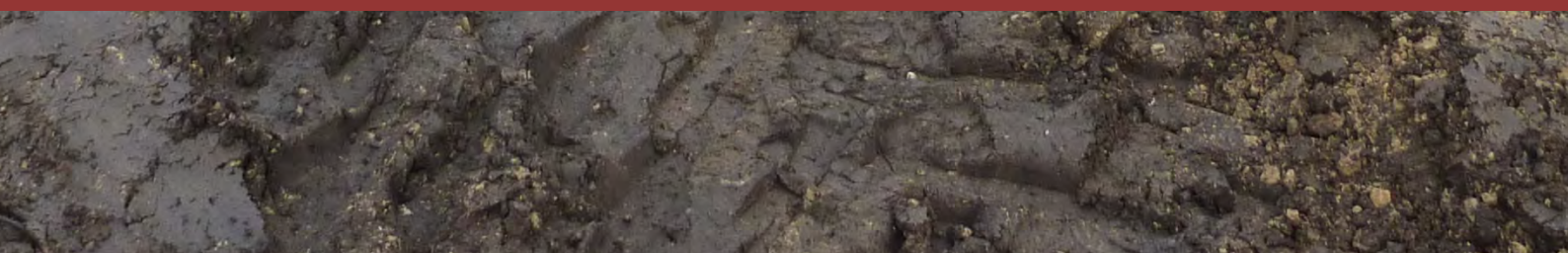
YORK ARCHAEOLOGICAL TRUST

Archaeological Watching Brief at
Scarborough Rail and Footbridge, York

By Rebecca Wilson

YAT Watching brief Report 2019/5 June 2019



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York Archaeological Trust, Cuthbert Morrell House, 47 Aldwark, York YO1 7BX

Phone: +44 (0)1904 663000 Fax: +44 (0)1904 663024

Email: archaeology@yorkat.co.uk Website: http://www.yorkarchaeology.co.uk

CONTENTS

Plates

Tables

Figures

Abbreviations

AOD – Above Ordnance Datum

BGL – Below Ground Level

CBM – Ceramic Building Material

CYC – City of York Council

WSI – Written Scheme of Investigation

YAT – York Archaeological Trust

NON-TECHNICAL SUMMARY

Between December 2018 and June 2019 York Archaeological Trust (YAT) conducted an intermittent watching brief at Scarborough Bridge, Earlsborough Terrace, York, YO41 4YR (NGR SE 59620 52066).

The work was undertaken for AMCO GRIFFEN to satisfy a condition of the City of York Council (CYC) planning consent (17/03049/FULM). The work was carried out to a Written Scheme of Investigation (WSI) produced by YAT. The works involved the archaeological monitoring and recording of the dismantling of the current footbridge, including stone piers, and extensive ground works to precipitate the replacement of the 1.8m footpath/cycle path with a 3.6m wide footpath/cycle path. In advance of the proposed works the bridge was recorded to by YAT buildings archaeologist Chris Curtis to Historic England Level III (YAT Report 2019/51).

Initial monitoring involved the reduction of the railway embankment to create a stable base for the installation of sheet piles. A number of concrete stanchions were discovered when they obstructed the driving in of shoring sheet piles on the Marygate Car Park side of the railway embankment on the north side of the river. These were evidently the remains of a relatively modern structure built on wooden posts set on concrete stanchions, but it is uncertain what that structure was. Further works involved the reduction of the embankment to create the sloping path. Observations demonstrated that the embankment consisted of late 19th century–early 20th century material. The remains of a probable early 20th-century wall were found at the southern edge of site near York station; these were possibly the remains of an old boundary wall or platform.

The watching brief also included the recording of architectural fragments from the stone parapets on top of the central pier and the two abutments. The different typology of the stone blocks is consistent with the original bridge construction in 1845 and the additions made between 1874 and 1877 at the construction of the new railway station.

KEY PROJECT INFORMATION

Project Name	Scarborough Bridge, Earlsborough Terrace, York, YO41 4YR
YAT Project No.	6101
Document Number	2019/5
Type of Project	Watching Brief
Client	AMCO GRIFFEN
Planning Application No.	17/03049/FULM
NGR	NGR SE 59620 52066
Museum Accession No.	n/a
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1 INTRODUCTION

Between December 2018 and April 2019 YAT conducted an intermittent watching brief at Scarborough Bridge, Earlsborough Terrace, York, YO41 4YR (NGR SE 59620 52066) (Figures 1 and 2).

The work was undertaken for AMCO GRIFFEN to satisfy a condition attached to the City of York Council planning consent for alterations to the bridge (17/03049/FULM). Ahead of any alterations, the bridge was first recorded by YAT buildings archaeologist Chris Curtis to a specification equivalent to Historic England Level II (YAT report 2019/51). The removal of the existing footbridge was monitored, as well as the construction of a 3.6m wide footpath/cycle path to create cycling and disabled access. Architectural fragments from stone parapets on top of the pier central pier and the two abutments of the standing bridge were also recorded once they had been removed before they were re-used within the new bridge.

No significant archaeological remains were found during the monitoring. Most of the ground disturbed by the bridge alterations consisted of 20th-century ground make-up deposits built up to form the raised railway embankment. The architectural fragments can be split into two phases; the earlier stone blocks associated with the original railway station from 1845; and the later stone blocks associated with the bridge alterations that occurred due to the construction of the new railway station between 1874 and 1877.

2 METHODOLOGY

The methodology followed the WSI (Appendix 3). However, monitoring was reduced from continuous to intermittent visits once it was clear that the majority of the deposition was of low archaeological significance. All site records are held by York Archaeological Trust under the project number 6101.

2.1 Archaeological Monitoring

Archaeological monitoring was required during a number of different phases of excavation (Figure 3). The works were undertaken by AMCO staff using a combination of 3 tonne 360° tracked excavator mechanical digger or digging by hand. A. Initial monitoring was undertaken during the reduction of the embankment before the installation of sheet piling at both ends of the bridge. This was then followed by excavation between the sheet pile lines and the reduction of the embankment. After the installation of the new pedestrian bridge a slit trench was excavated for a new retention wall on the north bank of the river as well as four tree pits.

Shoring sheet piling was driven in to the upper edge of the railway embankment on both the north and south sides of the bridge in 2 rows: the first row was directly against the railway track, the second 2m away from the rail track. A 2m wide step between 0.8m and 1m BGL was excavated for access to complete the piling. A further 0.3m to 0.5m of the embankment was removed by hand between the piles in order to install concrete nests around the piles and deposit blinding before concrete was poured. The slope for the cycle path was excavated down to between 0.3m and 1.2m into the bank beside the shoring sheets.

The trench for the retaining wall was excavated by machine to a depth of 0.8m BGL and 1.5m wide. The final stage of works, in June 2019, involved the excavation of two 12m by 5m pits for

the installation of four trees. The original depth of the works was 1.6m BGL; however, due to proximity to the new retaining wall and public path the depth was revised to 1m BGL.

The excavations were recorded with digital photographs, drawn sections and plans, and written notes.

2.2 Architectural Fragment Recording

The removal and modernisation of the pedestrian railway bridge necessitated the removal of stonework from the square pavilions of the two abutments and central pier. The blocks removed included the entirety of the 1875 additions and 2 courses of the original 1845 bridge. The blocks were removed using a disc cutter and a machine with a toothed bucket and transported to a secure compound for recording.

The in situ pier and abutment masonry was also cut through using a breaker to create a base for the hydraulic system that was used in the removal of the old bridge.

The sandstone blocks were recorded using digital photography, measured drawings, and written notes.

