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SUMMARY

Cotswold Archaeological Trust was commissioned by MacGregor Smith, on behalf of Arlington Securities Plc, to undertake an archaeological evaluation of a proposed link road between the Brockworth Bypass and Gloucester Business Park.

Evidence of Romano-British activity including enclosure and boundary ditches, and a ditched trackway, were revealed within the study area. Three separate medieval ridge and furrow field systems were also identified.
1. INTRODUCTION

1.1 Introduction

1.1.1 In June 1998 Cotswold Archaeological Trust was commissioned by MacGregor Smith, on behalf of Arlington Securities Plc, to undertake an archaeological evaluation of a proposed link road between the Brockworth Bypass and Gloucester Business Park (SO 882 167 and SO 885 176 respectively) (Fig. 1).

1.1.2 The fieldwork was undertaken in compliance with the Standard and Guidance for Field Evaluation issued by the Institute of Field Archaeologists (IFA); and the Statement of Standards and Practices Appropriate for Archaeological Fieldwork in Gloucestershire issued by Gloucestershire County Council Archaeology Section. A monitoring visit was made by Mr C. Parry, Archaeological Officer, Gloucestershire County Council, on the 10th July 1998.

1.2 The Study Area

1.2.1 The link road passes through agricultural land north of the Hucclecote Road/Barnwood Bypass as far as the newly constructed Brockworth Bypass. The area of archaeological interest consists solely of the proposed road corridor extending north from the roundabout at the junction of Hucclecote Road and the Barnwood Bypass to the Horsebere Brook. This comprises 3.6 hectares of open agricultural land, currently scrub land, but previously under arable cultivation.

1.2.2 The application area lies within an area of mixed geology. The underlying solid geology consists of Lower Lias clays, capped in places by eroded remnants of the Third or Main terrace gravels. Topographically the study
area slopes gently from 45.3m OD in the south to 41.7m OD at its northern limit.

1.3 *Archaeological and Historical Background*

1.3.1 An archaeological assessment of the study area was undertaken in 1994 (Anon n.d.). The results of the assessment indicate that although no archaeological records were identified from the study area itself, the application area lies within an area of moderate archaeological potential.

1.3.2 The study area lies approximately 600m east of a Scheduled Ancient Monument (SAM), (County Monument No. 188: *Hucclecote Roman villa*). Recent archaeological fieldwork undertaken within the immediate vicinity of the villa in advance of the construction of the Brockworth Bypass revealed further Romano-British buildings, a corn dryer and a complex system of enclosures centred on SO 8777 1760 (Parry 1994, Parry and Cook 1995).

1.3.3 Immediately to the south of the study area the line of Ermine Street, the major Roman road linking the towns of Silchester (*Calleva Atrebatum*) and Cirencester (*Corinium*) with Gloucester (*Glevum*), is preserved in the line of the Hucclecote Road and the former A417 through Brockworth.

1.3.4 Aerial photographic evidence suggests medieval ridge and furrow cultivation is present throughout the study area.

1.4 *Archaeological Specification and Methods*

1.4.1 An archaeological specification issued by CAT to evaluate the archaeological potential of the study area was approved by Mr C. Parry, Archaeological Officer, Gloucestershire County Council.
1.4.2 The objective of the evaluation was to establish the extent, depth and nature of any archaeological deposits within the application area, in order that an informed decision on their importance in a local, regional or national context could be made.

1.4.3 The evaluation was undertaken in two phases. The initial phase proposed a geophysical survey over the entire study area. The preliminary results of this survey were utilised to inform a programme of evaluation trenching, which were targeted upon potential archaeological features. The evaluation trenching was fulfilled by the excavation of sixteen, 30m long trenches. All trenches were excavated by mechanical excavator equipped with a toothless grading bucket. All machining was carried out under archaeological supervision to the top of the first significant archaeological deposit or the natural substrate, whichever was encountered first.

1.4.4 Where archaeological deposits were encountered a representative number were sampled by hand excavation in accordance with CAT Technical Manual 1 Field Recording Manual (1996).

1.4.5 All artefacts recovered were catalogued and analysed in accordance with CAT Technical Manual 3 Treatment of Finds Immediately after Excavation (1995). Particular emphasis was given to potentially datable artefacts such as pottery. A full written, drawn and photographic record was kept during the programme of works.

1.4.6 The finds and site archive will, subject to agreement with the legal landowner, be deposited with an appropriate museum.
2. EVALUATION RESULTS

2.1 Geophysical survey

2.1.1 The geophysical survey revealed a number of features of archaeological potential, including enclosure and boundary ditches, a ditched trackway, ridge and furrow cultivation, as well as discrete anomalies. A full report on the geophysical survey is contained within Appendix 3.

2.2 Evaluation Trenching

2.2.1 The evaluation was fulfilled by the excavation of sixteen trenches totalling 480m in length. The trench positions were located according to the plan shown as Figure 2, and were targeted upon features identified during the geophysical survey and also to sample apparently blank areas where no significant geophysical responses were identified.

2.2.2 The natural clay and/or gravel substrate was revealed within the study area between 39.6m OD and 45.3m OD. Alluvial clays sealed the natural substrate.

