GALLEY HILL HILLFORT
SANDY
BEDFORDSHIRE

ARCHAEOLOGICAL
FIELD EVALUATION

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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. All statements and opinions in this document are offered in good faith. Albion Archaeology 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.

This report has been prepared by Jo Archer (Archaeological Supervisor) and Joe Abrams (Project Manager). Trial trenching was undertaken by Jo Archer, Sian Ellis and Kathy Pilkinton (Archaeological Technicians). The borehole survey was undertaken by Craig Halsey and Graham Scull (Museum of London Archaeology Service). The GPS survey was undertaken by David McOmish (Senior Archaeological Investigator, English Heritage) who was also instrumental in deciding the best location for the auger transect on the interior of the hillfort (Transect 2).

The artefact and environmental sample summary was prepared by Jackie Wells (Artefacts Officer). The figures were prepared by Joan Lightning (CAD Technician). All Albion projects are under the overall management of Drew Shotliff (Operations Manager).

Albion Archaeology is grateful to David McOmish (English Heritage) and Peter Bradley (Royal Society for the Protection of Birds) for commissioning the project. RSPB staff were welcoming and co-operative, which helped make the project both efficient and enjoyable. We would also like to acknowledge the comments of Martin Oake and Lesley-Ann Mather (Bedfordshire County Council) who visited the site during the fieldwork.

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Structure of this Report

Section 1 serves as an introduction to the site, describing its location, archaeological background and the overall aims of the project. Section 2 sets out in more detail the aims and methodology of the two stages of the evaluation. The results are discussed in Section 3. Section 4 provides a synthesis of the results, and states their significance within the surrounding landscape. Section 5 is a bibliography.

Appendix 1 contains all trench summary information. Appendix 2 contains a summary of the artefactual and ecofactual material. Appendix 3 contains the full report on the results of the borehole survey.

Key Terms

Throughout this document the following terms or abbreviations are used:

Albion	Albion Archaeology
MOLAS	Museum of London Archaeology Service
CAO	Bedfordshire County Council Archaeological Officer
Clients	Royal Society for the Protection of Birds (RSPB) and English Heritage (EH)
HER	Historic Environment Record
IFA	Institute of Field Archaeologists
PD	Project Design

Non-Technical Summary

The Royal Society for the Protection of Birds (RSPB) have recently been upgrading the facilities on their reserve at The Lodge, Sandy, Bedfordshire. This has included work on the central office complex as well as the surrounding landscape. As part of these works there is a strong desire to improve understanding of the local setting and environmental/cultural history of both the reserve and the surrounding area.

As a first stage in this process, English Heritage (EH) undertook an analytical earthwork survey of the later prehistoric enclosure (hillfort) of Galley Hill (Scheduled Ancient Monument 445). This survey revealed new information about the earthworks preserved within the hillfort and about the possible existence of earlier earthworks which may have preceded the later prehistoric monument.

In order to investigate these issues further, EH and RSPB commissioned Albion Archaeology to carry out an archaeological field evaluation and prepare a report on the results (this document). The information obtained from the evaluation will also help to inform any future proposals for further archaeological investigation of the monument.

The hillfort lies in the south-western corner of The Lodge RSPB reserve near Sandy, Bedfordshire. It occupies a very prominent location at the southern edge of a well defined spur of land projecting in a south-western extension from a broad flat-topped plateau. The interior of the monument has been cleared of trees. However, it is surrounded on all sides by dense coniferous woodland.

The evaluation has been successful in significantly augmenting knowledge and understanding of the use of Galley Hill, both before and after construction of the hillfort. All three of the original research aims set for the investigation were achieved:

- *Could we identify the original entrance to the hillfort?*

Trench 1 successfully identified the entrance. It is located in the northern perimeter of the monument. The entrance is c.3m wide and therefore would have allowed the passage of both pedestrians and carts.

- *What was the date and function of earthwork in the centre of the monument?*

The remains of a ditch, bank and associated pit and postholes were recorded in Trench 2. The ditch was aligned NW-SE, the pit and postholes NE-SW. These not only demonstrate the excellent standard of preservation within the monument, they also suggest that evidence of internal sub-divisions, possible entrance ways and structural remains are preserved within the interior of the monument.

- *Could we find traces of an earlier monument (precursor) to the main hillfort?*

Yes. The borehole survey successfully identified the existence of a large cut feature in the location predicted by the earlier earthwork survey. Further

investigation of these remains would be of enormous interest given their relatively early date, and the role they must have played in the origins and development of the main hillfort.

In summary, the investigation has confirmed that Galley Hill contains well preserved, securely dated archaeological remains of local, regional and national interest. No well preserved environmental remains were identified within the monument but more extensive investigation may redress this.

1. INTRODUCTION

1.1 Project Background

The Royal Society for the Protection of Birds (RSPB) have recently been upgrading the facilities on their reserve at The Lodge, Sandy, Bedfordshire. This has included work on the central office complex as well as the surrounding landscape. As part of these works there is a strong desire to improve understanding of the local setting and environmental/cultural history of both the reserve and the surrounding area.

As a first stage in this process, English Heritage (EH) undertook an analytical earthwork survey of the later prehistoric enclosure (hillfort) of Galley Hill (EH 2005). This survey revealed new information about the earthworks preserved within the hillfort and about the possible existence of earlier earthworks which may have preceded the later prehistoric monument.

In order to investigate these issues further EH and RSPB commissioned Albion Archaeology to carry out an archaeological field evaluation and prepare a report on the results (this document). The information obtained from the evaluation will also help to inform any future proposals for further archaeological investigation of the monument.

1.2 Site Location and Description

The hillfort lies in the south-western corner of The Lodge RSPB reserve near Sandy, Bedfordshire. It occupies a very prominent location at the southern edge of a well defined spur of land projecting in a south-western extension from a broad flat-topped plateau (Figure 1). The interior of the monument has been cleared of trees. However, it is surrounded on all sides by dense coniferous woodland.

The hillfort covers an area of *c.*1.25ha and is centred on National Grid Reference (NGR) TL 18498 47834. It lies at *c.*60m OD.

1.4 Landform, Geology and Soils

The underlying bedrock is green and brown sands and sandstones, part of the Lower Greensand series. The overlying soils are predominantly argillic brown sands.

1.3 Archaeological Background

The archaeological background of the hillfort and its immediate environs has been fully described in the earthwork survey report (EH 2005).

In summary, Galley Hill is a late prehistoric univallate hillfort and is a Scheduled Ancient Monument (SAM445, HER66). A second hillfort (Caesar's Camp) lies *c.*1km to the north and a third (The Lodge) lies 150m to the east (Figure 2). The proximity of these hillforts in a relatively small area is extremely rare and the fact that Galley Hill is the best preserved of the three increases its value further.

Additional remains of interest have recently been investigated by Albion Archaeology. Most notably, a small section of the Biggleswade Cursus (Figure 2) has been investigated *c.*1km south of the hillfort (Abrams *forthcoming*). Clearly, this important Neolithic monument would have been visible from Galley Hill (it may even have been designed to be viewed from this vantage point). Therefore, the possibility that earlier remains exist within the hillfort is potentially of enormous interest in understanding the wider prehistoric landscape of the Ivel Valley.

Other remains, including settlement activity, dating to the Iron Age, Roman, Saxon and medieval periods have been recorded during ongoing works at Sandy Quarry *c.*2km south-west (Albion Archaeology 2005). The hillfort was probably created and used by Iron Age communities living in the fertile Ivel Valley. Therefore, settlement remains recorded this close to the site are of great relevance.

1.4 Methodologies

The Project Design (Albion Archaeology 2006) outlined works that utilised ground intrusive evaluation techniques in the form of trial trenching and a geoarchaeological borehole (BH) survey.

1.5 Professional Standards

Throughout the project the standards set out in the following documents were adhered to:

- Albion Archaeology's *Procedures Manual: Volume 1 Fieldwork* (2nd ed, 2001).
- IFA's *Codes of Conduct* and *Standards and Guidance for Archaeological Field Evaluation*;
- IFA *Guidelines for Finds Work* (2000)
- English Heritage's *The Management of Archaeological Projects* (1991)
- Bedford Museum (1998) *Preparing Archaeological Archives for Deposition in Registered Museums in Bedfordshire*

2. AIMS AND METHODOLOGIES

2.1 Trial trenching

Trial trenching took place between 22nd May and 26th May 2006. The trench layout (Figure 3) was discussed with, and approved by, English Heritage (Case Number S00000801) prior to any trial trenching taking place.

Two trenches were excavated, sampling areas of 5179m^2 (Trench 1) and 5127m^2 (Trench 2). Trench 1 was extended eastwards in order gain a better understanding of the remains revealed within its original limits.

Each trench had specific aims, set out in the Project Design:

Trench 1 – What function did the low mound in the centre of the hillfort serve? Did it represent evidence of funerary activity (burial mound) within the hillfort?
There was a low mound in the centre of the hillfort (Figure 3). What were the origins of this earthwork? If it was a barrow (for human burial), was it flanked by ditches and did it contain a burial?

It was hoped that Trench 1 would reveal the sub-surface remains of a barrow or confirm that this was a much later, possibly Victorian, addition to the monument with a more prosaic function.

Trench 2 - Where was the entrance to the hillfort during its period of use?
The easiest way to enter the site (today and in the past) is from the north as the natural topography drops away steeply on all other sides. The present-day entrance to the monument is also located in the north and Trench 2 was placed in it (Figure 3). This trench was designed to confirm whether or not the current entrance was on the same location as the Iron Age entrance.

It was anticipated that Trench 2 would either reveal a ditch, suggesting that the current entrance is actually a post-Iron Age addition to the monument, or, it would reveal undisturbed geological deposits, suggesting this was the original entrance into the hillfort. It was also hoped that Trench 2 might reveal evidence for a bank, palisade or postholes for a timber gate.

The location of all trenches was recorded using differential GPS survey equipment. Topsoil and modern overburden were mechanically removed by a JCB, fitted with a toothless ditching bucket and operating under close archaeological supervision. These deposits were removed down to the top of archaeological deposits, or undisturbed geological deposits, whichever was encountered first. The spoil heaps were scanned for artefacts.

The bases and sections of all trenches were cleaned by hand. The deposits and any potential archaeological features were noted, cleaned, excavated by hand and recorded using Albion Archaeology's *pro forma* sheets. The trenches were subsequently drawn, and photographed as appropriate. All deposits were recorded

using a unique recording number sequence commencing at 100 for Trench 1, 200 for Trench 2 et*c*.

2.2 Borehole Survey

2.2.1 Introduction

Geoarchaeology aims to understand and interpret both man-made and natural sediments. It relies heavily on the design and execution of augering, borehole surveys. It uses data from the following sources in order to reconstruct past environments:

- Geomorphology - evidence derived from the study of the shape of the earth's surface and the processes that form it.
- Sedimentology - investigation of the structure and texture of sediments.
- Pedology - study of the structure and character of soils.

2.2.2 Methodology

At Galley Hill data was collected via a borehole survey using a pneumatic power auger. Sampling tubes were driven vertically into the ground, buried deposits were then extracted and studied both on and off the site.

The specialist contractor (Museum of London Archaeological Services) undertook the survey which comprised two transects. Both transects were targeted to answer specific questions and to recover dating evidence, the results of which are discussed in the following sections.

2.2.3 Transect 1

Six boreholes were placed across the well preserved ditch and bank in the south-western corner of the hillfort. The primary aims were to characterise the profile of the ditch and bank in this part of the monument and to characterise the deposits which made up the bank and had infilled the ditch.

Secondary aims included trying to ascertain whether any buried soils existed below the bank and/or whether any potential for waterlogged or charred plant remains existed in the basal fills of the ditch. It was also hoped that it could be ascertained whether there was any potential for pollen preservation in this location.

2.2.4 Transect 2

The detailed earthwork survey of Galley Hill (EH 2005) suggested the possible existence of a potentially earlier (pre-Iron Age) monument (Figure 3).

It was proposed that part of a putative monument is visible in the layout of earthworks in the south-western corner of the hillfort. This corner is distinctly curved, a contrast to the rest of the hillfort which is sub-rectangular in shape. It was hoped that the sub-surface remains of this earlier monument might be revealed through intrusive investigation of the interior of the hillfort.

Accordingly, seven BH's (Transect 2) were placed across the putative location of the earlier ditched monument. The aim was to try and pick up any traces of an infilled ditch on the interior of the hillfort in approximately the location that the EH survey had predicted.

3. RESULTS

3.1 Introduction

Two trenches and two auger transects (thirteen BH's) were used to address the three objectives described in Section 2. The combined results of those investigations are presented here.

Full details on the contextual data, the artefactual and ecofactual assemblages, and the borehole survey can be found in Appendices 1-3.

3.2 Topsoil, subsoil and geological deposits

The overburden in each trench comprised a homogenous, loose, silty sand topsoil (100, 200, 300). This varied in thickness from 0.18m to 0.20m.

Beneath the topsoil was homogenous, loose, silty sand subsoil (101, 201, 301), varying in thickness from 0.14m to 0.42m. Pieces of worked and burnt flint thought to date to the late Bronze Age/early Iron Age (LBA/EIA) were recovered from subsoil with Trenches 1 and 2 (Appendix 2, Table 1). This layer sealed all significant archaeological remains visible in both trenches and the auger transects.

Each trench was excavated to the top of the undisturbed geological strata (102, 202, 302), a loose sand varying in colour from mid yellow/orange to mid green. This was reached at depths of 0.40m-0.60m below the ground surface, depending on the slope of the land.

Sub-surface archaeological features were present in both trenches and BH's 11 and 12 (Transect 2, Figure 3).

3.3 Earlier (pre-Iron Age) earthwork in the south-western corner of the hillfort

The seven BH's (7-13) of Transect 2 were positioned across the conjectured line of the earlier monument within the hillfort interior. BH's 7, 8, 9, 10 and 13 produced a sequence of topsoil (300), subsoil (301) and undisturbed natural geology (302). This deposit sequence matched those recorded in Trenches 1 and 2 and, therefore, did not suggest the presence of any substantial cut features.

However, BH's 11 and 12 revealed evidence of a large cut feature containing two deposits (304, 305, Appendix 1), which overlay undisturbed geological strata (302) and were sealed by subsoil (301). The distance between the two BH's and the depth of deposits recorded within them suggests that the feature was *c.*2.00m wide and *c.*0.80m deep (Appendix 3 - Figure 4).

Significantly, BH's 11 and 12 intersected the postulated line of the earlier monument. Deposits (304) and (305) are, therefore, interpreted as evidence that below ground remains of an earlier ditched monument do exist.

