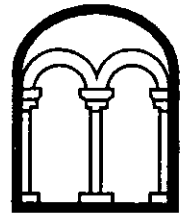
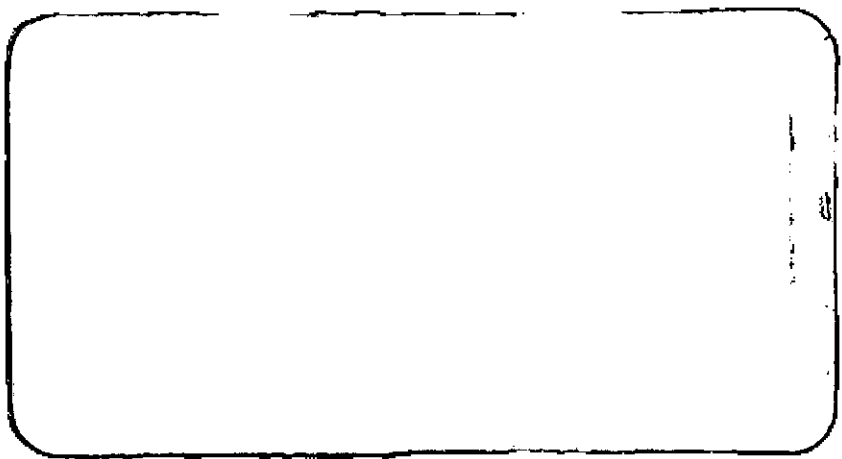


Bedfordshire County Archaeology Service



BCAS

**A1 LANGFORD TURN IMPROVEMENT
ASSESSMENT OF POTENTIAL AND UPDATED
PROJECT DESIGN**

Document 2000/74
Project TPH526

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Produced for:
Thorburn Colquhoun





Contents

List of Figures	5
List of Tables.....	5
Key terms	7
Structure of report	7
Non-Technical Summary	9
1. INTRODUCTION.....	11
1.1 Planning background.....	11
1.2 Project background	11
1.3 Site location	12
1.4 Archaeological background	12
2. ORIGINAL AIMS AND OBJECTIVES OF THE INVESTIGATION	15
2.1 National and regional research frameworks	15
2.2 Specific objectives of the investigations.....	16
3. PROVISIONAL SUMMARY OF RESULTS	19
3.1 Introduction.....	19
3.2 The late Bronze Age (1200BC-700BC).....	19
3.3 The Early/Middle Iron Age (700BC-200BC).....	19
3.4 Roman (AD43-AD400).....	22
3.5 Medieval.....	22
4. DATA QUANTIFICATION.....	23
4.1 Introduction.....	23
4.2 Structural.....	24
4.3 Artefactual.....	27
5. POTENTIAL OF DATA TO ADDRESS ORIGINAL AND NEW RESEARCH OBJECTIVES.....	33
5.1 Introduction.....	33
5.2 Original research objectives.....	33
5.2 New research objective	35
6. UPDATED PROJECT DESIGN	37
6.1 Introduction.....	37
6.2 Revised research objectives.....	37
6.3 Timetable	37
6.4 Analysis	38
6.5 Publication	38
6.6 Archiving	38
APPENDIX 1: METHOD STATEMENTS FOR ANALYSIS, PUBLICATION AND ARCHIVING.....	39
7.1 Structural data	39
7.3 Artefactual data	42
7.4 Ecofactual data.....	44
7.5 Overall publication, archiving and project management.....	45
APPENDIX 2: THE PROJECT TEAM.....	47
.....	





List of Figures

Figure 1 Location of road improvements with cropmarks and other archaeological sites in vicinity

Figure 2 Location of the various stages of archaeological investigations.

Figure 3 Results of the non-intrusive survey overlain by areas of open area excavation.

Figure 4 Open area excavation A: all features plan, with annotations

Figure 5 Open area excavation B: all features plan, with annotations

Note. all figures are bound at the back of this report.

List of Tables

TABLE 1 QUANTITY OF SITE STRUCTURAL RECORDS.....	24
TABLE 2 CONTEXTS BY TYPE.....	24
TABLE 3 CONTEXTS BY FEATURE TYPE	25
TABLE 4 CONTEXTS BY PROCESSUAL TYPE.....	25
TABLE 5 NUMBER OF DATED CONTEXTS BY SPOTDATE.....	26
TABLE 6 QUANTITY OF POTTERY BY FEATURE TYPE AND SHERD COUNT	27
TABLE 7 POTTERY TYPE SERIES.....	28
TABLE 8: INCIDENCE OF FLINT AND POTTERY	29
TABLE 9: SUMMARY OF SAMPLE POTENTIAL	30
TABLE 10 ANIMAL BONE BY FEATURE TYPE AND WEIGHT (G).....	32
TABLE 11: DATA-SETS POTENTIAL TO ADDRESS UPDATED RESEARCH OBJECTIVES	37
TABLE 12: PROVISIONAL TIMETABLE TO COMPLETE THE PROJECT	37
TABLE 13: SUMMARY OF STRUCTURAL ANALYSIS TASKS	41
TABLE 14: SUMMARY OF CERAMIC ANALYSIS TASKS	42
TABLE 15: SUMMARY OF NON-CERAMIC ANALYSIS TASKS	43
TABLE 16: ANIMAL BONE TASK	44
TABLE 17: ENVIRONMENTAL SAMPLES TASK.....	44
TABLE 18: THE PROJECT TEAM	47





Preface

Every effort has been made in the preparation of this document to provide as complete an assessment as possible, within the terms of the specification and project design. All statements and opinions in this document are offered in good faith. Bedfordshire County Archaeology Service (BCAS) cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party, or for any loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in this document.

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Rob Edwards supervised the open area excavations under the direction of Mike Luke. Onsite investigation and recording was undertaken by Caroline Clarke, Sally Dicks, Ed Frost, Jim Mcqueen and Amy Rushton. Processing of artefacts was undertaken by Jackie Wells, and of ecofact samples by Jerry Stone.

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Key terms

CAO	County Archaeological Officer of BCC
BCAS	Bedfordshire County Archaeology Service
BCC	Bedfordshire County Council
Client	Thorburn Colquhoun
Evaluation reports	Document: <i>A1 Langford Turn Improvement: Archaeological Investigation Stage 1</i> Document: <i>A1 Langford Turn Improvement: Archaeological Investigation Stage 2</i>
Project Design	Document: <i>Project Design for a programme of archaeological investigation, recording, analysis and publication</i>
The Brief	Document: <i>Brief for a programme of archaeological investigation, recording, analysis and publication at A1 Langford Turn, Biggleswade, Bedfordshire.</i>

Structure of report

After the introductory Section 1, this report presents the original research objectives (Section 2). Section 3 provides a provisional summary of the results. In the subsequent section the various types of evidence (data) are quantified (Section 4). The potential of these to address the original and new research objectives is discussed in Section 5 prior to the presentation of the updated project design (Section 6). Appendix 1 presents detailed method statements for analysis, publication and archiving.





Non-Technical Summary

This report presents an assessment of archaeological investigations (evaluation and open area excavation) undertaken in advance of road improvements at the A1 Langford Turn. The investigations were carried out in accordance with the Project Brief, Project Design and guidelines provided by English Heritage in 'Management of Archaeological Projects' (MAP2). The report also details potential of the data to address the research objectives originally established within the Project Design.

The archaeological 'data' recovered from the investigations comprised:

- *Geophysical anomalies- variations in magnetic responses within the soil indicate the location of archaeological features.*
- *Cropmarks- variations in crop growth indicate the location of archaeological features.*
- *Features and deposits- the result of human activity in the past, for example the digging of pits and ditches, and their associated filling deposits. Investigated within the trial trenches and open area excavation areas.*
- *Artefacts- the fragmentary remains of human made objects, most commonly pottery.*
- *Environmental- evidence for the past environment including animals (from bone) and plants (preserved as charred remains).*

The majority of the data recovered from the investigations are associated with an early-middle Iron Age settlement (east of the A1) and more dispersed but contemporary activity (west of the A1). Although both are important in their own right the proximity of the two areas enhances the potential to address a number of research objectives. Of these the most significant will be providing a complete ground plan of a settlement of this period. Although this was only partially investigated due to "preservation in-situ", non-intrusive survey has located roundhouses and pits within the enclosures that make up the settlement. Analysis of some data will contribute to the debate on the economic basis of this type of settlement and the occurrence of structured ("unusual") deposits. The nature the investigation; first commencing as a non-intrusive evaluation, progressing to trial excavation and resulting in open area excavation, will provide a very good opportunity to assess the success, or otherwise, of evaluation techniques.

Methodologies and resources required to complete the project are detailed in this document. This will result in a publication within the county-based archaeological journal, with summary notes placed in regional and national publications. Once the material has been archived with Bedford Museum it will be available for examination, both by interested local people and academics.





1. INTRODUCTION

1.1 *Planning background*

Thorburn Colquhoun (Consulting Engineers), on behalf of the Highways Agency, are undertaking junction improvements for the A1 Langford Turn at Topler's Hill, Bedfordshire (Figure 1).

1.2 *Project background*

The CAO of BCC has advised that the area under consideration was archaeologically sensitive and that a junction improvement scheme was likely to have a significant impact on archaeological deposits. In order to assess the archaeological implication of the proposed scheme and develop an appropriate mitigation strategy an evaluation of the land was undertaken by BCAS.

The evaluation comprised two stages (Figure 2):

- Stage 1: aerial photograph analysis, geophysical survey and field artefact collection¹. undertaken over an 11ha area (September 1998).
- Stage 2: trial excavation² within the proposed new road corridor west and east of the A1 (September 1999), but only where topsoil was to be removed (1.5ha). The report contained a synthesis incorporating the relevant results from the stage 1 investigations.

The CAO identified two areas of archaeological significance within the proposed road scheme. These would require archaeological investigation if they could not be preserved *in situ*. Following negotiation between the Client and the CAO it was agreed that the construction of the road to the east of the A1 could be undertaken without the need for topsoil stripping. Therefore only the area of the bridge abutments would require investigation.

The two areas investigated therefore comprised (Figure 1):

- west of A1- 0.4ha
- east of A1- 30m X 12m

On 27th July 2000 the Client requested BCAS to produce a Project Design to undertake the archaeological investigation. This was approved by the CAO on 9th August 2000 with fieldwork commencing on 21st August 2000 (open area excavation) and finishing on 4th October (watching brief attendance).

This report presents an assessment of the results derived from all stages of archaeological investigations and provides an updated project design. The latter details the work required to analyse and publish the results.

¹ BCAS, 1998. Topler's Hill: Archaeological Evaluation Stage 1 (Report 98/61)

² BCAS, 1999. Topler's Hill: Archaeological Field Evaluation Stage 2; trial excavation and synthesis of results (Report 99/58)



1.3 Site location (Figure 1)

Toppler's Hill is located c.3.5km south of Biggleswade and 500m west of the village of Edworth in south-east Bedfordshire centred on TL216405, but bisected by the A1.

