

Archaeological monitoring during the construction of the Gloucester South West Bypass, Netheridge Section.

Gloucestershire County Council



Rachel Heaton & Richard Macpherson Barrett Archaeology Service

Environment Directorate

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Site details

Site address:	Gloucester South West Bypass, Netheridge Section.	
OS NGR:	38135 21530 to 38183 21646	
GSMR No:	27871	
Site type:	Watching Brief	
Client:	Gloucestershire County Council	
Planning ref:	98/00031/FUL	
Development Control No:	477.35	
Date of fieldwork:	20 th June 2005 to 29 th January 2007	
Recipient museum:	Gloucester City Museum and Art Gallery	
Accession number:	GLRCM 2005/7	
Archived finds:	None	
Author:	Rachel Heaton and Richard Macpherson Barrett	
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	South West Bypass, Netheridge Section.	
Date of Report:	October 2007	

Contents

		page
1	Introduction	3
2	Site location	3
3	Archaeological background	3
4	Purpose of the monitoring	5
5	Methodology	5
6	Results	6
7	Conclusions	9
8	References	10

Figures

Figure 1	Location plan
Figure 2	Chainage plan
Figure 3	Southern section (chainage 300-800)
Figure 4	Central section (chainage 800-1500)
Figure 5	Northern section (chainage 1500-1670)

Appendix

Apendix 1 Gazetteer of conexts

Summary

Gloucestershire County Council Archaeology Service (GCCAS) were commissioned by Mr Nigel Edgeworth on behalf of Gloucestershire County Council to undertake a programme of archaeological monitoring, during groundworks associated with the construction of a new road link between the junction of Bristol Road and Cole Avenue (OS NGR 38135 21530) and the southern end of Secunda Way (Hempsted Bypass; OS NGR 38183 21646), commonly known as the Gloucester South West Bypass, Netheridge Section. The works included alterations to the Gloucester and Sharpness Canal, which was bridged by the Bypass.

The archaeological monitoring recorded a very limited number of archaeological features given the extent of the groundworks undertaken for this scheme, with a total of six archaeological features being recorded. The features comprised undated small furrows, a backfilled brook, three post-medieval ditches and a spread of post-medieval building rubble.

1 Introduction

1.1 Gloucestershire County Council Archaeological Service (GCCAS) were commissioned by Mr Nigel Edgeworth on behalf of Gloucestershire County Council, to undertake a programme of archaeological monitoring during the groundworks associated with the construction of the Gloucester South West Bypass, Netheridge Section. The works included alterations to the Gloucester and Sharpness Canal, which was bridged by the Bypass. The archaeological monitoring was carried out as a condition attached to planning permission (98/00031/FUL), as requested by the County Archaeologist.

1.2 The required archaeological works were outlined in the *'Brief for a programme of archaeological recording'* issued by the County Archaeologist and detailed in the project design (Morris 2004). Archaeological recording on site was carried out in accordance with the Institute of Field Archaeologists *'Standards and Guidance for an Archaeological Watching Brief'* (IFA 2001).

1.3 Rachel Heaton, Richard Macpherson Barrett, Tony Morris and Edmund Stratford undertook the archaeological monitoring between the 20th June 2005 to 29th January 2007 (GCCAS). Toby Catchpole and Jo Vallender (GCCAS Senior Project Officers) managed the project.

2 Site location (see Figures 1 and 2)

The Netheridge section of the South West Bypass lies between 2.5km and 3.8km south-west of Gloucester City Centre, between the junction of Bristol Road and Cole Avenue (OS NGR 38135 21530) and the southern end of Secunda Way (Hempsted Bypass; OS NGR 38183 21646). The route measured 1.35km in length and was subdivided by road chainage markers (see Figure 2). The site was geologically located on the Blue Lias and Charmouth Mudstone Formations, with overlying drift deposits in two places. In the central section of the site (road chainage c.900-1400) the solid geology was overlaid by Tidal Flats clays. While to the south, through the western arm of the canal and the southern end of the road (road chainage 300-500), there were bands of Alluvial clays (BGS 2006).

3 Archaeological background

3.1 Information regarding the historical and archaeological background of the study area and its immediate surroundings was sought from the project design (Morris 2005), The Gloucester Urban Archaeological Database (GUAD) and Gloucestershire County Council Sites and Monuments Record (GSMR). Cartographic sources curated by Gloucestershire County Council Archaeology Service were also examined.

