Excavation of the Iron Age Ring Monument 'War Ditches' at the East Pit, Lime Kiln Road Cherry Hinton, Cambridge

Version 3

Post-Excavation Assessment and Updated Project Design

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Client: English Heritage

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Post-Excavation Assessment and Updated Project Design

The excavation of a remnant of the Iron Age Ring Monument 'War Ditches'

at

The East Pit, Lime Kiln Road, Cherry Hinton, Cambridge

Post-Excavation Assessment and Updated Project Design

By Alexandra Pickstone BA AIfA and Richard Mortimer MIfA

With contributions by Rachel Ballantyne PhD MSc MA (Cantab.), Barry Bishop MA, Matt Brudenell MA, Nina Crummy BA FSA, Natasha Dodwell MA, Chris Faine MSc AIfA , Alice Lyons MSc, Elizabeth Stafford BA

Editor: Dr Elizabeth Popescu MIFA

Illustrator: Alexandra Pickstone BA AIfA

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Prepared by:	Alexandra Pickstone and Richard Mortimer
Position:	Project Officer and Project Manager
Date:	26/5/10.
Checked by:	Elizabeth Popescu
Position:	Post-Excavation & Publications Manager
Date:	26/5/10
Signed:	.....

Oxford Archaeology East,
15 Trafalgar Way,
Bar Hill,
Cambridge,
CB23 8SQ

t: 01223 850500
f: 01223 850599
e: oaeast@thehumanjourney.net
w: http://thehumanjourney.net/oaeast

Table of Contents

List of Figures

List of Tables

1) Summary

1.1.1 This document forms an assessment and updated project design for the site archive generated by fieldwork undertaken by Oxford Archaeology East at War Ditches, Cherry Hinton, Cambridgeshire (TL 484 555; Fig. 1) between the 20th April and 17th June 2009. The document sets out the research framework and proposed methods for the analysis and report preparation stages, as prescribed by English Heritage.

1.1.2 War Ditches was a large, probably circular enclosure, lying on a spur of the Gog Magog hills to the south of Cambridge. Much of the monument was destroyed as a result of quarrying for chalk. Had the monument survived, it would undoubtedly have acquired scheduled status as one of the key prehistoric monuments in the county.

1.1.3 The emergency archaeological work supported by English Heritage was undertaken in advance of groundworks undertaken to open the site to the public as a nature reserve by the Wildlife Trust.

2) Project Background

2.1 Introduction

2.1.1 During the summer of 2008 children trespassing within the quarry discovered human skeletal remains in its south-western corner. A subsequent visit by the parish archaeological warden (Michelle Bullivant) led to the recovery of a considerable assemblage of later Iron Age and early Romano-British pottery and animal bone from the same location. The feature eroding from the top of the quarry has a distinctive fill sequence and was identified as a surviving remnant of War Ditches by the project team.

2.1.2 The monument and other features within the quarry had already been the subject of a number of investigations in advance of chalk extraction by archaeologists including the works of Professor McKenny Hughes (in 1893-1903, pub. 1904), T. C. Lethbridge (in 1939) and D.A. White (in 1949-51 and 1961-1962). Despite repeated episodes of fieldwork spanning roughly 70 years the nature of the monument, the date of its foundation and the exact location of the various excavations remain uncertain.

2.1.3 The acquisition of the quarry by the Wildlife Trust related to its plans to open the quarry as a nature reserve in April 2009. The site was a significant danger to trespassers and the Trust began groundworks to make it safe. Landscaping was required in the area of the surviving archaeological remains as an essential safety measure to be undertaken prior to the opening of the site to the public. As the Trust were unaware of the archaeological potential of the site, no provision for archaeological works was made within the budget for the nature reserve.

2.1.4 Funding was attained from English Heritage and emergency excavations were conducted by Oxford Archaeology East between the 20th April and 17th June 2009. This entailed excavation of a 9m long segment of ditch and included a small amount of additional work which was the subject of a variation.

2.2 Location and geology

2.2.1 War Ditches is located atop a spur of the Gog Magog hills to the south of Cambridge on Middle Chalk (BGS, Sheet 205, 1952). Its location would have afforded commanding views over the Cam Valley and later, the City of Cambridge.

2.3 Archaeological Background

Previous excavations

2.3.1 The derivation of the name War Ditches is uncertain but may be co-incidental with the discovery of numerous human skeletons whilst quarrying during the latter half of the 19th century. Subsequent excavations traced the course of a large but apparently intermittent circular enclosure of *c.* 150m diameter. The scale and layout of War Ditches (with ditches 5m wide, cut to in excess of 4m in depth) is reminiscent of other monuments of the region, in particular the so-called Iron Age 'forts' of Wandlebury and Arbury Ring. Despite occupying a 'commanding' location overlooking the Cam Valley, with clear evidence for significant activity at this location since at least the Bronze Age and despite a long history of excavation, War Ditches remains the least understood of Cambridgeshire's still enigmatic major ring works.

2.3.2 It is perhaps fair to suggest that the main reasons why the War Ditches remain relatively obscure is due in part to the relatively long history of investigation, and in the main to the uneasy relations between some of the key investigators in the first half of the 20th century.

2.3.3 Despite the many areas of uncertainty over the monument's history, previous work on the site suggests that activity at this location can be divided into the following broad periods:

2.3.4 *Bronze Age:* The remains of at least two barrows within the interior of the War Ditches were investigated by the University Field Club during the 1950s (White 1964a and b) and, although the detail of this work remains unpublished, sherds of grooved ware and early Bronze Age pottery were recovered from their circuits. The basal fills of the main enclosure ditch consisted of fine chalky silt deposits of at least 1m in depth sealed by a buried soil horizon indicative of a past land surface. Artefacts recovered from the earliest ditch fills were exclusively pre-Iron Age and led both Hughes and Lethbridge to conclude that the site had its origins in the Bronze Age. Recent re-assessment of the surviving material from these fills was inconclusive (Hill *et al.* 1999). Obtaining a diagnostic artefactual assemblage supported by absolute dating for the earliest fills of the monument was a therefore a key aim of the recent excavation.

2.3.5 *Later Iron Age:* During excavation human remains were repeatedly discovered within the later fills, some of which had been deliberately inhumed but the majority, predominantly women and children, were thrown into the ditch. At least one pottery kiln has been noted within the ditch circuit and pottery production is one aspect of the economy that is emerging as a result of recent fieldwork in the local area.

2.3.6 *Roman:* Whilst unequivocal evidence for activity, boundary ditches and settlement has been recorded on the site for the Iron Age and Romano-British periods, this has always been recovered from the upper fills of the ditch or from other features once present on this site, including a 12m deep well.

2.3.7 *Saxon:* A series of 9 inhumations including a bed burial were excavated during the investigation of the Bronze Age ring monuments previously mentioned.

2.3.8 *Modern:* Crop marks evident from satellite imagery and recently replotted as part of the landscape study for the Cambridgeshire Park and Ride sites (Hinman in prep.) indicate the presence of an early trench warfare training ground of WWI provenance on land directly adjacent to area of investigation.

2.3.9 The previous work demonstrated that finds including bone were generally extremely well preserved and large assemblages of well stratified material were to be expected from the top fills of the ditch. In order to recover datable assemblages from the lower fills, 100% of all contexts were sieved during the work in 2009. This methodology has previously been employed to great effect on the adjacent Babraham Road site (Hinman 2001 and in prep).

The wider context

2.3.10 The ambiguity in the published results at War Ditches and uncertainty as to the exact location of the excavations became apparent very early in the modern investigation of the landscape of the Gog Magog foothills (Hinman 2001). It proved difficult to place each new intervention in this landscape into context as a result of the varying types of data recorded: this is particularly the case for the burial mounds and other monuments, many of which were investigated by local antiquarians.

2.3.11 This site commands clear views and lines of site to a range of highly significant excavations in the local area and further afield to the River Cam and beyond.

2.3.12 War Ditches was undoubtedly integral to the functioning of this landscape at specific intervals over a prolonged but still uncertain period of time. This remains an issue for all archaeologists working in the local area as illustrated by the following comment by Chris Evans of Cambridge University whilst considering the context for one of the local excavations at Addenbrookes Hospital: 'Of the earlier excavations within the area (i.e. pre-1990), it is the work at the War Ditches that is perhaps of the greatest relevance for us. Not only is this true of its great Early Iron Age ringwork, but also of the Romano-British settlement that overlay it. The key point, given that site's long rather vexed history, is how to assemble a convincing 'picture' of its phases' (Evans *et al.* 2008).

3) INTERFACES

3.1.1 A key interface for the analytical phase is with the previous work conducted at the site (outlined above). A recent review of past excavations on the site and the archives held by the Museum of Archaeology and Anthropology (Evans *et al.* 2008) has confirmed the existence of records relating to a series of unpublished investigations at War Ditches by the Field Club of Cambridge University during the 1950s. This review concluded that these records clearly warranted further research and publication.

3.1.2 Other potential archival and human interfaces include: Cherry Hinton Local Studies Library, Cambridgeshire Collection, Haddon Library, Cambridge University Library, Cambridge Archives, Cambridge HER, National Monuments Record, The Duckworth Collection, Cambridge University Unit for Landscape Modelling Aerial Photograph Collection, College Archives, Cambridgeshire Collection, On line collections, University Library, Cambridge Archives, Public Records Office, Folk Museum, Archaeology & Anthropology Museum, Haddon Library, Other Archive Depositories and/or collections, Oral history.

3.1.3 Another major interface is with the concentration of other important archaeological sites within the immediate environs of the Gog Magog hills (Fig. 2). The archaeological importance of this area is becoming increasingly apparent and each new development-led fieldwork project adds weight to the idea that this was a pivotal place and point of contact for successive past populations. The War Ditches material has the potential to provide important new dating evidence that will serve to stimulate a consideration of the relative chronological development of the key monuments, their landscape setting and the interrelationship between these important places.

3.1.4 The results already gathered from development-led fieldwork since the 1990s combined with new data from crop marks, new ways of mapping and enhancements of the HER, all help to place the results of excavations in the area more comprehensively into their local landscape setting.

3.1.5 These numerous prehistoric sites and related interventions will be incorporated into the analytical stage in terms of providing the wider context noted above. They range from monuments to settlement sites and field systems and include:

- Wandlebury: Neolithic to Iron Age remains (Hartley 1957, Clarke 1985; Cunliffe 1991 and French and Gdaniec 1996)
- Littletrees Hill: possible Neolithic enclosure
- Various barrows and trackways
- Greenhouse Farm: Middle Iron Age to early Roman remains (Gibson and Lucas 2002)
- Addenbrooke's Hospital: Neolithic to Roman remains (Evans *et al* 2008)
- Babraham Road: Neolithic to Iron Age ritual/ceremonial features (Hinman in prep.)
- Trumpington Park and Ride: Neolithic to Iron Age ritual/ceremonial features (Hinman in prep.)
- Granham's Farm: Neolithic to late Roman remains (Evans *et al* 2008)
- Nine Wells: Bronze Age to Iron Age unexcavated embanked ring (Evans *et al* 2008)

3.1.6 Relevant information drawn from these sites will contribute during the analytical stage to developing the understanding of War Ditches in their wider setting. Of particular interest is the relationship with Wandlebury Ring, where the date of construction of the earliest ring remains unclear (Hill 1996), as well as relationship of the earliest ring to settlement related features. The role of this monument as a hill fort has been called into question, since it has been observed that the siting of the monument away from the crest of a relatively steep slope makes little sense if defence was a primary concern. War Ditches can claim the prominent location so often and incorrectly attributed to Wandlebury.

4) Original Research Aims

4.1 Original fieldwork aims

4.1.1 The following fieldwork aims were detailed in the Project Design and addressed in the Updated Project Design for Assessment:

1) to recover the remaining archaeology currently under threat;

2) to serve as a further body of work at the site, governed by modern archaeological techniques and practice, to complement and clarify the results of the previous phases of work undertaken on the site;

3) to locate the War Ditches accurately by modern surveying methods;

4) to seek to locate and record the previous, unpublished excavation referred to on Hughes' plan of 1904 as 'Kirkpatrick's Trench J' and other archival records;

5) to identify and excavate any features other than the ditch within the area under threat.

4.2 Specific research aims and objectives of the current assessment

4.2.1 The Updated for Project Design for Assessment identified a number of site-specific, local, regional and national research aims and objectives with which to test the War Ditches data at the assessment stage. These can be summarised as:

4.2.2 Aims

1) to determine the duration and nature of the infill sequence within the ditch, and to provide absolute dating for these activities and infills where possible;

2) to add to the existing corpus of information from past excavations through the application of a suite of modern environmental sampling techniques and analyses;

3) to use the information gained through excavation to inform a long term site management plan in collaboration with the Wildlife Trust to ensure the preservation and care of any further remains present on the site;

4) to integrate the results of fieldwork as far as possible with a review and re-plotting of the findings of past excavators;

5) to provide dissemination of the results of the excavations through publication in the Proceedings of the Cambridge Antiquarian Society (PCAS) and display boards within the newly created nature reserve.

4.2.3 Objectives

1) to identify and examine any evidence for Neolithic to Bronze Age activity

2) to confirm the date of the construction of the War Ditches and its subsequent phases

3) to contribute towards a better Iron Age chronology

4) to contribute towards an understanding of the development of the agrarian economy in the Iron Age

5) to examine evidence for the Iron Age/Roman transition and in particular the theme of Briton into Roman

6) to examine settlement hierarchies and interaction

7) to consider the results in relation to patterns of rural settlement

8) to consider patterns of craftsmanship and industry (including agriculture)

5) Business Case and Project Scope

5.1.1 This project relates to SHAPE objective: 32144.110 *Heritage at Risk: Recording historic sites, buildings and monuments under imminent threat outside the planning process.*

5.1.2 The excavation of a section through the monument having been successfully completed, a large and diverse artefactual and ecofactual assemblage has been recovered. Analysis of this assemblage will contribute to the furtherance of the understanding of the place of the War Ditches monument within the early Iron Age through to Romano-British landscape in the Cambridge sub-region.

5.1.3 The information gained through excavation will be used to inform on a long-term site management plan in collaboration with the Wildlife Trust to ensure the preservation and care of the remaining sections of the monument. It will also feed into the presentation of the monument within its landscape via information panels within and around the nature reserve.

5.1.4 The project aims to study in detail the recently excavated artefactual and ecofactual assemblages and stratigraphic data. It will reassess and attempt to integrate the available paper excavation archives from previous interventions. The scope of the current project does not allow for a thorough reassessment of the material assemblages from previous interventions. However, an inventory will be made of the location of these archives to aid potential further study.

5.1.5 The programme outlined in this document will permit completion of the analytical stage in November 2010, with the draft publication to be submitted for refereeing in November 2011 (to meet the relevant journal deadline). The project team (Table 5) has the required knowledge and understanding of the site and related issues to ensure a successful project outcome.

6) Assessment of Phasing and Stratigraphy

6.1 Quantification

6.1.1 The number of spits and fills have been quantified by group with the provisional dating provided by the assessment of the pottery assemblages.

Group	No. of spits	No. of Fills/Layers	Provisional dating
0	38	30	test pits - EIA to Modern
1	6	6	Early Iron Age
2	16	4	Early Iron Age
3	45	7	Early Iron Age
4	73	13	Early Iron Age
5	21	4	LPRIA-Conquest
6	10	1	LPRIA-Conquest
7	87	5	LPRIA-Conquest
8	3	3	LPRIA-Conquest

Total	**299**	**73**	

Table 1:Quantification table

6.2 Results: Site phasing

The Ditch

6.2.1 The preliminary site phasing conducted during Stage 2 has been refined in consultation with the assessments provided by the specialists.

6.2.2 Group 1 contained a total of 6 poorly sorted fills containing large quantities of medium to large chalk fragments. These initial fills contained very small numbers of pottery sherds and animal bone and are likely to have been caused by natural infilling and weathering of the exposed ditch edges immediately post construction.

6.2.3 Group 2 contained a series of thin lenses of small pieces of chalk rubble, pea grit and soft silt. Recorded predominantly in the section these fills represent small scale activity/bioturbation on or within the ditch bank which could be attributed to human activity within the enclosure.

6.2.4 Group 3 contained a total of 7 recorded fills, however the majority of the group was formed by two fills with a combined thickness of 1m. The fills consisted of mixed lenses of silt containing significant quantities of charcoal within 90% chalk rubble. The rubble was made of medium to very large chalk fragments indicating that this infill was not caused simply by weathering but was a deliberate backfilling episode in which part of the bank material was pushed into the ditch. The silty lenses are suggestive of the turf and soils which would have developed over the bank prior to its partial destruction.

6.2.5 Group 4 consists of approximately 13 separate recorded infills, principally made of small to medium chalk rubble in silty chalk matrices interspersed with potential *in-situ* turf lines. Whilst the fills themselves would appear to have resulted from natural processes, the quantities of cultural material within perhaps suggesting that the area was still occupied.

6.2.6 The interface between Group 4 and 5 represented a period of stabilisation of the ditch before the reoccupation of the site in the LPRIA. This now relatively shallow ditch would have grassed over and may have been grazed by animals during this period.

6.2.7 Group 5 contained 4 fills which represent the first activity during the LPRIA. It represents the first direct re-occupation of the hill fort area since its abandonment in the Early Iron Age and following the period of stabilisation.

6.2.8 Groups 6 to 8 contained significantly larger quantities of LPRIA/Transitional cultural material representing increased activity on this site during this period.

Group	Pottery (kg)	Fired Clay (kg)	Animal Bone (kg)	Human Bone (kg)	Antler (kg)	Flint (kg)	Stone (kg)
1	0.062	-	0.417	-	-	0.625	-
2	0.098	-	0.350	0.022	-	0.171	0.671
3	0.165	-	0.085	-	-	0.127	0.033
4	1.501	0.030	3.542	-	0.970	3.647	5.866

5	3.330	2.296	3.468	-	-	0.954	2.494
6	3.959	1.016	1.638	-	-	0.389	1.984
7	20.310	6.357	8.080	-	-	0.979	5.054
8	0.616	0	0.059	-	-	0.041	-

Table 2: Finds Quantification by Group

The Test Pits

6.2.9 A total of six 1 x 1m test pits were excavated, three within the enclosure and three on the outside of the ring ditch. The test pits contained a topsoil, subsoil and a secondary subsoil/interface layer with post-medieval finds recovered from throughout these layers Test Pit 5 was the exception as it contained a single subsoil and no finds.

6.2.10 Test Pit 2 was of greatest significance as it revealed an Early Iron Age feature within the ring monument. It contained 38 sherds (313g) of pottery and is the only feature contemporary with the ring monument to have been excavated using modern methods.

6.2.11 Test Pit 6 revealed a probable natural tree root/ geological crack type feature.

Test Pit No.	Context Type	Context	Material	Weight in Kg
1	Topsoil	504	Bone	0.001
	Topsoil	504	Slate	0.011
	Topsoil	504	Ceramic (Vessel)	0.004
	Subsoil 2	505	Ceramic (Vessel)	0.006
	Subsoil 2	505	Shell	0.002
	Subsoil 2	505	Ceramic (CBM)	0.012
	Subsoil 1	506	Ceramic (CBM)	0.006
	Subsoil 1	506	Ceramic (Vessel)	0.009
2	Subsoil 2	508	Ceramic (Fired Clay)	0.024
	Subsoil 2	508	Ceramic (Vessel)	0.207
	Subsoil 2	508	Coal	0.002
	Subsoil 2	508	Flint	0.109
	Subsoil 2	508	Bone	0.029
	Layer	526	Ceramic	0.098
	Layer	526	Bone	0.063
4	Subsoil 2	514	Ceramic (Vessel)	0.016
	Topsoil	517	Bone	0.001
	Topsoil	517	Ceramic (CBM)	0.179
	Topsoil	517	Ceramic (Vessel)	0.035
	Topsoil	517	Glass	0.001
	Topsoil	517	Clinker	0.002

6	Topsoil	519	Bone	0.004
	Topsoil	519	Ceramic (Vessel)	0.279
	Topsoil	519	Ceramic(CBM)	0.007
	Subsoil 2	520	Shale	0.001
	Subsoil 2	520	Ceramic (Vessel)	0.035
	Subsoil 2	520	Ceramic (CBM)	0.004
	Subsoil 1	521	Ceramic	0.015

Table 3: Quantification of finds within the test pits

6.3 Stratigraphic work to date (Appendix D)

6.3.1 Two matrices have been compiled for the stratigraphic sequence through the ditch. The first matrix is a true Harris matrix which shows the contexts (fills) in sequential order. The spits contained within the individual context are listed alongside their relevant fill.

6.3.2 The second matrix shows the spit number in correct stratigraphic order but also demonstrates their physical position in relation to each other. This matrix will enable the principal archaeologists and specialists to ascertain potential cross-contamination between contexts.

6.4 Potential of stratigraphic data

6.4.1 There is a clear stratigraphic sequence within the ditch dating from the early Iron Age to the 1st century AD. The stratigraphy has great potential to answer or provide a basis to answer the site aims and objectives stated in Sections 4 and 10.

6.5 Recommendations

6.5.1 The stratigraphic data will be further refined during the analysis stage, primarily with the data from the pottery assemblages alongside any C14 samples. The results will be used to address the aims and objectives stated for assessment.

7) Summary of Finds Assessments from Appendices

7.1 **Metalwork** (Appendix E.1)

7.1.1 The assemblage consists of two copper-alloy brooches and an iron nail. Both the brooches are Late Iron Age types which came from upper fills of the ditch. A proto-Rosette brooch, an imported rare type in Britain was recovered from fill **52**, Group 7. This may date to the later part of the 1st century BC, running into the early years of the 1st century AD. A Colchester brooch (*c*. AD 10 – 50), recovered from fill **107**, Group 5, was of the principal type present before the conquest. The nail cannot be closely dated.

7.2 **Flint** (Appendix E.2)

7.2.1 A total of 236 struck flints and just over 2.2 kg of otherwise unmodified burnt flint were recovered during the excavations.

7.2.2 Virtually all of the material came from the fills of the ditch, with struck flint being present in all phases of its infilling and burnt flint in all but the first phase. Its stratigraphical distribution is markedly uneven, however, with the greatest quantities of struck flint and burnt flint coming from Group 4 and, to a lesser extent, Group 7, with the other phases contributing relatively minor sub-assemblages.

7.2.3 In addition to those from the ditch, four struck pieces were also recovered from the test-pit excavations (context **506**).

7.2.4 Seventy-five pieces (2140g) of burnt flint, were recovered from the ditch with three further pieces recovered from unstratified contexts. The quantities present are most consistent with the disposal of hearth waste, rather than any large-scale or deliberate production although the material from Group 4 may indicate either *in-situ* fires or the persistent disposal of hearth waste.

7.2.5 The majority of the struck flint was probably produced more-or-less contemporaneously with the infilling of the ditch and the use of the monument, and suggests sporadic episodes of flintworking were one of the activities conducted there. A few pieces are more chipped and abraded and it is possible that these have been residually deposited from dynamic burial environments such as plough soils.

7.2.6 Although the bulk of the assemblage dates to the latter parts of the prehistoric period, a few pieces almost certainly pre-date this.

7.3 **Stone** (Appendix E.3)

7.3.1 Just under 16 kg of stone was recovered during the excavations. With the exception of the chalk, none of these pieces are present in the surface geology at the site and they must have been deliberately imported and deposited into the ditch.

7.3.2 The stone recovered at War Ditches fall in to two main areas of significance. Some of the local and other stones have been worked, including having been shaped into querns. The fragments of 'exotic' stone may have been imported from considerable distances and these include possible ores.

7.4 **Early Iron Age Pottery** (Appendix E.4)

7.4.1 Some 376 sherds of Early Iron Age pottery (1997g), and a single abraded piece of Early Bronze Age ceramic (10g, possibly Beaker) were recovered. The assemblage primarily derived from the excavation of the ditch circuit, with small quantities of pot being recovered from the test pits (70 contexts in total yielding Early Iron Age pottery). Overall, the assemblage was dominated by highly fragmented sherds with a low mean sherd weight (MSW) of just 5.3g.

7.4.2 Based on the fabrics, decorative schemes, and the few diagnostic features sherds identified, the Early Iron Age pottery from War Ditches can be typologically dated between *c*. 600-350 BC. With the exception of the single abraded Early Bronze Age sherd from context **267**, the pottery recovered from the basal ditch fills was exclusively Early Iron Age. No marked changes in assemblage composition were observed in the sequence, other than in the quantities of pottery deposited throughout the profile. All of the material is of Early Iron Age date, with no suggestion of a Late Bronze Age or Middle Iron Age presence.

7.5 Late Pre Roman Iron Age and Roman Pottery (Appendix E.5)

7.5.1 Pottery constituting 3542 sherds, weighing 27.209kg, with an estimated vessel equivalent (EVE) of *c*. 23 vessels, was recovered during this excavation. The material has an average sherd weight of only *c*. 8g as it is severely abraded, although some evidence for wear and use (soot residues) does survive.

7.5.2 The pottery was exclusively recovered from within the surviving section of the encircling ditch. The pottery is remarkable in that it appears to have been deposited within a relatively short period of time between 50 BC and AD 50. Some (largely residual) Early Iron Age material has survived but the majority of the pottery is late pre-Roman Iron Age and Early Roman locally produced coarsewares, many of which are certainly contemporary within the Transitional (between the Iron Age and Roman) period.

7.6 Fired Clay (Appendix E.6)

7.6.1 A total of 896 fragments of burnt clay, weighing 9.949kg, were recovered. This assemblage consists of a limited range of fabrics and types, the majority (89.81% by weight) of which are categorised as 'daub'.

7.6.2 Of particular interest are the plate fragments that were recovered. The plates are solid (unperforated) with fumed surfaces that are between 31 and 35mm thick and have a curved outer edge. These are consistent with the portable or temporary kiln floor plates that were used as kiln furniture in the late pre-Roman Iron Age and Early Roman eras (Swan 1984, 64-65).

7.7 Miscellaneous Finds

7.7.1 The miscellaneous finds from the ditch and test pits were assessed for the potential to contribute towards a greater understanding of the site and in relation to the research aims and objectives. All of the material assemblages are small and fragmentary: they are summarised and described in Table 4.

Material	Context/Spit	Group	Comments
Bullets	519	0	2 bullets
Shell	73	6	1 oyster shell
	77	6	1 oyster shell
	101	7	Oyster shell fragment
	505	0	Oyster shell fragment
Slag	106	5	Tap slag, 1 small fragment
Slate	504	0	2 fragments of slate roof tile
Glass	517	0	1 fragment of post-medieval window glass
Tobacco pipe	517	0	18th/19th century clay tobacco pipe stem
Shale	520	0	Post-medieval
Clinker	517	0	Post-medieval
Coal	508	0	Post-medieval

Table 4:Quantification of miscellaneous finds

8) Summary of Environmental Assessments from Appendices

8.1 Faunal Remains (Appendix F.1)

8.1.1 A total weight of 19.6 kg of animal bone was recovered from the excavations. Almost all material was recovered from the ring ditch. The majority of faunal material is concentrated in Groups 2-7. Thirty-nine environmental samples contained faunal material, with a total weight of 50g.