Topographically the site is on the eastern end of a low ridge overlooking a shallow dry valley to the north-east. The area west of the A1 is flat at around 75m OD but the eastern area slopes downwards from south-west (75m OD) to north-east (70m OD).

The geology of the area is Boulder Clay overlying Lower Chalk. Colluvial deposits (hillwash) are possible on the slope to the east.

1.4 Archaeological background

1.4.1 Knowledge prior to the archaeological evaluation (Figure 1)

BCC has a catalogue of archaeological sites and historic buildings, the Historic Environment Record (HER), in which all known discoveries in Bedfordshire are recorded. The Study Area contained or is adjacent to three such sites.

The Roman road between the major Roman settlement at Baldock (to the south), and Godmanchester (to the north), is believed to underlie the A1 within the Study Area (HER 505). The exact position of the Roman road is uncertain. It may be significant that Toppler's Hill is situated halfway between the Roman town at Sandy (to the north) and Baldock (to the south).

During the construction of the Great North Road turnpike human remains accompanied with jewellery were reported from the Toppler's Hill area (HER 524). No firmer locational details are known. The artefacts were ascribed to the Roman period during the 19th Century (due to their proximity to a known Roman road), but they may equally be of Saxon date.

Cropmarks in the vicinity of the water tower, west of the A1 have been interpreted as indicating rectangular enclosures (HER 3545).

To the north of Bleak Hall a rectangular enclosure is visible as a cropmark (HER 3546). To the east a moat (HER 1484) and earthworks (HER 2580) probably associated with the medieval village of Edworth are known. Earthworks (HER 2848) to the south-east have been interpreted as house platforms probably associated with Edworth. The Viatores³ proposed a Roman road branching from the Langford Turn and following a westward alignment (HER 3545).

1.4.2 Results of the archaeological evaluation (Figure 3)

The evaluation demonstrated that in the vicinity of Toppler's Hill there is evidence for Iron Age/Roman and medieval settlement.

³ The Viatores, 1964, Roman roads in the south-east midlands.



Two Areas of Archaeological Significance were identified based on the evaluation results². At the time these were believed to comprise:

- **Area A:** Late Bronze Age/early Iron Age settlement covering over 0.6ha extending beyond the road corridor. This comprised ditches and postholes, the fills of which contained occupational debris.
- **Area B:** Iron Age or Roman roadside settlement covering over 1ha extending beyond the limit of the road corridor. There was evidence the ditched enclosures contained buildings and pits. Because no trial excavation was undertaken within this area it was uncertain if the settlement was Iron Age or Roman.





2. ORIGINAL AIMS AND OBJECTIVES OF THE INVESTIGATION

To maximise the information that could be obtained from the investigation of the archaeological remains within the development it was necessary to consider a range of aims and objectives (*Brief* section 4) that could be achieved.

National and regional research priorities for the Iron Age and Roman periods have been discussed in some detail in the Stage 4 evaluation report² (section 6). Although the two AAS were believed to represent different chronological periods their proximity enhances their potential to contribute to the stated research priorities.

2.1 National and regional research frameworks

National research priorities have been formalised by English Heritage in *Exploring our Past* and more recently updated in the Archaeology Division's *Research Agenda* (draft 1997). The AAS will have a particular reference to a number of these:

Processes of change	<i>Monument dominated to settlement dominated landscapes</i>	A
	<i>Britain into Roman</i>	B
	<i>Empire to kingdom</i>	B
Chronological	<i>Late Bronze Age and early Iron Age settlements and field systems</i>	A
	<i>Immediately pre-Roman settlements</i>	B
Themes	<i>Settlement hierarchies and interaction</i>	A
	<i>Rural settlement</i>	A, B

At a regional level research frameworks have been outlined in Glazebrook⁴, with research agendas recently published in Brown and Glazebrook⁵. In addition to the national research agenda the following have relevance to investigations:

Rural settlement	<i>Non-villa settlement</i>	B
	<i>Food consumption and production</i>	A, B
	<i>Burials</i>	A, B

There are several period-based archaeological surveys of relevance to Area A. These, including Parker Pearson⁶ and Cunliffe⁷, are still dominated by

⁴ Glazebrook, J (ed.). 1997, *Research and Archaeology: A framework for the Eastern Counties, 1. resource assessment*

⁵ Brown, N and Glazebrook, J, 2000, *Research and Archaeology: A framework for the Eastern Counties, 2. research agenda and strategy*

⁶ Parker Pearson, M. 1993, *Bronze Age Britain*

⁷ Cunliffe, B. 1991, *Iron Age communities in Britain.*



monument/burial evidence (the former) and chalkland enclosed settlement (the latter). There is now an increasing quantity of evidence for unenclosed settlements of the Bronze and Iron Age, including sites in the Thames valley at Aldermaston and Burghfield (Bradley⁸) and Roughground Farm (Allen⁹).

Cunliffe stated that while the available evidence for this type of site "is not sufficient to support a detailed economic model it does point to variety between sites". The identification of the agricultural basis for the settlement was therefore considered to be a critical research objective.

The study of Roadside settlements by Smith¹⁰ demonstrated that despite the large number of known sites, the internal morphology of very few sites is known in detail. The key research task for Area B was envisaged to be the establishment of the date of the settlement. Although the extent of excavation in this area was very limited, once the date of the settlement was established, its significance would be greatly enhanced by the detailed ground plan available from the geophysical survey. If these enclosures proved to be Roman, they would provide the first known layout of a Roman roadside settlement in Bedfordshire.

2.2 Specific objectives of the investigations

Outlined in this section are a series of very specific research questions that were asked during the investigation. These provided the framework within which methodologies were developed.

All aims and objectives were reviewed regularly throughout the project to ensure:

- that they were still relevant to the data being uncovered;
- that fieldwork methodologies, as outlined in the Project Design, were still appropriate.

A preliminary key review stage took place once topsoil has been removed from Area A. It was at this stage that all features were visible and detailed strategies for sample excavation could be established.

Although a number of research objectives could be established for the investigation, the results would have to be measured against the likelihood that even in Area A not all the settlement would have been examined.

2.2.1 Area A

1. Establishment of a chronological framework for the settlement. Evaluation produced both late Bronze Age and early Iron Age pottery assemblages. It is through this that the origins and development of the settlement can be studied and all associated issues examined.
2. The morphology of the settlement. The establishment of a ground plan will enable spatial variation to be identified. For example is there evidence

⁸ Bradley, R. *et al*, 1980, 'Two late Bronze Age settlements on the Kennet gravels', PPS46

⁹ Allen, T.G. *et al*, 1993, Excavations at Roughground Farm, Lechlade, Gloucestershire.

¹⁰ Smith, R. F. 1987, Roadside settlements in Lowland Roman Britain.



- for buildings (even as blank zones in the feature distribution), do the different feature types/deposits concentrate in different areas? For example, at Aldermaston, Bradley demonstrated that features with occupational debris were concentrated at the periphery of the settlement.
3. Is there any evidence for a shift in settlement location, perhaps from the late Bronze Age to the early Iron Age periods? These periods are often grouped together but Knight has suggested the pottery fabric types found in the evaluation can be chronological exclusive.
 4. Do deposits survive to reconstruct the economy of the settlement? What was the mix between arable and stock?
 5. Do artefacts indicate economic or social contacts with groups at a local, regional, national or international level?
 6. Does evidence survive for the structured deposition of artefacts or ecofacts often suggested for the later Iron Age? Waite¹¹ and more recently Hill¹² have demonstrated how the deposition of artefacts in ditches and pits might be the result of structured social behaviour rather than opportunistic dumping.
 7. Do deposits contain evidence to elucidate the ancient, local ecology and environment of the site?
 8. Did the evaluation strategy provide sufficient information on the nature of the settlement? Why did no pottery of this period survive in the ploughsoil?

2.2.2 Area B

1. Gather sufficient dating evidence to propose a date range for occupation. Was there a pre-road settlement or was it established in the 1st century AD once the road was constructed?
2. Establish the range of features present.
3. Do deposits survive to suggest the economy of the settlement? Is it concentrated in providing service functions for road travellers or is there a real agricultural base?
4. Is there any evidence for burials?
5. Do deposits contain evidence to elucidate the ancient, local ecology and environment of the site?
6. Did the evaluation methods, which excluded trial excavation in this area, provide sufficient information on the nature of the settlement? Why did so little pottery of this period survive in the ploughsoil?

¹¹ Wait, G, 1985, *Ritual and religion in Iron Age Britain*

¹² Hill, JD, 1995, *Ritual and rubbish in the Iron Age of Wessex*





3. PROVISIONAL SUMMARY OF RESULTS

3.1 Introduction

The structural records (context sheets, plans etc) together with pottery spot dates and HER information have been rapidly examined to suggest a provisional chronological summary. The results of the evaluation and open area excavation have been combined in this summary.

The summary results are discussed by major chronological period.

3.2 The late Bronze Age (1200BC-700BC)

Three features in evaluation trench 8 (Figure 4) produced pottery in a distinctive fabric (F01b) of late Bronze Age/early Iron Age date. Fabrics containing flint are considered to be generally earlier in date¹³, for example at the Biddenham Loop where a larger assemblage was recovered (*Knight pers comms*). Based on present evidence it is uncertain what significance can be attached to the presence of the earlier fabrics alongside later pottery fabrics within the same features. It is possible the earlier pottery is residual, although it shows no signs of abrasion, or that it indicates a settlement of this date in the vicinity.

3.3 The Early-Middle Iron Age (700BC-200BC)

3.3.1 Area A (Figure 4)

Despite the non-intrusive stage of the evaluation producing no evidence for human activity in this area, evaluation trench 8 contained archaeological features. This area was therefore subject to open area excavation.

At the southwest corner of the excavation area four intercutting ditches aligned northwest to southeast were investigated. The two later ditches, which may be contemporaneous, contained early-middle Iron Age pottery. The earlier ditches, evidently precursors, produced no dateable evidence. Samples 5, 6 and 7 from these contained charred cereal grain, chaff and charcoal. Mollusc shells recovered from sample 5 indicate dry ground open country conditions. Similarly aligned linear cropmark anomalies D and F (Figure 1), located c.230m to the west, may be part of the same boundary.

Three additional ditch lengths aligned northeast to southwest were orientated perpendicular to the intercutting ditches described above suggesting they may be contemporary. Two contained similar pottery and therefore they are interpreted as being part of the same field system. It is possible the linear cropmarks on similar alignments, identified as possible geological features during the evaluation aerial photograph analysis, could be part of the same system.

A semi-complete pottery vessel appears to have been deliberately placed

¹³ Knight, D, 1984, *Late Bronze Age and Iron Age settlement in the Nene and Great Ouse Basins*.



within one of these ditches towards the southern terminal. It appears to have been deliberately buried and may therefore represent a “special deposit” discussed in detail by Hill¹² (see 4.3.1). Samples 2, 3 and 4 from fills of these ditch contained cereal grain and charcoal (see 4.3.1).

