Network Rail Replacement Bridge, Old Abingdon Road, Oxford

Archaeological Watching Brief Report

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May 2011

Client: Birse Rail

Issue No:1
NGR: SP 5167 0372
OA job No: 4946

Archaeological Watching Brief Report

Client Name:	Birse Rail Ltd
Client Ref No:	R 2563/P455
Document Title:	Network Rail Replacement Bridge, Old Abingdon Road, Oxford
Document Type:	Archaeological Watching Brief Report
Issue/Version Number:	1
Grid Reference:	Centred at SP 5167 0372
Planning Reference:	10/02314/CONSLT
Invoice Code:	OXABRAWB
OA Job Number:	4946
Site Code:	OXABRAIL 11
Receiving Museum:	Oxfordshire County Museum Service
Museum Accession No.:	OXCMS: 2011.1
Event No.:	

Issue	Prepared by	Checked by	Approved by	Signature
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Document File Location:	Smallworks on Sever 1\PROJECTS\Oxfordshire OX\Oxford City OC\ 12686 Abingdon Old Road Rail Bridge\OXABRAWB Report.odt
Graphics File Location:	Servergo:/oaupubs_lthruq\O_codes*OXABRAWB*LO*06.05.11
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Network Rail Replacement Bridge, Old Abingdon Road, Oxford

Archaeological Watching Brief Report

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and illustrated by Lucy Offord

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Summary

During February and March 2011 OA conducted a watching brief during replacement of the Old Abingdon Road railway bridge (NGR: Centred at SP 5167 0372). These works included excavations to facilitate replacement of significant lengths of the carriageways either side of the old railway bridge which had the potential to expose the causeway, road surfaces and possible culverts associated with the "Grand Pont". The depth of impact of the groundworks was such that only 19th and 20th century deposits associated with the construction of the embankments and approaches for the railway bridge were exposed. No deposits or features pre-dating the railway were encountered.

1 INTRODUCTION

1.1 Scope of work

1.1.1 Planning Permission has been granted to Network Rail for the construction of a replacement approach road embankment for the over bridge at Old Abingdon Road, Oxford (Planning Ref. is 10/02314/CONSLT). These works were carried out by Brise rail Ltd.

1.1.2 The proposed works involved the excavation of the existing made ground of the embanked approach roads up to a maximum depth of two metres, followed by the laying down of a light weight fill contained within concrete side walls to support the new approach road over the replacement over bridge. The evidence from nearby Grandpont (Durham, B (ed), 1984) suggests that the surviving causeway above the Old Abingdon Road culverts may be in the order of 300mm thick. Based on measurements by the Network Rail Engineers and previous recording by Jacobs, in places the made ground above the causeway may be close to 2m thick. Therefore there was potential for the fabric of the causeway or subsequent surfaces to be exposed.

1.1.3 As part of the planning consent Oxford City Council attached a condition requiring that an archaeological watching brief be conducted during the period of intrusive groundworks. This is in line with Planning Policy Statement 5 (2010). The City Archaeologist, David Radford, produced a Brief for an Archaeological Watching Brief detailing the requirements to discharge this condition (OCC, 2010) and OA produced a Written Statement of Investigation (WSI) showing how it would these requirements (OA, 2010).

1.2 Location, geology and topography

1.2.1 The Abingdon Road originally ran south-east from Oxford, turning sharply to the south-west to the south of Coldharbour, crossing the Hinksey Stream and the railway line. The new alignment of the Abingdon Road continues on its southeastern alignment at this point, leaving the original south-western branch as the Old Abingdon Road.

1.2.2 The site is located on the Old Abingdon Road, running from the Mayweed Lesser Bridge at the north-east end, crossing the railway line and terminating at the Stanford Culvert at the south-western end. The site runs from SP 519 039 (in the NE) to SP 516 036 (in the SW) and is centred on SP 517 037 (Fig. 1). The roadway within the area of the proposed development takes the form of an elevated causeway/ embankment

raising the roadway above the surrounding flood plain and providing access to the old rail bridge.

1.2.3 From NE to SW there are the following culverts and bridges present within the site. The Mayweed Lesser Bridge, the Mayweed Bridge, the Coldharbour railway bridge, Redbridge Culvert 2 and Rebridge Culvert 1 and the Stanford Culvert (*ibid.*).

