one or both ends by causeways built out across the floodplain (quite possibly with their bases punctuated by a one or more small flood arches). It is clear from other evidence that a bridge definitely existed at Newton Cap in Leland's day, for in 1540 James Ellison of North Auckland left one mark (13s 4d, or 67 pence) in his will for 'the amending of Nowton (*sic*) Bridge', while in 1565 the bridge was reported as [still] in decay (Jervoise 1931, 36). Saxton shows the Wear as bridged immediately west of Bishop Auckland on his map of 1576 (DRO D/CL/23/2). The structure is not named, but there can be little doubt that it is Newton Cap that is depicted; the only question is whether it was Leland's (medieval) bridge or the present structure that was standing at this time.

In 1900, John Thompson, a Bishop Auckland resident, suggested that 'a gateway or gate house' had once guarded the southern end of the bridge. He based his claim on the erstwhile extra width of the southern approach causeway immediately prior to the abutment, which extended out beyond the parapet walls as 'two projections overgrown with grass', plus the discovery of doorjamb stones set into the projections. Furthermore, by analogy with a gatehouse that once stood on Framwellgate Bridge in Durham and was demolished in 1760 to improve traffic flow, Thompson suggested his postulated Newton Cap gatehouse was dismantled between 1740 and 1760 for similar reasons (Thompson 1901). These observations and discoveries seem to have been occasioned by the rebuilding of the southern causeway/abutment around the turn of the 20th century as part of work to widen the carriageway and add pedestrian walkways cantilevered out over its elevations (see below). His suggested date of demolition of the gatehouse can be shown to be incorrect, for no such structure is portrayed on the 1733 drawing (Fig 5). Intriguingly, however, that drawing does depict the southern bridge abutment as continuing up through the parapet walling for a considerable height before terminating in an irregular line. This supports the idea of some kind of structure here – perhaps more an arched gateway than proper gatehouse - the ruins of which were still partly upstanding at the beginning of the 18th century.

OS map evidence shows that between 1896 and 1915 pedestrian walkways were added to both sides of the bridge, partly supported on the central refuges (Ordnance Survey 1897a; 1920a): the contract for the work was advertised by William Crozier, County Surveyor, in April 1899 (*Durham County Advertiser* 1899) and had presumably been recently completed when Thompson was writing in 1900 (Thompson 1901). According to Surtees (1922, 10-11), the parapets were rebuilt 'at a reduced thickness of one foot on each side ... [allowing] the widening of the roadway by 2 feet', whilst the walkways were supported on 'steel girders which cross the roadway [and] project 4 feet on either side of the bridge'; the walkways were 'furnished with iron railings'. Both walkways are depicted on OS maps as late as the 1970s (Ordnance Survey 1979), although only that cantilevered out from the eastern elevation now survives. Cockerill (2005, 45) states that the Victorian walkways were removed in 2002, and only one replaced. The former existence of a western walkway has already been postulated above, based on the evidence of straight joins in the masonry of the parapet walling of the central refuge, which obviously had to be made good when the walkway was taken away.

The bridge is depicted and named as 'Newton Cap Bridge' on all OS mapping from the first edition onward (Ordnance Survey 1857b) apart from the most recent digital maps which bear the name 'Skirlaw Bridge' instead. The bridge was bypassed in 1995 as part of the Toronto Bypass scheme which repurposed the disused Newton Cap Railway Viaduct (gazetteer no. 15), some 100m downstream, for road traffic, and is now used by local traffic only. It is included on the Institute of Civil Engineers (ICE) Panel of Historic Engineering Works (PHEW) register as no. 0992 (Anon nd) on account of it having 'the largest span arch in England' at the date it was constructed (reckoned as 16th century).

Gazetteer No. 2: Jock's Bridge

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 21417 30705

NRHE HOB UID: none

NHLE UID: 1208804

Current Listed Status: Grade II

Within Conservation Area: Yes

Within Registered Park & Garden: Yes (part)

Bridge Owner: Durham County Council

Other IDs: Durham HER no. D37887; Laurie bridge no. 8; OAN site no. 122

History/Description:

Jock's Bridge is a masonry arch road bridge, centred at NZ 21417 30705, that carries the minor local road heading north out of Bishop Auckland to Binchester across the River Gaunless immediately before the latter's confluence with the River Wear. The road skirts the northern edge of the Grade-II*-registered Auckland Park that surrounds the Bishop of Durham's former palace at Auckland Castle, and the bridge's eastern elevation and parapet are one with the park pale. The bridge is listed in its own right at Grade II (NHLE 1208804) and also lies within the Bishop Auckland Conservation Area.

The bridge comprises a single, elliptical, arch between plain abutments that continue as short causeways at either end, all topped by parapets and wing walls; it is 3.87m (about 12½ feet) wide. No construction joints are visible in the arch barrel showing that the bridge has not been widened since it was built, but differences in the design and treatment of the two elevations nevertheless suggest the bridge is not a simple single-phased structure.

Both elevations consist of a single arch ring of long, thin, dressed voussoirs, surmounted by a narrow archivolt of generally square section save for a slight convex curve to the upper surface. A central keystone stands forward of the arch ring, almost flush with the archivolt, while the spandrels consist of squared blocks laid in courses. Above the level of the arch crown, however, the elevations differ: the western (downstream) elevation has a ramped, humpbacked string course and parapet in keeping with the slight rise in road level towards the centre of the bridge (Fig 11), whereas string course and parapet on the eastern (upstream) elevation are both horizontal (Fig 12). Both parapets are topped by

Fig 11. The western (downstream) elevation of Jock's Bridge. Note the humpbacked form of the string course at deck level mirrored by the parapet above. (© Historic England/Marcus Jecock)

V-shaped copings, but that on the west runs between square end pillars (with flat-topped caps) that rise as pilasters through the causeways; short wing walls beyond the pillars are lower and have rounded copings. The eastern parapet, in contrast, besides being horizontal is taller and made up of slightly smaller stonework, all pointers to it having been rebuilt. As it is also integrated in to the stone wall that runs round the edge of the Bishop's park, it is highly likely that this rebuilding was carried out as part of a scheme to integrate the bridge with the parkland landscape when viewed from within the park. The keystone in the eastern elevation (only visible from within the Park) bears the inscription 'SD | 1819' (SD standing for Shute Dunelm, or Bishop Shute Barrington of Durham). This date has generally been taken as indicating the year the bridge was constructed (*eg* NHLE; Oxford Archaeology North 2012, site no. 122), and indeed the original bill of tender advertising the build contract stipulates 'the building of [a] New Stone Bridge' (Hutchinson 2015, 38). However, the bill does not specify the exact extent of the build, and the structural evidence strongly suggests it was for the rebuilding of the upper part of the eastern elevation only. Judging from the architectural form of the western elevation, the main body of the bridge more likely dates from the 18th century.

In the first half of the 16th century, Leland states that 'Betwixt Akeland and Binchester is an exceeding fair bridg of one arch apon Were' (Toulmin Smith (ed) 1964, 71). Although this could be interpreted as a reference to a precursor

Fig 12. The eastern (upstream) elevation of Jock's Bridge. Note the horizontal string course and parapet, suggesting the elevation has been rebuilt. The date 1819 is inscribed on the keystone of this elevation only . (© Historic England/Rebecca Pullen)

of Jock's Bridge (apart from the fact that if so, Leland is mistakenly saying it lies on the Wear rather than Gaunless), he immediately goes on to say 'There is another a little above Duresme caullid Thunderland [*sic*] Bridge' suggesting the couplet is rather a list of the bridges that then existed across the Wear between Auckland and Durham. Certainly Saxton's county map published in 1576 (DRO D/CL 23/2) does not show a bridge here, although the omission probably should not be taken as definitive evidence that no bridge existed at this time since the map is small scale, schematic and the road to Binchester of local importance only. A bridge definitely existed here by the mid-18th century for it is depicted on Richardson's 1762 map of the Binchester Estate (DRO D/Bo G1/(i)). The bridge's omission from Jefferys' later county map surveyed in 1768 (DRO D/Lo P239) - which does portray the Binchester road - is, therefore, in all probability a simple error, especially since the bridge recurs on a later map that accompanies an award of land along the bank of the Wear, undated but thought to be of the 1820s (DUL CCB MP/90b). This map is the first on which the bridge is named: 'Gaunless or Jock's Row Bridge', seemingly after a nearby row of houses, now demolished. The earliest Ordnance Survey map - and all later mapping - bears the name 'Jock's Bridge' (Ordnance Survey 1861).

Gazetteer No. 3: Bridge taking Durham Road across the River Gaunless at eastern end of Kingsway

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 21344 30002

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: Yes

Within Registered Park & Garden: No

Bridge Owner: Durham County Council

Other IDs: none known

History/Description:

A concrete girder bridge or double culvert, centred at NZ 21344 30002, carries Durham Road across the River Gaunless at the eastern end of Kingsway. The bridge was built in the aftermath of the First World War as part of a short bypass for the final stage of the historic eastern approach to the town which formerly proceeded *via* Gaunless Bridge (gazetteer no. 4) and Gib or Castle Chares, the latter two roads both narrow and steep, the old bridge requiring vehicles to negotiate a series of tight bends. It lies within the Bishop Auckland Conservation Area.

The bridge comprises two large, square-section, concrete box-culverts, each about 45m long by 5m wide, built side by side at the base of a large earthen road embankment. All concrete is poured, with the marks of the timber shuttering and stages of the pour plainly visible on exposed surfaces. The culverts share a central spine wall, the ends of which have been formed in to bull-nose cutwaters rising to domed summits at the level of the bridge soffit (Fig 13). The soffit itself is formed from riveted, presumably H-section, steel girders with the spaces between infilled with concrete-panel jack arches (Fig 14). On the bridge elevations, the end girders are disguised as concrete beams and continue up as low parapet walls topped by flat coping; in addition, the abutments and spine wall continue through the soffit and parapet walling as short, square-section piers topped by pyramidal caps. Low walls that splay out from the abutments at either end of the bridge terminate in similar piers, again topped by pyramidal caps. The walls act to train the river whilst at the same time retaining the base of the overlying road embankment (Fig 13). The bridge invert is paved or concreted.

The bypass was completed and opened to traffic in 1926 (*Sunderland Daily Echo* 1926). It is not known if the bridge has a proper name: the structure is unnamed on Ordnance Survey mapping. The style of architecture is typical of the Art Deco movement of the 1920s.

Fig 13. The southern (upstream) elevation of the bridge carrying Durham Road across the River Gaunless. Note the domed top to the bull-nose cutwater and the piers with pyramidal caps that rise through the soffit, which give the bridge a very Art Deco appearance. (© Historic England/Rebecca Pullen)

Fig 14. The eastern of the two box conduits of the bridge carrying Durham Road across the River Gaunless., seen from the north. The central spine wall with its bullnose cutwater is at right of frame. Note the soffit formed from steel joists and concrete jack arches. (© Historic England/Marcus Jecock)

Gazetteer No. 4: Gaunless Bridge

C/D/P: Durham UA/ - /Bishop Auckland

NGR: NZ 21334 29960

NRHE HOB UID: none

NHLE UID: 1196599

Current Listed Status: Grade II

Within Conservation Area: Yes

Within Registered Park & Garden: No

Bridge Owner: Durham County Council

Other IDs: Durham HER no. D37864; Laurie bridge no. 7

History/Description:

Gaunless Bridge, centred at NZ 21334 29960, is a masonry arch road bridge that carries Gib Chare (the road leading out of Bishop Auckland east and north towards Durham) across the River Gaunless. The eastern exit off the bridge leads on to Durham Road. The bridge is listed at Grade II (NHLE 1196599) and also lies within the Bishop Auckland Conservation Area.

Fig 15. The construction joint visible in the barrel of Gaunless Bridge. (© Historic England/Marcus Jecock)

The bridge comprises a single, segmental arch springing from plain abutments topped by wing walls. However, a very clear construction joint in the barrel of the arch shows that the structure has been widened and effectively comprises two bridges built side by side at different dates (Fig 15). The earlier bridge was originally just 4.48m (about 14½ feet) wide; it was later extended by 3.52m (about 11½ feet) towards the north (downstream).

The visible upstream elevation of the southern, phase-1, bridge consists of an arch ring of narrow ashlar voussoirs, longer than they are wide by a ratio of about 4:1, topped by an archivolt of smaller, squarer, ashlars sitting slightly proud of the arch ring. The spandrels and parapets are brought flush with the archivolt and comprise

Fig 16. The southern (upstream) elevation of the phase-1 Gaunless Bridge. (© Historic England/Marcus Jecock)

rubble stone laid for the most part in courses. The western abutment is bolstered by a small buttress (which may be secondary) while in the east the parapet/wing wall is corbelled out slightly immediately above the springing of the arch in order to ease access on to the bridge from Durham Road (Fig 16).

The visible elevation of the second, downstream bridge is similar in form and construction to its upstream predecessor, but has voussoirs that are less well dressed (and also somewhat wider) surmounted by a much finer and more decorative archivolt in the form of a narrow roll-moulding (Fig 17). The approach on to the bridge from Gib Chare is similarly eased slightly by corbelling out of the western parapet (this time in three stages), again immediately above the arch springing, while the short wing wall that continues the parapet westwards ends after some 14m in a drum pillar featuring a flat-topped cap with rounded sides to match the chamfered coping that adorns both sets of parapets and wing walls. The parapets and coping are presumably, therefore, all of one period and contemporary with the date when the bridge was widened (see below).

The shaft of a cylindrical cast-iron street lamp is set into the coping of the northern parapet just east of the crown of the bridge, although the lamp itself is missing (Fig 18). The lamp is clearly secondary to the bridge on which it stands. A fluted pedestal supports the ornamental twisted shaft with its simple base and capital mouldings. The light was gas-fired (the cast-iron supply pipe rises out of the western river bank and is still attached to the outside of the parapet).

Fig 17. The northern (downstream) elevation of the phase-2 Gaunless Bridge. (© Historic England/Marcus Jecock)

A carved grey granite stone which occupies the actual crown of the bridge against the southern parapet is similarly secondary (Fig 19). This stands about 0.7m high, and is of triangular cross-section with a sloping top. It bears the inscription 'BP.A.H.B.' (short for Bishop Auckland Health or Highways Board) on its eastern face, 'BP.A.L.B.' (Bishop Auckland Local Board) on its western face, and 'H&LA | 1878' (the Highways & Locomotives (Amendment) Act of 1878) on its sloping top (Fig 19). After 1862, as a result of the Highways Act passed that year, in many parishes Local Boards (of Health) chose to take on responsibilities for highway maintenance (as allowed by the 1858 Health Act) to avoid being forced into larger highway districts imposed by Justices of the Peace at Quarter Sessions; the 1878 Act amended this and other legislation and obliged Local/Highway Boards to take on responsibility for the maintenance of certain bridges. Local Boards were abolished by the 1894 Local Government Act (Chandler 2007, 57).