3 LOCATION, GEOLOGY & TOPOGRAPHY

The site is located at Scarborough Bridge, Earlsborough Terrace, York, YO41 4YR (NGR SE 59620 52066). It is situated to the north-west of the city centre and lies approximately 340m north of York Railway Station.

The site consists of an operational railway bridge that serves the York to Scarborough Line; the pedestrian footbridge attached along its east face; and a section of embankment on either side. The bridge itself is comprised of a steel track deck supported by stone abutments and a central pier. The iron footbridge is currently accessed by two sets of stairs on either side of the bridge. Public footpaths follow the course of the river on both banks, passing under archways beneath the railway bridge. The south side of the bridge is bounded by York Railway Station and the Royal Mail depot. The north side of the bridge is bounded by a series of terrace houses along Judi Dench Walk, to the east, and the Marygate Car Park, to the north. A steep embankment projects from the railway line on each bank of the river.

The height of the railway over the bridge is consistent at approximately 13.70m AOD. The base of the embankment on the north bank is 10.60m AOD where it reaches the brick wall at the edge of Marygate Car Park. The car park surface is at 9.55m AOD. The base of the embankment on the south bank is 9.32m AOD. The railway line is approximately 4.5m above the ground level of the banks next to the River Ouse.

The superficial geology on site is alluvial, consistent with the site location on either side of the River Ouse. However, further back from the river bank the underlying drift geology is the York Moraine Member which creates a ridge from north-east to south-west. York Railway Station sits upon this ridge. The underlying geology is sandstone from the Sherwood Sandstone Group.

4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Scarborough Bridge, as a structure dating to the Heroic Age of railway construction in Britain and designed by the office of Robert Stephenson, has local historical and archaeological significance. A brief summary of the archaeological and historical background in relation to archaeological interventions in the area is included below.

4.1 *Prehistory*

No prehistoric deposits or features are known from the Scarborough Bridge area. It is possible due to the proximity of the site to the River Ouse that there may be potential for there to be evidence of prehistoric activity in the vicinity because water courses were important resources that would almost certainly have been exploited in prehistoric times. However, any such remains would most likely be at a greater depth than that of the proposed ground works .

4.2 *Roman*

There is perhaps a greater potential for remains of the Roman period than for prehistoric. The current York Railway Station was built upon the largest burial ground in Roman York and numerous objects and human burials were found during its construction in the 19th century. There is potential that the burial ground extends further towards the river and that residual finds will be encountered within later deposits. The site is also within close proximity of both the Roman fortress and the civilian settlement, the *Colonia,* on the north and south side of the river respectively.

An evaluation at Foxton's Garage, near the York War Memorial, on Leeman Road, south of the River Ouse found no archaeological features (YAT 1998/4). The earliest material was overburden dated to the 19thcentury, which had probably been dumped along the bank of the river during the construction of the Railway Station. This would account for the residual Roman artefacts recovered within the deposits. It is possible that in situ Roman burials remain undisturbed beneath the made-up ground in this area.

On the north side of the river, Approach Road 5, which is aligned north-west/south-east, passes through the Marygate Car Park to the north of site (RCHM 1962). Roman deposits have been found within the wider area including a cemetery, located between Bootham Row and Marygate Lane and are reported on in the Royal Commission York volumes, as well as occupational features and a burial at the Bowling Green on Sycamore Place (RCHM 1962; YAT 2018/91).

4.3 *Anglian*

No Anglian features or material are known in the immediate area of Scarborough Bridge.

4.4 *Anglo-Scandinavian*

No Anglo-Scandinavian features have been found in the immediate area of the site. Archaeological evidence suggests that the centre of *Jorvik* was further down river at Coppergate on the convergence of the Rivers Ouse and Foss,. The church of St Olave's is located along the western wall of the St Marys Abbey Precinct, named for St Olaf and founded by the Danish warrior Earl Siward. Its location possibly suggests some form of Anglo-Scandinavian settlement or activity to the north-west of the city centre.

4.5 *Medieval*

The City of York Plan produced in 1685 by Jacob Richards indicates that the City of York is still largely contained within the medieval city walls and that outside the battlements the area, including the later point of the river crossing, is agricultural land.

4.6 *Post-medieval*

A series of City Plans of York (Drakes 1736 Plan, Chassereaux's 1750 Plan, Le Rouge's 1759 Plan and Thomas Jeffrey's 1771 Plan of York) illustrate that the city began to expand beyond the medieval city walls at major infrastructure points during the 18th century. Both the north and south banks of the river at the location of Scarborough Bridge remain agricultural land, though buildings are visible extending north-west along Bootham Row resulting in the creation of Marygate and Marygate Lane. It is likely these were the terraces built to house workers of new industry.

4.7 *19th century to Present*

Into the early 19th century the use of land outside the medieval city walls continued to be predominantly agricultural, as illustrated on Alfred Smith's 1822 Map of York. A watching brief on Almery Street in 1985 indicated that a large amount of overburden and dumping occurred during the 19th century on the northern side of the river (YAT 1985; OSA 2018). This was also true of sites on the southern side where large amounts of 19th- century and 20th-century ground make up was observed in boreholes (YAT 1998; YAT 2006)

The advent of the railways, as well as other industry, resulted in a rapid expansion of York. The first station in York was a small, temporary, wooden structure outside of the city walls which was promptly replaced with a permanent structure on Toft Green in 1841. Scarborough Bridge was constructed in 1845, using cast iron beams, for the York and North Midland Railway Line to Scarborough and was designed in the office of Robert Stephenson. After the collapse of the bridge over the River Dee at Chester in 1847 the use of cast iron for large spans of work was deemed unsound; work to strengthen Scarborough Bridge involved the inclusion of cast iron plates inserted into the pier and abutments in order to brace the deck (YAT 2019).

Scarborough Bridge was altered again the late 19th century in response to the construction of the current Railway Station outside the City Walls between 1874 and 1877. The alterations involved the raising of the track by 4ft, the addition of the pedestrian footpath, and increasing height of the parapets upon the stone piers with new stone blocks.

Further alterations to modernise the railway line of the bridge were completed in 2015 and involved the removal of the bulk of the deck and its replacement with modern steelwork placed between the two lattice girders.

5 RESULTS

5.1 Archaeological Monitoring

A number of below-ground obstructions, as well as restrictions imposed to minimise noise disturbance to local residents slowed the progress of the installation of shoring sheet piling (Plate 1). At the north side of the bridge the seven concrete stanchions had to be removed before the piling could commence (Plate 2). These were removed before the archaeologist could record them in situ but were recorded in the works compound in Marygate Car Park. The largest recorded stanchions were 2.71m long by 1.05m wide; the smallest recorded

stanchion was 0.58m long by 0.51m wide. The depth of the stanchions was consistently 0.5m. The stanchions all featured a central socket, possibly for a timber post (Plate 3). In the more deteriorated examples the steel reinforcement bar 'nests' were visible, around which the concrete stanchions had been formed in situ, presumably within a timber shuttering formwork. The stanchions probably date to between the 1950s and 1970s. Detailed dimensions are given in Table 1 below:

Block No.	Length	Width	Depth	Notes
1	2710mm	1050mm	515mm	Deep socket measuring 8.5inches x 7inches with vertical sides and a flat rectangular base, at one end of the block and a blocked socket measuring 11inches x 9inches, also presumably with vertical sides and a flat rectangular base at other
2	2710mm	1050mm	515mm	One central socket measuring 11inches x 9inches, vertical sides and flat rectangular base.
3	760mm	517mm	510mm	Deep socket measuring 340mm (13.5inches) x 240mm (9.5inches), chamfered to a depth of 80mm (3inches), continuing vertically to a flat rectangular base.
4	770 mm	515 mm	515 mm	Deep socket measuring 340mm (13.5inches) x 240mm (9.5inches), chamfered to a depth of 80mm (3inches), continuing vertically to a flat rectangular base.
5	580mm	515mm	510mm	Socket presumed to have been similar to blocks 3 and 4 but upper part broken off and reinforcement bar exposed.
6	n/a	n/a	n/a	In Situ. Badly damaged with reinforcement bar protruding [see DSCF9416]. Appears to have had a socket at end farthest from track.
7	n/a	n/a	n/a	In Situ. Iron RSJ shaped stanchion encased in concrete towards track end of block Socket at end farthest from track.