Two further ditches, dated to this period were located at the limit of the excavation. Sample 8 from one of these contained charred cereal chaff. A posthole was investigated in the same area.

Given the presence of occupation debris, including small quantities of pottery and bone, and the concentration of features at the southern limit of the excavation area it is likely a settlement focus may be situated under the Langford Road.

Only two postholes were identified in the northern part of the excavation area. Sample 1 from one of these contained charred cereal grain and charcoal.

3.3.2 Area B (Figure 3 and Figure 5)

Aerial photographic interpretation and geophysical investigation revealed a series of inter linked sub rectangular enclosures to the east of the A1. The enclosures were aligned on a north west to south east axis and would appear to continue under the present southbound carriageway. Settlement type activity, including buildings, pits etc has been identified within the enclosures by excavation and the geophysical survey.

Early-middle Iron Age date pottery was consistently recovered from features within the excavated part of Area B suggesting the date of occupation. This is supported by the small quantities of earlier and later pottery collected during evaluation field artefact collection, no such material was recovered from the excavated features.

The following summary of the results of the archaeological investigations is organised by enclosure and utilises the same letter codes used in the evaluation report¹.

Enclosure A

Situated at the southern limit of the original Study Area was a sub rectangular enclosure at least 1.4 ha in extent. Two large ditches, aligned northeast to south west and northwest to south east, were identified on aerial photographs and in the geophysical survey and form the northern and eastern boundaries of the enclosure.

One internal geophysical linear anomaly aligned northeast to southwest may represent a ditch sub-dividing the enclosure into two.

Enclosure A1

To the north of enclosure A was another a sub rectangular enclosure at least 1.6 ha in extent. The northern end of this was examined within Area B. A linear geophysical anomaly divided the enclosure approximately into two.



Another linear anomaly aligned northwest to southeast would appear not to respect the enclosure and may therefore be earlier or later in date.

Two circular geophysical linear anomalies were located within the southern half of the enclosed area. Although only *c* 8m in diameter it is likely these represent the drainage ditches surround two roundhouses.

A number of small pit like geophysical anomalies were evident within the northern part of the enclosed area. The pits within the excavation area appear to be organised in a linear arrangement adjacent to the main enclosure ditch. Two of these pits contained early-middle Iron Age pottery and one late Bronze Age/early Iron Age pottery. However, given their linear arrangement it is likely they are contemporary and the earlier material was residual. One pit contained two fragments (22g) of human bone (*see* 4.4.3). Wait¹⁴ has discussed the occurrence of fragments of human bone on sites and believes the occurrences be an element of the ritual and religion of the Iron Age society. Samples 11 and 14 from two of these pits contained cereal grain and chaff, along with charcoal.

Also within the excavated area, a gully respected both the pits and enclosure ditch. Sample 10 from this feature contained charcoal. This dramatically changed alignment curving in a southward direction. It is possible this gully changed alignment to avoid a roundhouse, for which there was no other evidence.

Enclosure B

Sub-rectangular enclosure B (at least 1.6 ha in extent) was adjacent to enclosure A1 and shared the same ditch for its southern boundary. The excavation area was situated over this boundary and some of the interior. The enclosure ditch was large at 4m wide and *c.* 1.3m deep. Its fills contained early-middle Iron Age pottery along with four flint flakes and a core fragment. Samples 12 and 13 from these contained charred grain, chaff, weeds and charcoal. Mollusc shells indicating dry open conditions were in the majority within sample 13, although others associated with stagnant water were also identified. The enclosure was likely to have been sub-divided into two unequal parts by a ditch visible as a cropmark and geophysical anomaly.

The geophysical survey identified a number of pit-like anomalies within this enclosure, but none were situated within the excavated area.

Three circular or semi-circular gullies were identified within the northern half of the excavated area. These are interpreted as drainage gullies surrounding two roundhouses with diameters of *c.* 10m. The gullies defining the northern house were redug on at least two occasions. A gap of 3m on the east side of the drainage gully surrounding the southern roundhouse probably indicated the entranceway. It was associated with a deep but short gully, presumed to be some form of soakaway. The fills of all the gullies contained occupational debris including early-middle Iron Age pottery, bone and one core fragment.

¹⁴ Wait, GA, 1985, *Ritual and Religion in Iron Age Britain*



An environmental sample (9) taken from the terminal of the northern gully contained the largest assemblage of chaff from the site (see 4.4.1).

Given the proximity of the two roundhouses it is possible they were not contemporary. Another slightly curvilinear ditch in this area was truncated by the intercutting gullies demonstrating this was also not contemporary.

Enclosure B1

This enclosure was identified by geophysical survey and was again sub rectangular in shape. It was unusual in that it was situated to the east of the main trend, was very small at c. 0.13 ha and no internal features were identified.

Enclosure C1

This small (c. 0.29 ha) sub rectangular enclosure was only identified by the geophysical survey. It is the only enclosure where all boundaries have been identified. One pit-type anomaly was located within the enclosure and another to the immediate south.

Enclosure C

Enclosure C was noticeably more sub circular than the others and was identified on aerial photographs and in the geophysical survey. It enclosed an area in excess of 1.2 ha.

The only clear geophysical anomaly appears to represent a circular gully 10m in diameter. This is likely to represent a drainage gully surrounding a roundhouse.

3.4 Roman (AD43-AD400)

Eleven sherds of Roman pottery were recovered from the original Study Area during evaluation field artefact collection. Six of these were concentrated at the northern end of the eastern field.

The road (HER 505) between the Roman settlements at Baldock and Sandy underlies the A1 in this part of Bedfordshire (Figure 2). The construction of the road has been dated in the Sandy area to the mid 1st Century AD¹⁵. Burials of presumed Roman date are known within the original Study Area (HER 524).

3.5 Medieval

A well developed system of north-east to south-west aligned furrows were located within both areas A and B. Ridge and furrow developed in agricultural fields that were subject to strip ploughing (common from the late Saxon period and into the post-medieval period). Artefacts recovered from excavated furrows within excavation areas A and B were of medieval to early post medieval date.

¹⁵ Johnston, D, 1974, "The Roman settlement at Sandy", *Bedfordshire Archaeology Journal* 6



4. DATA QUANTIFICATION

4.1 Introduction

The records created during the investigations can be divided into three main classes, structural, artefactual and ecofactual.

Structural records comprise not just those compiled during the excavation of the archaeological deposits but also cropmarks and geophysical anomalies. Primarily they relate to the identification of individual events such as digging a ditch, primary infilling etc (during fieldwork referred to as contexts).

Artefactual records comprise records compiled on the human-made objects recovered during excavation. These have been divided for ease of discussion into pottery (the bulk of the finds) and other artefacts (all non-ceramic).

Ecofactual records comprise natural materials found within the context of human settlement. These are able to yield information on the nature of that settlement and on its environment and setting. They include the environmental data (for example charred plant remains), animal bones and also human remains.

Each class of data has been provisionally quantified to provide a measure not only of its quantity but also its type, its provenance within the site spatially and chronologically and also its condition. All these factors are important in deciding the potential of the material for analysis.



4.2 Structural

4.2.1 Quantity of records

The following (Table 1) represents a breakdown of the total quantity and type of structural records. These comprise the written description/interpretation of a deposit/feature (context sheets), a map-like drawing showing the location and inter-relationship between features (a plan), a profile drawing through a feature and its fills (section) and photographs.

	Evaluation	Excavation	Watching Brief	Total
Contexts	42	197	2	241
Plan Sheets	2	25	0	27
Sections	6	41	0	47
Photos	15	51	0	66

Table 1 Quantity of site structural records

4.2.2 Context types

The context type defines the basic characteristics of a deposit or feature.

Context Type	Evaluation	Excavation	Watching Brief	Sub Total	%
Cut	8	81	0	89	36.9%
Fill	10	112	0	122	50.6%
Layer	24	4	2	30	12.4%
			Total	241	100.0%

Table 2 Contexts by type

Table 2 indicates that 87.5% of the deposits were cuts or fills. Proportionally, few cuts contained more than one fill. No formal burials were located, although a human bone was recovered from the fill of one pit.

4.2.3 Feature types

This defines the basic field interpretation of the feature containing component contexts. The cut and fills of a given feature will be given the same feature type i.e. a ditch and its fills will all receive the feature type D.

Feature Type	Evaluation	Excavation	Watching Brief	Sub Total	%
A Post Pipe	2	2	0	4	1.7
D Ditch	10	134	0	144	59.8
F Furrow	2	22	0	24	10.0
I Modern Intrusion	2	6	0	8	3.3
P Pit	0	5	0	5	2.1
R Rubbish Pit	0	3	0	3	1.2
S Structural element	2	13	0	15	6.2
T Storage Pit	0	7	0	7	2.9
EC Topsoil	14	3	1	18	7.5
NS Natural	10	2	1	13	5.4



Total	241	100.0
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Table 3 Contexts by feature type

Table 3 reveals that 67% of the contexts encountered were either pits or ditches. Nearly half of the pits were of an unspecified function (i.e. initial function was not apparent), half were interpreted as storage pits, with some rubbish pits also identified. Ditches produced the greatest numbers of contexts, although this is a biased number due to the allocation of ditch segment and general numbers to these features. The total number of ditches (rather than contexts from ditches) was 16.

4.2.4 Processual interpretation

Each context is interpreted in terms of the circumstances under which it was formed in relation to its feature type. The three basic types are construction (C), use (U) and disuse (D). These can be augmented in less clear cases by combined types such as use/disuse (UD) or construction/use (CU). Processual types indicate the potential information, which a context will provide for the nature of a feature and indicates the reliability of any artefacts to provide a date for that feature in which they are found. Construction and use types are of the most value in determining the primary function or date of the feature. Identifying processual types also facilitates in the grouping of associated contexts during analysis.

	Evaluation	Excavation	Watching Brief	Sub Total	%
C	8	82	0	90	37.3
CU	1	1	0	2	0.8
U	1	16	0	17	7.1
UD	31	64	2	97	40.2
D	1	34	0	35	14.5
			Total	241	100

Table 4 Contexts by processual type

Although Table 4 indicates a high proportion of the contexts (37.3%) were categorised as construction, this is misleading in that this overwhelmingly comprises cuts. Cuts are *de facto* construction, but will never have dated material attached. Primary use deposits constituted only 7.1% of the total. Use/disuse and disuse made up the majority of the deposits (54.7%) and these will indicate secondary and tertiary activities.

This suggests that the majority of artefacts will not easily be able to date the use of features. However they will only indicate activity close by. They may only be useful to indicate secondary use or general site wide activity.

4.2.5 Date of archaeological deposits

Artefacts recovered from the various archaeological deposits provide an indication (a spotdate) of the chronological period to which they are associated. The following represents a tabulated breakdown of dated archaeological deposits by spotdate.