Stylistically, the earlier part of the extant Gaunless Bridge appears broadly 18th-century in date. However, as a major route in and out of Bishop Auckland, and one that would have been taken by the bishops of Durham when travelling between the Cathedral and their palace (Auckland Castle) in the town (at least prior to 1757 and the construction of a bridge (gazetteer no. 25) across the Gaunless on an alternative route through his private park), it is inconceivable that the Gib Chare crossing of the river was not bridged much earlier. The bridge has been associated with the 'Brig of one great Arch on Gaundeless' that John Leland, the antiquary, travelled over sometime between 1535 and 1543 (Jervoise 1931, 36), but since Leland states that that bridge

Fig 18. The cast-iron shaft of the old gas lamp on Gaunless Bridge. Note the supply pipe on the outside of the parapet. (© Historic England/Rebecca Pullen)

stood '1 mile distant from the castle', and he was approaching Bishop Auckland from Darlington to the south-east, not from Durham (Toulmin Smith (ed) 1964, 69), the river crossing described is more likely to be that at South Church about a mile upstream. Saxton's map (DRO D/CL/23/2) suggests the Gib Chare crossing was bridged by 1576 (there is some uncertainty about the precise identity of the bridge shown; it is just possible, although unlikely, that it is Jock's Bridge further downstream), but the first indisputable evidence for a bridge at this location is mid-18th century when it can be identified with confidence on a series of early large-scale, more detailed, maps of the town (eg, DRO D/Bo/G1/(i)). This mapped bridge is probably to be equated with the earlier, upstream, portion of the existing structure, possibly constructed when Gib Chare was turnpiked by the Bowes and Sunderland Bridge Trust (aka the Bowes, Barnard Castle & Bishop Auckland Trust) constituted by Act of Parliament in 1747 (Roseveare 2017).

The current downstream widening was added in 1822, for the Durham Justices of the Peace were advertising for contractors to repair and widen 'Gaunless Bridge near Bishop Auckland' in late May and early June of that year (*eg Durham County Advertiser* 1822), and the bridge is shown at its present 8m overall width on the Ordnance Survey 1:500-scale town map of 1856 (Ordnance Survey 1857f). This raises the possibility that the widening may have been designed by Ignatius Bonomi who held the post of Durham County Surveyor of Bridges from 1813 to 1850 (Skempton *et al* (eds) 2002, 62). The name 'Gaunless Bridge' appears on the 1857 and all subsequent editions of OS mapping, confirming the evidence of the 1822 newspaper that this is the historical name of the bridge. The bridge was effectively bypassed in 1926 when a new crossing of the river (gazetteer no. 3) opened a few metres downstream; it is now used by local traffic only.

Fig 19. Stone on the crown of Gaunless Bridge, set up by the Bishop Auckland Area Health or Highways Board in 1878. (© Historic England/Rebecca Pullen)

Gazetteer No. 5: Bridge over River Gaunless in Cemetery

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 21652 29287

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: ?Durham County Council

Other IDs: none known

History/Description:

A steel, lattice-truss girder bridge, supported on concrete abutments and two steel piers, is centred at NZ 21652 29287; it permits vehicular access across the River Gaunless between the two halves of Bishop Auckland Cemetery.

The bridge is a pony or half-through truss (*ie* its top chords are not connected to each other) (Fig 20). The bottom chords are much more substantial than the top chords, and comprise H-section girders, tied together at intervals by smaller, transverse floor beams of similar section. T-section stanchions are welded to the bottom chords, but bolted to the much smaller, angle-iron, top chords, and the panelling between the stanchions is infilled with a continuous lattice of thin flat bars, again welded to the bottom chords but bolted to the top chords and to each other. The piers are open trapeziums formed of H-section girders braced by diagonal rods bolted in to a central tensioning ring (Fig 21), but the top element of each pier extends out a short distance beyond the bottom chords of the truss and is tied back to the top chord by a diagonal strut. Two much smaller protruding bars, equidistant between the piers, welded to the underside of the basal chords and similarly tied to the top cop chords by diagonal struts, provide the truss with extra rigidity. The deck is formed of timber planking, laid across the floor beams.

The bridge appears to be an original part of the design of the cemetery which, to judge from the datestone on the nearby cemetery chapel, opened in 1884; certainly a bridge existed here by 1896 for it is depicted (unnamed) on all Ordnance Survey maps from the second edition onwards (Ordnance Survey 1897). However the extant structure is not the original bridge, which historic postcard images show was a kingpost truss with parapets infilled with decorative panelwork (Hutchinson 2009, 24-5); instead it is most probably a mid-20th-century replacement as steel was not a common building material before *circa* 1890 and welded joints did not become commonplace until after 1935.

Fig 20. The pony truss bridge over the River Gaunless in Bishop Auckland Cemetery. (© Historic England/Marcus Jecock)

Fig 21. The support trestles to the pony truss in Bishop Auckland Cemetery (© Historic England/Marcus Jecock)

Gazetteer No. 6: Bridge carrying B6282 over River Gaunless at South Church

C/D/P: Durham/ - /NPA; Durham/ - /Dene Valley

NGR: NZ 21901 28330

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: Durham County Council

Other IDs: none known

History/Description:

A masonry arch road bridge, centred at NZ 21901 28330, carries what is now the B6282 Bishop Auckland to Shildon road across the River Gaunless at South Church, which here flows broadly south to north.

The bridge comprises a single, segmental arch between plain abutments approached by short, ramped, splayed causeways leading up from road intersections on either river bank. However, a very clear construction joint in the barrel of the arch shows that the structure has been widened and effectively comprises two separate bridges built side by side at different times. The earlier bridge is that on the upstream side which is 5.9m (about 19 feet 4 inches) wide (Fig 22); it was later extended by 4.16m (about 13 feet 6 inches) towards the north (downstream). A late 20th- or early 21st-century steel-girder footbridge on stone abutments now stands immediately alongside the later structure, effectively concealing much of the downstream elevation.

Fig 22. The southern (upstream) elevation of the phase-1 B6282 bridge over the River Gaunless at South Church (© Historic England/Marcus Jecock)

Fig 23. Detail of the western abutment of the phase-1 B6282 bridge over the River Gaunless at South Church, showing the difference in the form of the voussoirs and the exposed masonry in the causeway. (© Historic England/Marcus Jecock)

The visible southern (upstream) elevation of the earlier, phase-1, bridge consists of an arch ring of oblong voussoirs of varying widths, possibly originally rock-faced although now badly weathered. The lowermost voussoirs at either end of the ring are longer and keyed back in to the spandrels, but between them, from about 10 o'clock round to 2 o'clock on the elevation, the voussoirs are shorter, set back slightly, and terminate against a narrow stone roll-moulding or archivolt (Fig 23). Both spandrels are rendered and the render scored to represent ashlar blocks. This rendering extends over and thus obscures the entire surface of the western causeway apart from at ground level close to the river's edge where two courses of unrendered squared stone blocks are visible reaching to just below the top of the keyed voussoirs. The eastern causeway, in contrast, is unrendered, revealing it to be constructed of irregular courses of squared rubble work; patches of flaking render hint that the use of rubblestone may continue into the eastern spandrel also. If so, the apparent use of different styles of masonry in either end of the bridge (squared blocks in the west, rubblestone in the east) would seem to imply that one end has been rebuilt. Alternatively - and perhaps more plausibly - both spandrels are infilled with rubble work (hence the application of the scored render), but the visible coursed blocks at ground level in the western abutment, together with the keyed voussoirs in both arch springings, represent the foundations and partly surviving arch of a ruinous early bridge later rebuilt from near-ground level up (possibly in 1835; see below).

The visible (northern) elevation of the later, downstream bridge appears very similar in form and construction to its upstream counterpart, apart from the fact that in place of stone voussoirs are six arch rings of red brick; the brickwork continues right through the arch barrel. An archivolt of very similar form to that of the upstream elevation sits above the arch

Fig 24. The hacked archivolt close to the eastern springing of the phase-2 B6282 bridge at South Church. (© Historic England/Marcus Jecock)

rings, although close to the eastern springing it has been hacked back flush with the arch rings (Fig 24). This damage could have occurred when the modern footbridge was added, but perhaps a more likely explanation is that when the bridge was being widened, a decision was taken to dismantle the downstream elevation of the earlier bridge to the level of the voussoirs and to reuse the archivolt in the visible elevation of the widening, but only after work had started to trim that archivolt to enable the new bridge to sit flush against the old. The spandrels are now heavily obscured by the modern footbridge erected immediately downstream, but appear to be infilled with squared, rock-dressed blockwork identical to the extant parapet walls.

All parapets (except the south-eastern wing wall) consist of iron or steel railings rising from low, stone walls with chamfered, flat-topped, ashlar copings that run between square end piers with flat caps. The stonework is rock-dressed; the edges of the pier caps and the corners of the piers are, in addition, margined. The railings are made up of three sets of horizontal tubular bars, set between tubular uprights with pineapple-shaped finials. The bars are attached to squat, horizontal, cuboid mouldings apparently welded on to each upright; the outer and inner faces of the cuboid mouldings are also raised up as low pyramids (Fig 25). The parapet to the south-eastern wing wall, in contrast, is a solid wall of rock-faced masonry, including the upper surface of the coping course which is margined in keeping with the end pier caps; this wing wall is clearly later than the body of the causeway beneath. Because of the similarity to the stonework visible in the spandrels of

Fig 25. Detail of the Inter-War railings to the B6282 bridge over the River Gaunless at South Church. (© Historic England/ Marcus Jecock)

the northern elevation, it is likely that railings, parapets and wing wall are all part of a single scheme and contemporary with the downstream widening, ie they date to between the First and Second World Wars (see below).

There was probably a bridge here by the early 16th century, for this crossing of the river is surely to be equated with the 'Brig of one great Arch on Gaundeless' that the antiquary John Leland rode over whilst journeying to Bishop Auckland sometime between 1535 and 1543 (Toulmin Smith (ed) 1964, 69). Jervoise (1931, 36) thought that the bridge in question was Gaunless Bridge (gazetteer no. 4), about 1.5km downstream on the eastern edge of Bishop Auckland, but as Leland states that the bridge he travelled over lay '1 mile distant from [Auckland] castle' and he was approaching the town from the direction of Darlington, not Durham, it seems more likely that he crossed the river at South Church. Stylistically, however, the earlier, upstream part of the present bridge cannot be Leland's bridge: its design is more typical of the 18th or early 19th century, not the 16th. There was certainly a bridge here by the middle of the 18th century, for Jefferys depicts it on his map of the county surveyed in 1768 (DUL D/Lo P239). That bridge was presumably ruinous by 1835, however, for in March and April of that year the Durham Justices of the Peace advertised for tenders for 'The Building [*NB* - not widening] of a Bridge across the River Gaunless at South Church' (*Durham County Advertiser* 1835). Indeed, Ordnance Survey (OS) maps depict the bridge as narrow - only some 5m wide and therefore unwidened - as late as 1915 (Ordnance Survey 1920). A date of 1835 for the (re-)construction of the first phase of the extant structure points to the design being the work of Ignatius Bonomi, Durham County Surveyor of Bridges from 1813 to 1850 (Skempton *et al* (eds) 2002, 62). OS map evidence shows that the downstream widening was added between 1915 and 1939 (Ordnance Survey 1920; 1947). The bridge is unnamed on all OS and other maps.

Gazetteer No. 7: South Church 'Deanery' Packhorse Bridge over River Gaunless

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 21654 28338

NRHE HOB UID: none

NHLE UID: 1292157

Current Listed Status: Grade II

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: not known

Other IDs: Durham HER no. D37439; Laurie bridge no. 1

History/Description:

A narrow, stone, arched bridge, widened by the addition of a modern concrete deck slab, takes Mill Lane in South Church across the River Gaunless. The river here briefly flows west to east in a series of small meanders before looping round the village and resuming its generally north or north-easterly course to join the River Wear just below Bishop Auckland. The bridge, which is centred at NZ 21654 28338, provides access to South Church village and the Church of St Andrew on the north bank, from a former mill and small number of outlying habitations (especially West and East Deanery) on the south bank. It is listed at Grade II (NHLE 1292157).

The bridge comprises a very narrow, rather flat, segmental stone arch, between stone abutments that are around twice as wide as the arch (Fig 26). The arch rings are formed from roughly shaped blocks of fissile sandstone, while spandrels and abutments seem to comprise a mixture of coursed block work and in places areas of a more rubbly and less regular nature, all somewhat obscured by re-pointing (Fig 27). The modern deck and bankside vegetation prevented close inspection. There is no evidence for the form of the original parapets (assuming there ever were any), because the bridge has been effectively doubled in width by the addition of a poured concrete slab, 3.03m wide, that oversails the arch rings by a considerable margin on each side. The present, rather makeshift, parapets are steel railings, composed of T-section stanchions bolted directly to the sides of the slab or rising from short lengths of old train rail set in to the spandrels, to which are fixed a mixture of flat bars, what appear to be tyre-traction mats, and wire mesh. Diagonal tie bars bolted to the ends of the rails and the midpoint of the stanchion above, add lateral strength to the railings. The rails also help support a pipeline and electricity cable attached to the eastern elevation of the bridge.

Fig 26. The eastern elevation of the 'Deanery' packhorse bridge across the River Gaunless at South Church. (© Historic England/Marcus Jecock)

Fig 27. Detail of the southern abutment and arch of the 'Deanery' packhorse bridge across the River Gaunless at South Church. (© Historic England/Marcus Jecock)

The current listing description describes the abutments as 'probably medieval' and the arch as 'possibly 18th-century'; it also suggests the concrete deck was added *circa* 1970. The evidence for ascribing such early dates to the surviving physical fabric is unclear, but may be based primarily on the width of the arch barrel which has, quite legitimately, been likened to that of a packhorse bridge (Laurie nd, bridge no. 1). Circumstantial evidence does indeed point to a bridge on or close to the present site by the late 13th century, since the Grade-I-listed East Deanery building complex on the south bank incorporates elements of a Dean's House and Prebends College founded shortly after 1293 (NHLE 1196576). It is probable that the former Deanery Mill (a water-powered corn mill, demolished in the later 19th century), which stood close to the south end of the bridge, also had medieval origins - possibly even once belonging to the College. The earliest map or documentary evidence for a bridge at the present location, however, is 1856 (Ordnance Survey 1857d). The bridge is unnamed on all Ordnance Survey mapping, but has been called Deanery Bridge (on uncertain evidence) in NHLE descriptions since 1952.

Gazetteer No. 8: BIF/5 Railway accommodation bridge south of Auckland Park

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 22582 29816

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: Durham County Council

Other IDs: Network Rail ELR no. BIF/5 (disused)

History/Description:

A masonry and brick arched railway accommodation overbridge, centred at NZ 22582 29816, takes a footpath or track across the North Eastern Railway (NER) Bishop Auckland and Spennymoor Branch line (later known as the Bishop Auckland and Ferryhill Branch), south of Auckland Park. The line opened in 1885 and closed to regular passenger services in 1939, but remained open for freight into the mid- to late 1950s (Fawcett 2005, 77-8; Hoole 1974, 180-1; Wikipedia nd). The bridge had the railway Engineer's Line Reference (ELR) bridge no. BIF/5 from at least the 1920s until closure (Railway Codes and other data nd; North Eastern Railway Association 2018), but is now owned by Durham County Council and forms part of the disused-railway walking trail known as Auckland Walk (Ordnance Survey 1992) or Auckland Way Railway Path (Durham County Council 2011).

The railway here runs through a cutting, and the bridge, which is oriented south-east to north-west and crosses the railway at right angles, comprises three segmental arches (Fig 28), some 4.52m wide by 7.55m span by 6.5m high at the crown (North Eastern Railway Association 2018), between abutments that rise out of the cutting's sides. Unsurprisingly, the bridge's design draws on a library of architectural treatments common to many if not all bridges on the line.

Apart from the barrels of the arches which are red brick, the bridge is constructed entirely from squared masonry, generally laid in regular horizontal courses and, with the exception of the soffits of the voussoirs in the arch rings, all rock-faced; the faces of the voussoirs plus the corners of the quoins in the piers are, in addition, margined.