8.1.2 In terms of the Early Iron Age material the most numerous taxon by context is cattle, along with smaller numbers of sheep/goat. There are few contexts containing other domestic and wild mammal species, with pig and dog being the next most prevalent taxa. Red deer is present in a single context (antler only). Environmental samples yielded both small mammal and anuran amphibian remains, with contexts 253 and 262 containing large numbers (NISP 50+) of amphibian remains of varying sizes.

8.1.3 The Late Iron Age assemblage shows a broader species distribution, with cattle and sheep/goat the most prevalent taxa, but with higher instances of pig, horse and dog remains than the Early Iron Age sample. No wild mammal remains were recovered. Numbers of contexts containing small mammals are similar but with higher prevalences of anuran amphibian remains.

8.2 Plant Macrofossils (Appendix F.2)

8.2.1 The bulk samples are mostly from chalk rubble ditch fills in the outer boundary of an Iron Age ring monument. All samples from the test pits have produced high amounts of intrusive roots and plant debris, with low amounts of vitrified charcoal that is unsuitable for further analyses. The charred plant macrofossils in the ring ditch fills seem to represent at least three sources; cleaned grain products, small wild seeds of cereal weeds or fodder and, very rarely, wetland resources such as great fen sedge. Well-represented cereal types are spelt wheat, emmer wheat and hulled barley, with free-threshing hexaploid wheat (bread wheat type) only in one Group 8 fill. The wheat identifications have been confirmed by diagnostic chaff fragments and are overall a typical range for later prehistory in southern Britain.

8.2.2 Charred plant macrofossils are relatively rich in the mid to upper fills of the ring ditch, and so can address basic questions regarding economic activities for Groups 5 to 8. The Group 8 fills all represent grain products, whereas lower fills tend to be dominated by small wild seeds, suggesting a change in the contributing patterns of activity or discard. The best preserved charcoal occurs in ring ditch fills from Group 8 and at the interface between Groups 4 and 3. In both cases, the charcoal is accompanied by numerous burnt mollusc shells that may indicate fires either within or very close to the ring ditch. The contrasting ‘populations’ of charred and rich uncharred mollusc types in the ring ditch would be worthy of more detailed analysis, to inform understanding of the formation pathways represented.

8.2.3 There is some evidence that smaller charred items have moved down the porous, poorly-sorted chalk rubble matrix, and this will limit the resolution of any temporal reconstruction and C14 dating. Furthermore, the likely disassociation between deposition context and past activity areas means that the charred plant remains can only provide a very general picture of past activities. Despite these caveats, further analysis of the charred plant remains is recommended to provide a broad reconstruction of crop processing activities and to add to the range of ring monuments

in the region with associated charred plant assemblages. There is no evidence for waterlogging or mineral-replacement of plant tissues by calcium phosphate or calcium carbonate, meaning that the plant assemblage cannot address issues relating to the past local environment.

8.3 **Land Snails** (Appendix F.3)

8.3.1 Twenty five samples were submitted from the excavation for the assessment of land snails. The samples derive from a series of deposits infilling the main rampart ditch dating from the Early Iron Age to the Early Roman period.

8.3.2 The results suggest a long established very dry and open local environment throughout the period of infilling; probably short turfed (grazed) grassland. A small shade-demanding component may be related to the micro-environment prevailing within the ditch but there does not appear to have been a significant growth of vegetation such as rank grass or scrub, often such a notable feature of ditch profiles during abandonment phases. This may indicate the ditch was cleaned out/maintained and/or the bottom of the feature was being grazed by livestock.

8.3.3 Of note in some of the earlier fills (Groups 1-3) is the presence of a number of species that usually inhabit much wetter environments such as floodplain marsh or fen. They appear to be out of place with the rest of the assemblages and may represent shells brought to the site attached to vegetation collected from a wetland environment. It seems less likely the ditch would have held standing water given the low numbers, geology, elevated location and the absence of other taxa usually associated with such conditions.

9) Overall Statement of Potential

The research aims and objectives for the War Ditches project have been set out in Section 4. The assessment of the data set out in this document and its appendices includes statements of potential for addressing these issues and each aspect (including site stratigraphy, finds and environmental evidence) is drawn together below in relation to the relevant themes.

9.1 Aims

9.1.1 To determine the duration and nature of the infill sequence within the ditch, and to provide absolute dating for these activities and infills where possible.

A clearly stratified sequence of fills was identified during excavation (see Section 6.2 for fill group descriptions). The materials recovered from the ditch offer the potential for absolute dating, which is considered below (Section 9.2.3).

The initial assessments of the pottery assemblage confirmed this with Groups 1-4 dating to the Early Iron Age (600 - 350BC) and Groups 5-8 dating to the Late Pre Roman Iron Age – Transitional periods (50BC - 50AD). No Middle Iron Age material was present.

The faunal assemblage shows certain concentrations including articulating remains e.g. within fills 133 and 134 (Group 4) where absolute dating will be sought.

The single human bone recovered from Group 2 will be identified and discussed in relation to information gained from previous interventions regarding the presence of human skeleton remains within the ditch fills. However, the material archive from these interventions will not be analysed further.

The assessment of the land snails and plant macrofossils along with contextual information identified a phase of burning within Group 3, a destructive/disuse phase in which much of the bank material was pushed into the ditch. These environmental remains were also able to provide information on the nature of the infill sequence (see below).

9.1.2 To add to the existing corpus of information from past excavations through the application of a suite of modern environmental sampling techniques and analyses.

Although numerous excavations have taken place at the site over a considerable period (Section 2.3), these produced little or no environmental evidence. The recent excavations clearly have the potential to contribute significantly to the existing corpus. Assessment of the land snail assemblage and plant macrofossils from the recent excavations have enabled preliminary conclusions to be drawn about the surrounding environmental conditions as well as the nature of the infill sequence.

The plant remains show evidence for a predominantly grassland environment throughout with more frequent instances of weed seeds associated with arable farming and crop processing occurring in Groups 7 and 8. There is evidence for the production of fodder for livestock in Group 3. No further work is required on the test pit samples.

The range of economic plant taxa now identified at War Ditches compares very well to the cereal-dominated assemblages reported at other Iron Age ring monuments (or ringworks) in the region at nearby Wandlebury (Cyganowski 2004) and Wardy Hill (Murphy 2003), and the settlement enclosure at Haddenham (Jones 2006).

As only the ring ditch feature is well represented by samples at War Ditches, comparison to assemblages from more fully excavated ring monuments (and other Iron Age settlement types) will be critical to interpreting the charred plant remains. For example, at Wardy Hill the inner enclosure ditch was found to contain higher concentrations of charred plant remains than many settlement features, including ring gullies (Murphy 2003, Figure 57).

The charred plant macrofossils from Groups 8 to 4 appear to represent both cleaned grain products and small weed seeds removed by sieving; activities associated with the later stages of crop processing, probably after storage in bulk spikelet form (cf. Hillman 1981). The two rich charcoal horizons in Groups 8 and 3 to 4 may represent nearby fires given the associated burnt mollusc shells. Finally, there is very limited evidence for the presence of gathered wetland resources, specifically great fen sedge in Group 7 fill **5** (S.31), which may have been brought several kilometres for thatching or kindling.

The ring ditch samples, whilst of quite limited interpretive value, provide the only opportunity to examine charred plant remains, and thus plant use from the largely destroyed War Ditches ring monument. Furthermore, the charred plant remains form an important addition to the regional corpus of material from these enigmatic Iron Age landscape features. In future years, the archived charred grain may, for example, prove of value for novel scientific analyses such as stable isotope investigation of growing locations and conditions.

The land snails are indicative of a dry open (grazed) grassland environment with some evidence of micro-environmental change within the fill sequence suggesting that the

ditch was cleaned out/maintained or the base of the feature was being grazed by livestock. This assessment has served well in broadly characterising the composition of the molluscan assemblages, although these require refinement at the analytical stage to confirm identifications and provide a full species list. All of the samples produced broadly similar results in that the assemblages are dominated by a few open country-species probably indicative of a grassland environment. There are a few interesting points of note such as the species of wetland environments identified in the earlier phases of infilling and some indication of a broad change in the proportion of the open country and catholic components in the upper fills. The material also has the potential to inform further on formation processes of particular fills.

9.1.3 *To use the information gained through excavation to inform a long term site management plan in collaboration with the Wildlife Trust to ensure the preservation and care of any further remains present on the site*

The exact location of the surviving ditch segment, forming its south-eastern element, is now known and the locations of the other surviving segments in the south and south-west can be extrapolated. The extent of truncation of the ditch profile along the south-eastern quarry edge is now understood along with the composition of the infilling sequence and its structural integrity.

The existence of surviving internal features has been shown by test pitting along the southern quarry edge.

9.1.4 *To integrate the results of fieldwork as far as possible with a review and re-plotting of the findings of past excavators*

Over the past century there have been very many archaeological interventions at the site, and these have been extremely varied in both the quality of their excavation and recording and in the subsequent treatment of their archives. Re-plotting and reinterpretation of the most salient parts of the earlier excavation plans can be undertaken with reference to the recent, and first truly accurate plotting of the surviving parts of the monument.

The bulk of the known archival material is held at the Archaeology & Anthropology Museum of the University of Cambridge. Other archives exist, two of which have been located thus far – that of two of the series of excavators of the monument working with the Cambridge Archaeological Field Club during the 1950s: one contains no plans, sections or diaries etc, just uncontextable finds material, the other (the archive of Lawrence Barfield), is currently on its way to OA East.

Other locations where archival material will be sought are listed in Section 11.1.

9.1.5 *To provide dissemination of the results of the excavations through publication in the Proceedings of the Cambridge Antiquarian Society (PCAS), display boards within the newly created nature reserve and presentations for local groups and societies.*

The proposals for publication are outlined in Section 12.

The authors will deliver presentations of the results to the Cambridge Antiquarian Society (CAS) and the Cherry Hinton Local History Society on June 7th and in the Autumn 2010. Further presentation dates are yet to be confirmed but are expected during the Autumn 2010 and the Spring of 2011 following the completion of the analysis stage.

The information gained through excavation will feed into the presentation of the monument within its landscape via information panels within and around the nature reserve, and the production of information booklets and leaflets.

9.2 Objectives

9.2.1 To identify and examine any evidence for Neolithic to Bronze Age activity

There was no evidence for *in-situ* Neolithic or Bronze Age features or deposits. There was, however, limited evidence for activity of this period in the form of a small number of residual flints recovered from the ditch fills providing evidence of pre-Iron Age activity within the vicinity of the site. A single abraded sherd of possible Beaker pottery was recovered from ditch fill **267** in Group 1. While there is therefore no potential to take this research objective further in terms of direct evidence from the excavations, further work will be required to set the monument into its prehistoric context during analysis and publication. This will include full consideration of the Bronze Age barrows recorded at the site in the 1950s (see Section 2.3.4) and the adjacent sites of the period (see Section 2.3).

9.2.2 To confirm the date of the construction of the War Ditches and its subsequent phases

A well stratified sequence of pottery and other materials was recovered from the excavation (see Section 7). Assessment of the pottery from Groups 1-4 has confirmed an Early Iron Age date for the construction of the ring ditch with the assemblage dating to 650-350 BC. Assessment of the later pre-Roman Iron Age pottery identified a potentially slightly earlier phase within fill Group 5, offering the potential for more detailed examination at the analytical stage in relation to contemporary groups found elsewhere. Fill Groups 6-8 all date to the later pre-Roman Iron Age to Transitional period (50BC – 50AD). There was no evidence of Middle Iron Age activity.

A large and remarkably uncontaminated group of late pre-Roman Iron Age and early Roman pottery was recovered and provides a valuable opportunity to examine an assemblage that was deposited in the latest phases of the life of an Iron Age hill fort over a period of (approximately) 100 years. As a result this assemblage has the potential to contribute to the understanding of the native ceramic use and deposition in the years immediately before the Roman invasion of AD 43. Although most of pottery consists of locally made reduced coarse wares, the introduction of new technology consisting of the potters wheel and semi-permanent kiln (Swan 1984) and the associated new range of fabrics and forms (Thompson 1982), can be observed.

Other aspects of dating the site in relation to scientific dating and other artefact types are considered below.

9.2.3 To contribute towards a better Iron Age chronology

As a result of the recent excavations in this part of Cambridgeshire (see Section 2.3), the impact of the period of transition from Iron Age to Roman is becoming more clear and there is a large body of ceramic material to use as comparative data for the War Ditches group. However, how pottery was produced, distributed, used and eventually deposited is still far from fully understood and remains an area of active research (Martin and Wallace 2002, 2.1.1). This assemblage therefore has high potential to build on the corpus of available comparative material to increase understanding of this

complex but fascinating period in line with both regional and national research objectives.

The human bone and faunal remains (both large animal and small vertebrate), ecofacts (charred seeds, charcoal) and the ceramic assemblages (residues) were assessed for suitability to provide radiocarbon dates. Consideration was also given to the potential of the land snail assemblage for study. Samples for radiocarbon dating will be identified by the project team in consultation with Dr John Meadows from English Heritage Scientific Dating Team during the analysis stage of the project.

Also contributing to the issue of dating are the two brooches recovered from the upper fills of the ditch. Examples of well stratified Iron Age brooches have been identified as of particular importance for regional research, together with their correlation with pottery and other material. While the two Late Iron Age brooches found at War Ditches clearly fall broadly into this category, it is the Early and Middle Iron Age examples that are most needed: one of the War Ditches examples is, however, notably of an imported type that is rare in Britain.

9.2.4 To contribute towards an understanding of the development of the agrarian economy in the Iron Age

More than 19kg of animal bone was recovered from the ditch, forming a medium size although fragmentary assemblage. The faunal assessment identifies differences in species distribution between the Early Iron Age (Groups 1-4) and later pre-Roman Iron Age (Group 5-8) assemblages. There is a clear predominance of cattle within the Early Iron Age shifting towards a broader species distribution in the later pre-Roman Iron Age where cattle and sheep/goat were recorded in greatest numbers but with a higher instance of pig and horse. This could indicate a possible change in the agricultural regime within the area of the monument through the Iron Age.

The faunal assemblage has the potential for intra site comparison of body part distribution, biometrical data and ageing (despite the lack of mandibles) via epiphyseal fusion. Although relatively small compared to nearby contemporary assemblages from Wandlebury (French & Gdaniec, 1996), Addenbrooke's (Evans, *et al.* 2008) and Babraham Road (Hinman, 2001) there is some potential for comparison that should aid interpretation of the site in the context of the wider landscape.

The land snail assemblage points to a long established open, grazed local environment across the periods (see 8.2 for more on the plant macrofossils).

9.2.5 To examine evidence for the Iron Age/Roman transition and in particular the theme of Briton into Roman

The initial assessments of the stratigraphic data and finds assemblages point to changing activities and landscapes over the Late Iron Age/Romano-British Transitional period as seen in the quantities and types of material deposited within the ditch, themes that will be explored during analysis.

Assessment of the pottery assemblage has demonstrated a potential to contribute to the understanding of the native ceramic use and deposition in the years immediately before the Roman invasion of AD 43. The introduction of new technologies and fabrics and forms was also observed throughout the assemblage.

A more detailed analysis of the fabrics by thin section will help to identify what material was made on site and what was imported. Locally produced material will demonstrate

indigenous skills and craftsmanship and will also reflect how (home/workshop/industrial) the production of these vessels was organised. Imported material will inform on trade routes (interaction) and the status (settlement hierarchies) of the community that deposited the pottery.

An analysis of the forms will establish what functions the ceramic vessels were being used for and how these vessels changed through time in association with the introduction of new techniques of manufacture. Carbonised residue identified on three sherds may also be used for AMS C14 dating.

9.2.6 To examine settlement hierarchies and interaction

Comparison of the pottery with other key ceramic groups in the region will allow a fuller understanding of how the settlement at War Ditches functioned in the wider social community. The assessment has identified that a more detailed analysis of the locally produced pottery in comparison with the imported wares will inform on the trade routes and therefore interaction between the communities as well as the status of the local Iron Age communities prior to and post-Conquest.

9.2.7 To consider the results in relation to patterns of rural settlement

The material assemblage from the current excavations alongside the plans of the LIA/RB settlement features within the monument area will be compared to the results of other recent rural excavations within the south Cambridge environs (Greenhouse Farm, Addenbrookes, Clay Farm etc).

9.2.8 To consider patterns of craftsmanship and industry (including agriculture)

The lithic assemblage contributes much needed additional evidence for a continuation of structured flintworking into the Iron Age that is of enhanced significance in that it represents, for its period, a large, securely stratified and ultimately well-dated corpus of flintwork that appears to have been manufactured and deposited throughout much of the Iron Age and may even continue into the Early Roman period. The reality and characteristics of flintworking during this time has been much discussed and Iron Age flintworking is now generally accepted and its further investigation seen as a research priority (Haselgrove et al. 2001, 21). Despite much recent work (eg Humphrey 2007), specific changes in the typological and technological characteristics of struck flint industries through the late 2nd and the 1st millennia BC are still inadequately documented and remain poorly understood. Furthermore, the nature and significance of flint tool production and use have also been little explored and there has been even less emphasis placed on understanding the social consequences of flintworking during these periods. The War Ditches assemblage's potential chiefly lies in its ability to inform on the poorly understood changes in lithic typology and technology, depositional practices and the role and utility of lithic artefacts during the Iron Age.

The pottery assessment has identified the potential to analyse further the materials and technologies used to demonstrate the skills and craftsmanship pre and post-Conquest, using comparisons with other excavated assemblages. The kiln plate fragments identified in the burnt clay assemblage are consistent with portable or temporary kiln floor plates. Their discovery adds to the previous documentation of the kilns found

during previous local excavations at Greenhouse Farm and Addenbrookes (Gibson and Lucas 2002; Evans *et al* 2008).

The recovery of kiln plates within the upper fills of the ditch links to the discovery in the 1950s of a LIA/RB kiln some 30m to the northeast of the current excavations. Ceramic thin sections will aim to analyse the clays used in the production of the local LIA/RB potteries and compare these to the nearest local sources. Comparisons will also be made will the material from Greenhouse Farm and Addenbrookes.

Another indicator of industry within the local area was a number of fragments of 'exotic' stone which included possible ores for metalworking.

10) Revised Research Aims and Objectives for Updated Project Design

10.1 Current research agendas and priorities

10.1.1 The overall statement of potential (Section 9) has shown that the War Ditches project has considerable scope for addressing the stated aims and objectives. The following research topics have been set out in consultation with the *Revised Research Framework for the Eastern Region* (Medlycott and Brown draft 2008), a number of the specific themes/ questions from which are particularly relevant to this project.

10.1.2 To improve the chronology for Early Iron Age pottery

Further work needs to be done on developing regional pottery sequences and establishing a chronology for pottery assemblages. While the chronology of Early Iron Age pottery is vaguely known, there is still a need to refine its chronology and to finalise the dating of the appearance of Middle Iron Age pottery. The Early Iron Age pottery assemblage from the War Ditches is well stratified within the ditch, providing the potential for AMS dating of all the stratified levels within the ditch currently dated by pottery to the Early Iron Age. The apparent lack of a Middle Iron Age presence at the site is of particular interest and requires further study.

10.1.3 To improve understanding of East Anglia's hill forts

The regional framework notes that 'many (but not all) hill forts in the region probably date to the Early Iron Age and other than Wandlebury and the recent published geophysics from Norfolk sites have seen little investigation in recent years. How the region's hill forts fit with the different interpretations advanced for hill forts in other parts of Britain needs more work.' The recent excavation at War Ditches is the first intervention at the site to have been undertaken using modern archaeological and scientific methods, providing important new information about the monument. The conclusions of the excavation will be compared to other hill forts both in the East Anglian region and other parts of Britain.

10.1.4 To examine evidence for later prehistoric flintworking

The role of later prehistoric flintworking and iron extraction within the region is still poorly understood and the War Ditches has produced a useful assemblage of flint with which to consider this theme, as well as possible ores.

10.2 Revised research aims

10.1.5 The overall statement of potential (Section 9) assessed the quality of the War Ditches data for addressing the research aims and objectives laid out in Section 10. The data

was deemed sufficient to address these issues (with one exception) and, in addition, a number of new research themes have been identified (Section 10.1).

11) Method Statements for Analysis

11.1 The Site Archive

11.1.1 Stratigraphic Analysis

The individual contexts/spits/fills will be analysed in relation to findings from the assessment and analysis of the finds and environmental data in relation to aims and objectives stated in sections 4 and 10. The site matrices will be updated subject to changes identified during this phase.

11.1.2 Illustration

Once the results from analysis have been collated the principal archaeologists will compile a list of required illustrations. These will include a site location plan, sections, illustrations of the cut, locations of previous interventions/ excavations as well as plates from the current excavation. The illustrations will be created using Adobe Illustrator CS3, AutoCAD and Photoshop.

11.1.3 Documentary and Archival Research

Stage One: Secondary resources

Literature review: Record all published and unpublished literature, on or including, discussion of the War Ditches/East Pit site and landscape. Create chronological list with full detail, in report form.

Searching of/visits to include: Cherry Hinton Local Studies Library, Cambridgeshire Collection, Haddon Library, Cambridge University Library, E-Publishing, Cambridge Archives, Cambridge HER, Other Resources

Stage Two: Primary resources

Record all discovered primary resources including cartographic material (enclosure and pre enclosure maps, tithe maps etc.) plans, aerial photographs, various documents- including legal papers, land surveys, private documents (wills, inventories, manorial records, college records etc.) and municipal files amongst others. Create chronological list with full detail, in report form.

Aerial Photography search including – National Monuments Record, The Duckworth Collection, Cambridge University Unit for Landscape Modelling Aerial Photograph Collection, Map search, Plan search, Owners List, College Archives, Cambridgeshire Collection, On line collections, HER search, University Library, Cambridge Archives, National Archives, Public Records Office, Folk Museum, Archaeology & Anthropology Museum, Haddon Library, Other Archive Depositories and/or collections, Oral history.

Stage Three: Wider research:

Looking at the local history and landscape history/archaeology. Gathering further information relating to sites and features of this type and style from wider literature review, using primary and secondary resources and site visits where appropriate, along with any possible national parallels.

Stage Four: Presentation of results, initial conclusions and suggestions.

Production of a comprehensive report, containing a full list of resources and references, including a break down of historical and archaeological data and information for the site, along with discussion, conclusions and suggestions. Presentation of results to be placed within the appropriate depositories.

11.1.4 Artefactual and Ecofactual Analysis

Subject to approval for further analysis the finds will be further studied by the relevant specialists with the intention of addressing the aims and objectives stated within the report. The specialists will be provided with the updated matrices and groups along with this document. Methodologies and costings (timings) for the individual analyses are set out in 10.2.

11.2 Proposals for Artefactual Analysis

The proposals for artefactual analysis along with a methods statement are set out below. Each piece of work has been allocated a task number and a week number in which the analysis will commence. A full list of tasks and the dates relating to the week number are listed in Tables 8 and 10 respectively.

11.2.1 Metalwork: Nina Crummy

No further analytical work is required for the metalwork. The specialist report and catalogue provided in Appendix E.1 will be edited for integration into the publication. Both of the brooches will require illustration.

11.2.2 Struck and Burnt Flint: Barry Bishop

Task 9: Week 3

Analysis and research*:* 6 days

Compile analysis report: 2 days

Total: 8 days

Cataloguing and fully describing the raw material, metrical, technological and typological characteristics of the assemblage, both in its own right and also to enable comparisons with similarly-dated assemblages (2.5 days).

Recording and describing the assemblage's spatial patterning, both within individual layers/phases and its distribution throughout the stratigraphic sequence, with particular emphasis on possible individual depositional episodes and any perceived chronological changes in technological choices (0.5 days).

Discussing the range of products that may have been manufactured, the ways they may have been used and how this may inform on the role and significance that worked flint held for those using it (0.5 days).

Conducting refitting exercises on key sub-assemblages to examine technological/reduction strategies and taphonomic processes of lithic discard and ditch infilling (1 day).

Considering the materials relationship with other artefact classes and the environmental data (0.5 day).

Examining how the material compares and contrasts to other contemporary lithic assemblages from the region as well as any from within 'hill fort' contexts (eg Humphrey 2005) (1 day).

Compile analysis report (2 days).

11.2.3 Petrology: Dr Kevin Hayward

Task 10: Week 3

Analysis and research*:* 2

Compile analysis report: 1

Total: 3 days

In order to assess the local geology and suitable materials for use in whetstones etc, geological memoirs and maps will first be consulted. Hand specimen comparative analysis will be undertaken in order to identify the geological character, and where possible, the source of the material. This methodology has been employed at other prehistoric, and Roman sites in Cambridgeshire and East Anglia e.g. Vicars Farm and Kilverstone and comparison will also be made with these assemblages. A catalogue of stone identifications will be made.

- The stone fragments will be examined and their likely origin established.
- The quern stones will be described and where possible, their original forms determined.
- The exotic stones will be similarly described and the possible purposes for their importation, including their possible economic and social utility, discussed.

11.2.4 Early Iron Age Pottery: Matt Brudenell

Task 11: Week 4

Add pottery identified by AL to catalogue 0.5 day

Update report and tables: 1.5 day

Examine War Ditches pottery found by Lethbridge and McKenny Hughes: 1 day

Extend discussion to incorporate radiocarbon dates and petrological work, and provide a broader comparative overview: 1 day

Total 4 days

Residual earlier Iron Age pottery identified by Alice Lyons in the top fills of the ditch needs to be analysed, recorded and incorporated into the Early Iron Age ceramic data sheets. This will then provide a complete catalogue of all the Early Iron Age pottery from the excavations. Refinement or simplification of the fabric series and chronological phasing of the pottery will depend on results from radiocarbon dating and any petrological work on select fabric groups. The result of these will need to be assessed and built into the discussions. Further exploration of local parallels for the pottery is also needed. In particular, it would be worth re-looking at Early Iron Age material discovered on the site by Lethbridge and McKenny Hughes (in the Musuem of Archaeology and Anthropology). This can be combined with the authors previous investigation of White's excavated pottery, to give a complete overview of the Early Iron Age ceramics from the site. More detailed comparison is also needed with the pottery from Wandlebury and Greenhouse Farm.

11.2.5 Late Iron Age and Romano-British pottery: Alice Lyons

Task 12: Week 10

Analysis of data and preparation of tables for report: 10 days

Writing of analysis report: 3 days

Total 12 days

The assemblage will be analysed in accordance with the guidelines laid down by the Study Group for Roman Pottery (Webster 1976; Darling 2004; Willis 2004). The complete assemblage will be examined and a full catalogue recorded on a digital database (EXCEL or ACCESS).