3.2 Summary of previous archaeological work.

3.2.1 In 1992, an archaeological desk based assessment (DBA) was undertaken by Gloucester City Archaeology Unit (Atkin 1992), for the route of the Bypass. It described the land-use across the study area as largely pasture, preserving ridge and furrow in some areas (see Figure 1). Development was only considered to have occurred in the last several hundred years. A scatter of Roman finds were recovered from immediately south of the Bristol Road/Cole Avenue junction, at the southern end of the Bypass, there was no clear evidence of structures or a possible crossing of Daniels Brook reported. The report suggested Roman field systems may have extended west of the canal line, and finds distribution and the general topography suggest a possible Roman occupation site west of Flood Compensation Area A.

3.2.2 A geophysical survey was undertaken in 1993 at five locations along the route of the Bypass by Geophysical Surveys of Bradford (Stephens 1993). No clear evidence for archaeological features was recorded within the Netheridge Section of the road corridor, other than possible linear trends suggesting ridge and furrow. Results from the southern end of the route suggested significant masking of potential evidence by modern dumping (Stephens 1993).

3.2.3 In 1993 an archaeological evaluation (Atkin and Greatorex 1993) was undertaken by Gloucester City Excavation Unit, along the line of the Bypass and a total of eleven trenches were excavated. Recent deep ploughing had removed ridge and furrow previously visible on aerial photos of the 1960s. In one of the trenches (trench 9), to the north-west of the BT depot (Chainage 1450), two inter-cutting ditches also identifiable on a 1960s aerial photograph and recognisable on the geophysical survey were recorded. One of the ditch fills contained possible 1st century AD pottery. No other finds or features of archaeological significance were recorded.

3.3 Summary of archaeological sites in immediate vicinity

3.3.1 There is no recorded evidence of prehistoric activity in the vicinity of the Netheridge section of the Gloucester Bypass. The earliest known activity in the area has been dated to the Roman period. In addition to the Roman activity highlighted in the DBA (Atkin 1992) and the evaluation (Atkin and Greatorex 1993), the current Bristol Road, which lies east of the Bypass route, follows the line of a Roman Road linking Gloucester with Sea Mills in Avon (GSMR 7365).

3.3.2 Beneath the Bristol Road immediately to the north-east of the Bristol Road/Cole Avenue junction, pitched stone make-up layers with two successive limestone surfaces, of post-medieval date, have been recorded (GUAD 652).

3.3.3 The Gloucester to Sharpness canal, the second biggest canal in England, was begun in 1794 (GSMR 11157), measuring 29.65km in length and 27.43m in width. Numerous swing bridges crossed the canal, many of which survive, each with its bridgekeeper's house (including GSMR 20315 swing bridge and house at Hempstead).

3.3.4 The old Standard Match Company factory (GSMR 20328), was built at Hempsted Bridge in 1920, to the south-east of the new road corridor, on the west side of the canal.

3.3.5 A watching brief on the Cole Avenue Junction of the Bristol Road (GSMR 17213) was undertaken in 1993 and no significant archaeological deposits were observed.

3.3.6 The 1999 watching brief on the Gloucester South-West Bypass Hempsted Section (GSMR 20509) recorded two World War II underground petrol storage containers to the north of Hempsted Lane. Other World War II remains, including four more storage tanks, an air raid shelter and a series of linking tunnels, were left undisturbed. The banks of a disused railway were incorporated into the scheme.

3.4 Cartographic Evidence

The 19th and 20th century maps show the area of the Bypass dominated by a pattern of enclosure fields, largely under pasture (Gwatkin 1994, Ordnance Survey 1884, 1902, 1923, 1936 and 1969). Evidence, from historic aerial photographs, of ridge and furrow cultivation has been annotated on to a map held by Gloucestershire County Council Sites and Monuments Record (OS 1975), which shows the earthworks in fields immediately to the north, north-east and south-east of Netheridge Farm (see Figure 1).

4 Purpose of the monitoring

In the IFA document referred to at 1.2 above:

"The definition of an archaeological watching brief is a formal programme of observation and investigation conducted during any operation carried out for non archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is the possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive."

"The purpose of a watching brief is to allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works" (IFA 2001).

5 Methodology

5.1 There were a number of planned phases associated with the construction of the Bypass, those which had the potential for archaeological deposits, are listed below and are discussed in the same order in the results section.