Fig 28. The south-western elevation of railway accommodation bridge BIF/5, showing the central and eastern spans. (© Historic England/Marcus Jecock)

The arch rings spring from skewback stones set above ashlar impost bands, and the voussoirs have stepped ends that key directly into the spandrels. Each pier has a slightly enlarged base, differentiated from the pier itself by a narrow ashlar chamfer. A horizontal string course at deck level, again ashlar, divides spandrels from parapets. The latter terminate in rectangular end piers that break forward on the elevations, and have ashlar caps; the coping stones likewise appear to be ashlar although the bridge was only viewed from the floor of the cutting and the precise form of the coping and

Fig 29. Detail of the western arch and parapet of railway accommodation bridge BIF/5, showing end pier, string course and impost banding. (© Historic England/Marcus Jecock)

end pier caps – plus the treatment of the inner faces of the parapet walls - was not determined. As best as could be seen, however, string course, coping stones and end caps all share the same profile, namely a smooth, concave lower moulding rising to a square middle section and angled top (Fig 29). The bridge is currently in a neglected state, with small trees and other vegetation rooted in its deck and elevations.

Gazetteer No. 9: BIF/7 Railway accommodation bridge in Auckland Park

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 22737 30289

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Within Registered Park & Garden: Yes

Bridge Owner: Durham County Council

Other IDs: Durham HER no. D60334; Network Rail ELR no. BIF/7 (disused)

History/Description:

A masonry and brick arched railway accommodation underbridge, centred at NZ 22737 30289, takes the North Eastern Railway (NER) Bishop Auckland and Spennymoor Branch line (later known as the Bishop Auckland and Ferryhill Branch), across a ride or footpath just inside the south-eastern boundary of Grade-II*-registered Auckland Park. The line opened in 1885 and closed to regular passenger services in 1939, but remained open for freight in to the mid- to late 1950s (Fawcett 2005, 77-8; Hoole 1974, 180-1; Wikipedia nd). The bridge had the railway Engineer's Line Reference (ELR) bridge no. BIF/7 from at least the 1920s until closure (Railway Codes and other data nd; North Eastern Railway Association 2018), but is now owned by Durham County Council and forms part of the disused-railway walking trail known as Auckland Walk (Ordnance Survey 1992) or Auckland Way Railway Path (Durham County Council 2011).

The bridge comprises a single segmental arch, 4.85m wide by 4.42m span, between abutments approached at either end by earthen embankments (Fig 30). Unsurprisingly, its design draws on a repertoire of architectural treatments shared by many if not all bridges on the branch line.

The sides of the abutments slope out slightly from top to bottom, and are buried within the embankments which wrap round them. Apart from the barrel of the arch which is red brick, the bridge is constructed entirely from squared masonry, laid in irregular horizontal courses and for the most part rock-faced with smooth margins. The rings of the arch – which spring from skewback stones set above impost bands – consist of large stone voussoirs with stepped ends keyed directly in to the

Fig 30. Eastern elevation of railway accommodation bridge BIF/7. (© Historic England/Marcus Jecock)

Fig 31. Detail of railway accommodation bridge BIF/7, showing string course, end pier and coping. (© Historic England/Rebecca Pullen)

spandrels. A horizontal string course at deck level separates spandrels from parapets. Impost bands and string coursing are rock-faced and margined in keeping with the masonry elsewhere, but rise from a smooth, concave lower moulding. Above the string course, the treatment of the parapet stonework, including the caps to the end piers and the intervening coping stones, again matches that of the rest of the bridge (Fig 31) apart from on their inner (non-public-fronting) faces which are simply tooled and margined rather than rock-faced. The end piers are of rectangular cross-section and emphasised by breaking forward from the parapets slightly; their caps also rise marginally higher than the intervening coping stones the upper surfaces of which slope down slightly towards the bridge's exterior elevations. The public-fronting faces of all four caps plus the coping consist of two stages: a first-stage, smooth, concave moulding (as per impost bands and string coursing) succeeded by a rectangular moulding. On the caps this second stage rises in to a low-relief pyramid, with the intersections between the faces of the pyramid picked out by broad channelling so as to form the shape of a saltire when viewed from above (Fig 32).

Fig 32. Detail of end pier on accommodation bridge BIF/7, showing the saltire design on the pyramidal cap and the varied treatment of 'public' and 'non-public' surfaces. (© Historic England/Marcus Jecock)

Gazetteer No. 10: BIF/8 Culvert taking railway over Coundon Burn in Auckland Park

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 22648 30556

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Within Registered Park & Garden: Yes

Bridge Owner: Durham County Council

Other IDs: Network Rail ELR no. BIF/8 (disused)

History/Description:

A masonry and brick culvert carries the Coundon Burn under the Bishop Auckland and Spennymoor Branch railway line (later known as the Bishop Auckland and Ferryhill Branch) within Grade-II*-registered Auckland Park; the culvert is centred at NZ 22648 30556. The line was built by the North Eastern Railway (NER), opening in 1885 and closing to regular passenger services in 1939, but remaining open for freight in to the mid- to late 1950s (Fawcett 2005, 77-8; Hoole 1974, 180-1; Wikipedia nd). The culvert had the railway Engineer's Line Reference (ELR) bridge no. BIF/8 from at least the 1920s until closure (Railway Codes and other data nd; North Eastern Railway Association 2018), but is now owned by Durham County Council and forms part of the disused-railway walking trail known as Auckland Walk (Ordnance Survey 1992) or Auckland Way Railway Path (Durham County Council 2011).

The culvert consists of a 2.4m-diameter (8-foot) circular brick tube, approximately 98m long, through the base of a tall earthen embankment that carries the railway across the valley of the Burn (Figs 33 and 34). The headwalls are built in stone, and comprise arch rings composed of large voussoirs with stepped ends to key them in to the small spandrel area above, finished by a course of thin, flat-topped coping stones. Voussoirs and coping stones are rock-faced and margined; the stones in the spandrels are rock-faced only. River-training walls extend out a short distance from each headwall, and double up as revetments to the base of the embankment. They, too, are formed of rock-faced masonry, laid in irregular horizontal courses, with the end quoins margined in addition, all beneath a coping course this time of semi-circular profile. The bed of the Burn between the training walls is paved with stone setts. A secondary, 9-inch (228.6mm) diameter, cast-iron (?)sewer pipe has been

Fig 33. The eastern portal of railway culvert BIF/8. (© Historic England/Marcus Jecock)

Fig 34. Interior of railway culvert BIF/8. (© Historic England/Marcus Jecock)

laid through the conduit. This sits on concrete supports as it enters the conduit, but is attached to the side of the conduit within the tube; dates cast in to the pipe collars suggests the pipeline was laid in 1939.

Gazetteer No. 11: BIF/9 Railway accommodation bridge in Auckland Park

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 22625 30626

NRHE HOB UID: none

NHLE UID: 1196456

Current Listed Status: Grade II

Within Conservation Area: No

Within Registered Park & Garden: Yes

Bridge Owner: Durham County Council

Other IDs: Durham HER no. D37742; Network Rail ELR no. BIF/9 (disused)

History/Description:

A masonry and brick arched railway accommodation underbridge, centred at NZ 22625 30626, takes the North Eastern Railway (NER) Bishop Auckland and Spennymoor Branch line (later known as the Bishop Auckland and Ferryhill Branch), across a ride or footpath just inside the north-eastern boundary of the Grade-II*-registered Auckland Park. The line opened in 1885 and closed to regular passenger services in 1939, but remained open for freight in to the mid- to late 1950s (Fawcett 2005, 77-8; Hoole 1974, 180-1; Wikipedia nd). The bridge had the railway Engineer's Line Reference (ELR) bridge no. BIF/9 from at least the 1920s until closure (Railway Codes and other data nd; North Eastern Railway Association 2018), but is now owned by Durham County Council and forms part of the disused-railway walking trail known as Auckland Walk (Ordnance Survey 1992) or Auckland Way Railway Path (Durham County Council 2011). It is listed at Grade II (NHLE 1196456).

The bridge comprises a single semi-circular, horse-shoe, arch, some 4.8m wide by 4.5m span with the crown rising to 7.88m above ground level (North Eastern Railway Association 2018). Unsurprisingly, its design draws on a library of architectural treatments shared by many if not all bridges on the branch line.

The arch lies between abutments approached at either end by earthen embankments held back by retaining walls (Fig 35). Apart from the arch barrel which is red brick, the bridge is constructed entirely from squared sandstone, laid in irregular horizontal courses and for the most part rock-faced with smooth margins, although the detailing is now hard to see on many stones because of pronounced wind abrasion (Fig 36). The rings of the arch - which rise from impost bands - consist of large stone voussoirs with

Fig 35. Eastern elevation of railway accommodation bridge BIF/9. (© Historic England/Rebecca Pullen)

Fig 36. Detail of the weathered stonework on the abutment of railway accommodation bridge BIF/9. (© Historic England/Marcus Jecock)

Fig 37. The (?original) eastern parapet of railway accommodation bridge BIF/9. (© Historic England/Marcus Jecock)

Fig 38. The (?replacement) western parapet of railway accommodation bridge BIF/9. (© Historic England/Marcus Jecock)

Fig 39. Detail of one of the end piers and part of the embankment retaining walling of railway accommodation bridge BIF/9. (© Historic England/Rebecca Pullen)

stepped ends that key directly in to the spandrels. A horizontal string course at deck level separates spandrels from parapets. Impost bands and string coursing are rock-faced and margined in keeping with the masonry elsewhere, but rise from a smooth, concave lower moulding. The parapets terminate in end piers, emphasised by breaking forward from the parapets slightly (their caps also rise marginally higher than the intervening coping), all formed of large rectangular blocks again rock-faced and margined except for the inner (non-public-fronting) faces which are simply tooled and margined. The coping stones to the eastern parapet and caps to all four piers are rock-faced apart from their internal faces (tooled to match the parapet walls), but the coping stones to the western parapet are tooled in their entirety with lightly chamfered edges, suggesting they are secondary (Figs 37 and 38). The tops of all coping stones slope down slightly towards the external elevations, presumably to shed water. The public-fronting faces of the four caps plus the eastern parapet coping consist of two stages: a first-stage, smooth, concave moulding (as per impost bands and string coursing) succeeded by a rectangular moulding. On the caps this second stage rises in to a low-relief pyramid, with the intersections between the faces of each pyramid picked out by broad channelling so as to form the shape of a saltire when viewed from above. Identical but thinner caps occur on the end piers to the embankment retaining walls, which break both forward and back from the adjacent walling (Fig 39). The walls themselves slope out slightly towards their base, curve down towards the end piers and have coping very similar to that on the eastern parapet, but rock-faced and margined on all surfaces and, like the caps on the adjoining piers, of a much thinner profile. Some of the coping stones are now dislodged and/or missing.

Gazetteer No. 12: BIF/10 Railway accommodation bridge or cattle creep immediately north of Auckland Park

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 22600 30700

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: Durham County Council

Other IDs: Durham HER no. D60337; Network Rail ELR no. BIF/10 (disused)

History/Description:

A masonry and brick arched accommodation underbridge or cattle creep was built by the North Eastern Railway (NER) to allow farm access between fields bisected by its Bishop Auckland and Spennymoor Branch line (later known as the Bishop Auckland and Ferryhill Branch); the bridge lies at NZ 22600 30700 immediately north of Auckland Park. The line opened in 1885 and closed to regular passenger services in 1939, but remained open for freight in to the mid- to late 1950s (Fawcett 2005, 77-8; Hoole 1974, 180-1; Wikipedia nd) The bridge had the railway Engineer's Line Reference (ELR) bridge no. BIF/10 from at least the 1920s until closure (Railway Codes and other data nd; North Eastern Railway Association 2018), but is now owned by Durham County Council and forms part of the disused-railway walking trail known as Auckland Walk (Ordnance Survey 1992) or Auckland Way Railway Path (Durham County Council 2011).

The bridge comprises a single, low, segmental arch, 4.74m wide by 2.74m span by 2.715m high to the crown of the arch (North Eastern Railway Association 2018), set between abutments approached at either end by earthen embankments (Fig 40). Unsurprisingly, its design draws on a library of architectural treatments shared by many if not all bridges on the branch line, although being a cattle creep some of the finer detailing seen on other bridges is omitted or scaled back.

Apart from the barrel of the arch which is red brick, the bridge is constructed entirely from squared masonry, laid in irregular horizontal courses and for the most part rock-faced with smooth margins. The rings of the arch – which spring from skewback stones set above impost bands – consist of large stone voussoirs with stepped ends

Fig 40. West elevation of railway accommodation bridge BIF/10. (© Historic England/Marcus Jecock)

that key directly in to the spandrels. A horizontal string course at deck level separates spandrels from parapets. Impost bands are rock-faced and margined in keeping with the masonry elsewhere, but the string coursing and low parapet walls above are constructed in ashlar or finely tooled blocks. The string course is in three stages: a concave lower moulding, a square middle and an angled top section. The parapets each comprise a single course of blocks only, the upper surfaces describing a shallow bowstring curve when viewed in elevation, higher in the middle than the ends; the blocks act as their own coping, with tops angled down towards the exterior to shed water. Several of the stones in the eastern parapet and string course are now displaced or completely missing, and modern steel railings have been erected inside the line of both parapets to guard against falls by people using the walking trail (Fig 41). The embankments are retained by walls that slope out towards their base and also splay out at slight angles to the bridge elevations; they have thin coping stones and terminate in end piers with low pyramidal caps. The sides of the coping stones and pier caps plus the pyramidal tops to the caps are rock-faced and margined; the tops of the caps also have one diagonal picked out by broad channeling in the form of a 'half-saltire' (Fig 42). In contrast, the upper surface of the coping stones on the retaining walls is smooth.

Fig 41. Detail of dislodged/missing stones in the eastern parapet of railway accommodation bridge BIF/10. (© Historic England/ Rebecca Pullen)

Fig 42. Detail of one of the end pier caps to the retaining walls of railway accommodation bridge BIF/10, showing the 'half-saltire' channelling. (© Historic England/Marcus Jecock)

Gazetteer No. 13: BIF/11 Railway accommodation bridge ('Bishop's Bridge') north of Auckland Park

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 22512 31044

NRHE HOB UID: none

NHLE UID: 1208997

Current Listed Status: Grade II

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: Durham County Council

Other IDs: Durham HER no. D37890; Network Rail ELR no. BIF/11 (disused)

History/Description:

A masonry and brick arched railway accommodation overbridge, centred at NZ 22512 31044, takes the carriage drive that links Auckland Castle to the erstwhile north-eastern entrance to Auckland Park, across the North Eastern Railway (NER) Bishop Auckland and Spennymoor Branch line (later known as the Bishop Auckland and Ferryhill Branch). The line opened in 1885 and closed to regular passenger services in 1939, but remained open for freight into the mid- to late 1950s (Fawcett 2005, 77-8; Hoole 1974, 180-1; Wikipedia nd. The bridge had the railway Engineer's Line Reference (ELR) bridge no. BIF/11 from at least the 1920s until closure (Railway Codes and other data nd; North Eastern Railway Association 2018), but is now owned by Durham County Council and forms part of the disused-railway walking trail known as Auckland Walk (Ordnance Survey 1992) or Auckland Way Railway Path (Durham County Council 2011). It is listed at Grade II (NHLE 1208997).

The railway here runs through a cutting, and the bridge comprises a single segmental arch, 25.1m wide by 7.9m span by 4.42m high at the crown (North Eastern Railway Association 2018), set between abutments that curve out and disappear in to the cutting's sides. The eastern side of the cutting is marginally higher and in consequence the bridge deck slopes down slightly towards the west. The bridge appears to have been constructed to allow for dualling of the line, although only a single track was ever laid (Fig 43). Unsurprisingly, its design draws on a library of architectural treatments common to many if not all bridges on the branch line, However, this particular bridge is unusual for its excessive width (or length) which is just over three times the span of its arch, making it more akin to a short tunnel.