A detailed analysis of the fabrics, using both visual (at least x20 magnification) and thin section analysis, will help to identify what material was made on site and what was imported. The identification of locally produced material will demonstrate indigenous skills and craftsmanship and will also reflect how (home/workshop/industrial) the

production of these vessels was organised. The recognition of imported material will inform on trade routes (interaction) and the status (settlement hierarchies) of the community that deposited the pottery.

An analysis of the forms will be undertaken to establish what functions the ceramic vessels were being used for and how these vessels changed through time in association with the introduction of new techniques of manufacture. Residue analysis will provide an insight into the contents of these pots, while the carbonised residue material may also be used for AMS C14 dating.

Comparison of this data with other key ceramic groups in the region will allow a fuller understanding of how the settlement at War Ditches functioned in the wider social community.

The results of this analysis will be presented in an archive (technical) report with a full list of fabrics and forms present.

11.2.6 Late Iron Age and Romano-British kiln debris, CBM and baked clay: Alice Lyons

No further analytical work is required for this material, although a closer examination of the seeds within one of the Fabric 2 daub fragments may identify the species. The specialist report and catalogue provided in Appendix E.6 will be edited for integration into the publication.

11.2.7 Thin section analysis (EIA & LIA pottery assemblages)

Task 13: Week 14

Analysis of slides: 2 day

Writing of analysis report: 2 day

Total 4 days

Five pottery samples from each of the ten main visually identified LIA fabrics and six EIA fabrics will be selected for thin section analysis.

From each sample a thin-section slide will be prepared followed the methodology outlined in Gribble and Hall (1992, 32-34) and microscopically examined, allowing the components of the clay body and its inclusions to be identified.

11.3 Proposals for Ecofactual Analysis

11.3.1 Faunal Remains: Chris Faine

Task 14: Week 3

Full recording of the assemblage: 5 days

Analysis/Report writing: 2 days

Total: 7 days

The data will be analysed using standard OA methodology for full analysis. Each element will be be identified to species where possible using comparative collections and reference manuals. Siding will also be noted for the purposes of calculating MNI's. Where applicable the number of diagnostic zones will be noted for each element (after Serjeantson, 1996). Epiphyseal fusion data will also be noted (after Silver, 1969). Tooth wear data for domestic mammal loose molars and mandibles (after Grant, 1982) will also be noted to provide further ageing data. In addition to adult molars the presence of any other teeth, i.e. deciduous, will also be noted. Where possible sexing will be carried out via morphological criteria (e.g. Hatting, 1995, and Armitage & Clutton-Brock, 1976) or metrical analysis (e.g. Grigson, 1982, & Ruscillo, 2006). Metrical analysis will largely follow von den Driesch (1976). Together this information will also be used to aid in species differentiation, e.g. between sheep and goat (after Boessneck, 1969 and Halstead, Collins & Isaakidou, 2002) and horse vis other equids (after Baxter, 1998). As with the assessment, the preservation of each element will be assessed using a numbered scale of 0-5, with 0 representing excellent preservation and 5 being so badly degraded that identification is impossible. Finally the presence of any taphonomy (butchery, burning, gnawing etc.) and pathology will be noted and described.

11.3.2 Human Remains: Natasha Dodwell

Task 15: Week 2

Analysis of material: 0.5 days

Writing of analysis report: 0.5 days

Total: 1 day

An inventory of the skeletal elements needs to be compiled. An assessment of age and an estimate of stature should be calculated and any pathological lesions recorded. It will not be possible to determine sex. Human burials dating from the Bronze Age, Iron Age, Roman and Saxon periods have been identified in the immediate locale and it is therefore recommended that C14 dates are obtained from the human bone in both contexts. Priority should be given to dating the articulated individual, many of whose bones were recovered prior to the excavation and their precise position in the sequence of ditch fills is ambiguous. Once the material has been dated and recorded in detail the human remains will need to be discussed with reference to other finds from the ditch and the immediate landscape.

11.3.3 Plant Macrofossils: Rachel Ballantyne

Task 16: Week 7

Analysis of material: 4 days

Writing of analysis report: 3 days

Total: 7 days

It is recommended that a number of the Group 8 to 3 bulk samples should be fully processed to maximise the recovery of charred plant remains.

The possible movement of smaller items down the profile suggests that, to improve confidence that the charred plant remains examined are originally associated with each group, samples should ideally be from mid to lower fills within each group.

The suggested range of bulk samples (and their contexts) to be fully processed and analysed for charred plant macroremains is thus:

- Group 8: samples <1> **3** and <3> **6** (sample <2> **4** already fully processed)
- Group 7: samples <5> **5**, (S.32), <7> **5** (S.27), <8> **5** (S.25), <9> **5** (S. 31), <10> **52** (S.56), <12> **52** (S.57)
- Group 6: no samples recommended other than as already exists
- Group 5: samples <21> **107** (S.116), <22> **107** (S.108), <23> **107** (S.113), <24> **107** (S.114), <26> **121** (S.122)
- Group 4: samples <38> **183**, <40> **185** (S.189)
- Group 3: samples <41> **202** (S.206), <42> **202** (S.208)
- Group 2: sample <52> **249** (S.251)
- Group 1: no samples unless also required for recovery of other remains

Each sample should be processed as for this assessment: by flotation sieving using a Siraf tank (Williams 1973). The flots should be collected over 0.3mm mesh, and the heavy residue over 1mm or 0.3mm mesh, depending on whether mollusc analysis is also desired for that sample. Both flots and residues should be dried prior to sorting.

Sorting of flots will require a low-power binocular microscope (x0.5–x40), with access to a seed reference collection and relevant seed atlases. All items should be identified where possible, and quantified numerically to minimum numbers of individuals (e.g. grains, chaff items, seeds/fruits). Taxonomy would follow Stace (1997) and the morphological taxonomies in Zohary and Hopf (2000) for cereals.

Full microscope analysis of the plant macrofossils could be expected to take 4 days, with an additional 3 days required for tabulation, analysis and interpretation of results,

including more detailed comparison with existing ring monument and smaller settlement assemblages from the region.

Formal charcoal assessment may be desirable for the Group 8, 4 and 3 ring ditch contexts noted above that appear to represent nearby or *in-situ* fires (samples <2>, <38>, <40>, <41>, <42>). Such work would require access to a high-power microscope with transmitted and reflected light, appropriate reference collections and identification literature and could be expected to take *c*. 2 days (a separate quote is required, and should be commissioned after the additional proportions of the selected bulk samples have been flotation sieved).

11.3.4 Land Snails: Liz Stafford

Task 17: Week 11

Scan flots: 2 days

Report writing and consideration of contextual data: 1.5 days

Total: 3.5 days

It is recommended that a proportion of both the flots and residues are more comprehensively scanned to provide a full species list and that identifications are confirmed by comparison with modern reference collections held at Oxford Archaeology South and the Oxford University Museum of Natural History (with particular reference to V. angustior, V. pulchella and Carychium minimum). Further processing of sediment should not be necessary providing the fine residues from the bulk samples are available for scanning to 0.5mm. As the results within each phase were broadly similar scanning of two flots per phase should be adequate (total of 16 samples). Further consideration of the lithology and formation processes associated with individual contexts in relation to the shell assemblages will also be undertaken. A full publication report will be produced supported by tables which will include reference to the abundance of each individual species using an annotated scale. Nomenclature follows Kerney (1999) and habitat information follows Evans (1972).

11.4 Project Team Structure

Name	Initials	Project Role	Establishment
Mark Hinman	MH	Academic consultant	OA East
Richard Mortimer	RM	Project Manger / Co-Author	OA East
Elizabeth Popescu	EP	PX & Publications Manager/ Editor	OA East
Alex Pickstone	AP	Project Officer/Co-Author	OA East
Michelle Bullivant	MiB	Researcher/Community liaison	Freelance
Natasha Dodwell	ND	Human skeletal remains	Freelance
Matt Brudenell	MB	Earlier Iron Age pottery	Freelance
Alice Lyons	AL	Late Iron Age & Roman pottery, CBM and fired clay	OA East
Liz Stafford	LS	Snails	OA South
Nina Crummy	NC	Metalwork	Freelance
Chris Faine	CF	Faunal remains	OA East
Barry Bishop	BB	Lithics	Freelance
Rachel Ballantyne	RB	Plant macrofossils	English Heritage
Rachel Fosberry	RF	Environmental coordination	OA East
Steve Wadeson	SW	Finds coordination	OA East
John Meadows	JM	C14	English Heritage
Kevin Hayward	KH	Petrology	Freelance
Denise Druce	DD	Charcoal ID	OA North
Alice Lyons	AL	Thin sectioning	OA East
Illustrator	ILL	Illustrator	OA East

Table 5: Project Team

12) Outline Publication Synopsis

12.1.1 It is proposed that the results will be published as an article in the *Proceedings of Cambridge Antiquarian Society*. The editor has given approval in principle to accept the article.

12.1.2 Details of the proposed content of the article are as follows:

Excavations at the War Ditches, Cherry Hinton, Cambridge: further excavations of the Early Iron Age Ring Monument

by

Alexandra Pickstone, Richard Mortimer and Mark Hinman

Introduction (*c* 2,000 words)

- Project background
- Geography, topography and location
- Archaeological background
- Excavation methodology
- Chronology and phasing

The Early Iron Age (*c* 1,000 words)

- Monument construction & initial use
- Rampart destruction/levelling
- Post-levelling occupation
- Internal features

The later Iron Age and Early Roman Occupation (*c* 1,500 words)

- Later Iron Age reoccupation
- The settlement evidence
- Finds distributions within the ditch
- The final infilling

The Post-Medieval Period (*c.* 500 words)

- Enclosure Acts
- The Quarries
- The First World War

The Finds (*c.* 6,500 words)

- Neolithic and Bronze Age finds (struck flint and ceramic) by B Bishop
- Early Iron Age Pottery by M Brudenell
- Early Iron Age Struck and Burnt Flint by B Bishop
- Late Pre-Roman Iron Age Pottery by A Lyons
- Thin Section Analysis by A Lyons
- The Metalwork by N Crummy
- Fired Clay Assemblage by A Lyons
- Worked and Other Stones by K Hayward

Environmental Evidence (*c.* 2,200 words)

Human remains by N Dodwell
Faunal Remains by C Faine
Charred Plant Remains by R Ballantyne
Charcoal by D Druce
Land Snails by E Stafford
Pottery Residue
AMS Dating

Discussion (*c.* 2,300 words)

Monument Inception, Construction and Use
Economy and Material Culture in the Early Iron Age
Monument Negation and Abandonment
Reoccupation
Economy and Material Culture in the Later Iron Age
Monument Destruction
Re-evaluation of Historical Interventions
Conclusions

Bibliography (*c.* 1,000 words)

TOTAL WORDS ***c.17,000*** (at 1,200 per page = 14 pages)

Approximate numbers of (pages of) illustrations 10

13) Resources and Programming

13.1 Stages

Stage No.	Description
1	Project Planning – Design and Set-up
2	Fieldwork
3	Assessment and Updated Project Design
4	Analysis
5	Publication
6	Archiving

Table 6: Stages

13.2 Products

Product No.	Stage	Product Description	Timetable for Completion
6	3	Production of Post-Excavation Assessment and UPD	March 2010
7	4	Production of Full Report	November 2010
8	5	Publication	December 2011
9	6	Archiving	December 2011

Table 7: Products for Stages 4 – 6

13.3 Tasks

13.3.1 Task numbers identified in the table below follow on consecutively from those already conducted during Stages 1 -3. Project week numbers refer to the timetable indicated in Table 10.

Task No.	Task Description	Duration (days)	Week no.	Staff
1	Project management/meeting	3, 1, 1	1,4,12	RM, MH, EP
2	Liaison with specialists and transfer of materials including the updated matrices	1, 1, 1	1	AP, SW, RF
3	Process 420 litres recommended environmental samples	4	1	RF
4	Sort 420 litres recommended environmental samples	2	2	RF
5	Preparation of samples for C14	1	1	RF
6	C14 meeting	0.5, 0.5, 0.5	4	AP, RM, CF
	Stratigraphic analysis			
7	Update site matrices following assessment stage	1	1	AP
8	Update database following assessment stage	0.5	1	AP
	Specialist analysis			
9	Struck and burnt flint	8	3	BB
10	Petrology	3	3	KH
11	EIA pottery	4	4	MB
12	LPRIA – Roman pottery	12	10	AL
13	Thin section analysis	4	14	AL
14	Faunal remains	7	3	CF
15	Human Skeletal remains	1	2	ND
16	Plant macrofossils	7	7	RB
17	Land Snails	3.5	11	LS
	Full report			
18	Compilation and analysis of data from specialists	2, 5	15	RM, AP
19	Write up C14	0.5	20	AP
20	Background research (Collate previous interventions and documentary sources)	2, 4, 8	5	RM, AP, MiB
21	Background research (Related sites and excavations)	2, 5	17	RM, AP
22	Write main body of text	2, 5, 15	20	MH, RM, AP
23	Compilation of tables	1	20	AP
24	Report Figures	4	21	ILL
25	Plates	0.5, 0.5	22	AP, ILL
26	Integrate specialist reports	1	22	AP
27	Edit full report	2	23	EP
28	Print and distribute full report	0.5	23	ILL

Table 8: Task identification and timetable for Stage 4

13.4 Estimated Overall Budget

13.4.1 The estimated overall budget for Stage 4 (Analysis) is set out below. Costings for Stages 5 and 6 (publication and archiving) will be provided after the satisfactory completion and approval of Stage 4.

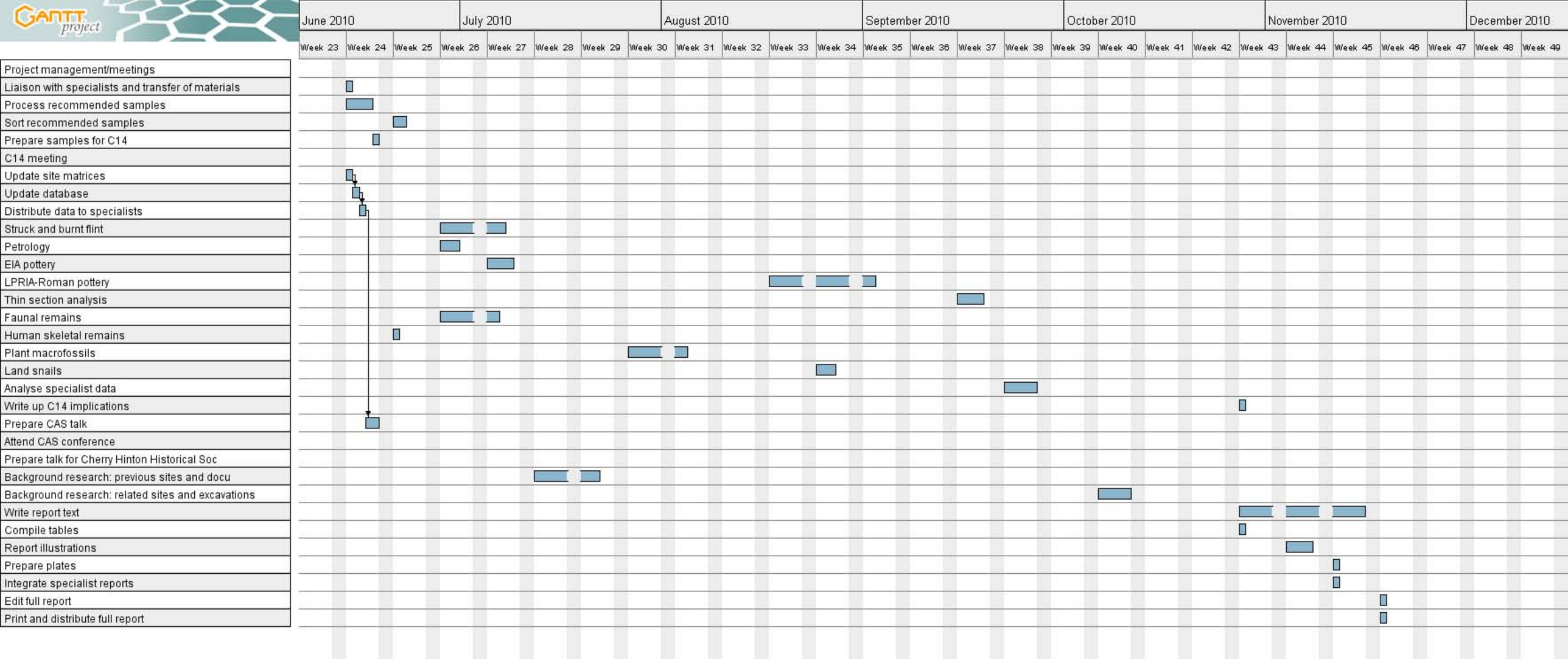
Staff/Item	Initials / Description	No. Days	Day rate	Cost	Total
A) OA Staff					
Post-Ex Manager/ Editor	EP	3	201.31	603.93	
Academic Consultant	MH	3	201.31	603.93	
Project Manager/ Co-Author	RM	14.5	201.31	2918.99	
Project Officer / Co-Author	AP	35	166.18	5816.30	
Illustrator	ILL	5	166.18	830.90	
Finds Supervisor	SW	1	133.53	133.53	
Environmental Supervisor	RF	7	133.53	934.71	
TOTAL					**11842.29**
B) Internal specialists					
LS	Snails	3.5	201.31	704.58	
CFa	Faunal remains	7	133.53	934.71	
AL	LIA & RB pottery &	12	166.18	1994.16	
	Thin Sectioning	4	166.18	664.72	
					4298.17
C) External specialists					
MiB	Documentary & Historical Background	8	180	1440	
BB	Struck & Burnt Flint	8	180	1440	
MB	EIA pottery	4	180	720	
KH	Petrology	2	180	360	
ND	HSR	1	180	180	
					4140
D) EH specialist					
RB	Plant macros	7	-	-	-
JM	C14	TBC	-	-	-
E) Non-staff costs					
Thin section analysis	70 samples x £15 each			1050	
Printing/binding				150	
Transport				50	
Total					**1250**
F) Overheads					
Overheads @ 25% of A, B & E					**4347.61**
Overheads at 10% of C					**414**
Gross total					**26292.07**

Table 9: Costs to completion of Stage 4

13.5 Timetable

Project Week	Week commencing		Project Week	Week commencing
1	14/06/10		13	06/09/10
2	21/06/10		14	13/09/10
3	28/06/10		15	20/09/10
4	05/07/10		16	27/09/10
5	12/07/10		17	04/10/10
6	13/07/10		18	11/10/10
7	26/07/10		19	18/10/10
8	02/08/10		20	25/10/10
9	09/08/10		21	01/11/10
10	16/08/10		22	08/11/10
11	23/08/10		23	15/11/10
12	30/08/10		24	22/11/10

Table 10: Week numbers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July 2010
August 2010
September 2010
October 2010
November 2010
December 2010
Week 23
Week 24
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Week 30
Week 31
Week 32
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Week 34
Week 35
Week 36
Week 37
Week 38
Week 39
Week 40
Week 41
Week 42
Week 43
Week 44
Week 45
Week 46
Week 47
Week 48
Week 49
Project management/meetings
Liaison with specialists and transfer of materials
Process recommended samples
Sort recommended samples
Prepare samples for C14
C14 meeting
Update site matrices
Update database
Distribute data to specialists
Struck and burnt flint
Petrology
EIA pottery
LPRIA-Roman pottery
Thin section analysis
Faunal remains
Human skeletal remains
Plant macrofossils
Land snails
Analyse specialist data
Write up C14 implications
Prepare CAS talk
Attend CAS conference
Prepare talk for Cherry Hinton Historical Soc
Background research: previous sites and docu
Background research: related sites and excavations
Write report text
Compile tables
Report illustrations
Prepare plates
Integrate specialist reports
Edit full report
Print and distribute full report

Appendix A. Health and Safety Statement

OA East will ensure that all work is carried out in accordance with relevant Health and Safety Policies, to standards defined in *The Health and Safety at Work, etc. Act, 1974* and *The Management of Health and Safety Regulations, 1992,* and in accordance with the manual *Health and Safety in Fieldwork Archaeology* (SCAUM 1997).

OA East has Public Liability Insurance. Separate professional insurance is covered by a Public Liability Policy.

Full details of the relevant Health and Safety Policies and the unit's insurance cover can be provided on request.

Appendix B. Product Description

Product number: 7
Product title: Full report (Analysis – Stage 4)
Purpose of the Product: To analyse the site and address the research aims and objectives set put in Stage 6
Composition: Standard analysis report, in accordance with relevant EH guidelines
Derived from: Analysis of site records, specialist reports and data and background research
Format and Presentation: PDF documents derived from Open office/word document and Adobe Illustrator.
Allocated to: Richard Mortimer (RM), Alex Pickstone (AP)
Quality criteria and method: Checked and edited by Elizabeth Popescu (EP)
Person responsible for quality assurance: RM
Person responsible for approval: EP
Planned completion date: November 26th 2010 (submission of analysis report to EH)

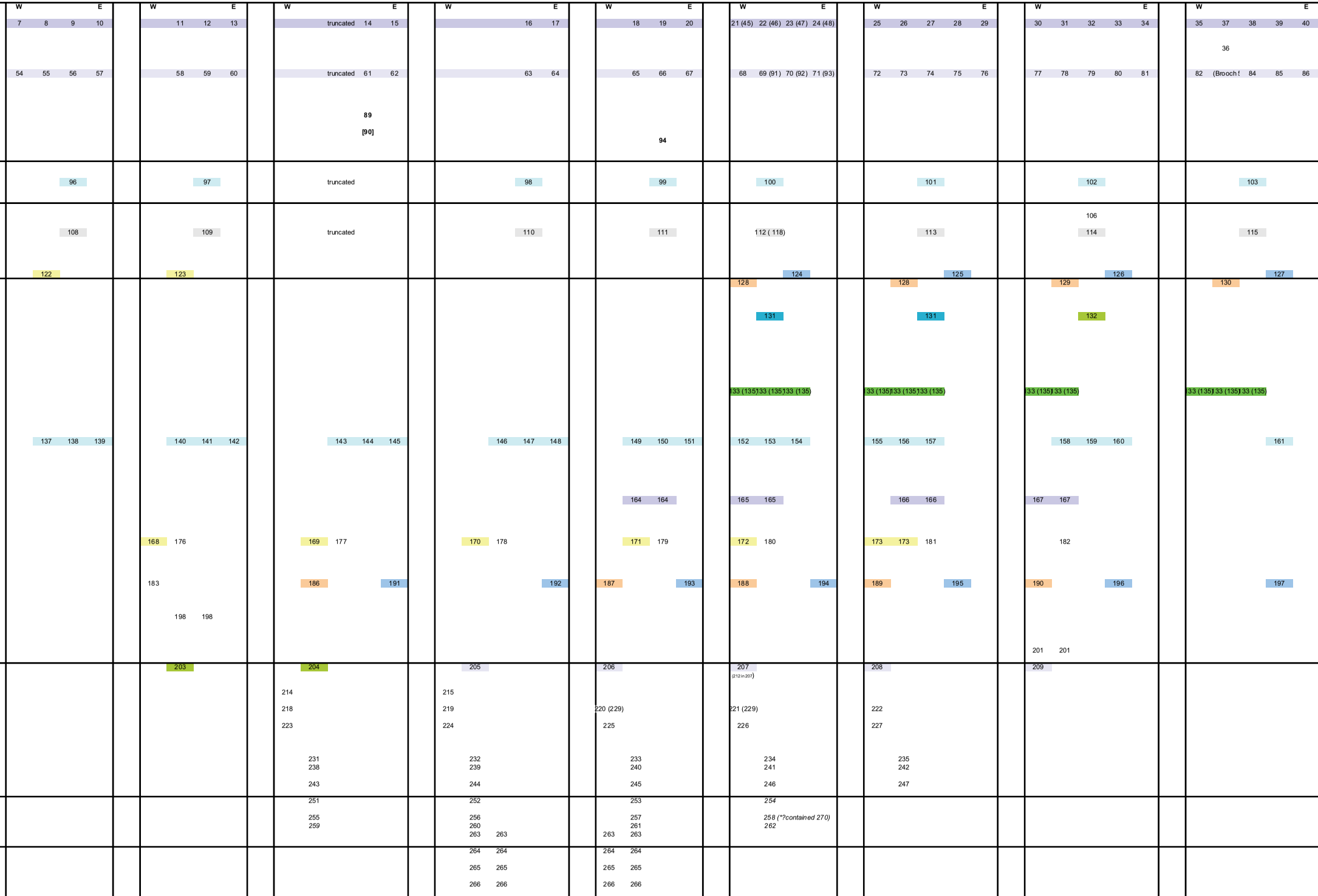
Appendix C. Risk Log

Risk Number: 1
Description: Specialists unable to deliver analysis report due to over running work programmes/ ill health/other problems
Probability: Medium
Impact: Variable
Countermeasures: OA has access to a large pool of specialist knowledge (internal and external) which can be used if necessary.
Estimated time/cost: Variable
Owner: RM/AP
Date entry last updated:

Risk Number: 2
Description:non-delivery of full report due to field work pressures/ management pressure on Co-authors
Probability: Medium
Impact: Medium - High
Countermeasures: Liaise with OA Management team

Estimated time/cost: Variable
Owner: RM/AP
Date entry last updated:

South end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APPENDIX E. FINDS REPORTS

E.1 The Metalwork

by Nina Crummy

E.1.1 The assemblage consists of two copper-alloy brooches and an iron nail. Both the brooches are Late Iron Age types. The nail cannot be closely dated.

E.1.2 SF 1 is an imported type that is rare in Britain. It is the forerunner of the Rosette or Thistle brooch, but, instead of having a spring-cover like the main group of Rosettes, the spring mechanism is the same as that of the Colchester type with a forward hook securing the external chord. The War Ditches example has lost its central disc, which would have masked the clumsy offset junction between bow and foot. On the continent the type is generally considered to be Augustan, but there are earlier examples and Feugère has suggested that the dating should be revised to reflect this (1985, 269). The date-range of 30 BC to AD 30 offered by Hattatt is probably therefore set too late. Most of the British examples are from the eastern region: with those closest in form to the War Ditches brooch coming from Camulodunum in Essex, Braughing and Skeleton Green in Hertfordshire (two), and Bradwell in Norfolk (Hull forthcoming, Type 25A-B; Mackreth 1981, fig. 70, 41; Hattatt 1987, 31). Dating available from these brooches is scarce, but the Skeleton Green brooches and the evidence from Gaul points to a date in the later part of the 1st century BC, running into the early years of the 1st century AD.