- The Site Compound Foundations for the site accommodation
- Road Topsoil striping and levelling along the route of the new road
- Canal The re-routing of the Gloucester to Sharpness canal
- Flood Compensation Area A Excavation of a flood compensation area
- Flood Compensation Area B Excavation of a flood compensation area
- Road junctions The remodelling of road junctions
- Roadside ditch Excavation of a roadside ditch
- New watercourses Excavation of a two new watercourses (Whaddon Brook and Daniels Brook)
- New access road to Netheridge Farm Excavation for a reinforced concrete road
- Gloucester City access ramp New access ramp for Gloucester City

5.2 The groundworks were carried out on a massive scale to enable a rapid completion of the project. Monitoring for archaeological deposits was hindered by the speed of stripping and the size (35 tonne) and speed of the mechanical excavators. In places the groundworks extended to depths of 3m, and therefore recording was carried out from the edge of the excavations. Suitably qualified archaeological staff undertook the monitoring of groundworks. Where deposits were exposed, examination and recording both in plan and section was carried out.

5.3 All deposits were recorded on a pro-forma context sheet. A site location plan indicating north and based on the Ordnance Survey 1:2500 map (OS 2007) was prepared. A photographic record of the investigations was completed, included black and white prints and colour transparencies (on 35mm film), illustrating in both detail and general context the principal features of the site.

5.4 The site archive is presently stored at Shire Hall, Gloucester under a unique site code, GSMR 27871 issued by the County Sites and Monuments Record Officer. It is intended that it will eventually be deposited with the Gloucester City Museum and Art Gallery, for long-term storage.

6 Results

The results of the archaeological work are outlined below, and are discussed in the same sequence as listed in methodology. The relevant deposits are discussed in stratigraphic order starting with the earliest, which are listed in Appendix 1. Cut numbers are shown in square brackets [] and other context numbers are shown in rounded brackets (). Measurements are given using the MoLAS standard (i.e.1-99mm, 0.1-0.9m, 1m) (MoLAS 1994).

6.1 The Site Compound (Figure 3)

An area of ground had been cleared and levelled at the western end of the site for a site compound, situated to the south of Netheridge Close, before the arrival of the site archaeologist. Three foundation trenches, for the concrete bases of the site cabins were excavated. The larger north-west to south-east orientated trench measured 9.70m in length, 4m in width and was 0.55m in depth. While the two parallel trenches, measuring 21m in length, 0.80m in width and 0.55m in depth, were excavated at right angles to the first.

In all trenches, the natural Mudstones (103) were truncated by a series of undated small furrows [115] [117] which were orientated north-east to south-west (seen in section). Above which was an undated agricultural soil (102) and the modern topsoil (100).

6.2 Road - strip (Figure 2)

The groundworks for the main carriageway were undertaken in several phases, which consisted of the stripping of the topsoil and other deposits down to the natural deposits. The areas stripped followed the line of the new carriageway and varied in width between 13m to 55m. These impact areas were then levelled prior to the construction of the road. Four post-medieval archaeological features (see Appendix 1 for descriptions), comprising three ditches and a spread of building rubble, were recorded during this phase of the project.

6.2.1 Road - Chainage 420 to 487 (Figure 3)

The stripping and stoning up of this area had been completed before the arrival of the archaeologist on site, with the area in the process of being stoned up. There were no visible archaeological deposits in any of the exposed sections. The natural Mudstones (103) were observed beneath the Alluvial clays (106), with a post-medieval levelling deposit (101) sealed by the topsoil (100) in the majority of the profiles. In a section adjacent to the Cole Avenue Junction, the existing modern road layers (110), which included a buried tarmac layer, were built off the natural Mudstones (103).

6.2.2 Road - Chainage 549 to 923 (Figure 3)

The natural Mudstones (102) were visible in places, over the length of this part of the scheme. Still overlying the natural in places was an undated agricultural soil (102). Two ditches [104] and [108] (see Appendix 1 for descriptions), both on a north-east to south-west orientation, were cut (102). The most southerly of these [104], was a post-medieval ditch, while the other [108] was a boundary of post-medieval/modern date (c.1900). They were both on the same alignment as the former post-medieval field system (OS 1884). Above was levelling deposit (101) and the modern topsoil (100).

6.2.3 Road - Chainage 1009 to 1250 west side only (Figure 4)

The monitored site strip between these chainages comprised a 13m to 22m wide area reduced down to, in most places, an undated agricultural soil (102). The only other context encountered was the overlying topsoil (100).

6.2.4 Road - Chainage 1256 to 1409 (Figure 4)

No archaeological features of any significance were recorded in this length of the road strip. The underlying solid geology (103), was overlain by Tidal Flat clays (107). Above was the modern topsoil (100).