Remarkably, one piece of worked flint was retrieved from BH 12 (304) (Appendix 2, Table 1) but could not be reliably dated.

3.4 Morphology of the ditch and bank at the south-western corner of the hillfort

Transect 1 (Appendix 3 - Figure 2) demonstrated that the south-western part of the hillfort ditch had become infilled with naturally derived sediments to a depth of *c*.0.70m, although the depth of the cut from the original ground surface may have been as deep as 1.5m. The base of this ditch exists at around 58.20m OD (BH 3).

The ditch was infilled by processes of slumping and erosion from its upper edges and from re-deposited geological material derived from its sides and from the bank formed from the original upcast. No evidence was visible in the ditch deposits for the deliberate dumping of domestic waste material.

From the borehole survey alone it is difficult to ascertain the original profile of the ditch. However, the projected line of the deposits suggests the ditch originally had a wide concave profile, with a gentler slope towards the inner bank (Appendix 3 - Figure 5).

The bank material within the inner bank of the hillfort enclosure exists to a depth of 0.90m below the topsoil horizon (BH 2). The bank material thins to a depth of 0.60m towards the interior of the enclosure (BH 1). The outer bank still exists to a depth of 0.75m below the topsoil horizon (BH 4) and thins to a depth of 0.30m down the slope of the hill (BH 5).

3.5 The entrance to the hillfort

Trench 2 (Figure 5) was designed to test the location of a possible entrance to the hillfort.

The terminal of the western bank was recorded (Figure 5). It comprised two deposits: basal layer (207) and upper layer (214). Layer (207) was 4.80m wide and 0.32m thick and contained eighteen sherds (52g) of LBA/EIA pottery and small quantities of animal bone, worked flint and burnt flint (Appendix 2). Layer (214) was 4.80m wide and 0.18m thick; it produced no artefactual material.

The relatively abundant quantity of dateable pottery sherds recovered from bank deposit (207) is of great interest. This material was potentially deposited during the original construction of the northern ditch and bank of the hillfort and, therefore, provides a reliable date for the origins of the monument. It is clear that the monument had its origins early in the Iron Age and possibly before.

The entranceway (gap between the two terminals) was also located within the trench and the eastern terminal was preserved as an earthwork a short distance east of the edge of excavation (Figure 3). The distance between the two bank terminals was *c*.3m an equivalent break in the outer ditch suggests the original entrance was of these proportions. It would have been possible for both pedestrians and wheeled carts to have used such an entrance.

Three ditches ([203]/[210] [208]/[212] and [205]) were investigated to the north of the bank (Figure 5). They were oriented NNE- SSW, 1.75m apart, 0.10m-0.20m

deep and 0.55m-1.00m wide. Their full length is unknown as they crossed the hillfort entrance and extended beyond the confines of Trench 2.

Ditches [203] and [212] contained LBA/EIA pottery totalling 8g in weight; 10g of E-MIA pottery was also recovered, along with 3g of worked flint, 2g of burnt flint and 14g of burnt stone (Appendix 2). This material suggests the ditches were broadly contemporary with the Iron Age hillfort, rather than forming part of a much earlier (Neolithic/early-middle Bronze Age) monument.

These ditches present a conundrum. What was their function? Controlling access to the hillfort? The small space between them (under 1m) and their insignificant depth (maximum 0.20m deep) suggests they were not a means of controlling access. They are quite unlike such features on other hillfort sites, e.g. Mingies Ditches, Oxfordshire (Dyer 1971).

Perhaps a more convincing suggestion is that they represent the remains of the planning stage for the hillfort (Mike Luke pers comm.). Its ground plan may have been marked out with shallow gullies prior to excavation of the main ditches and construction of the banks. The segmental and irregular nature of these shallow ditches certainly suggest they only served a temporary function.

3.6 The layout of the interior of the hillfort

Trench 1 (Figures 3 and 4) was designed to test the origins of a low mound located in the centre of the hillfort. It was considered possible it might have represented the largely truncated remains of a prehistoric barrow.

No such barrow was found. Instead, a NW-SE aligned ditch, its eastern terminal [107]/[116] and associated bank deposits (111, 112, 113, 114, 118, 119) were revealed in the centre of the trench. Clearly, the remains of this bank had created the low earthwork mound on which the trench was targeted. A pit [103] and two postholes [105] and [109] were also recorded.

The ditch was up to 1.8m wide and 0.75m deep; its full length is not known. It contained a single deposit (108/117); significantly no evidence for primary silting or tip lines was visible, suggesting the ditch may have been backfilled soon after being opened.

The bank comprised two layers (Figure 4), surrounding the ditch on all sides. The basal layers (111, 113 and 118) consisted of a buried topsoil which covered a 13.25m area. Overlying this was a thin layer (112, 114 and 119), covering a 13.75m wide area. A further layer (115) was recorded on either side of the bank. This layer was not observed in any of the BH's or within Trench 1 and is thought to have derived from eroding bank deposits associated with ditch [107]/[116].

Artefactual material recovered from the ditch and bank deposits comprised 80g of LBA/EIA pottery (broadly contemporary with material recovered from remains associated with the entrance to the hillfort, Trench 1); 8g of early-middle Iron Age pottery was also collected. In addition, 55g of worked flint, 18g of burnt flint and 104g of burnt stone were collected (Appendix 2).

The position of the bank and ditch within the hillfort indicates that they formed an internal boundary running, broadly, NW-SE across the centre of the hillfort. It is considered possible that this boundary ditch split the hillfort into northern and southern halves.

Significantly, the terminus of this ditch, and the gap this would have created, aligns well with the main entrance to the hillfort. If the ditch in Trench 1 and the entrance in Trench 2 were contemporary, traffic could have passed un-impeded in a straight N-S line through the hillfort. Further investigation would be needed to confirm the existence of a second inner/minor gateway, but the remains in Trench 2 suggest such an entrance may have existed.

A short distance north of this possible secondary entrance was posthole [105] and pit [103]. A further posthole [109] was recorded immediately to its south. Pit [103] contained 39g of early Bronze Age pottery, indicating that Galley Hill was in use before the main hillfort was constructed (Appendix 2).

Artefactual material recovered from posthole [109] and ditch [107] suggests both features fell into disuse during the LBA/EIA (Appendix 2). If the pits, and postholes were contemporary, then it is possible that they demarcated a fence line running NE-SW between the main (Trench 2) and secondary entrances (Trench 1). Clearly, the spatial limitations of trial trench investigation should be borne in mind at this point and the need for more large scale investigation is acknowledged.

3.7 Depths of overburden sealing the monument

The following series of layer thickness, depths and OD heights have been tabulated to provide RSPB and EH with useful data when considering what future activities could take place within the monument without damaging it.

Trench 1:

	Topsoil thickness	Subsoil thickness	Depth to Undisturbed geological strata	Depth to archaeological deposits	Critical OD height (top of archaeological deposits)
North	0.10m	0.28m	0.52m	0.30m	59.20m OD
South	0.10m	0.22m	0.52m	0.30m	58.82m OD

Trench 2:

	Topsoil thickness	Subsoil thickness	Depth to Undisturbed geological strata	Depth to archaeological deposits	Critical OD height (top of archaeological deposits)
North	0.08m	0.12m	0.20	0.36m	59.49m OD
South	0.14	0.24	0.38	0.26m	59.87m OD

Auger Transect 1:

Borehole	Topsoil thickness	Subsoil thickness	Depth to Undisturbed geological strata	Depth to archaeological deposits	Critical OD height (top of archaeological deposits)
1	0.05m	0.05m	0.70m	0.10m	60.82m OD
2	0.10m	-	1.00m	0.10m	61.26m OD
3	0.15m	0.12m	1.00m	0.27m	58.91m OD
4	0.10m	0.30m	1.05m	0.30m	59.86m OD
5	0.15m	0.35m	0.80m	0.50m	59.48m OD
6	0.04m	0.16m	0.50m	0.20m	59.53m OD

Auger Transect 2:

Borehole	Topsoil thickness	Subsoil thickness	Depth to Undisturbed geological strata	Depth to archaeological deposits	Critical OD height (top of archaeological deposits)
7	0.10m	0.35m	0.45m	-	-
8	0.10m	0.30m	0.40m	-	-
9	0.17m	0.38m	0.55m	-	-
10	0.14m	0.42m	0.56m	-	-
11	0.20m	-	0.77m	0.20m	58.85m OD
12	0.12m	-	0.90m	0.12m	58.93m OD
13	0.17m	0.23m	0.40m	-	-

4. SYNTHESIS OF RESULTS

4.1 Discussion

4.1.1 The significance of a possible earlier (pre-Iron Age) monument in the south-western corner of the hillfort

The use of earthwork and borehole survey techniques has established the likely existence of a second, earlier monument on Galley Hill, predating the main monument. Artefactual evidence (a single worked flint) was not sufficient to provide a date for these remains. However, their existence is considered to be significant and rare.

Evidence from other hillforts recorded in the region shown that only one comparable example exists, at Wilbury Hill, Letchworth where the existence of a smaller oval monument predating the main hillfort has also been recorded (Moss-Eccardt 1964).

4.1.2 Evidence for the survival of internal divisions within the hillfort

The ditch and bank recorded in Trench 2 are orientated NW-SE, parallel with the main axis of the hillfort. Dateable artefactual material suggests the remains are contemporary with the main earthworks of the hillfort (encountered in Trench 1).

The remains in Trench 2 also included a pit and two postholes confirming good preservation of archaeological remains and the existence of land divisions and possible structural remains (fences) associated with them. Examples of internal organisation have been noted elsewhere on hillforts, such as Danebury, Wessex, where round houses were divided from storage pits and granaries (Cunliffe 1983).

It is too early to say what the remains at Galley Hill constitute. However, the presence of relatively frequent sherds of pottery is suggestive of domestic activity within the hillfort. In time, and with further investigation, a similar picture of complexity may emerge at Galley Hill.

4.1.3 A route into, and through, the monument?

The spatial distribution of physical remains can reveal much about the way a site was used by the people who designed it. Information from this evaluation, although limited in scope, was valuable to an understanding of how the hillfort was used and moved through.

The most significant evidence is the alignment of the main entrance (Trench 2) and the putative gap in the internal boundary recorded in Trench 1. The ditch terminal located in Trench 1 is due south of the ditch terminal in the main entrance, suggesting a pathway may have led SW from the main entrance and through the gap recorded in Trench 2. Again, more investigation would be required in order to confirm these tentative suggestions.

4.1.4 Why is the location of Galley Hill so perennially important?

Galley Hill is on a spur on the Greensand Ridge and, although heavily wooded now, originally commanded views north up the Ivel Valley, towards Sandy, south towards Biggleswade and south-east towards Potton. From the SW corner of the hillfort, notably the location of the earlier monument, the view of the Ivel Valley would have been particularly extensive.

The Ivel Valley is rich in archaeological sites, most of which are contemporary with the hillfort and undoubtedly would have been visible from Galley Hill. Environmental evidence collected from Ivel Farm (Murphy 2001) has shown that clearance of woodland in this area began in the Neolithic to Bronze Age, so visibility from Galley Hill would have been good.

To the south lay Iron Age settlement at Ivel Farm (HER1814) and Becks Land South (HER 3527). It is conceivable that the hillfort was constructed by and served these communities (amongst others).

Four clusters of prehistoric barrows have also been recorded either side of the River Ivel. These would have been visible to the west (HER1495) and south (HER701, 1343, 10138) of Galley Hill. Biggleswade Cursus (HER644) is also situated south of Galley Hill and, although Neolithic in origin, would have still have been a visible landscape feature in later periods.

A further two hillforts are situated on the Greensand Ridge, close to Galley Hill. Caesar's Camp (HER442), an early Iron Age contour fort, lies to the north-west and 178m to the east lies an early Iron Age promontory fort at The Lodge (HER1164).

Excavations carried out in 1968–69 at The Lodge discovered that the construction of the hillfort was incomplete (Dyer 1971). Significantly, the position of The Lodge means it has a more restricted view across the Ivel Valley. Was it perhaps abandoned in favour of Galley Hill for this reason?.

4.2 Points to be considered when preparing for future works at the site

4.2.1 What potential do deposits preserved within the hillfort have to aid in the reconstruction of the environment within which the monument was located?

One of the aims of the borehole survey was to ascertain the extent to which environmental data, such as charred or waterlogged plant remains and pollen might have been preserved within the hillfort.

The sandy deposits of the ditch fills and banks showed little potential for pollen preservation. However, other sources of preserved environmental data might prove more valuable for reconstruction of the Iron Age environment at Galley Hill.

Eighty litres of environmental samples were taken from several features in order to assess the potential of remains within the hillfort to preserve macro-botanical remains (charred/waterlogged/mineralised seeds). The results of this work were

not particularly encouraging (Appendix 2, Section 6.2.5). Rooting had affected all of the samples, potentially contaminating the deposits with intrusive modern material. The only material consistently present was small fragments of charcoal, which are of limited for both radiocarbon dating and wood species identification.

If it is to produce worthwhile results, any environmental sampling programme carried out during future works would need to be carefully targeted.

4.2.2 What potential do deposits preserved within the environs of the hillfort have to aid in the reconstruction of the Iron Age environment?

Surviving environmental deposits within the environs of the hillfort would be a valuable source of data for reconstruction of the Iron Age environment.

Successful environmental sampling has already been carried out at Warren Villas and Ivel Farm (Robinson 2001) to the south of Galley Hill, allowing a reconstruction of the environmental changes on the Ivel floodplain. It was proposed that this work should provide a benchmark against which future environmental studies could be considered (Havercroft 2001).

Further work involving bulk and monolith sampling and collection of charred plant material would greatly contribute to the current environmental model and also aid an understanding of past land-use in the Ivel Valley (Murphy 2001).

4.3 Summary

The evaluation has been successful in significantly augmenting our understanding of the Galley Hill monument. All three of the original research aims have been achieved:

- Could we identify the original entrance to the hillfort?

Trench 1 successfully identified the entrance. It is located in the northern perimeter of the monument. The entrance is c.3m wide and would have allowed the passage of both pedestrians and carts.

- What was the date and function of the earthwork in the centre of the monument?

The remains of a ditch, bank and associated pit and postholes were recorded in Trench 2. The ditch was aligned NW-SE, the pit and postholes NE-SW. These not only demonstrate the excellent level of preservation within the monument, but also suggest that the hillfort may have been internally sub-divided.

- Could we find traces of an earlier monument (precursor) to the main hillfort?

Yes. The borehole survey successfully identified the existence of a large cut feature in the location predicted by the earlier earthwork survey. Further investigation of these remains would be of enormous interest given their relatively early date, and the role they must have played in the origins and development of the main hillfort.