E.1.3 SF 2 is a one-piece Colchester brooch, dating to *c*. AD 10-50. Colchesters are a Catuvellanian/Trinovantian type and were made in considerable numbers, with large assemblages found at both Verlamion and Camulodunum, where they are the principal type present before the conquest (Hull forthcoming, Type 90; Stead & Rigby 1986, 112; 1989, 17, 89-91; Niblett 2006, figs 9-10; Hawkes & Hull 1947, 308-10). They are likely to have been made by many smiths scattered across the two tribal zones, rather than by one or two larger workshops, and limited evidence for their manufacture has been found at Baldock in Hertfordshire (Stead & Rigby 1986, 122-3; Bayley & Butcher 2004, 36). They essentially belong to the reign of Cunobelin, with production ceasing at the conquest, if not slightly earlier at the time of his death, and stratigraphic evidence suggests that the majority in use in AD 43 would have been deposited by *c*. AD 50. Although concentrated within the two tribal zones, their distribution is also much wider, extending north to Lincolnshire and Yorkshire, west to Gloucestershire and south into Kent, reflecting the trade routes and expansionist policy of Cunobelin.

E.1.4 Stratigraphically, SF 1 appears to have been deposited slightly later than SF 2. This implies both that the proto-Rosette was in use after *c*. AD 10, which is the very earliest that SF 2 could have been lost, and that SF 2 belongs early in the date-range for Colchesters to allow it to have been deposited before SF 1. A general date-range of c. AD 10-20 for the loss of both would seem to be appropriate, although there is always the possibility that SF 1 was curated beyond its usual horizon of use.

E.1.5 SF 1. **52** (S. 53, G.7) . Complete copper-alloy proto-Rosette brooch, missing its disc. The spring has six coils, with the external chord secured by a tiny hook. The bow is of rectangular section, sharply arched and decorated with two median grooves. It tapers to an offset junction with the foot, which is plain and flat and ends in a blunt terminal. The

junction would have been covered by the missing disc, or rosette. The sheath-like catchplate is set at the centre of the back of the foot. Length 46 mm.

E.1.6 SF 2. **107** (S.113, G.5). Complete Colchester brooch, with plain rounded bow. The spring has eight coils, with the external chord secured by a forward hook. The short side wings are plain. The catchplate has three perforations arranged in a triangle. Length 49 mm.

E.1.7 SF 5. **5** (G.5). Incomplete iron nail with damaged round head. Length 24 mm.

E.2 Lithics

By Barry Bishop

Introduction and methodology

E.2.1 This report assesses the struck flint and burnt flint that was recovered in 2009 during the emergency excavation at War Ditches. It follows the methodology and recommendations encapsulated in both MAP2 and MoRPHE (English Heritage 1991; 2006). It is not intended as a definitive account but aims to quantify and briefly describe the material, provide a guide to its significance in terms of its potential to contribute to the stated research aims and objectives, and recommend any further work needed for it to achieve its full research potential.

E.2.2 Every piece of struck flint and burnt flint was individually examined by eye and catalogued by context according to a basic typological/technological scheme onto a MicroSoft Access database (see Table 12).

Quantification

E.2.3 A total of 236 struck flints and just over 2.2 kg of otherwise unmodified burnt flint were recovered during the excavations (Table 11).

Group	Decortication Flakes	Flake	Flake Fragment	Unsystematic Blade	Systematic Blade	Core	Conchoidal Chunk	Retouched	Micro-debitage	Total	Burnt Stone (no)	Burnt Stone (wt:g)
1		2	1			5	8			16	0	
2	5	7	2			1	3			18	1	30
3	2	2				3		1		8	4	27
4	14	21	17	1	1	10	35	3		102	50	1598
5	3	5	2			4	14			28	1	3
6	1	1				1	4			7	4	110
7	3	17	6			3	10	1	2	42	14	366
8		3								3	1	6
Test Pit Excavations	1		2			1				4		
Unstratified	1	3					2	2		8	3	95
Total (no.)	**30**	**61**	**30**	**1**	**1**	**28**	**76**	**7**	**2**	**236**	**78**	**2235**
Total Struck (%)	***12.7***	***25.8***	***12.7***	***0.4***	***0.4***	***11.9***	***32.2***	***3.0***	***0.8***	***99.9***		

Table 11: Quantification of Lithic Material from War Ditches

E.2.4 Virtually all of the material came from the fills of the ditch, with struck flint being present in all phases of its infilling and burnt flint in all but the first phase. Its stratigraphical distribution is markedly uneven, however, with the greatest quantities of struck flint and burnt flint coming from Group 4 and, to a lesser extent, Group 7, with the other phases contributing relatively minor sub-assemblages. The typological composition of the struck

flint assemblages from the different phases also varies. This may reflect different uses and tasks to which the assemblages were put and/or variations in the technological strategies used to produce the flint.

E.2.5 In addition to those from the ditch, four struck pieces were also recovered from the test-pit excavations (**506**), and small quantities of both struck flint and burnt flint were recorded as being from unstratified contexts.

Burnt Flint

E.2.6 Seventy-five pieces of burnt stone weighing 2140g, all consisting of flint, were recovered from the ditch with three further pieces recovered from unstratified contexts. These all appear unmodified apart from by being burnt, although due to the destructive nature of the burning some of these pieces may have previously been worked but are no longer identifiable as such. In addition, a number of struck flints had also been burnt. The degree of burning is variable but all burnt pieces had changed colour and become fire-crazed. The quantities present are most consistent with the disposal of hearth waste, rather than any large-scale or deliberate production although the material from Group 4 may indicate either in-situ fires or the persistent disposal of hearth waste.

Struck Flint

Raw Materials

E.2.7 The struck assemblage is manufactured predominantly from a thermally flawed semi-opaque and a slightly 'sugary' greyish brown flint that contains frequent fossiliferous and cherty inclusions. A few flakes of 'glassy' translucent black flint and of opaque grey flint are also present.

E.2.8 The raw materials appear to consist of thermally shattered but otherwise relatively unweathered nodular flint cobbles that were relatively small, with very few flakes exceeding 50mm in maximum dimension. No flint is present in the chalk at the site but glacially affected nodular flint can be found in local till deposits and as 'erratics' within the surface (topsoil) deposits in the vicinity.

Condition

E.2.9 The assemblage is mostly in a good and frequently a sharp condition. A few flakes show minor edge abrasion consistent with post-depositional damage, such as through 'trampling', and others have almost certainly have been utilised, but overall the assemblage appears to have been deposited into the ditch shortly after manufacture/use. Although systematic refitting was not attempted some pieces are evidently refittable (e.g. **107**, G. 5) and further sequences are likely to be present. A few pieces are more chipped and abraded and it is possible that these have been residually deposited from dynamic burial environments such as plough soils. Recortication is evident on some of the pieces but it is very variable in its extent. Mostly it is very light or incipient but a few pieces are heavily recorticated and, although recortication cannot be used as reliable guide to dating, these mostly belong to much earlier industries than that of the bulk of the material and probably represent residual material.

Technology, Typology and Dating

E.2.10 No formally diagnostic implements are present. The bulk of the assemblage is the product of a limited and opportunistic reduction strategy. There are high proportions of mis-struck flakes and shattered material, most of the latter comprising cores that have disintegrated during reduction, primarily due to the rather poor qualities of the raw materials but also partly due to the inadept and seemingly ill-considered approach that

was often taken towards producing flakes. In a few instances, this makes identification as deliberately manufactured pieces problematic, as they also resemble 'incidentally' struck flints produced through mechanical processes such as ditch digging. The lack of flint within the local chalk renders this unlikely, however, as little natural flint is present in the immediate vicinity of the ditch.

E.2.11 The flakes produced are irregular in shape and size but are mostly short and thick and have wide, unmodified striking platforms. Many have been affected by the thermally flawed nature of the raw materials and exhibit features such as step fracturing or have thermal facets on their ventral surfaces.

E.2.12 Very few retouched pieces are present, those that are being mostly limited to rather irregularly produced scraping-type tools, although a number of flakes do show edge damage consistent with scraping and cutting-type tasks. In addition, several of the cores appear to have been primarily reduced for use as heavy-duty scraping or chopping-type implements.

E.2.13 The bulk of the assemblage is therefore the product of a very expedient technology and was formed through little more than randomly striking pieces of raw material until suitable working edges were formed, either on the flakes or the cores themselves. Such technologies are characteristic of industries dating to the later second and the first millennia BC (Young and Humphrey 1999; Humphrey 2003; 2007) and are likely to be contemporary with the ditch's infilling.

E.2.14 Although the bulk of the assemblage dates to the latter parts of the prehistoric period, a few pieces almost certainly pre-date this. These include: a systematically produced blade of Mesolithic or Early Neolithic characteristics, recovered from **183** (G.4); the core from **184** (S.195, G.4) which perhaps is most typical of Later Neolithic or Early Bronze Age examples; an unstratified invasively worked scraper, comparable to 'thumbnail' types which are normally dated to the Early Bronze Age, and a few other flakes, most of which are heavily recorticated, and are also most comparable to those from pre-Iron Age industries. All of these are therefore most likely to have entered the ditch long after they were manufactured. There is always the possibility that these had been found and recognised as antique or exotic objects and subsequently deliberately deposited into the ditch, but their limited numbers would favour the more prosaic explanation that they represent fortuitously deposited residual material present at the site prior to the digging of the ditch.

Significance and Potential

E.2.15 This report represents the preliminary findings from the initial examination and cataloguing of the material. A small component of the assemblage probably reflects residual material, incorporated into the ditch from elsewhere. Although its interpretative value is limited, it does provide evidence for pre-Iron Age activity in the vicinity of the site.

E.2.16 The majority of the struck flint was probably produced more-or-less contemporaneously with the infilling of the ditch and the use of the monument, and suggests sporadic episodes of flintworking were one of the activities conducted there.

E.2.17 It contributes much needed additional evidence for a continuation of structured flintworking into the Iron Age that is of enhanced significance in that it represents, for its period, a large, securely stratified and ultimately well-dated corpus of flintwork that

appears to have been manufactured and deposited throughout much of the Iron Age and may even continue into the Early Roman period.

E.2.18 The reality and characteristics of flintworking during this time has been much discussed and Iron Age flintworking is now generally accepted and its further investigation seen as a research priority (Haselgrove et al. 2001, 21). Despite much recent work (eg Humphrey 2007), specific changes in the typological and technological characteristics of struck flint industries through the late second and the first millennia BC are still inadequately documented and remain poorly understood. Furthermore, the nature and significance of flint tool production and use have also been little explored and there has been even less emphasis placed on understanding the social consequences of flintworking during these periods. The assemblage's potential chiefly lies in its ability to inform on the poorly understood changes in lithic typology and technology, depositional practices and the role and utility of lithic artefacts during the Iron Age.

Recommendations and Further work

E.2.19 It is recommended that the material of probable Iron Age date should be examined and described in detail and, alongside illustrations of the most relevant pieces, presented in any published account of the fieldwork.

E.2.20 The remainder of the assemblage indicates low-key activity spanning the Mesolithic to Bronze Age in the vicinity of the site and this should be briefly described and mentioned in any published account of the site.

E.2.21 In order to achieve this further work is required. For the Iron Age material this should have the aims of:

E.2.22 Cataloguing and fully describing the raw material, metrical, technological and typological characteristics of the assemblage, both in its own right and also to enable comparisons with similarly-dated assemblages.

E.2.23 Recording and describing the assemblage's spatial patterning, both within individual layers/phases and its distribution throughout the stratigraphic sequence, with particular emphasis on possible individual depositional episodes and any perceived chronological changes in technological choices.

E.2.24 Discussing the range of products that may have been manufactured, the ways they may have been used and how this may inform on the role and significance that worked flint held for those using it.

E.2.25 Conducting refitting exercises on key sub-assemblages to examine technological/reduction strategies and taphonomic processes of lithic discard and ditch infilling.

E.2.26 Considering the materials relationship with other artefact classes and the environmental data.

E.2.27 Examining how the material compares and contrasts to other contemporary lithic assemblages from the region as well as any from within 'hill fort' contexts (eg Humphrey 2005).

Context/Spit	Decortication Flakes	Flake	Flake Fragment	Unsystematic Blade	Systematic Blade	Core	Conchoidal Chunk	Retouched	Micro-debitage	Context Total	Comments	Burnt Flint (no)	Burnt Flint (wt:g)
003		3								3	One flake burnt	1	6
005		1					2	1		4	Implement is thick flake with steep irregular convex retouch - scraper-type. F is burnt. CCs possible natural		
009		2								2		1	56
010		1								1			
013		1								1	Thermal ventral		
016	1									1	Mostly thermal ventral		
019		1								1			
026		2							1	3		3	106
028										0		1	3
030		1								1	Thermal ventral		
038			1							1	Slightly burnt		
039	1	1								2	BF refits	1	2
041		1	1							2	FF burnt		
047										0		3	6
049										0		1	50
052							2			2	Shattered core		
055		1				2				3	One core is minimal and burnt, other also minimal and has a steep edge cf heavy-duty scraper - core tool? F has thermal ventral. CC possibly natural		
056									1	1			
058							1			1		2	39
065		1								1			
066		1					1			2	F has thermal ventral, possibly natural	1	3
077		1	2				2			5	Shattered cobbles - failed knapping attempts?		

Context/Spit	Decortication Flakes	Flake	Flake Fragment	Unsystematic Blade	Systematic Blade	Core	Conchoidal Chunk	Retouched	Micro-debitage	Context Total	Comments	Burnt Flint (no)	Burnt Flint (wt:g)
078	1						1			2	CC shattered core		
082			2							2			
085							1			1			
087		2				1				3	Core and DF burnt	1	101
101							1			1	Core fragment	2	55
102	1									1	Thermal ventral		
104		1				1	3			5	Core is minimally reduced with very acute striking platform and edge damage consistent with use as a core tool. CC are from shattered cores	2	55
106							1			1	Burnt		
109							1			1	Shattered core		
112		2	2				1			5	Two Fs refit, both FFs burnt, CC is shattered core	1	3
113	1	2								3			
115						1	1			2	Core is recorticated		
116	2	1				3	7			13	One core minimally worked form a convex scraping type edge - core tool. CCs shattered core?		
127							3			3	Shattered cobbles - failed knapping attempts?		
130	1						2			3	One CC heavily burnt and uncertain if struck		
131	1						1			2		1	6
133	1	1	3			1	4			10	3 of the flakes also burnt. Core small but extensively worked, burnt. B appears utilised	12	520
134										0		1	1
135			1	1						2	B appears utilised	7	198
139										0		1	6
141	1	1					2			4			
142		1								1		1	2

Context/Spit	Decortication Flakes	Flake	Flake Fragment	Unsystematic Blade	Systematic Blade	Core	Conchoidal Chunk	Retouched	Micro-debitage	Context Total	Comments	Burnt Flint (no)	Burnt Flint (wt:g)
143		1								1			
144	1	2					1			4		1	38
145	1						2			3		1	15
146										0		1	22
147			1							1	FF burnt	4	52
148								1		1	End scraper on narrow but thick flake, recorticated - bluish		
150							2			2	Thermally shattered core fragments		
151							4			4	Thermally shattered fragments failed knapping attempts? One piece burnt		
153		4				1		1		6	Core minimally worked. Scraper is an edge damage flake. One F utilised	3	128
157			1							1		1	19
158			1				1			2	CC is thermally shattered - possibly natural or mis-struck, may have been utilised		
159	1					1				2	Core is minimally worked on thermally split pebble	1	
160	1		2							3	Both FFs burnt	3	142
164		1								1			
165			1			1				2	Core is small and minimal. FF burnt. CCs possibly failed knapping attempts or natural	1	8
166		1	1			2	3			7	One core is small and minimally reduced, other is potlid with steep flakes removed from one edge, possible core-tool? CCs from shattered core or natural		
167		1					3			4	CCs possibly from failed knapping attempts, one is burnt		
168										0		1	6
169										0		1	177
171							1			1		1	5
173			1					1		2	Implement is thick flake with steep notch/concave scraper type retouch. FF burnt		

Context/Spit	Decortication Flakes	Flake	Flake Fragment	Unsystematic Blade	Systematic Blade	Core	Conchoidal Chunk	Retouched	Micro-debitage	Context Total	Comments	Burnt Flint (no)	Burnt Flint (wt:g)
175	1	1					1			3	CC is shattered core fragment		
176							1			1	Possibly natural		
177	1	3	1			1	1			7	Core has one flake removed - ?tested or accidental		
178	1	2					2			5	One F recorticated	2	24
183	1	1	2		1					5	B recorticated. Also one F recorticated. Both FFs burnt		
185							1			1	Possibly natural		
189										0		2	123
190			1							1	Burnt	1	7
193	1	1	1			1				4	Core minimal on large flake? FF burnt		
194										0		1	41
195						1				1	Fully recorticate, extensively reduced keel style	2	58
196	1						3			4	CCs burnt core fragments, two burnt		
197						1				1	Small, minimally worked, lots incipient Hertzian cones		
201	1									1	Burnt		
207										0	Some BF may have been struck	4	27
210	1									1			
215	1	1								2			
236		1				3		1		5	Scraper is crude and made on potlid spall. All cores are very minimally worked		
248	0	2	1			1	1			5	Shattered core; One FF burnt	1	30
249	1	1								2			
254		1								1			
255	1	1					1			3			
259	1									1			
260	1	1								2			
261	1	1								2			

Context/Spit	Decortication Flakes	Flake	Flake Fragment	Unsystematic Blade	Systematic Blade	Core	Conchoidal Chunk	Retouched	Micro-debitage	Context Total	Comments	Burnt Flint (no)	Burnt Flint (wt:g)
263			1				1			2			
264		1				2	1			4	One core shattered, the other minimally worked/core tool (cf concave scraper)		
266		1					7			8	CC are smashed chunk (failed knapping attempt?)		
267			1			3				4	Two cores thermally shattered, other is minimally worked.		
508	1		2			1				4	Core is minimally but centripetally worked disc-like with wear around edges - used as chopping/cutting tool		
99999								1		1	Burnt circular thumbnail type scraper		
99999								1		1	Short end-scraper on recorticated flake		
99999		3					2			5	F recorticated	3	95

Table 12: Flint catalogues

E.3 Stone

By Barry Bishop

Introduction

E.3.1 This report contains an account of a preliminary examination and interpretation of the (non-flint) stone recovered from the emergency excavations at War Ditches. This includes both worked and unworked stone fragments of a variety of petrological types (Table 13). A number of chalk fragments similar to that forming the bulk of the ditch's infilling were also recovered but these have only been considered in the report below if they have been otherwise modified.

Quantification and Description

Context	Spit	Group	Weight (g)	Description
5	-	7	224	Three pieces of burnt greensand
5	9	7	275	Andesitic Volcanic/dyke purple rock
5	12	7	132	Burnt greensand
5	13	7	27	Greensand fragment
5	16	7	90	Heavily burnt greensand – semi-vitrified
5	19	7	318	Plano-convex quern fragment with smoothed surface. Fine micaceous greensand
5	26	7	56	Burnt greensand
5	32	7	302	Burnt nodule fine micaceous greensand
5	38	7	318	Galena and quartzite – possibly a lump of imported Pennine ore.
5	38	7	229	Calcareous scale – formed during ditch's infilling?
52	-	7	65	Burnt greensand
52	55	7	1697	Burnt greensand fragments
52	55	7	26	Small spherical flint nodule – possible slingshot?
52	73	7	387	Four fragments of burnt greensand
52	77	7	117	Burnt greensand
52	82	7	65	Burnt quartz pebble
87	-	-	952	Burnt greensand – one piece at least appears shaped
95	101	6	58	Nodule fine microgranite
95	101	6	767	Three fragments of burnt greensand
95	103	6	668	Three burnt greensand cobbles
95	101 <10>	6	177	Fragment of worked greensand, part of the radial handle socket of a rotary quern
106	-	5	447	Two burnt rounded greensand cobbles
107	109	5	260	Quartz pebble, possibly burnt
107	113	5	287	Three greensand fragments
107	113 <9>	5	78	Puddingstone fragment, probably from a quern
121	122	5	898	Two fragments of burnt greensand
119	124	5	40	Quern fragment with smoothed surface. Fine micaceous greensand
119	124	5	271	Quern fragment with smoothed surface,

Context	Spit	Group	Weight (g)	Description
				greensand
119	125	5	38	Burnt greensand fragment
119	126	5	97	Ironstone nodule could be bog ore or a nodule from Cambridge Greensand formation
119	126	5	205	Two burnt greensand fragments
120	130	4	137	Disintegrated burnt greensand cobble
120	131	4	1152	Five fragments of rounded greensand, some burnt
133 <11>	-	4	295	Quernstone fragment of fine micaceous greensand
133	-	4	1119	Six fragments of burnt greensand, some possibly worked?
135	-	4	342	Shaped greensand fragment, possible a quern but no smoothed surfaces
136	143	4	90	Burnt greensand cobble fragment
136	146	4	88	Nine fragments of chalk, some possibly burnt
136	147	4	172	Fragment of fine micaceous greensand
136	147	4	242	Eight fragments of chalk, some burnt
136	153	4	176	Greensand cobble
136	153	4	38	Burnt calcareous greensand
136	155	4	210	Possibly shaped. Fine micaceous greensand
136	157	4	212	Fifteen fragments of chalk, some burnt
136	157	4	75	Burnt fragment greensand
136	157	4	92	Burnt fragment of Greensand with possibly smoothed surface
136	159	4	76	Burnt greensand cobble fragment
162	164	4	40	Burnt greensand cobble fragment
162	165	4	282	Metamorphic rock gneiss exotic
163	171	4	77	Quartz pebble fragment with evidence of rubbing or pounding
175	-	4	11	Burnt greensand cobble fragment
175	176	4	17	Lump fine hard calcareous micaceous greensand
175	176	4	9	Quern fragment with smoothed side. Burnt greensand
184	193	4	202	Burnt greensand cobble
236	-	4	34	Quartz pebble fragment
249	254	2	140	Rounded flint pebble from alluvial source
249	254	2	285	Burnt greensand quern fragment with smoothed upper surface and worked sides.
249	254	2	207	Burnt rounded greensand cobble
263	-	2	42	Burnt quartz pebble fragment

Table 13: Description and weight of stone from War Ditches

Discussion

E.3.2 Just under 16 kg of stone was recovered during the excavations. With the exception of the chalk, none of these pieces are present in the surface geology at the site and they must have been deliberately imported and deposited into the ditch.

E.3.3 The stone can broadly be broken down into three main categories. Local to the site and perhaps even excavated from the ditch itself are a number of chalk fragments that have been burnt. The second category is the commonest and comprises various forms of micaceous and calcareous Greensandstone. These probably originate from the early Cretaceous Cambridge Greensand Formation (BGS: http://www.bgs.ac.uk/lexicon/lexicon.cfm?pub=CBG) that outcrops at various locations to the north-east and south-west of the site. Several pieces have been shaped and/or have smoothed surfaces, the latter demonstrating their use as grinding stones that appear to include both rotary and saddle querns. It is also likely that the fragment of puddingstone came from a quern although no worked edges are apparent. Many other fragments of Greensandstone, although not showing worked surfaces, are also likely to have come from similar objects. Other possible uses for greensand may have been as decorative architectural elements. It is interesting that many of the greensand fragments had been burnt. This could reflect the deliberate destruction of querns or perhaps the use of greensand as hearth furniture.

E.3.4 The final category comprises a number of varied but all exotic stones that have their ultimate origin far from the region. Occasional erratics are present within the Cambridge Greensand Formation, these deriving from formations in northern or western Britain or even Scandinavia which were naturally transported to the Greensand during its formation in the early Cretaceous. They can also be present within Quaternary till deposits, remnants of which can be found across the region. However, these are only present in very low numbers and the possibility remains that they were imported from their original source, which remains particularly true for the 'useful' stones, such as the ironstone and galena. Regardless of their origins, however, the presence of the stone is significant in that there is a very high probability that it was all found elsewhere and transported to the site prior to deposition within the ditch.

Significance

E.3.5 The (non-flint) stone recovered at War Ditches fall in to two main areas of significance. Some of the local and other stones have been worked, including having been shaped into querns. The fragments of exotic stone may have been imported from considerable distances and these include possible ores.

Recommendations

E.3.6 It is recommended that the stone fragments are examined by a qualified petrologist and their likely origin established. The quernstones should be described and, where possible, their original forms determined. The exotic stones should be similarly described and the possible purposes for their importation, including their possible economic and social utility, discussed.

E.4 Early Iron Age Pottery

By Matt Brudenell

E.4.1 The investigations at War Ditches yielded 376 sherds of Early Iron Age pottery (1997g), and a single abraded piece of Early Bronze Age ceramic (10g, possibly Beaker). The assemblage primarily derived from the excavation of the ditch circuit, with small quantities of pot being recovered from the test pits (70 contexts in total yielding Early Iron Age pottery). Overall, the assemblage was dominated by highly fragmented sherds with a low mean sherd weight (MSW) of just 5.3g. By count 88% of sherds were classified as small, measuring less than 4cm in size, whist the remaining 12% were classified as medium sized, measuring from 4-8cm.

E.4.2 All pottery was fully recorded following the recommendations laid out by the Prehistoric Ceramic Research Group (PCRG 1997). Sherds weighing less than 0.5g were recorded as crumbs (4g in total), and were excluded from all the totals presented in this report (no further comment is made on the the grog tempered Early Bronze Age sherd from **267** from the Group 1 fills of the ditch circuit).

Assemblage characteristics

E.4.3 Despite the relatively small size of the assemblage, a diverse range of pottery fabrics were encountered. In total, 21 Early Iron Age fabric types were distinguished, belonging to eight main groups (Table 14). By weight, two thirds of the pottery (66%) was tempered with burnt flint and sand, whilst the remaining third was shared amongst 'minor' fabric groups with sand with flint (11%), flint (6%), sand (6%), shell and flint (5%), sand with chalk (3%), shell (2%), and flint and quartz (<1%). This range and frequency of fabrics is best parallel at Wandlebury, where 57% of the pottery is recorded as flint-tempered (Webley 2005, 39). Burnt flint and sand tempered fabrics tend to typify Early Iron Age assemblages in southern and western Cambridgeshire, although the relative frequencies of other 'minor' fabric groups are generally more variable. In most instances, the clays and tempering agents needed for ceramic production were available within a 10km radius of sites in Cambridgeshire. This is certainly the case at War Ditches, though there remains the possibility that the shelly wares may derive from none-local Jurassic clay sources – an issue requiring further investigating through a targeted programme of petrology.