Spotdate		Evaluation	Excavation	Watching Brief	Sub Total	%
8	Late Bronze Age/Early Iron Age transition	0	1	0	1	2.2
9	Iron Age	0	0	0	0	0.0
9.1	Early-Middle Iron Age	3	30	0	33	73.3
9.2	Pre Belgic Iron Age	0	0	0	0	0.0
14	Medieval	0	0	0	0	0.0
15	Late Medieval to Post Medieval transition	1	0	0	1	2.2
16	Post Medieval (1500-1750)	9	1	0	10	22.2
				Total	45	100.0

Table 5 Number of dated contexts by spotdate

Of a total of 152 archaeological deposits investigated only 45 produced dating evidence (29.6%). Of these 73% were of the early-middle Iron Age period (*see 4.3.1*).

4.2.6 Survival and condition of features

The survival of archaeological features is dependent on the nature and intensity of previous land use, especially ploughing. Although larger features such as ditches and pits often survive the most intensive farming regime, it is the smaller and relatively more fragile features such as postholes and surfaces, which are often truncated or completely destroyed. Although small in number postholes were present within the excavated areas. This plough disturbance was especially apparent within excavation area A, where deep modern plough marks were visible over the entire site.

Root/modern disturbance was identified next to the existing hedge lines and one modern machine excavated pit within excavation area A.

4.2.7 Complexity and stratigraphy

Archaeological deposits can be classified on the basis of how complex the relationships between features are and how clearly a picture emerges of these relationships. Ideally both the complexity and the visibility of those relationships should be high to facilitate the chronological sequence development.

Within excavation area A the majority of the ditches investigated shared no stratigraphic relationships apart from the boundary feature which had been redug on a number of occasions. Within excavation area B the drainage gullies also exhibit signs of having been redug. However, apart from the furrows there are very few other features where stratigraphic relationships can be established.



4.3 Artefactual

4.3.1 Pottery

A total of 220 sherds weighing 1.6kg was collected during the hand excavation of features. A further forty-two sherds (56g) derived from the residues of sieved soil samples. Unless stated, all quantitative statements in this assessment are based on sherd count.

Provenance and Date Range

Feature Type	Sherd No.	% Total
Ditch	197	89.5
External cultivation	6	2.8
Structural Cut	5	2.4
Storage pit	3	1.3
Furrow	3	1.3
Post-pipe	3	1.3
Rubbish Pit	2	0.9
Modern intrusion	1	0.5
Total	220	100.0

Table 6 Quantity of pottery by feature type and sherd count

Over 94% of the assemblage derives from the disuse fills of cut features, predominantly ditches (Table 6). This material probably represents secondary dumping of occupation debris, and, with the possible exception of rubbish pits, cannot be directly associated with the use of these features. Composition of the assemblage suggests that the pottery was subject to fairly extensive post-depositional disturbance or contamination. Overall, fragmentation is fairly high (average sherd weight 7g). Ten features (20%) contained only single sherds, but in contrast one pit contained a semi-complete pottery vessel (weighing 400g).

Range and Variety: The Pottery Type Series

Fabrics are listed overleaf (Table 7) in chronological order. Bracketed figures represent total sherd number for each period. No new fabric types were identified.



Fabric type	Common name	Sherd No.
Late Bronze Age / early Iron Age (10)		
Type F01B	Fine flint	10
Early-middle Iron Age (206)		
Type F	Non-specific Iron Age	4
Type F04	Organic	1
Type F16	Coarse shelly	2
Type F19	Sand and Organic	25
Type F20	Limestone (calcareous) inclusions	7
Type F28	Fine sand	45
Type F29	Coarse Sand	1
Type F35	Micaceous	121
Medieval (1)		
Type C	Non-specific medieval	1
Post-medieval (1)		
Type P01	Glazed Red Earthenware	1
Miscellaneous (2)		
	Unidentified ware	2

Table 7 Pottery Type Series

Chronological Summary by Pottery Date

Although containing a negligible quantity of medieval and post-medieval pottery, the assemblage is almost entirely of early-middle Iron Age date. However, no pottery of this period was recovered during field artefact collection¹. The assemblage is consistent with that identified during trial excavation², which contained exclusively late Bronze Age/early-middle Iron Age material. Vessels recovered are indicative of a domestic assemblage, comprising cooking pots and jars.

Late Bronze Age/early Iron Age (5% total assemblage)

Ten undiagnostic flint tempered sherds were recovered from four features (three in trench 8). Of these, only one pit contained exclusively late Bronze Age/early Iron Age pottery, suggesting this may be the earliest feature identified.

Flint tempered vessels are characteristic of this period across southern Britain, declining in use into the early-middle Iron Age. The latter predominance of quartz-rich fabrics (*see below*) implies a greater suitability of these types for the manufacture of an increasing range of early-middle Iron Age vessel forms.

Early-middle Iron Age (94% total assemblage)

This group comprises a consistent assemblage of predominantly quartz-rich vessels dating to the early-middle Iron Age period. Diagnostic forms are rare, and comprise flat rimmed, shouldered vessels. Decoration is restricted to single examples of thumb impression and horizontal scoring.

The fabric types are broadly consistent with those recovered from nearby contemporary settlements at Stotfold (3km to the south), and Holwell Quarry, Hertfordshire (*c.* 7km to the south-west). The highly localised nature of



manufacture is, however, evidenced by the variation observed between micaceous fabric (type F35) from Topler's Hill and Stotfold.

Post Iron Age (<1% total assemblage)

This material comprises an abraded glazed handle sherd of unspecific medieval date, and undiagnostic glazed earthenware dating from the 17th century+.

Miscellaneous (<1% total assemblage)

Two undiagnostic sherds (10g) are too fragmentary to be classified and assigned a date range. Although these will be more carefully examined during analysis, assessment suggests it may prove impossible to gain further information from the material.

Condition

The condition of the pottery is poor to moderate. A high proportion of vessels are abraded, probably resulting from post-depositional processes rather than through wear, although this remains unsubstantiated until the assemblage has been more thoroughly examined. A number of sherds tempered with organic material are leached. However, the majority of all fabrics are generally well-fired and no further treatment is necessary.

4.3.2 Other finds

Fired Clay

Twenty-four fired and burnt clay fragments weighing 142g were recovered. The fragments survive in variable condition; the majority are hard fired and robust, and a small quantity are friable and powdery.

Worked Flint

Seven pieces of worked flint were recovered (Table 8). They comprise four waste flakes, two core fragments and an end-and-side scraper, the majority deriving from enclosure ditch [120]. Despite the occurrence of some pieces in features containing early-middle Iron Age pottery, the small size and other characteristics of the assemblage suggest they would not contribute to the debate on the use of flint in the Iron Age¹⁶. The material may be residual, indicating pre-Iron Age activity in the vicinity.

Feature	Context	Flint	Pottery
120	123	4 flakes & 1 core fragment	235g
230	232	Core fragment	1g
320	320	Scraper (RA1)	-

Table 8: Incidence of Flint and pottery

¹⁶ Young, R and Humphrey, J, 1999, 'Flint use in England after the Bronze Age: Time for a Re-Evaluation', *Proceedings of the Prehistoric Society* 65.



4.4 Ecofacts

4.4.1 Environmental samples

A total of 14 samples, between 6 and 10 litres in volume, were taken during fieldwork to assess the environmental potential of the site. These were processed by bulk water floatation with flots collected onto 500um mesh sieves. All samples produced flots, generally around 5ml in volume, but up to 20ml. These and residues were submitted to the Oxford University Museum of Natural History for assessment. Flots were scanned under a binocular microscope at magnification of x10 to x20. Any charred material or molluscs were provisionally identified and quantified.

Quantification

Very few deposits exhibited evidence onsite of any potential to preserve environmental data. However, 14 samples were taken during fieldwork, of which 12 were "control" samples (Table 9). These were taken from a range of feature types and stratigraphic locations.

No.	Feature Type	Context	Sample Type	Spotdate	Cereal Grain	Cereal Chaff	Weeds	Charcoal	Other
1	Post hole	145	Charred plant	Undated	+	-	-	++	
2	Ditch	152	Control	EMIA	+	-	-	+	
3	Ditch	154	Control	Undated	+	-	-	+	
4	Ditch	148	Control	Undated	-	-	-	+	
5	Ditch	177	Control	EMIA	+	-	-	+	M
6	Ditch	171	Control	EMIA	-	-	-	+	M
7	Ditch	173	Control	Undated	+	+	-	-	M
8	Ditch	139	Control	EMIA	+	-	-	-	M
9	Ditch	234	Animal bone	EMIA	+	++	+	++	M
10	Ditch	183	Control	Undated	-	-	-	+	M
11	Pit	106	Control	EMIA	+	+	-	+	
12	Ditch	252	Control	EMIA	+	+	+	+	
13	Ditch	258	Control	EMIA	+	-	+	+	M
14	Pit	119	Control	EMIA	+	-	-	-	

KEY

EMIA Early-middle Iron Age
M Molluscs

Table 9: Summary of sample potential

Provenance

The majority of the deposits sampled were from ditches (Table 9). Although the majority of these derived from the secondary fills of the enclosure ditch, two samples were from primary fills. Samples were also taken from two pits and one posthole.

Assessment of plant remains

The results are presented in Table 9 above. The flots contained moderate quantities of modern rootlets.

Cereal grain was recorded in 11 samples, while chaff and weed seeds were



noted in three. In most cases the number of items estimated is low (less than 10 for each category). Sample 9 produced a slightly greater amount of chaff with up to twenty *Triticum spelta* (spelt wheat) glume bases. Cereal grains noted included *Triticum spelta* (spelt wheat) and *Hordeum vulgare* (barley). Occasional asymmetric *Hordeum vulgare* (docks) seeds, small seeded Gramineae (grass) and single; *Arrhenatherum elatius* (false oat-grass) tuber in sample 9. *Triticum spelta* and *Hordeum vulgare* were the principal cereal species recorded from Iron Age samples at the Biddenham Loop. It forms the basis of the cereal economy for much of southern and central England during the Iron Age.

Charcoal was present, usually in small quantities in 11 samples. *Quercus* sp. (oak) was most commonly identified while occasional fragments of Pomoideae (apple, hawthorn etc) were also provisionally identified.

Assessment of the Molluscs

Mollusc shells, mostly dry-ground open country species are present in seven samples. *Trichia hispida* sp., *Vallonia costata* and *V. excentrica* are all very numerous in sample 13, suggesting dry open conditions. However, there is also a slight presence of *Anisus leucostoma* and *Lymnaea truncatula*, which were perhaps associated with temporary puddles of stagnant water in the ditch bottom. Sample 5 contains a somewhat different dry ground open country fauna in which *Pupilla muscorum* and *Vallonia excentrica* predominate. Molluscs of shaded habitats are sparse in all the samples.

4.4.2 Animal bone

A small animal bone assemblage was recovered and quantified including identification of species, skeletal element and any suitable measurements.

Quantification

Twenty-seven contexts yielded a total of 166 animal bone fragments, 37% of which were identified to species. A further 45 fragments were recovered from sieved environmental samples, only two of which were identified to species.