1.2.4 The site lies within the flood plain of the River Thames, in an area to the west of the main Thames channel, where the Thames braids into a number of smaller streams. The land is relatively flat and marshy, where it has not been raised. The topography has been influenced by the substantial post-medieval and modern development of the rail and road systems.

1.2.5 The underlying natural geology is Oxford Clay and Kellaway Beds overlain by River Terrace deposits. Overlying the geology are soils of the Thames association. These are river alluviums (BGS Sheet 236).

1.3 Archaeological and historical background

1.3.1 The Norman and later medieval causeway is probably located along the line of Old Abingdon Road, a historic route across the Thames floodplain.

1.3.2 The causeway is likely to be a continuation of the Grandpont causeway running south from the walled town along St Aldates and Abingdon Road (County Scheduled Ancient Monument No 21757) (Fig. 2). Except for the Grandpont causeway, the earliest parts of which are also of Norman date – probably 1070s – the Norman elements of the Old Abingdon Road culverts are the earliest known bridge structures in Oxfordshire and probably in England. They are therefore of national and possibly international importance. The slightly later sections dating to probably the 12th/13th centuries are equivalent in date to fabric within the medieval bridges at Wallingford and Newbridge, both of which are Scheduled Ancient Monuments of national importance (Radford, 2010).

1.3.3 At the Redbridge East culvert (Fig 1) investigations carried out by Jacobs identified five phases of construction representing four phases of widening. One section has been positively identified as of Norman period construction as it is characterised by large ashlar masonry blocks with diagnostic diagonal striated tooling and fine joints of approximately 10mm. The arch follows a shallow arc form a low spring point and terminates in a round head arch of rubblestone construction. The Norman section is 3.8 metres wide and with a span of 1.75 metres. The remaining four sections are of rubblestone construction (Jacobs, 2009).

1.3.4 At the Redbridge West culvert (Fig. 1) six phases of construction representing five phases of widening were identified. The two sections flanking the narrow central section have been identified as the earliest elements of the culvert. The construction details of one section includes abutments extending from a stone footing or step that extends approximately 120 mm from the abutment face. The abutment above footing level consists of two courses of ashlar masonry with vertical striated tooling. Above this were two courses of rubblestone masonry from which the springing for the barrel arched head of the culvert started. The face of this section of culvert was dressed with limestone voussoirs. The head of the arch consisted of longer, narrower blocks. The earliest section was 3.98 metres wide (Jacobs, 2009).

1.3.5 A radar survey of the Old Abingdon Road in 2008 failed to produce any significant results (Waterman CPM, 2008)

2 Project Aims and Methodology

2.1 Aims

2.1.1 The aim of the below-ground investigation was to record the extent, date, character, quality, significance and state of preservation of the archaeological remains within the areas of the site affected by the proposed works. In particular, to preserve by record features and deposits associated with the Norman, and later, causeway.

2.1.2 To avoid damage to surviving historic structural fabric which may be masked by later developments.

2.1.3 The other principal aim is to signal, before the destruction of the material in question, the discovery of a significant archaeological find, for which the resources allocated are not sufficient to support a treatment to a satisfactory and proper standard.

2.2 Methodology

2.2.1 A detailed watching brief was be undertaken during all groundworks that have the potential to impact on the stone causeway. The watching brief focused on the removal of existing made ground in the vicinity of the Stanford East Culvert and Redbridge Culvert No 1 and the eastern approach to the railway bridge (Fig. 2) and was maintained throughout the period of intrusive groundworks.

2.2.2 Provision was made that should the fabric of the causeway be encountered the City Council Archaeologist and County Archaeological Service will be informed so that options for mitigating any unforeseen impacts can be discussed.

2.2.3 Excavation of archaeological features was undertaken to fulfil the basic objective of retrieval of archaeological data affected by the works.

2.2.4 All features and deposits were issued with unique context numbers, and context recording will be in accordance with the established OA Field Manual (OAU 1992). All contexts, and any small finds and samples from them were allocated unique numbers. Bulk finds were collected by context. Colour digital photographs and black-and-white negative photographs were taken of all trenches and archaeological features. A general photographic record of the works was also made.

2.2.5 Provisions were made for taking environmental/organic samples in accordance with OA Environmental procedures (OA 2000).

2.2.6 Site plans were drawn at an appropriate scale (normally 1:50 or 1:100) with larger scale plans of features as necessary. Section drawings of features and sample sections of trenches were drawn at a scale of 1:20.