Fabric	Group	No./ (wt.) sherds	% of fabric (by wt.)	No./wt. sherds burnished	% of fabric burnished (by wt.)	MNV	MNV burnished
F1	Flint	18 (107g)	5.4	-	-	2	-
F2	Flint	6 (21g)	1.1	2 (8g)	38.1	-	-
FQ	Flint and sand	28 (54g)	2.7	-	-	2	-
FQ1	Flint and sand	155 (878g)	44.0	2 (8g)	0.9	8	-
FQ2	Flint and sand	47 (228g)	11.4	15 (86g)	37.7	3	1
FQ3	Flint and sand	18 (67g)	3.4	11 (42g)	62.7	2	1

Fabric	Group	No./ (wt.) sherds	% of fabric (by wt.)	No./wt. sherds burnished	% of fabric burnished (by wt.)	MNV	MNV burnished
FQ4	Flint and sand	1 (8g)	0.4	-	-	-	-
FQ5	Flint and sand	16 (61g)	3.1	5 (25g)	41.0	1	-
FQ6	Flint and sand	9 (29g)	1.5	2 (2g)	6.9	-	-
FQI	Flint and quartz	1 (6g)	0.3	-	-	-	-
Q1	Sand	13 (76g)	3.8	7 (43g)	56.6	3	-
Q2	Sand	16 (47g)	2.4	5 (19g)	40.4	1	-
QCH1	Sand and chalk	4 (69g)	3.5	-	-	-	-
QF1	Sand with flint	17 (101g)	5.1	1 (10g)	9.9	4	1
QF2	Sand with flint	7 (110g)	5.5	2 (57g)	51.8	3	1
S1	Shell	3 (17g)	0.9	1 (5g)	29.4	-	-
S2	Shell	4 (18g)	0.9	-	-	-	-
S3	Shell	2 (9g)	0.5	-	-	-	-
SF1	Shell and flint	2 (6g)	0.3	-	-	-	-
SF2	Shell and flint	7 (77g)	3.9	-	-	-	-
SF3	Shell and flint	2 (7g)	0.4	-	-	-	-
TOTAL		**376 (1997g)**	**100.0**	**53 (305g)**	**15.3**	**29**	**4**

Table 14: Quantified Early Iron Age pottery. MNV = minimum number of vessels calculated as the total number of different rims and bases identified.

Fabric Series

Flint and quartz tempered fabrics

FQI: Moderate to common coarse flint (mainly 2-4mm in size) and moderate coarse quartz (mainly 2-4mm in size).

Flint tempered fabrics

F1: Moderate to common coarse flint (mainly 2-4mm in size)

F2: Moderate to common medium flint (mainly1-2mm in size)

Flint and sand tempered fabrics

FQ1: Moderate or common coarse flint (mainly 2-4mm in size) in sandy clay matrix

FQ2: Sparse or moderate medium flint (mainly1-2mm in size) in a sandy clay matrix

FQ3: Sparse or moderate fine flint (mainly under 1mm in size) in a sandy clay matrix

FQ4: Sparse coarse flint (mainly 2-4mm in size) in sandy clay matrix

FQ5 Moderate to common fine flint (mainly under1 mm in size) in sandy clay matrix

FQ6 Moderate to common medium flint (mainly1-2mm in size) in sandy clay matrix

FQ: Small sherds with flint inclusion to fragmented or abraded to assign to a more specific fabric category.

Sandy fabrics

Q1: Sparse to moderate sand, with sparse chalk flecks and occasionally rare iron oxide

Q2: Moderate to common sand

Sand with flint fabrics

QF1: Moderate to common sand and rare to sparse medium to coarse flint (mainy1-3mm in size)

QF2: Moderate to common sand and sparse to moderate fine flint (mainly under 1mm in size)

Sand and chalk fabrics

QCH1: Moderate to common coarse abrasive sand with moderate medium and coarse sub-rounded chalky grits (mainly 1-3mm in size). Fabric may also contain rare coarse and very coarse flint (up to 7mm)

Shelly fabrics

S1: Moderate to common fine and medium shell (mainly under 2mm in size).

S2: Sparse to moderate shell flecking

S3: Common coarse shell (mainly 2-4mm in size)

Shell and flint fabrics

SF1: Common fine or medium shell (mainly 1-2 mm), and sparse or medium fine flint (up t0 2mm in size)

SF2: Coarse shell (mainly 2-4mm in size) and sparse or moderate coarse flint (mainly 2-4mm in size)

SF3: Rare to sparse shell flecking and rare to sparse fine flint (mainly under 1mm)

Grog fabrics (EBA sherd)

GQ1: Sparse medium and coarse grog and sparse fine sand

E.4.4 As with all Late Bronze Age and Early Iron Age pottery assemblages, the ceramics can be divided into burnished finewares and un-burnished coarsewares (Barrett 1980). Some 53 sherds in the assemblage were identified as being burnished, polished or carefully smoothed (305g; 15.3% by weight, or 14.1% by sherd count). As is usual, this form of surface treatment was most prevalent on sandy wares (Q1-2 fabrics), and those vessels made with well-sorted and finely crushed inclusions (fabrics FQ3 and QF2)

E.4.5 The fragmented condition of the pottery meant that the profile of few vessels could be reconstructed. In total, only five vessels were sufficiently intact to assign to form (48 sherds, 353g), including three coarsewares shouldered jars, and two hemispherical bowls: one a fineware, one a coarseware. However, based on the minimum number of different identifiable rims and bases, the assemblage is estimated to contain fragments of at least 29 different vessels (20 different rims - EVE 0.45; 9 different bases – EVE 1.06). The seven coarseware bases included in this number all had simple flat foots, whilst the two fineware examples were of pedestal form. The latter are chronologically significant as they do not appear in the ceramic repertoire before 600 BC. Most of the rims had flat or rounded lips; some of which were slightly expanded or rounded externally and/or internally, with the two fineware examples being more carefully moulded. Though none of the form assigned vessels were ornamented, 25 decorated sherds were identified in the assemblage (170g). The un-burnished coarsewares were ornamented on the rim-top, exterior rim-edge, shoulder, or less commonly, the neck or

body. These zones were adorned by single rows of either fingertip/nail marks or tooled impressions; seven of the 18 different coarseware rims being decorated.

E.4.6 Only five of the burnished fineware sherds were ornamented (71g); two with horizontal grooves/furrows; one with a cordon; one with a row of closely spaced dimples, and one with an incised double chevron. The chevron motif is particularly characteristic of fineware ceramics belonging to the 'Chinnor-Wandlebury' style group (Cunliffe 2005, 101-102), and is prevalent in a number of assemblages across the Chilterns and southern Cambridgeshire, including local examples at Wandlebury (Hartley 1957, 16, fig. 7, no. 9; Webley 2005, 42, fig. 2, no. 9), Trumpington Park & Ride/Meadows (Brudenell and Dickens 2007;), the Addenbrooke's Link Road Site 1 (Brudenell 2007) and the Milton Landfill Site (Brudenell and Phillips 2008).

E.4.7 Evidence for vessel use was identified in the form of limescale (interior of 1 sherd, 16g) and thin carbonized residues adhering to sherd surfaces (13 sherds, 130g). The latter were classified as traces of sooting (130g): four on sherd exterior surfaces, eight on sherd interiors, and one on a rim-top. Unfortunately, none appear thick enough to sample for radiocarbon dating.

Pottery from the stratified sequence of ditch deposits

E.4.8 338 sherds (1684g) derived from the excavated ditch deposits, accounting for 84% of the total assemblage by weight (Table 15). No marked changes in assemblage composition were observed in the sequence, other than in the quantities of pottery deposited throughout the profile. All of the material is of Early Iron Age date, with no suggestion of a Late Bronze Age presence.

E.4.9 The Group 1 deposits from the base of the ditch yielded eight sherds of Early Iron Age pottery (52g) in sand, and flint and sand tempered fabrics. These included the rims of two coarseware vessels; one a partial profile of a small marked shouldered jar (fabric Q1; rim diameter 13cm) with upright neck and limescale on the interior (16g). The assemblage from the Group 2 deposits comprised of 77 sherds (356g) in a wide range of fabrics. Mean sherd weight calculations and sherd size analysis (Table 16) suggest the material was slightly more fragmented than that in the basal fills. The Group 2 deposits did however yield a spatially discrete cluster of 42 pot sherds from context 270 (226g), which belonged to a single small round shouldered jar with short upright neck (15 sherds refitting; fabric FQ1; rim diameter 14cm). Two sherds from context **254** (S.261 and S.263) in the Group 2 fills also refitted to sherds in Group 3 horizons; material connections being made between contexts **254** (S.261)-**210**, and **263**-**264**. Refitting of the former created a partial profile of a slack-shouldered jar with a slightly out-turned neck (fabric QF1).

E.4.10 Pottery from the Group 3 deposits was in a similar condition to that in the previous horizon: the ten contexts yielding 40 sherds (356g) in flint, flint and sand, sand with flint, and shell and flint tempered fabrics. However, the greatest quantity of pottery derived from the Group 4 contexts, and included an assemblage of 210 sherds (1024g). Sherd size analysis suggests pottery in these deposits was slightly more fragmented than that in the lower fills. Moreover, six of 43 contexts with Early Iron Age pot also included later/Late Iron Age material, implying that some of the ceramics were residual – namely the 34 sherds (143g) in contexts **133**, **135** and **136** (S.143, S.151, S.153, S.157). This issue aside, the rims and bases of 18 different vessels were recovered in the Group 4 fills, including both burnished pedestal bases (in fabrics QF1 and FQ2; both 7cm in diameter), and the partial profile of two hemispherical bowls with expanded rims (both in

fabric QF2; none-refitting fragments of one bowls being found across contexts **136** (S.143) and **175** (S.178).

Deposit Group	No. contexts	No./wt. sherds	MSW	Ceramics of note
1	4	8 (52g)	6.6g	Partial profile of a jar
2	8	77 (356g)	4.6g	Partial profiles of two jars. Two sherd refits with Group 3 contexts
3	10	40 (222g)	5.7g	Two sherd refits with Group 2 contexts
4	43	210 (1024g)	4.9g	Partial profile of bowls, and two fineware pedestal bases
0	1	3 (30g)	3.0g	-
Total	**66**	**338 (1684g)**	**5.0g**	**Fragments of a minimum of 27 vessels (19 rims, 8 bases)**

Table 15: Quantified Early Iron Age pottery from the ditch circuit.

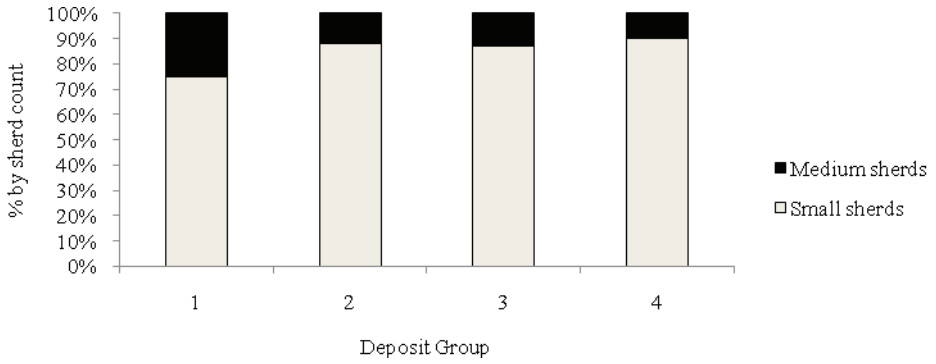

Table 16: Percentage of small and medium sherds in the Deposit Groups 1-4.

Pottery from test pits

E.4.11 38 sherds of Early Iron Age pottery were recovered from test pits (313g, Table 17). On average, the material was slightly less fragmented than that from the ditch – the MSW being 8.2g as opposed to 5.0g. There were also subtle differences in sherd sizes, with 79% of sherds from the test pits being of small size compared to 89% from the ditch. Equally, some differences in fabric frequencies were noted, particularly in the relative proportions of pot in flint and sand tempered fabrics. Whereas these constituted 74% of material from the ditch by weight, in the test pits they accounted for only 27% of the pottery. Admittedly, given the small size of this sub-assemblage, these differences may not be significant. In essence both groups of material are still highly fragmented, and one must acknowledge that fabric frequencies are susceptible to skewing in a small assemblage. Overall, there is nothing to indicate that the material is anything but Early Iron Age in date; particularly since the chevron decorated sherd from context 508 is characteristic of 'Chinnor-Wandlebury' style finewares.

Context	No./wt. sherds	MSW	Ceramics of note
505	2 (5g)	2.5g	-
508	28 (203g)	7.3g	Chevron decorated sherds
526	6 (70g)	11.7g	-
527	2 (35g)	17.5g	-
Total	38 (313g)	8.2g	-

Table 17: Quantified Early Iron Age pottery from test pits. (Note that context 526 also contained a sherd of Late Iron Age/Early Roman pottery)

Discussion

E.4.12 Based on the fabrics, decorative schemes, and the few diagnostic features sherds identified, the Early Iron Age pottery from War Ditches can be typologically dated between c. 600-350 BC. With the exception of a single abraded Early Bronze Age sherd from context **267**, the pottery recovered from the basal ditch fills was exclusively Early Iron Age.

E.4.13 Overall, the character of the material is identical to the 'Iron Age A wares' recovered from the Well, Pit A and other features reported by White in the 1960s (White 1964). A re-analysis of these sherds by the author in 1997 revealed a very similar range of vessel forms, decorative treatments, and fabric frequencies as the ones reported here. Of the 80 sherds (725g) recorded in the Museum of Archaeology and Anthropology (accession numbers 48.1876; 57.113; z.25096; z.25105) 47% by weight contained a mix of burnt flint and sand, broadly matching the frequencies from the current excavations. Levels of decorating were similarly comparable, with seven of White's coarsewares having rim ornamentation (54%). Equally both assemblages contained pedestal bases – an important diagnostic feature modelled on continental prototypes of the 6th century BC and later (Hodson 1962, 142; Barrett 1978, 286-287).

E.4.14 More broadly, the assemblage from War Ditches is comparable to pottery from Wandlebury (Hartley 1957; Hill 2004; Webley 2005), and has similarities to contemporary groups from Trumpington Park & Ride/Meadows (Brudenell and Dickens 2007; Brudenell forthcoming), Addenbrooke's Link Road Site 1 (Brudenell 2007), Harston Mill (Peter Thompson pers. comm.) and the Milton Landfill Site (Brudenell and Phillips 2008). All these assemblages contain chevron decorated fineware sherds which have affinities to Cunliffe's 'Chinnor-Wandlebury' style-group (Cunliffe 2005, 101-102).

Recommendations

E.4.15 Dating: Though there are no well preserved carbonized residues on the sherds to C14 date, it would still be advantageous to anchor the typological dating to an absolute chronology. This may be approached through TL dating if there are no suitable C14 samples in association with the ceramics.

E.4.16 Illustration: It is suggested that 21 sherds/sherds groups are illustrated. These have been marked in the pottery catalogue, and included all five partial vessel profiles, both pedestal bases, all decorated rims, and examples of decorated shoulders and body sherds. Given the small size of most sherds, this should amount to no more than one and a half pages of publication drawings.

E.4.17 Petrology: It is recommended that six of the shell tempered fabrics are prepared for petrology to investigate whether they derive from non-local Jurassic clays sources in the fens. Given how little petrological work has been conducted on Iron Age pottery from Cambridgeshire, it is also recommended that a sherd from each major fabric group is also submitted for comparison.

Spit	Context	Fabric	Fabric group	Type	Burnished?	Location of burnish	Decorative category	Perforations	No. Sherds	Wt. (g)	No. refitting sherds	Residue type	Location of residue	Rim Type	Rim %	Rim Dia	Base Type	Base %	Base Dia	Form	Description	Refits	Notes	Recommended for illustration
Group 1																								
268	268	Q1	Sand	r/sh					1	16		lime	int	RD	3	13				H2	Jars with well defined, or marked shoulders and gently hollowed, upright or slightly in-turned necks.		Rim diameter based on shoulder circumference	y
267	267	GQ1	Grog and sand	o			traces of a complex decorative scheme		1	10														
267	267	FQ1	Flint and sand	o					1	9														
264	264	FQ2	Flint and sand	o					1	2														
264	264	FQ1	Flint and sand	o					1	9														
264	264	Q1	Sand	r					1	9	1	soot	ext	FD	6	19						263		
266	266	FQ2	Flint and sand	o	BS	ext			1	4														
266	266	FQ3	Flint and sand	o					1	2														
266	266	FQ1	Flint and sand	o					1	1														
Group 2																								
249	249	FQ1	Flint and sand	o					1	8														
249	249	Q1	Sand	r					1	1				RD	?	?								
251	249	QF1	Sand and flint	o					1	4														
251	249	QF1	Sand and flint	sh					1	4														

254	254	S1	Shell	o	B	ext			1	5													
254	254	QF1	Sand and flint	o					3	9													
254	254	SF1	Shell and flint	o					1	1													
254	254	FQ	Flint and sand	o					3	2													
254	254	FQ1	Flint and sand	o			Finger tip impression		1	1												Zone of decoration uncertain	
254	254	FQ1	Flint and sand	o					3	4													
248	248	Q2	Sand	o					1	5												This looks suspiciously like a LIA sherds? Surely its too low.	
248	248	Q2	Sand	o	BS	ext			1	2													
248	248	F1	Flint	o					1	3													
248	248	FQ2	Flint and sand	b					1	8							1	11	10				
248	248	FQI	Fint and quartz	o					1	6													
255	254	FQ1	Flint and sand	o					2	7													
261	254	QF1	Sand and flint	sh					1	7	1										Refits with 210		
263	263	Q1	Sand	r					1	4	1	soot	ext	FD	6	19					Refits with 264		
263	263	F1	Flint	o					1	9													
263	263	FQ1	Flint and sand	o					2	6													
263	263	Q1	Sand	o					1	2													
263	263	FQ	Flint and sand	o					5	3													
Group 3																							
236	236	FQ1	Flint and sand	o					13	21													
236	236	FQ1	Flint and sand	o					1	27													
236	236	FQ1	Flint and sand	o					1	10													

236	236	FQ1	Flint and sand	b					2	5	2						1	12	8					
236	236	FQ1	Flint and sand	o					2	45	2													
236	236	SF2	Shell and flint	o					1	10														
210	210	QF1	Sand and flint	o					1	10														
210	210	QF1	Sand and flint	r					1	6	1			FD	?	?				G3	Slack shouldered jars with short upright or out-tuned necks	Refits with 261		y
207	202	FQ1	Flint and sand	o					1	3														
207	202	FQ1	Flint and sand	o					1	6														
207	202	F1	Flint	o					1	6														
207	202	FQ1	Flint and sand	b					1	5							?	15	8				Part of a trimmed base	
206	202	FQ3	Flint and sand	o	B	int ext			1	2														
246	230	FQ1	Flint and sand	sh			Diagonal linear tool impressions		1	8		soot	ext											
246	230	FQ3	Flint and sand	o	B	ext	Row of oval dimples		1	10													Uncertain as to whether they are horizontal of vertical	y
246	230	F1	Flint	o					1	2													abraded	
246	230	FQ1	Flint and sand	o					1	2														
246	230	FQ2	Flint and sand	o					1	4														
246	230	FQ3	Flint and sand	o	B	ext			1	4														
216	211	FQ2	Flint and sand	sh	BS	ext			1	8														
218	213	FQ3	Flint and sand	o	B	ext			1	6														
218	213	FQ4	Flint and sand	o					1	8														
244	230	FQ2	Flint and sand	o					1	4														
209	202	FQ3	Flint and sand	o	B	ext			2	3														
239	230	FQ1	Flint and sand	b					1	7							1	10	8					
Group 4																								

190	184	FQ1	Flint and sand	o					1	11														
141	136	F2	Flint	sh			Diagonal slashes		1	5														
141	136	FQ3	Flint and sand	o					1	4														
141	136	FQ	Flint and sand	o					1	18														
145	136	FQ5	Flint and sand	o					2	5														
194	185	FQ2	Flint and sand	o					1	9		soot	ext											
194	185	FQ1	Flint and sand	sh			SH FT with nail impressions	post-firing perforation on the neck	1	9		soot	int											y
194	185	FQ2	Flint and sand	sh	BS	ext			1	6														
194	185	FQ1	Flint and sand	o					1	6														
194	185	FQ1	Flint and sand	sh			SH FT with nail impressions		1	7														
146	136	FQ2	Flint and sand	o					2	5	2													
146	136	F2	Flint	o					1	1														
146	136	FQ1	Flint and sand	o					2	3														
146	136	QF1	Sand and flint	o					1	2														
146	136	FQ	Flint and sand	r					1	1				FD	?	?								
146	136	FQ2	Flint and sand	o					3	22														
146	136	FQ5	Flint and sand	o					3	5														
148	136	FQ1	Flint and sand	o					1	2														

148	136	F2	Flint	sh	BS	ext			1	1													
147	136	FQ5	Flint and sand	sh	BS	ext			1	12													
147	136	FQ2	Flint and sand	o	BS	ext			1	1													
147	136	FQ1	Flint and sand	r			Diagonal linear tool impressions on RE		1	3				FD	?	?							y
142	136	FQ1	Flint and sand	o					3	15													
142	136	FQ2	Flint and sand	o			Two stab marks in between two poorly executed horizontal line		1	1												Possibility that this is BA	
142	136	FQ	Flint and sand	o					1	1													
142	136	FQ2	Flint and sand	o					1	3													
142	136	FQ1	Flint and sand	r			Diagonal FN marks on RE		1	3				FD	?	?						Possibility that this is part of vessel 10	y
143	136	Q1	Sand	o	BP	ext			1	2													
143	136	FQ2	Flint and sand	o					1	2													
143	136	FQ1	Flint and sand	o					1	3													
143	136	FQ2	Flint and sand	o					1	7													
143	136	QF2	Sand and flint	r/sh					1	19				FEIE	?	?				J2	Hemispherical bowls with no distinct neck		
133	133	F1	Flint	o					1	6													
133	133	FQ1	Flint and sand	o					3	18													
133	133	FQ1	Flint and sand	sh			SH FT with nail impression		1	4													
138	136	FQ	Flint and sand	o					1	1													
138	136	FQ1	Flint and sand	o					3	11													
138	136	FQ3	Flint and sand	o					1	2													

138	136	FQ5	Flint and sand	o					1	6													
135	133	FQ1	Flint and sand	o					1	4													
135	133	QF1	Sand and flint	o					1	9													
151	136	FQ1	Flint and sand	sh			SH slash		1	7													y
155	136	FQ1	Flint and sand	o					1	3		soot	int										
155	136	FQ5	Flint and sand	o					1	4													
155	136	FQ3	Flint and sand	o					1	2													
155	136	FQ1	Flint and sand	o					3	8													
157	136	FQ2	Flint and sand	b/o	BP	ext			5	49	5						PED	27	7				y
157	136	Q2	Sand	o	B	ext			1	2													
157	136	S1	Shell	o					1	9													
157	136	FQ1	Flint and sand	o					2	14													
157	136	SF3	Shell and flint	o					1	4													
157	136	FQ2	Flint and sand	o			Two stabl marks above a lightly grooved horizontal line		1	2													y
157	136	FQ5	Flint and sand	o	BS	ext			1	2													
157	136	FQ5	Flint and sand	r					1	2				FRI	?	?						Probably a fragment of a cup	
157	136	FQ	Flint and sand	o					1	1													
150	136	FQ1	Flint and sand	o					2	12													
150	136	FQ5	Flint and sand	o	BS	ext			1	2													
150	136	FQ2	Flint and sand	o					2	4													
150	136	S2	Shell	o					1	4												Potentialy Later IA	
158	136	FQ1	Flint and sand	o					2	5													
158	136	FQ	Flint and sand	o					1	1													

158	136	FQ2	Flint and sand	o					1	4													
156	136	FQ6	Flint and sand	o					1	4													
154	136	FQ2	Flint and sand	b					1	2							1	?	?				
154	136	FQ6	Flint and sand	o					2	5													
154	136	FQ	Flint and sand	o					1	2													
154	136	F1	Flint	sh					1	2													
153	136	FQ3	Flint and sand	r					1	3				EVR	7	16							
153	136	QF1	Sand and flint	r			RE FT		1	3				FRE	?	?							y
153	136	FQ1	Flint and sand	o					2	3													
153	136	FQ5	Flint and sand	o					2	4													
153	136	SF3	Shell and flint	sh					1	4													
168	163	FQ1	Flint and sand	o					1	6													
163	163	FQ6	Flint and sand	o					1	13													
164	162	FQ2	Flint and sand	o	B	ext			1	3													
164	162	FQ2	Flint and sand	o					1	3													
164	162	FQ1	Flint and sand	o					1	3													
166	162	Q2	Sand	r					1	5				FD	?	?						Potentialy Later IA	
166	162	QF1	Sand and flint	o					1	7													
166	162	FQ1	Flint and sand	o					1	4													
165	162	FQ	Flint and sand	o			FT		1	2												Zone of decoration uncertain	
165	162	FQ2	Flint and sand	o					2	6													
165	162	FQ2	Flint and sand	o	BP	ext			2	2													
165	162	F2	Flint	o					1	3													
165	162	FQ3	Flint and sand	sh					1	2													
165	162	FQ2	Flint and sand	o					1	3													
167	162	QF1	Sand and flint	b	B	int ext			1	10							PE	16	7				y

																	D							
170	163	FQ1	Flint and sand	o					1	5														
176	175	FQ1	Flint and sand	o					4	36														
176	175	S3	Shell	o					2	9														
176	175	Q1	Sand	o					1	1														
176	175	FQ3	Flint and sand	o	BS	ext	Plain cordon		1	2														
176	175	FQ2	Flint and sand	o					2	4														
174	163	FQ1	Flint and sand	o					1	6														
175	175	QF1	Sand and flint	o					1	8														
175	175	FQ1	Flint and sand	sh			SH FT		1	7														y
175	175	S2	Shell	sh					1	4														
175	175	FQ1	Flint and sand	b					2	17	2						1	15	8					
173	163	FQ3	Flint and sand	sh					1	10														
172	163	FQ1	Flint and sand	o					1	3														
177	175	FQ1	Flint and sand	o					2	14														
177	175	F1	Flint	o					2	10														
177	175	QF1	Sand and flint	o					1	8														
177	175	FQ	Flint and sand	o					3	2														
177	175	FQ2	Flint and sand	o	B	ext			1	1														
177	175	FQ2	Flint and sand	o					2	4														
177	175	Q1	Sand	o	BS	ext			1	2														
177	175	FQ1	Flint and sand	sh			SH FT		1	6														
177	175	FQ2	Flint and sand	sh			Two linear tool marks		1	3														
177	175	FQ	Flint and sand	r			Diagonal tool impressions on RE		1	2				FEE	?	?								y
177	175	FQ3	Flint and sand	r	B	int ext			1	5				RD	?	?								