Provenance

The majority of contexts yielding bones came from Area B, with only six contexts from Area A yielding 16 animal bone fragments. Very little faunal material was recovered from pits, with the bulk of the material deriving from ditch fills, in particular the large enclosure ditch. Contexts associated with construction and use produced only a small proportion of the faunal material.

Species

Species present include cattle, sheep/goat, horse and pig (Table 10). The absence of wild species and the predominance of cattle and sheep/goat, which are present in relatively equal numbers, is a pattern that falls within the range seen in other Iron Age settlements in Eastern England¹⁷. A broadly similar

¹⁷ Hambleton, E, 1999. *Animal husbandry regimes in Iron Age Britain: a comparative study of faunal assemblages from British Iron Age sites*. BAR 282.



pattern was observed at Wilby Way, Wellingborough (Maltby unpub.). However, other sites in the region, for example Pennyland and Hartigans¹⁸ exhibit considerably higher percentages of cattle than were found at Toplers Hill.

Species	Fragments no.	Percentage
Cattle	30	49%
Sheep/Goat	28	46%
Horse	2	3%
Pig	1	2%
Unidentified	105	
Total	166	

Table 10 Animal bone fragment count

The largest assemblage (64 fragments) from a single feature, not surprisingly, derived from the fills of the large enclosure ditch on Area B. This included sheep/goat (15 fragments), cattle (7 fragments) and horse (1 fragment). The higher proportion of sheep/goat compared to cattle remains is in contrast to the pattern seen in the overall assemblage, although given the small sample size the significance of this is uncertain.

Preservation of bone

The majority of the fragments exhibited considerable erosion and loss of surface detail as well as being fragmentary (Table 11). Therefore most contexts were classed as having poor or quite poor bone preservation. Only four contexts were classed as having moderate, quite good or good preservation.

Preservation	No. Contexts	No. fragments
Poor	19	146
Quite Poor	4	10
Moderate	1	1
Quite Good	2	7
Good	1	2
Total	27	166

Table 11: Animal bone: preservation quality

4.4.3 Human bone

Two fragments of human bone were recovered from the fill of a pit on Area B. Preservation, like the animal bone, was very poor with considerable erosion and loss of surface detail. The bones were identified as shaft fragments from a left humerus. Although the two fragments did not join they almost certainly came from the same bone. They did not provide any reliable ageing information but their size is comparable to that of an adult or late adolescent individual.

It is not uncommon to find occasional fragments of disarticulated human remains within the fills of settlement features¹⁴.

¹⁸ Holmes, J, 1993. Animal bone. In RJ Williams *Pennylands and Hartigans: two Iron Age and Saxon sites in Milton Keynes*.



5. POTENTIAL OF DATA TO ADDRESS ORIGINAL AND NEW RESEARCH OBJECTIVES

5.1 Introduction

Because there was no trial excavation east of the A1 the date of the settlement identified by geophysical survey was unknown. It was postulated that given the proximity of the Roman road it was likely to be contemporary. It is now clear from the pottery recovered from open excavation Area B that, at least the excavated part of the settlement was of the early-middle Iron Age (Table 7). Therefore the original research objectives for Area B (*see* 2.2.2) are no longer valid.

5.2 Original research objectives

Given that both Areas A and B contain early-middle Iron Age settlement and some evidence of late Bronze Age activity the original objectives for Area A (*see* 2.2.1) are applicable to both areas and will therefore be discussed with reference to all data-sets.

5.2.1 Establishment of a chronological framework for the settlement.

Only *c.* 30% of the investigated archaeological deposits contained datable material. However, these deposits occurred within both excavation areas, were well spread spatially and occurred within a range of features (*see* 4.2.5). Pottery was the main source of dating with 94% of this assigned to the early-middle Iron Age (*see* 4.2.1). The settlement comprised a system of enclosures containing roundhouses, which on typological grounds would be consistent with the pottery dates. One pit contained exclusively late Bronze Age/early Iron Age pottery indicating earlier settlement activity (*see* below).

Statement of potential: the pottery data, assisted by the structural data have a high potential to address this objective. The other data-sets have no specific potential to address this objective, but may support the date established for the settlement by containing a range of species typical of this period (for example with ecofacts and animal bone).

5.2.2 The morphology of the settlement.

The entire layout of the settlement east of the A1 has been identified by non-intrusive survey, notably geophysical survey (*see* Figure 3). Individual ditched enclosures have been located, many containing settlement features such as roundhouses and pits. Excavation Area B has confirmed that the results of the geophysical survey were accurate and added a range of smaller features including pits and postholes (*see* Figure 5 and Table 3). Artefactual and ecofactual material may assist in the understanding of refuse disposal, although the extent of post-depositional disturbance always has a significant effect on this.

Statement of potential: The structural data-set has a high potential to address this research objective. Artefactual and ecofactual data-sets have some potential.

5.2.3 Is there any evidence for a shift in settlement location, perhaps from the



late Bronze Age to the early Iron Age periods?

Only five percent of the pottery assemblage was assigned to this period (*see* 4.3.1). Although indicating earlier activity this material derived from only c. 2% of the dated deposits.

Statement of potential: The pottery has some potential to address this objective but is restricted by the small assemblage. No other data can address this objective. **Therefore this objective can no longer be addressed.**

5.2.4 Do deposits survive to reconstruct the economy of the settlement?

The charred plant remains and animal bone assemblage indicate a range of species typical of this period (*see* Table 9 and Table 10). Evidence for cereal cultivation and a predominance of cattle and sheep/goat is in keeping with other Iron Age sites in central and southern England

Statement of potential: While both the environmental samples and animal bone do have some potential to address this objective any further analysis may be misleading given the small size of the assemblages and limited extent of the open area excavation. Further analysis of the environmental samples is unlikely to extend the species list any further. The fragmentation and surface erosion of the bone has undoubtedly resulted in loss of ageing, metrical, butchery and gnawing data as well as resulting in a high proportion of unidentifiable material thus reducing its potential for analysis even further. **Therefore this objective can be partially addressed without further analysis.**

5.2.5 Do artefacts indicate economic or social contacts with groups at a local, regional, national or international level?

The late Bronze Age/early Iron Age pottery is flint tempered, a characteristic of this period across southern Britain, declining in use into the early-middle Iron Age. The fabric types for the latter period are consistent with nearby contemporary settlements. No other artefacts recovered have a relevance to this objective.

Statement of potential: There is no suggestion that the pottery types reflect anything other than local manufacture of styles/types predominate during these periods. **Therefore this objective can no longer be addressed.**

5.2.6 Does evidence survive for the structured deposition of artefacts or ecofacts often suggested for the later Iron Age?

No evidence for structured deposition was observed during fieldwork. This would appear to be confirmed by the fact that 94% of the pottery assemblage derived from “disuse” (upper) feature fills. However, one ditch contained a semi-complete pottery vessel and a pit contained two human bone fragments.

Statement of potential: Although not identified as such during fieldwork the artefactual and ecofactual assemblage when combined with the structural data have moderate potential to address this objective.

5.2.7 Do deposits contain evidence to elucidate the ancient, local ecology and environment of the site?

Only two deposits contained visible ecofactual material worthy of sampling (*see* Table 9). Twelve other samples were taken as “controls”. Assessment of



these suggests they contain some evidence for the local ecology and environment of the site.

Statement of potential: Further analysis of the environmental samples might produce a misleading interpretation due to the small number of samples and limited extent of the open area excavation. **Therefore this objective can no longer be addressed.**

5.2.8 Did the evaluation strategy provide sufficient information on the nature of the settlement?

The evaluation was undertaken in two stages; initially an extensive non-intrusive study, and secondly trial excavation over a restrictive area. Cropmarks visible on aerial photographs indicated the presence of ditched enclosures, but these did not reflect the entire system of enclosure indicated by geophysical survey. Field artefact collection failed to produce sufficient datable material to assign a date to the enclosures or even to confirm they were settlement in nature. Trial excavation identified settlement activity in Area A but was not permitted in Area B.

Statement of potential: The extensive and staged nature of the evaluation provides high potential for structural and pottery to contribute to this objective.

5.2 New research objective

5.2.1 Regional settlement patterns

As described above the complete plan of the settlement is known east of the A1. Aerial photographs taken in the vicinity have located a number of other ditched enclosures.

Statement of potential: The settlement east of the A1 can be placed within its contemporary landscape with the assistance of the Historical Environment Record and aerial photographs. This will provide a high potential for comparing both the individual settlement plan and its landscape with other sites locally, for example Flitwick¹⁹ and regionally²⁰.

¹⁹ Luke, M, 1999, 'An enclosed pre-"Belgic" Iron Age farmstead with later occupation at Hinksley Road, Flitwick', *Bedfordshire Archaeology* 23.

²⁰ Cunliffe, B, 1991, *Iron Age communities in Britain*.





6. UPDATED PROJECT DESIGN

6.1 Introduction

The previous sections outline the potential of the various data-sets to contribute to a range of research objectives.

6.2 Revised research objectives

The open excavation areas were relatively small in comparison to the known extent of the early Iron Age settlement. However, the non-intrusive elements of the evaluation have provided an overall plan of the settlement and some detail to its internal morphology. Therefore the archaeological significance of the relatively small-scale excavation is greatly enhanced.

	Objective	Structural	Pottery	Other Finds	Ecofacts	Bone
1.	Chronological framework	Medium	High	None	Low	Low
2.	Settlement morphology	High	Low	Low	Low	Low
3.	Economy	None	None	None	Low	Low
4.	Structural depositions	Medium	Medium	Low	Low	Medium
5.	Regional settlement patterns	High	None	None	None	None
6.	Methodological yardstick	High	High	Low	None	Low

Note. only high and medium data-sets will be subject to further analysis

Table 12: data-sets potential to address updated research objectives

The archaeological evidence from the Study Area also has a good potential to contribute to some of the research themes for Iron Age settlement (Table 12).

6.3 Timetable

Following the acceptance by the Client and CAO of the assessment and updated project design, BCAS would like to proceed rapidly with the analysis and publication of the results. This would ensure project momentum is maintained.

Detailed method statements, with task numbers and required person time, are provided in Appendix 1. Table 13 provides four keystages within the analysis and publication programme. An indication of maximum time required to reach the first three keystages is indicated and these could serve as appropriate points of monitoring, if required.

	Description of tasks	Task no.	Time
Keystage 1	Analysis	up to task 23	4 months
Keystage 2	Report writing and illustration	up to task 35	4 months
Keystage 3	Submission to <i>Bedfordshire Archaeology</i>	up to task 36	2 months
Keystage 4	Publication and archiving	up to task 39	*

Table 13: Provisional timetable to complete the project

*Publication, and therefore deposition of the archive with Bedford Museum, will be dependent on the length of time taken for the refereeing of the article (organised by the editor of *Bedfordshire Archaeology*).