6.2.5 Road - Chainage 1409 to 1500 (Figure 4)

The top of the natural, (103), was recorded c.0.30m below the previous ground surface. The natural was sealed by a small spread of post-medieval building rubble (111), which was cut by a Y-shaped ditch [112] of the same date. The ditch was in the same position as, and was a continuation of, the ditch recorded in the 1993 evaluation (Atkin and Greatorex 1993), which was dated by pottery to the 1st century. Sealing the features was an agricultural soil (102) and the modern topsoil (100).

6.2.6 Road - Chainage 1500 to 1670 (Figure 5)

In this area the natural (103), was overlain by an agricultural soil (102) and the modern topsoil (100). No archaeological features or deposits were present.

6.3 Canal (Figures 1, 2 and 3)

The re-routing of the Gloucester to Sharpness canal involved groundworks in two areas, those for the new course (Canal Groundworks A) and those on the old/existing course (Canal Groundworks B).

6.3.1 Canal Groundworks A (Figure 3)

A new length of canal was cut through farmland, joining two lengths of the existing canal by by-passing a bend located at the southern end (centred on chainage 500) of the new road, where a new major junction was to be located. The groundworks for the new section of canal comprised the excavation of an area measuring c.300m in length, up to 44m in width and up to 3m in depth. The area has been divided into areas to the east and the west, of the new road, for ease of understanding.

On the eastern side, the natural Mudstones (103) were recorded in section, through which had been cut north-east to south-west orientated ditches [115] and [117], probably the continuation of ridge and furrow cultivation. These ditches were only recorded in section. The ditches were sealed by an agricultural soil (102) and the modern topsoil (100).

To the west of the new road line, the natural Mudstones (103), were sealed by Alluvial clays (106). Observed cutting through the natural deposits was a backfilled watercourse (114), identified as a former section of the Daniels Brook. The course of the Daniels Brook in the study area, had formerly cut through farmland and had been culverted beneath the Gloucester to Sharpness canal. When a Sewage Treatment Works (STW) was constructed in the 1960s, between the River Severn and the canal, it appears that the brook was either culverted or diverted as it is no longer visible on an Ordnance Survey map dating to 1969. Therefore the backfilling of the brook, dates to this period. Sealing Daniels Brook (114) was a levelling deposit (101) and the modern topsoil (100).

6.3.2 Canal Groundworks B (Figure 3)

The groundworks for this phase of the scheme were within the existing cut of the canal and were only partly monitored. On either side of the new road, the canal was drained, the silt removed and a new compacted layer of clay was in the process of being added to reseal the canal, during the site visit.

6.4 Flood Compensation Area A (Figure 4)

Work for this area was completed in three phases. No features of archaeological significance were recorded during the excavations.

In August 2005, an area was excavated to the west of the line of the new carriageway between chainage 1050 and 1275. The excavation had been mostly completed before the arrival of the archaeologist on site, which including the removal of the topsoil (100). All deposits were recorded in section, the natural Mudstones (103), were sealed by the Tidal Flat clays (107) and above which was the topsoil (100). In March and November 2006 the original area was widened to enlarge the Flood Compensation Area, to c.1.55ha. To the south of the original excavations, the extended area was excavated down to an agricultural soil (102), through the modern topsoil (100). Further excavation took place in October 2006 without archaeological monitoring, with half of this area having been excavated down to the natural Mudstones (103). The groundworks continued intermittently until November 2006. The recorded deposits comprised of the natural Mudstones (103), occasionally sealed by the Tidal Flat clays (107) in the northern and eastern parts of the area. Truncating these deposits across the whole area was a series of parallel, north to south orientated, ceramic field drains (120), c.7m apart. Above was an agricultural soil (102).

6.5 Flood Compensation Area B (Figure 4)

Area B comprised c.0.45ha and had been partly excavated prior to the arrival of the archaeologist on site. The topsoil (100) had been stripped off the whole area, with the natural Mudstones (103) exposed in the eastern half of the site. On the western portion of the site an undated agricultural soil (102) formed the working ground surface. The monitored groundworks comprised of the excavation of the natural Mudstones (103) and the removal of the remaining undated agricultural soil (102), to create a c.2.5m deep flood compensation area.

6.6 Road junctions (Figure 2)

The remodelling of the junctions at either end of the road scheme, were not monitored, therefore it is not known what impact the excavations had on any archaeological deposits present.

6.7 Roadside ditch - Chainage 932 to 1170 (Figure 4)

A V-shaped ditch, measuring c.2.54m in width and between 0.28m and 1.05m in depth, was excavated along the eastern side of the new road. The natural Mudstones (103), were recorded along the whole length of the ditch, above which was the modern topsoil (100).