Information on the origins of human activity on Galley Hill and the developmental changes that may have led to the hillfort being constructed, and abandoned, are of local, regional and national interest. New information on these remains will feed into the following national (English Heritage 1997) and regional (Glazebrook *et al* 1997) research agenda:

National or regional research Agenda	**Description of research objective**	**Policy/heading**	**Page number and source**
National	Why, how and when did monuments, settlement types and burial patterns change from the Neolithic to later prehistory? The putative early monument at Galley Hill and the known Iron Age hillfort located there offer the opportunity to study changes in this timeframe.	PC3 – Communal monuments into settlement and field landscapes (*c.*2000-300 BC)	Page 44, EH 1997
National	What is the place and meaning of hillforts in the wider prehistoric landscape? Much is known, and is emerging, of the prehistoric landscape around Galley Hill. Valuable connections could be made.	P8 – Late Iron Age hillforts, enclosures and settlements	Page 48, EH 1997
Regional	What form do hillforts take in this region? Do they have a role as settlements? Storage areas? Or purely ritual centres? Are elements of all three of these activities represented? The well preserved remains at Galley Hill offer the opportunity to shed light on all these areas.	Iron Age III. Hillforts	Page 29, Glazebrook *et al* 1997

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6. APPENDICES

6.1 Appendix 1 – Trench Summaries

Trench: 1

Max Dimensions: Length: 22.65 m. Width: 3.50 m. Depth to Archaeology Min: 0.5 m. Max: 0.82 m.

OS Co-ordinates: Ref. 1: TL1851347839 Ref. 2: TL1850247819

Reason: Trench 1 was targeted on a low mound in the centre of the hillfort to ascertain its function and date.

Context:	Type:	Description:	Excavated:	Finds Present:
100	**Topsoil**	**Loose dark grey black silty sand Topsoil 0.20m thick. Same as (200) and (300).**	☑	☐
101	**Subsoil**	**Loose mid orange brown silty sand occasional medium stones Subsoil 0.14m thick. Same as (201) and (301).**	☑	☑
102	**Natural**	**Loose mid yellow orange sandy sand frequent large stones, frequent medium stones Natural geology varying in colour across the site. Same as (202) and (302).**	☑	☐
103	**Pit**	**Circular NE-SW profile: concave base: concave dimensions: max breadth 0.7m, max depth 0.13m, max length 0.45m Sample <2>.**	☑	☐
104	Fill	Loose mid orange brown silty sand occasional medium stones Single fill of pit [103], 0.13m thick. Sample <2>.	☑	☑
105	**Posthole**	**Circular profile: concave base: concave dimensions: max breadth 0.2m, max depth 0.05m, max length 0.2m Posthole 2.25m north of pit [103].**	☑	☐
106	Fill	Loose dark brown black silty sand Single fill of posthole [105], 0.05m thick.	☑	☐
107	**Ditch**	**Linear E-W profile: concave base: flat dimensions: max breadth 1.8m, max depth 0.75m, min length 2.m Ditch in the centre of Trench 1. Sample <6>.**	☑	☐
108	Fill	Loose mid red brown silty sand occasional small stones Single fill of ditch [107], 0.75m thick. Sample <6>.	☑	☑
109	**Posthole**	**Circular N-S profile: concave base: concave dimensions: max breadth 0.35m, max depth 0.13m, max length 0.46m Posthole on the southern side of ditch [107]. Sample <4>.**	☑	☐
110	Fill	Loose mid grey red silty sand frequent medium stones Fill of posthole [109], 0.13m thick. Sample <4>.	☑	☑
111	**Buried topsoil**	**Compact mid grey red silty sand occasional small stones It measured 0.31m thick. Same as layers (113) and (118).**	☑	☐
112	**Layer**	**Loose light yellow brown silty sand occasional small stones It measured 0.05m thick and is the same as (114) and (119).**	☑	☐
113	**Buried topsoil**	**Compact mid grey red silty sand occasional small stones It measured 0.31m thick. Same as layers (111) and (118). Sample <7>.**	☑	☑
114	**Layer**	**Loose light yellow brown silty sand occasional small stones It measures 0.05m thick and is the same as (112) and (119).**	☑	☐
115	**Layer**	**Loose mid grey brown silty sand occasional small-medium stones A layer, measuring 0.20m thick. Sample <8>.**	☑	☑
116	**Ditch**	**Terminus of ditch [107] in Trench 1.**	☑	☐
117	Fill	Loose mid red brown silty sand occasional small-medium stones Single fill of ditch [116], measuring 0.49m thick.	☑	☑
118	**Buried topsoil**	**Compact mid grey red silty sand occasional small stones It measured 0.31m thick. Same as layers (111) and (113).**	☑	☐
119	**Layer**	**Loose light yellow brown silty sand occasional small stones It measured 0.05m thick.**	☑	☐

Trench: 2

Max Dimensions: Length: 20.80 m. Width: 5.50 m. Depth to Archaeology Min: 0.4 m. Max: 0.6 m.

OS Co-ordinates: Ref. 1: TL1853647873 Ref. 2: TL1852747854

Reason: Trench 2 was targeted on the break in the centre of the northern hillfort ramparts, to ascertain whether this was the original entrance into the hillfort.

Context:	Type:	Description:	Excavated:	Finds Present:
200	**Topsoil**	**Loose dark grey black silty sand frequent small sand Topsoil 0.18m thick. Same as (100) and (300).**	☑	☐
201	**Subsoil**	**Loose dark orange brown silty sand frequent small sand Subsoil 0.42m thick. Same as (101) and (301).**	☑	☑
202	**Natural**	**Loose mid yellow orange sandy sand frequent medium-large stones Natural geology varying in colour across the site. Same as (102) and (302).**	☑	☐
203	**Ditch**	**Linear E-W profile: concave base: concave dimensions: max breadth 0.55m, max depth 0.1m, min length 1.6m Ditch in the northern end of Trench 2. Sample <1>.**	☑	☐
204	Fill	Friable dark grey brown silty sand occasional flecks charcoal, moderate large stones, moderate medium stones Single fill of ditch [203], 0.10m thick. Sample <1>.	☑	☑
205	**Ditch**	**Linear E-W profile: concave base: concave dimensions: max breadth 1.m, max depth 0.2m, min length 1.75m Ditch in the northern end of Trench 2.**	☑	☐
206	Fill	Friable dark grey brown silty sand moderate medium-large stones Single fill of ditch [205], 0.20m thick.	☑	☑
207	**Layer**	**Friable mid grey brown silty sand moderate medium stones The basal layer of the hillfort bank on the northern side of the monument, terminating in Trench 2. This layer is a minimum of 2.50m in length and a maximum of 4.80m wide and 0.32m thick. Sample <5>.**	☑	☑
208	**Ditch**	**Linear E-W profile: concave base: concave dimensions: max breadth 0.76m, max depth 0.1m, min length 0.8m Ditch in the northern end of Trench 2, same as [212].**	☑	☐
209	Fill	Friable dark grey brown silty sand moderate medium-large stones Single fill of ditch [208], 0.10m thick.	☑	☐
210	**Ditch**	**Linear E-W profile: concave base: concave dimensions: max breadth 0.63m, max depth 0.17m, min length 0.54m Ditch in the northern end of Trench 2, same as [203].**	☑	☐
211	Fill	Friable mid grey brown silty sand Single fill of ditch [210], 0.17m thick.	☑	☐
212	**Ditch**	**Linear E-W profile: concave base: concave dimensions: max breadth 0.83m, max depth 0.19m, min length 1.m Ditch in the northern end of Trench 2, same as [208].**	☑	☐
213	Fill	Loose mid orange brown silty sand single fill of ditch [212], 0.19m thick. Sample <3>.	☑	☑
214	**Layer**	**Loose light brown white silty sand frequent small-medium stones Upper layer of rampart bank, 0.18m thick.**	☑	☐

Trench: 3

Max Dimensions: Length: 0.10 m. Width: 0.10 m. Depth to Archaeology Min: 0.1 m. Max: 0.5 m.

OS Co-ordinates: Ref. 1: TL1843347819 Ref. 2: TL1848947813

Reason: Transect 1, of six boreholes, was targetted on the bank and ditch in the SW corner of the hillfort, to find the depth of the banks and ditches. Transect 2, of seven boreholes, targetted the postulated line of a ditch thought to be an earlier monument.

300	Topsoil	Loose dark grey black silty sand frequent small sand Topsoil 0.20m thick. Same as (100) and (200).	☑	☐
301	Subsoil	Loose dark orange brown silty sand frequent small sand Subsoil 0.14m thick. Same as (101) and (201).	☑	☐
302	Natural	Loose mid yellow orange sandy sand frequent large stones Natural geology varying in colour across the site. Same as (102) and (202).	☑	☐
303	Layer	Silty sand frequent small sand Layer identified in Borehole 1 in the southwest corner of the hillfort.	☑	☑
304	Fill	Fill identified in Borehole 5 from the outer rampart ditch.	☑	☐
305	Fill	Fill identified in Borehole 12.	☑	☑

6.2 Appendix 2 – Artefact and Ecofact Summary

6.2.1 Introduction

The evaluation produced a finds assemblage comprising mainly pottery and worked flint, the majority deriving from features in Trench 1 (Table 1). The material was scanned to ascertain its nature, condition and where possible date range.

Tr.	Feature	Feature type	Context	Spot date*	Pottery	Other finds
01	101	Subsoil	101	Late Neolithic/EBA		Worked flint (100g); burnt flint (23g)
	103	Pit	104	Early Bronze Age	5:39	
	107	Ditch	108	LBA/early Iron Age	25:72	Worked flint (36g); burnt flint (9g); burnt stone (8g)
	109	Posthole	110	LBA/early Iron Age	11:116	Worked flint (1g); burnt flint (17g); burnt stone (3g)
	113	Buried topsoil	113	LBA/early Iron Age	7:14	Worked flint (1g); burnt flint (9g); burnt stone (96g)
	115	Layer	115	LBA/early Iron Age	9:16	Worked flint (38g); burnt flint (1g); burnt stone (2g)
	116	Ditch terminus	117	LBA/early Iron Age	1:2	Worked flint (18g)
02	201	Subsoil	201	LBA/early Iron Age	7:16	Worked flint (35g); burnt flint (12g)
	203	Ditch	204	LBA/early Iron Age	6:9	Worked flint (1g); burnt flint (1g); burnt stone (14g)
	205	Ditch	206	-		Worked flint (1g)
	207	Layer	207	LBA/early Iron Age	18:52	Animal bone (1g); worked flint (20g); burnt flint (24g); burnt stone (62g)
	212	Ditch	213	LBA/early Iron Age	9:17	Worked flint (1g); burnt flint (1g)
03	303	Borehole	303	-		Worked flint (11g)
	305	Borehole	305	-		Worked flint (3g)
				Total	98:353	

***** - spot date based on date of latest artefact in context

Table 1: *Artefact Summary*

6.2.2 Pottery

Ninety-eight pottery sherds weighing 353g were recovered, approximately half of which derived from the sieved residues of environmental samples. The pottery was examined by context and quantified using minimum sherd count and weight. Sherds are generally abraded and small, with an average weight of only 4g. Ten fabric types were identified in accordance with the Bedfordshire Ceramic Type Series, currently maintained by Albion Archaeology on behalf of Bedfordshire County Council, and are listed below (Table 2) in chronological order.

Pottery of probable early Bronze Age date was recovered from the fill of pit [103], Trench 1. The feature contained three grog tempered sherds (37g) which have

been provisionally identified as Collared Urn, and two quartz and flint tempered sherds (2g) which may represent Beaker pottery.

The majority of the assemblage comprises hand-made flint and quartz tempered vessels (fabrics F01A/B and C), characteristic of late Bronze Age and early Iron Age assemblages in the region. Among the flint tempered pottery, flint and quartz fabric F01C is prevalent, constituting over 92% of this material. Vessels in quartz-rich fabrics (F28, F29, F19 and F03) constitute the remainder.

Diagnostic forms are rare and comprise mainly carinated vessels, some with finger nail and finger tip impressed decoration. Vessel walls range in thickness between 4-10mm. Several sherds, despite containing coarse inclusions, derive from well-made vessels and have smoothed/wiped surfaces. A possible handle or lug was also identified, which may suggest a slightly later date (early to middle Iron Age) for this element of the assemblage. Classifiable forms have affinities with the Ivinghoe-Sandy pottery style, as defined by Cunliffe (1991, 68-69), and the majority of the assemblage corresponds with Cunliffe's Earliest Iron Age period (*c*. 800-600BC: 1991, 61).

Fabric type	Common name	Total Sherd No.	Context/Sherd No.
Bronze Age			
Type X01 (1)	Quartz and flint	**2**	(104):2
Type X01 (2)	Coarse grog and mica	**3**	(104):3
Late Bronze Age/early Iron Age			
Type F01A	Coarse flint	**2**	(108):1, (201):1
Type F01B	Fine flint	**3**	(108):1, (207):2
Type F01C	Flint and quartz	**59**	(108):18, (110):5, (113):7, (115):9, (117):1, (201):4, (204):4, (207):9, (213):2
Early to middle Iron Age			
Type F03	Grog and sand	**2**	(207):2
Type F19	Sand and organic	**6**	(110):6
Type F28	Fine sand	**16**	(108):5, (204):2, (207):5, (213):4
Type F29	Coarse sand	**2**	(201):2
Type F	Non-specific Iron Age	**3**	(213):3

Table 2: *Pottery Type Series*

6.2.3 Worked and burnt flint

Forty-nine residual struck flints, weighing 266g were recovered. They comprise mainly debitage and include crude hard hammer struck flakes, chips and blades, several of which are broken. Single examples of a crested blade, retouched blade, core trimming flake and possible blade and flake cores also occurred. Their method of manufacture suggests a Neolithic / early Bronze Age date for the assemblage. A broken, obliquely blunted microlith, recovered from ditch [205] indicates an earlier (Mesolithic) component. Tools are represented by a possible crude scraper, recovered from deposit (303) in BH 1.

Thirty pieces of unmodified burnt flint, weighing 97g derived mainly from features in Trench 1. Their small size (average weight 3g) reflects the fact they were recovered mainly from the sieved residues of environmental samples.

6.2.4 Other finds

Two abraded animal tooth fragments (1g) were recovered from layer (207) Trench 2. They are not identifiable to species.

6.2.5 Environmental Samples

Eight samples were taken for the extraction of artefactual and ecofactual remains (Table 3). They were processed by bulk flotation in a peroxide solution, with volumes ranging from 10 to 40 litres. Flots were taken from all samples on a 300 micron meshed sieve. The residues were then passed through a 5.6mm, 2.0mm and 1.0mm sieve stack. The 5.6mm residues were sorted for artefacts and ecofacts, while the 2.0mm and 1.0mm residues were retained unsorted.