Fig 43. The south elevation of railway accommodation bridge BIF/11 ('Bishop's Bridge)'. Note the great width (or length) of the arch barrel. (© Historic England/ Marcus Jecock)

Fig 44. Detail of the springing of railway accommodation bridge BIF/11 ('Bishop's Bridge'), showing impost banding plus the varied finishes applied to the other stonework. (© Historic England/Marcus Jecock)

Fig 45. Detail of parapet and curving wing wall to railway accommodation bridge BIF/11 ('Bishop's Bridge'). (© Historic England/Rebecca Pullen)

Apart from the barrel of the arch which is red brick, the bridge is constructed entirely from squared masonry, laid in irregular horizontal courses. On the elevations, all masonry is rock-faced and margined apart from the parapets which are rock-faced only; in addition, the voussoirs in the arch rings - plus the quoins in the pilaster strips that adorn the abutments - are emphasised by chamfering to create the effect of V-grooving. The grooving continues through the underside of the voussoirs, but the soffit of each arch ring is simply tooled rather than rock-faced. The abutment walls under the arch barrel are similarly less ostentatious, being rock-faced but not margined. The arch rings spring from skewback stones set above impost bands, and individual voussoirs have stepped ends that key directly in to the spandrels (Fig 44). The parapets are differentiated from the spandrels by a near-horizontal string course at deck level. The stonework of both parapets and string course also appears darker than that in the rest of the bridge, but it is unclear if this is due to differential weathering or the deliberate selection of stone of contrasting colour. Impost bands and string coursing are ashlar in pleasing contrast to the rock-faced stonework elsewhere; both have a similar profile - a smooth, concave lower moulding, rising to a square middle and angled upper section. The pilaster strips on the abutments continue through the parapets as piers, and the parapets continue beyond these piers as curving wing walls that terminate in additional end piers. All piers are identical: rectangular in cross section, breaking forward on their external faces only. All have pyramidal caps that rise slightly proud of the coping stones on the adjoining parapets and wing walls, largely because the upper surfaces of the latter are angled down slightly towards the bridge's external elevations to assist the shedding of rainwater (Fig 45).

The bridge's excessive width is said to be due to the need to 'hide' the railway as much as possible from the view of Bishop Lightfoot (Bishop of Durham at the time the line was built) who did not wish to see it when travelling through his park *en route* to or from his episcopal palace at Auckland Castle. For this reason, the bridge is reportedly now known locally as 'Bishop's Bridge' (Durham County Council 2011), although the name is not recorded on any published Ordnance Survey mapping.

Gazetteer No. 14: BIF/12 Railway accommodation bridge north of Auckland Park

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 22515 31092

NRHE HOB UID: none

NHLE UID: 1297613

Current Listed Status: Grade II

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: Durham County Council

Other IDs: Durham HER no. D36681; Network Rail ELR no. BIF/12 (disused)

History/Description:

A masonry and brick arched railway accommodation overbridge, centred at NZ 22515 31092, takes a footpath across the North Eastern Railway (NER) Bishop Auckland and Spennymoor Branch line (later known as the Bishop Auckland and Ferryhill Branch), north of Auckland Park. The line opened in 1885 and closed to regular passenger services in 1939, but remained open for freight in to the mid- to late 1950s (Fawcett 2005, 77-8; Hoole 1974, 180-1; Wikipedia nd). The bridge had the railway Engineer's Line Reference (ELR) bridge no. BIF/12 from at least the 1920s until closure (Railway Codes and other data nd; North Eastern Railway Association 2018), but is now owned by Durham County Council and forms part of the disused-railway walking trail known as Auckland Walk (Ordnance Survey 1992) or Auckland Way Railway Path (Durham County Council 2011). It is listed at Grade II (NHLE 1297613).

The railway here runs through a cutting, and the bridge comprises a single segmental arch, 4.32m wide by 7.9m span by 4.72m high at the crown (North Eastern Railway Association 2018), set between abutments that rise from the cutting's sides. The eastern side of the cutting is marginally higher and in consequence the bridge deck slopes down slightly from east to west. The bridge appears to have been constructed to allow for dualling of the line, although only a single track was ever laid (Fig 46). Unsurprisingly, its design draws on a library of architectural treatments common to many if not all bridges on the line.

Apart from the barrel of the arch which is red brick, the bridge is constructed entirely from squared masonry, laid in irregular horizontal courses. The masonry

Fig 46. Southern elevation of railway accommodation bridge BIF/12. (© Historic England/Marcus Jecock)

Fig 47. Detail of abutment face and brick arch barrel of railway accommodation bridge BIF/12, showing impost band plus the varied finishes applied to the stonework. (© Historic England/Marcus Jecock)

is mostly rock-faced, margined in addition on the abutment quoins, parapet end piers and elevations of the voussoirs; the inner faces of the parapets and soffits of the voussoirs are in contrast tooled and margined (Fig 47). The arch rings spring from skewback stones set above impost bands, and the voussoirs have stepped ends that key directly in to the spandrels. The parapets are differentiated from the spandrels by a near-horizontal string course at deck level, and are topped by coping stones with a gently sloping upper surface, angled to the outside to help shed rain water. Parapets terminate in rectangular end piers that break forward on the elevations, and have ashlar pyramidal caps (Fig 48). Impost bands and string coursing are also ashlar in contrast to the rock-faced stonework of the main body of the bridge; both have a similar profile - a smooth, concave lower moulding, rising to a square middle and angled third section. All coping stones and end caps rise from a similar concave moulding.

Fig 48. View west along deck of railway accommodation bridge BIF/12, showing parapets and end piers. (© Historic England/Rebecca Pullen)

Gazetteer No. 15: DBA/7 Newton Cap Viaduct

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 20629 30278

NRHE HOB UID: none

NHLE UID: 1269762

Current Listed Status: Grade II

Within Conservation Area: Yes

Within Registered Park & Garden: No

Bridge Owner: Durham County Council

Other IDs: Durham HER D37158; Network Rail ELR no. DBA/7 (disused); Laurie bridge no. 10; PHEW no. 2415a/b

History/Description:

Newton Cap Viaduct (centred at NZ 20629 30278) was built by the North Eastern Railway (NER) between 1854 and 1857 to take the Durham and Bishop Auckland Branch line across the River Wear and into the town of Bishop Auckland. It is one of three very similar stone viaducts on the line, the others being at Durham (Framwellgate North Road) and Belmont (Brasside). The viaduct had the railway Engineer's Line Reference (ELR) bridge no. DBA/7 (Railway Codes and other data nd; North Eastern Railway Association 2018), but the line closed in 1968 and in 1972 was purchased by Durham County Council and converted in to a recreational footpath. In 1993 the viaduct was repurposed and re-decked to carry road traffic as part of the Toronto Bypass scheme designed to relieve traffic through the small mining village of that name that stands on the north bank of the Wear, and the narrow, early post-medieval, Newton Cap road bridge (gazetteer no. 1) linking it to Bishop Auckland. (The old road bridge crosses the river about 100m upstream of the viaduct). The conversion was completed and the new bypass opened in 1995 (CIHT nd). The viaduct was before its conversion, and still is, listed at Grade II (NHLE 1269762); it also lies within the Bishop Auckland Conservation Area.

The viaduct is reportedly 828 feet (252.374m) long, and comprises 11 semi-circular arches, each of 60-foot (18.288m) span (CIHT nd), supported on tall masonry piers and abutments which taper upwards to an ashlar impost band (Figs 49 and 50). Counting from the south, the seventh and eighth arches span the river (about 100 feet below), while the ninth spans a local access road. The basal courses of piers 5 to 8 (*ie* the four that stand in the floodplain) are extended forward and back to form boat-shaped cutwaters rising to domed, ashlar tops (Fig 51); all other piers rise straight from the valley sides. The arches have single arch rings formed of large

Fig 49. The northern end of Newton Cap Viaduct from the east. Note the modern cantilevered road deck. (© Historic England/Marcus Jecock)

Fig 50. The southern end of Newton Cap Viaduct from the east. Note the modern cantilevered road deck. (© Historic England/Marcus Jecock)

Fig 51. Detail of the cutwaters against the central piers of Newton Cap Viaduct. (© Historic England/Marcus Jecock)

stone voussoirs; the soffit of each arch is, however, executed in red brick making for a pleasing contrast in both colour and material. All stonework is rock-faced apart from the undersides of the arch rings (smooth to match the brickwork) plus the impost bands on the piers and a second band at the level of the cutwater caps on the floodplain piers, which are likewise ashlar. According to the current listing description - written before the conversion of the bridge to carry road traffic - the original parapets were low with flat copings, interrupted at intervals by pilasters surmounted by low pyramidal caps. The original engineering drawings do not survive (*Newcastle Journal* 1995), but a sketch included on the ELR line diagram from the 1920s shows the parapets with four 'pilasters' per elevation: two end piers plus pilasters situated immediately before and after arches 1 and 11 (North Eastern Railway Association 2018). The parapets were removed or have been obscured by the insertion of the current road deck, which is a concrete slab cantilevered out over the viaduct elevations to allow for the inclusion of footpaths either side of the carriageway; the present parapets are crash-proof metal fences affixed to the edges of the road deck. Examination from distance (looking up from the level of the valley floor), shows that the original parapets rose from an ashlar string course laid immediately above the arch rings surmounted by a roll moulding, both of which survive. Similar string course and parapet detailing is recorded on two other viaducts built on the Durham branch: Durham and Belmont (NHLE 1322851 and 1120726).

The Durham to Bishop Auckland branch line was built by the NER to designs probably by their Chief Engineer, T E Harrison. The line had been first mooted in

1846 and groundworks were underway in 1848, but work was quickly abandoned and did not re-start until 1853 by which time a different contractor, Richard Cail, had been appointed. The resident engineer for the NER was Robert Hodgson. Sandstone was sourced from quarries at Rudchester, Penshaw, Gateshead and Leam and the foundations for the river piers required the construction of coffer dams 20 feet (6.1m) deep (Rennison 1998, 168-9 and 181-2). The bridge name Newton Cap Viaduct is recorded on all Ordnance Survey maps starting with the earliest edition (Ordnance Survey 1857b), although latterly the name 'Eleven Arches' has become popular locally. The bridge is included on the Institute of Civil Engineers (ICE) Panel of Historic Engineering Works (PHEW) register as no. 2145a and 2145b (Rennison 1978; 2001).

Gazetteer No. 16: DAE2/4 Railway bridge over High Street, Coundon Grange

C/D/P: Durham/ - /Dene Valley

NGR: NZ 22512 27897

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: Network Rail

Other IDs: Network Rail ELR no. DAE2/4

History/Description:

A railway underbridge, centred at NZ 22512 27897 on the western edge of Coundon Grange, takes what was originally the Bishop Auckland & Weardale Railway (a subsidiary venture of the Stockton & Darlington Railway (S&DR), aimed at extending the company's reach north and west of Shildon) across the local High Street. The stretch of line on which the bridge lies opened in 1842 (Hoole 1974, 173-4). Following company mergers, the line came to be managed as a sub-section of the much longer North Eastern Railway route between Darlington and Eastgate in Weardale, at which time the bridge acquired the railway Engineer's Line Reference (ELR) bridge no. DAE2/4, which it retains to this day.

The bridge is of at least two phases, having been widened to east and west to accommodate four, rather than the original two, tracks (Fig 52). The primary structure comprises a semi-circular, masonry, skew arch rising from impost bands that run the width of each abutment. There is a single arch ring, but the voussoirs are surmounted by an archivolt that takes the form of a narrow roll moulding (Fig 53). Voussoirs and arch barrel are all laid according to the helicoidal method where the bedding joints between individual stones are at right angles to the bridge elevations rather than to the faces of the abutments, meaning each is precisely cut to a complex geometric shape; furthermore, each stone in the impost banding is integral with the first course of the arch barrel above, *ie* its upper surface has been cut as an irregular three-dimensional triangle so as to key the arch to the abutments and help counteract the thrusts of the skew (Fig 54). All masonry is ashlar laid in horizontal courses, although the north-west spandrel contains smaller, less regular blockwork, probably the result of later repairs. The south-east spandrel also shows signs of historic movement that has been stabilised in the past using an iron or steel tie rod and anchor plate.

Fig 52. The eastern elevation of railway underbridge DAE2/4 (High St, Coundon Grange), showing the original skew arch and one half of the later widening. (© Historic England/Marcus Jecock)

Fig 53. Detail of the original western elevation of railway underbridge DAE2/4 (High St, Coundon Grange), showing arch ring, archivolt and impost banding. (© Historic England/Marcus Jecock)

Fig 54. Detail of the impost banding and helicoidal coursing of the phase-1 arch barrel of railway underbridge DAE2/4 (High St, Coundon Grange). Note that the stones forming the first course of the barrel are integral with those in the impost banding beneath. Note also the butt join with the masonry of the phase-2 widening just visible at left of frame. (© Historic England/Marcus Jecock)

In phase 2, both abutments were extended to west and east (as shown by very clear butt joints in the masonry) to accommodate an extra track laid either side of the main running lines (Fig 54); these additional tracks led to short branches serving the nearby Adelaide, Auckland Park, Black Boy and South Durham Collieries, and also to a number of storage sidings. The widened abutments are now spanned by concrete girders laid flush to each other, with the visible elevations of the outermost joists exhibiting a series of recessed panels (Fig 52); it is likely, however, that the original decking comprised iron or steel girders and that the present joists are later replacements. The parapets are likewise secondary: plain metal panels seemingly bolted to stanchions attached to the outer joists. The quoins of the abutments corbel out slightly at the approximate level of the crown of the phase-1 arch, and the bridge elevations break forward as pilaster strips that continue up through the deck and parapets as end piers; piers are distinguished from pilasters by a string course of square section, and are topped by caps seemingly (they were viewed from below only) of matching profile. The ends of the embankments are retained by splayed wing walls that run down from just below the level of the string course and terminate in end piers, all capped by flat coping stones; the walls also slope out from top to bottom. The end piers appear to have pyramidal caps, although the north-west retaining wall returns sharply northwards along a local access road that runs at the foot of the embankment, and if there was once an end pier here it has since been removed. The masonry of the phase-2 abutments and pilasters is weathered but appears to be largely, if not entirely, formed of

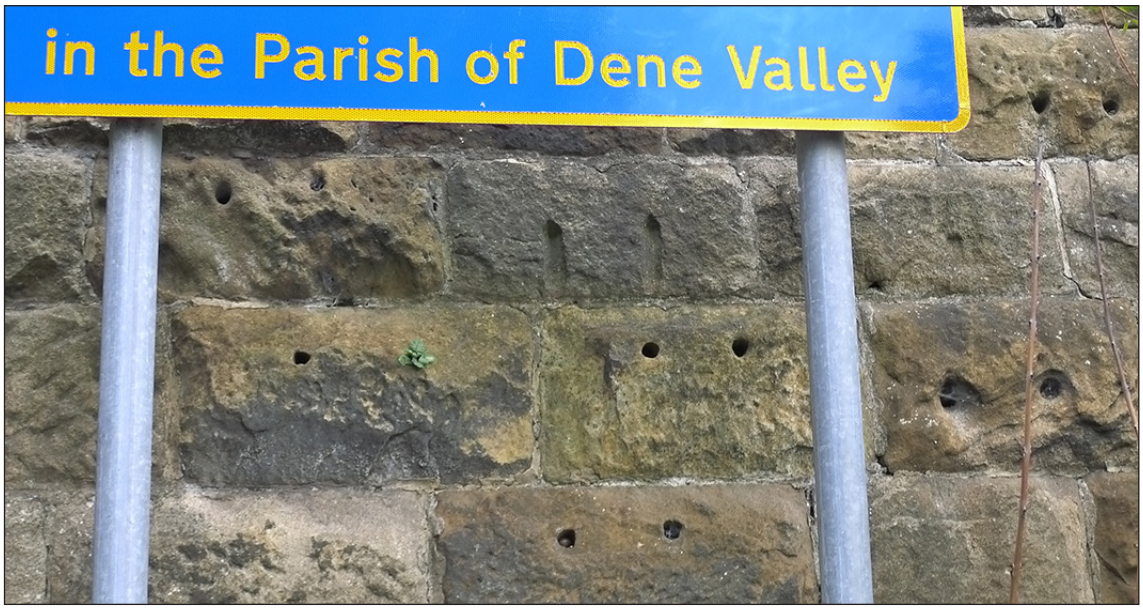

Fig 55. Detail of S&DR stone sleepers re-used in the north-east retaining wall of railway underbridge DAE2/4 (High Street, Coundon Grange). (© Historic England/ Marcus Jecock)

regular blockwork that has been tooled and margined, whilst that of the embankment retaining walls, including the faces of the coping stones, is in contrast rock-faced. Some of the blocks in the retaining walls exhibit pairs of drilled holes either in section or plan (Fig 55), suggesting they are re-used S&DR stone sleepers (until *circa* the 1840s, the company anchored its tracks on stone blocks rather than timber sleepers).