Table 1 Concrete Stanchion details

On the south side of the river, the top of the embankment was first reduced to create a mat for the sheet pilling. This involved the excavation of between 0.8m and 1m of the embankment (Plate 4). The embankment was then stepped to allow further works of the sheet piling (Plate 5). Farther south along the railway line the ground level was reduced to a depth of up to 1.2m (Plate 6).

The stratigraphic sequence recorded across these different works consisted solely of a deposit of the orange brown silty sand sealed by dark brown silty topsoil. The thickness of these two deposits varied. During the pre-sheet piling excavation, the topsoil was very thick, up to 0.5m while towards the south end of the excavation the topsoil was only 0.2m thick (Plates 7 and 8). A partial section into the embankment was visible near the piling and illustrates the sloping layers of the material used to build up embankment (Plate 9).

A single brick wall was identified at the southern extent of site near the railway line (Plate 10). The wall, laid in an English Bond, consisted of machine-made bricks with the dimensions 240mm by 110mm by 80mm. The wall is likely an early 20th-century structure associated with the station, possibly a boundary wall or the edge of a platform.

After the installation of the new pedestrian bridge, further excavations for a retaining wall on the north bank of the river within the Mary Gate Car Park were monitored. A 1.5m wide trench was excavated to a depth of 0.76m BGL (Plate 11). The deposition removed during this process was consistent with the 19th and 20th century make-up deposits exposed in earlier stages of the groundworks (Plate 12). The earliest deposit in the sequence consisted of a firm clay band at 0.69m BGL, which contained CBM flecks and may be an earlier horticultural soil. This was sealed by a thick deposit of loose to friable ground make-up which contained bricks and rubble. A sherd of residual Roman pottery was recovered from the trench which may derive from material re-deposited during the railway construction, and could therefore have been imported from elsewhere in the wider area of the station, or may have come from Roman deposits in more immediate area of Marygate Car Park.

The final stage of groundworks involved the excavation of two trenches to precipitate the installation of four trees. Initially excavated to 1.6m BGL this was revised to 1m due to proximity to retaining wall, a public footpath, and stability of the edges. All deposits encountered were post-medieval or later and were likely predominantly from the 19th and 20th centuries (Plate 13). The earliest deposit encountered was a thin layer of slightly lighter brown silty clay at 1.5m BGL, sealed by a thick (1m) deposit of dark grey brown silt build-up. The latest deposits were a series of modern surfaces including hard-core, tarmac and material associated with the development. During the course of the excavation two lines of piles were encountered potentially dating to previous alterations to the bridge and would likely have supported a crane base (Plate 14).

5.2 Architectural Fragment Recording

In order to widen the footbridge stone blocks comprising the existing pilaster on top of the central pier and the north and south abutments were removed (Plate 15). The stone blocks were clearly from two phases of construction for the bridge: the original 1845 bridge and alterations made in 1875 during the construction of the current Railway Station. The 1875 alterations moved the pedestrian path to the east side of the tracks from its original location between the tracks, and raised the tracks by 4 feet, likely necessitating the need for new, higher capping stones on the top of the piers. The typology of the blocks reflects the two phases.

Both phases of the pier and abutment stones are coursed ashlar sandstone blocks. The earliest phase is more highly decorated and included a course of cornicing and a course of blocks with a step at the base (Plates 16 and 17). The later phase was of a much simpler style, consisting of rectangular machine-cut sandstone blocks (Plate 18). The height of the lower course was much smaller while the upper course of blocks, which capped the parapets, had a pitched which served as decoration. The edge blocks were ‘hipped’.

A more detailed coverage of the stone blocks is included in Tables.

6 CONCLUSION

Over the course of the watching brief no significant archaeology was encountered with the majority of the material removed dating from the 20th century. As with the evaluation at the Former Foxton's Garage it is possible that in situ archaeological remains survive below the 19th–20th century embankment but with only a single sherd of residual Roman pot recovered during the watching brief there is insufficient evidence to be certain. It was necessary to record the sandstone blocks removed from the bridge and these have provided evidence for the two probable Victorian phases of bridge construction.

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ACKNOWLEDGEMENTS

Thanks to the City of York Council and Amco-Griffin for their assistance over the course of the works.

APPENDIX 1 – INDEX TO ARCHIVE

Item	Number of items
Context sheets	n/a
Levels register	n/a
Photographic register	n/a
Sample register	n/a
Drawing register	n/a
Original drawings	n/a
B/W photographs (films/contact sheets)	n/a
Colour slides (films)	n/a
Digital photographs	169
Written Scheme of Investigation	1
Report	1

Table 2 Index to archive

APPENDIX 2 – WRITTEN SCHEME OF INVESTIGATION

WRITTEN SCHEME OF INVESTIGATION FOR

ARCHAEOLOGICAL WATCHING BRIEF AND BUILDING RECORDING

Site Location:	**Scarborough Bridge, Earlsborough Terrace, York, YO41 4YR**
NGR:	**SE 59620 52066**
Proposal:	**Replace 1.8m footpath/cycle path with 3.6m wide footpath/cycle path with associated alterations to bridge abutments, ramps and stair access arrangements**
Planning ref:	**17/03049/FULM**
Prepared for:	**AMCO GIFFEN**
Document Number:	**2018/150**

1 SUMMARY

1.1 AMCO GIFFEN have received planning consent for alterations and additions at Scarborough Bridge, Earlsborough Terrace, York, YO41 4YR (SE 59620 52066). The scheme will include replacing the 1.8m wide foot and cycle path, with a new 3.6m wide foot and cycle path, with the removal of the old footpath and alterations to the existing bridge abutments, ramps and stair access. A watching brief will be undertaken on all groundworks.

1.2 The following archaeological conditions have been imposed:

3: No groundwork shall commence on site until the applicant has secured the implementation of a programme of archaeological work (a watching brief on all ground works by an approved archaeological unit) in accordance with a specification approved by the Local Planning Authority. This programme and the archaeological unit shall be approved in writing by the Local Planning Authority before development commences.

Reason: The site lies within an Area of Archaeological Importance and the development may affect important archaeological deposits which must be recorded during the construction programme.

4: A programme of archaeological building recording, specifically a photographic recording of Scarborough Bridge to Historic England Level of Recording 2, is required for this application.
A) No alteration shall take place until a written scheme of investigation (WSI) for the recording has been submitted to and approved by the local planning authority in writing. The WSI should conform to standards set by the Chartered Institute for Archaeologists.
B) The programme of recording and post investigation assessment shall be completed in accordance with the programme set out in the Written Scheme of Investigation approved under condition (A) and the provision made for analysis, publication and dissemination of results and archive deposition will be secured. This part of the condition shall not be discharged until these elements have been fulfilled in accordance with the programme

set out in the WSI.
C) A copy of a report and archive images shall be deposited with City of York Historic Environment Record to allow public dissemination of results within 3 months of completion or such other period as may be agreed in writing with the Local Planning Authority.
The archaeological scheme comprises 3 stages of work. Each stage shall be completed and approved by the Local Planning Authority before it can be discharged.