Tr.	Feature	Feature type	Context	Sample No.	CPR	Pottery	Worked flint	Burnt flint	Burnt stone
01	103	Pit	104	**2**	2	0	0	0	0
	107	Ditch	108	**6**	2	4	1	3	2
	109	Posthole	110	**4**	3	3	1	1	2
	113	Buried topsoil	113	**7**	2	0	1	4	2
	115	Layer	115	**8**	1	3	1	2	2
02	203	Ditch	204	**1**	2	3	1	2	2
	207	Layer	207	**5**	2	3	0	0	3
	212	Ditch	213	**3**	1	3	1	2	0

CPR	Charred plant remains		
0	None	3	Moderate
1	Very sparse	4	Abundant
2	Sparse	5	Very abundant

Table 3: *Summary of Environmental samples*

Trench 1: *Samples 2, 4, 6, 7 and 8.*
Charcoal observed in all flots and the residues of samples 2, 4 and 6 does not occur in sufficient quantity to be useful for dating. The flot from sample 7 contained a small number of land snails, and all flots contained large quantities of modern roots. The residues yielded moderate to abundant amounts of pottery and sparse to moderate quantities of worked flint and burnt stone, with the exception of sample 2, which was largely sterile.

Trench 2: *Samples 1, 3 and 5.*
Charcoal observed in all flots does not occur in sufficient quantity to be useful for dating. The flots also contained large quantities of modern roots. All residues yielded moderate amounts of pottery and those from samples 1 and 3, sparse to moderate quantities of worked flint and burnt stone.

Seeds were not readily visible in the flots from any of the samples.

6.3 Appendix 3 – Borehole Survey Report

Galley Hill Hillfort
Sandy
Bedfordshire

Report on Geoarchaeological Borehole Survey

National Grid Reference: 518490 247830

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MUSEUM OF LONDON

Archaeology Services

July 2006

Summary (Non-Technical)

This document reports on the results of the geoarchaeological borehole survey carried out by the Museum of London Archaeology Service (MoLAS) on the site of Galley Hill, Sandy, Bedfordshire.

Two transects of boreholes were drilled across the earthworks of the hillfort. One transect crossed the visible remains of the ditch and the inner and outer bank in the south west corner of the hillfort. A second transect was placed within the interior part of the hillfort to ascertain whether a smaller enclosure ditch existed.

The survey demonstrated that the visible ditch of the hillfort had infilled with naturally derived sediments to a depth of c.0.70m. The cut of this ditch may have been as deep as 1.5m from the original ground surface. The fills of the ditch consisted of in-organic orangey brown sandy silts, which had infilled the ditch by processes of slumping and erosion from the edges of the ditch cut and from the redeposited natural which formed the make-up of the bank.

The inner bank was found to be 0.90m in depth thinning to 0.60m in depth towards the interior. The outer bank was found to be 0.75m in depth thinning to 0.30m in depth down the slope of the hill. No evidence was visible for a buried soil horizon sealed below the bank material. This is probably due to bioturbation and oxidation processes, which have masked this horizon within the redeposited natural. However it is possible that the topsoil horizon was stripped prior to the construction of the earthwork to face the bank and ditch in an attempt to consolidate the unstable edges.

The borehole transect within the interior of the hillfort identified a cut feature which may form part of a smaller earlier enclosure. The feature measured 0.80m in depth and at least 2m in width, and was infilled with naturally derived sediments. Whether this cut forms a continuous linear or discrete feature is uncertain from the borehole survey. No evidence of an adjacent bank was apparent from the boreholes.

If the feature does form part of a smaller enclosure ditch, the lack of any bank material suggests the ditch may have been deliberately backfilled with the bank material following the construction of the larger hillfort. The feature is also shallower in depth than the larger hillfort enclosure ditch. This suggests that if a smaller enclosure was incorporated into the larger hillfort, the original ditch of the smaller enclosure was recut to a greater depth.

The deposits which infill the ditches and form the bank make-up generally consist of sandy sediments. This suggests there is little potential for pollen preservation with which to reconstruct the contemporary environment of the hillfort, or other organic material that could be utilised for radiocarbon dating the features. However the report does recommend that to refine the stratigraphy of the earthworks exposed sections could be excavated across the features. This would allow for more accurate examination of the features and for more detailed sampling to be carried out. Column samples taken through exposed sections for soil micromorphological analysis could aid in understanding the depositional processes within the features and identify buried soil horizons. The use of magnetic susceptibility and loss on ignition tests on further core samples may also prove useful in this respect.

Although the site itself holds little potential for pollen preservation, the surrounding area may contain waterlogged deposits where such remains may survive. The most likely location for such deposits exists at the base of the Woburn Greensand outcrop where it meets the alluvial floodplain of the Ivel Valley. Springlines may also exist towards the base of the hill where such deposits have accumulated. If such deposits dating to the prehistoric period are found to exist, pollen may survive with which to reconstruct the contemporary environment of the hillfort.

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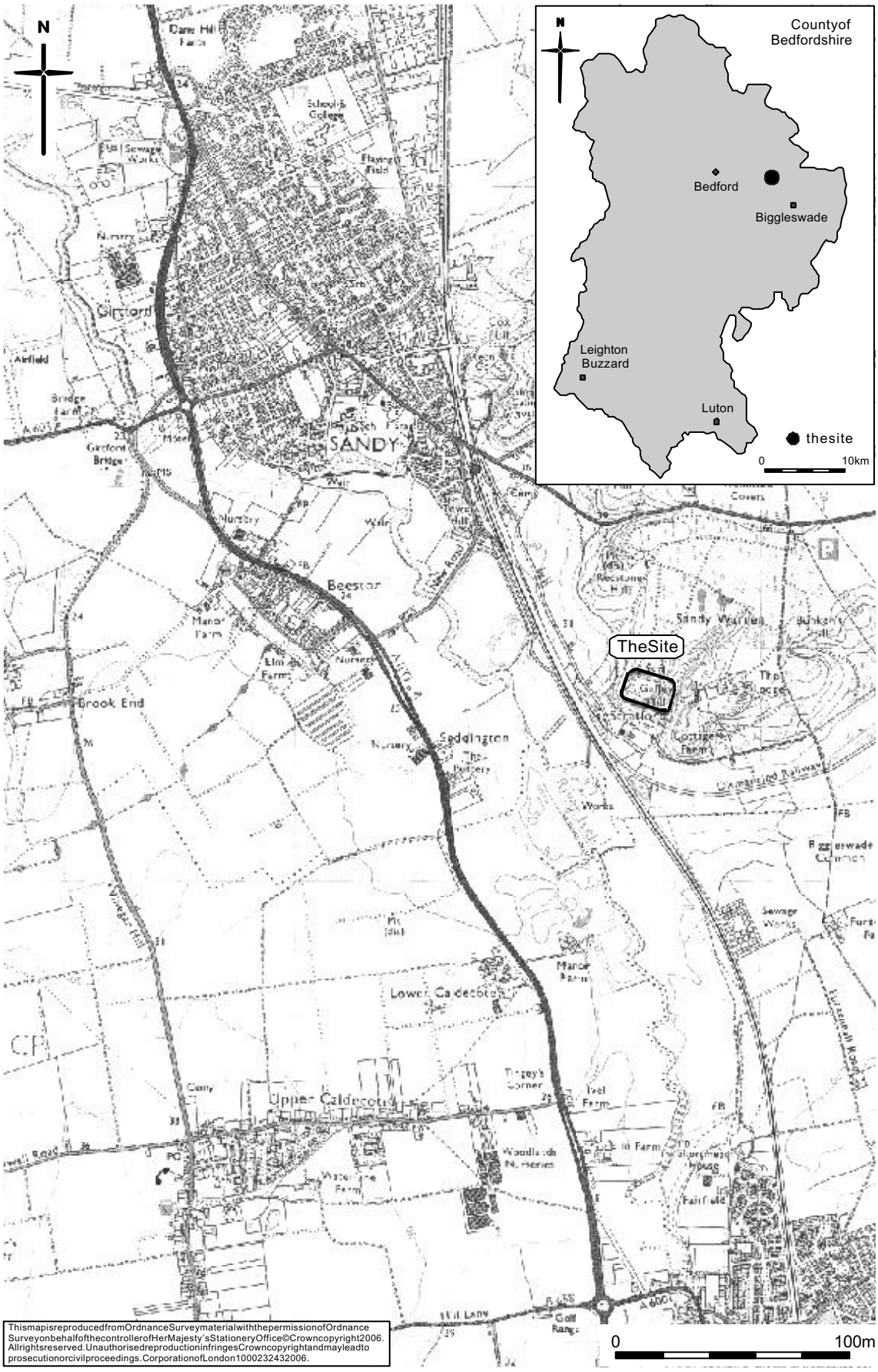

Fig 1 Site location

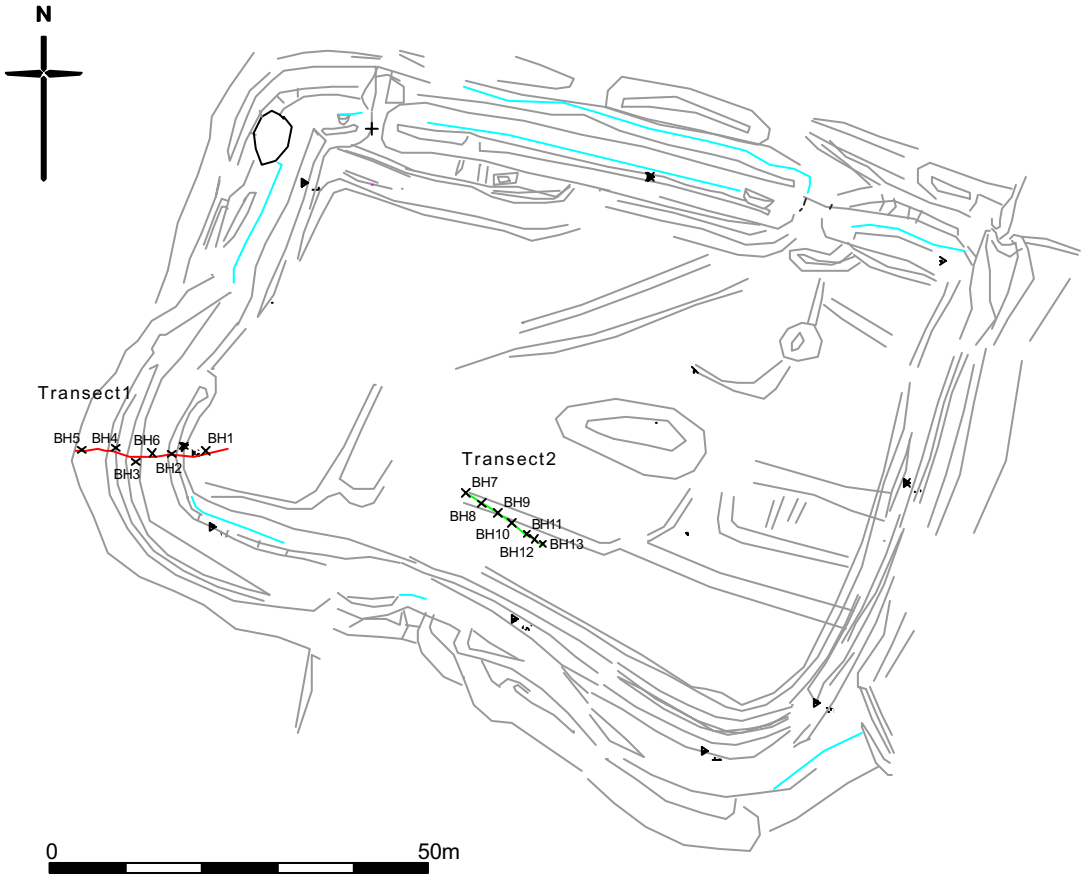

Fig 2 Location of borehole transects across surveyed earthworks

1 Introduction

1.1 Site Background

This document reports on the results of a geoarchaeological borehole survey carried out by the Museum of London Archaeology Service (MoLAS), and commissioned by Albion Archaeology, at Galley Hill hillfort, Sandy, Bedfordshire. The hillfort lies in the southwestern corner of the RSPB reservation. It occupies a prominent location at the southern edge of a well-defined spur of land projecting in a southwestern extension from a broad flat-topped plateau. The interior of the monument has been cleared of trees, but is surrounded on all sides by dense coniferous woodland. The hillfort covers an area of c. 1.25ha, and is centred on National Grid Reference 518490 247830.

1.2 Origin and scope of the report

A previous topographical survey of the hillfort (McOmish, 2005) identified a possible earlier enclosure towards the southwestern corner of the hillfort. To assess this possible earthwork further a borehole survey was required to clarify the earthworks existence and characteristics. The borehole survey also aimed to characterise the outer ditch and bank feature, and to obtain possible dating evidence in the form of artefactual evidence or organic deposits suitable for radiocarbon dating.

1.3 Aims and objectives

The aim of the borehole survey was to drill 2 transects of boreholes across the surveyed (transect 1) and conjectured line (transect 2) of the earthworks in the south west corner of the site.

The objectives were to obtain information about the depth of the ditch fills within the surveyed part of the earthwork and to identify whether evidence for an earthwork feature extends into the central area of the later earthwork. The borehole survey also aimed to recover dating evidence and to assess whether pollen maybe preserved within the ditch fills or any surviving buried soil horizon.

The information obtained from the borehole survey would contribute to assessing the potential and guide the strategy for future archaeological and geoarchaeological/palaeoenvironmental work on the earthwork.

Thus the auger survey intended to address the following research questions:

- What is the profile of the earlier earthwork feature surveyed in the southwest corner of the site?
- Does this feature extend into the inner part of the later hillfort and if so what are its characteristics?
- Does any dating evidence exist for its construction? Do deposits suitable for radiocarbon dating survive?

- Does pollen survive in ditch fills or buried soils, and what is its potential for reconstructing the environment at the time the earthwork was constructed?
- What potential is there for future archaeological, geoarchaeological and/or palaeoenvironmental work on the earthwork?

2 Geoarchaeological and Archaeological background

2.1 Geology and topography

The BGS solid and drift geology map no. 204 records the underlying geology in the vicinity of the hillfort as the Woburn Greensands formation, which was formed during the Lower Cretaceous period. The Woburn sands are comprised of green and brown sands and sandstone. This outcrop of Woburn sands forms a plateau, which extends for a distance of 6km from the town of Sandy in the southwest to Gamlingay towards the northeast. The Woburn sands are capped by argillic sandy soils derived from this parent material, which has formed during the Holocene period.