6.8 New watercourses (Figure 4)

It was originally intended to undertake works on the Whaddon and Daniels Brooks, however only the excavation for the Whaddon Brook was undertaken. A new culvert for the Whaddon Brook was excavated and measured 34m in length, 9m in width and was 3.20m in depth, no archaeological features were recorded in this excavation. The natural Mudstones (103), were recorded along the whole length of the trench, which were sealed by an agricultural soil (102) and the topsoil (100).

6.9 New access road to Netheridge Farm (Figure 4)

A new access road was constructed in 2006 without being monitored. Therefore it is not known if any archaeological deposits were adversely affected during the groundworks for this work.

6.10 Gloucester City access ramp (Figure 4)

A new access ramp for Gloucester City, was added to the scheme, measuring 100m length and an average of 30m in width, off the main carriageway. The only excavation for this piece of work was a single trench, with the rest of the groundworks consisting of the importation of material from other parts of the scheme to build up the ground level. The single trench, 45m in length, 4.60m in width and more than 2m in depth, was excavated to culvert the Whaddon Brook under the new access ramp. Recorded in the trench sections were the natural Mudstones (103), sealed by the Tidal Flat clays (107) and above was the modern topsoil (100). No archaeological deposits were recorded.

7 Conclusions

The archaeological monitoring recorded six archaeological features, all of post-medieval date or later. Several ditches were recorded in the areas affected by the site compound and new canal alignment. These have been interpreted as the remains of ridge and furrow cultivations that may have originated, in this area during the medieval period. These features were previously identified by the desk based assessment (Atkin 1992) and aerial photographs information annotated on to a map held by Gloucestershire County Council Sites and Monuments Record (OS 1975). Other recorded ditches [104], [108] and [112] are considered to be the remnants of the 19th century field systems. Ditch 112 had been previously recorded in the evaluation (Atkin and Greatorex 1993), where a possible Roman date was suggested, however it is likely that the Roman pottery identified was residual, as the ditch was found to truncate a spread of post-medieval debris (111). Observed cutting thought the natural deposits on the eastern side of the canal diversion works (Canal Groundworks A) was a backfilled watercourse, identified as the former course of the Daniels Brook. The backfilling of this section of Daniels Brook occurred when the Sewage Treatment Works were constructed in the mid 1960s. There was no evidence for any archaeological activity earlier than the post-medieval period, recorded during the monitoring of this scheme.

8 References		
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Ordnance Survey	1923	County Series plans 3^{rd} edition, OS Digital data held on GCC corporate GIS
Ordnance Survey	1936	County Series plans 4^{th} edition, OS Digital data held on GCC corporate GIS
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Ordnance Survey	1969	OS Digital data held on GCC corporate GIS
Ordnance Survey	1975	1:10000 Plan. Sheet SO 81 NW. Annotated by GSMR.
Ordnance Survey	2007	Ordnance Survey digital data 1:2500 plans held on GCC corporate GIS
Stephens, C.	1993	Report on Geophysical Survey Western Radial Road. Report No. 93/01. Geophysical Surveys of Bradford. Unpublished Typescript Report