2.2.7 The watching brief was monitored by David Radford, the Oxford City Archaeologist.

3 Results

3.1 Description of deposits

The Eastern Approaches

3.1.1 These works included the reduction of approximately 45 m length of road surface and the underlying embankment prior to the construction of the new concrete side walls, tie bars and new road surface (Fig. 2 and Fig. 3, Sections 1 and 2).

3.1.2 Prior to the excavations the tarmac road surface was planed off, removing approximately 0.3 m throughout the width of the carriageway and the topsoil stripped and stored from either side of the embankment. The groundworks consisted of the excavation of a terrace on either side of the embankment of between 1 m and 1.5 m in depth and 5 m wide in order to accommodate the shuttering for the construction of the new side walls. This work was undertaken using a tracked excavator fitted with a 1.8 wide toothless grading bucket.

3.1.3 The stratigraphy exposed was broadly similar throughout the length of the groundworks. At the western end of the eastern approach, adjacent to the old bridge abutment a maximum of 1.2 m depth of material was removed (Fig. 3, Section 1) (Plate 1). A compacted layer of reddish brown sandy clay (10) was exposed tipping downwards towards the west. This was overlaid by a 0.25 m deep band of blue-grey clay (9), also tipping down towards the west.

3.1.4 Overlying 9 was a 0.25 m deep band of reddish brown sandy clay (8), again following the general trend of tipping. At the western extent of 8 it was covered by a layer of blue grey clay (7), up to 0.2 m in depth. This was overlaid by a wedge shaped deposit of reddish brown sandy clay (6), up to 0.18 m in depth, a similar wedge shaped deposit of blue grey clay (5) in turn overlaid 6.

3.1.5 A roughly horizontal band of reddish band sandy clay (4) had been laid over 5, 6 ,7 and 8, a second horizontal band of blue grey clay 0.2 m deep (3) had been laid over this.

3.1.6 Layer 3 from the base for a layer of crushed stone mixed with red-brown clay, (2), 0.15 m in depth, this was overlaid by a 0.25 m deep layer of compacted tarmac scalpings (1), which formed the bed for the tarmac road surface.

3.1.7 No dating evidence was recovered from any of the deposits.

3.1.8 At the eastern extent of the approach the excavations for the sidewalls tapered down to 0.8 m in depth (Fig. 3, Section 2). A layer of blue grey clay (12), a probable continuation of layer 9, was exposed within the base of the excavation. This was covered by a 0.2 m layer of reddish brown sandy clay (11), a probable continuation of layer 8.

3.1.9 Overlying this was the layer of crushed stone in a reddish brown clay matrix (2). This layer also contained fragments of crushed brick. This was overlaid by the tarmac scalpings (1).

3.1.10 All the deposits observed appear to be post-medieval in nature and form part of the embankment leading up to the original railway bridge, no earlier or buried natural deposits were encountered.

The Western Approaches

3.1.11 These works were similar to those on the eastern approach and included the reduction of approximately 70 m length of road surface and the underlying road embankment prior to the construction of the new concrete side walls and tie bars and the relocation of existing services within these excavations. (Fig. 2 and Fig. 3, Sections 3 to 5). This work was carried out between the railways bridge abutment and the start of the retaining wall over the Stanford Culvert.

3.1.12 Prior to the excavations the tarmac road surface was planed off, removing approximately 0.3 m throughout the width of the road way and any underlying concrete slabs were broken out.

3.1.13 As on the eastern approach the groundworks consisted of the excavation of a terrace on either side of the embankment between 1 m and 1.2 m in depth and 5 m wide in order to accommodate the shuttering for the construction of the new side walls. This work was undertaken using a tracked excavator fitted with a 1.8 wide toothless grading bucket.

3.1.14 At the eastern end of the approach, adjacent to the bridge abutment, a compacted layer of reddish brown sandy clay with grey clay inclusions (17) was exposed, tipping slightly downwards towards the east (Fig. 3, Section 3) (Plate 2). This was overlaid by a 0.25 m deep band of reddish brown sandy clay (16) which also contained many pale yellow angular stone fragments. This layer also tipped slightly down towards the east.

3.1.15 Overlying layer 16 was a 0.15 m deep band of mixed reddish brown sandy clay and grey clay (15) which in turn was overlaid by a compacted layer of reddish brown sandy clay (14), up to 0.18 m in depth. This deposit formed a base for a 0.2 m deep layer of crushed and compacted stone (13). Overlying 13 was a layer of compacted finely crushed stone (12) which formed the bed for the modern tarmac road surface.