Reason: The structure on this site is of archaeological interest and must be recorded prior to alteration in accordance with Section 12 of NPPF.
The work will be carried out in accordance with the planning condition and this WSI, and according to the principles of the Institute for Archaeology (CIfA) Code of Conduct and all relevant standards and guidance.

1.3 This Written Scheme of Investigation (WSI) has been prepared in response to a condition brief written by The City of York Planning Department. The work will be carried out in accordance with the Brief and this WSI.

2 SITE LOCATION & DESCRIPTION

2.1 The proposal site is at Scarborough Bridge, Earlsborough Terrace, York, YO41 4YR (Figure 1).

2.2 The site consists of an operational railway bridge carrying the line between York and Scarborough over the River Ouse. The bridge is situated to the north-west of the city centre and lies approximately 340m north of York Railway Station (Figure 2).

2.3 The bridge consists of a steel track deck supported by stone abutments and a central pier.

2.4 The geology of this area is mainly of the Sherwood Sandstone Group, with overlying deposit of the York Moraine sand, clay and gravel to the south-west end of the bridge, with variations of the river alluvium, silt, sand and clays to the north-east. https://www.bgs.ac.uk/ (accessed 19/10/18)

2.5 There is a cut bench-mark on the north side of the bridge, west facing, recorded at 8.74m AOD.

3 DESIGNATIONS & CONSTRAINTS

3.1 The proposed development site lies within the Area of Archaeological Importance (AAI).

3.2 The proposed development site lies within the York Central Conservation area (MacRae, 2013).

3.3 There are no scheduled monuments (SMs) within the proposed site.

3.4 There are no listed buildings within the proposed development site.

4 ARCHAEOLOGICAL INTEREST

4.1 Prehistory

There is no evidence of prehistoric remains near the proposed development site.

4.2 Roman

The site is outside the main Roman Fortress and colonia area (Addyman 2015). The landscape to the south of the bridge comprises of the Roman burial ground underneath what is now York Station (MYO 56611).

During excavations at the former Foxton's Garage site, 140m to the south-east of the bridge on the south side, there were fragmentary pieces of Roman pottery, possibly part of the northern extent of the Roman Cemetery in this area (RCHME 1962).

On the north bank of the bridge there have also been a Roman inhumation cemetery remains found to the west (MYO56609), as well as along the Scarborough bridge railway line north-eastwards, where stone cist's were disturbed in 1885 (MYO56605).

Any Roman remains around the north and south ends of the bridge may still survive insitu, but it is likely that extensive disturbance has resulted from the bridge construction in the 19th – 20th century.

4.3 Medieval

The landscape around the proposed development site consisted mainly of open farmland right up until the mid-19th Century.

4.4 Post Medieval – Modern

On the northern side of Scarborough Bridge, terrace buildings were starting to be built for the influx of workers in York's factories. Groundworks in the area of Almery Terrace which lies 40m to the north-west of the proposed development site revealed demolition rubble and modern land build-up in this area (YAT 1985).

Scarborough bridge was built in 1845 for the York and North Midland Railway Line from York to Scarborough. The bridge was designed in the office of Robert Stephenson and consisted of the extant stone pier and abutment carrying a tack deck composed of cast iron beams with wrought iron tie rods. Following the collapse of the bridge over the Dee at Chester in 1847, the use of cast iiron for large spans was considered unsound and remedial works were carried out to strengthen the Scarborough Bridge. This involved bracing the deck to cast iron plates inserted in the pier and abutments.

With the construction of York Railway Station between 1892 and 1877, the track across Scarborough Bridge needed to be raised. The original deck was replaced with wrought iron lattice girders and the stonework at the top of the pier and abutments was raised.

In 2015 the bulk of the deck was removed and replaced with modern steelwork placed between the two lattice girders.

The bridge has been heavily altered over time, however, as a building dating to the Heroic Age of railway construction in Britain, designed by the office of Robert Stephenson, the structure has local historical and archaeological significance (MYO535044).

Modern groundworks have revealed a mixture of 19th and 20th century deposits associated with the Railway Station and associate train lines, especially the Scarborough Line (YAT 1998).

5 GROUNDWORKS TO BE MONITORED

5.1 This work will comprise a **continuous** watching brief, on the excavation of all foundations, trenches services and any subsequent groundworks involving excavation. The watching brief may be stepped down **to intermittent monitoring**, depending on the results, and following agreement from the City of York Archaeologist, John Oxley.

6 DELAYS TO THE DEVELOPMENT SCHEDULE

6.1 All earth-moving machinery must be operated at an appropriate speed to allow the archaeologist to recognise, record and retrieve any archaeological deposits and material.

6.2 It is not intended that the archaeological monitoring should unduly delay site works. However, the archaeologist on site should be given the opportunity to observe, clean, assess and, where appropriate hand excavated, sample and record any exposed features and finds. In order to fulfil the requirements of this WSI, it may be necessary to halt the earth-moving activity to enable the archaeology to be recorded properly.

6.3 Plant or excavators shall not be operated in the immediate vicinity of archaeological remains until the remains have been recorded and the archaeologist on site has given explicit permission for operations to recommence at that location.

7 GROUNDWORKS RECORDING METHODOLOGY

7.1 If a base plan of intervention areas is available, the areas being monitored will be determined using this information. If a plan is not available, or the watching brief work involves monitoring of long linear works, interventions which are not mapped, or large open areas, the location of the monitoring will be determined using a hand-held GPS.

7.2 Unique context numbers will only be assigned if artefacts are retrieved, or stratigraphic relationships between archaeological deposits are discernible. In archaeologically 'sterile' areas, soil layers will be described, but no context numbers will be assigned. Where assigned, each context will be described in full on a pro forma context record sheet in accordance with the accepted context record conventions.

7.3 Archaeological deposits will be planned at a basic scale of 1:50, with individual features requiring greater detail being planned at a scale of 1:20. Larger scales will be utilised as appropriate. Cross-sections of features will be drawn to a basic scale of 1:10 or 1:20 depending on the size of the feature. All drawings will be related to Ordnance Datum. Where it aids interpretation, structural remains will also be recorded in elevation. All drawings will be drawn on inert materials. All drawings will adhere to accepted drawing conventions.

7.4 Photographs of archaeological deposits and features will be taken. This will include general views of entire features and of details such as sections as considered necessary. All site photography will adhere to accepted photographic record guidelines.

7.5 Areas which are inaccessible (e.g. for health and safety reasons) will be recorded as thoroughly as possible within the site constraints. In these instances, recording may be entirely photographic, with sketch drawings only.

7.6 All finds will be collected and handled following the guidance set out in the CIfA guidance for archaeological materials. Unstratified material will not be kept unless it is of exceptional intrinsic interest. Material discarded as a consequence of this policy will be described and quantified in the field. Finds of particular interest or fragility will be retrieved as Small Finds, and located on plans. Other finds, finds within the topsoil, and dense/discrete deposits of finds will be collected as Bulk Finds, from discrete contexts, bagged by material type. Any dense/discrete deposits will have their limits defined on the appropriate plan.

7.7 All artefacts and ecofacts will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication *First Aid for Finds,* and recording systems must be compatible with the recipient museum. All finds that fall within the purview of the Treasure Act (1996) will be reported to HM Coroner according to the procedures outlined in the Act, after discussion with the client and the local authority.

7.8 A soil sampling programme will be undertaken for the recovery and identification of charred and waterlogged remains where suitable deposits are identified. The collection and processing of environmental samples will be undertaken in accordance with Historic England guidelines (Campbell, Moffatt and Straker 2011). Environmental and soil specialists

will be consulted during the course of the evaluation with regard to the implementation of this sampling programme. Soil samples of approximately 30 litres for flotation (or 100% of the features if less than this volume) will be removed from selected contexts, using a combination of the judgement and systematic methodologies.