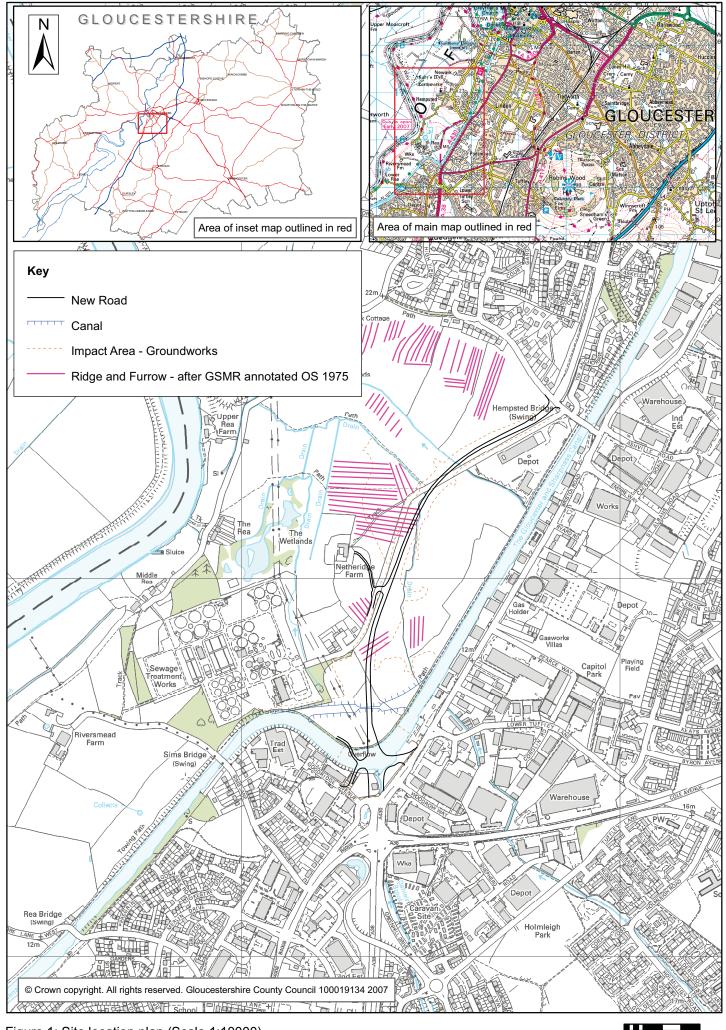


Figure 1: Site location plan (Scale 1:10000)

0

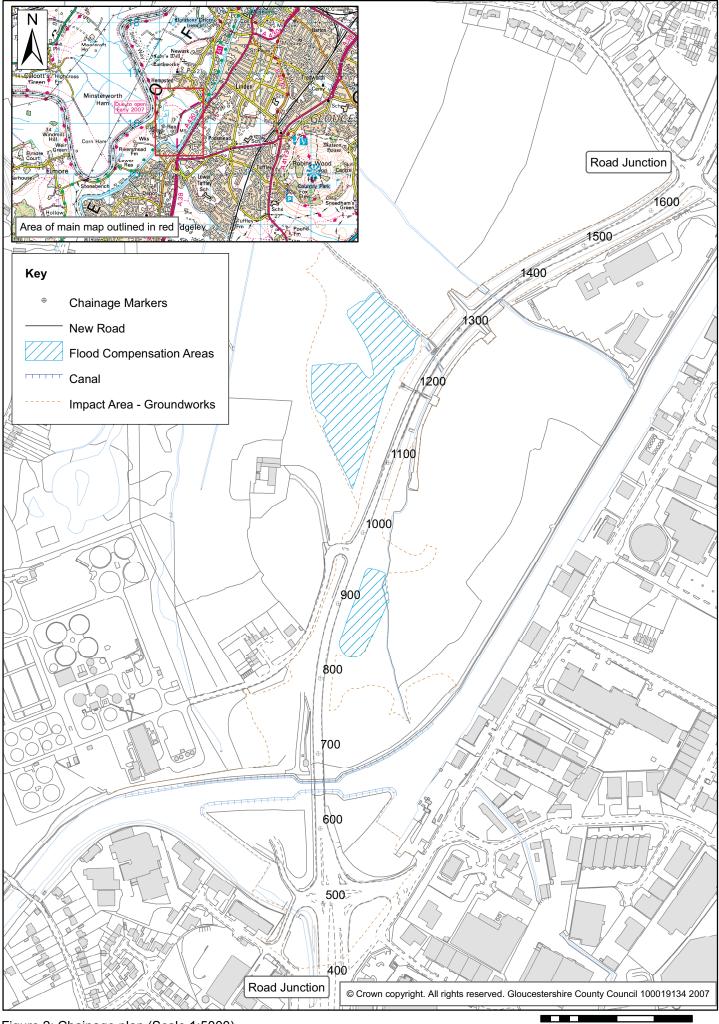


Figure 2: Chainage plan (Scale 1:5000)