6.4 Analysis

BCAS operates a fully integrated computer-based system of analysis. All structural (including cropmarks and geophysical anomalies), artefactual and ecofactual information is entered onto an Access database. Plan and section drawings are digitised. The databases and digital drawings are interfaced via a GIS system (Gsys) allowing all chronological, spatial and material grouping (and any combination thereof) to be viewed and manipulated. In addition all the site photographs are held in a digital format allowing them to be viewed on screen with database and digital drawings. This allows for rapid and flexible analysis of the project data-sets and for its output in a series of reports supported by plan and other graphic forms. These will form the research archive and provide the basis for the final publication report.

6.5 Publication

The editor of *Bedfordshire Archaeology*, a county-based journal, has provisionally agreed to include an article detailing the results of the analysis. The level of detail will reflect the limited extent of the open area excavation. The morphology of the settlement (one of the original research objectives) will therefore provide the basis of the site narrative. Descriptions of each enclosure will be provided, integrated with artefactual and ecofactual information as appropriate. Of the artefactual and ecofactual data only the pottery and flint, which have potential to address some of the research objectives, will be analysed and therefore presented in detail. Other specialist texts will be produced from the assessment reports.

The synthesis will reflect the limited extent of the open area excavations. It will concentrate on the updated project objectives including the chronological framework, settlement morphology and its socio-economic basis. If structured deposits are confirmed during analysis these will be discussed. Comparisons for the settlement will be sought regionally and nationally if these prove relevant. The final section of the synthesis will address, with hindsight, the success or otherwise of the evaluation in achieving its objectives when compared with the results of the open area excavation. The latter will be undertaken in consultation with the *CAO*.

6.6 Archiving

On publication of the final report the archive of materials (subject to the landowner's permission) and accompanying records will be deposited with Bedford Museum (Accession Number 1998/359).



7. APPENDIX 1: METHOD STATEMENTS FOR ANALYSIS, PUBLICATION AND ARCHIVING

7.1 *Structural data*

Geophysical data, aerial photographs and Historical Environment Record (Tasks 2.4, 2.5 and 2.6)

The results of the geophysical survey will be re-examined in light of the excavation results. Anomalies will be assigned to the following categories; archaeology, possible archaeology and ferrous (Task 2.4).

Aerial photographs examined during the evaluation will be re-examined in light of the excavation results. This will concentrate on the examination of the cropmarks originally interpreted as of natural origin (Task 2.5).

The Historic Environment Record will be examined specifically for early-middle Iron Age sites in a 5km radius and for settlements with a similar ground plan (Task 2.6).

Computerisation of data sets (Task 7)

The quantity of the data-set means it would benefit from computerisation. BCAS operates a fully integrated computer-based system of structural analysis using databases (through Access) and a mini GIS (Gsys) for interrogation. Once achieved this would enable the rapid interrogation of information. For example it would be possible to plot all features of a certain type, profile, inclusions etc, it is likely these will assist in understanding the morphology of the settlement. It also enables basic publication figures to be produced rapidly.

All cropmarks and geophysical anomalies considered to be of archaeological or possible archaeological origin will be issued a context feature number (within discrete blocks of numbers to permit easy identification of the data type), described on pro-formae sheets and input into the context DB (Task 7.2).

Section drawings will be digitised for use initially during analysis, but also as the first stage of producing publication illustrations. The cropmark and geophysical digital drawings will be updated. Each digital drawing (cropmarks, geophysical and excavation feature) will require "tagging" with the relevant feature context number (Task 7.1). This will enable the digital drawings to establish a link to the DB tables. Once this is complete the drawings will be appended together and will be fully interrogatable and manipulable by any DB table.

Sub-Groups and Groups Analysis (Task 19.1)

Each context will be analysed and assigned to a single sub-group, consisting of one or more contexts that are closely related both stratigraphically and interpretatively. Deposits will be classified as:

- ◆ Naturally derived infilling
- ◆ Deliberate infilling

All contexts will be processed but the method of sub-group definition will rapidly identify those, which have limited or no analytical value (e.g. natural and modern unstratified material and other poorly stratified and undated material). No further analysis will be carried out on such contexts. Where available it will also make use of stratigraphic, artefactual and spatial information.

The sub-group allocation for each context will be entered onto the structural database. The output of this stage of analysis will be sub-group text. It will contain a factual, descriptive section as well as an interpretative section, setting out the rationale behind the definition of the sub-group. It is not envisaged that sub-group plans will be routinely produced, but this information will be available via the relational databases. The sub-group text will be held on a



database so that it can be easily accessed.

Each sub-group will be assigned to a single group representing a higher level of interpretation. These could represent:

- ◆ Buildings
- ◆ Structures
- ◆ Pit groups
- ◆ Boundaries
- ◆ Isolated feature

During this process, much use will be made of stratigraphic, artefactual and spatial information. These will be entered onto the structural database. It is at the level of groups that initial integration with other data-sets (artefactual, ecofactual etc) will take place.

The output of this stage of analysis will be a group discussion, a group matrix (if appropriate), and plan(s) at appropriate scale. The group discussions will form the basis for the structural contribution to the publication text.

Landscape and Phase Analysis (Task 19.2)

Each group will be assigned to a landscape unit as follows:

1. enclosure
2. field system
3. boundary (not part of an enclosure or field system)
4. open area.

The output of this stage of analysis will be textual description (describing, for instance, the layout of buildings, pits etc), appropriately scaled plans and a matrix/land use diagram, if appropriate.

The production of a site-wide phasing will only result after consultation with the artefact dating evidence in relation to the land use diagram. It is hoped that any major problems or inconsistencies in the phasing will already have been addressed at the group level. Based on the results of the assessment it is likely that the settlement will be assigned to a single phase. Published and unpublished sources will be interrogated for comparisons of structures and frameworks to confirm the site phasing structure, and to enable the development of informed interpretation. This stage of research will largely address issues at the site rather than regional level.

The completion of this task represents a key stage in the analytical programme and is the precursor to production of publication text.

◆KEY STAGE 1

Publication liaison (Task 23)

A discussion will take place with the principal members of the project team to formulate the shape and content of the published report.

Site narrative (Task 24)

The Site Narrative will form the basis of the publication. It will be organised by Landscape and Group, but the level of detail depending on the significance of the evidence. The site narrative provides the evidence, including artefactual and ecofactual integration, which is discussed only briefly within the synthetic sections of the publication.

Structural illustration (Task 30)

The digitised plan and section data will be interrogated via the Access site database to produce mock up publication illustrations. Plans can be produced to show features at any appropriate level from sub-group to phase. These will be marked up to illustrate the site narrative. The data will then be transferred to Corel Draw 9 for finishing.



Editing Site Narrative and preparation of synthesis (Task 31-32)

The site narrative will be edited, introductory sections written and the synthetic part of the final publication drafted.

◆KEY STAGE 2

Structural Analysis			
Task		Staff	Days
2.4	Re-examination of geophysical data	Sup	2
2.5	Re-examination of aerial photographs	Sup	2
2.6	Historic Environment Record	Sup	1
7.1	Creating, editing and "tagging" of digital drawings	Csup	5
7.2	Inputting contextual data	Sup	2
19.1	Sub-groups & Groups Analysis	Sup	15
		PO	2
19.2	Landscapes and Phases Analysis	Sup	10
		PO	2
			0
◆	KEY STAGE 1		0
			0
23	Publication liaison	PO	1
	Publication liaison	Sup	1
24	Site Narrative	Sup	15
	Assistance with site narrative	PO	3
30	Structural illustration	Illust	5
	Assistance with structural illustration	PO	1
31	Editing site narrative	PO	3
32	Synthesis	PO	5
	Assistance with synthesis	PM	1
			0
◆	KEY STAGE 2		0
	TOTAL		75

KEY to staff: PM = Project Manager, PO = Project Officer, Sup = Supervisor, Illust = Illustrator, Csup = Computer Supervisor

Table 14: Summary of Structural Analysis Tasks



7.3 Artefactual data

7.3.1 Analysis of Ceramic Artefacts

Quantification and recording (Task 14.1)

The pottery will be quantified by minimum vessel and sherd count, and weight. Fabrics have already been identified according to the Bedfordshire Ceramic Type Series, and these will be checked. All attributes such as decoration, evidence of function (sooting, wear marks etc.), manufacturing techniques (firing characteristics etc.), will be noted. All quantified pottery data will be entered onto the relevant table within the site database.

Technical text (Task 20.1)

Detailed description of the pottery recovered, including fabric and form definitions. As no new fabric types were identified, a summarised type series referring to published parallels will be sufficient. Selected vessels for publication standard illustration will be made at this juncture. The criteria for the selection of illustrated vessels will be as follows:

- vessels from specific features or groups of features
- vessels associated with specific structures
- vessels of intrinsic interest

Ceramic publication text (Task 25.1)

Research into comparative ceramic assemblages from published sources. Analysis and discussion of the material in relation to both the temporal and spatial framework of the site.

Illustration (Task 28.1)

Illustration of the material selected for inclusion in the technical text is carried out by the Illustrator in consultation with the Artefact Officer.

Ceramic Analysis			
Task		Staff	Days
14.1	Quantification and recording	AO	2
20.1	Technical text (type series)	AO	1
◆	KEY STAGE 1		
23	Publication liaison	AO	0.5
25.1	Ceramic publication text	AO	2
28.1	Illustration	ILL	1
28.1	Illustration liaison	AO	0.5
◆	KEY STAGE 2		
	TOTAL		7

Table 15: Summary of Ceramic Analysis Tasks

7.3.2 Analysis of non-ceramic artefacts

Narrow Term identification (Task 11)

Each object will be assigned a narrow term, and where applicable, a date range. This information will be established by an examination of each object, noting;

- form
- method of manufacture
- material and source
- presence of diagnostic features
- condition



Publication text (Task 26)

Following site narrative, the artefact assemblage will be discussed in relation to both the temporal and spatial framework of the site.

Task		Staff	Days
11	Worked flint narrow term	Sup	0.5
◆	KEY STAGE 1		
26	Worked flint publication text	Sup	0.5
29	Worked flint illustration	Illust	1
◆	KEY STAGE 2		
	TOTAL		1.5

Table 16: Summary of Non-Ceramic Analysis Tasks



7.4 *Ecofactual data*

7.4.1 **Animal bone**

Assessment of the animal bone assemblage has demonstrated it is not appropriate to undertake full analysis on this data.

Publication text (Task 27.1)

The assessment report will be used to produce a publication text summarising the animal bone assemblage.

Task		Days
27.1	Publication text	0.5

Table 17: animal bone task

7.4.2 **Environmental samples**

Assessment of the charred plant remains and mollusca retrieved from the environmental samples has demonstrated that it is not appropriate to undertake full analysis on this data.

Publication text (Task 27.2)

A full report on the inhumation will be produced, organised in line with the site phasing structure and supported by tables, graphs, etc.