2.2.3 A description of all significant archaeological features is presented within this section.

2.3 Prehistoric

Trench 11 (Fig. 13)

2.3.1 The natural terrace gravels, (1107), were revealed at a depth of 1.6m below the present ground surface, sealed by thin red-brown gravelly clay horizon (1106), interpreted as the original land surface. Six subcircular features,
ranging in diameter from 0.22m to 0.58m, were identified cutting deposit (1106) and the natural gravels. No artefactual material was retrieved from any of the features. The features and original land surface were sealed by 1.25m of alluvial clays (1103/1104/1105).

2.4 Romano-British

2.4.1 Romano-British deposits were encountered within trenches 3, 4, 5, 6, 7, 8, 9, 10 and 16. Unless otherwise stated all interpretation of features are based upon their correlation with linear anomalies identified during the geophysical survey.

Rectilinear Enclosures (Figs. 2, 5, 6, 8, 10 & 16)

2.4.2 Two rectilinear enclosure was identified close to the western limit of the study area. Three evaluation trenches, 3, 4, and 16, were specifically targeted to identify and date the northern most enclosure (Enclosure A). The second enclosure (Enclosure B), identified 25m to the south, was revealed within trenches 6 and 8.

2.4.3 Ditch [304] was revealed 6m from the north-eastern limit of trench 3. It measured 0.9m in width and was fully excavated to a depth of 0.45m. It contained two fragments of Romano-British tile. The ditch is interpreted as the northern return of enclosure A.

2.4.4 Ditch [301] was identified 3m from the south-western limit of trench 3. It measured 1.6m in width and was fully excavated to a depth of 0.6m. It contained grey-brown clay primary fill (302), and orange-grey silty clay secondary fill (303), from which 21 sherds of Romano-British pottery and 2 fragments of tile were retrieved. The ditch is interpreted as an internal division within enclosure A.
2.4.5 Ditch [401] was identified 13m from the north-western limit of trench 4. It measured 1.7m in width, but remained unexcavated. The ditch correlates with the eastern boundary of enclosure A.

2.4.6 Ditch [1605] was identified 17m from the south-western limit of trench 16. It measured 0.8m in width and was fully excavated to a depth of 0.54m. It contained grey-brown clay primary fill (1606), and orange-grey silty clay secondary fill (1607), from which 26 sherds of Romano-British pottery and 3 fragments of tile were retrieved. The ditch is interpreted as the southern return of enclosure A.

2.4.7 Ditches [603]/[605] and [611] represent the western and eastern extent of the enclosure B respectively. Ditch [605] measured at least 0.7m in width and was fully excavated to a depth of 0.38m. It contained orange-brown silty clay fill (606) from which no artefactual material was retrieved. It had subsequently been recut by ditch [603]. Ditch [603] measured 1.6m in width and was fully excavated to a depth of 0.7m. It contained orange-brown silty clay fill (604) from which 36 sherds of Romano-British pottery and 7 fragments of roof tile were retrieved.

2.4.8 Ditch [611] was revealed 15m east of ditch [603]. It measured 1.4m in width and was fully excavated to a depth of 0.75m. No artefactual material was retrieved from the feature.

2.4.9 Ditch [801] revealed within trench 8 represents a southern spur attached to enclosure B. The ditch measured 2.2m in width and was fully excavated to a depth of 0.68m. It contained 16 sherds of Romano-British pottery and 5 fragments of tile.

Possible Trackway and associated field boundaries. (Figs 2, 10, 11 & 12)

2.4.10 Within trench 10 two north to south aligned ditches, [1004] and [1010], correlate closely with linear anomalies identified during the geophysical survey, and are interpreted as a ditched trackway. Ditch [1004] measured
1.9m in width and was fully excavated to a depth of 0.8m. It contained mid brown silty clay fill (1005) from which 16 sherds of Romano-British pottery were retrieved. Ditch [1010] was revealed 12m east of, and parallel to ditch [1004]. It measured at least 1.3m in width and was fully excavated to a depth of 0.58m. It contained mid brown silty clay fill (1011) from which 4 sherds of Romano-British pottery were retrieved.

2.4.11 The geophysical survey indicated that a number of broadly east to west orientated ditches are associated with the ditched trackway. Although the physical relationships between these ditches and the trackway were not identified within the evaluation trenches, two of the ditches were excavated within trench 9.

2.4.12 Due to the similarity of fills it remains undetermined whether ditch [901]/[903] was constructed as a double ditch, or whether it is representative of two phases of activity. Ditch [901] measured at least 2.2m in width and was fully excavated to a depth of 0.68m. Ditch [903] measured at least 1.3m in width and was excavated to a depth of 0.76m. Eight sherds of Romano-British pottery were retrieved from the ditch complex.

2.4.13 Ditch [911] was identified 4m north of [901]/[903]. It measured 1.4m in width and was fully excavated to depth of 0.28m. No artefactual material was retrieved from fill (912).

Other Romano-British features (Figs 7 & 8)

2.4.14 A curvilinear ditch [615] was identified within trench 6. It measured at least 4.2m in length, 0.24m in width and was fully excavated to a depth of 0.12m. No artefactual material was retrieved from the feature.