- **Judgement sampling** will involve the removal of samples from secure contexts which appear to present either good conditions for preservation (e.g. burning or waterlogging) or which are significant in terms of archaeological interpretation or stratigraphy. (Given the nature of an archaeological watching brief, it is anticipated that the implementation of a systematic sampling methodology will not be possible).

7.9 It is unlikely to find any evidence of industrial activity. If industrial activity of any scale is detected, industrial samples and process residues will also be collected. Separate samples (c. 10ml) will be collected for micro-slags (hammer-scale and spherical droplets) (Historic England 2015).

7.10 Other samples will be taken, as appropriate, in consultation with YAT specialists and the Historic England Regional Science Advisor, as appropriate (e.g. dendrochronology, soil micromorphology, monolith samples, C14, etc.). Samples will be taken for scientific dating where necessary for the development of subsequent mitigation strategies. Material removed from site will be stored in appropriate controlled environments.

7.11 In the event of human remains being discovered during the evaluation these will be left *in-situ*, covered and protected, in the first instance. The removal of human remains will only take place in compliance with environmental health regulations and following discussions with, and with the approval of, the Ministry of Justice. If human remains are identified, the Ministry of Justice and curator will be informed immediately. An osteoarchaeologist will be available to give advice on site.

- If **disarticulated** remains are encountered, these will be identified and quantified on site. If trenches are being immediately backfilled, the remains will be left in the ground. If the excavations will remain open for any length of time, disarticulated remains will be removed and boxed, for immediate reburial by the Church.
- If **articulated** remains are encountered, these will be excavated in accordance with recognised guidelines (see 7.12) and retained for assessment.
- Any grave goods or coffin furniture will be retained for further assessment.

7.12 Where a licence is issued, all human skeletal remains must be properly removed in accordance with the terms of that licence. Where a licence is not issued, the treatment of human remains will be in accordance with the requirements of Civil Law, CIfA Technical Paper 13 (1993) and Historic England guidance (2005).

8 BUILDING RECORDING METHODOLOGY

8.1 The principal aim is to produce a written and photographic record of the building. This includes analysis of the building's development and use. The brief corresponds to levels set out in Historic England's guide Understanding Historic Buildings (2016). The survey will roughly equate to a level 2 building recording survey that addresses in Condition 4 of the planning consent.

8.2 Documentary research has been undertaken for a Heritage Statement for the site, no new research will be undertaken.

8.3 A photographic record of the structure will be made. The archive will comprise digital photographs. Photographic scales will be placed in each photograph, where possible. Plans showing the location and direction of each photograph will be compiled.

8.4 A written description of the structure will be produced detailing the structure's form, function, date and sequence of development. Attention will also be given to any other features such as: fixtures, fittings, decorative elements.

9 REPORT & ARCHIVE PREPARATION

9.1 Upon completion of the groundworks, a report will be prepared to include the following:

a) A non-technical summary of the results of the work.
b) An introduction which will include the planning reference number, grid reference and dates when the fieldwork took place.
c) An account of the methodology and results of the operation, describing structural data, associated finds and environmental data.
d) A selection of photographs and drawings, including an overall plan of the site accurately identifying the areas monitored.
e) Specialist artefact and environmental reports as necessary.
f) Details of archive location and destination (with accession number, where known), together with a catalogue of what is contained in that archive.
g) A copy of the key OASIS form details
h) Copies of the Brief and WSI
i) Additional photographic images may be supplied on a CDROM appended to the report

9.2 Copies of the report will be submitted to the commissioning body and the HER/SMR (also in PDF format).

9.3 The requirements for archive preparation and deposition will be addressed and undertaken in a manner agreed with the recipient museum. In this instance the Yorkshire Museum is recommended and an agreed allowance should be made for the curation and storage of this material.

9.4 Provision for the publication of results, as outlined in the Brief, will be made.

9.5 The owner of the Intellectual Property Rights (IPR) in the information and documentation arising from the work, would grant a licence to the County Council and the museum accepting the archive to use such documentation for their statutory functions and provide copies to third parties as an incidental to such functions. Under the Environmental Information Regulations (EIR), such documentation is required to be made available to enquirers if it meets the test of public interest. Any information disclosure issues would be resolved between the client and the archaeological contractor before completion of the work. EIR requirements do not affect IPR.

10 BUILDING RECORDING REPORT AND ARCHIVE PREPARATION

10.1 Upon completion of the site work, a report will be prepared to include the following:

a) The date of the record, the name(s) of the recorder(s) and the location of the archive.
b) Ordnance Survey location map(s) showing the exact position of building at relevant scales and including the Ordnance Survey licensing number, if required.
c) The building's precise location, as a National Grid Reference and in address form.
d) A summary of the archaeological context of the project including the purpose of the recording and any relevant background information.
e) An expanded summary of the building's type or purpose, historically and at present, its materials and possible date(s), in so far as these are apparent from a visual inspection. The names of architects, builders, patrons and owners will

be given if known.

f) A note of any statutory or non-statutory designations.
g) Annotated floor plans, elevations and cross-sections based on the architectural drawings provided by the client.
h) Plates illustrating the nature of the building and pertinent points in the text.
I) Plans showing the viewpoints of photographs.
i) A description of the results including drawings and photographs to illustrate the text.
j) A concise non-technical summary.
k) Bibliographic references and acknowledgements, including references of any maps and documents used.
l) A digital copy of the report will be submitted to the commissioning body. The report will be submitted in digital format directly to CYC for planning purposes and inclusion into the City of York HER.
m) Any original photographic negatives or prints will be deposited with York Explore Library or Yorkshire Museum.
n) Digital files arising from the work will be deposited with the City of York Historic Environment Record (HER) and Archaeology Data Services (ADS). Thumbnails of the archive images will be included for ease of reference.
o) The owner of the Intellectual Property Rights (IPR) in the information and documentation arising from the work, would grant a licence to the Local Authority and the museum accepting the archive to use such documentation for their statutory functions and provide copies to third parties as an incidental to such functions. Under the Environmental Information Regulations (EIR), such documentation is required to be made available to enquirers if it meets the test of public interest. Any information disclosure issues would be resolved between the client and the archaeological contractor before completion of the work. EIR requirements do not affect IPR.
p) Upon completion of the project an OASIS form will be completed at http://oasis.ac.uk/form.

10.2 The archive will be fully catalogued and prepared to recognised standards (Brown 2007) Where necessary the documentary archive will be sent to the NMR for copying.

10.3 The paper and digital archive generated by YAT will remain the property of YAT until deposited with the appropriate archive.

10.4 Network Rail will be notified in writing on completion of fieldwork, with a proposed timetable for deposition of the archive. This should be confirmed in the project report.

10.5 Network Rail will be informed in writing on final deposition of archive which will happen within 6 months of completion of the project.

10.6 The archive will be fully indexed and include:

a) all field records
b) site notes
c) complete digital archive with catalogue and high-resolution images used in the report (.jpg or .tiff)
d) site drawings (plans and elevations)
e) DVDs and printouts

10.7 If further site works do not take place, allowance will be made for the preparation and publication in a local and/or national journal of a short summary on the results of the evaluation and of the location and material held within the site archive.

11 HEALTH AND SAFETY

11.1 Health and safety issues will take priority over archaeological matters and all archaeologists will comply with relevant Health and Safety Legislation.

11.2 A Risk Assessment will be prepared prior to the start of site works and for the building recording.

11.3 It is intended that YAT staff will remain off track (ie. on land that is not designated as part of the live railway). However, if for any reason access to track is necessary as part of the watching brief a self-certification medical form and Track Visitor Permit (TVP) request form will be completed.