Task		Days
27.2	Analysis/Reporting	0.5

Table 18: environmental task



7.5 Overall publication, archiving and project management

Publication figures (Task 35)

This comprises all tasks, which contribute to the final publication figures, and includes time for checking each stage, writing of captions and photographic reductions.

Publication text final checking and editing (Task 35)

Comprising final proof reading, editing and cross-referencing prior to the handover of the publication article to the editor of *Bedfordshire Archaeology*. It also include editing after the receipt of comments from the referees appointed by the editor.

Printing (Task 36)

Organised mainly by the editor of *Bedfordshire Archaeology*, but some input will be required.

Archiving and accessioning (Tasks 37-38)

The final stage in the programme of structural analysis will be the preparation of the site records for archiving. This will include all activities leading to the production of a fully accessible archive and its transfer, including cost of transport and liaison, to the receiving museum.

Project management (Task 39)

All project tasks have been identified from a generic BCAS task list menu. These have been entered onto the BCAS Time Recording System (TRS) in order that expenditure and resources can be tracked throughout the life of the project. In addition the project will require a degree of management, undertaken by all the senior BCAS project team members.

Overall publication, archiving and project management			
Task		Staff	Days
◆	KEY STAGE 2		
35	Publication figures	Illust	1
		PO	0.5
35	Publication text final editing and checking	PO	2
	Publication text final editing and checking	PM	1
◆	KEY STAGE 3		
	Submission to <i>Bedfordshire Archaeology</i>		
36	Printing		
37	Archive preparation		
38	Archive transfer (storage costs)		
39	Project management		
◆	KEY STAGE 4		
	TOTAL		4.5

Table 19: Overall publication, archiving and management tasks





8. APPENDIX 2: THE PROJECT TEAM

To ensure a consistency of approach the same specialists will be used who have been involved in the analysis of previous phases of investigations.

Overall management	BCAS	Project Manager	Drew Shotliff
Daily management	BCAS	Project Officer	Mike Luke
Structural analyst	BCAS	Supervisor	Rob Edwards
Artefact analysis	BCAS	Artefacts Officer	Jackie Wells
Illustration	BCAS	Illustrator	Cecily Marshal

Table 20: the project team

Detailed staff CV's were presented in the Project Design, these are therefore not repeated here.

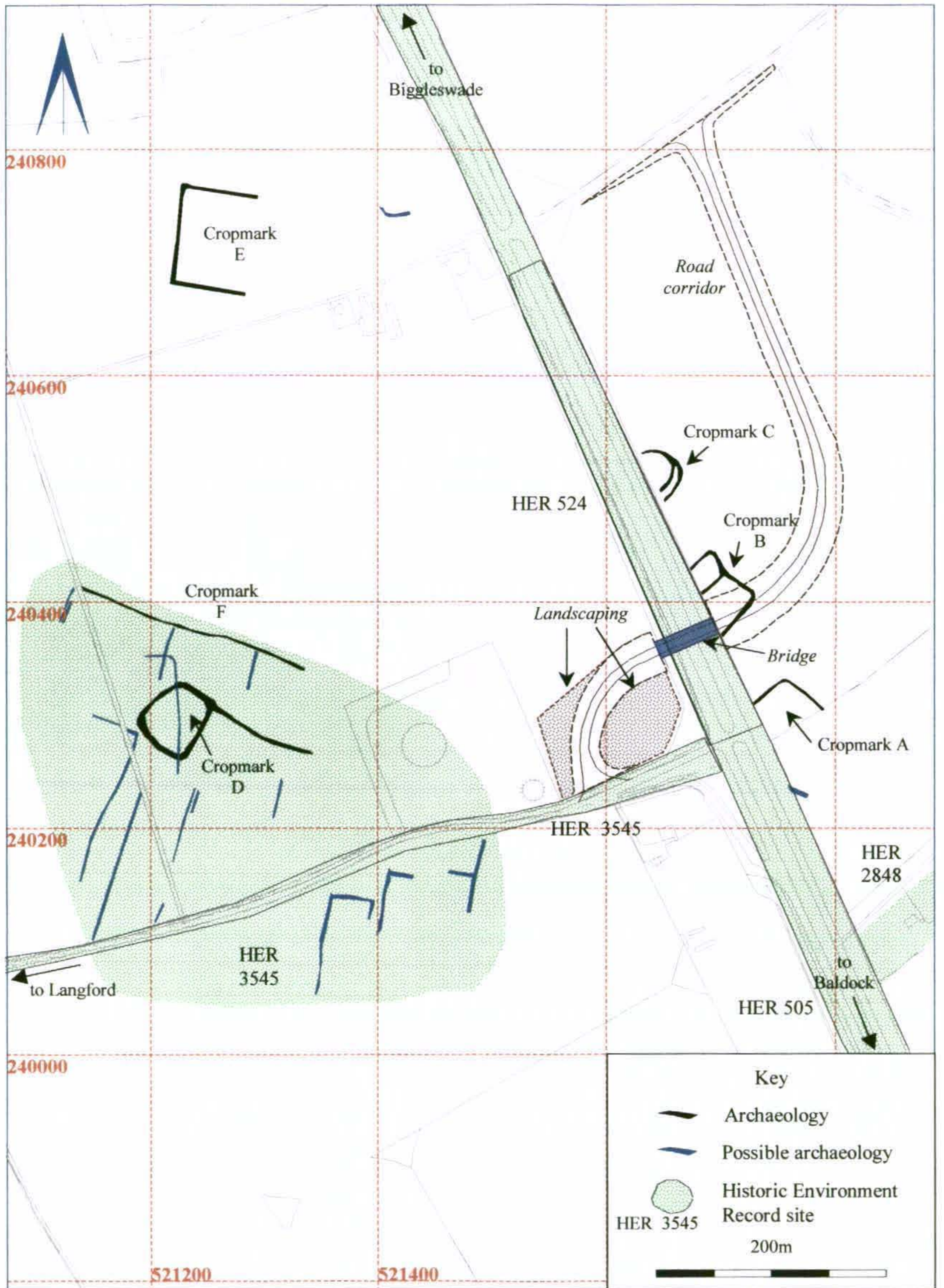
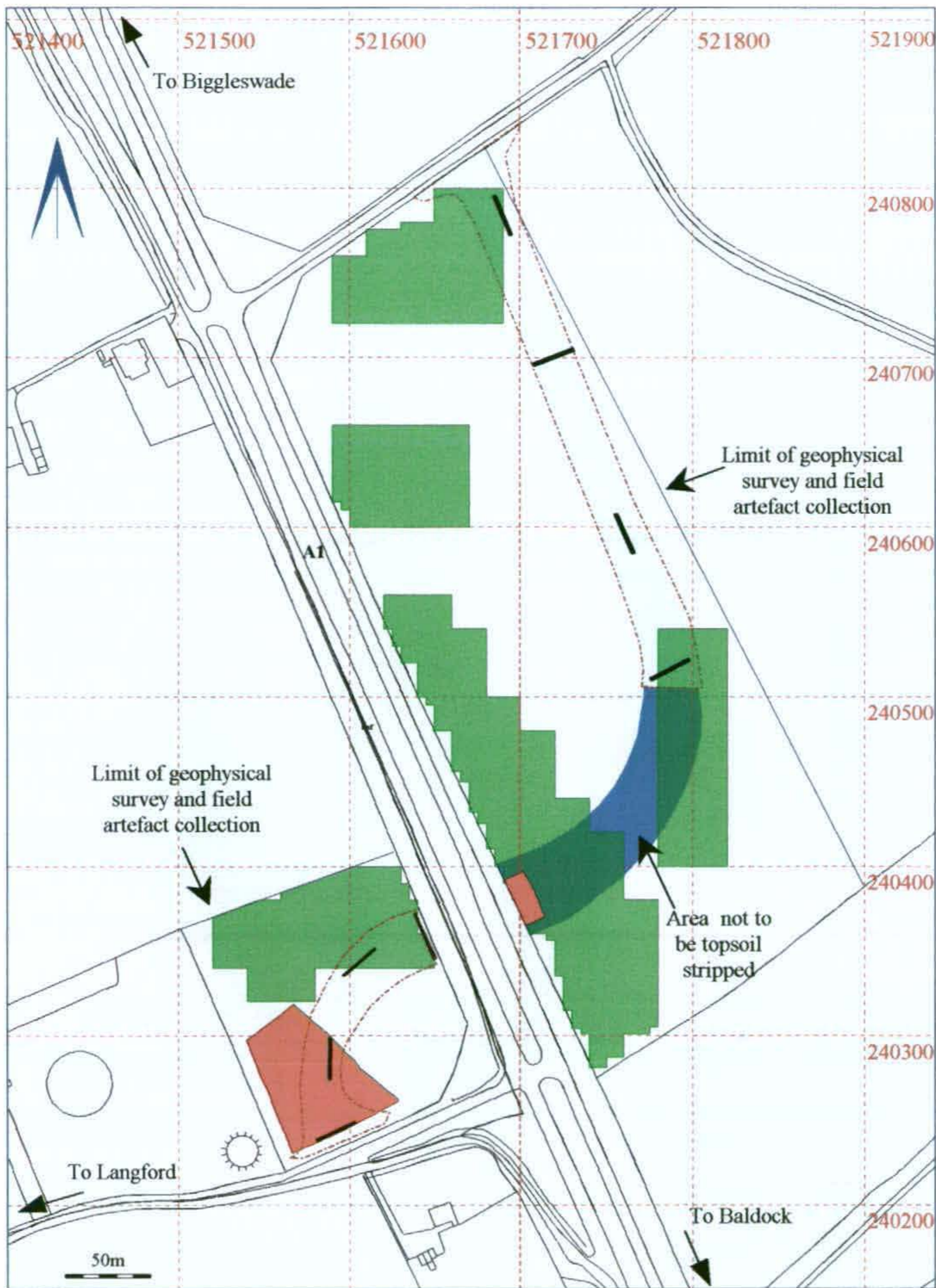


Fig. 1: Location of road improvements with cropmarks and other archaeological sites in the vicinity.



Key

- | | | | | | | | |
|---|-----------------------------|---|-----------------------------|---|----------------------------|---|----------------------|
|  | Aerial photographs analysis |  | Detailed geophysical survey |  | Trial trenching |  | Open area excavation |
| | | | |  | Trial trenching Study area | | |

Fig. 2; Locations of the various stages of archaeological investigation.