2.4.15 Posthole [609] was identified 9m from the western limit of trench 6. It measured 0.27m in diameter and was fully excavated to a depth of 0.22m. One sherd of Romano-British pottery was retrieved from fill (610).
2.4.16 Ditch [503] was revealed at the western limit of trench 5. It was orientated north-west to south-east, measured at least 0.35m in width and 0.28m in depth. One sherd of Romano-British Severn Valley ware was retrieved from fill (504).

2.4.17 Ditch [505] was identified 5m from the western limit of trench 5. It was orientated north-east to south-west, measured at least 0.95m in width and was fully excavated to a depth of 0.4m. Eight sherd of Romano-British pottery were retrieved from fill (506).

2.5 Medieval

2.5.1 Three separate medieval ridge and furrow field systems were identified throughout the study area. At the northern limit of the study area the ridge and furrow was orientated approximately north-west to south-east and was equally spaced at 8m intervals. Within the central area of the site, the ridge and furrow was orientated north-east to south-west, equally spaced at 6.5m intervals, and was broadly parallel with the main alignment of the Romano-British enclosures. At the southern extent of the site, the ridge and furrow was orientated north to south and spaced at 8m intervals.

2.6 Post-medieval and modern

2.6.1 Post-medieval activity was limited to the identification of a relict field boundary. The boundary was represented by a linear alignment of amorphous anomalies during the geophysical survey, and by a narrow linear ditch within trenches 5, 7, 8, 10 and 13. A system of field drains was identified within all of the furrows associated with the ridge and furrow implying the medieval field systems were visible as earthworks at least until the late nineteenth to early twentieth century. A modern sewer pipeline, clearly visible during the geophysical survey, dissects the study area.
4. DISCUSSION

4.1 Date and Interpretation

4.1.1 The results of the evaluation trenching correlate closely with the findings from the earlier geophysical survey and have established the presence of archaeological deposits within the study area (Fig 2).

4.1.2 The earliest datable archaeological activity is represented by Romano-British enclosure and boundary ditches. However the possibility that the subcircular features identified within trench 11 may represent early prehistoric activity should not be overlooked, especially in view of the known exploitation of the local terrace gravels, most notably within the nearby Barnwood area (Darvill 1987), from the Palaeolithic period onwards.

4.1.3 The Romano-British activity is representative of an agrarian landscape, typified by small enclosures and boundary ditches. As the study area lies approximately 600m east of the Roman villa at Hucclecote, the enclosures may be interpreted as peripheral elements of this settlement. Previous archaeological investigations close to the villa have revealed a similar complex of boundary ditches enclosing small rectilinear fields or paddocks (Parry 1994).

4.1.4 It remains undetermined whether the north to south aligned parallel ditches revealed during the geophysical survey and later investigated within trench 10, (ditches [1004] and [1010]), are representative of further field boundaries, or whether they may be interpreted as a ditched trackway. The latter interpretation may be particularly valid as the ditches appear to run perpendicular to the known alignment of Ermine Street situated immediately to the south of the study area. Although the geophysical evidence suggests the ditches do not extend to the southern periphery of the study area, this may partly be explained by the noted change in the local geology to Lower Lias clay within this area, and the consequent difficulty of detecting features.
4.1.5 The narrow curvilinear gully and postholes identified within trench 6 may be representative of structural activity, although it remains undetermined whether such buildings are of domestic or agricultural origin. The moderate assemblage of Romano-British building material, including floor and roof tiles retrieved from trenches 3, 5, 6, 8, 10 and 16, may further suggest that buildings, perhaps peripheral elements of the main villa complex, survive within the immediate vicinity of the study. Such an interpretation may also imply that the postulated ditched trackway provided access to these buildings. However, given the relative close proximity of the Roman villa, it may be of equal validity to interpret the building material as being derived from the villa complex itself.

4.1.6 Two phases of Romano-British activity may tentatively be identified. The rectilinear enclosures identified along the western limit of the study area are orientated north-east to south–west in contrast to the postulated trackway and associated field systems which are orientated approximately north to south. However, defining the chronological development of this activity remains problematic due to the lack of any relevant stratigraphic relationships identified between the features. Such a problem is further compounded by the predominance of Severn Valley Ware pottery retrieved from the features, which due to its long production span and conservative form traditions remains difficult to accurately date. However, a broad date range from the second to late fourth-centuries is appropriate to both the artefactual material retrieved during the evaluation and the known life-span of the villa.

4.1.7 Medieval activity is restricted to the identification of three separate ridge and furrow field systems. Within the central area of the site, the ridge and furrow was broadly parallel with the main alignment of the Romano-British enclosures. This mirroring of the earlier field boundaries suggests that the general layout of the Romano-British field systems had survived long enough to influence the basic alignments of early medieval agricultural activity. A similar pattern of development had previously been identified during archaeological fieldwork close to the main villa site (ibid).
5. MITIGATION STATEMENT

5.1 The archaeological evaluation (comprising geophysical survey and trial trenching) carried out in July 1998 by Cotswold Archaeological Trust has demonstrated the presence of Roman activity across part of the proposed Link Road. The archaeological remains included a series of ditched enclosures and other smaller features, probably representing a settlement, linked by a ditched trackway to the Roman road of Ermin street to the south of the site. The remains are considered to be certainly of local importance, and possibly of some regional significance, linking in to a wider Roman landscape.