To the north of this outcrop an area of Jurassic clays assigned to the Oxford clay formation exist, while to the south Quaternary till deposits, associated with the glacial periods of the Pleistocene are recorded, consisting of chalky, sandy, stony clays. Towards the west of the Woburn sands outcrop the River Ivel, a tributary of the River Great Ouse flows northwards. River gravels and alluvium associated with this river channel occur in this area. The alluvial deposits are flanked on the west and partially on the east of the river channel by glacial fluvial deposits consisting of chalky sand and gravel. These deposits are likely to have been deposited sometime during the Pleistocene period, when the glacial outwash of the retreating ice sheets infilled glacial scours in the landscape. This most probably occurred towards the end of the Anglian Glaciation (c. 500K BP) when the ice sheets advanced as far south as north London.

2.2 Archaeology

The earthworks at Galley Hill form a univallate hillfort of the Iron Age period and are registered as a scheduled ancient monument (SAM 445, HER 66). A second hillfort known as Caesar's Camp lays c. 1Km to the north and a third lays 150m to the east (Abrams, 2006).

The high ground of the Woburn Greensand formation, which these hillforts occupies, overlooks the Ivel Valley where other prehistoric remains have been identified. The most significant of these is the Biggleswade Neolithic cursus, which lies c. 1km to the south of the hillfort (Abrams, *in prep*). This monument would have been visible from Galley Hill, and it has been suggested that the possible earlier smaller enclosure may have been constructed as a vantage point from which to view the cursus (McOmish, 2005).

3 The Geoarchaeological borehole survey

3.1 Methodology

3.1.1 On-site

Transect 1 (see Fig 3), which consisted of 6 boreholes was placed across the surveyed ditch and bank to characterise the make-up material of these earthwork features. Transect 2 (see Fig 4), which consisted of 7 boreholes was placed across the conjectured line of the ditch towards the central part of the hillfort. All the boreholes were drilled to reach the Woburn Sands bedrock.

The boreholes were drilled by a MoLAS geoarchaeologists with a hand held, petrol driven, Cobra pneumatic power auger fitted with various diameter window sampling bits.

The deposits bought up in each window sampler were cleaned and described according to standard geoarchaeological practice, which attempts to characterise the visible properties of each deposit, in particular relating to its colour, compaction, texture, structure, bedding, inclusions, clast-size and dip (Jones *et al*, 1999). A provisional on-site interpretation of each deposit was made.

For each profile, every distinct unit was given a separate number (e.g.: for BH1: 1.1, 1.2 etc from the top down) and the depth and nature of the contacts between adjacent distinct units was noted.

The boreholes were located on the OS grid by the English Heritage surveyors, with Ordnance Datum levels taken on the top of each borehole. This information was provided to the MoLAS geoarchaeologists in a digital format CAD file. A profile was also surveyed along the line of transect 1 over which the recorded boreholes were drawn with the aim of projecting the extent of the recorded deposits along the length of the surveyed earthworks (Fig 5). By combining the surveyed topography of the bank and ditch with the deposits recorded within the boreholes the extent of each unit can be suggested.

3.1.2 Off-site

The stratigraphy recorded in each borehole was entered into a Rockworks 2006 digital database, which allows the recorded units to be compared along each transect line. Similar units occurring in several boreholes were allocated to a range of ‘deposits’ - which represent a sequence of different depositional and post-depositional environments. These deposits are used as an aid to interpreting and presenting the data and discussing the results. The recorded ‘deposits’ are illustrated in the key to the transects (Fig 3, and Fig 4).

3.2 The Results

The tables below present the lithostratigraphy recorded in each borehole (BH) for transects 1 (BH's 1 to 6) and 2 (BH's 7 to 13).

3.2.1 Transect 1

Table 1: *Deposits recorded within BH 1*

Ground level at 60.92m OD

Unit No.	Depth below surface (m)	Characteristics	Interpretation
1.1	0-0.05	Soft mid brown humic sandy silt, with frequent wood and root fragments	Topsoil horizons
1.2	0.05-0.10	Soft dark grey sandy silt with frequent root fragments	
60.82m OD			
1.3	0.10-0.70	Firm mid orangey brown silty sand with modern rooting. Occasional rounded medium sized sandstone clasts present in the lower 0.20m of the unit. Struck flint recovered at 0.7m bgl.	Redeposited natural infilling possible anthropogenic feature, or consisting of bank material.
60.22m OD			
1.4	0.70-1.00	Firm light orangey brown medium to coarse silty sand. Large platy sandstone clasts present at 0.9m.	Natural deposit. Woburn greensand formation

Table 2: *Deposits recorded within BH 2*

Ground level at 61.36m OD

Units	Depth below surface (m)	Characteristics	Interpretation
2.1	0-0.10	Soft mid brown humic sandy silt, with frequent wood and root fragments	Topsoil horizons
61.26m OD			
2.2	0.10-1.00	Firm mid orangey brown fine to medium silty sand with occasional rounded, sub-rounded, angular and sub-angular fine medium sandstone clasts. Lense of light yellowy brown medium sand, 0.05m thick occurs at 0.5m bgl. Thin greyish orangey brown silty sand lenses, c. 0.02m in thickness occur at between 0.7 to 1m bgl	Redeposited natural forming inner bank to enclosure
60.36m OD			
2.3	1.00-1.50	Compact mid reddish brown fine to medium silty sand, with rare small rounded and sub-angular sandstone clasts	Natural deposit. Woburn greensand formation
2.4	1.50-1.70	Compact light orangey brown fine to medium silty sand	

Table 3: *Deposits recorded within BH 3*

Ground level at 59.18m OD

Units	Depth below surface (m)	Characteristics	Interpretation
3.1	0-0.15	Soft mid brown humic sandy silt, with frequent wood and root fragments	Topsoil horizon
3.2	0.15-0.27	Soft dark grey sandy silt with frequent root fragments	
58.91m OD			
3.3	0.27-1.00	Firm mid orangey brown, with slight greyish tinge, fine silty sand with occasional rounded, sub-rounded, angular and sub-angular fine medium sandstone clasts.	Redeposited natural material infilling enclosure ditch
58.18m OD			
3.4	1.00-1.20	Light orangey brown fine to medium sand. Very diffuse contact with unit above	Natural deposit. Woburn greensand formation

Table 4: *Deposits recorded within BH 4*

Ground level at 59.98m OD

Units	Depth below surface (m)	Characteristics	Interpretation
4.1	0-0.10	Soft mid brown humic sandy silt, with frequent wood and root fragments	Topsoil horizon
4.2	0.10-0.30	Soft mid greyish brown medium sandy silt	
59.68m OD			
4.3	0.30-1.05	Firm mid orangey brown fine to medium silty sand with occasional platy, sub-angular and angular small to medium sandstone clasts present. Sands become coarser down through the profile. Thin mid brown silty sand lenses c. 0.02m thick orientated at c. 30^0 angle occur at between 0.7 to 0.85m bgl	Redeposited natural material probably comprised of a mixture of ditch fill and bank material
58.93m OD			
4.4	1.05-1.65	Firm dark orangey brown fine to coarse sand with occasional angular, sub-angular fine to medium sandstone clasts. Deposit displays occasional lenses of greyer tinged matrix.	Natural deposit. Woburn greensand formation
4.5	1.65-1.80	Firm bright yellowy brown fine to coarse sand	

Table 5: *Deposits recorded within BH 5*

Ground level at 59.98m OD

Units	Depth below surface (m)	Characteristics	Interpretation
5.1	0-0.15	Soft mid brown humic sandy silt, with frequent wood and root fragments	Topsoil\sub-soil horizon
5.2	0.15-0.50	Soft mid brown slightly humic fine sandy silt. Struck flint recovered at 0.5m bgl	
59.48m OD			
5.3	0.50-0.80	Firm dark to mid reddish brown fine to medium sand with moderate quantities of small to medium angular/sub-angular and platy sandstone clasts.	Redeposited natural probably slumping down slope from bank material
59.18m OD			
5.4	0.80-1.20	Firm mid to light orangey brown fine to medium silty sand with moderate quantities of platy, angular and sub-angular sandstone clasts.	Natural deposit. Woburn greensand formation
5.5	1.20-1.40	Firm light yellowy brown fine to medium sand.	

Table 6: *Deposits recorded within BH 6*

Ground level at 59.73m OD

Units	Depth below surface (m)	Characteristics	Interpretation
6.1	0-0.04	Soft mid brown humic sandy silt, with frequent wood and root fragments	Topsoil horizon
6.2	0.04-0.20	Soft mid greyish brown medium sandy silt	
59.53m OD			
6.3	0.20-0.50	Compact mid orangey/ grey brown silty sand with frequent small to medium angular, sub-angular and platy sandstone clast. Contact at c. 45^0 with unit below	Redeposited natural probably comprised of a mixture of bank material and ditch fill
59.23m OD			
6.4	0.50-0.80	Firm light to mid orangey brown fine to medium sand	Natural deposit. Woburn greensand formation

3.2.2 Transect 2

Table 7: *Deposits recorded within BH 7*

Ground level at 59.02m OD

Units	Depth below surface (m)	Characteristics	Interpretation
7.1	0-0.10	Soft mid brown humic sandy silt, with frequent wood and root fragments	Topsoil horizon
58.92m OD			
7.2	0.10-0.45	Moderately firm mid orangey brown fine to coarse silty sand with occasional greyer lenses of root disturbance. Rare small rounded sandstone inclusions.	Bioturbated subsoil horizon
58.57m OD			
7.3	0.45-1.00	Moderately firm light yellowy brown fine to coarse sand. Large platy sandstone clasts occur at c. 0.95m bgl	Natural deposit. Woburn greensand formation

Table 8: *Deposits recorded within BH 8*

Ground level at 59.02m OD

Units	Depth below surface (m)	Characteristics	Interpretation
8.1	0-0.10	Soft mid brown humic sandy silt, with frequent wood and root fragments	Topsoil horizon
58.92m OD			
8.2	0.10-0.40	Moderately firm mid orangey brown fine to coarse silty sand with occasional greyer lenses of root disturbance. Rare small rounded sandstone inclusions.	Bioturbated subsoil horizon
58.62m OD			
8.3	0.40-1.00	Moderately firm light yellowy brown fine to coarse sand. Large platy sandstone clasts occur at c. 0.95m bgl	Natural deposit. Woburn greensand formation

Table 9: *Deposits recorded within BH 9*

Ground level at 58.99m OD

Units	Depth below surface (m)	Characteristics	Interpretation
9.1	0-0.17	Soft mid brown humic sandy silt, with frequent wood and root fragments	Topsoil horizon
58.82m OD			
9.2	0.17-0.55	Moderately firm mid orangey brown fine to coarse silty sand with occasional greyer lenses of root disturbance. Rare small rounded sandstone inclusions.	Bioturbated subsoil horizon
58.44m OD			
9.3	0.55-1.00	Moderately firm light yellowy brown fine to coarse sand. Large platy sandstone clasts occur at c. 0.90m bgl	Natural deposit. Woburn greensand formation

Table 10: *Deposits recorded within BH 10*

Ground level at 59.02m OD

Units	Depth below surface (m)	Characteristics	Interpretation
10.1	0-0.09	Soft mid brown humic sandy silt, with frequent wood and root fragments	Topsoil horizon
10.2	0.09-0.14	Firm black humic silty sand	
58.88m OD			
10.3	0.14-0.56	Moderately firm mid orangey brown fine to coarse silty sand with occasional greyer lenses of root disturbance. Rare small rounded sandstone inclusions.	Bioturbated subsoil horizon
58.46m OD			
10.4	0.56-1.00	Moderately firm light yellowy brown fine to coarse sand. Large platy sandstone clasts occur at c. 0.90m bgl	Natural deposit. Woburn greensand formation

Table 11: *Deposits recorded within BH 11*

Ground level at 59.05m OD

Units	Depth below surface (m)	Characteristics	Interpretation
11.1	0-0.05	Soft mid brown humic sandy silt, with frequent wood and root fragments	Topsoil horizon
11.2	0.09-0.14	Firm black humic silty sand	
11.3	0.14-0.20	Firm light grey humic silty sand	
58.85m OD			
11.4	0.20-0.40	Firm mid orangey brown fine to medium silty sand	Ditch fill

Units	Depth below surface (m)	Characteristics	Interpretation
11.5	0.40-0.77	Dark orangey brown/grey medium to coarse sand with frequent medium sandstone clasts. Sharp contact with unit below	
58.28m OD			
11.6	0.77-1.00	Firm yellowy brown coarse sand	Natural deposit. Woburn greensand formation

Table 12: *Deposits recorded within BH 12*

Ground level at 59.05m OD

Units	Depth below surface (m)	Characteristics	Interpretation
12.1	0-0.12	Soft dark grey humic sandy silt, with frequent wood and root fragments	Topsoil horizon
58.93m OD			
12.2	0.12-0.58	Firm mid orangey brown fine to coarse sand	Ditch fill
12.3	0.58-0.90	Firm mid to light yellowy brown coarse sand, with lenses of greyer tinged matrix.	
58.15m OD			
12.4	0.90-1.00	Firm light yellowy brown very coarse sand	Natural deposit. Woburn greensand formation

Table 13: *Deposits recorded within BH 13*

Ground level at 59.03m OD

Units	Depth below surface (m)	Characteristics	Interpretation
	0-0.05	Soft mid brown humic sandy silt, with frequent wood and root fragments	Topsoil horizons
	0.05-0.11	Firm black humic silty sand	
	0.11-0.17	Firm light grey humic silty sand	
58.83m OD			
	0.17-0.40	Moderately firm mid orangey brown fine to coarse silty sand with occasional greyer lenses of root disturbance. Rare small rounded sandstone inclusions.	Bioturbated subsoil horizon
58.63m OD			
	0.40-1.00	Moderately firm light yellowy brown fine to coarse sand. Large platy sandstone clasts occur at c. 0.90m bgl	Natural deposit. Woburn greensand formation

3.2 Discussion of the Results

The deposits recorded in the borehole transects are discussed in this section in roughly stratigraphic order, from the oldest to the most recent. The units recorded within each borehole are discussed with reference to the transect-wide 'Deposits', as indicated in the interpretation of the tables above.

3.2.3 Deposit 1: Woburn Greensand formation.

The basal deposit recorded in all the boreholes consists of the Woburn Greensand formation. The deposit is generally characterised by two units. The upper unit, which was recorded within BH's 2, 4, 5, (units 2.3, 4.4, and 5.4), consisted of a dark to mid orangey/yellowy brown silty sand or sand with occasional to moderate quantities of small to medium angular and sub-angular sandstone clasts. This upper unit was also visible within the base of the excavated trenches.