3.1.16 At a point approximately over Red bridge Culvert No. 1, a layer of compacted blue grey clay (20) was exposed at the base of the section (Fig. 3, Section 4) (Plate 3). This was covered a 0.35 m deep layer of orange-brown sandy clay (19). Overlying this was a 0.25 m deep layer of grey-brown silt clay (18). All these bands of material ran parallel to the tarmac road surface.

3.1.17 A continuation of the crushed stone layer, 13, 0.22 m deep, overlaid 18 and was in turn overlaid by a continuation of the finer crushed stone layer 12, 0.35 m in depth.

3.1.18 Immediately to the east of the stone retaining wall over the Stanford Culvert (east) the excavation for the sidewall terrace exposed a layer of blue-grey clay (23) both in the section and in the base of the excavation (Fig. 3, Section 5). Overlying 23 was a 0.25 m deep layer of reddish brown sandy clay (22) containing some small angular stone fragments. Covering this was a 0.4 m deep layer of greenish-olive-grey silty clay (21). None of these layers contained any dating evidence.

3.1.19 Layer 21 was overlaid by a 0.2 m deep continuation of the crushed stone layer (12), this was overlaid by a 0.28 m deep continuation of the finer crushed stone layer (12) on top of which the tarmac road surface had been laid.

3.2 Finds

3.2.1 All the dating evidence recovered was provisionally dated as 19th century or later. These finds included frogged bricks, bottle glass and tin cans. These were evaluated on site but were not retained.

3.3 Environmental remains

3.3.1 Due to the post-medieval origin of the deposits encountered it was considered that no additional information would be produced by palaeo-environmental sampling.

4 Discussion and conclusions

4.1.1 All the contexts observed during the course of the watching brief have been provisionally dated as post medieval in nature either by dating evidence or by their location within the sites stratigraphy.

The Eastern Approach

4.1.2 The material observed within the bases of the sections and within the base of the excavations for the side walls (contexts 5, 6, 7, 8, 9, 10 and 24) all appear to be tiplines of material associated with the construction of the embankment leading up to the old railway bridge. Their orientation suggests that the tipping started at the eastern end of the approach and worked westwards towards the easternmost of the brick railway bridge abutments.

4.1.3 The remainder of the contexts (3, 4 and 11) are discrete tips of leveling material also associated with the embankments construction. The layer of crushed stone (2) forms the hardcore base for the roads surface which may have been originally formed by the layer of finer crushed stone (1) before being later covered by the modern tarmac surface.

4.1.4 The composition of the materials observed suggest that they were sourced locally. The reddish brown sandy clay is reminiscent of the Kellaway sands located to the east of the site, while the stone inclusions and the crushed stone layer, 2, appear to be coral rag, a limestone associated with the sands. The blue-grey clay is probably part of the Oxford clay series found within the Thames valley.

4.1.5 These materials were deposited in the mid 19th century presumably sealing the earlier causeway beneath them. The depth of excavation observed during this phase of works on the eastern approach was insufficient to expose any deposits or features such as road surfaces associated with the Norman and Medieval causeway within this area.

The Western Approach

4.1.6 The stratigraphy observed within this area displayed a similarity with those observed on the Eastern Approach with successive deposits of post-medieval made ground (14, 15, 16, 17, 18, 19, 20, 21, 22 and 23) being laid forming the embankment leading up to the brick abutment of the old railway bridge.

4.1.7 The construction technique used in this area appears to differ in that used on the eastern approach with the material being laid in almost horizontal bands rather than the distinctive tiplines visible in the eastern approach. This may reflect the more gradual incline on this side of the bridge. The materials used appear to be all part of the Oxford clay series as found locally within the Thames valley.

4.1.8 As on the Eastern Approach the construction of the embankments associated with the railway bridge in the mid 19th century presumably sealed the earlier causeway beneath them. Particular attention was paid during the period of groundworks above any of the culverts in case any stonework was exposed. No evidence for any of the culverts construction or road surfaces pre-dating the construction of the present day approach to the railway bridge were observed. This has led to the conclusion, that like the Eastern Approach, the depth of excavation observed during this phase of works on the Western Approach was insufficient to expose any deposits or features associated with the Grand Pont within this area.