177	175	F1	Flint	r					2	8	2			FD	?	?							
177	175	FQ1	Flint and sand	r			RE FT		1	3				RD	?	?							y
177	175	FQ1	Flint and sand	sh					1	6													
178	175	QF2	Sand and flint	r/sh	BS	ext	Slight groove below rim		1	44				FEIE	?	?				J2	Hemispherical bowls with no distinct neck		May be same as 12. Are they lids?	y
178	175	QF2	Sand and flint	r/sh					1	15				FEIE	?	?				J2	Hemispherical bowls with no distinct neck		None refitting	y
178	175	F1	Flint	o					1	9													
178	175	FQ1	Flint and sand	o					4	26													
178	175	F2	Flint	o	BS	int ext			1	7													
178	175	FQ1	Flint and sand	o	BS	ext			1	7													
178	175	FQ1	Flint and sand	o					1	3													
178	175	Q2	Sand	o					1	2													
178	175	FQ3	Flint and sand	o	BS	ext			1	1													
178	175	FQ6	Flint and sand	o	BS	ext			2	2	2												
178	175	FQ6	Flint and sand	o					1	2													
189	184	FQ1	Flint and sand	o					1	5													
183	183	F1	Flint	o					1	7													
183	183	F1	Flint	r			RT diagonal linear tool impressions		1	10		soot	rim top	FEE	?	?							y
182	175	Q2	Sand	sh	BS	ext			1	5													
182	175	Q2	Sand	o					2	1													
182	175	FQ	Flint and sand	o					1	1													
182	175	QF2	Sand and flint	o					1	3													
193	185	FQ1	Flint and sand	o					4	28													
193	185	F1	Flint	o					1	12													

193	185	FQ2	Flint and sand	o					1	4														
193	185	SF1	Shell and flint	o					1	5														
193	185	FQ1	Flint and sand	sh					1	3														
193	185	FQ2	Flint and sand	o	B	ext			1	9														
195	185	FQ5	Flint and sand	o					1	10														
196	185	F1	Flint	o					1	15														
196	185	F2	Flint	o					1	4														
196	185	FQ2	Flint and sand	sh			SH FT with nail marks		1	13														y
196	185	FQ1	Flint and sand	sh					1	3														
196	185	FQ	Flint and sand	o					1	1														
196	185	Q2	Sand	o	B	ext			1	3														
198	198	FQ1	Flint and sand	o					2	28														
198	198	F1	Flint	o					1	4														
198	198	FQ1	Flint and sand	o					2	6														
198	198	FQ5	Flint and sand	o	B	ext			1	1														
198	198	FQ3	Flint and sand	o	B	ext			1	6														
198	198	F1	Flint	o					1	1														
191	185	FQ2	Flint and sand	o	B	ext			1	3														
191	185	FQ1	Flint and sand	o					1	6														
191	185	FQ1	Flint and sand	o	BS	ext			1	1														
191	185	FQ2	Flint and sand	o					1	2														
191	185	F1	Flint	o					1	3														
191	185	FQ6	Flint and sand	sh					1	1														
191	185	FQ5	Flint and sand	o	B	ext	wide groove/ furrow at base on neck		1	8														y
192	185	SF2	Shell and flint	o					1	4														

192	185	FQ	Flint and sand	o					1	4														
526	cut 523	FQ1	Flint and sand	o					1	9														
526	cut 523	FQ2	Flint and sand	o					1	21														
526	cut 523	QCH1	Sand and chalk	o					1	25													Possibly Later IA	
526	cut 523	QCH1	Sand and chalk	o					1	9													Possibly Later IA	
526	cut 523	FQ3	Flint and sand	sh	BS	ext			1	3														
526	cut 523	S2	Shell	o					1	3													Possibly Later IA	
505		FQ6	Flint and sand	o					1	2														
505		S1	Shell	o					1	3														
527	cut 523	QCH1	Sand and chalk	o					1	26													Possibly Later IA	
527	cut 523	QCH1	Sand and chalk	o					1	9													Possibly Later IA	
201	201	QF2	Sand and flint	o	BS	ext			1	13														
201	201	FQ1	Flint and sand	o					1	13														
201	201	FQ1	Flint and sand	o					1	4														
508		Q2	Sand	o	BS	ext	incised double chevron		1	7													Decoration typical of the Chinnor-Wandlebury Style zone	y
508		QF2	Sand and flint	b					1	7							1	?	?					
508		FQ1	Flint and sand	o					1	8														
508		FQ1	Flint and sand	o					1	31														
508		SF2	Shell and flint	o					2	53														
508		QF1	Sand and flint	o					1	8														
508		SF2	Shell and flint	o					3	10														

508		Q1	Sand	o	BS	ext			4	28													
508		Q1	Sand	o	BS	ext			1	11													
508		Q2	Sand	o					2	10													
508		QF1	Sand and flint	r					1	6				FD	?	?							
508		S2	Shell	o					1	7													
508		Q2	Sand	o					4	5													
508		FQ	Flint and sand	o					2	3													
508		FQ	Flint and sand	o					3	9												This test pit appears to have more sandy and shelly sherds in than other contexts. This may be chronologically significant, but the it is difficult to assess.	
270	263	FQ1	Flint and sand	o					23	95												non refitting	
270	263	FQ1	Flint and sand	o					3	41		soot	int										
270	263	FQ1	Flint and sand	sh					3	37	3	soot	int										
270	263	FQ1	Flint and sand	r/sh					10	64	10			FRE	12	14				F3	Jars with short round shoulders jars with short upright necks			y
270	263	FQ1	Flint and sand	r					3	9	2			FRE	11	14							
270	263	QF2	Sand and flint	sh					1	9													

Table 18: Early Iron Age pottery catalogue

E.5 Late Pre Roman Iron Age and Roman Pottery

By Alice Lyons

Introduction

E.5.1 Pottery constituting 3542 sherds, weighing 27.209kg, with an estimated vessel equivalent (EVE) of *c*. 23 vessels, was recovered during this excavation (Table 19). This material has an average sherd weight of only *c*. 8g as it is severely abraded, although some evidence for wear and use (soot residues) does survive. As the majority of the assemblage consists of body and base sherds the EVE (based on rim measurement) is severely under representative; the minimum vessel count is significantly higher at *c*. 500.

E.5.2 The Late Iron Age and Roman pottery was exclusively recovered from within the excavated section of the ditch. The vast majority of the pottery is remarkable in that it appears to have been deposited within a relatively short period of time between 50 BC and AD 50. The assemblage contains elements of residual Early Iron Age ceramics and some potentially later Iron Age material but the majority of the pottery is Late pre Roman Iron Age and Early Roman locally produced coarsewares, many of which are certainly contemporary within the Transitional (between the Iron Age and Roman) period.

	Sherd Count	**Sherd weight (g)**	**EVE**	**Sherd weight (%)**
Iron Age	342	3496	0.16	12.85
Late pre Roman Iron Age	2307	17027	14.65	62.58
Early Roman	887	6408	8.33	23.55
[Early Modern	6	278	0.00	1.02]
Total	**3542**	**27209**	**23.14**	**100.00**

Table 19: The pottery by Era

Methodology

E.5.1 The assemblage was assessed in accordance with the guidelines laid down by the Study Group for Roman Pottery (Webster 1976; Darling 1994; Willis 2004). The total assemblage was scanned and a preliminary catalogue was prepared.

E.5.2 The sherds were examined using a magnifying hand lens (x20 magnification) and were divided into fabric groups defined on the basis of inclusion types present. The fabric codes are descriptive and abbreviated by the main letters of the title (Sandy grey ware = SGW). Vessel form was recorded. The sherds were counted and weighed to the nearest whole gram. Decoration and abrasion were also noted.

E.5.3 The pottery is assessed separately by period.

The Iron Age pottery

E.5.4 A total of 342 sherds, weighing 3.496kg, 0.16 EVE, of handmade Iron Age pottery was recorded. This represents *c*. 13% (by weight) of the assemblage.

E.5.5 The majority of this pottery consists of handmade reduced ware sherds, of both early and later Iron Age date, although a single sherd of oxidised material was also found. Various tempers typical of this region (Hill with Horne 2003, 166-168) were noted including quartz (most frequent), shell, flint and grog. The majority of the sherds are consistent with originating from jar/bowl sherds, although some storage jars were also found.

The Late Pre Roman Iron Age pottery

E.5.6 A total of 2307 sherds, weighing 17.027kg, 14.65 EVE of Late pre Roman Iron Age (LPRIA) pottery were recovered (Table 20). Most of the pottery found during the War Ditches excavation (*c*. 63% by weight) was identified as belonging to the latter part of this era (50 BC-AD 50). At this time changes in indigenous British society, instigated well before the arrival of the Roman army in AD 43 (Tyers 1996, 55-66), resulted in the adoption of aspects of Gallo-Belgic culture. These changes included the introduction of imported and domestically copied fineware wheelmade kiln-fired pottery (Tyers 1996, 52-55). As a result of the introduction of the potter's wheel new ceramic fabrics and forms began to be incorporated into the domestic ceramic repertoire alongside the more traditional Late Iron Age wares (Thompson 1982, 20-21).

Reduced wares

E.5.7 The majority of this material (*c*. 67% by weight) is composed of locally produced Sandy reduced ware; of which 84% is handmade. This is mostly found in the form of cordoned jar/bowl forms that are often burnished (Thompson 1982, 85-348). Variations of this fabric (RW, SRW(GROG), SRW(BSRW)) are also well represented.

E.5.8 Another reduced ware, although only representing *c*. 2% of the assemblage, are handmade shell tempered sherds. This ware was commonly found in this region and era in the form of lid-seated jars (Marney 1989, 13, fig. 7), which was a conservative form commonly utilised from the Late Iron Age until the Early Roman era. Within Cambridgeshire the use of shell tempered clays appears to have been a cultural choice (Percival forthcoming); preliminary analysis indicates that quartz tempered reduced wares were preferred at War Ditches.

Grey wares

E.5.9 Grey wares, although far less common, are the second most frequently found fabric. The majority of which (*c*. 7%) is locally produced 'proto' (non- industrialised) sandy grey wares mostly found in jar form (Thompson 1982, 85-210), although several carinated cups (Thompson 1982, 351-356) were identified and some storage jars (Thompson 1982, 257-268). Similarly to the SRW the majority of this material (68%) is made by hand.

E.5.10 A significant amount of a finer grey ware with consistently oxidised slipped surfaces was

also found. These were commonly decorated with cordons of a rouletted motive and are fragments from distinctive pre-conquest type butt beakers (Thompson 1982, 507-528). The source of these vessels may be non-local, indeed other fine grey wares (of undiagnostic jar form) are consistent with being imported from Northern Gaul (Tomber and Dore 1998, 74) and a similar source for the butt beakers may be likely.

Oxidised wares

E.5.11 Oxidised fabrics are also well represented. A coarse quartz tempered oxidised ware is the best represented (*c*. 2% by weight); almost certainly locally produced it is found only in the form of storage jars. Of interest are the Gritty oxidised ware undiagnostic body sherds, these may also be a Gaulish import (Tomber and Dore 1998, 24), although the domestically produced Verulamium white wares (Tomber and Dore 1998, 154) started to mimic this fabric in the mid 1st century AD and thin section analysis would be required to clarify the source of origin. Several sherds of Gallia-Belgica Terra Rubra (Tomber and Dore 1998, 17-21) platter(s) (may be one vessel) were also found (Tyers 1996, 162, fig 198).

Fabric	Abbreviation	Sherd count	Sherd weight (g)	EVE	Sherd weight (%)
Sandy reduced ware	SRW	1495	11444	9.79	67.20
Proto sandy grey ware	SGW(PROTO)	137	1263	2.22	7.42
Reduced ware	RW	123	679	0.00	3.99
Sandy reduced ware with grog inclusions	SRW(GROG)	77	666	0.10	3.90
Sandy reduced black surfaced red ware	SRW(BSRW)	137	479	0.55	2.81
Shell tempered ware	STW	50	391	0.36	2.30
Grey ware with oxidised surfaces	GW(OXIDISED SURFACES)	53	380	0.37	2.23
Coarse sandy oxidised ware	SOW(COARSE)	24	364	0.00	2.14
Gritty oxidised ware	OW(GRITTY)	35	286	0.00	1.70
Grey ware with grog inclusions	GW(GROG)	43	261	0.04	1.53
Sandy grey ware with oxidised surfaces	SGW(OXIDISED SURFACES)	30	216	0.15	1.27
Sandy coarse ware	SCW	10	168	0.00	0.99
Fine sandy reduced ware	SRW(FINE)	27	133	0.59	0.78
Reduced ware with grog inclusions	RW(GROG)	18	76	0.26	0.45
Terra Rubra	TR	9	53	0.15	0.31
Sandy oxidised ware	SOW	8	42	0.00	0.25

Sandy grey ware	SGW	13	40	0.07	0.23
Fine grey ware	GW(FINE)	6	36	0.00	0.21
Fine red ware	RED FW	8	26	0.00	0.15
Oxidised ware with grog inclusions	OW(GROG)	3	21	0.00	0.12
Fine sandy oxidised ware	SOW(FINE)	1	3	0.00	0.02
Total		**2307**	**17027**	**14.65**	**100.00**

Table 20: The Late pre Roman Iron Age pottery

The Early Roman pottery

E.5.12 A total of 887 sherds of Early Romano-British pottery weighing 6.408kg, with an Estimated Vessel Equivalent (EVE) of *c*. 8 vessels were recovered. This represents *c*. 24% of the entire assemblage by weight.

Reduced wares

E.5.13 The amount of reduced wares in supply at this time was decreasing and as a result they only represent *c*. 10% by weight of the period assemblage. By this time, although the jar/bowl range of forms remains largely unchanged the majority (*c*. 78% by weight) are produced on the wheel (in contrast to the earlier period).

E.5.14 Some reduced wares used to produce combed Storage jars of the Horningsea-type (Evans 1991) were also found. If this has been identified correctly it is an early example of the product of this nearby major pottery manufacturing centre.

Grey wares

E.5.15 The majority of pottery produced at this time was a proto (non-industrialised) sandy grey ware produced mostly in a utilitarian jar form, of which most (*c*. 78% by weight) is wheelmade. Pottery of this type is known to have been produced close by at Addenbrookes (Evans et al 2008, 57-62) and Swavesey (Willis et al 2009). However, at least one kiln has been found within the War Ditches perimeter (White 1964, 5), while others may have been misidentified (Swan 1984, 61), any of which may have been the source for a proportion of these wares.

E.5.16 A small amount of finer grey wares (3% by weight) were also in use, mostly in the form of beakers. These fabrics commonly referred to as 'London Ware' may have been imported from other regional manufacturing centres such as the Nene Valley (Tomber and Dore 1998, 137).

Finewares

E.5.17 Only one sherd of a South Gaulish samian (Tomber and Dore 1998, 28-29) platter was recovered during this excavation. The lack of samian reflects the largely pre-conquest nature of the assemblage, as this ware was only imported on a large-scale with the Roman army in AD43 and then only widely supplied to the domestic market by the AD 70s (Tyers 1996, 56).

E.5.18 Of particular interest is the Oxidised fine ware, which although only found in small

quantities, is distinctively decorated with a barbotine red slip 'ring and dot' motive. This is similar to vessels found at War Ditches previously (Evans et al, 103, fig, 1) and may well have been produced at the local early (AD 55-90) fineware production centre at Cherry Hinton (Evans 1990), also close by.

Specialist wares

E.5.19 A very small amount of Spanish DR20 amphora (Tyers 1996, 87-89) was recovered during this excavation. This amphora was used to import olive oil and would have been expensive when full, but jars were often re-used (even when cut down or broken) as water butts and building materials.

E.5.20 No mortaria or other specialised vessel forms were recovered.

Fabric	Abbreviation	Sherd count	Weight (kg)	EVE	Weight (%)
Proto sandy grey ware	SGW(PROTO)	431	3522	4.49	54.96
Gritty oxidised ware	OW(GRITTY)	115	648	0.47	10.11
Sandy reduced ware	SRW	113	620	1.02	9.68
Horningsea-type reduced ware	HORN-TYPE	27	444	0.00	6.93
Grey ware with grog inclusions	GW(GROG)	23	354	1.64	5.52
Fine grey ware	GW(FINE)	65	193	0.06	3.01
Spanish amphora	BAT AM 1	1	162	0	2.53
Fine sandy grey ware	SGW(FINE)	38	109	0.00	1.70
Oxidised ware with grog inclusions	OW(GROG)	7	85	0.07	1.33
Sandy oxidised ware	SOW	21	76	0.00	1.19
Sandy grey ware	SGW	10	66	0.23	1.03
Fine red ware	RED FW	16	41	0.00	0.64
Sandy grey ware with oxidised surfaces	SGW(OXIDISED SURFACES)	9	33	0.00	0.51
Sandy black surfaced red ware	SRW(BSRW)	1	17	0.12	0.27
Black surfaced red ware	BSRW	4	14	0.06	0.22
South Gaulish samian	SAM	1	11	0.12	0.17

Coarse sandy oxidised ware	SOW(COARSE)	1	9	0.00	0.14
Fine oxidised ware	OW(FINE)	3	2	0.00	0.03
Fine sandy reduced ware	SRW(FINE)	1	2	0.05	0.03
Total		887	6408	8.33	100.00

Table 21: Quantification by fabric type

The post-Roman pottery

E.5.21 A total of 6 sherds, weighing 0.278kg (0.00 EVE) of Early Modern pottery were recovered during this project (Table 19). This pottery consists of one very large 18th or 19th century stoneware jar base (Laing 2003, 122) and other undiagnostic fragments. This material is not worthy of further analysis.

Discussion

E.5.22 This large and remarkably uncontaminated group of pottery provides a valuable opportunity to examine an assemblage that was deposited in the latest phases of the life of an Iron Age hill fort over a period of (approximately) 100 years between 50BC and 50 AD.

E.5.23 As a result this assemblage has the potential to contribute to the understanding of the native ceramic use and deposition in the years immediately previous to the Roman invasion of AD 43. Although the majority of pottery consists of locally made reduced coarse wares, the introduction of new technology consisting of the potters wheel and semi-permanent kiln (Swan 1984) and the associated new range of fabrics and forms (Thompson 1982), can be observed. It is worthy of note that when the pottery is analysed by Period Group the ratio between handmade and wheelmade pottery remains fairly constant (Table 22), again suggesting that the pottery was deposited over a relatively short period of time.

Period Group	**Description**	**Handmade (weight %)**	**Wheelmade (weight %)**
5	Late pre Roman Iron Age	68.83	31.17
6	Transitional	54.55	45.45
7	Transitional	67.77	32.23
8	Transitional	70.02	29.98
0	Unphased	16.29	83.71
Total		**65.25**	**34.75**

Table 22. The pottery by Period Group and method of production (handmade or wheelmade).

E.5.24 Recently in Cambridgeshire several sites of this period have been excavated such as Trumpington (Hinman in prep) and Addenbrookes (Evans et al 2008), while the near by Iron Age hill fort at Wandlebury (French 2004) and ringworks at Wardy Hill, Ely (Evans 2003) have also been investigated. As a result this period of transition is becoming less confused and there is a large body of ceramic material to use as comparative data. However, how pottery was produced, distributed, used and eventually deposited is still far from being fully understood and remains an area of active research (Martin and Wallace 2002, 2.1.1).

E.5.25 This assemblage therefore has high potential to build on the corpus of available comparative material to increase understanding of this complex but fascinating period in-line with both regional and national research objectives.

E.5.26 A more detailed analysis of the fabrics will help to identify what material was made on site and what was imported. Locally produced material will demonstrate indigenous skills and craftsmanship and will also reflect how (home/workshop/industrial) the production of these vessels was organised. Imported material will inform on trade routes (interaction) and the status (settlement hierarchies) of the community that deposited the pottery.

E.5.27 An analysis of the forms will establish what functions the ceramic vessels were being used for and how these vessels changed through time in association with the introduction of new techniques of manufacture. Residue analysis will provide an insight into the contents of these pots, while the carbonised residue identified on three sherds may also be used for AMS C14 dating.

E.5.28 Comparison of this data with other key ceramic groups in the region will allow a fuller understanding of how the settlement at War Ditches functioned in the wider social community.

Further work

E.5.29 It is anticipated that more detailed fabric and form analysis will take a period of ten days, with an additional 5 days required to write a report suitable for publication. A budget should also be provided for specialist thin section analysis (£15 per sample x *c*. 50 samples = £750), residue analysis (x 3 samples) and AMS analysis (x 3 samples). In addition to this it is estimated *c*. 50 rim sherds will be suitable for illustration.

The pottery catalogue

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
2	IA	RW	HM	U	JAR/BOWL	2	58	C3-C1BC
2	ERB	SGW(PROTO)	WM	U	JAR/BOWL	4	34	MC1-E/MC2
2	ERB	SGW(PROTO)	WM	R	JAR	1	5	MC1-E/MC2
2	ERB	SGW(PROTO)	WM	R	JAR	1	1	MC1-E/MC2
3	ERB	GW(FINE)	WM	B	BEAK	1	1	MC1-E/MC2
3	LPRIA	OW(GROG)	WM	D	SJAR	1	12	ADC1
3	ERB	RED FW	HM	UD	BEAK	3	6	M/LC1
3	IA	RW	HM	RUB	JAR/BOWL	7	169	C3-C1BC
3	IA	RW	HM	U	JAR/BOWL	4	24	C3-C1BC
3	IA	RW	HM	U	JAR/BOWL	4	83	C3-C1BC
3	IA	RW	HM	R	JAR/BOWL	1	9	C3-C1BC
3	ERB	SGW(FINE)	WM	UB	JAR	5	32	MC1-E/MC2
3	LPRIA	SGW(OX SURFACE)	HM	B	JAR	1	59	C1BC-ADC1
3	ERB	SGW(PROTO)	WM	U	JAR	7	38	MC1-E/MC2
3	ERB	SGW(PROTO)	WM	U	JAR	3	27	MC1-E/MC2
3	ERB	SOW	WM	D	JAR	3	5	MC1-E/MC2
3	ERB	SRW	WM	R	JAR	1	8	ADC1
3	ERB	SRW	WM	R	JAR	1	4	ADC1
3	LPRIA	SRW	HM	UD	JAR	10	57	C1BC-ADC1
3	LPRIA	SRW	HM	R	JAR/BOWL	1	11	C1BC-ADC1
3	LPRIA	SRW	WM	D	SJAR	1	24	C1-BC-ADC1
3	LPRIA	SRW	WM	R	JAR	1	7	ADC1
3	LPRIA	SRW	WM	U	JAR/BOWL	2	13	LC1BC-ADE/MC1
3	LPRIA	SRW	WM	U	JAR	1	8	ADC1
5	ERB	GW(FINE)	WM	UDB	BEAK	13	33	MC1-E/MC2