The lower unit of the natural consisted of a light yellowy/orangey brown fine to coarse sand, sometimes with a silt component to the matrix. The lower unit generally contained less sandstone inclusions than the upper part. This lower unit was recorded within all the boreholes (units 1.4, 2.4, 3.4, 4.5, 5.5, 6.4, 7.3, 8.3, 9.3, 10.4, 11.6, 12.4 and 13.5). Within transect 2 the natural occurs at between c. 58.6 to 58.4m OD. The natural recorded within transect 1 varies depending on the slope of the hills topography and truncation due to ditch construction. At its highest towards the inner bank it occurs at c. 60.4m OD (within BH 2), while further down the slope it occurs at c. 59.2m OD (within BH 5)

The Woburn greensand formation dates to the Cretaceous period, and is derived from marine sands and sediments which infilled a narrow seaway which ran across southern England. The seaway was formed as a result of massive global warming, and the subsequent dramatic rise in sea level, which occurred towards the end of the Jurassic period approximately 115 million years ago. These deposits predate the advent of modern humans and therefore mark the limit of deposits of archaeological and geoarchaeological interest.

3.2.4 Deposit 2: Subsoil Horizons.

This deposit overlies the Woburn Greensand formation and only appears within the boreholes in transect 2 within the central part of the hillfort (i.e. BH's 7 to 10 and 13, units 7.2, 8.2, 9.2, 10.2 and 13.4). The deposit generally consists of a mid orangey brown fine to coarse silty sand with evidence of root disturbance and occasional small sub-rounded and sub-angular sandstone clasts. This horizon has formed as a result of bioturbation disturbing the underlying natural, causing leaching and oxidation of the iron rich soils.

This deposit only occurs where the ground has remained undisturbed. In areas where the ditch has been constructed this subsoil horizon has been truncated (within BH's 3, 6, 11 and 12,). In areas where redeposited natural has been dumped to create the make-up of the bank (i.e. within BH's 1, 2, 4 and 5, in the vicinity of the outer and inner bank), there is no clear evidence of this sub-soil existing. This may be as a result of topsoil and subsoil stripping to construct the bank or ditch, utilising the removed

turf to face and consolidate the bank. However it is more probable that the close similarity between the redeposited natural and the subsoil horizon has effectively masked this horizon.

This deposit occurs at c. 58.9m OD and measures up to 0.40m in thickness.

3.2.5 Deposit 3: Redeposited natural

This deposit relates to the up-cast from the ditch construction, which has been utilised to form the outer and inner bank of the hillfort earthworks. The redeposited natural is difficult to differentiate from the material that forms the ditch fill, as both these deposits are sourced from the same parent material, namely the Woburn Greensands. However the location at which the deposits occur, in terms of the topography and the visible surviving remains of the bank and ditch indicates the structural form that the deposits infill or create.

The deposit is characterised by a mid to dark orange/reddish brown silty sand with occasional small to medium sandstone clasts. Occasional thin lenses of light yellowy brown sand also occur within this unit. The mixed nature of this deposit with the lenses of lighter yellowy brown sand (derived form the lower Woburn Greensand natural), combined with the topographic location of the deposits suggest that this deposit within BH's 1, 2, 4 and 5 (units 1.3, 2.2, 4.3 and 5.3) form the bank make-up. The redeposited nature of this deposit is further clarified by the presence of a worked flint, which was recovered from BH 1 (at 0.7m below ground level) and BH 5 (0.5m below ground level).

Within BH 4 tip lines orientated at a 30^0 angle of slope, represented by thin lenses of a mid brown silty sand measuring c. 0.02m in thickness occur at between 0.7 to 0.85m below ground level. This suggests that the bank edges may have been fairly unstable and susceptible to erosion and slumping. The position of this borehole, between the interface of the bank and ditch, suggests that the upper part of the unit may comprise ditch fill which overlays the redeposited natural bank make-up (see Fig 5). However the similarities between the ditch and bank deposits make this difficult to ascertain.

The presence of possible bank material within BH 1 also suggests that the bank may encroach further into the internal part of the hillfort than previously suggested. BH 1 was placed in a location where the natural was expected to occur below the topsoil horizon. The presence of the redeposited natural suggests that either the bank material extends further into the interior of the hillfort than was suggested by the surveyed earthwork features, or that other unrelated earthworks or features exist in this part of the hillfort.

No evidence for any bank material was recorded within transect 2, which crossed the conjectured line of the smaller enclosure.

Where extensive dumping of redeposited natural has occurred to create the inner and outer bank, buried soil horizons (often represented by organic or humic soil horizons) could be expected to exist beneath this material. No such evidence was encountered in any of the boreholes which where placed through the bank material. As discussed in section 3.3.2 the topsoil horizon may have been stripped to utilise the turf as facing

for the bank or ditch. The aerated nature of the soil, combined with bioturbation may also have masked or destroyed any evidence of the pre bank and ditch topsoil horizon.

3.2.6 Deposit 4: Ditch Fills

This deposit represents the ditch fills infilling the surveyed ditch of the larger hillfort enclosure (crossed by transect 1) and the conjectured ditch of the smaller enclosure (crossed by transect 2). As with the redeposited natural forming the bank make-up the ditch fills are difficult to discern from the natural bedrock. However a combination of the topographic position and the sharp interface these deposits display with the underlying light yellowy brown natural indicates the depositional environment of these deposits.

The deposits are characterised by a mid orangey brown fine silty sand, or coarse sand with occasional rounded, sub-rounded, angular and sub angular fine to medium sandstone clasts. The matrix also displays a slight greyish tinge in colour, which differentiates the material from the lighter coloured natural. Within transect 1 the ditch fill was recorded within BH's 3 and 6 (units 3.3, and 6.3). Within transect 2 the ditch fill was recorded within BH's 11 and 12 (units 11.4, 11.5, 12.2 and 12.3). All these units displayed a sharp interface with the underlying natural deposits.

The hillfort enclosure ditch fill (recorded within transect 1) measures c. 0.70m in depth at its deepest point within BH 3, while the inner ditch fill (recorded within transect 2) measures c. 0.80m in depth at its deepest point within BH 12. The nature of the fill recorded in both ditches suggests the material is derived predominately from the natural, either as material that has eroded and slumped in from the ditch cut edges or from erosion of the bank material. However a proportion of the fill is also likely to be derived from wind blown silts. The fills display no evidence of domestic refuse dumping which may have been characterised by darker charcoal rich deposits. In general the fills appear to be very sterile with no organic material present.

Given the topography of the ground in the vicinity of the hillfort ditch, the pre-enclosure landsurface (see Fig 5) can be speculated to have existed at c. 59.5m OD in the location of BH 3. This is based on the level of the natural bedrock horizon that survives underneath the bank material within BH's 2 and 4. This would suggest that the outer ditch was dug to a depth of c. 1.5m from the top of the pre-existing landsurface.

Transect 2 across the conjectured ditch, demonstrated that a sequence of undisturbed ground consisting of topsoil, sub-soil and natural deposits exists within this part of the hillfort. This suggests that the ground surface prior to the ditch construction existed at a similar level as it does to this present day. On this basis, the ditch of the smaller enclosure was dug to a depth of only c. 0.80m from the landsurface, and therefore is considerably shallower than the ditch of the hillfort enclosure. The difference in the depths of the surviving ditch and conjectured ditch, could suggest that the outer part of the ditch of the smaller enclosure was recut when the larger hillfort enclosure was constructed.

3.2.7 Deposit 5: Topsoil horizon

The upper most deposit recorded within all the BH's consisted of a mid brown\greyish brown humic sandy silt topsoil horizon. The deposit varied in thickness between c. 0.10 to 0.30m.

4 Conclusions

The borehole survey demonstrated that the ditch of the hillfort enclosure infilled with naturally derived sediments to a depth of c. 0.70m, although the depth of the cut from the original ground surface may have been as deep as 1.5m. The base of this ditch exists at around 58.20m OD (BH 3). The fill material has infilled the ditch by processes of slumping and erosion from the cut of the ditch edges and from the redeposited natural which has formed the bank make-up. No evidence was visible in the ditch fills for the deliberate dumping of domestic waste material. In general the ditch fills are characterised by aerated, in-organic mid orangey brown sandy silts.

Although from the borehole survey alone it is difficult to ascertain the original profile of the ditch cut, the projected line of the deposits suggests the ditch originally had a wide concave profile, with a gentler slope towards the inner bank (see Fig 5).

The bank material within the inner bank of the larger hillfort enclosure exists to a depth of 0.90m below the topsoil horizon (BH 2). The bank material thins to a depth of 0.60m towards the interior of the enclosure (BH 1). The outer bank exists to a depth of 0.75m below the topsoil horizon (BH 4) and thins to a depth of 0.30m down the slope of the hill (BH 5).

No evidence for a pre-enclosure landsurface existed below the bank material. This suggests that the topsoil horizon may have been stripped to utilise the turf to face the bank and ditch. However it is also possible that oxidation and bioturbation processes have masked this horizon within the redeposited natural that forms the bank make-up.

The borehole survey also identified a cut feature within the interior part of the hillfort, which may form part of the smaller enclosure ditch that existed prior to the construction of the larger hillfort enclosure (identified within BH's 11 and 12). The feature measures c.0.80m in depth, and at least 2m in width, with the base of the feature at its deepest point occurring at 58.15m OD (within BH 12). The fills were generally similar to the fills identified within the larger enclosure ditch and consisted of mid orangey brown/ light yellowy brown silty sands and coarse sands. These fills are derived from the natural bedrock material, and there appears no evidence for the dumping of domestic waste into the feature.

The other boreholes along this transect, which identified the feature (transect 2), recorded an undisturbed sequence of topsoil, subsoil and natural bedrock deposits. No evidence of a bank was visible adjacent to the cut feature. The position of this feature on a relatively flat area of the hillfort should be expected to leave traces of a bank, as there is no slope in the natural topography to encourage colluvial processes and erosion. This would suggest that either no bank was constructed or the bank material was backfilled into the ditch cut once the feature went out of use

From the boreholes alone it is unclear whether this feature does form part of a continuous linear feature or a discrete pit. If the feature does form part of a smaller enclosure, it is clearly shallower in depth than the ditch of the larger hillfort enclosure. This suggests that the ditch section of the smaller enclosure, which was incorporated into the larger enclosure of the hillfort may have been recut to a greater depth.