4.1.9 The groundworks terminated immediately east of the stone retaining walls associated within the Stanford Culvert which was the more likely candidate to produce evidence for the earlier causeway. At the westernmost extent of the groundworks measurement showed that the depth of impact was approximately 1.2 m above the crown of the smaller of the two culverts. This appears to have been sufficient to fail to encounter any of the early causeway surfaces.

4.1.10 It still remains supposition that the approaches leading up to the railway bridge were laid over the old causeway. Further work is still required in order to determine the depth and extent of the causeway or to determine if it was truncated or disturbed prior to the building of the embankments.

APPENDIX A. ARCHAEOLOGICAL CONTEXT INVENTORY

Context	Type	Depth	Width	Length	Comments	Finds	Date
1	Layer	0.25 m	> 3 m	> 60 m	Road make up		C19th
2	Layer	0.15 m	> 3 m	> 60 m	Stone base for road	Brick	C19th
3	Layer	0.2 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
4	Layer	0.2 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
5	Layer	0.15 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
6	Layer	0.2 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
7	Layer	0.2 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
8	Layer	0.25 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
9	Layer	0.25 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
10	Layer	> 0.2 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
11	Layer	0.2 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
12	Layer	0.3 m	> 3 m	> 75 m	Road make up		C19th
13	Layer	0.28 m	> 3 m	> 75 m	Stone base for road	Brick	C19th
14	Layer	0.2 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
15	Layer	0.15 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
16	Layer	0.22 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
17	Layer	> 0.3 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
18	Layer	0.25 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
19	Layer	0.3 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
20	Layer	> 0.45 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
21	Layer	0.4 m	> 3 m	> 5 m	Made ground associated with the railway bridge		C19th
22	Layer	0.4 m	> 3 m	> 5 m	Made ground associated with the railway bridge	Brick	C19th
23	Layer	> 0.3 m	> 3 m	> 5 m	Made ground associated	Brick	C19th

					with the railway bridge		
24	Layer	> 0.2 m	> 3 m	> 5 m	Made ground associated with the railway bridge	Brick	C19th

APPENDIX B. BIBLIOGRAPHY AND REFERENCES

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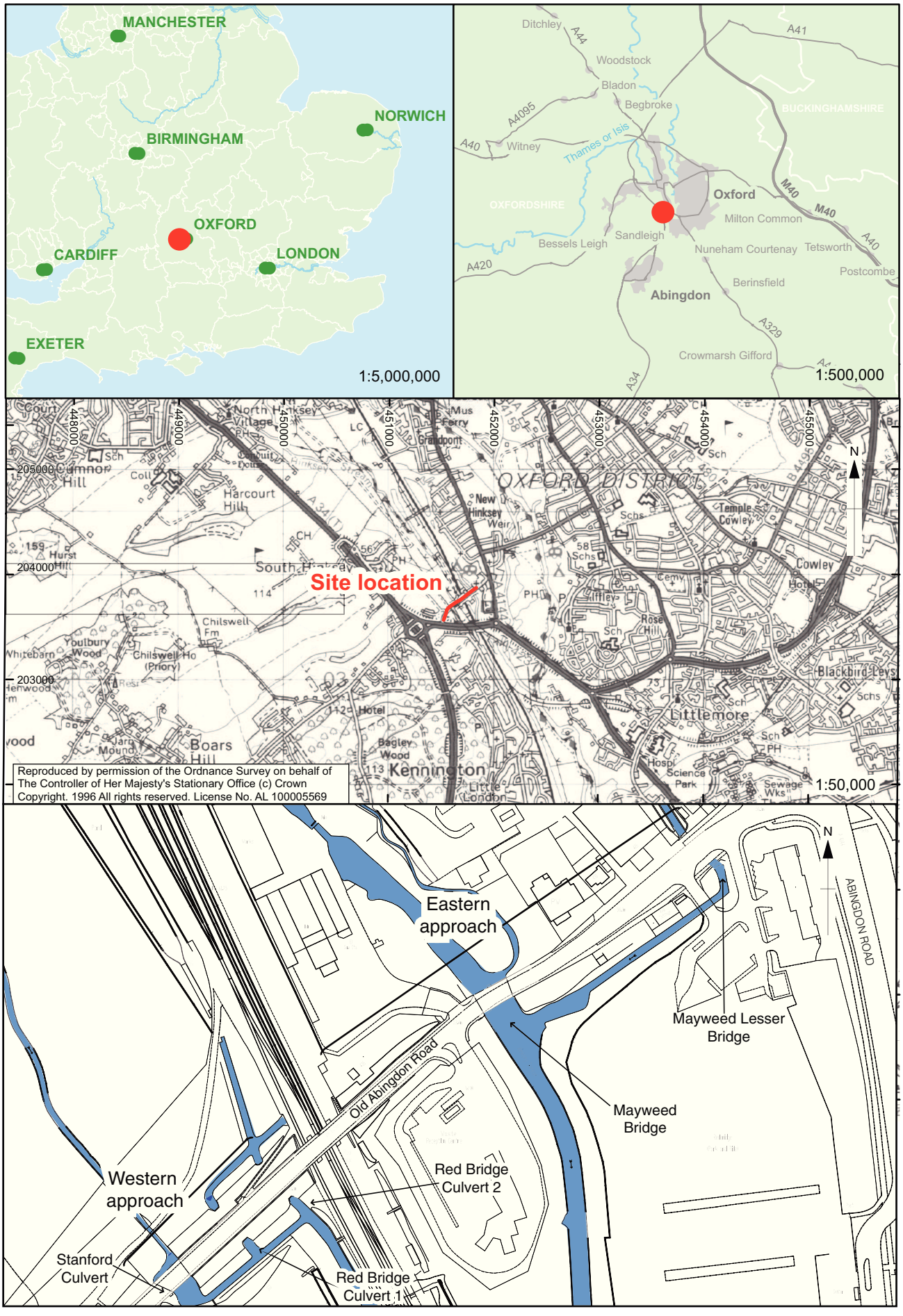
Appendix C. Summary of Site Details