11.4 YAT staff will only be allowed on track if they have been approved by their sponsor AMCO and when under the supervision of AMCO staff and their designated safety officials.

12 TIMETABLE & STAFFING

12.1 The timetable will be agreed with the client

12.2 Specialist staff available for this work are as follows:

- Building Recording Specialist – Chris Curtis (ArcHeritage)
- Human Remains – Malin Holst (York Osteoarchaeology Ltd)
- Palaeoenvironemtal remains – PRS ltd
- Head of Curatorial Services - Christine McDonnell
- Finds Researcher – Nicky Rogers
- Medieval Pottery Researcher – Anne Jenner
- Finds Officers – Nienke Van Doorne
- Archaeometallurgy & Industrial Residues – Dr Rod Mackenzie & Dr Roger Doonan
- Conservation – Ian Panter

13 MONITORING OF ARCHAEOLOGICAL FIELDWORK

13.1 As a minimum requirement, John Oxley, City of York Archaeologist will be given a minimum of one week's notice of work commencing on site, and will be afforded the opportunity to visit the site during and prior to completion of the on-site works so that the general stratigraphy of the site can be assessed. York Archaeological Trust will notify John Oxley of any discoveries of archaeological significance so that site visits can be made, as necessary. Any changes to this agreed WSI will only be made in consultation with John Oxley, City of York Archaeologist.

14 COPYRIGHT

15 KEY REFERENCES

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For the latest Historic England guidance documents see:

https://historicengland.org.uk/advice/latest-guidance/

TABLES

Location	Block No.	Length	Width	Depth	Likely Date	Notes
North Abutment	1	1.66m	0.46m	0.86m	1875	Edge block of the north pier. Pitched top, hipped. Single metal bolt on left side of front face, 50mm diameter. Appearance suggests original feature or very early 20th century. 4 of 6 sides faced.
Central Pier	2	1.3m	0.43m	0.86m	1875	Edge block of central pier capping stones. Pitched top, hipped. Notch in centre of base measuring 140x70mm. 4 of 6 sides faced.
Central Pier	3	1.2m	0.45m	0.86m	1875	Edge block of central pier capping stones. Pitched top, hipped. Notch in centre of base measuring 140x70mm. 4 of 6 sides faced.
North Abutment	4	1.96m	0.45m	0.86m	1875	Central block for north pier. Pitched top. 500mm wide drilling hole in pitched top, modern. 3 of 6 sides faced.
North Abutment	5	2.01m	0.45m	0.86m	1875	Edge block of the north pier. Pitched top, hipped. Two metal rebar tops protrude from pitched side, 50x50mm. Metal plate joints with metal bolts in front facing side, 200x80mm, similar to the metal joints the are on the top face of the block. 2 notches cut into faced edge side, 35x35mm.
Central Pier	6	0.63m	0.45m	0.45m	1875	Fragmentary. Block from lower course of central pier. 2 faced sides.
Central Pier	7	0.62m	0.42m	0.48m	1875	Fragmentary. Block from lower course of central pier. Modern drill hole along edge, 60mm diameter and protruding rebar. 2 faced sides.
Central Pier	8	0.86m	0.45m	0.47m	1875	Block from lower course of central pier. 2 faced sides.
Central Pier	9	0.45m	0.45m	0.45m	1875	Block from lower course of central pier. Smallest block but not broken. Divot in one side where fastening used to be present. Very frequent pock marks on non-faced sides. 2 faced sides.
Central Pier	10	0.92m	0.46m	0.46m	1875	Block from lower course of central pier. Single modern circular drilled hole along the top of the block, 60x40mm. 2 faced sides.
Central Pier	11	0.72m	0.45m	0.45m	1875	Block from lower course of central pier. Central circular drill hole, 30x30mm. Protruding piece of metal rebar, sheet strip. 2 faced sides.
Central Pier	12	1.32m	0.44m	0.48m	1875	Block possibly from upper course of central pier though pitched 'top' not visible. Modern circular drill hole along width of the base of the block, 60x40mm diameter. Two central drill holes spaced along the length of the block, 30mm diameter. Two slate fragments bonded to base with concrete, possibly part of bonding? At least 3 faced sides.
North Abutment	13	0.82m	0.82m	0.68m	1845	Corner block of cornicing course. Pitched top. 440x440mm square of concrete staining on top. 2x 40mm drill hole visible on top. 1 of the 'rough' sides has been specially cut with a 50mm ledge protruding, 200mm from the top. A further divot is visible in the centre of the 'ledge' measuring 150mm wide, 100mm deep. 2 'dressed' sides, 2 rough sides.

North Abutment	14	1.40m	0.44m	0.45m	1875	Block from lower course of central pier. Singular modern drill hole on top, 70mm diameter. Step out along base, 30mm from edge, 10mm out, possibly for slotting together? 2 faced sides.
North Abutment	15	1.08m	0.46m	0.45m	1875	Block from lower course of central pier. Singular modern drill hole on top, 50mm diameter. Singular 50mm notch in top. 2 faced sides.
North Abutment	16	1.71m	0.83m	0.67m	1845	Block from cornicing course. Pitched top. Singular 'dressed' face along length. Extended notch in rear face, 300mm from top, 10mm out. 2 modern drill holes on top, 30mm diameter. 1 faced side.
Central Pier	17	0.82m	0.82m	0.68m	1845	Block from cornicing course. Pitched top. Possible repair in top, 440x440mm block within the whole. 2 drill holes in top, 1 within repair, 40mm diameter. Singular 'dressed' face, singular faced side.
Central Pier	18	1.16m	0.40m	0.49m	1845?	Block from lower course. V. rough and eroded. 2 possible faced sides.
Central Pier	19	0.67m	0.43m	0.30m	1845?	Small block from lower course. 2 faced sides.
Central Pier	20	1.30m	0.45m	0.66m	1845	Block from lower course. Includes a 'foot' which projects from the base of the block, 40mm out, 200mm from base. A corresponding groove with the same dimensions is cut into the rear of the block along with a vertical divot. 2 drill holes on top, 40mm diameter. 2 faced sides.
Central Pier	21	1.13m	0.45m	0.67m	1845	Block from lower course. Includes a 'foot' which projects from the base of the block, 40mm out, 200mm from base. A corresponding groove with the same dimensions is cut into the rear of the block. 2 faced sides.
Central Pier	22	1.37m	0.38m	0.51m	1875	Block from lower course. 2 drill holes in top, 40mm diameter. 2 faced sides.
Central Pier	23	1st 0.72m 2nd 0.90m	1st 0.28m 2nd 0.30m	1st 0.31m 2nd 0.31m	1875	Fragmentary remains of block from lower course, 2 halves. Singular drill hole visible in top and through the block. 1 faced side.
Central Pier	24	0.71m	0.41m	0.32m	1875	Small block from lower course. Singular drill hole in top, 40mm diameter.
Central Pier	25	1.05m	0.41m	0.35m	1875	Block from lower course. 2 drill holes in top, 40mm diameter. Singular notch between drill holes, 80x20mm. 1 faced side.
Central Pier	26	0.82m	0.82m	0.68m	1845	Corner block of cornicing course. Pitched top. 2 'dressed' sides, 2 rough sides.
Central Pier	27	1.71m	0.83m	0.67m	1845	Block from cornicing course. Pitched top. Singular 'dressed' face along length. Extended notch in rear face, 300mm from top, 10mm out. 2 modern drill holes on top, 30mm diameter. 1 faced side.
South Abutment	28	1.70m	0.46m	0.83m	1875	Centre block from South pier. Pitched top. 3 drill holes on top, 40mm diameter. 1 metal reinforcement in top, 30mm diameter. 2 faced sides.
South Abutment	29	1.42m	0.47m	0.85m	1875	Edge block from South pier. Pitched top, hipped. Singular drill hole, 40mm diameter. 3 faced sides.
South Abutment	30	1.19m	0.45m	0.47m	1875	Block from lower course. Singular modern drill hole along base, 40mm diameter. 2 faced sides.