5.2 The road construction initial groundworks takes three forms; an area of cutting, an area of embankment, and area of bunding using topsoil (Fig 3). The following mitigation, based on the principles outlined in PPG16 (DOE 1990) is proposed:

A. In the area of bunds- preservation *in situ* of the archaeological deposits by constructing the on top of the intact topsoil horizons (blue on Fig 3). No topsoil will be stripped away and, during construction, damage will be alleviated by the use of tracked machines laying bund material in 0.25m layers over previous levels. Details of construction methods will be found in Appendix 4.

B. In the areas of embankment and cutting- preservation by investigation, recording and publication at appropriate and agreed levels of detail. The precise scope of works (areas for detailed investigation, areas for less intensive or no work) will be defined in agreement with the County Archaeologist after topsoil stripping of the whole area of embankment and cutting. Topsoil stripping will be carried out under archaeological supervision. A site plan showing the archaeological features will be prepared during stripping and will form the basis for the scope of works. A preliminary project design has been prepared for the archaeological investigation and this will form the basis of the recording project (as amended after topsoil stripping).
6. ACKNOWLEDGEMENTS

Cotswold Archaeological Trust would like to thank Mr Charles Parry (Gloucestershire County Council) and Mr Michael Smith (MacGregor Smith) for their assistance during the course of this project.

The fieldwork was carried out by Cliff Bateman, Mark Brett, Jon Naylor and Rick Morton. The report was written by Cliff Bateman and the illustrations drawn by Pete Moore.

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APPENDIX 1

Trench descriptions
Cut features are designated by square brackets thus [000], all other deposits/layers are in round
brackets; (000). Heights are based on the spot height in the Barnwood Bypass. The level was taken to
be 44.1m OD.

Trench 1

Natural Lias clay was encountered at a depth of 2.09m below present ground level at 39.61m OD.
Evidence of NW-SE orientated ridge and furrow was revealed cutting the upper limit of the alluvial
clays.

Trench 2

Natural gravels were encountered at a depth of 1.07m below present ground level at 40.98m OD.
Evidence of NW-SE orientated ridge and furrow was revealed cutting the upper limit of the alluvial
clays.

Trench 3

Linear ditch [301]: measured 1.6m in width, 0.6m in depth, orientated NW-SE. Contains grey-brown
clay primary fill (302), and orange-grey silty clay secondary fill (303),
Linear ditch [304]: measured 0.9m in width, 0.45m in depth, orientated NW-SE. Contains orange-grey
silty clay primary fill (306), and grey-brown clay secondary fill (305).
Evidence of NW-SE orientated ridge and furrow was revealed cutting the upper limit of the alluvial
clays.

Trench 4

Linear ditch [401]: measured 1.68m in width. Not excavated within this trench.
Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial
clays.

Trench 5

Linear ditch [503]: measured at least 0.35m in width and 0.28m in depth, orientated NW-SE. Contains
grey-brown silty clay fill (504).
Linear ditch [505]: measured at least 0.95m in width and 0.4m in depth, orientated NE-SW. Contains grey-brown silty clay fill (506).

Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

Linear ditch [507]: measured 1.1m in width, orientated NE-SW. Not excavated. Equivalent to [701], [804] & [1006]

**Trench 6**

Natural gravels were encountered at a depth of 0.6m below present ground level at 42.80m OD, sealed by alluvial clays.

Linear ditch [605]: measured at least 0.6m in width and 0.4m in depth, orientated NE-SW. Contains orange-brown silty clay fill (606). Recut by ditch [603].

Linear ditch [603]: measured 1.6m in width, 0.7m in depth and was orientated NE-SW. Contains orange-brown silty clay fill (604).

Linear ditch [611]: measured 1.4m in width, 0.75m in depth and was orientated NE-SW. Contains orange-brown silty clay fill (612).

Linear ditch [613]: measured at least 1.5m in width, 0.65m in width, orientated NE-SW. Contains grey-brown silty clay fill (614).

Linear ditch [617]: measured at least 0.4m in width, orientated NE-SW. Contains grey-brown silty clay fill (614). Not excavated.

Curvilinear ditch [615]: measured at least 4.2m in length, 0.24m in width and was fully excavated to a depth of 0.12m. Contains grey-brown silty clay fill (616).

Posthole [609]: measured 0.27m in diameter and 0.22m in depth. Contains grey-brown silty clay fill (610).

Evidence of N-S orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

**Trench 7**

Alluvial clay was revealed beneath the modern plough soil horizon at a depth of 0.32m.

Linear ditch [704]: measured 2.3m in width, orientated NE-SW. Contains grey-brown silty clay fill (705). Not excavated

Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

Linear ditch [701]: measured 1.4m in width, orientated NE-SW. Not excavated. Equivalent to [507], [804] & [1006]
Trench 8

Alluvial clay was revealed beneath the modern plough soil horizon at a depth of 0.32m.

Linear ditch [801]: measured 2.2m in width, 0.68m in depth, orientated NE-SW. Contains grey-brown silty clay fill (802)

Layer (806): discrete area of burning, not fully revealed within trench, ? sub-oval. At least 0.65m in length and 0.55m in width. Not excavated.

Layer (807): discrete area of burning, sub-oval in plan. At least 0.5m in length and 0.35m in width. Not excavated.

Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

Linear ditch [804]: measured 1.4m in width, orientated NE-SW. Not excavated. Equivalent to [507], [701] & [1006]

Trench 9

Natural gravels were encountered at a depth of 0.76m below present ground level at 43.62m OD, sealed by alluvial clays.

Linear ditch [901]: measured at least 2.2m in width, 0.68m in depth, orientated approximately E-W. Contains red-brown silty clay fill (909) and grey-brown silty clay fill (906). Relationship with ditch [903] undetermined.

Linear ditch [903]: measured at least 1.3m in width, 0.76m in depth, orientated E-W. Contains red-brown silty clay fill (910) and grey-brown silty clay fill (904). Relationship with ditch [901] undetermined.

Linear ditch [911]: measured 1.4m in width, 0.28m in width, orientated E-W. Contains grey-brown silty clay fill (912).

Posthole [913]: subcircular, measured 0.42m in diameter and 0.14m in depth. Contains grey-brown silty clay fill (914).

Trench 10

Natural gravels were encountered at a depth of 0.96m below present ground level at 43.7m OD, sealed by alluvial clays.

Linear ditch [1004]: measured 1.9m in width, 0.8m in depth, orientated approximately N-S. Contains mid brown silty clay fill (1005).

Linear ditch [1010]: measured at least 1.3m in width, 0.58m in depth, orientated N-S. Contains mid brown silty clay fill (1011).

Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays.
Linear ditch [1006]: measured 1.55m in width, 1m in depth, orientated NE-SW. Contains mid grey-brown fill (1007). Equivalent to [507], [701], [804] & [1301]

**Trench 11**

Natural gravels were encountered at a depth of 1.6m below present ground level at 43.95m OD

?Posthole [1108]: Subcircular, measured 0.68m in diameter, and 0.22m in depth. Contains green-brown mottled clay fill (1109).

?Posthole [1110]: Subcircular, measured 0.25m in diameter, and 0.11m in depth. Contains green-brown mottled clay fill (1112).

?Posthole [1112]: Subcircular, measured 0.42m in diameter, and 0.12m in depth. Contains green-brown mottled clay fill (1113).

?Posthole [1114]: Subcircular, measured 0.6m in diameter, and 0.27m in depth. Contains green-brown mottled clay fill (1115).

?Posthole [1116]: Subcircular, measured 0.32m in diameter, and 0.14m in depth. Contains green-brown mottled clay fill (1117)

Layer (1105): Green-brown alluvial clay, 0.38m in depth.
Layer (1104): Orange-green alluvial clay, 0.12m in depth.
Layer (1103): Orange-brown alluvial clay, 0.37m in depth.
Layer (1102): Grey-brown silty clay subsoil, 0.13m in depth

**Trench 12**

Natural gravels were encountered at a depth of 1.25m below present ground level at 43.35m OD, sealed by alluvial clays.

Evidence of N-S orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

**Trench 13**

Natural gravels were encountered at a depth of 1.12m below present ground level at 44.18m OD, sealed by alluvial clays.

Evidence of N-S orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

Linear ditch [1301]: measured 1.55m in width, 1m in depth, orientated NE-SW. Contains mid grey-brown fill (1302). Equivalent to [507], [701], [804] & [1006]

**Trench 14**

Natural Lias clay was encountered at a depth of 0.62m below present ground level at 44.58m OD.

Evidence of N-S orientated ridge and furrow was revealed cutting the subsoil (1402).
Trench 15

Natural Lias clay was encountered at a depth of 0.58m below present ground level at 44.71m OD. Evidence of N-S orientated ridge and furrow was revealed cutting the subsoil (1502).

Trench 16

Alluvial clay was revealed beneath the modern plough soil horizon at a depth of 0.28m.
Linear ditch [1601]: measured 0.45m in width, 0.06m in depth, orientated NW-SE. Contains grey-brown silty clay fill (1602)
Linear ditch [1603]: measured 0.85m in width, 0.24m in depth, orientated NW-SE. Contains grey-brown silty clay fill (1604)
Linear ditch [1605]: measured 1m in width, 0.58m in depth, orientated NW-SE. Contains orange brown silty primary fill (1607), and grey-brown silty clay secondary fill (1606)
Linear ditch [1603]: measured 0.85m in width, 0.24m in depth, orientated NW-SE. Contains grey-brown silty clay fill (1604)
Linear ditch [1608]: measured 0.74m in width, 0.1m in depth, orientated NW-SE. Contains grey-brown silty clay fill (1609)
Posthole [1610]: subcircular, measured 0.3m in diameter, 0.18m in depth. Contains grey-brown silty clay fill (1611)
Posthole [1612]: subcircular, measured 0.23m in diameter. Contains grey-brown silty clay fill (1613). Not excavated
Posthole [1614]: subcircular, measured 0.14m in diameter. Contains grey-brown silty clay fill (1615). Not excavated
Posthole [1616]: subcircular, measured 0.41m in diameter. Contains grey-brown silty clay fill (1617). Not excavated
Posthole [1618]: subcircular, measured 0.43m in diameter. Contains grey-brown silty clay fill (1619). Not excavated
Linear ditch [1620]: measured 0.24m in width, 0.1m in depth, orientated NE-SW. Contains grey-brown silty clay fill (1621)
Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays
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Pottery Assessment

An assemblage of 181 sherds, weighing 1.109kg, was retrieved during the evaluation. The assemblage dates to the Romano-British period, and overall appears to span from the second-century to at least the late third-century, and conceivably beyond.