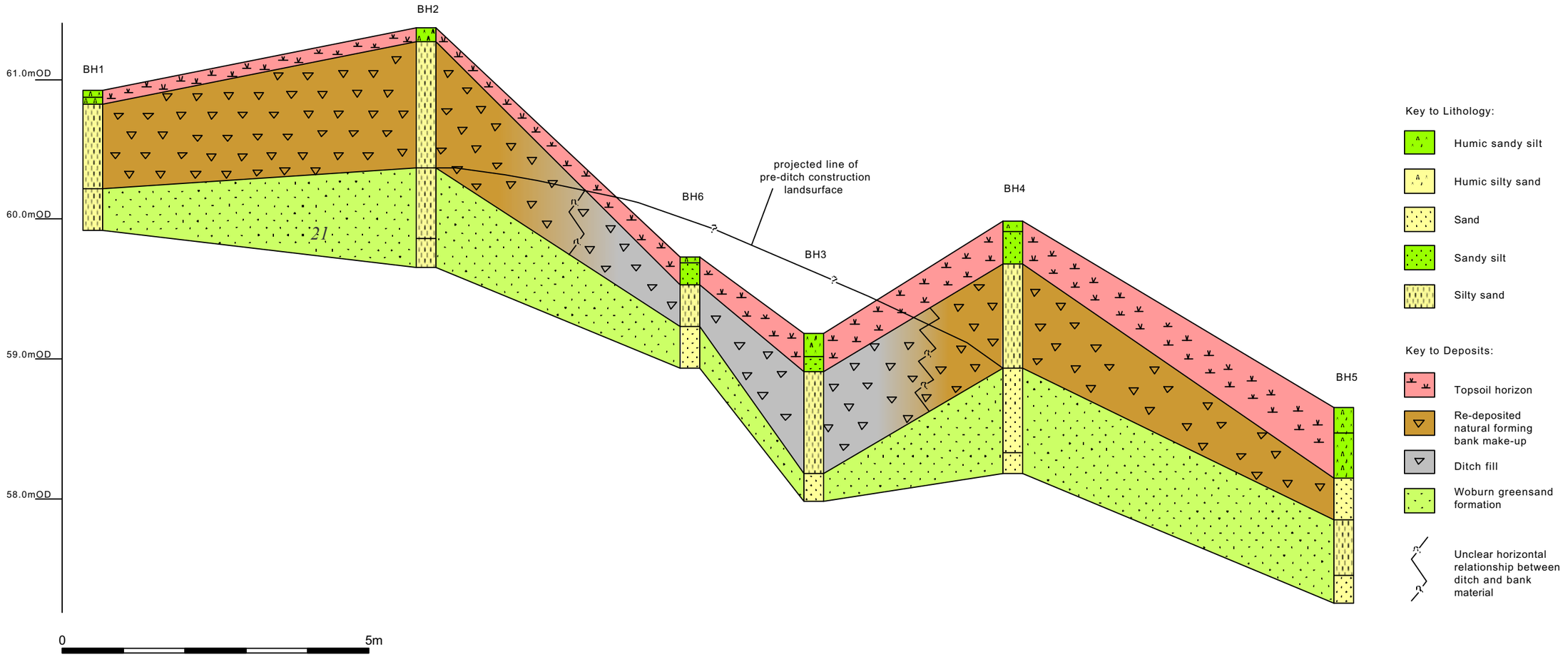

Fig 3 Transect 1, East to West across outer ditch and bank

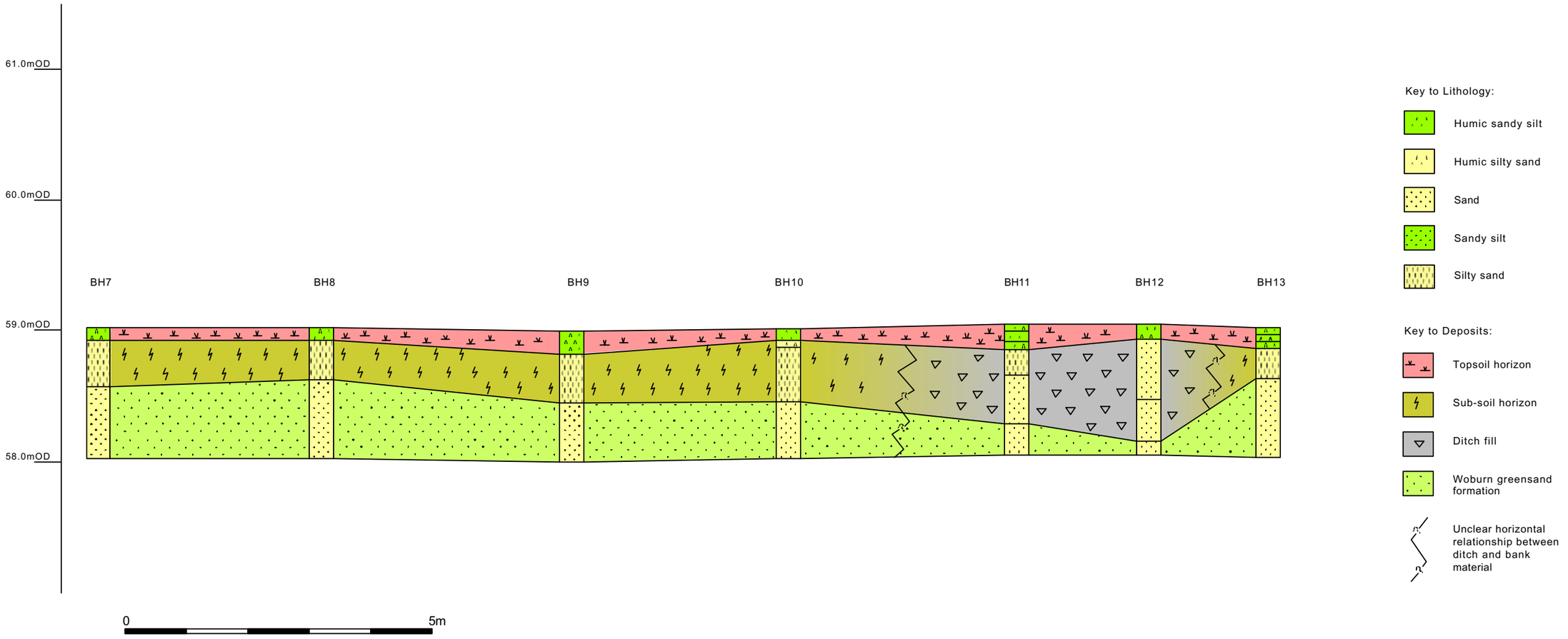

Fig 4 Transect 2, Northwest to Southeast across possible inner ditch

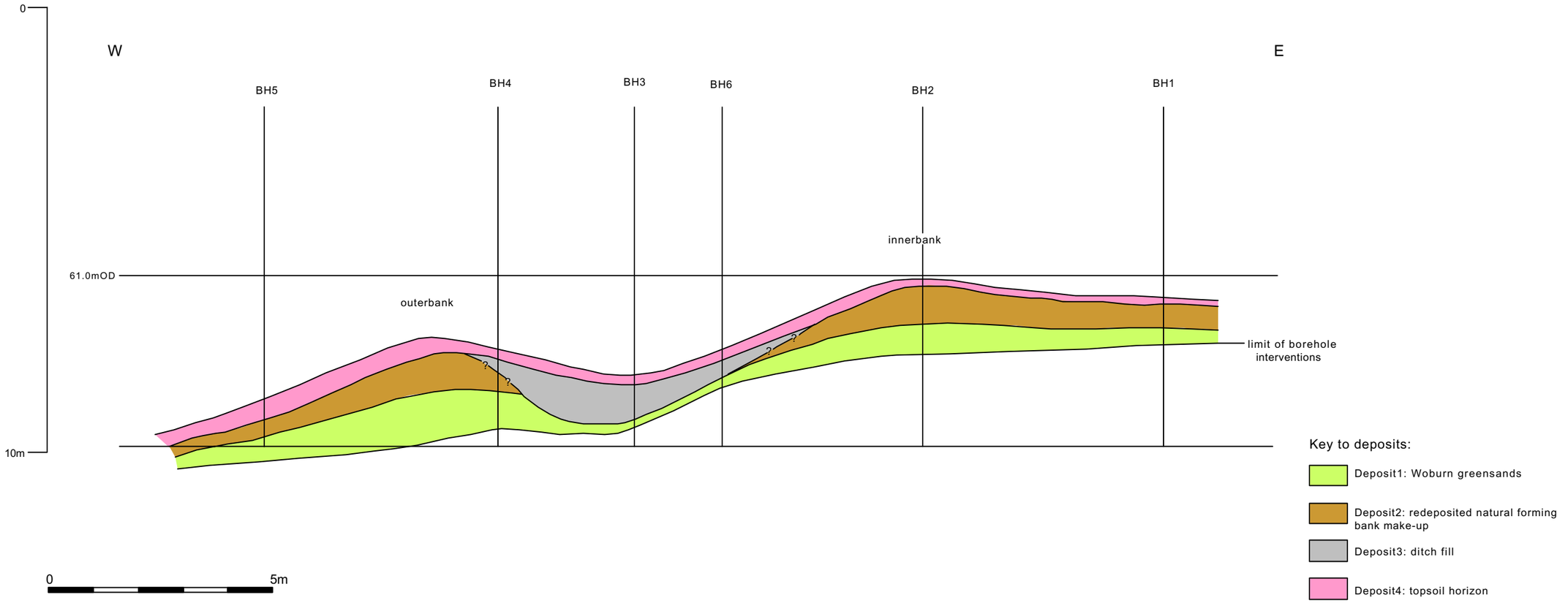

Fig 5 Boreholes overlain on surveyed ditch and bank profile with projected lines of deposits

5 Potential

Although the boreholes have been able to partially reconstruct the stratigraphy of the bank and ditch construction and the nature of the ditch fills, the deposits themselves hold little palaeoenvironmental potential. The deposits are generally well oxidised and aerated leaving little trace of organic material. The sandy nature of the fills will also hinder the preservation of organic material, as sand deposits tend to be highly acidic. Therefore the possibility of pollen surviving within the ditch fills to reconstruction the past environment is negligible. There is also very low potential for any organic material surviving which may be suitable for radiocarbon dating.

6 Recommendations

Although the borehole survey has managed to clarify the depth of the bank and ditch of the larger enclosure, and identified the presence of an internal feature which may form part of an earlier smaller enclosure, the small number of borehole interventions have not been able to clarify the true profile of these features. Such information could be retrieved from excavated slots across these features, and also help to clarify whether the internal feature identified does form part of a continuous ditch. Exposed sections would also offer the opportunity to sample these features more effectively and refine the stratigraphy of the ditch and bank.

No evidence was visible from the cores to suggest buried landsurfaces. Exposed sections would allow column samples to be taken for offsite soil micromorphological analysis. The use of this technique would allow for a more detailed study of the depositional processes within the ditch and bank, and possibly identify buried landsurfaces.

The use of magnetic susceptibility and loss on ignition tests on further core samples can also be utilised for this purpose. Such tests can pick up small surviving traces of organic material, which are often indicative of buried soil horizons. These techniques can also be utilised to identify layers that are not directly visible from observation of the core sequences, and can clarify the difference between the redeposited natural material, ditch fills and the natural itself. Given the similarity on the site of the natural to the ditch fills from which the ditch and bank material is derived, such techniques could prove useful in refining the sites stratigraphy, and differentiating between these deposits.

As discussed in section 5 the potential for pollen preservation within the deposits recorded in the boreholes is likely to be very low. However areas may exist on the site where waterlogged deposits do occur and preserve good pollen evidence. Such locations are likely to exist towards the base of the high ground where the alluvial deposits of the River Ivel meet the outcropping Woburn Sands. Springlines may also exist towards the base of the high ground where waterlogged deposits may have accumulated. If such locations and deposits dating to the prehistoric period can be identified in the vicinity of the hillfort, there could be the potential for reconstructing the landscape, in terms of the agricultural activity, land clearance and natural vegetation that existed during the occupation of the hillfort.

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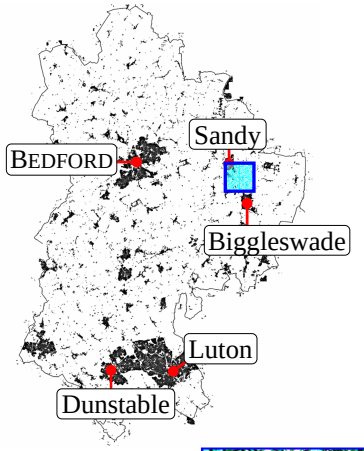
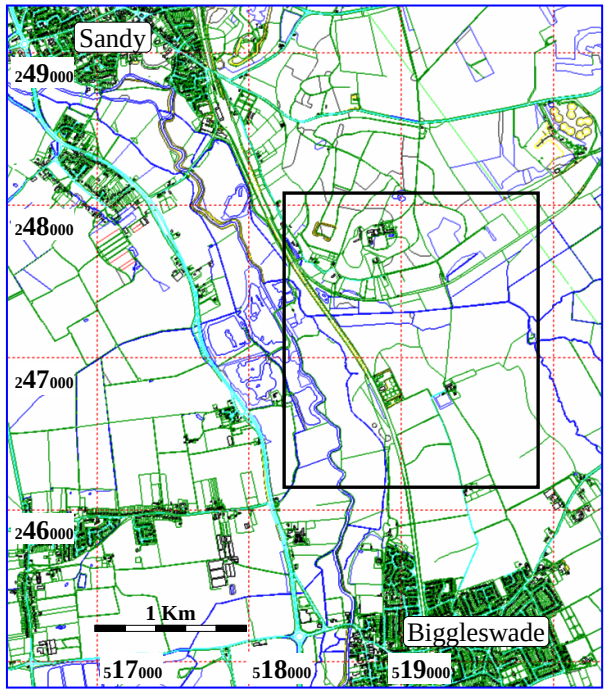