A design drawing exists in the Network Rail Archive (NRA) entitled 'Proposed Bridge over the Highway between South Church and Eldon' (NRA Microfilm Frame 12 Dwg 53) which is clearly this bridge. It is signed and dated by the contractor as confirmation of his contract: the signature is difficult to read but the date is 22 April 1839. It shows the phase-1 bridge largely as it exists today, but with stone parapets and embankment retaining walls all sloping down to end piers with pyramidal caps. What are possibly the plans for the phase-2 widening also survive at the NRA (Microfilm Frame 12 Dwg 38). They have only been seen as a poor quality copy and appear to be undated, but map evidence shows that track quadrupling was carried out between 1856 and 1896 (Ordnance Survey 1857b; 1897b). These later plans appear to indicate that the decking for the extensions was originally transverse timber baulks carried on iron girders, and that the parapets were also timber: planks bolted to upright stanchions, with the panels in between strengthened by cross-bracing. The girders were replaced by the present concrete joists in 1932, which is therefore probably also the date of the extant parapets (NRA Microfilm Frame 12 Dwg 40). Map evidence shows that only the original phase-1 bridge is now in use, with the lines to the colliery branches and sidings having been lifted in stages between 1939 and 1978 (Ordnance Survey 1947; 1978).

The bridge is depicted, unnamed, on all Ordnance Survey mapping from the first edition (1857a) onwards, but is called High Street at Coundon Grange on modern Network Rail signs attached to the structure; these signs also give the ELR no.

Gazetteer No. 17: DAE2/5 Culvert taking Dene Beck under the railway

C/D/P: Durham/ - /Dene Valley

NGR: NZ 22416 28114

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: Network Rail

Other IDs: Network Rail ELR no. DAE2/5

History/Description:

A masonry and brick culvert, centred at NZ 22416 28114, carries Dene Beck under what was originally the Bishop Auckland & Weardale Railway (a subsidiary venture of the Stockton & Darlington Railway, aimed at extending the company's reach north and west of Shildon). The stretch of line on which the bridge lies opened in 1842 (Hoole 1974, 173-4). Following company mergers, the line came to be managed as a sub-section of the much longer North Eastern Railway route between Darlington and Eastgate in Weardale, at which time the culvert acquired the railway Engineer's Line Reference (ELR) bridge no. DAE2/5, which it retains to this day.

The culvert lies at the base of a tall earthen embankment that carries the railway across the valley of the Dene Beck. It comprises a 1.8m-wide (6-foot) barrel vault composed of three, brick, arch rings, running between low headwalls set some 66.5m (218 feet) apart (Fig 56). The headwalls in contrast are built of squared stone blocks laid in irregular courses, topped by a course of simple flat coping stones that oversail the external elevation. A modern tubular steel safety fence is bolted to the coping above the centre of each headwall. A drain that runs along the foot of the southern face of the embankment flows in to the beck immediately below the outfall of the culvert; the confluence of drain and beck is formed in concrete.

A design exists in the Network Rail Archive (NRA) entitled 'Proposed Culvert for Denburn Brook' (NRA Microfilm Frame 12 Dwg 52). The watercourse name appears to be in error on the drawing, for the bridge no. 'BA&W no. 5' was later added in freehand. The plan is undated, and is likely to be an early design that was not used - or which at least was revised before construction started - for the elevations as drawn differ from the structure that exists in several details, including

Fig 56. The southern headwall of culvert DAE2/5 taking Dene Beck under what was originally the Bishop Auckland & Weardale Railway, now the Darlington to Bishop Auckland line. (© Historic England/Marcus Jecock)

arch rings with stepped, stone voussoirs, and headwalls that break forward to either side of the arch; otherwise, however, it appears a close match. The culvert is depicted, unnamed, on all Ordnance Survey mapping from the first edition onward (Ordnance Survey 1857c).

Gazetteer No. 18: DAE2/6 Railway accommodation underbridge (Shepherds)

C/D/P: Durham/ - /Dene Valley

NGR: NZ 22292 28338

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: Network Rail

Other IDs: Network Rail ELR no. DAE2/6

History/Description:

A railway accommodation underbridge, centred at NZ 22292 28338, takes what was originally the Bishop Auckland & Weardale Railway (a subsidiary venture of the Stockton & Darlington Railway, aimed at extending the company's reach north and west of Shildon) across a footpath linking South Church with the Adelaide and Black Boy Collieries on the eastern outskirts of Bishop Auckland. The stretch of line on which the bridge lies opened in 1842 (Hoole 1974, 173-4). Following company mergers, the line came to be managed as a sub-section of the much longer North Eastern Railway route between Darlington and Eastgate in Weardale, at which time the bridge acquired the railway Engineer's Line Reference (ELR) bridge no. DAE2/6, which it retains to this day.

The bridge is of at least two phases, having been widened to both east and west – probably in a single operation - to accommodate four, rather than the original two tracks. The primary structure is built entirely of masonry, and comprises a semi-circular arch, 9.48m wide by 3.58m span, rising from plain abutments. The form of the arch rings and spandrels is unknown since both elevations are masked by the later extensions that butt up flush against them, but the abutments consist of single courses of large, squared, sandstone blocks followed by four courses of much smaller blockwork, laid in a repeating rhythm – all now heavily patched in brick as the type of stone used has decayed badly. The voussoirs in the arch barrel, in contrast, are all of large size, and may be of a different stone type to that in the abutments as they have not deteriorated (Fig 57).

The later extensions (increasing the width of the bridge to 15.08m, or an additional 2.8m at each end) are identical to each other and formed in a mixture of masonry

Fig 57. The southern face of the phase-1, abutment of railway accommodation underbridge DAE2/6 ('Shepherds'). Note the repeating rhythm of the original stonework: four narrow courses followed by one course of larger stones, all now deteriorating and heavily patched in brick. The stone arch barrel contrasts with the brick arch barrel of the phase-2 western extension which can just be made out at right of frame. (© Historic England/Marcus Jecock)

and red brick: masonry for the abutments, spandrels and parapets, brick for the arch rings of which there are four (Fig 58). The masonry comprises squared blocks, laid mostly in regular courses and undecorated apart from margining on the abutment quoins. There is a square-section, ashlar, string course at deck level on each elevation. The parapets each consist of a basal course of large sandstone blocks followed by several courses of smaller blockwork, topped by flat coping that slightly oversails the external face in a mirror image of the string course below; the upper courses of the eastern parapet in addition incorporate a few rock-faced blocks suggesting parts of it may be rebuilt. The parapets have no end piers, but embankment retaining walls topped with flat coping spring from their ends, emanating from just below the level of the parapet coping and sloping down to low end piers with pyramidal caps. Much of the south-west retaining wall has collapsed or been dismantled in recent years, and been replaced by a modern gabion wall; only a stub of the original retaining wall survives.

The exact date when the bridge was widened is unknown, but map evidence shows that the quadrupling of the track was carried out between 1856 and 1896 (Ordnance Survey 1857c; 1897b). The bridge is depicted, unnamed, on all Ordnance Survey

Fig 58. The western, phase-2, elevation of railway accommodation underbridge DAE2/6 ('Shepherds'). (© Historic England/Marcus Jecock)

mapping from the first edition onwards, but is given the name 'Shepherds' (for reasons that are unclear) on modern Network Rail signs attached to the structure; these signs also give the ELR no.

Gazetteer No. 19: DAE2/7 Railway Bridge over Bone Mill Bank, South Church

C/D/P: Durham/ - /Dene Valley

NGR: NZ 22071 28612

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: Network Rail

Other IDs: Network Rail ELR no. DAE2/7

History/Description:

A railway underbridge, centred at NZ 22071 28612 on the western edge of Bishop Auckland, was originally built to carry the Bishop Auckland & Weardale Railway (a subsidiary venture of the Stockton & Darlington Railway, aimed at extending the company's reach north and west of Shildon) across the road now called Bone Mill Bank. The stretch of line on which the bridge lies opened in 1843 (Hoole 1974, 173-4). Following company mergers, the line came to be managed as a sub-section of the much longer North Eastern Railway route between Darlington and Eastgate in Weardale, at which time the bridge acquired the railway Engineer's Line Reference (ELR) bridge no. DAE2/7, which it retains to this day.

The bridge appears to be of a single phase, although with evidence of repairs and one replacement parapet. It comprises a skew, low, segmental masonry arch rising from skewback stones. It has a single arch ring, with the stepped ends of the voussoirs keyed to the spandrels (Fig 59). Voussoirs and arch barrel are all laid according to the helicoidal method where the bedding joints between individual stones are at right angles to the bridge elevations rather than to the faces of the abutments, meaning each is precisely cut to a complex geometric shape. The stones forming the uppermost course of the abutments are integral with the first course of the arch barrel above, requiring the upper surface of each stone to be cut as an irregular three-dimensional triangle in order to key the arch to the abutments and help counteract the thrusts of the skew (Fig 60). All masonry (apart from that in the soffit of the arch which is smooth) is rock-faced and margined, and laid in horizontal courses. The stonework through the abutments is also tooled in a very distinctive pattern: each has a series of incised chevrons pointing left or right all joined by a horizontal line passing through their apices. In contrast, a single stone set towards

Fig 59. The north-east (uphill) elevation of railway underbridge DAE2/7 (Bone Mill Bank). Note the brick repair to the spandrel and the later concrete parapet. (© Historic England/Marcus Jecock)

Fig 60. Detail of the arch springing on railway underbridge DAE2/7 (Bone Mill Bank). Note the stones forming the first course of the arch barrel are integral with the abutment coursing, and the distinctive way the stones of the abutment have been dressed using incised chevrons. (© Historic England/Marcus Jecock)

Fig 61. Detail of the cartouche in the centre of each abutment of railway underbridge DAE2/7 (Bone Mill Bank). (© Historic England/Marcus Jecock)

Fig 62. The south-western (downhill) elevation of railway underbridge DAE2/7 (Bone Mill Bank). (© Historic England/Marcus Jecock)

the centre of each abutment bears an incised cross set in a cartouche between spirals (Fig 61). These are probably conceits of the stonemasons and/or contractor who built the bridge. The south-western (downhill) elevation of the bridge is largely original and retains its horizontal ashlar string course at deck level, above which is a stone parapet running between rectangular end piers that break forward from the elevation, all now topped by flat (?concrete) copings and modern tubular-steel safety railings (Fig 62). The spandrels to the north-eastern (uphill) elevation, however, have been repaired or rebuilt: below the level of the arch crown the spandrels have largely been refaced in blue engineering brick, while above the crown, the string course and stone parapet have been replaced by a concrete wall supporting a concrete walkway cantilevered out over the roadway below; modern tubular steel railings have again been installed along its outer edge (Fig 59). Stone retaining walls revet the sides of the road cutting and butt up against the bridge elevations.

The Network Rail Archive (NRA) contains drawings entitled 'Bridge over Highway from South-Church to Black-Boy' (NRA Microfilm Frame 12 Dwg 55); they are, however, unsigned and undated. The Archive also holds a plan dated 1912-13 entitled 'Proposed Alteration to Parapet of Bridge No. 7 at South Church Junction' (NRA Microfilm Frame 12 Dwg 54). The alteration appears to entail replacement of one parapet wall (?north-eastern) in metal; if so, then the extant concrete parapet is an even later replacement. A third document (NRA Microfilm Frame 12 Dwg 51) shows that Bone Mill Bank was sunk into a cutting in the hillside to create sufficient headroom for the railway to pass over: clearance at the arch crown today is only 14 feet (4.27m).

The bridge is depicted, unnamed, on all Ordnance Survey mapping from the first edition (Ordnance Survey 1857c) onwards, but is called Bone Mill Bank on modern Network Rail signs attached to the road retaining walls adjacent to the structure; these signs also give the ELR no.

Gazetteer No. 20: DAE2/8 Railway Bridge over River Gaunless, Bishop Auckland

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 21473 29088

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Registered Park & Garden: No

Bridge Owner: Network Rail

Other IDs: Network Rail ELR no. DAE2/8

History/Description:

A railway underbridge, centred at NZ 21473 29088 on the western edge of Bishop Auckland, takes what was originally the Bishop Auckland & Weardale Railway (a subsidiary venture of the Stockton & Darlington Railway, aimed at extending the company's reach north and west of Shildon), across the River Gaunless, which here flows almost due north. The stretch of line on which the bridge lies opened in 1843 (Hoole 1974, 173-4). Following company mergers, the line came to be managed as a sub-section of the much longer North Eastern Railway route between Darlington and Eastgate in Weardale, at which time the bridge acquired the railway Engineer's Line Reference (ELR) bridge no. DAE2/8, which it retains to this day.

The bridge is in reality a large-diameter culvert that passes through the base of a tall earthen embankment; the culvert is semi-circular, about 68.5m (225 feet) long and carries both embankment and railway across the valley of the Gaunless. It is constructed in masonry throughout. The voussoirs in the arch rings are massive, and have angled ends that extend a short distance into the horizontal coursing of the adjoining headwalls: each voussoir is the thickness of two courses of masonry in the headwall. All masonry on the elevations is rock-faced and V-grooved. Through the soffit of the bridge, however, the voussoirs are only tooled (Fig 63). Both headwalls terminate in a course of large, flat, ashlar coping stones laid immediately above the voussoirs of the arch crown; this coping is square section but has a basal chamfer. A low stone wall, only three courses high, sits atop the coping to the northern portal (Fig 64). Modern tubular steel safety fences have been fitted to the coping/parapet wall at both portals. On the east bank of the river, both headwalls extend in line with the portals and the river bank rises to meet them; but on the west bank both headwalls turn through a right angle to create short a retaining wall revetting the

Fig 63. The southern portal of railway bridge DAE2/8 over the River Gaunless. (© Historic England/Marcus Jecock)

Fig 64. The northern portal of railway bridge DAE2/8 over the River Gaunless. Note the low parapet wall above the coping, probably added before 1896 to retain extra embankment material when the railway was widened. (© Historic England/Marcus Jecock)

bottom of the embankment behind. The masonry in these retaining walls is rock-faced but not V-grooved. An iron (?sewer) pipe on concrete supports has been laid through the culvert along the left bank of the river.

The Network Rail Archive (NRA Microfilm Frame 12, Dwg 56) contains a drawing - untitled, unsigned and undated - but which can be readily identified as this particular bridge/cuvert from the depiction of the portals. It is apparent that some changes were made on the ground during construction, however, for the drawing erroneously show the headwalls continuing in line with the portals on both banks of the river. The drawing also suggests that the bed of the river is concave and paved throughout the entire length of the culvert, although because of silting this could not be confirmed in the field. Map evidence shows that originally only two rail tracks crossed the river, but that a third had been added along the north side of the embankment by 1896 (Ordnance Survey 1857b; 1897a); this formed the start of the branch line to Spennymoor (later Ferryhill), which opened in 1885 (Fawcett 2005, 77). It seems probable that the embankment had to be widened to accommodate the new branch line, and the parapet wall was accordingly added to the top of the northern portal at this time in order to retain the extra material and embankment width.