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Much of the assemblage was heavily fragmented (average sherd weight of 6.12g), although some pieces were still comparatively fresh.

In addition to the pottery a fired clay ring was recovered from (1005), perhaps best interpreted as a loomweight of some description.

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(302) 13 x Severn Valley Ware
       3 x Malvernian
       1 x micaceous grey ware
       4 x misc. grey ware

(504) 1 x Severn Valley ware

(506) 3x severn Valley ware
       1 x BB1
       4 x misc. grey ware

(604) 15 x Severn Valley ware
       10 x BB1, inc plain rimmed dish (c. AD 160-400)
       6 x misc. grey ware
       3 x micaceous grey ware
       1 x central gaulish samian
       1 x Malvernian jar rim

(606) 4 x Severn Valley Ware

(608) 5 x Severn Valley ware
       2 x oxidised mortaria
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|       | 6 x BB1  
|       | 1 x micaceous grey ware  
|       | 1 x misc. grey ware |
| (802) | 13 x Severn Valley ware  
|       | 1 x (? local) imitation BB1  
|       | 1 x grey ware storage jar  
|       | 1 x grey ware jar (rim) |
| (803) | 1 x Severn Valley ware |
| (902) | 6 x Severn Valley ware  
|       | 1 x grey ware  
|       | 1 x samian |
| (1005) | 10 x Severn Valley ware  
|         | 4 x hand made, heavily gritted fabric. Reduced core; oxidised surfaces  
|         | 1 x fired clay ring (diameter 0.35m) ? loom-weight |
| (1007) | 1 x Severn Valley ware |
| (1009) | 2 x misc. grey ware  
|         | 1 x BB1 |
| (1009/1011) | 1 x micaceous grey ware |
| (1011) | 3 x misc oxidised ware  
|         | 1 x micaceous grey ware |
| (1606/1607) | 14 x Severn Valley ware  
|           | 7 x BB1, including conical flanged bowl (c. 250-400)  
|           | 2 x ? Malvernian ware  
|           | 2 x misc. grey ware  
|           | 1 x micaceous grey ware |
| (1609/1611) | 5 x Malvernian ware |
APPENDIX 3

Geophysical Survey Report
APPENDIX 4

Proposed Methodologies for Construction of Landscaped Bund
Fig. 1 Location plan
Fig. 2 Study area showing location of trenches and geophysical survey results
Fig. 4  Engineers plan showing layout of proposed Link Road
Fig. 5  Trench 3, plan and sections
Fig. 6  Trench 4, plan
Fig. 8  Trench 6, plan and sections
Fig. 9  Trench 7, plan
Section 1

Fig. 10 Trench 8, plan and section
Fig. 11  Trench 9, plan and sections
APPENDIX 1

Trench descriptions

Cut features are designated by square brackets thus [000], all other deposits/layers are in round brackets; (000). Heights are based on the spot height in the Barnwood Bypass. The level was taken to be 44.1 m OD.

Trench 1

Natural Lias clay was encountered at a depth of 2.09 m below present ground level at 39.61 m OD. Evidence of NW-SE orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays.

Trench 2

Natural gravels were encountered at a depth of 1.07 m below present ground level at 40.98 m OD. Evidence of NW-SE orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays.

Trench 3

Linear ditch [301]: measured 1.6 m in width, 0.6 m in depth, orientated NW-SE. Contains grey-brown clay primary fill (302), and orange-grey silty clay secondary fill (303),

Linear ditch [304]: measured 0.9 m in width, 0.45 m in depth, orientated NW-SE. Contains orange-grey silty clay primary fill (306), and grey-brown clay secondary fill (305).

Evidence of NW-SE orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays.

Trench 4

Linear ditch [401]: measured 1.68 m in width. Not excavated within this trench.

Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays.

Trench 5

Linear ditch [503]: measured at least 0.35 m in width and 0.28 m in depth, orientated NW-SE. Contains grey-brown silty clay fill (504).
Linear ditch [505]: measured at least 0.95m in width and 0.4m in depth, orientated NE-SW. Contains grey-brown silty clay fill (506).

Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

Linear ditch [507]: measured 1.1m in width, orientated NE-SW. Not excavated. Equivalent to [701], [804] & [1006]

Trench 6

Natural gravels were encountered at a depth of 0.6m below present ground level at 42.80m OD, sealed by alluvial clays.

Linear ditch [605]: measured at least 0.6m in width and 0.4m in depth, orientated NE-SW. Contains orange-brown silty clay fill (606). Recut by ditch [603].

Linear ditch [603]: measured 1.6m in width, 0.7m in depth and was orientated NE-SW. Contains orange-brown silty clay fill (604).

Linear ditch [611]: measured 1.4m in width, 0.75m in depth and was orientated NE-SW. Contains orange-brown silty clay fill (612).

Linear ditch [613]: measured at least 1.5m in width, 0.65m in width, orientated NE-SW. Contains grey-brown silty clay fill (614).