South Abutment	31	1.36m	0.48m	0.47m	1875	Block from lower course.1 faced side.
South Abutment	32	2.58m	0.45m	0.82m	1875	Edge block from South pier. Pitched top, hipped. 2 metal reinforcements on top, 40mm diameter.
South Abutment	33	1.13m	?	0.84m	1845	Corner block from cornicing course. Same shape as 13 and 26 but composition and dimensions are different. Appears to be composed of a number of different blocks including an entire new course concrete to the rear of the block. Possibly an early repair? 2 faced sides.
South Abutment	34	1.40m	0.47m	0.47m	1875	Block from lower course. 2 modern drill holes along base and top, 40mm diameter. 1 faced side.
South Abutment	35	0.81m	0.48m	0.48m	1875	Block from lower course. 2 modern drill holes along base and top, 40mm diameter. 1 faced side.
South Abutment	36	0.94m	0.45m	0.46m	1875	Block from lower course. 2 drill holes on top, 40mm diameter. 1 faced side.

Table 3 Architectural Fragment details

PLATES

Plate 1 Overview of Sheet Piling and Scarborough Bridge

Plate 2 In-situ concrete stanchions on north bank

Plate 3 Notch in concrete stanchion, possibly for a timber post

Plate 4 Overview of excavated step in the top of the embankment for sheet piling

Plate 5 Depth and extent of excavations for the cycle and accessibility path

Plate 6 Stepping in the embankment post-installation of the sheet pilling

Plate 7 Representative section showing the greater depth of topsoil closer to the bridge

Plate 8 Representative section showing thinning of topsoil farther from the bridge

Plate 9 Section against existing masonry wingwall which illustrates the sloping deposits towards the embankment

Plate 10 20th Century wall visible at the southern extent of site. Probably a boundary wall or old platform wall for the railway station

Plate 11 Excavation of foundation trench in Marygate Car Park

Plate 12 Representative section in foundation trench, Marygate Car Park

Plate 13 West-facing section of tree pit

Plate 14 The two lines of lines associated with earlier bridge alterations

Plate 15 Removal of masonry from central pier and drilling into the pier in order to install the hydraulic system to raise and remove the footbridge

Plate 16 Example of stone from the cornice course of the original abutments and pier. Dated to 1845

Plate 17 Example of masonry from lower course of the original abutments and pier with visible step out. Dated to 1845

Plate 18 Example of masonry from the later phase of the abutments and pier. Features the pitched top with a hipped edge