The bridge is depicted, unnamed, on all Ordnance Survey mapping from the first edition (1857b) onwards, but is called 'Gaunless Burn [*sic*] Bridge' on the abcrailwayguide website that lists Network Rail infrastructure (The ABC Railway Guide nd); the website also confirms the ELR no. (which can be deduced anyway from the ELR numbers physically displayed on adjacent bridges).

Gazetteer No. 21: DAE2/9 Railway Bridge over South Church Lane

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 21329 29140

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: Network Rail

Other IDs: Network Rail ELR no. DAE2/9

History/Description:

A railway girder underbridge, centred at NZ 21329 29140, takes what was originally the Bishop Auckland & Weardale Railway (BA&W) - a sub-venture of the Stockton & Darlington Railway, aimed at extending the company's reach north and west of Shildon - across South Church Lane on the outskirts of Bishop Auckland. The stretch of line on which the bridge lies opened in 1843 (Hoole 1974, 173-4). Following company mergers, the line came to be managed as a sub-section of the much longer North Eastern Railway (NER) route between Darlington and Eastgate in Weardale, at which time the bridge acquired the railway Engineer's Line Reference (ELR) bridge no. DAE2/9, which it retains to this day.

The road here lies in a shallow cutting in order to create sufficient headroom beneath the bridge for traffic passing north-south along South Church Lane. The sides of the cutting are retained by the bridge's stone abutments and also by short wing walls that flank the abutments and slope down from the level of the bridge deck to square end piers (Fig 65). The abutments are wide enough to carry three railway tracks, but the girders for the two northern lines have been lifted and the single track that remains in use is now carried on modern steel girders with safety railings for parapets. The girders sit on massive concrete bearing blocks set in to the southern end of both abutments; the concrete has effectively replaced the top four and a half courses of original stonework (Fig 66). All masonry is rock-faced (margined in addition on the abutment quoins and corners of the end piers) apart from the flat coping to the wing walls, the pyramidal caps to the end piers and bearing blocks close to the centre and at the northern end of each abutment, which are ashlar. The bearing blocks at the northern end of the abutments elegantly corbel out and were evidently designed to carry the original parapet and outermost

Fig 65. The north elevation of railway underbridge DAE2/9 (South Church Lane). (© Historic England/Marcus Jecock)

Fig 66. The south elevation of railway underbridge DAE2/9 (South Church Lane). Note the modern concrete bearing block which has replaced the topmost courses of stonework in the abutments. (© Historic England/Marcus Jecock)

Fig 67. The north end of the east abutment of railway underbridge DAE2/9 (South Church Lane). Note the disused stone bearing blocks towards the centre and at the end of the abutment, and the modern tie rods and anchor plates added to stabilise the structure. (© Historic England/Marcus Jecock)

girder of the deck (Fig 67). Presumably similar corbelled blocks once carried the southernmost girder and parapet also, but were lost when the modern concrete bearings were inserted here; it is likely that at least one other bearing block in each abutment was destroyed at the same time. The eastern abutment has latterly been stabilised by a row of seven tie rods and anchor plates securing it to the earth of the road cutting behind; the holes for the rods are drilled at a level just below that of the modern decking. Otherwise there are patches of brickwork repair in the stonework of both abutments.

Map evidence shows that the bridge originally carried only two tracks, but had been widened (or rebuilt – see below) to carry three tracks before 1896 (Ordnance Survey 1857b; 1897a). At this time, the extra line formed the start of the Bishop Auckland & Spennymoor (later Ferryhill) Branch which opened in 1885 (Fawcett 2005, 77). As there is no visible evidence in the surviving fabric that the abutments have been widened, it seems likely that the bridge was completely rebuilt at or around this time, although the rebuilding could have happened earlier: perhaps in 1857 as part of the re-construction of Bishop Auckland station to accommodate the NER branch from Durham that opened in that year, or in 1863 when the Barnard Castle branch opened (Fawcett 2003, 21-3). A contractor's drawing that survives in the Network Rail Archive (NRA), dated 27 July 1874 and entitled 'South Church Lane Diversion: Plan of Bridge under Railway' (NRA Microfilm Frame 12 Dwg 57), shows a bridge already carrying three tracks, although it is unclear if the drawing is for a new

bridge or a re-decking of an existing structure. There are slight differences between the plans and the extant fabric, including the form of the parapet and the omission of end piers from the retaining walls. This drawing (plus another of the same date: NRA Microfilm Frame 12 Dwg 49) show the bridge with ornate metal parapets on wrought iron girders, all running between stone end piers that break forward on the front elevation and also feature recessed rectangular panels; the piers have oversailing caps of angled profile. Other (unfortunately undated) drawings, show that the 1874 bridge deck had subsequently to be strengthened with additional cross girders, and the ornate parapets were replaced by more utilitarian versions (NRA Microfilm Frame 12 Dwgs 59 and 61).

The bridge is depicted, unnamed, on all Ordnance Survey mapping from the first edition (1857b) onwards, but is called South Church Lane on modern Network Rail signs attached to the structure; these signs also give the modern ELR no. Some of the NRA drawings refer to the bridge as 'Blue Row' which is the name of a street to the immediate south, and also give the original bridge no. as BA&W no. 9.

Gazetteer No. 22: DAE2/10 Railway Bridge under Cockton Hill Road

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 20958 29167

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: Yes

Within Registered Park & Garden: No

Bridge Owner: Network Rail

Other IDs: Network Rail ELR no. DAE2/10

History/Description:

A railway girder overbridge, centred at NZ 20958 29167, takes what was originally the Bishop Auckland & Weardale Railway (BA&W) - a subsidiary venture of the Stockton & Darlington Railway, aimed at extending the company's reach north and west of Shildon - under Cockton Hill Road immediately outside Bishop Auckland Station. The stretch of line on which the bridge lies opened in 1843 (Hoole 1974, 173-4). Following company mergers, the line came to be managed as a sub-section of the much longer North Eastern Railway (NER) route between Darlington and Eastgate in Weardale, at which time the bridge acquired the railway Engineer's Line Reference (ELR) bridge no. DAE2/10, which it retains to this day. Prior to this the bridge appears to have had the number BA&W/10. The road runs north–south, the railway east-west.

The bridge comprises stone abutments supporting a modern steel girder and concrete deck (Fig 68). A sign attached to the parapets states that the bridge was replaced in 2010 by Durham County Council, but this seems to have been a re-decking exercise only, leaving the abutments largely untouched apart from replacing the uppermost few courses of masonry in concrete to carry the bearing pads for the new steel girders. Because the bridge lies across live railway, only the south abutment and western elevation of the north abutment were visible for investigation. The south abutment comprises square, stone piers at either end with the space in between walled in (Fig 69). Both piers break forward slightly from the wall and are also surmounted by large ashlar blocks that corbel out to east and west, suggesting they were originally free-standing; if so, however, the walling, cut and tooled similarly to the piers, was probably added very soon after. The stonework in the elevations of the piers, including the western elevation of what may originally have been a similar

Fig 68. The west elevation of railway overbridge DAE2/10 (Cockton Hill Road). (© Historic England/Marcus Jecock)

Fig 69. The south abutment of railway overbridge DAE2/10 (Cockton Hill Road). Note the ends of the abutment break forward slightly and are surmounted by large ashlar blocks that corbel out on both sides, suggesting they initially comprised free-standing piers. (© Historic England/Marcus Jecock)

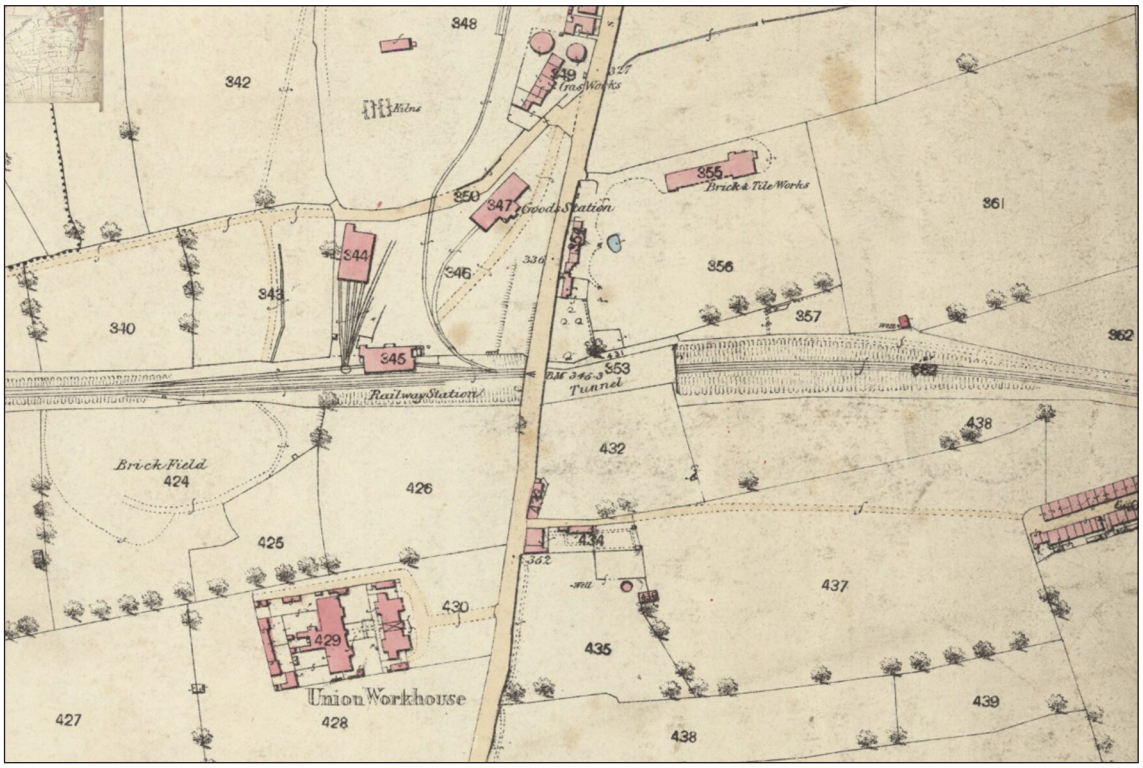

Fig 70. The road and rail layout around Cockton Hill Road, as surveyed by the Ordnance Survey in 1856. (Reproduced from the 1857 County Series 1:2500 Ordnance Survey map, with the permission of the National Library of Scotland under Creative Commons Attribution (CC-BY) licence: https://maps.nls.uk/index.html)

freestanding pier in the northern abutment (the face of the abutment could not be viewed), is in contrast rock-faced and margined. The railway here lies in a cutting, and the abutments are integral with short stone causeways leading on to the bridge deck itself.

Ordnance Survey map evidence shows that the BA&W was laid as double track, and that Cockton Hill Road bridge stood immediately against the western portal of a short tunnel on the eastern approach to Bishop Auckland station (Fig 70). By 1896, however, the tunnel had been opened up in to a wide cutting, and the bridge lengthened towards the north in order to span four tracks and accommodate an improved junction between the BA&W and the NER branch line to Durham (Fig 71). The junction improvements are dated 1866-7 (Fawcett 2003, 22-3). On this evidence the extant northern abutment of the bridge cannot be original, but must date to 1866-7, or later.

Plans of the bridge are held by the Network Rail Archive (NRA), but these were only seen as microfilmed copies which rendered some details uncertain or illegible. The earliest of the three documents, entitled 'Bp Auckland Branch Railway: Bridge at Junction with Main Line' (NRA Microfilm Frame 12 Dwg 66), which also has the identifier 'BA&W No. 10' added in freehand, appears to show four piers standing in the floor of a cutting, the sides of which rise up behind at 45-degree angles. Piers on the same side of the cutting are connected by walls linked to further retaining walls

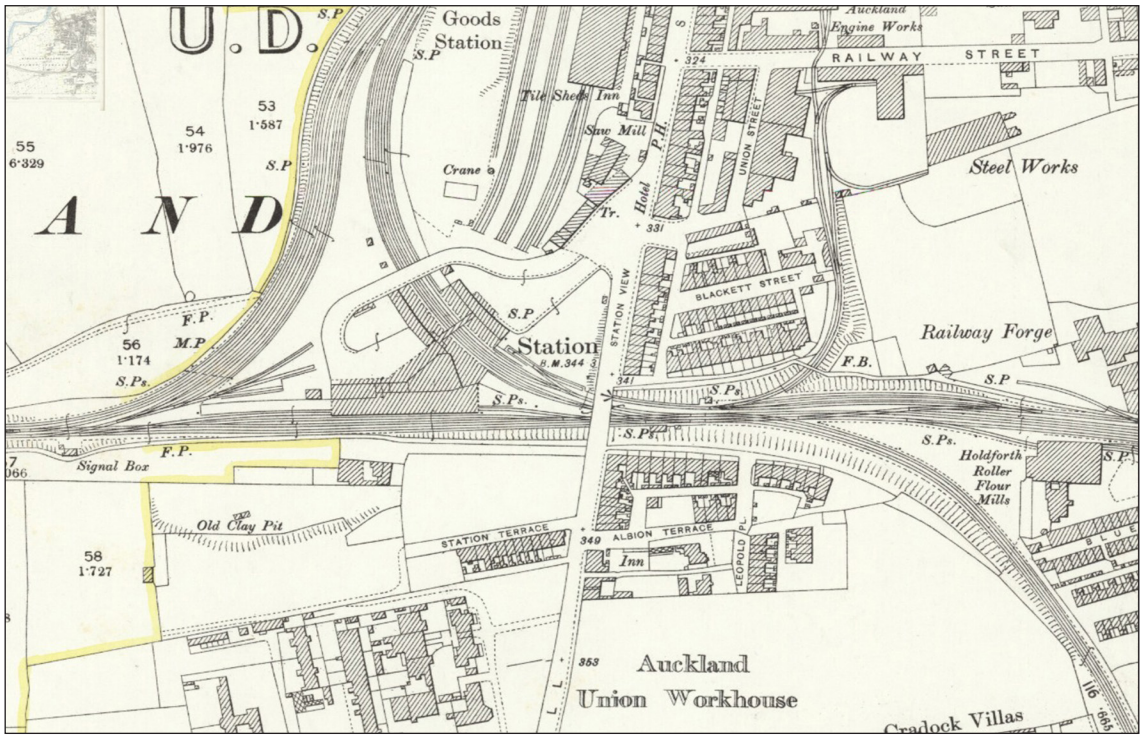

Fig 71. The road and rail layout around Cockton Hill Road, as surveyed by the Ordnance Survey in 1896. (Reproduced from the 1897 County Series 1:2500 Ordnance Survey map, with the permission of the National Library of Scotland under Creative Commons Attribution (CC-BY) licence: https://maps.nls.uk/index.html)

completing short stone causeways at either end of the bridge. The opposing piers are shown carrying the ends of the main side girders of the bridge deck itself. The side girders are depicted as riveted and of H-section (it is not stated whether they are cast or wrought iron), and connected by smaller cross girders with an upper flange that is slightly convex in long section. The piers are shown as continuing above the level of the girders as low pilasters with oversailing caps of angled profile; stone wing walls run from them along the top of each causeway. The parapets are formed from stanchions bolted to the side girders, to which are attached plain metal plates. The plan is undated, but since the lengths of the main girders are given as 50 and 54 feet it is most probably that for the new, lengthened, four-track, bridge of 1866-7. The two later documents (NRA Microfilm Frame 12 Dwgs 65 and 68) deal with the re-decking of the bridge by the NER around 1910. They also show a pedestrian walkway cantilevered out above the eastern elevation, presumably to allow for road widening, and also pilasters repositioned to the ends of the causeways on the same elevation to accommodate it. Ordnance Survey map evidence (1897a; 1920a) confirms footpaths were added to both sides of Cockton Hill Road between 1896 and 1915.