Linear ditch [617]: measured at least 0.4m in width, orientated NE-SW. Contains grey-brown silty clay fill (614). Not excavated.

Curvilinear ditch [615]: measured at least 4.2m in length, 0.24m in width and was fully excavated to a depth of 0.12m. Contains grey-brown silty clay fill (616).

Posthole [609]: measured 0.27m in diameter and 0.22m in depth. Contains grey-brown silty clay fill (610).

Evidence of N-S orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

Trench 7

Alluvial clay was revealed beneath the modern plough soil horizon at a depth of 0.32m.

Linear ditch [704]: measured 2.3m in width, orientated NE-SW. Contains grey-brown silty clay fill (705). Not excavated

Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

Linear ditch [701]: measured 1.4m in width, orientated NE-SW. Not excavated. Equivalent to [507], [804] & [1006]
Trench 8

Alluvial clay was revealed beneath the modern plough soil horizon at a depth of 0.32m.
Linear ditch [801]: measured 2.2m in width, 0.68m in depth, orientated NE-SW. Contains grey-brown silty clay fill (802)
Layer (806): discrete area of burning, not fully revealed within trench, ? sub-oval. At least 0.65m in length and 0.55m in width. Not excavated.
Layer (807): discrete area of burning, sub-oval in plan. At least 0.5m in length and 0.35m in width. Not excavated.
Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays
Linear ditch [804]: measured 1.4m in width, orientated NE-SW. Not excavated. Equivalent to [507], [701] & [1006]

Trench 9

Natural gravels were encountered at a depth of 0.76m below present ground level at 43.62m OD, sealed by alluvial clays.
Linear ditch [901]: measured at least 2.2m in width, 0.68m in depth, orientated approximately E-W. Contains red-brown silty clay fill (909) and grey-brown silty clay fill (906). Relationship with ditch [903] undetermined.
Linear ditch [903]: measured at least 1.3m in width, 0.76m in depth, orientated E-W. Contains red-brown silty clay fill (910) and grey-brown silty clay fill (904). Relationship with ditch [901] undetermined.
Linear ditch [911]: measured 1.4m in width, 0.28m in width, orientated E-W. Contains grey-brown silty clay fill (912).
Posthole [913]: subcircular, measured 0.42m in diameter and 0.14m in depth. Contains grey-brown silty clay fill (914).

Trench 10

Natural gravels were encountered at a depth of 0.96m below present ground level at 43.7m OD, sealed by alluvial clays.
Linear ditch [1004]: measured 1.9m in width, 0.8m in depth, orientated approximately N-S. Contains mid brown silty clay fill (1005).
Linear ditch [1010]: measured at least 1.3m in width, 0.58m in depth, orientated N-S. Contains mid brown silty clay fill (1011).
Evidence of NE-SW orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays
Linear ditch [1006]: measured 1.55m in width, 1m in depth, orientated NE-SW. Contains mid grey-brown fill (1007). Equivalent to [507], [701], [804] & [1301]

Trench 11

Natural gravels were encountered at a depth of 1.6m below present ground level at 43.95m OD

?Posthole [1108]: Subcircular, measured 0.68m in diameter, and 0.22m in depth. Contains green-brown mottled clay fill (1109).

?Posthole [1110]: Subcircular, measured 0.25m in diameter, and 0.11m in depth. Contains green-brown mottled clay fill (1112).

?Posthole [1112]: Subcircular, measured 0.42m in diameter, and 0.12m in depth. Contains green-brown mottled clay fill (1113).

?Posthole [1114]: Subcircular, measured 0.6m in diameter, and 0.27m in depth. Contains green-brown mottled clay fill (1115).

?Posthole [1116]: Subcircular, measured 0.32m in diameter, and 0.14m in depth. Contains green-brown mottled clay fill (1117)

Layer (1105): Green-brown alluvial clay, 0.38m in depth.
Layer (1104): Orange-green alluvial clay, 0.12m in depth.
Layer (1103): Orange-brown alluvial clay, 0.37m in depth.
Layer (1102): Grey-brown silty clay subsoil, 0.13m in depth

Trench 12

Natural gravels were encountered at a depth of 1.25m below present ground level at 43.35m OD, sealed by alluvial clays.

Evidence of N-S orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

Trench 13

Natural gravels were encountered at a depth of 1.12m below present ground level at 44.18m OD, sealed by alluvial clays.

Evidence of N-S orientated ridge and furrow was revealed cutting the upper limit of the alluvial clays

Linear ditch [1301]: measured 1.55m in width, 1m in depth, orientated NE-SW. Contains mid grey-brown fill (1302). Equivalent to [507], [701], [804] & [1006]

Trench 14

Natural Lias clay was encountered at a depth of 0.62m below present ground level at 44.58m OD.

Evidence of N-S orientated ridge and furrow was revealed cutting the subsoil (1402).
Trench 15

Natural Lias clay was encountered at a depth of 0.58m below present ground level at 44.71m OD. Evidence of N-S orientated ridge and furrow was revealed cutting the subsoil (1502).

Trench 16

Alluvial clay was revealed beneath the modern plough soil horizon at a depth of 0.28m.