Site name:	Network Rail Replacement Bridge, Old Abingdon Road, Oxford
Site code:	OXABRAIL 11
Grid reference:	Centred at NGR Centred at SP 5167 0372
Type of watching brief:	Reduction of ground level above possible Norman, medieval and later causeways
Date and duration of project:	February to March 2011
Area of site:	Approximately 0.3 hectares
Summary of results:	The depth of impact of the current phase of groundworks only exposed 19th and 20th deposits associated with the construction of the embankments and approaches for the railway bridge. No deposits or features predating this work were encountered
Location of archive:	To be deposited with Oxfordshire County Museum Service under the Accession Number OXCMS:2011.1



Taken from drawing 3129/01 by Waterman CPM, Environmental Planning and Design (not to scale)

Figure 1: Site location

Figure 2 : Site Plan

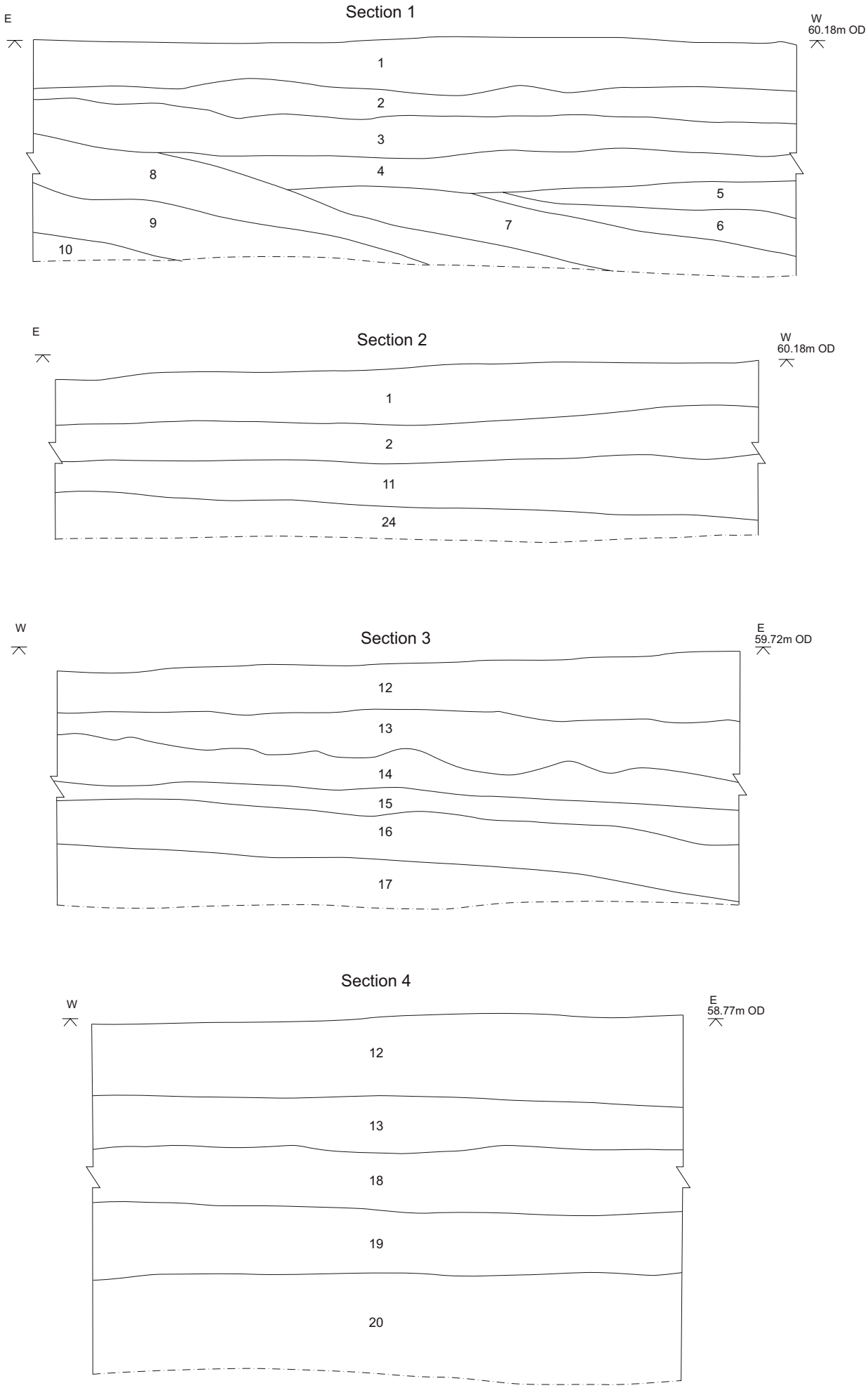


Figure 3 : Sections 1-4

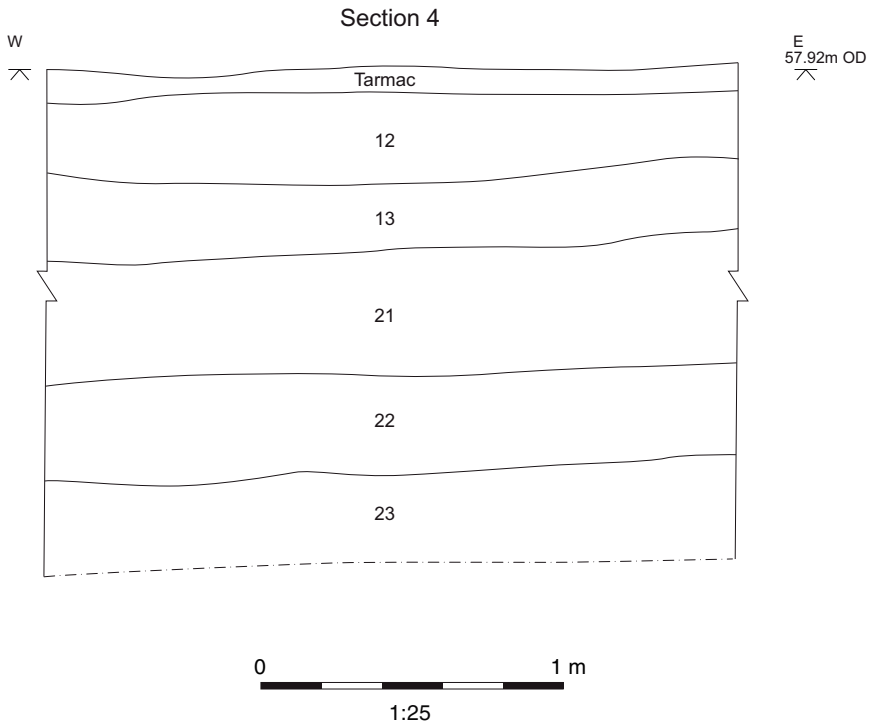


Figure 4 : Section 5

Plate 1: Section 1

Plate 2: Section 3

Plate 3: Section 4

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