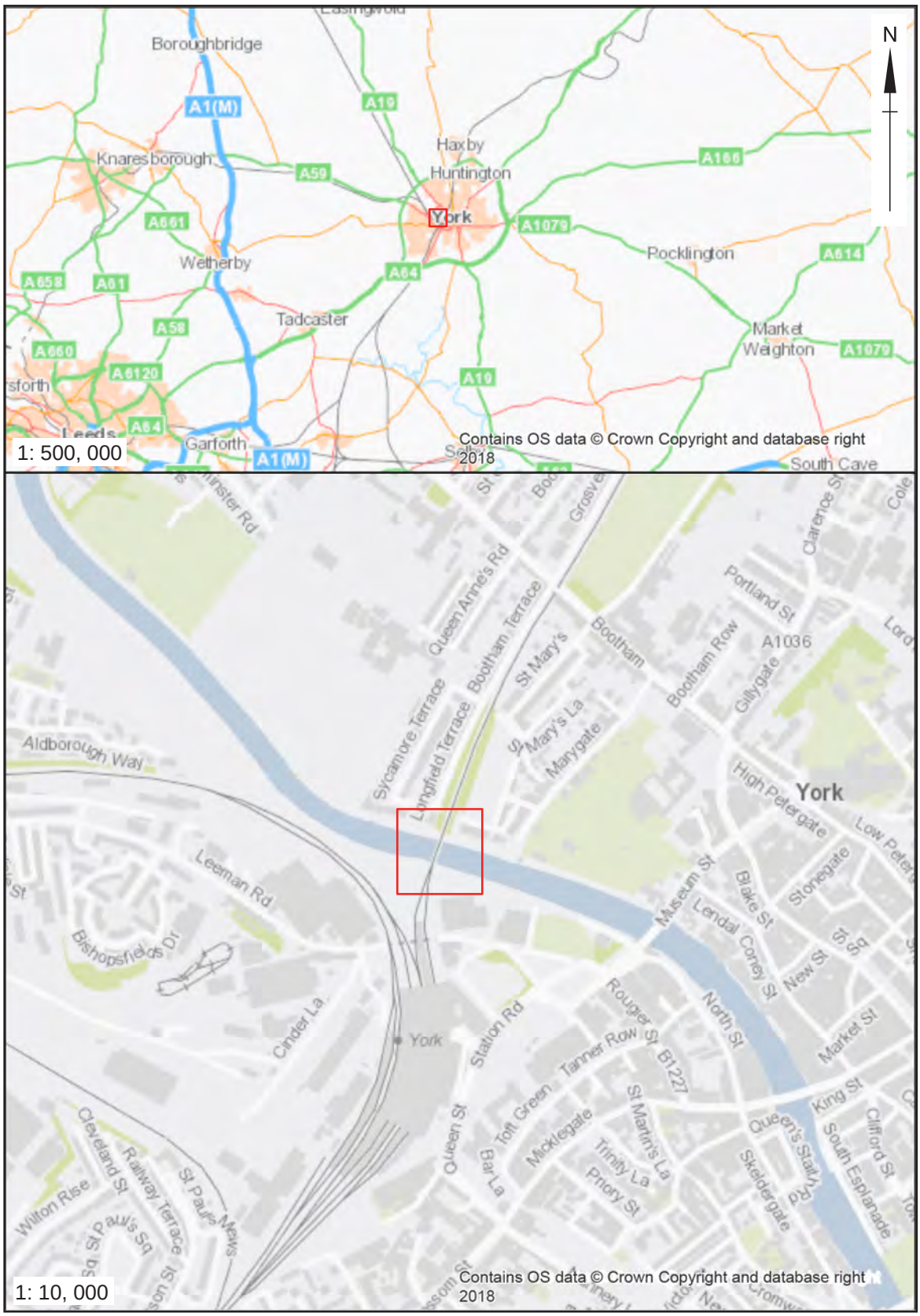

Figure. 1 Site Location

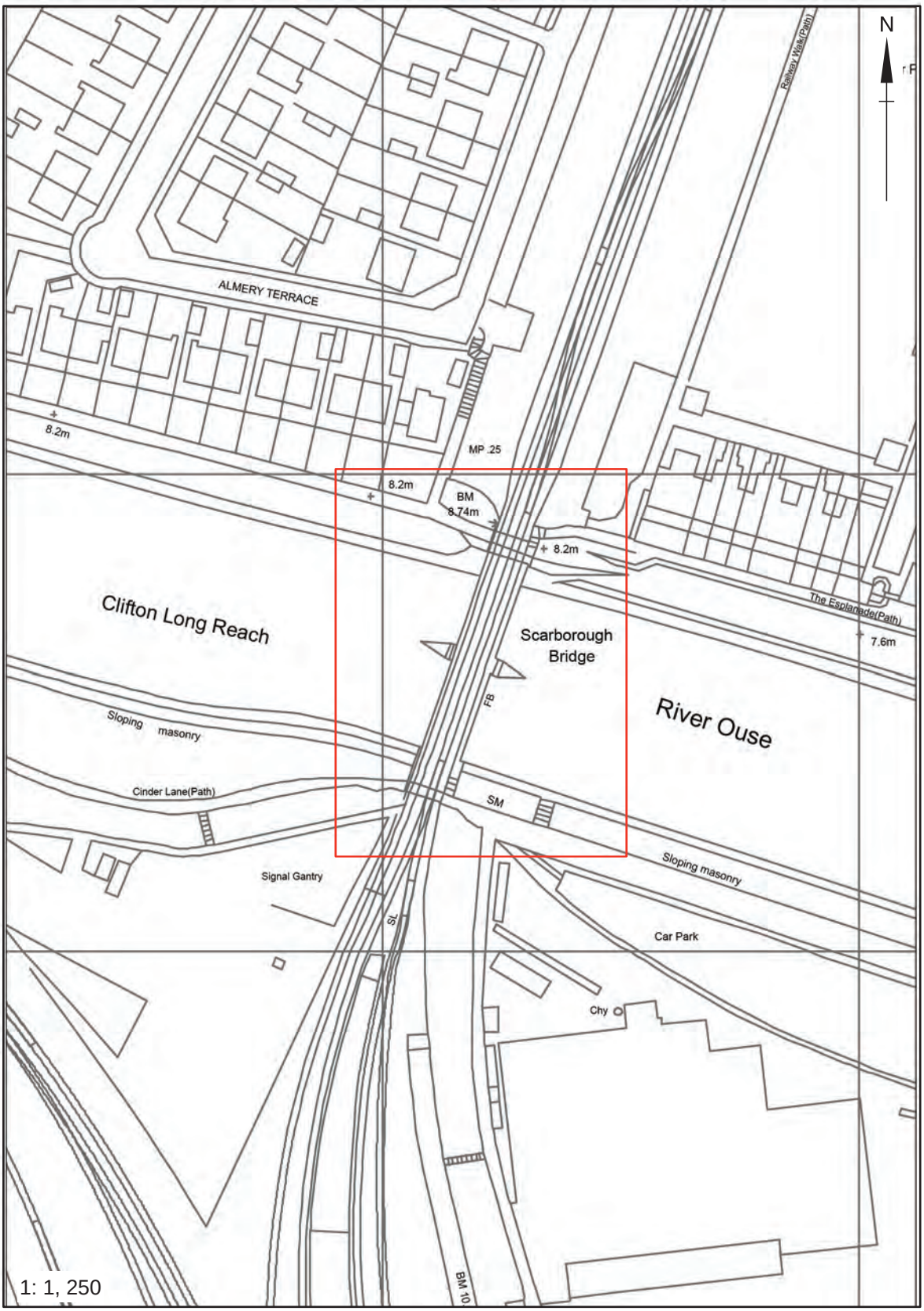

Figure. 2 Works Location

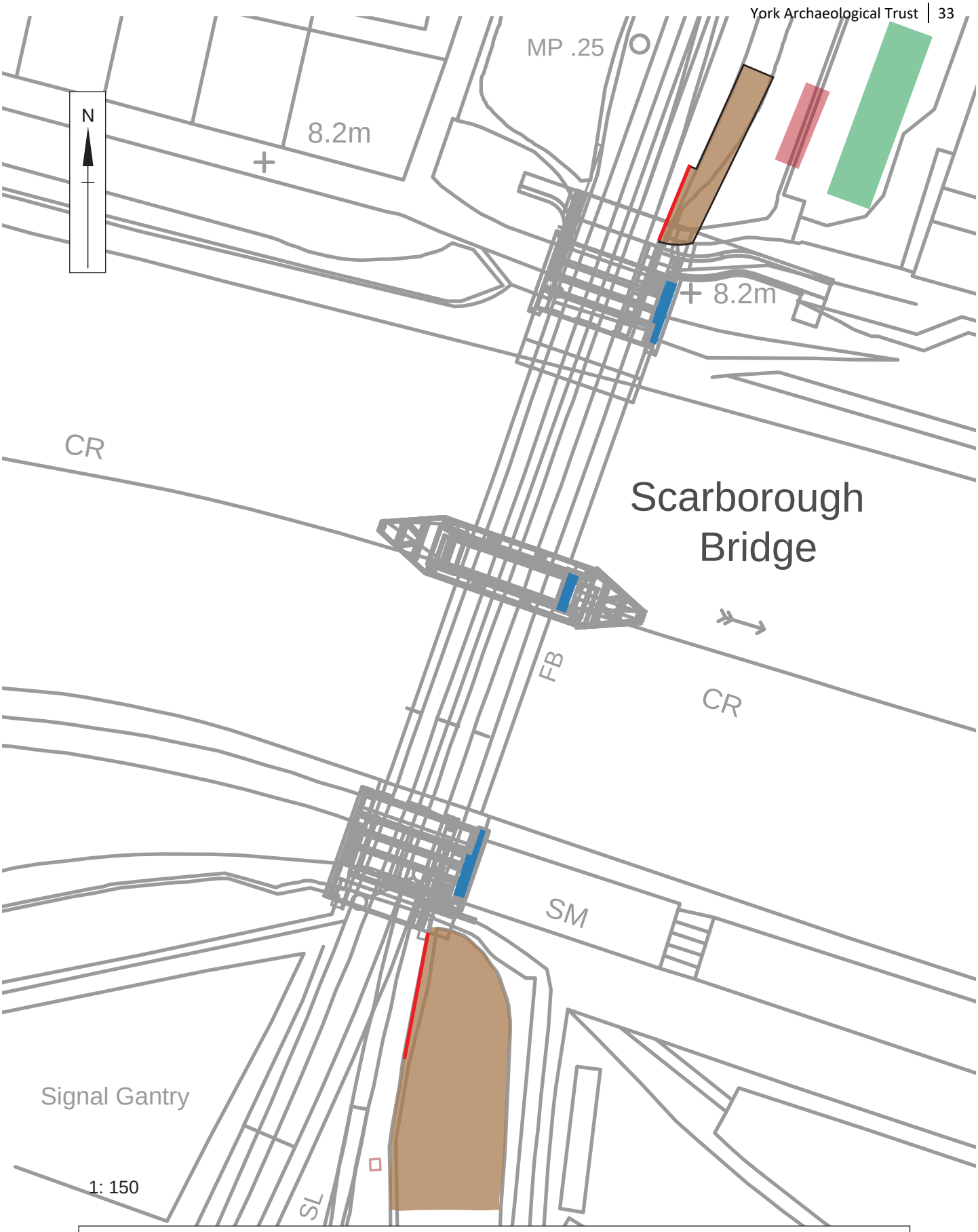

Figure. 3 Approximate location of and type of works at Scarborough Bridge

YORK ARCHAEOLOGICAL TRUST

York Archaeological Trust undertakes a wide range of urban and rural archaeological consultancies, surveys, evaluations, assessments and excavations for commercial, academic and charitable clients. We manage projects, provide professional advice and fieldwork to ensure a high quality, cost effective archaeological and heritage service. Our staff have a considerable depth and variety of professional experience and an international reputation for research, development and maximising the public, educational and commercial benefits of archaeology. Based in York, Sheffield, Nottingham and Glasgow the Trust's services are available throughout Britain and beyond.

York Archaeological Trust, Cuthbert Morrell House, 47 Aldwark, York YO1 7BX

Phone: +44 (0)1904 663000 Fax: +44 (0)1904 663024

Email: archaeology@yorkat.co.uk Website: http://www.yorkarchaeology.co.uk