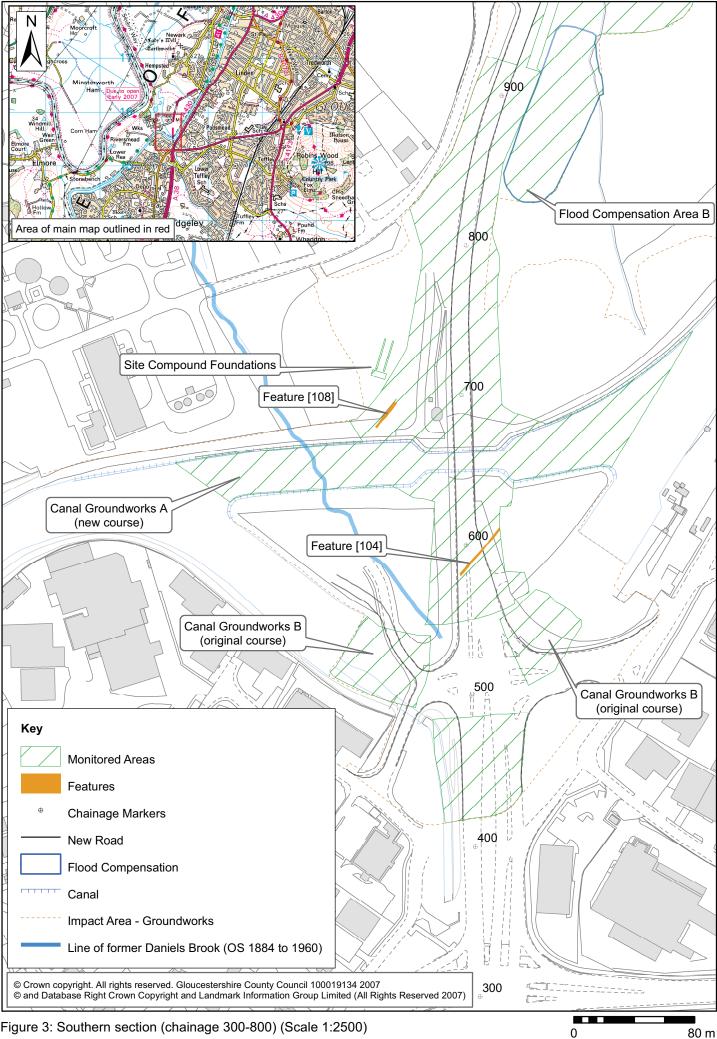


Figure 3: Southern section (chainage 300-800) (Scale 1:2500)

80 m

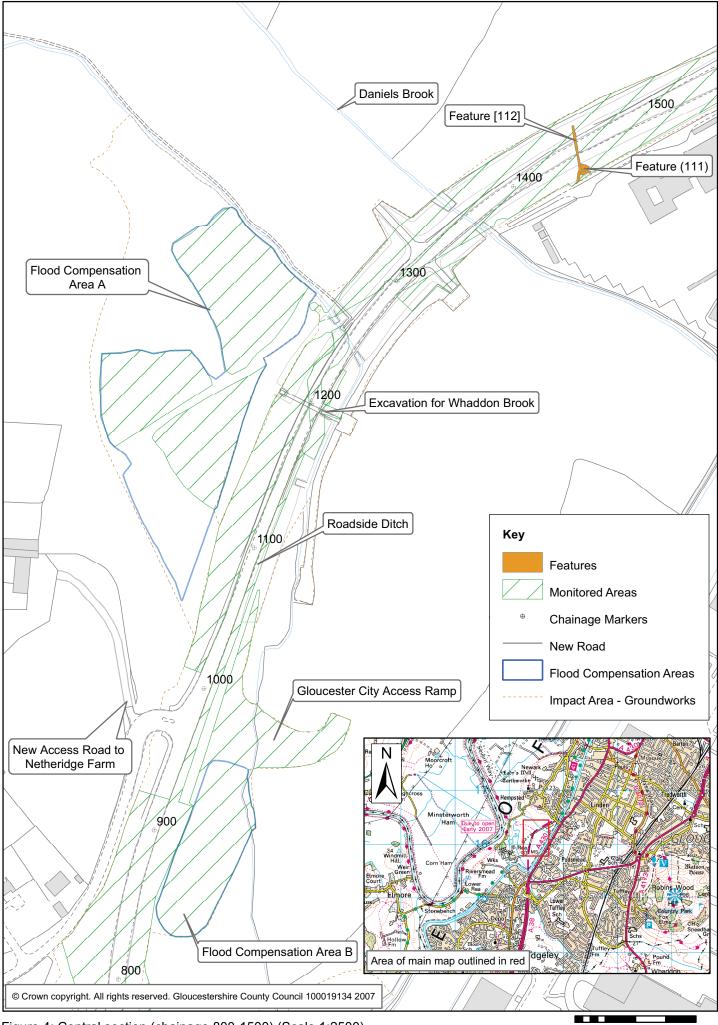


Figure 4: Central section (chainage 800-1500) (Scale 1:2500)