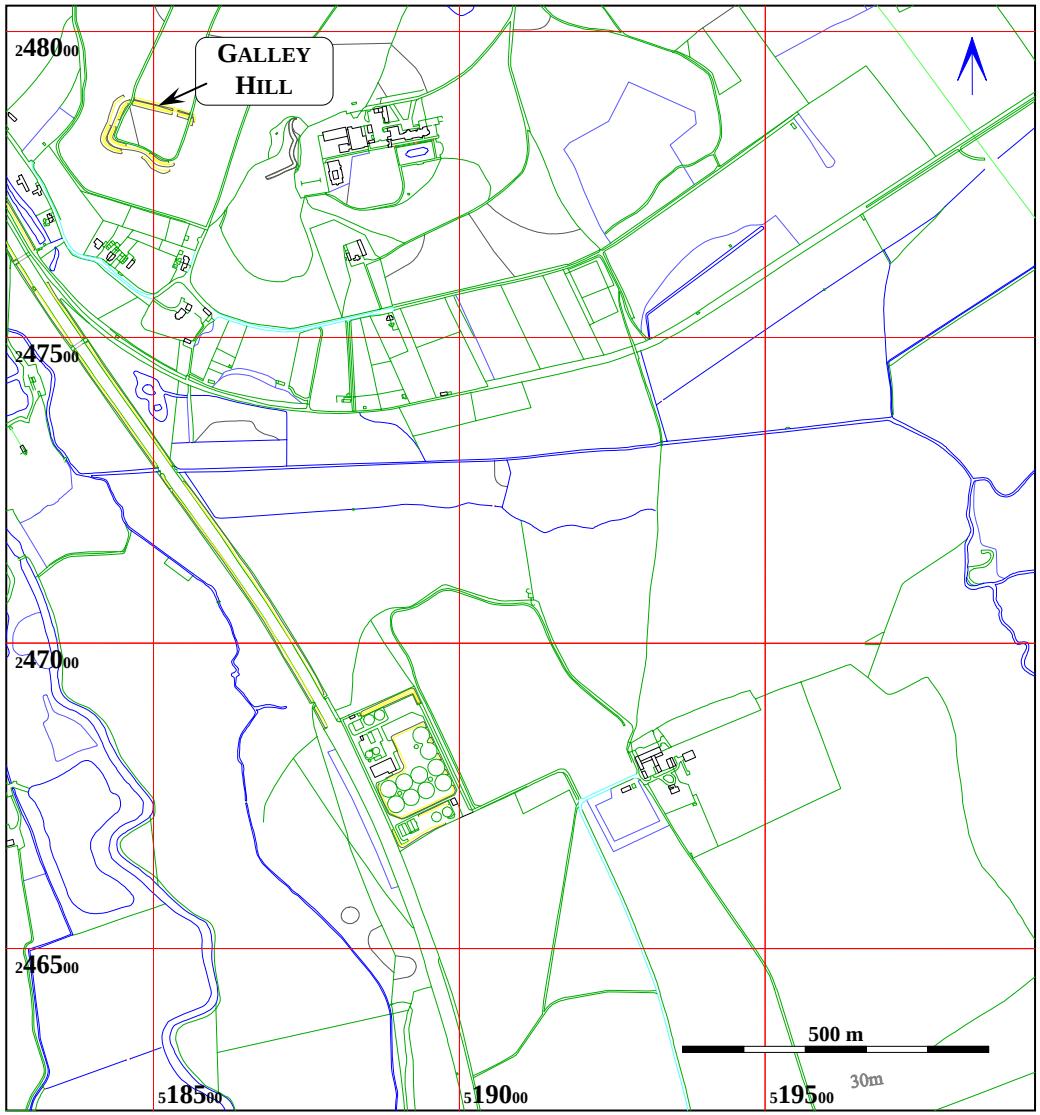


Figure 1: Site location map

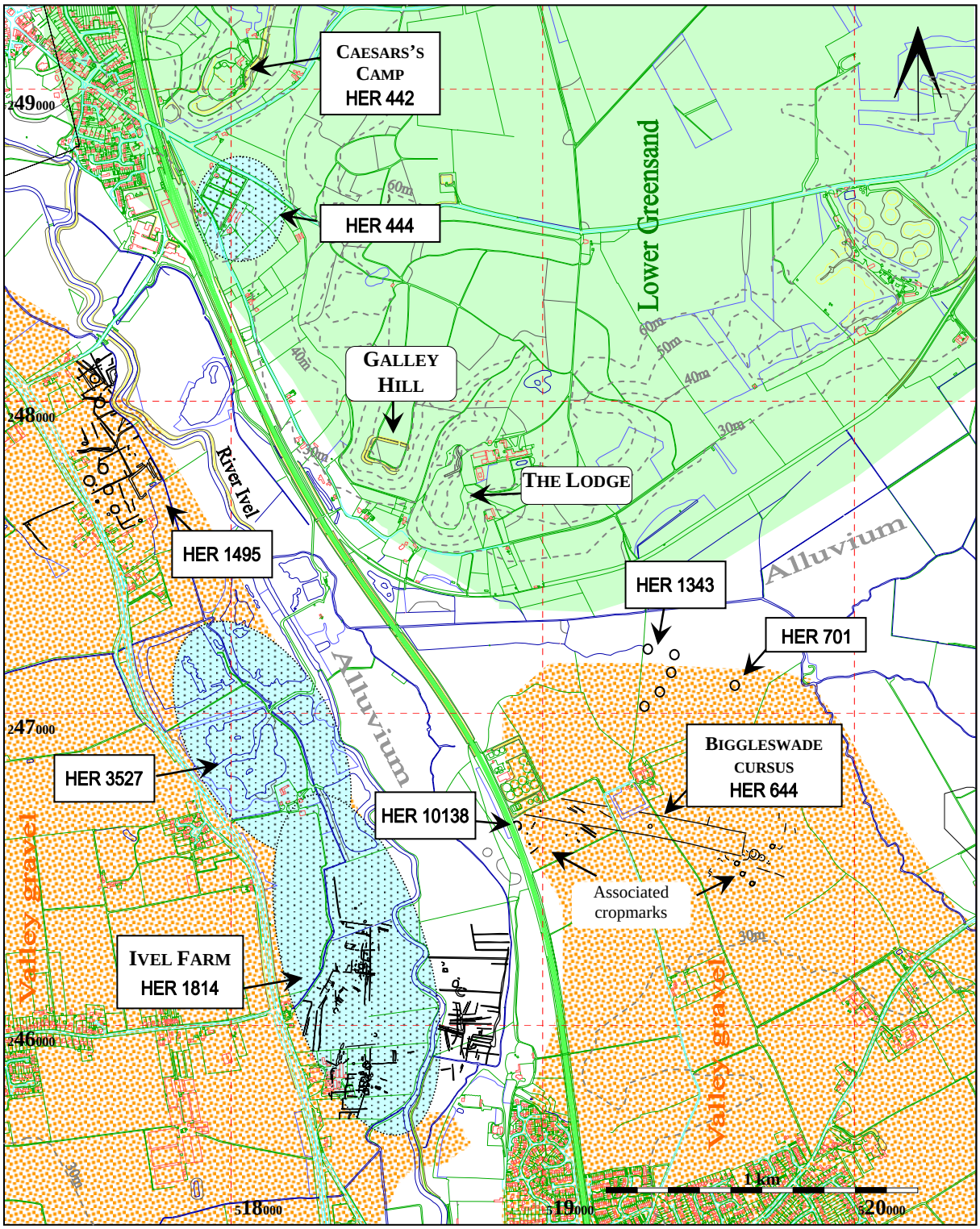


Figure 2: Topographic Plan and HER numbers

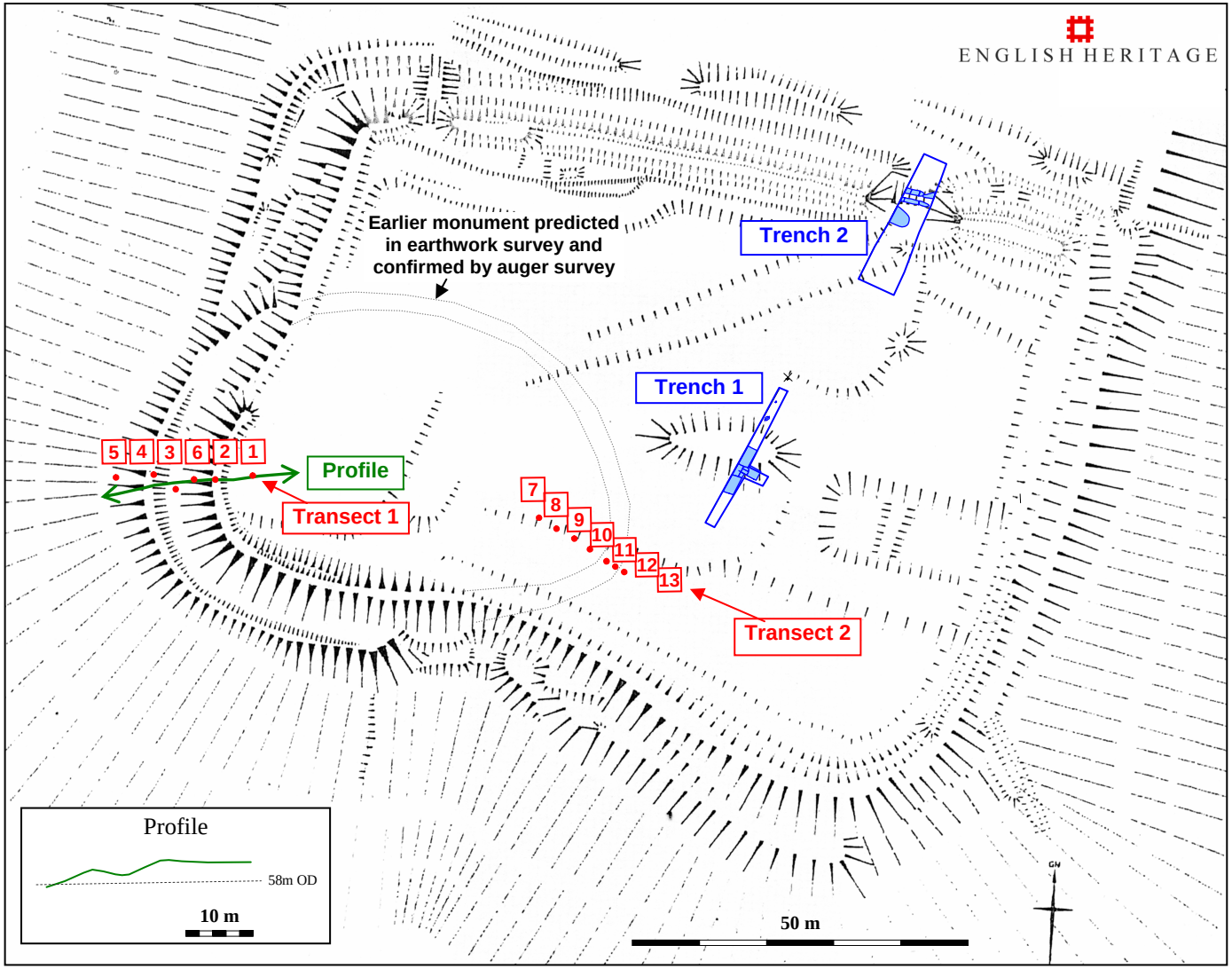
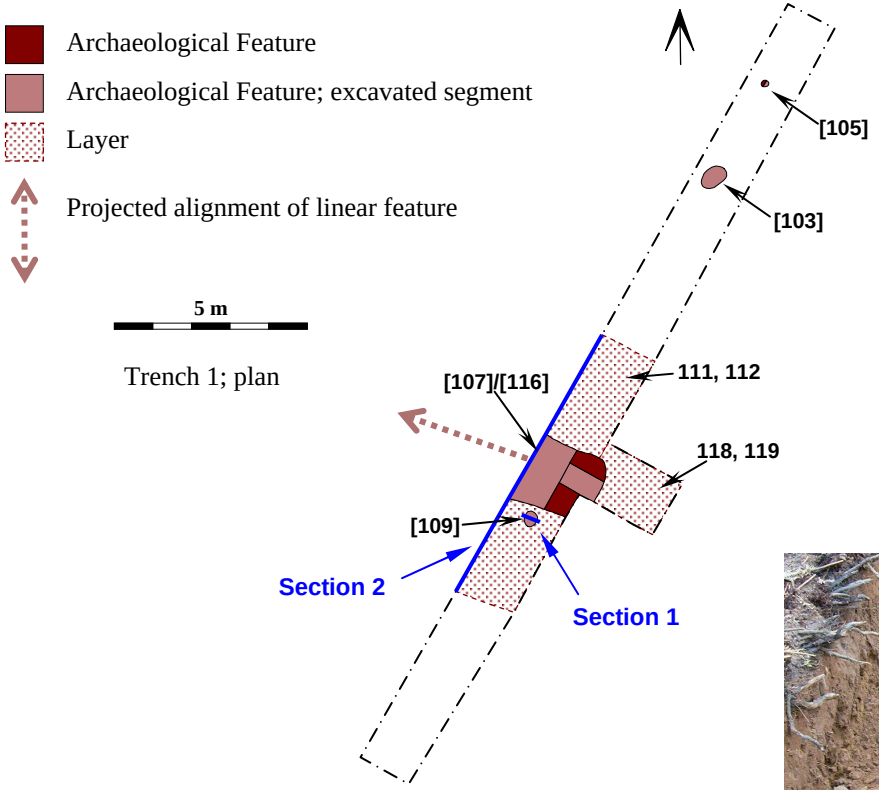


Figure 3: Trench and auger transect locations shown against English Heritage earthwork survey (EH 2005, figure 4)



Ditch [107]/[116] looking west
Scale 1m

Pit [103] looking west
Scale 40cm

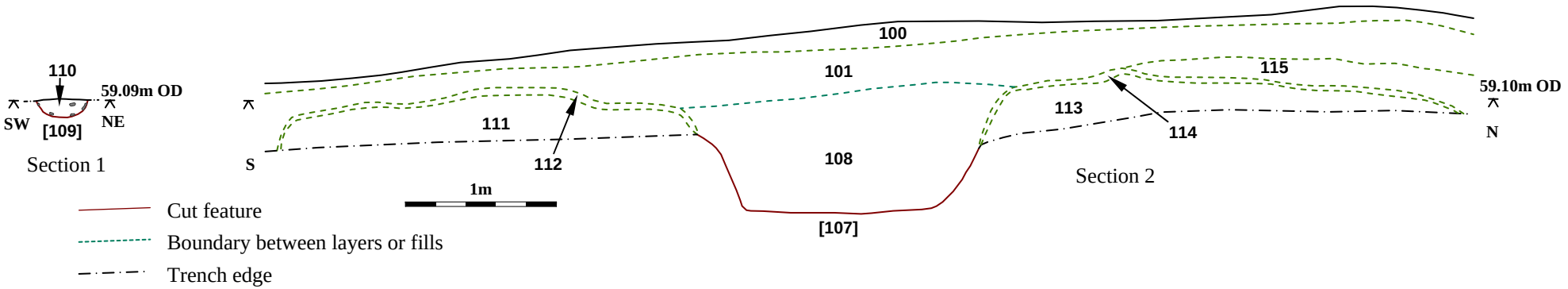
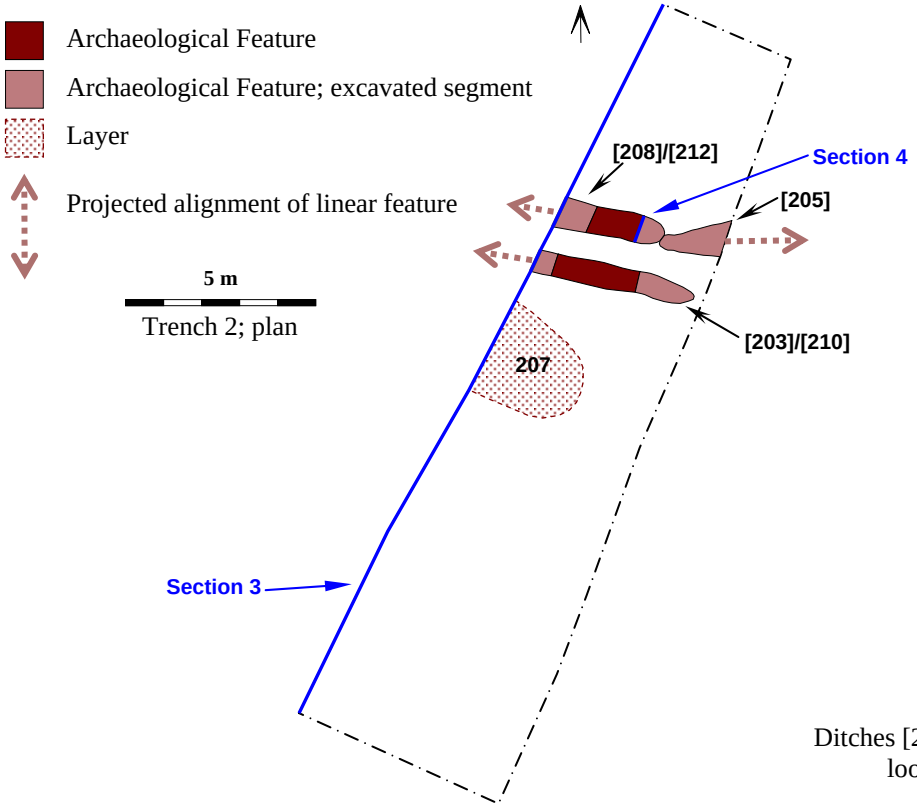


Figure 4: Trench 1; all features



Basal layer (207) of the bank terminal which forms the western part of hillfort entrance

Ditches [203]/[210], [208]/[212] and [205] looking west. Pre-excavation

Ditches [203], [208], and [205] looking west. Post-excavation
Scale 1m

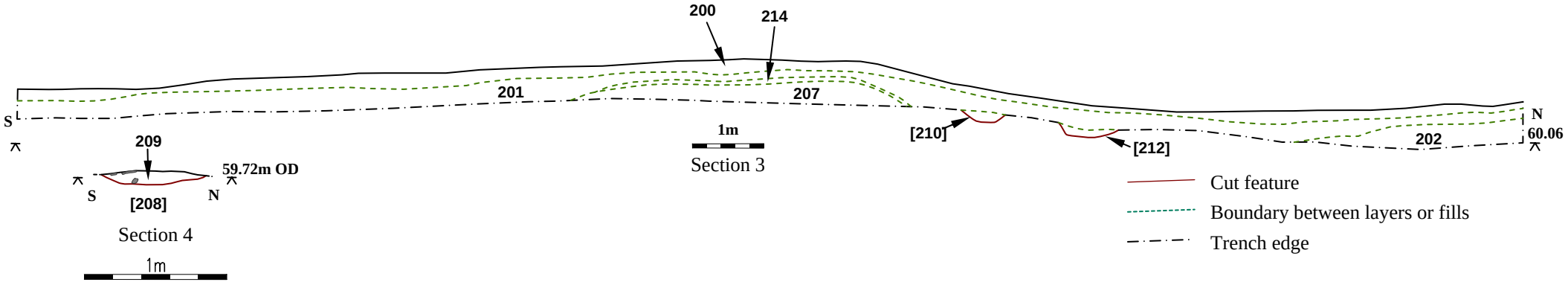


Figure 5: Trench 2; all features