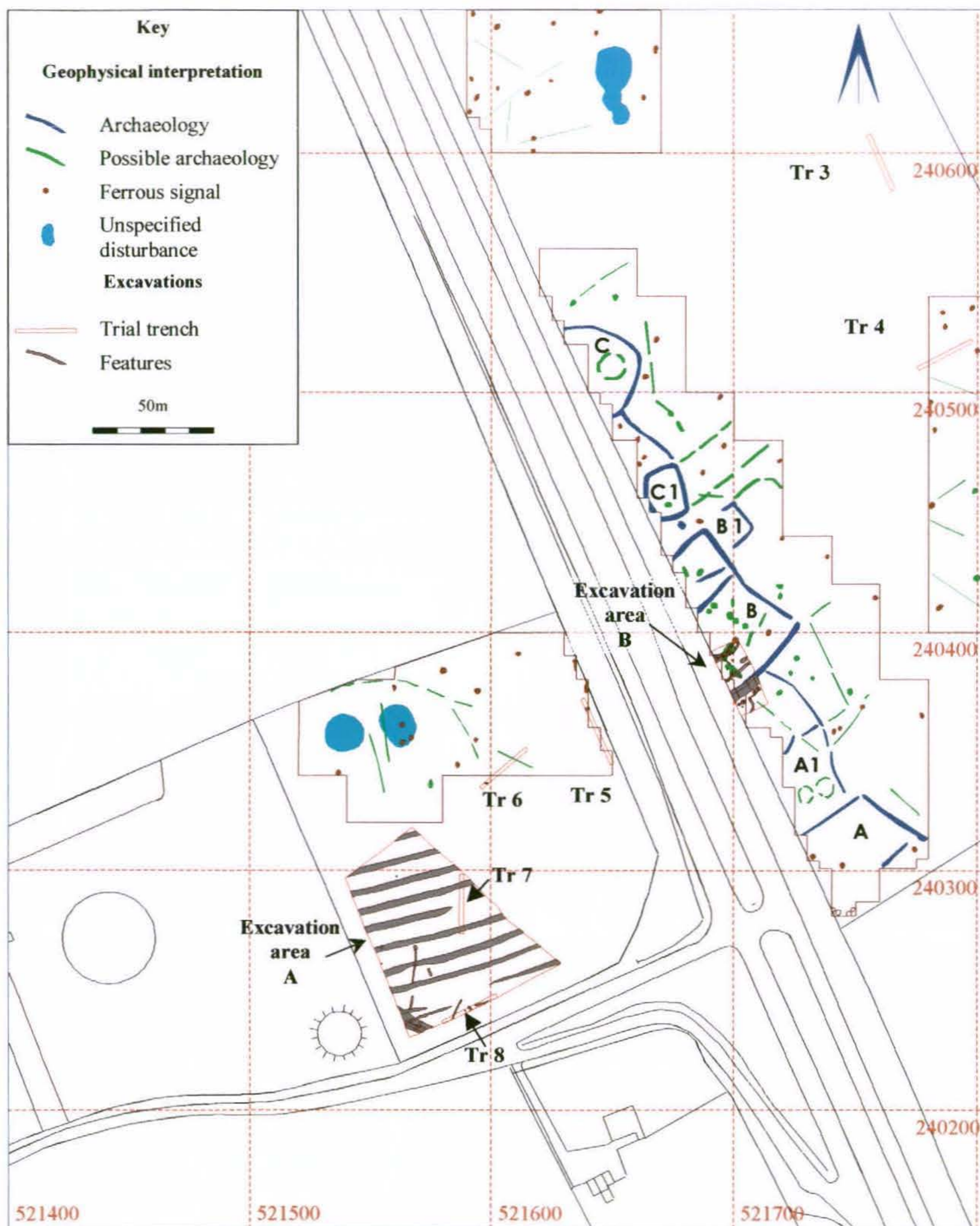


Fig. 3: Results of non-intrusive survey overlain by areas of open area excavation.

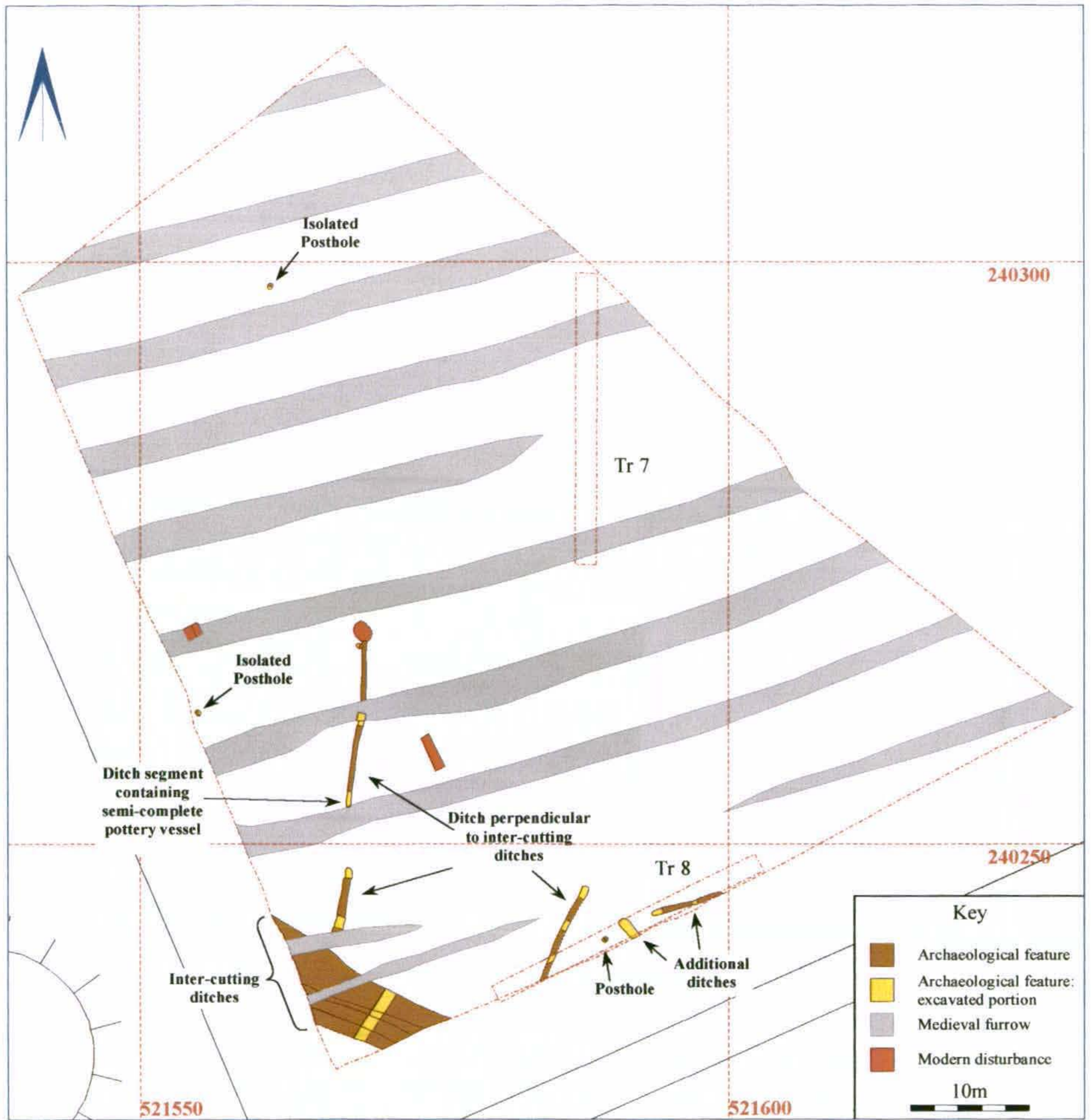


Fig. 4: Open area excavation A; all features plan, with annotations.

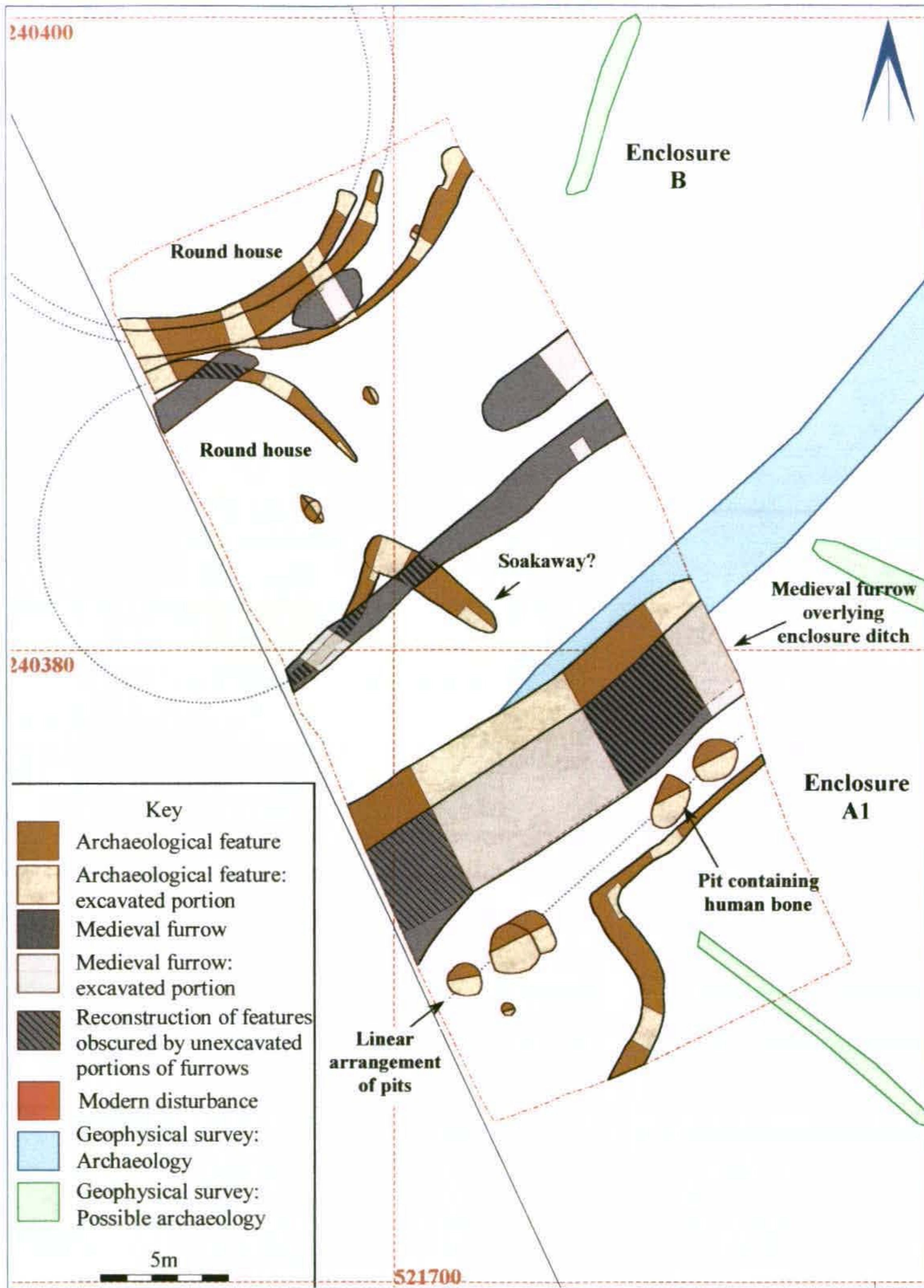


Fig. 5: Open area excavation B; all features plan, with annotations.