The bridge is depicted, unnamed, on all Ordnance Survey maps from the first edition (1857b) onwards, but is called Cockton Hill Road on modern Network Rail signs attached to the structure; these signs also give the ELR no. An old, oval, cast iron ELR number plate has been re-attached to the inner face of the modern western parapet.

Gazetteer No. 23: DAE2/11 Railway overbridge taking Etherley Lane over Weardale Railway (Latherbrush Bridge)

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 20421 29151

NRHE HOB UID: none

NHLE UID: 1209680

Current Listed Status: Grade II

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: The Auckland Project

Other IDs: Network Rail DAE2/11 (disused); Durham HER no. D37909; Laurie bridge no. 9

History/Description:

A railway overbridge, centred at NZ 20421 29151 on the western edge of Bishop Auckland, takes what was originally the Bishop Auckland & Weardale Railway (a subsidiary venture of the Stockton & Darlington Railway, aimed at extending the company's reach north and west of Shildon) under Etherley Lane. The stretch of line on which the bridge lies opened in 1843 (Hoole 1974, 173-4). Following company mergers, the line came to be managed as a sub-section of the much longer North Eastern Railway route between Darlington and Eastgate in Weardale, at which time the bridge acquired the railway Engineer's Line Reference (ELR) bridge no. DAE2/11. Since British Rail's closure of the line west of Bishop Auckland in 1993, the Weardale section has operated as an independent heritage trust known as Weardale Railway. The Trust – and therefore presumably the bridge, too – is now owned by The Auckland Project (The Auckland Project 2020). The bridge is listed at Grade II (NHLE 1209680).

The railway here runs through a cutting, and the bridge comprises three segmental arches between abutments that rise out of the cutting's sides (Fig 72). The bridge is built entirely of stone: ashlar for the abutments, piers, arch barrels and parapets, and squared blocks laid in horizontal courses for the spandrels. The railway here runs east to west, and the bridge crosses it at quite a severe angle. Accordingly, the voussoirs in the arch rings (which rise from skewback stones above rectangular impost bands) are stepped to key in to the spandrels and help counteract the stresses inherent in a skew bridge. The voussoirs and intrados of each arch are laid

Fig 72. The western elevation of railway overbridge DAE2/11 ('Latherbrush Bridge'). (© Historic England/Marcus Jecock)

Because of the narrowness of the bridge, a pedestrian walkway was subsequently added by cantilevering out from the eastern parapet (Fig 73); historic mapping suggests this happened sometime in the second half of the 19th century (Ordnance Survey 1857b; 1897a). The present flooring and side wall of the walkway, all timber, is modern, but the floor planks sit on original metal beams (possibly a pair of old bullhead rails bolted together, and with the ends formed into a decorative scallop) set into the spandrels and supported from beneath by an angle bracket also fixed to the spandrel, while the planks forming the side wall are attached to cast-iron triangular stanchions rising from the outer end of the rails. Each stanchion has a concave outer element and a roundel filling the openwork base. The western parapet of the overbridge has according to the helicoidal method where the bedding joints between the stones are at right angles to the bridge elevations rather than to the faces of the abutments. The parapets, which are three ashlar courses high, are distinguished from the spandrels by a horizontal string course at the level of the road deck and surmounted by flat coping stones which, on the elevations of the bridge only, rise from a concave moulding to oversail the parapet walling. Each coping stone is secured to its neighbour by an iron cramp. The first course of parapet walling also breaks forward slightly on the inner face. Both parapets curve out as short wing walls at either end of the bridge.

Fig 73. The Victorian pedestrian walkway cantilevered out against the eastern elevation of railway overbridge DAE2/11 ('Latherbrush Bridge'). (© Historic England/Marcus Jecock)

recently been heightened by a low, steel, safety fence, the stanchions of which mimic those of the walkway except that the base of each triangle is solid.

The bridge was built in 1842-3 by the contractor Henry Dawson (or Davison) (NRA Microfilm Frame 12 Dwg 71). The bridge is referred to on the plan simply as that '... under the highway between Bishop Auckland and Etherley', and is similarly unnamed on all Ordnance Survey mapping from the first edition 1:2500 (1857b) onwards.. Locally, however, it seems to be known as Latherbrush Bridge after the Lather Brush Inn that stood near its southern end around the turn of the 20th century (Laurie nd, bridge no. 9; Ordnance Survey 1897a). Although no longer owned by Network Rail, the bridge's former ELR no. of DAE2/11 can be deduced from its position between Cockton Hill Lane Bridge (ELR no. DAE2/10) to the east and the lenticular truss accommodation bridge (ELR no. DAE2/12) to the west; the numbering also ties in with its original ELR no. (BA&W/11) as recorded on the NRA plan.

Gazetteer No. 24: DAE2/12 Railway accommodation overbridge (lenticular truss)

C/D/P: Durham/ - /NPA

NGR: NZ 19099 29624

NRHE HOB UID: none

NHLE UID: 1196464

Current Listed Status: Grade II*

Within Conservation Area: No

Within Registered Park & Garden: No

Bridge Owner: The Auckland Project

Other IDs: Durham HER no. D37763; Network Rail ELR no. DAE2/12 (disused); PHEW no. 0307

History/Description:

A railway accommodation overbridge, centred at NZ 19099 29624 between Bishop Auckland and Escomb, carries a public footpath which was formerly a farm track wide enough for a single vehicle, across the Bishop Auckland & Weardale Railway (a subsidiary venture of the Stockton & Darlington Railway (S&DR), aimed at extending that company's reach north and west of Shildon). The stretch of line on which the bridge lies opened in 1843 (Hoole 1974, 173-4). Following company mergers, the line came to be managed as a sub-section of the much longer North Eastern Railway route between Darlington and Eastgate in Weardale, at which time the bridge acquired the railway Engineer's Line Reference (ELR) bridge no. DAE2/12. Since British Rail's closure of the line west of Bishop Auckland in 1993, the Weardale section has operated as an independent heritage trust known as Weardale Railway. The Trust – and therefore presumably the bridge, too – is now owned by The Auckland Project (The Auckland Project 2020) although the national rail network bridge number is still displayed on an aging sign at the southern approach to the bridge. The bridge is listed at Grade II* (NHLE 1196464).

The bridge comprises iron, lattice, side girders carried on stone abutments which rise from the tops of the railway cutting (Fig 74). The girders are tied together to form a lenticular (lens-shaped) truss that acquires its strength from the upper members (or chords) being in compression and the lower in tension, cancelling out the compressive and tensile forces and therefore exerting only vertical forces on the abutments (Rennison 1996, 80). The upper chords effectively act as an arch, the lower as suspension chains. The truss crosses the cutting at a skew angle. The timber deck is attached directly to the upper chords, giving the bridge a humpback profile.

Fig 74. The eastern elevation of railway accommodation overbridge DAE2/12 (lenticular truss), looking south. (© Historic England/Marcus Jecock)

Fig 75. Detail of the chords, truss structure and cross-bracing of railway accommodation overbridge DAE2/12 (lenticular truss). (© Historic England/ Marcus Jecock)

The bridge superstructure is as described by Rennison (*ibid*, 80). His description is reproduced below, emended to emphasise the fact that the bottom chords are each composed of two separate members. The bridge has 'a clear skew span of 86ft 3in [26.29m] with the two trusses [side girders] spaced at 11ft [3353mm] centres. It has a timber deck on timber cross joists at 2ft 4in [711mm] centres; every 14ft [4267mm] the cross joist is of iron. The main top member is H-section cast iron and the [upper] bottom [member] is wrought iron flat link chain. There are twelve panels incorporating eleven verticals of round bar with diagonal flats alternately rising and falling ... [An additional] lower bottom member is of square bar [and is] coupled to the chain by cast clamps which carry the cross tie-rods ...; there are horizontal and vertical cross bracings of wrought iron flats' (Fig 75). The abutments are built from squared, tooled blocks and have faces that break forward slightly beneath each girder (Fig 76). The hinges of the truss rest on stone (or perhaps concrete) blocks, with angled tops, that are set back from the abutment faces (Fig 77). The parapets, which are formed in timber (vertical planking on rails fixed to posts bolted to the side girders, heightened by three courses of horizontal wire), are modern; the timber deck is likewise a modern replacement.

Engineering drawings for the bridge exist in the Network Rail Archive (NRA). The original designs, entitled '... Occupation Bridge ... on Mr Boulby's Land' (NRA Microfilm Frame 12 Dwgs 67 and 70) are signed 'John Storey | Darlington', and also bear the signature of Oswald Gilkes on behalf of The Shildon Works Company, who were the successful contractor. Storey's drawings are dated 14 April 1842. They show the bridge superstructure essentially as it survives, but seemingly without the lower bottom member. They also show the superstructure located between piers which rise from the abutment faces, supporting parapets which seem to consist of horizontal timber planking above low panels of (?iron) cross-bracing. Short wing walls of identical form run back to end piers of smaller cross-section; all piers are shown with oversailing pyramidal caps. The piers no longer survive, and the wing walls and original parapets have been superseded by modern fencing. A third drawing (NRA Microfilm Frame 12 Dwg 72) entitled 'Details of Trussing ...' is dated 10 June 1862, and shows details of the lower bottom member plus the clamps for attaching it to the flat-link chain upper bottom member, indicating that the lower bottom members and the cross tie-rods that run between them are secondary fixtures fitted some 20 years after the bridge was built, with the intention of stiffening and strengthening the superstructure.

The bridge is listed at Grade II* because, as stated by the Institute of Civil Engineers (ICE) Panel for Historical Engineering Works (PHEW), it is probably the earliest wrought iron, lenticular truss, occupation bridge (Rennison 1977). Indeed, the only lenticular truss in existence that is earlier seems to be that designed by George Stephenson in 1823 to take the western section of the S&DR main line across the River Gaunless between West Auckland and Shildon, the superstructure of which now survives *ex situ* in the collection of the National Railway Museum at York. The named designer or draughtsman of the bridge, John Storey, appears to be otherwise unrecorded but may be related to Thomas

Fig 76. The face of the north abutment of railway accommodation overbridge DAE2/12 (lenticular truss). (© Historic England/Marcus Jecock)

Fig 77. Detail of one of the truss hinges of railway accommodation overbridge DAE2/12 (lenticular truss). (© Historic England/Marcus Jecock)

Storey (1789-1859) who succeeded Stephenson as the S&DR's Chief Engineer and from 1825 lived at nearby St Helen's Auckland (Ruddock *et al* (eds) 2008, 668-9). If so, he was no doubt extremely familiar with his predecessor's pioneering lenticular truss over the Gaunless. The contractors, The Shildon Works Company, may be the same as the later Shildon Wagon Works which after ***circa*** 1840 was owned and operated directly by the S&DR. The bridge is depicted, unnamed, on all Ordnance Survey mapping from the first edition onward (Ordnance Survey 1857b).

Gazetteer No. 25: Bishop Trevor's parkland drive bridge over River Gaunless

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 21520 30666

NRHE HOB UID: none

NHLE UID: 1196449

Current Listed Status: Grade II

Within Conservation Area: Yes

Within Registered Park & Garden: Yes

Bridge Owner: ?The Auckland Project

Other IDs: Durham HER no. D37708; Laurie bridge no. 3; OAN site no. 31

History/Description:

A masonry arch road bridge, centred at NZ 21520 30666 within the Grade-II*-registered Auckland Park (NHLE 1000727), carries the drive that formerly linked Auckland Castle to the north-eastern park gate at Park Head, across the River Gaunless. The river here flows almost due east to west, and the bridge crosses it at right angles. The bridge is listed in its own right at Grade II (NHLE 1196449) and also lies within the Bishop Auckland Conservation Area.

The bridge comprises a single, segmental arch, 3.62m wide and with a span of about 12m, approached via short, ramped causeways at either end (Fig 78). Each elevation has a single arch ring composed of voussoirs and a raised keystone, all surmounted by a narrow archivolt of square section that sits proud of the ring but flush with the keystone. The spandrels are brought flush with the archivolt and merge with the parapet walling (ie, there is no string course to mark the level of the road deck). The parapet copings are flat-topped with chamfered edges. The approach causeways splay out at acute angles in two stages (resulting in the overall plan of the bridge being akin to the shape of a double-headed spanner); they have a chamfered set-back at the level of the archivolt springing, but similarly are undifferentiated from the wing walls that surmount them. All masonry comprises squared blocks laid in courses, apart from the voussoirs, archivolt and copings which are finely tooled. The elevations are identical except for the keystone on the western (downstream) face which is inscribed 'RD. | 1757.' (RD standing for Richard Dunelm, or Bishop Richard Trevor of Durham) (Fig 79).

Fig 78. The west elevation of Bishop Trevor's drive bridge in Auckland Park. (© Historic England/Rebecca Pullen)

Map evidence shows the northern end of the bridge as gated in 1856 (Ordnance Survey 1857a) to prevent deer and other animals escaping across it out of the High Park area north of the river. Some form of gate is likely to have existed from the time the bridge was first built, although it is unclear if the present pedestrian, cast-iron kissing gate at the bridge's north-east corner is part of the original design: it comprises a gatepost of octagonal section, cast in two sections, capped by an ornate finial, with the uprights and rails of the gate and accompanying enclosure formed from simple rectangular bars.

The bridge's attribution to Bishop Trevor in 1757, as recorded on the keystone, is supported by cartographic evidence: Joseph Spence's plan of Auckland Park, dated to *circa* 1754 (YL OSB MSS 4), shows the parkland drive crossing the Gaunless at a ford a little downstream of the bridge site, while a map of 1762 (DRO D/Bo/G1/1) depicts a bridge carrying the drive across the river at the present location. The extant structure is unlikely to be the first bridge on or close to this spot, however, for a bridge over the nearby Coundon Burn (presumably built to carry a precursor of the present drive) is documented as early as 1337-8 (Richley 1872, 8-9; Drury 2017, 150). A Roman cremation urn uncovered in 1757 during the bridge's construction (Mackenzie and Ross 1834, 294n) raises the possibility that it may even lie on or close to the point where Roman Dere Street crossed the Gaunless (presumably *via* a bridge rather than ford) as the latter skirted the right bank of the River Wear on its way northwards from the fort at Piercebridge (Roman *Magis* or *Morbium*) to that at Binchester (*Vinovia* or *Vinovium*).

The bridge has previously been briefly discussed by Laurie (nd, bridge no. 3) and by Oxford Archaeology North (2012, site no. 31).

Fig 79. Detail of western arch ring and inscribed keystone of Bishop Trevor's drive bridge in Auckland Park. (© Historic England/Marcus Jecock)

Gazetteer No. 26: 'Bishop Trevor's' parkland drive bridge over Coundon Burn

C/D/P: Durham/ - /Bishop Auckland

NGR: NZ 21569 30776

NRHE HOB UID: none

NHLE UID: 1292957

Current Listed Status: Grade II

Within Conservation Area: No

Within Registered Park & Garden: Yes

Bridge Owner: ?The Auckland Project

Other IDs: Durham HER no. D37470; Laurie bridge no. 4; OAN site no. 36

History/Description:

A masonry arch road 'bridge' (probably more accurately termed a culvert), centred at NZ 21569 30776, carries the parkland drive that formerly connected Auckland Castle to Park Head gate in the north-east of Auckland Park, across the Coundon Burn. The drive crosses the burn at a right angle as the latter flows almost due west, just before it turns sharply south to join the River Gaunless. Auckland Park is Grade-II*-registered (NHLE 1000727); the culvert is listed separately at Grade II (NHLE 1292957).