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
5	ERB	GW(GROG)	WM	RD	WJAR	5	51	MC1-E/MC2
5	ERB	GW(GROG)	WM	R	BEAK	1	8	MC1-E/MC2
5	LPRIA	GW(GROG)	HM	D	SJAR	1	45	C2-C1BC
5	ERB	OW(GRITTY)	WM	D	BEAK	1	2	M/LC1
5	LPRIA	OW(GRITTY)	HM	D	JAR/BOWL	1	33	LC1BC-ADE/MC1
5	LPRIA	OW(GRITTY)	HM	D	JAR/BOWL	1	29	C2-C1BC
5	LPRIA	OW(GRITTY)	WM	U	FLAG/JAR	28	191	MC1-C2
5	ERB	OW(GROG)	WM	RUD	JAR/BEAK	4	30	ADC1
5	IA	RW	HM	RUB	JAR/BOWL	6	56	C3-C1BC
5	ERB	SGW(PROTO)	WM	UD	JAR	30	131	MC1-E/MC2
5	ERB	SGW(PROTO)	WM	U	JAR	12	277	MC1-E/MC2
5	ERB	SGW(PROTO)	WM	RD	JAR	4	50	MC1-E/MC2
5	ERB	SGW(PROTO)	HM	RU	JAR	6	72	C1-E/MC2
5	ERB	SGW(PROTO)	WM	R	JAR	1	12	MC1-E/MC2
5	ERB	SGW(PROTO)	WM	R	JAR	1	20	MC1-E/MC2
5	ERB	SGW(PROTO)	WM	R	JAR	1	20	MC1-E/MC2
5	ERB	SGW(PROTO)	WM	R	JAR	1	48	MC1-E/MC2
5	ERB	SGW(PROTO)	WM	R	JAR	1	22	MC1-E/MC2
5	ERB	SGW(PROTO)	WM	R	JAR	1	10	MC1-E/MC2
5	ERB	SGW(PROTO)	WM	R	JAR	1	5	MC1-E/MC2
5	ERB	SGW(PROTO)	WM	R	JAR	1	5	MC1-E/MC2
5	ERB	SGW(PROTO)	WM	R	JAR	1	3	MC1-E/MC2
5	ERB	SRW	WM	R	JAR	1	80	ADC1
5	ERB	SRW	WM	R	JAR	1	34	ADC1
5	ERB	SRW	WM	R	JAR	1	9	ADC1
5	LPRIA	SRW	HM	UDB	JAR/BOWL	30	268	ADC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
5	LPRIA	SRW	WM	UD	JAR/BOWL	18	123	LC1BC-ADE/MC1
5	LPRIA	SRW	WM	R	JAR/BWL	1	12	LC1BC-ADE/MC1
5	LPRIA	SRW	HM	D	JAR/BOWL	1	17	C2-C1BC
5	ERB	SRW(FINE)	WM	R	BEAK	1	2	ADC1
7	ERB	GW(FINE)	WM	U	JAR/BEAK	1	1	MC1-E/MC2
7	IA	RW	HM	U	JAR/BOWL	1	5	C3-C1BC
7	ERB	SGW(OX SURFACE)	WM	U	JAR/BEAK	1	1	MC1-E/MC2
7	ERB	SRW	WM	U	JAR	3	8	C1AD
7	LPRIA	SRW	HM	UD	JAR/BOWL	11	69	LC1BC-ADE/MC1
8	ERB	GW(FINE)	WM	U	JAR/BEAK	11	22	MC1-E/MC2
8	ERB	GW(GROG)	HM	U	JAR/BOWL	4	46	ADC1
8	LPRIA	GW(OXIDISED SURFACES)	WM	D	JAR	3	21	ADC1
8	LPRIA	RW	HM	U	JAR/BOWL	37	214	C2-C1BC
8	LPRIA	SGW(OX SURFACE)	WM	UD	BEAK	11	32	ADC1
8	ERB	SGW(PROTO)	WM	UB	JAR	4	25	MC1-E/MC2
8	LPRIA	SGW(PROTO)	HM	D	SJAR	1	31	ADC1
8	LPRIA	SOW	WM	U	JAR/BOWL	1	6	ADC1
8	LPRIA	SRW	HM	UD	JAR/BOWL	50	141	LC1BC-ADE/MC1
8	LPRIA	SRW	WM	R	JAR/BOWL	1	3	ADC1
8	LPRIA	SRW	HM	R	JAR/BOWL	1	22	ADC1
8	LPRIA	SRW	HM	R	BOWL	1	16	LC1BC-ADE/MC1
8	LPRIA	SRW	HM	R	JAR	1	11	ADC1
8	LPRIA	SRW	WM	R	JAR	3	18	ADC1
8	LPRIA	SRW	WM	R	JAR	1	8	ADC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
9	ERB	OW(GROG)	WM	UD	FLAG/JAR	2	14	C1-E/MC2
9	LPRIA	OW(GROG)	WM	U	JAR/BOWL	1	1	ADC1
9	IA	RW	HM	UD	JAR/BOWL	16	165	C3-C1BC
9	LPRIA	SCW	HM	B	JAR/BOWL	3	106	LC1BC-ADE/MC1
9	LPRIA	SCW	HM	UD	JAR/SJAR	7	62	ADC1
9	ERB	SGW(FINE)	WM	U	JAR/BEAK	10	17	MC1-E/MC2
9	ERB	SGW(PROTO)	WM	UDB	JAR	9	92	MC1-C2
9	ERB	SGW(PROTO)	WM	R	JAR/BOWL	1	9	MC1-E/MC2
9	ERB	SGW(PROTO)	WM	R	JAR	1	5	MC1-E/MC2
9	ERB	SRW	WM	UD	JAR/BOWL	11	41	ADC1
9	LPRIA	SRW	HM	U	JAR/BOWL	32	142	LC1BC-ADE/MC1
9	LPRIA	SRW	WM	R	JAR	1	14	ADC1
9	LPRIA	SRW	WM	R	JAR	1	42	ADC1
9	LPRIA	SRW	WM	R	JAR	1	14	ADC1
9	LPRIA	SRW	WM	R	JAR	1	5	ADC1
9	LPRIA	SRW	WM	R	JAR	1	4	ADC1
9	LPRIA	SRW	WM	R	JAR	1	4	ADC1
9	LPRIA	SRW	HM	R	JAR/BOWL	2	11	LC1BC-ADE/MC1
10	IA	RW	HM	RUB	JAR/BOWL	6	37	C3-C1BC
10	LPRIA	SRW	HM	RUD	JAR/BOWL	11	68	LC1BC-ADE/MC1
11	ERB	GW(FINE)	WM	U	JAR/BEAK	2	42	ADC1
11	ERB	GW(FINE)	WM	U	JAR/BEAK	1	2	MC1-E/MC2
11	ERB	GW(FINE)	WM	U	JAR/BEAK	1	7	ADC1
11	LPRIA	GW(OXIDISED SURFACES)	WM	D	JAR/BOWL	4	13	LC1BC-ADE/MC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
11	ERB	OW(GRITTY)	WM	D	BEAKER	2	5	MC1-E/MC2
11	ERB	OW(GRITTY)	WM	UD	FLAG/JAR	4	8	MC1-E/MC2
11	IA	RW	HM	LR	JAR/BOWL	9	166	C3-C1BC
11	LPRIA	RW	HM	UD	JAR	7	44	C2-C1BC
11	LPRIA	SGW	HM	RUD	JAR/BOWL	13	40	C1BC-ADC1
11	ERB	SGW(FINE)	WM	UD	JAR/BEAK	9	16	MC1-E/MC2
11	LPRIA	SGW(OX SURFACE)	WM	U	JAR/BOWL	1	12	C1BC-ADC1
11	ERB	SGW(PROTO)	WM	UD	JAR/BOWL	2	10	MC1-E/MC1AD
11	LPRIA	SGW(PROTO)	WM	UD	JAR/BOWL	6	30	LC1BC-ADE/MC1
11	LPRIA	SGW(PROTO)	WM	R	JAR	3	71	LC1BC-ADE/MC1
11	LPRIA	SGW(PROTO)	WM	R	JAR/BOWL(PROBABLY A CARINATED CUP)	1	13	LC1BC-ADE/MC1
11	ERB	SRW	HM	RUDB	JAR/BOWL	10	78	AD1
11	ERB	SRW	WM	UD	JAR/BOWL	8	23	C1AD
11	ERB	SRW	WM	R	JAR/BOWL	1	5	C1AD
11	ERB	SRW	HM	R	JAR/BOWL	1	11	C1AD
11	ERB	SRW	HM	R	JAR/BOWL	1	10	C1AD
11	LPRIA	SRW	HM	UB	JAR/BOWL	23	136	LC1BC-ADE/MC1
11	LPRIA	SRW	HM	RD	JAR	2	37	LC1BC-ADE/MC1
11	LPRIA	SRW	HM	UDB	JAR/BOWL	36	243	C1BC-ADC1
11	LPRIA	SRW(BSRW)	HM	RUB	JAR/BOWL	49	204	C1BC-ADC1
11	LPRIA	STW	HM	RU	JAR	10	139	C1BC-ADC1
11	LPRIA	STW	WM	D	JAR	7	17	C1BC-ADC1
13	LPRIA	SRW	WM	UD	JAR/BOWL	14	45	LC1BC-ADE/MC1
13	LPRIA	SRW(GROG)	HM	UB	JAR/BOWL	4	32	C1BC-ADC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
14	IA	RW	HM	U	JAR/BOWL	2	4	C2-C1BC
14	ERB	SGW(OX SURFACE)	WM	U	JAR/BOWL	1	9	ADC1
14	ERB	SGW(PROTO)	HM	B	JAR/BOWL	4	69	MC1-E/MC2
14	ERB	SGW(PROTO)	HM	UD	JAR/BOWL	4	34	MC1-E/MC2
14	ERB	SGW(PROTO)	WM	U	JAR/BOWL	1	4	MC1-E/MC2
14	ERB	SRW	WM	RU	JAR/BOWL	4	20	ADC1
14	LPRIA	SRW	HM	RUB	JAR/BOWL	10	77	C1BC-ADC1
14	LPRIA	SRW(BSRW)	WM	RU	JAR/BOWL	4	18	ADC1
15	ERB	OW(FINE)	WM	U	FLAG/BEAK	1	1	M/LC1
15	IA	RW	HM	U	JAR/BOWL	8	40	C3-C1BC
15	LPRIA	SRW	HM	RUD	JAR/BOWL	13	57	C1BC-ADC1
16	LPRIA	GW(GROG)	WM	U	JAR/BOWL	1	7	ADM/LC1
16	IA	RW	HM	U	JAR/BOWL	1	1	C3-C1BC
16	ERB	SGW(PROTO)	WM	UB	JAR/BOWL	4	24	MC1-E/MC2
16	ERB	SRW	WM	RU	JAR/BOWL	5	18	ADC1
16	LPRIA	SRW	HM	UD	JAR/BOWL	9	44	LC1BC-ADE/MC1
17	IA	RW	HM	U	JAR/BOWL	2	4	C3-C1BC
17	ERB	SGW(PROTO)	WM	U	JAR	1	19	MC1-E/MC2
17	LPRIA	SRW	HM	UD	JAR/BOWL	8	44	LC1BC-ADE/MC1
18	LPRIA	GW(GROG)	HM	D	JAR/BOWL	1	4	LC1BC-ADE/MC1
18	LPRIA	GW(OXIDISED SURFACES)	HM	D	JAR/BOWL	1	7	LC1BC-ADE/MC1
18	ERB	OW(GRITTY)	WM	R	JAR/BOWL	1	6	M/LC1
18	IA	STW	HM	U	JAR/BOWL	1	12	C2-C1BC
19	ERB	GW(GROG)	WM	RU	JAR	6	29	MC1-E/MC2
19	LPRIA	GW(GROG)	HM	U	JAR/BOWL	1	12	LC1BC-

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
								ADE/MC1
19	LPRIA	GW(OXIDISED SURFACES)	WM	D	JAR/BOWL	1	2	C1AD
19	IA	RW	HM	U	JAR/BOWL	3	7	C3-C1BC
19	ERB	SGW(FINE)	WM	D	JAR/BOWL	2	3	C1AD
19	ERB	SGW(PROTO)	HM	RU	JAR/BOWL	4	20	M/LC1
19	LPRIA	SRW	HM	UB	JAR/BOWL	19	111	LC1BC-ADE/MC1
21	ERB	SGW(PROTO)	WM	R	JAR	1	34	MC1-E/MC2
21	ERB	SGW(PROTO)	WM	R	JAR	1	42	MC1-E/MC2
21	ERB	SGW(PROTO)	WM	U	JAR	9	53	MC1-E/MC2
22	IA	RW	HM	U	JAR/BOWL	3	21	C2-C1BC
22	LPRIA	SRW	HM	UB	JAR/BOWL	4	99	LC1BC-ADE/MC1
23	ERB	SGW(PROTO)	WM	U	JAR/BOWL	1	2	MC1-E/MC2
23	LPRIA	SRW	HM	U	JAR/BOWL	2	12	LC1BC-ADE/MC1
24	LPRIA	SRW(BSRW)	WM	U	JAR/BOWL	3	1	C1BC-ADC1
25	LPRIA	GW(OXIDISED SURFACES)	WM	D	JAR/BEAK	1	2	ADC1
25	ERB	OW(GRITTY)	WM	U	JAR/FLAG	2	14	MC1-C2
25	IA	RW	HM	U	JAR/BOWL	1	2	C3-C1BC
25	LPRIA	SGW(PROTO)	HM	RUB	JAR/BOWL	21	151	M/LC1
25	LPRIA	SRW	HM	UD	JAR/BOWL	12	70	LC1BC-ADE/MC1
26	ERB	GW(FINE)	WM	U	JAR/BEAK	2	1	ADC1
26	LPRIA	GW(OXIDISED SURFACES)	HM	UD	JAR/BOWL	5	39	LC1BC-ADE/MC1
26	ERB	OW(GRITTY)	WM	UB	JAR/FLAG	8	48	MC1-C2
26	IA	RW	HM	U	JAR/BOWL	2	12	C3-C1BC
26	ERB	SGW(FINE)	WM	U	JAR/BEAK	6	1	MC1-E/MC2

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
26	ERB	SGW(PROTO)	WM	RUB	JAR/BOWL	12	30	MC1-E/MC1AD
26	LPRIA	SGW(PROTO)	HM	RU	JAR/BOWL	15	167	E/MC1
26	LPRIA	SRW	HM	UDB	JAR/BOWL	47	246	LC1BC-ADE/MC1
27	IA	RW	HM	U	JAR/BOWL	1	39	C3-C1BC
27	ERB	SGW(PROTO)	WM	UB	JAR	2	24	MC1-E/MC2
27	LPRIA	SRW	HM	U	JAR/BOWL	4	11	LC1BC-ADE/MC1
28	ERB	SGW	WM	U	JAR/BOWL	1	7	MC1
28	ERB	SRW	WM	U	JAR/BOWL	1	2	ADC1
28	LPRIA	SRW	HM	U	JAR/BOWL	2	8	LC1BC-ADE/MC1
29	IA	RW	HM	U	JAR/BOWL	1	3	C3-C1BC
30	ERB	OW(GRITTY)	WM	U	JAR/FLAG	1	6	MC1-C2
30	ERB	SGW(PROTO)	WM	UB	JAR/BEAK	5	21	M/LC1
30	LPRIA	SRW	HM	RUB	JAR/BOWL	19	95	LC1BC-ADE/MC1
31	LPRIA	GW(OXIDISED SURFACES)	HM	UD	JAR/BOWL	3	10	LC1BC-ADE/MC1
31	ERB	OW(GRITTY)	WM	U	JAR/FLAG	1	10	MC1-C2
31	ERB	OW(GRITTY)	WM	R	JAR	2	13	MC1-C2
31	ERB	OW(GRITTY)	WM	R	JAR	1	4	MC1-C2
31	ERB	OW(GRITTY)	WM	R	JAR	1	4	MC1-C2
31	IA	RW	HM	U	JAR/BOWL	2	4	C3-C1BC
31	LPRIA	SGW(PROTO)	HM	UB	JAR/BOWL	23	100	E/MC1
31	LPRIA	SGW(PROTO)	HM	R	JAR/BOWL	1	59	E/MC1
31	LPRIA	SGW(PROTO)	HM	R	JAR/BOWL	1	10	E/MC1
31	LPRIA	SGW(PROTO)	HM	R	JAR	1	2	E/MC1
31	LPRIA	SGW(PROTO)	HM	R	JAR	1	2	E/MC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
31	LPRIA	SRW	HM	R	JAR/BOWL	1	21	LC1BC-ADE/MC1
31	LPRIA	SRW	HM	R	JAR/BOWL	1	15	LC1BC-ADE/MC1
31	LPRIA	SRW	HM	R	JAR/BOWL	1	28	LC1BC-ADE/MC1
31	LPRIA	SRW	HM	UDB	JAR/BOWL	24	128	LC1BC-ADE/MC1
31	LPRIA	STW	HM	U	JAR/BOWL	2	9	LC1BC-ADE/MC1
32	ERB	GW(FINE)	WM	U	JAR/BOWL	6	6	M/LC1
32	LPRIA	GW(GROG)	WM	RUD	DISH/PLATTER	24	104	C1AD
32	LPRIA	GW(OXIDISED SURFACES)	HM	R	JAR/BOWL	1	12	ADC1
32	ERB	OW(GRITTY)	WM	UDB	JAR/FLAG	8	90	MC1-C2
32	ERB	RED FW	WM	U	JAR/BEAK	1	1	M/LC1
32	IA	RW	HM	RU	JAR/BOWL	4	27	C2-C1BC
32	ERB	SAM	WM	R	DISH/PLATTER	1	11	M/LC1
32	ERB	SGW(PROTO)	WM	UD	JAR/BOWL	23	188	MC1-E/MC2
32	ERB	SGW(PROTO)	WM	R	JAR/BOWL	2	24	MC1-E/MC2
32	LPRIA	SRW	HM	UD	JAR/BOWL	34	328	LC1BC-ADE/MC1
32	LPRIA	SRW	HM	R	JAR/BOWL	4	31	LC1BC-ADE/MC1
32	LPRIA	SRW	HM	R	JAR/BOWL	1	24	ADC1
32	LPRIA	SRW	HM	R	JAR/BOWL	1	11	ADC1
32	LPRIA	SRW	HM	R	JAR/BOWL	1	3	ADC1
32	LPRIA	SRW	HM	R	JAR/BOWL	1	9	ADC1
32	LPRIA	SRW	HM	R	JAR/BOWL	1	7	LC1BC-ADE/MC1
32	LPRIA	STW	HM	U	JAR/BOWL	1	1	LC1BC-ADE/MC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
33	ERB	SOW	WM	U	JAR/FLAG	5	14	ADC1
33	LPRIA	SRW	HM	U	JAR/BOWL	4	52	LC1BC-ADE/MC1
34	ERB	SOW	WM	U	JAR/FLAG	1	6	ADC1
35	ERB	GW(FINE)	WM	U	JAR/BEAK	1	4	MC1-E/MC2
35	LPRIA	GW(GROG)	HM	D	JAR/BOWL	2	6	LC1BC-ADE/MC1
35	LPRIA	GW(OXIDISED SURFACES)	WM	D	JAR/BEAK	1	8	ADC1
35	ERB	OW(GRITTY)	WM	UD	JAR	2	6	MC1-C2
35	IA	RW	HM	RU	JAR/BOWL	4	34	C3-C1BC
35	ERB	SOW(COARSE)	HM	D	SJAR	1	9	LC1BC-ADE/MC1
35	LPRIA	SRW	HM	UD	JAR/BEAK	28	102	LC1BC-ADE/MC1
35	LPRIA	SRW	HM	R	WJAR	1	32	LC1BC-ADE/MC1
35	LPRIA	SRW	WM	R	WJAR	1	9	LC1BC-ADE/MC1
35	LPRIA	SRW	WM	R	JAR	1	4	LC1BC-ADE/MC1
35	LPRIA	STW	WM	R	JAR	2	37	LC1BC-ADE/MC1
36	ERB	RED FW	WM	U	JAR/BEAK	2	7	ADC1
36	LPRIA	SGW(PROTO)	WM	U	JAR/BOWL	1	2	LC1BC-ADE/MC1
36	ERB	SOW	WM	UD	JAR/BOWL	4	14	ADC1
36	LPRIA	SRW	WM	U	JAR/BOWL	1	2	LC1BC-ADE/MC1
36	LPRIA	TR	WM	R	DISH/PLATTER	1	12	LC1BC-ADE/MC1
37	LPRIA	GW(GROG)	WM	D	JAR	2	9	LC1BC-ADE/MC1
37	ERB	OW(GRITTY)	WM	RUD	JAR/FLAG	50	170	MC1-C2

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
37	LPRIA	OW(GROG)	WM	U	JAR/BOWL	1	8	LC1BC-ADE/MC1
37	ERB	SGW(FINE)	WM	U	JAR/BEAK	2	1	MC1-C2
37	ERB	SGW(PROTO)	WM	RUDB	JAR/BOWL	41	229	MC1-E/MC2
37	ERB	SGW(PROTO)	HM	D	SJAR	4	39	C1
37	LPRIA	SGW(PROTO)	HM	D	JAR/BOWL	2	29	LC1BC-ADE/MC1
37	ERB	SRW	WM	R	JAR/BEAK	1	5	ADC1
37	LPRIA	SRW	HM	UD	JAR/BOWL	31	188	LC1BC-ADE/MC1
37	LPRIA	SRW	HM	R	JAR/BOWL	1	24	LC1BC-ADE/MC1
37	LPRIA	STW	HM	U	JAR/BOWL	1	16	LC1BC-ADE/MC1
38	ERB	GW(FINE)	WM	U	JAR/BEAK	9	21	ADC1
38	LPRIA	GW(GROG)	WM	D	JAR/BOWL	1	27	LC1BC-ADE/MC1
38	LPRIA	RW(GROG)	HM	R	JAR/BOWL	2	31	LC1BC-ADE/MC1
38	ERB	SGW(PROTO)	WM	R	JAR/BOWL	1	78	ADC1
38	ERB	SGW(PROTO)	WM	R	JAR/BEAK	1	21	MC1-E/MC2
38	ERB	SGW(PROTO)	WM	R	JAR/BOWL	1	6	MC1-E/MC2
38	ERB	SGW(PROTO)	WM	U	JAR/BOWL	7	27	MC1-E/MC2
38	LPRIA	SOW	WM	D	JAR/BOWL	2	5	MC1-E/MC2
38	LPRIA	SOW	WM	U	JAR/BOWL	1	9	ADC1
38	LPRIA	SOW(FINE)	WM	U	JAR/BOWL	1	3	LC1BC-ADE/MC1
38	LPRIA	SRW	HM	UD	JAR/BOWL	25	241	LC1BC-ADE/MC1
38	LPRIA	SRW	HM	D	JAR/BOWL	1	13	LC1BC-ADE/MC1
38	LPRIA	SRW	HM	R	JAR/BOWL	1	7	LC1BC-ADE/MC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
38	LPRIA	SRW	HM	R	JAR/BOWL	1	10	LC1BC-ADE/MC1
38	LPRIA	SRW	HM	R	JAR/BOWL	1	5	LC1BC-ADE/MC1
38	LPRIA	SRW	HM	R	JAR/BOWL	1	2	LC1BC-ADE/MC1
38	LPRIA	SRW	WM	R	JAR/BOWL	1	8	ADC1
38	LPRIA	STW	HM	B	JAR/BOWL	1	6	LC1BC-ADE/MC1
39	ERB	GW(GROG)	WM	D	JAR/BOWL	1	6	ADC1
39	ERB	OW(FINE)	WM	D	BEAK	2	1	M/LC1
39	ERB	OW(GRITTY)	WM	B	JAR/FLAG	1	11	MC1-C2
39	IA	RW	HM	U	JAR/BOWL	2	3	C3-C1BC
39	ERB	SGW(PROTO)	WM	U	JAR/BOWL	5	15	MC1-E/MC2
39	LPRIA	SRW	HM	U	JAR/BOWL	8	67	LC1BC-ADE/MC1
39	LPRIA	SRW(BSRW)	WM	R	JAR/BOWL	2	6	LC1BC-ADE/MC1
41	LPRIA	GW(OXIDISED SURFACES)	HM	R	JAR/BOWL	1	5	LC1BC-ADE/MC1
41	ERB	OW(GRITTY)	WM	U	JAR/FLAG	1	5	MC1-C2
41	ERB	SGW(PROTO)	WM	D	JAR	1	6	MC1-E/MC2
41	LPRIA	SRW	HM	U	JAR/BOWL	3	19	LC1BC-ADE/MC1
41	LPRIA	SRW	WM	U	JAR/BOWL	4	10	ADC1
42	ERB	GW(FINE)	WM	U	JAR/BEAK	2	6	M/LC1
42	LPRIA	GW(OXIDISED SURFACES)	WM	D	BEAK	2	5	ADC1
42	LPRIA	GW(OXIDISED SURFACES)	HM	D	JAR/BOWL	2	10	LC1BC-ADE/MC1
42	ERB	OW(GRITTY)	WM	U	JAR/FLAG	3	17	MC1-C2
42	ERB	SGW(PROTO)	WM	R	JAR/BOWL	1	25	M/LC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
42	ERB	SGW(PROTO)	WM	R	JAR/BOWL	1	10	MC1-E/MC2
42	ERB	SGW(PROTO)	WM	R	JAR	1	7	ADC1
42	ERB	SGW(PROTO)	WM	U	JAR	5	16	MC1-C2
42	LPRIA	SGW(PROTO)	HM	RU	NJAR	3	56	ADC1
42	ERB	SOW	WM	B	JAR/FLAG	1	8	MC1-C2
42	ERB	SRW	WM	UB	JAR/BOWL	12	46	ADC1
42	LPRIA	SRW	HM	UB	JAR/BOWL	13	103	LC1BC-ADE/MC1
43	ERB	GW(GROG)	WM	RU	NJAR	5	205	ADC1
43	ERB	SGW(PROTO)	HM	RD	JAR	3	115	M/LC1
43	LPRIA	SRW	HM	U	JAR/BOWL	3	32	LC1BC-ADE/MC1
43	LPRIA	SRW	WM	R	JAR/BOWL	1	7	ADC1
43	LPRIA	SRW	WM	R	JAR/BOWL	1	6	ADC1
44	ERB	SGW(PROTO)	WM	U	JAR/BOWL	2	4	MC1-E/MC2
45	ERB	SOW	WM	U	JAR/FLAG	1	1	MC1-C2
47	IA	RW	HM	U	JAR/BOWL	3	4	C3-C1BC
47	LPRIA	SOW	HM	D	JAR/BOWL	1	1	LC1BC-ADE/MC1
47	ERB	SRW	WM	U	JAR/BOWL	4	5	ADC1
49	ERB	SGW(PROTO)	WM	RU	JAR	8	32	M/LC1
50	LPRIA	SGW(PROTO)	WM	RU	JAR/BOWL	3	5	ADC1
50	LPRIA	SRW	HM	U	JAR/BOWL	5	6	LC1BC-ADE/MC1
50	LPRIA	SRW	WM	U	JAR/BOWL	4	5	ADC1
51	LPRIA	GW(OXIDISED SURFACES)	HM	D	BEAK	3	6	ADC1
51	LPRIA	GW(OXIDISED SURFACES)	WM	RD	BEAK	2	14	LC1BC-ADE/MC1
51	LPRIA	SRW	HM	UD	JAR/BOWL	18	81	LC1BC-ADE/MC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
51	LPRIA	SRW	HM	D	SJAR	1	23	ADC1
51	LPRIA	STW	HM	U	JAR	1	13	LC1BC-ADE/MC1
52	ERB	BAT AM 1	HM	FT	DR20	1	162	C1BC-ADC2
52	ERB	GW(FINE)	WM	UD	JAR/BEAK	1	1	M/LC1
52	LPRIA	GW(GROG)	HM	UB	JAR/BOWL	3	10	ADC1
52	LPRIA	GW(OXIDISED SURFACES)	WM	UB	JAR/BOWL	3	18	ADC1
52	LPRIA	GW(OXIDISED SURFACES)	WM	D	BEAK	1	2	ADC1
52	ERB	OW(GRITTY)	WM	R	JAR	1	2	MC1-C2
52	IA	RW	HM	UD	SJAR/JAR	2	79	C3-C1BC
52	ERB	SGW(PROTO)	WM	B	JAR/BOWL	1	27	ADC1
52	ERB	SGW(PROTO)	WM	UB	JAR	2	23	MC1-E/MC2
52	LPRIA	SGW(PROTO)	HM	UB	JAR/BOWL	10	78	ADC1
52	ERB	SOW	WM	U	JAR/BOWL	1	10	ADC1
52	ERB	SRW	WM	U	JAR/BOWL	3	11	ADC1
52	LPRIA	SRW	HM	R	JAR/BOWL	1	21	ADC1
52	LPRIA	SRW	WM	R	JAR/BOWL	1	19	ADC1
52	LPRIA	SRW	HM	R	JAR/BOWL	1	4	LC1BC-ADE/MC1
52	LPRIA	SRW	HM	UDB	JAR/BOWL	30	196	LC1BC-ADE/MC1
52	ERB	SRW(BSRW)	WM	R	JAR/BOWL	1	17	LC1BC-ADE/MC1
52	LPRIA	STW	HM	RU	MJAR	4	24	LC1BC-ADE/MC1
53	LPRIA	SGW(PROTO)	WM	RU	JAR/BOWL	2	6	ADC1
55	IA	RW	HM	RU	JAR/BOWL	3	23	C3-C1BC
55	LPRIA	RW(GROG)	WM	RU	WJAR(CARINATED CUP)	16	45	LC1BC-ADE/MC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
55	ERB	SGW(FINE)	WM	U	JAR	4	39	ADC1
55	ERB	SGW(PROTO)	HM	D	JAR/BOWL	1	7	M/LC1
55	ERB	SOW	WM	U	JAR/BOWL	4	12	M/LC1
55	LPRIA	SRW	HM	UDB	JAR/BOWL	37	456	LC1BC-ADE/MC1
55	LPRIA	SRW	HM	UDB	JAR/BOWL	90	432	LC1BC-ADE/MC1
55	LPRIA	SRW	HM	R	JAR/BOWL	3	13	LC1BC-ADE/MC1
55	LPRIA	SRW	HM	R	JAR/BOWL	1	5	LC1BC-ADE/MC1
55	LPRIA	SRW	HM	R	JAR/BOWL	2	18	LC1BC-ADE/MC1
55	LPRIA	SRW	WM	UD	JAR/BOWL	20	86	ADC1
56	IA	RW	HM	U	JAR/BOWL	2	18	C3-C1BC
56	LPRIA	SGW(PROTO)	HM	U	JAR/BOWL	1	58	LC1BC-ADE/MC1
56	LPRIA	SRW	HM	UB	JAR/BOWL	20	133	LC1BC-ADE/MC1
56	LPRIA	SRW	HM	U	SJAR	1	38	LC1BC-ADE/MC1
56	LPRIA	SRW	HM	R	JAR/BOWL	3	86	LC1BC-ADE/MC1
56	LPRIA	SRW	HM	R	JAR/BOWL	1	4	LC1BC-ADE/MC1
56	LPRIA	SRW	WM	B	JAR/BOWL	1	11	LC1BC-ADE/MC1
58	LPRIA	SRW	HM	UD	JAR/BOWL	6	35	LC1BC-ADE/MC1
65	LPRIA	GW(GROG)	WM	U	JAR/BOWL	2	6	LC1BC-ADE/MC1
65	ERB	RED FW	WM	U	JAR/BEAK	1	4	ADC1
65	LPRIA	SGW(OX SURFACE)	WM	D	JAR/BOWL	3	26	LC1BC-ADE/MC1
65	LPRIA	SGW(PROTO)	HM	UB	JAR/BOWL	2	16	LC1BC-