Linear ditch [1601]: measured 0.45m in width, 0.06m in depth, orientated NW-SE. Contains grey-brown silty clay fill (1602)

Linear ditch [1603]: measured 0.85m in width, 0.24m in depth, orientated NW-SE. Contains grey-brown silty clay fill (1604)

Linear ditch [1605]: measured 1m in width, 0.58m in depth, orientated NW-SE. Contains orange brown silty primary fill (1607), and grey-brown silty clay secondary fill (1606)

Linear ditch [1603]: measured 0.85m in width, 0.24m in depth, orientated NW-SE. Contains grey-brown silty clay fill (1604)

Linear ditch [1608]: measured 0.74m in width, 0.1m in depth, orientated NW-SE. Contains grey-brown silty clay fill (1609)

Posthole [1610]: subcircular, measured 0.3m in diameter, 0.18m in depth. Contains grey-brown silty clay fill (1611)

Posthole [1612]: subcircular, measured 0.23m in diameter. Contains grey-brown silty clay fill (1613). Not excavated

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Posthole [1616]: subcircular, measured 0.41m in diameter. Contains grey-brown silty clay fill (1617). Not excavated

Posthole [1618]: subcircular, measured 0.43m in diameter. Contains grey-brown silty clay fill (1619). Not excavated

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   4 x misc. grey ware

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|           | 1 x grey ware  
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|           | 4 x hand made, heavily gritted fabric. Reduced core; oxidised surfaces  
|           | 1 x fired clay ring (diameter 0.35m) ? loom-weight |
| (1007)    | 1 x severn Valley ware  
| (1009)    | 2 x misc. grey ware  
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A Report for

COTSWOLD ARCHAEOLOGICAL TRUST

on a

Geophysical Survey

carried out at

GLOUCESTER BUSINESS PARK
LINK ROAD

June 1998

Author P P Barker C.Eng MICE MIWEM AIFA
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1 SUMMARY OF RESULTS

The geophysical survey has found a number of features of archaeological interest. These include enclosure and boundary ditches as well as discrete anomalies which we suggest are investigated further.

2 INTRODUCTION

2.1 Background synopsis

Cotswold Archaeological Trust were commissioned to undertake an archaeological evaluation of the area prior to the construction of the proposed new link road. This geophysical survey forms part of that evaluation.

2.2 Site location

The site is located approximately 5.5km east of the centre of Gloucester. The OS Reference for the approximate centre of the site is SO 884 172.

2.3 Description of site

The site is bounded to the north east by Horsbere Brook, and to the south west by the old Barnwood Bypass. The survey area of some 3.5ha had been mown immediately prior to the survey taking place. The subsoils on the site are well drained calcareous fine loams over river terrace and lacustrine gravels. The base geology is Lower Lias.

2.4 Site history and archaeological potential

It is understood that a native/Romano-British settlement may extend across part of the site.

2.5 Survey objectives

The objectives of the survey were to locate any features of possible archaeological interest.

2.6 Survey methods

The single technique of magnetometer was used. This is described in a little more detail under Methodology below.

3 METHODOLOGY

3.1 Date of fieldwork

The fieldwork was carried out between 24 and 29 June 1998 when the weather was showery.
3.2 Grid locations

The location of the survey grid has been plotted onto Figure 3.

3.3 Description of techniques and equipment configurations

Magnetometer

It is well known that the Earth has a large magnetic field which can be measured by a magnetometer. In the UK this value is in the order of 48,000 nanoTesla (nT).

Geological and manmade features or objects can cause local variations in the Earth’s magnetic field which again can be measured with a magnetometer. However if two readings are taken at each station, one vertically above the other, a magnetic gradient can be established. Using sensitive instruments such as a fluxgate gradiometer, magnetic variations as small as 0.1nT can be detected.

What causes these local variations in the magnetic field? Objects that have been heated have their magnetic properties markedly changed. These are called ‘thermoremanent’ effects. These features can be very large and strong from an igneous dyke, through to a horse shoe nail in the top soil causing a ‘ferrous’ spike. Features with thermoremanent magnetisation that can be easily found with gradiometers include hearths, kilns, and brick walls.

In addition to thermoremanent effects more subtle changes in magnetisation can be detected. Top soil is generally more magnetic than its parent subsoil, particularly in high susceptibility soils. This is because of incorporated decomposed or burnt particles which are significantly more magnetic. If a ditch has been dug in the past and subsequently silted up with humic soil a weak positive linear magnetic anomaly will be formed. Similarly where an old embankment has been ploughed out leaving a zone of thinner topsoil a linear negative feature can be detected.

The magnetic survey was carried out using an FM36 Fluxgate Gradiometer, manufactured by Geoscan Research. The instrument consists of two fluxgates mounted 0.5m vertically apart. These are very accurately aligned to nullify the effects of the earth's magnetic field so that readings relate to the difference in localised magnetic anomalies rather than the general magnetic background.

3.4 Sampling interval, depth of scan, resolution and data capture

3.4.1 Sampling interval

Readings were taken at 0.5m centres along traverses 1m apart. This equates to 800 sampling points in a full 20m x 20m grid. All traverses are surveyed in a “parallel” rather than “zigzag” mode.

3.4.2 Depth of scan and resolution

The FM36 has a typical depth of penetration of 0.5m to 1.0m. This would be increased if strongly magnetic objects have been buried in the site. The collection of data at 0.5m centres provides an optimum resolution for the technique.