The culvert originally comprised a masonry barrel vault with a span of 1.3m, running between low headwalls set 6.55m apart (Fig 80), but much of the vault has at some time in the recent past (probably post 1994, see below) been demolished and replaced by vertical walls of breeze block and brick supporting a road deck formed from concrete joists (Fig 81). The original barrel still survives for a short distance in from each headwall, and is visible in each wall as a single ring of coarsely shaped voussoirs. The headwalls themselves are built of roughly squared blocks laid mostly in courses (in places now obscured by cement render or pointing), apart from the north end of the eastern headwall which comprises more fissile material, probably a modern repair. The current listing description, written in 1994, states that the bridge has 'wrought-iron railings with simple flat principal and intermediate posts'. These have been replaced – presumably at the same time as the culvert barrel - by steel railings comprising four horizontal tubular bars passing through holes in square-section uprights, complemented by a fifth, square-section, top bar that supports a flat handrail tied back on to the end posts by downturned scrolls. At or close

Fig 80. The eastern headwall of 'Bishop Trevor's' culvert for the Coundon Burn in Auckland Park. (© Historic England/Rebecca Pullen)

Fig 81. Detail looking through the arch barrel of 'Bishop Trevor's' culvert for the Coundon Burn in Auckland Park, showing the central section rebuilt and re-decked in modern materials. (© Historic England/Rebecca Pullen)

Fig 82. Detail of the modern railings to 'Bishop Trevor's' culvert for the Coundon Burn in Auckland Park. (© Historic England/Marcus Jecock)

Fig 83. Detail of the paved stream bed or invert of an earlier bridge site immediately downstream of 'Bishop Trevor's' culvert for the Coundon Burn in Auckland Park. (© Historic England/Rebecca Pullen)

to the southern end of the bridge, a clump of ornamental steel mushrooms sprouts from the base of a single stanchion on either set of railings (Fig 82).

Traces of pitched stonework in the burn just downstream of the culvert are the remains of a paved invert to the stream, or alternatively of an earlier culvert on a slightly different site, constructed as a masonry pipe (Fig 83).

The earliest map evidence for a crossing of the Coundon Burn at the present location is 1856 (Ordnance Survey 1857a), though the culvert was probably built in 1757 at the same time as Bishop Trevor's bridge which takes the same parkland drive across the nearby River Gaunless (Gazetteer no. 25). It is likely that a culvert or bridge existed at or close to the present site earlier still, for repairs to a bridge somewhere on the Coundon Burn are recorded as early as 1337-8 (Drury 2017, 150). The structure was recorded as site 36 in the recent archaeological survey of the Park (Oxford Archaeology North 2012), and is also included by Laurie in her account of the listed bridges of Bishop Auckland (Laurie nd, bridge no. 4).

Gazetteer No. 27: 'Shonky' Footbridge across River Gaunless (site of)

C/D/P: Durham/ - /NPA

NGR: NZ 21621 30549

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: Yes

Within Registered Park & Garden: Yes

Bridge Owner: n/a

Other IDs: none

History/Description:

A plank footbridge formerly crossed the River Gaunless at NZ 21621 30549 within Grade-II*-registered Auckland Park (NHLE 1000727). It carried a path shown on mid-19th-century maps leading north from below the banqueting house/folly known as the Deer House. The bridge site also falls within the Bishop Auckland Conservation Area.

There are no visible remains of the bridge which is known only from map evidence and one historic photograph (*The Northern Echo* 2018). The photograph, taken in the 1880s, shows what appears to be a timber plank bridge supported by a stone pier in the middle of the river, with a single handrail along its upstream side. The handrail seems to consist of tree branches supported on timber posts (again tree branches) with the panels between infilled with very open, ornate, dendritic or trellis work (formed of even smaller branches). This has led to the bridge being described as 'shonky' (*ie* of poor quality) in a local newspaper article (*ibid*), although it may be more accurate to describe it as 'rustic'. There is no evidence for the bridge's real name. It existed by 1857 (Ordnance Survey 1861), and had disappeared before 1896 (Ordnance Survey 1898).

Gazetteer No. 28: Green Bridge (parkland footbridge across River Gaunless) (site of)

C/D/P: Durham/ - /NPA

NGR: NZ 21667 30056

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: Yes

Within Registered Park & Garden: Yes

Bridge Owner: ?The Auckland Project

Other IDs: OAN site no. 67

History/Description:

A simple kingpost pony-truss footbridge formerly crossed the River Gaunless at NZ 21667 30056 within the Grade-II*-registered Auckland Park (NHLE 1000727). It carried an extension of the 'Broad Walk', a path that Ordnance Survey maps show led south-east from Auckland Castle towards 'The Temple', a folly which used to stand on top of the wooded heights on the right (east) bank of the river. The bridge site also lies within the Bishop Auckland Conservation Area.

All that now remains of the footbridge are its abutments (stone on the east bank but concrete, seemingly remodelled, on the west bank), a fallen set of concrete steps on the west bank and, in the middle of the river bed, the concrete foundation for a central pier with two sawn-off holding-down bolts set in to its surface. The form of the bridge is captured in several late 19th- or early 20th-century photographs or postcards. One of the photographs, undoubtedly the earliest (*The Northern Echo* 2018) shows the bridge as a very simple form of kingpost-truss structure on stone abutments, namely a timber deck on metal girders braced by diagonal bars rising at a low angle from the ends of the girders to the kingposts mid-stream. Simple timber handrails, fixed to a series of uprights plus the kingposts, line both sides of the deck. The structure appears to have subsequently become unsafe, however, for a later postcard (Fig 84) depicts the bridge as before but with the extra support of a metal trestle mid-stream; it is the concrete foundations for this trestle that survive in the river bed. Hutchinson (2015, 46) dates the addition of the trestle to about the time of the First World War. The historic photographs show both abutments were originally constructed of stone and the deck was approached in the west by timber steps, but the evidence on the ground shows the western abutment and steps were later refashioned in concrete.

Fig 84. The former Green Bridge in Auckland Park, from a postcard (Nigel Temple Postcard Collection, Historic England Archive pc07445.tif)

A bridge at this location probably existed as early as 1810, which is the year The Temple was built (*ibid*). A bridge (although not necessarily that shown in the photographs) certainly existed here by 1857 (Ordnance Survey 1861) and is depicted on every map edition thereafter up to the outbreak of the Second World War. It had disappeared, however, by 1961 (Ordnance Survey 1967), the year in which The Temple was demolished (*The Northern Echo* 2018). Parkland records from the 1870s indicate the footbridge was then known as Green Bridge (The Landscape Agency 2012, 22), perhaps in reference to the colour it was painted; the modern newspaper account refers to it simply as the Temple Bridge. It is unnamed on Ordnance Survey maps. It was recorded as site 67 in the recent archaeological survey of the Park (Oxford Archaeology North 2012).

Gazetteer No. 29: 'Footbridge no. 1' over Coundon Burn

C/D/P: Durham/ - /NPA

NGR: NZ 21935 30754

NRHE HOB UID: none

NHLE UID: 1292964

Current Listed Status: Grade II

Within Conservation Area: No

Within Registered Park & Garden: Yes

Bridge Owner: ?The Auckland Project

Other IDs: Durham HER no. D37502; Laurie bridge no. 5; OAN site no. 21

History/Description:

A masonry arch bridge (more accurately a culvert) carries a footpath or parkland ride across the Coundon Burn within Auckland Park. It lies at NZ 21935 30754 and is the westernmost of three similar structures that lie across the central section of the burn, which here flows south-east to north-west. The parkland is registered at Grade II* (NHLE 1000727); the bridge is listed separately at Grade II (NHLE 1292964).

The structure comprises a simple pointed (or deformed) barrel vault some 8m long by 1.5m wide, that rises from low side walls, all capped by earth and gravel. Side walls and vault are formed of squared stones laid in horizontal courses. There are no spandrels or headwalls to speak of, although the gap where the north-east spandrel should be is infilled with stone corbelling to ease the passage of the path that meets the burn at an oblique angle; nor are there parapets (Fig 85). There are short training walls up and downstream of the culvert and the invert (stream bed) is paved through the arch barrel, but the training walls are collapsing in places and the invert is also deformed and breaking up (Fig 86).

Fig 85. The eastern elevation of 'footbridge no. 1' across the Coundon Burn in Auckland Park. Note the corbelling in the north-east spandrel to ease the passage of the footpath on to the bridge, and the short length of training wall. (© Historic England/Marcus Jecock)

The earliest record of a bridge at this location is the first edition Ordnance Survey map, surveyed 1857, which shows it as part of a network of paths or rides criss-crossing the valley of the burn (Ordnance Survey 1861). The bridge is unnamed by that and all subsequent editions. The bridge was recorded in the recent archaeological survey of Auckland Park conducted by Oxford Archaeology North, but the description given for it in the accompanying report (Oxford Archaeolgy North 2012, Fig 2 and site no. 21) confuses it for the structure (gazetteer no. 32) erected by Bishop Van Mildert in 1827 at NZ 22851 30559 further east within the Park.

Fig 86. View beneath 'footbridge no. 1' across the Coundon Burn in Auckland Park. Note the deformed and disintegrating paved invert. © Historic England/Marcus Jecock)

Gazetteer No. 30: 'Footbridge no. 2' over Coundon Burn

C/D/P: Durham/ - /NPA

NGR: NZ 22143 30620

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Within Registered Park & Garden: Yes

Bridge Owner: ?The Auckland Project

Other IDs: OAN site no. 1

History/Description:

A masonry arch bridge (more accurately a culvert) used to carry a footpath or parkland ride across the Coundon Burn within Auckland Park, but is now ruinous. It lies at NZ 22143 30620 and is the middle of three similar structures across the central section of the Burn. The parkland is registered at Grade II* (NHLE 1000727); the culvert is not listed separately.

The remains are now extremely overgrown and hard to inspect, but the structure seems originally to have comprised a simple semi-circular barrel vault, perhaps some 8m long by a maximum of 1.5m wide, rising from low side walls. The eastern (upstream) arch ring survives, formed of well-dressed, squared voussoirs, but this is only because it is now supported by a length of concrete pipe concreted through the arch opening (Fig 87). Very little of the side walls of the arch barrel or either headwall survives. The invert (stream bed) was paved but is now breaking up.

Fig 87. The remains of 'footbridge no. 2' across the Coundon Burn within Auckland Park, looking upstream. © Historic England/Marcus Jecock)

The earliest record of a bridge at this location is the first edition Ordnance Survey map, surveyed 1857, which shows it as part of a network of paths or rides criss-crossing the valley of the burn (Ordnance Survey 1861). The structure is unnamed by that and all subsequent editions. It was recorded as site 1 in the recent archaeological survey of the Park (Oxford Archaeology North 2012)

Gazetteer No. 31: 'Footbridge no. 3' over Coundon Burn

C/D/P: Durham/ - /NPA

NGR: NZ 22375 30621

NRHE HOB UID: none

NHLE UID: none

Current Listed Status: none

Within Conservation Area: No

Registered Park & Garden: Yes

Bridge Owner: ?The Auckland Project

Other IDs: Laurie bridge no. 6; OAN site no. 7

History/Description:

A masonry arch bridge (probably more accurately a culvert) carries a footpath or parkland ride across the Coundon Burn within Auckland Park. It lies at NZ 22375 30621 and is the easternmost of three similar structures across the central section of the Burn, which here flows briefly north-east to south-west. The parkland is registered at Grade II* (NHLE 1000727); the culvert is not listed separately.

The structure comprises a simple semi-circular barrel vault, some 8.05m long by 1.5m wide, rising from vertical side walls, all capped by earth and gravel. The crown of the arch stands about 1.83m (6 feet) above the floor of the invert (stream bed), which is paved. The arch ring in the western, downstream, headwall (there are no spandrels to speak of, or parapets for that matter) is formed of well-dressed, squared voussoirs (Fig 88), but the upstream headwall (if ever there was one) has collapsed taking the arch ring with it (Fig 89). All other masonry comprises roughly squared stones of various sizes, laid for the most part in horizontal courses. There are short training walls on the upstream side, again ruinous.

The earliest record of a bridge at this location is the first edition Ordnance Survey map, surveyed 1857, which shows it as part of a network of paths or rides criss-crossing the valley of the Burn (Ordnance Survey 1861). The structure is unnamed on that and all subsequent map editions. It was recorded as site 7 in the recent archaeological survey of the Park (Oxford Archaeology North 2012). It is also briefly referenced by Laurie (nd, bridge no. 6).

Fig 88. The downstream (western) headwall of 'footbridge no. 3' across the Coundon Burn in Auckland Park. (© Historic England/Rebecca Pullen)

Fig 89. The collapsed, upstream (eastern) arch ring and headwall of 'footbridge no. 3' across the Coundon Burn in Auckland Park. (© Historic England/Marcus Jecock)

Gazetteer No. 32: Bishop Van Mildert's drive bridge over Coundon Burn, east of railway

C/D/P: Durham/ - /NPA

NGR: NZ 22851 30559

NRHE HOB UID: none

NHLE UID: 1297609

Current Listed Status: Grade II

Within Conservation Area: No

Within Registered Park & Garden: Yes

Bridge Owner: ?The Auckland Project

Other IDs: Durham HER no. D37355

History/Description:

A masonry arch bridge (more accurately a culvert) carries a footpath or carriage drive across the Coundon Burn midway between the disused Bishop Auckland to Ferryhill Branch railway that cuts through Auckland Park, and the modern A688. The burn here flows east to west, and the drive crosses it at a right angle at NZ 22851 30559. Auckland Park is Grade-II*-registered (NHLE 1000727); the bridge is listed on its own merit at Grade II (NHLE 1297609).

The structure comprises a simple, elliptical barrel vault some 6.8m long by 2.13m wide, capped by earth and gravel. There are no headwalls or parapets. The eastern (upstream) elevation comprises a single arch ring of fine ashlar voussoirs with the keystone inscribed 'WD | 1827' (Fig 90), but the arch ring in the western elevation (and the vault that connects the elevations) is formed of less well-dressed stone (Fig 91). A training wall continues the line of the north abutment a short distance downstream and the invert is paved. Although described in the List description as a footbridge, traces of splayed stone kerbing in the ground on the northern approach, together with the length of the vault, very much suggests that the structure was built to carry a carriage drive, or at the very least a bridleway (Fig 92), rather than simple footpath.

The evidence of the keystone shows that the culvert is the work of 'William Dunelm' (*ie*, William of Durham, otherwise Willam Van Mildert, Bishop of Durham between 1826 and 1836) and not Bishop Trevor as currently stated in the List description. Indeed the earliest map evidence for it is 1857 when it formed part of a network of paths or rides running around the inside of the park's eastern perimeter (Ordnance Survey 1861). The structure is unnamed by that and subsequent map editions.

Fig 90. The upstream arch ring and inscribed keystone to Bishop Van Mildert's drive bridge over the Coundon Burn in Auckland Park. (© Historic England/ Marcus Jecock)

Fig 91. The downstream arch ring to Bishop Van Mildert's drive bridge over the Coundon Burn in Auckland Park. (© Historic England/Marcus Jecock)

Fig 92. View south across Bishop Van Mildert's drive bridge over the Coundon Burn in Auckland Park, showing the width of the carriage drive. (© Historic England/ Rebecca Pullen)

In the 2012 archaeological survey of Auckland Park by Oxford Archaeology North, a description of this structure is given in error for the culvert (gazetteer no. 29) that lies further west within the park at NZ 21935 30754 (Oxford Archaeology North 2012, Fig 2 and site 21).

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