80 m

0

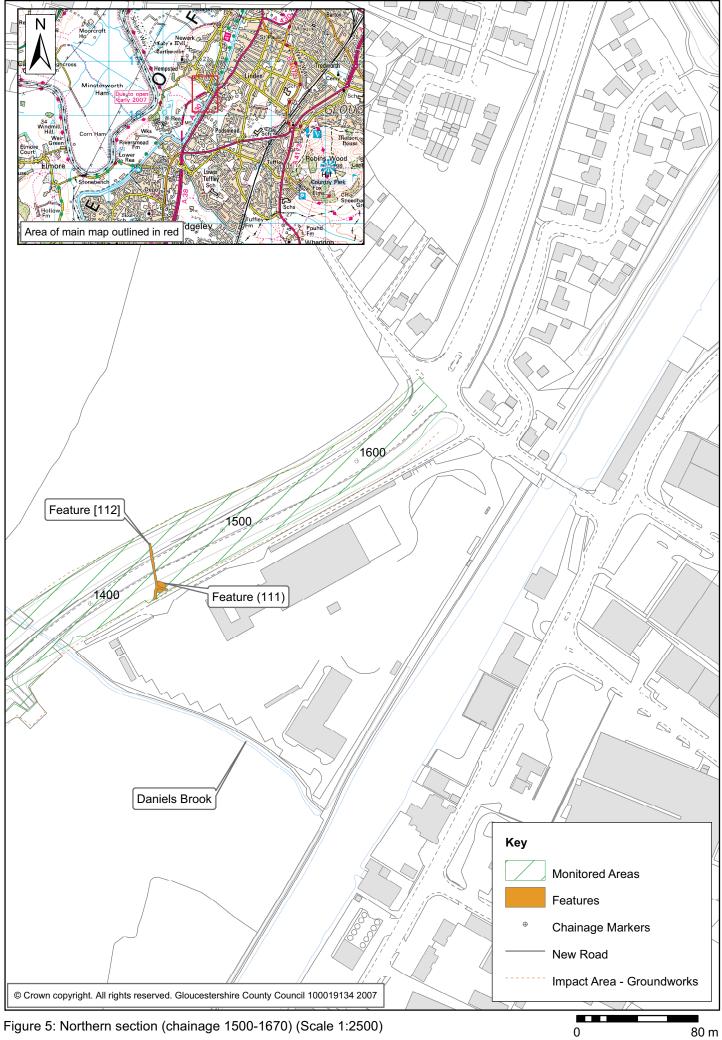


Figure 5: Northern section (chainage 1500-1670) (Scale 1:2500)

Appendix

Context number	Definition	Description	Dimensions (width & length of deposits same as excavation areas unless stated)	Date/notes
100	Topsoil	Firm, medium to dark grey brown, clay silt, occasional small to medium angular and rounded stones, small frequent fragments coal slag, brick and tile	80mm-0.23m	Modern
101	Levelling deposit	Firm, blue grey, clay, moderate small to medium angular and rounded stones and occasional brick small to medium sized brick fragments	0.23m	Post-medieval
102	Agricultural soil	Firm, mid orange brown, clay silt, moderate small to medium angular to rounded stones	0.19m	Undated
103	Natural	Blue Lias and Charmouth Mudstone Formations		Geology
104	Ditch/field boundary	Linear orientated north-east to south- west	39m long, 1.30m wide	Post-medieval
105	Fill 104	Firm, mid brown, clay silt, occasional small to medium sized stones. Post medieval artefacts all discarded	39m long, 1.30m wide	Post-medieval
106	Natural	Alluvial clays		Drift Geology
107	Natural	Tidal Flats clays - pale yellow grey clay silt to blue grey clay silt	94m long, 44m wide and 1.20m depth	Drift Geology
108	Ditch/field boundary	Linear orientated north-east to south- west	21m long, 1.30m wide	Post- medieval/modern
109	Fill 108	Firm, dark brown grey, clay silt, occasional small stones.	21m long, 1.30m wide	Post- medieval/modern
110	Road layers	Tarmac, road stone	1.80m	Modern
111	Spread	Compact, thin spread of small and large stones containing fragments of brick and tile.	0.03m to 0.05m deep. Covered area c.8m by 8m	Post-medieval
112	Ditch/field boundary	Y' shaped feature, orientated north to south	36m long by 1.50 m to 2m wide	Post-medieval
113	Fill 112	Loose, blackish brown organic clay silt	36m long by 1.50 m to 2m wide	Post-medieval
114	Old river course	Moderate, dark grey brown, clay silt	32m long 7m wide	
115	Furrow	Cut of furrow	1.31m wide 0.15m deep	
116	Fill 115		1.31m wide 0.15m deep	
117	Furrow	Cut of furrow	1.14m wide 0.19m deep	
118	Fill 117		1.14m wide 0.19m deep	
119	Cut field drain	Linear narrow cut containing (120)		Modern
120	Field drains	Ceramic 1ft sections of pipes		Modern

Appendix 1 Gazetteer of contexts