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
								ADE/MC1
65	LPRIA	SOW(COARSE)	HM	D	JAR/BOWL	2	29	LC1BC-ADE/MC1
65	ERB	SRW	HM	UB	JAR/BOWL	3	20	ADC1
65	LPRIA	SRW	HM	UD	JAR/BOWL	8	79	LC1BC-ADE/MC1
65	LPRIA	SRW(BSRW)	HM	RU	JAR/BOWL	23	71	LC1BC-ADE/MC1
65	LPRIA	STW	HM	U	JAR/BOWL	1	25	LC1BC-ADE/MC1
66	ERB	GW(FINE)	WM	U	JAR/BEAK	4	3	MC1-E/MC2
66	LPRIA	GW(OXIDISED SURFACES)	WM	D	BEAK	6	49	ADC1
66	LPRIA	OW(GRITTY)	WM	D	JAR/BOWL	1	4	M/LC1
66	ERB	OW(GROG)	WM	B	JAR/FLAG	1	41	ADC1
66	IA	RW	HM	U	JAR/BOWL	2	4	C3-C1BC
66	ERB	SGW	WM	UB	JAR	7	18	MC1-E/MC2
66	LPRIA	SGW(OX SURFACE)	WM	RD	JAR/BEAK	5	23	LC1BC-ADE/MC1
66	ERB	SGW(PROTO)	HM	RU	JAR/BOWL	6	68	M/LC1
66	LPRIA	SGW(PROTO)	WM	U	JAR/BEAK	10	28	ADC1
66	LPRIA	SGW(PROTO)	WM	U	SJAR	1	25	LC1BC-ADE/MC1
66	LPRIA	SOW(COARSE)	HM	UD	JAR/BOWL	2	21	LC1BC-ADE/MC1
66	LPRIA	SOW(COARSE)	HM	D	JAR/BOWL	3	50	LC1BC-ADE/MC1
66	LPRIA	SRW	HM	UDB	JAR/BEAK	38	295	LC1BC-ADE/MC1
66	LPRIA	SRW	HM	R	JAR/BEAK	1	5	LC1BC-ADE/MC1
66	LPRIA	SRW	HM	R	JAR/BEAK	1	14	LC1BC-ADE/MC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
66	LPRIA	SRW	HM	R	JAR/BEAK	1	6	LC1BC-ADE/MC1
66	LPRIA	SRW	HM	R	JAR/BEAK	1	6	LC1BC-ADE/MC1
66	LPRIA	SRW	WM	D	JAR/BOWL	1	4	ADC1
66	LPRIA	SRW	HM	R	JAR/BOWL	2	74	LC1BC-ADE/MC1
66	LPRIA	SRW	HM	R	JAR/BOWL	1	13	LC1BC-ADE/MC1
66	LPRIA	SRW	HM	R	JAR/BOWL	3	57	LC1BC-ADE/MC1
66	LPRIA	SRW	HM	R	JAR/BOWL	1	5	LC1BC-ADE/MC1
66	LPRIA	SRW	WM	RUD	JAR/BOWL	6	78	ADC1
66	LPRIA	STW	HM	U	JAR/BOWL	2	6	LC1BC-ADE/MC1
67	ERB	SGW(PROTO)	HM	U	JAR/BOWL	5	41	ADC1
67	LPRIA	SRW	WM	RU	JAR/BOWL	3	15	LC1BC-ADE/MC1
68	ERB	GW(FINE)	WM	U	JAR/BEAK	2	1	ADC1
68	LPRIA	GW(OXIDISED SURFACES)	WM	U	JAR/BOWL	3	10	ADC1
68	ERB	OW(GRITTY)	WM	UD	JAR/FLAG	3	36	MC1-C2
68	LPRIA	SGW(OX SURFACE)	HM	D	SJAR	2	46	LC1BC-ADE/MC1
68	ERB	SGW(PROTO)	WM	RU	NJAR	9	35	M/LC1
68	LPRIA	SOW(COARSE)	HM	UDB	JAR/BOWL	12	224	LC1BC-ADE/MC1
68	LPRIA	SRW	WM	RUD	JAR/BOWL	14	98	ADC1
68	LPRIA	SRW(BSRW)	WM	RU	JAR/BOWL	24	93	ADC1
68	LPRIA	STW	HM	U	JAR/BOWL	2	19	LC1BC-ADE/MC1
69	ERB	GW(FINE)	WM	U	JAR/BEAK	1	1	MC1-MC2

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
69	LPRIA	GW(GROG)	HM	U	JAR/BOWL	2	10	LC1BC-ADE/MC1
69	LPRIA	GW(OXIDISED SURFACES)	WM	D	BEAK	3	11	C1AD
69	LPRIA	GW(OXIDISED SURFACES)	HM	RU	JAR/BOWL	2	98	LC1BC-ADE/MC1
69	ERB	OW(GRITTY)	WM	D	JAR	2	12	MC1-C2
69	IA	RW	HM	U	JAR/BOWL	1	1	C3-C1AD
69	ERB	SGW(PROTO)	WM	UB	JAR/BOWL	25	185	MC1-E/MC2
69	LPRIA	SGW(PROTO)	WM	RU	JAR/BOWL	2	31	ADC1
69	LPRIA	SGW(PROTO)	WM	RU	JAR/BOWL(CARINATED CUP)	2	18	LC1BC-ADE/MC1
69	LPRIA	SGW(PROTO)	WM	R	JAR/BOWL	1	9	LC1BC-ADE/MC1
69	LPRIA	SGW(PROTO)	WM	R	LID	1	12	ADC1
69	LPRIA	SGW(PROTO)	WM	R	JAR/BOWL	1	9	ADC1
69	LPRIA	SOW(COARSE)	HM	D	SJAR	1	5	LC1BC-ADE/MC1
69	ERB	SRW	WM	UDB	JAR/BOWL	9	46	ADC1
69	LPRIA	SRW	HM	RUD	JAR/BOWL	19	184	LC1BC-ADE/MC1
69	LPRIA	SRW(BSRW)	HM	U	JAR/BOWL	13	28	LC1BC-ADE/MC1
69	LPRIA	STW	HM	RU	MJAR	7	36	LC1BC-ADE/MC1
70	ERB	GW(FINE)	WM	U	JAR/BEAK	1	1	ADC1
70	LPRIA	GW(OXIDISED SURFACES)	WM	D	BEAK	1	4	ADC1
70	ERB	OW(GRITTY)	WM	D	JAR/FLAG	1	17	MC1-C2
70	IA	RW	HM	U	JAR/BOWL	1	2	C3-C1AD
70	ERB	SGW(PROTO)	WM	RUB	JAR/BOWL	12	111	MC1-C2
70	LPRIA	SOW(COARSE)	HM	D	SJAR	1	17	LC1BC-ADE/MC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
70	LPRIA	SRW	HM	UD	JAR/BOWL	22	101	LC1BC-ADE/MC1
70	LPRIA	SRW	HM	R	JAR/BOWL	2	36	LC1BC-ADE/MC1
70	LPRIA	SRW	HM	R	JAR/BOWL	1	21	LC1BC-ADE/MC1
72	LPRIA	GW(OXIDISED SURFACES)	WM	B	JAR/BOWL	1	14	LC1BC-ADE/MC1
72	ERB	OW(GRITTY)	WM	ERB	JAR/FLAG	3	17	MC1-C2
72	ERB	SGW	WM	R	JAR/BOWL	2	41	MC1-E/MC2
72	ERB	SGW(PROTO)	WM	R	JAR/BEAK	1	19	ADC1
72	ERB	SGW(PROTO)	WM	UD	JAR/BOWL	16	86	M/LC1
72	LPRIA	SRW	HM	UDB	JAR/BOWL	71	459	LC1BC-ADE/MC1
72	LPRIA	SRW(BSRW)	WM	RU	JAR/BOWL	14	48	LC1BC-ADE/MC1
72	LPRIA	SRW(GROG)	HM	RUD	JAR/BOWL	4	95	C1-ADE/MC1
73	ERB	GW(GROG)	WM	R	JAR	1	9	E/MC1-E/MC2
73	LPRIA	GW(OXIDISED SURFACES)	WM	UB	JAR/BOWL	3	20	LC1BC-ADE/MC1
73	ERB	OW(GRITTY)	WM	UD	JAR/BEAK	3	15	MC1-C2
73	ERB	RED FW	WM	D	JAR/FLAG	3	8	MC1-E/MC2
73	ERB	SGW(PROTO)	WM	UDB	JAR	16	107	MC1-E/MC2
73	ERB	SGW(PROTO)	HM	UDB	JAR/BOWL	14	134	E/MC1-E/MC2
73	ERB	SGW(PROTO)	WM	R	JAR/BOWL	3	15	E/MC1-E/MC2
73	ERB	SGW(PROTO)	WM	R	JAR/BOWL	2	6	E/MC1-E/MC2
73	ERB	SGW(PROTO)	WM	R	JAR/BOWL	2	11	E/MC1-E/MC2
73	LPRIA	SRW	HM	UDB	JAR/BOWL	42	420	LC1BC-ADE/MC1
73	LPRIA	SRW	HM	R	SJAR	2	243	LC1BC-ADE/MC1
73	LPRIA	SRW	HM	R	SJAR	1	109	LC1BC-

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
								ADE/MC1
73	LPRIA	SRW	HM	R	BOWL	2	24	LC1BC-ADE/MC1
73	LPRIA	SRW	WM	R	JAR/BOWL	1	25	ADC1
73	LPRIA	SRW	HM	R	JAR/BOWL	1	19	LC1BC-ADE/MC1
73	LPRIA	SRW	WM	R	JAR/BOWL	1	5	ADC1
73	LPRIA	STW	HM	U	JAR/BOWL	2	7	LC1BC-ADE/MC1
74	IA	RW	HM	U	JAR/BOWL	2	10	C3-C1BC
74	ERB	SGW(PROTO)	WM	RU	JAR/BOWL	4	43	ADC1
74	ERB	SGW(PROTO)	WM	RU	JAR/BOWL	7	109	E/MC1-E/MC2
74	LPRIA	SRW	HM	U	JAR/BOWL	11	88	LC1BC-ADE/MC1
74	LPRIA	STW	HM	UB	JAR/BOWL	4	27	LC1BC-ADE/MC1
76	ERB	SGW(PROTO)	WM	R	JAR/BOWL	1	3	MC1-E/MC2
76	LPRIA	SRW	HM	RUD	JAR/BOWL	10	44	LC1BC-ADE/MC1
77	ERB	RED FW	WM	U	JAR/BEAK	2	7	M/LC1
77	IA	RW	HM	UB	JAR/BOWL	4	26	C3-C1AD
77	IA	RW	HM	RU	THUMB POT	2	25	IA
77	ERB	SGW(PROTO)	WM	U	JAR	4	26	E/MC1-E/MC2
77	LPRIA	SOW(COARSE)	HM	U	SJAR	1	6	LC1BC-ADE/MC1
77	LPRIA	SRW	HM	R	SJAR	1	167	LC1BC-ADE/MC1
77	LPRIA	SRW	HM	UD	JAR/BOWL	11	86	LC1BC-ADE/MC1
77	LPRIA	SRW	HM	R	JAR/BOWL	1	9	LC1BC-ADE/MC1
77	LPRIA	SRW	HM	R	JAR/BOWL	1	26	LC1BC-ADE/MC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
77	LPRIA	SRW	HM	R	JAR/BOWL	3	12	LC1BC-ADE/MC1
77	LPRIA	STW	HM	U	JAR/BOWL	2	6	LC1BC-ADE/MC1
78	ERB	OW(GRITTY)	WM	U	FLAG/AMPH	2	25	MC1-C2
78	IA	RW	HM	U	JAR/BOWL	1	4	C3-C1CBC
78	LPRIA	SRW(BSRW)	HM	U	JAR/BOWL	1	2	LC1BC-ADE/MC1
79	IA	RW	HM	RU	JAR/BOWL	3	9	C3-C1BC
81	ERB	SGW(PROTO)	WM	UD	JAR/BOWL	5	34	E/MC1-E/MC2
81	ERB	SOW	WM	U	JAR/FLAG	1	6	MC1-C2
81	LPRIA	SRW	HM	U	SJAR	1	27	LC1BC-ADE/MC1
81	LPRIA	SRW	HM	UD	JAR/BOWL	4	47	LC1BC-ADE/MC1
85	ERB	SGW(PROTO)	HM	RUD	JAR/BOWL	14	140	E/MC1-E/MC2
85	LPRIA	SRW(BSRW)	HM	U	JAR/BOWL	4	8	LC1BC-ADE/MC1
86	ERB	SGW(PROTO)	HM	D	JAR/BOWL	4	15	E/MC1-E/MC2
87	IA	RW	HM	U	JAR/BOWL	1	4	C3-C1AD
87	LPRIA	SRW	HM	RUD	JAR/BOWL	7	47	LC1BC-ADE/MC1
88	ERB	SGW(PROTO)	HM	D	JAR/BOWL	1	9	E/MC1-E/MC2
89	LPRIA	SRW	HM	P	JAR/BOWL(CARINATED CUP)	7	393	C1BC-ADE/MC1
89	LPRIA	SRW	HM	U	JAR/BOWL	1	16	LC1BC-ADE/MC1
92	LPRIA	SRW	HM	UD	JAR/BOWL	8	15	LC1BC-ADE/MC1
93	LPRIA	GW(GROG)	HM	U	JAR/BOWL	1	5	LC1BC-ADE/MC1
93	IA	RW	HM	D	JAR/BOWL	1	6	C3-C1BC
93	ERB	SGW(PROTO)	WM	RU	JAR	8	25	MC1-E/MC2

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
93	LPRIA	SOW(COARSE)	HM	D	SJAR	1	6	LC1BC-ADE/MC1
93	LPRIA	SOW(COARSE)	HM	D	JAR/BOWL	1	6	LC1BC-ADE/MC1
93	LPRIA	SRW	WM	U	JAR/BOWL	4	11	ADC1
93	LPRIA	STW	HM	U	JAR/BOWL	1	3	LC1BC-ADE/MC1
94	ERB	OW(GRITTY)	WM	U	FLAG	1	2	MC1-C2
94	IA	RW(FLINT)	HM	U		1	1	PRE
94	IA	SRW	HM	U	JAR/BOWL	1	1	C1BC-ADC1
94	LPRIA	SRW(FINE)	WM	U		3	3	C1BC-ADC1
96	IA	RW	HM	U	JAR/BOWL	6	72	C2-C1BC
96	LPRIA	SGW(PROTO)	HM	UD	JAR/BOWL	3	52	C1BC-ADC1
96	LPRIA	SRW	HM	UD	JAR/BOWL	3	18	C1BC-ADC1
97	IA	RW	HM	RU	JAR/BOWL	4	64	C3-C1BC
97	LPRIA	SRW	WM	U	JAR/BOWL	1	3	LC1BC-ADE/MC1
100	ERB	OW(GRITTY)	WM	B	AMPH/FLAG	1	22	C1
100	ERB	RED FW	WM	U	JAR/BEAK	1	1	C1
100	LPRIA	SGW(OX SURFACE)	WM	UD	BEAK	2	3	C1
100	LPRIA	SGW(PROTO)	WM	D	JAR/BOWL	1	12	MC1-EC2
100	LPRIA	SRW	HM	UB	JAR/BOWL	26	329	C1BC-1AD
100	LPRIA	SRW	WM	UB	JAR/BOWL	19	75	C1
100	LPRIA	SRW	HM	R	BOWL	1	9	C1
100	LPRIA	SRW	HM	R	JAR	1	13	C1
100	LPRIA	SRW	WM	R	JAR	1	7	C1-E/MC2
100	LPRIA	SRW	WM	R	JAR/BOWL	1	4	C1
100	IA	SRW(GROG)	HM	RU	BOWL	3	26	C2-C1BC
101	ERB	BSRW	WM	RU	WJAR	4	14	C1BC-ADC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
101	ERB	GW(FINE)	WM	ub	jar/bowl	5	36	mc1-mc2
101	ERB	HORN-TYPE	HM	UD	SJAR	27	444	C1-E/MC2
101	ERB	OW(GRITTY)	WM	u	flag	1	5	mc1-mc2
101	IA	RW(FLINT)	HM	r	jar/bowl	1	2	e/mia
101	IA	RW(FLINT)	HM	U		1	1	PRE
101	ERB	SGW(PROTO)	WM	UD	jar/bowl	5	19	MC1-MC2
101	ERB	SGW(PROTO)	WM	D	jar/bowl	4	28	C1BC-ADC1
101	IA	SRW	HM	UB	jar/bowl	21	146	LIA
101	IA	SRW	HM	R	BOWL	3	74	LIA
101	IA	SRW	HM	R	jar/bowl	1	11	LIA
101	LPRIA	SRW	WM	U	jar/bowl	20	76	
101	LPRIA	SRW(FINE)	WM	UD	BEAK	18	88	C1-E/MC2
101	LPRIA	SRW(FINE)	WM	R	jar/bowl	1	14	C1BC-ADC1
101	LPRIA	SRW(FINE)	WM	R	jar/bowl	1	8	C1BC-ADC1
101	LPRIA	SRW(FINE)	WM	R	jar/bowl	1	7	C1BC-ADC1
101	LPRIA	SRW(FINE)	WM	R	BEAK	2	10	C1BC-ADC1
101	LPRIA	SRW(GROG)	WM	D	SJAR	3	41	C1BC-ADC1
102	IA	RW	HM	UD	JAR/BOWL	3	4	C2-C1BC
102	LPRIA	SGW(OX SURFACE)	WM	UD	BEAK	2	6	C1
102	LPRIA	SGW(PROTO)	WM	D	JAR/BOWL	1	12	C1
102	LPRIA	SRW	WM	U	JAR/BOWL	37	195	C1
102	LPRIA	SRW	WM	R	JAR	2	23	C1
102	LPRIA	SRW	WM	R	JAR	1	33	C1
102	LPRIA	SRW	WM	R	JAR/BOWL	1	4	C1
102	LPRIA	SRW	WM	R	BOWL	1	7	C1
102	LPRIA	SRW	HM	UD	SJAR	4	60	C1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
103	LPRIA	GW(FINE)	WM	U	JAR/BEAK	1	2	C1
103	ERB	OW(GRITTY)	HM	U	?AMP	4	19	C1BC-ADC1
103	ERB	RED FW	WM	U	BEAK/JAR	3	7	C1-E/MC2
103	IA	RW(FLINT)	HM	R	JAR/BOWL	1	26	PRE
103	ERB	SGW(OX SURFACE)	WM	D	BEAK	1	8	C1
103	ERB	SGW(PROTO)	WM	UD	JAR	4	19	MC1-MC2
103	LPRIA	SGW(PROTO)	WM	R	JAR	1	9	C1-E/MC2
103	LPRIA	SGW(PROTO)	WM	R	JAR	1	63	C1-E/MC2
103	LPRIA	SGW(PROTO)	WM	D	JAR/BOWL	7	53	C1-E/MC2
103	LPRIA	SGW(PROTO)	WM	R	JAR/BOWL	1	3	C1-E/MC2
103	IA	SRW	HM	UD	JAR/BEAK	3	73	PRE
103	IA	SRW	HM		JAR/BOWL	4	27	PRE
103	LPRIA	SRW	HM	UB	JAR/BOWL	17	287	C1-E/MC2
103	LPRIA	SRW	WM	U	JAR/BOWL	24	141	C1-E/MC2
103	LPRIA	SRW	HM	D	SJAR	1	24	C1-E/MC2
103	LPRIA	SRW	WM	R	JAR	1	42	C1-E/MC2
103	LPRIA	SRW	WM	R	JAR	2	20	C1-E/MC2
103	LPRIA	SRW	WM	R	JAR	1	10	C1-E/MC2
103	LPRIA	SRW	WM	R	JAR	2	10	C1-E/MC2
103	LPRIA	SRW	WM	R	JAR	1	7	C1-E/MC2
103	LPRIA	SRW	WM	R	JAR	2	8	C1-E/MC2
103	LPRIA	TR	WM	R	DISH/PLATTER	2	10	C1BC-ADC2
104	ERB	GW(FINE)	WM	R	JAR	1	4	MC1-MC2
104	LPRIA	GW(FINE)	WM	D	jar/bowl	5	34	C1
104	ERB	OW(GRITTY)	WM	RU	NJAR	2	54	MC1-C2
104	ERB	SRW	WM	UD	jar/bowl	11	48	C1BC-ADC1

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
104	ERB	SRW	WM	R	jar/bowl	2	13	MC1-EC2
104	LPRIA	SRW	HM	DB	jar/bowl	13	114	C1BC-ADC1
104	LPRIA	SRW	HM	U	jar/bowl	12	103	C1BC-ADC1
104	LPRIA	SRW	HM	R	jar/bowl	1	9	C1BC-ADC1
104	LPRIA	SRW	HM	R	jar/bowl	1	8	C1BC-ADC1
104	LPRIA	SRW	HM	R	jar/bowl	1	11	C1BC-ADC1
104	LPRIA	SRW	WM	R	JAR	1	25	C1
104	LPRIA	SRW	WM	R	jar/bowl	1	8	MC1-EC2
104	LPRIA	SRW	WM	R	JAR	1	9	MC1-EC2
104	LPRIA	SRW	WM	R	JAR	1	6	MC1-EC2
104	LPRIA	SRW	WM	R	JAR	2	16	MC1-EC2
104	LPRIA	SRW(GROG)	WM	RUDB	JAR/BOWL	47	353	C1
104	LPRIA	SRW(GROG)	HM	DB	JAR	2	56	C1BC-ADC1
105	IA	RW(FLINT)	HM	R	JAR/BOWL	1	3	C3-C1BC
106	LPRIA	OW(GRITTY)	WM	U	JAR/BOWL	3	14	MC1-E/MC2
106	LPRIA	RED FW	WM	UD	JAR/BEAK	8	26	C1
106	IA	RW	HM	D	JAR	1	8	C2-C1BC
106	LPRIA	SGW(PROTO)	HM	R	CARINATED CUP	1	17	C1
106	LPRIA	SGW(PROTO)	HM	D	JAR/BOWL	3	23	C1
106	LPRIA	SOW	HM	D	JAR	3	21	C1-E/MC2
106	LPRIA	SRW	WM	U	JAR/BOWL	5	21	C1
106	LPRIA	SRW	HM	UD	JAR/BOWL	13	82	C1
106	IA	STW	HM	U	JAR/BOWL	1	4	C2-C1BC
106	LPRIA	TR	WM	UD	DISH/PLATTER	1	2	C1
108	IA	RW	HM	B	JAR/BOWL	1	15	C3-C1BC
109	IA	RW	HM	B	JAR/BOWL	1	5	C3-C1BC

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
110	IA	OW	HM	U	JAR/BOWL	1	5	E/MIA
112	LPRIA	RW	WM	UD	JAR/BOWL	79	421	C1
112	IA	SRW	HM	RUD	JAR/BOWL	22	500	C2-C1BC
112	LPRIA	SRW	WM	U	SPINDLE WHORL	1	3	C1
112	LPRIA	SRW	HM	R	BOWL	1	7	C1BC-ADC1
112	LPRIA	SRW	WM	R	JAR	2	22	C1-E/MC2
112	LPRIA	SRW(FINE)	WM	R	BEAK	1	3	C1
113	IA	RW	HM	RUD	JAR/BOWL	68	583	C2-C1BC
113	LPRIA	SGW(OX SURFACE)	WM	RD	BEAK	3	9	C1
113	LPRIA	SRW	WM	UD	JAR/BOWL	26	84	C1
113	LPRIA	SRW	WM	R	JAR/BOWL	2	21	C1
113	LPRIA	SRW(GROG)	HM	UD	JAR/BOWL	17	89	C1BC-ADC1
115	LPRIA	GW(GROG)	HM	U	SJAR	2	16	C1BC-adE/MC1
115	IA	OW(FLINT)	HM	U	JAR/BOWL	1	3	E/MIA
115	LPRIA	SRW	WM	UD	JAR	22	86	C1
115	LPRIA	SRW	WM	R	JAR	2	25	C1
115	LPRIA	SRW	WM	R	JAR	1	5	C1
115	IA	SRW(GROG)	HM	RU	JAR/BOWL	25	245	C2-C1BC
116	IA	RW	HM	U	BOWL	6	55	C2-C1BC
116	ERB	SGW(PROTO)	WM	R	JAR/BOWL	1	15	C1
116	ERB	SRW	WM	UD	JAR/BOWL	17	70	C1
116	ERB	SRW	WM	R	jar/bowl	1	5	C1
116	LPRIA	SRW	HM	RUD	JAR	11	103	C1BC-1AD
116	LPRIA	TR	WM	B	DISH/PLATTER	1	6	C1
122	IA	RW	HM	RUD	JAR/BOWL	24	275	C3-C1
123	IA	RW	HM	D	JAR/BOWL	1	25	C3-C1BC

Context	Era	Fabric	Handmade or wheelmade	Sherd type	Form	Sherd count	Weight (g)	Spot date
124	IA	RW	HM	D	JAR/BOWL	8	23	C2-C1BC
124	ERB	SGW(OX SURFACE)	WM	UD	BEAK	6	15	E/MC1
124	ERB	SGW(PROTO)	WM	U	JAR	1	1	MC1-E/MC2
124	LPRIA	SRW	WM	UB	JAR/BOWL	5	43	LC1BC-AD1
125	IA	RW(FLINT)	HM	U	JAR/BOWL	5	12	C3-C1BC
125	LPRIA	SGW(PROTO)	HM	D	JAR/BOWL	2	1	LC1BC-AD1
125	LPRIA	SRW	WM	UB	JAR/BOWL	13	50	LC1BC-AD1
126	ERB	OW(GRITTY)	WM	U	FLAG/JAR	2	3	MC1-E/MC2
126	LPRIA	SRW	HM	UD	JAR/BOWL	7	57	LC1BC-ADE/MC1
126	LPRIA	SRW	WM	U	JAR	2	5	ADC1
126	LPRIA	TR	WM	UB	JAR	4	23	ADC1
127	IA	RW	HM	U	JAR/BOWL	2	7	C2-C1BC
127	LPRIA	SRW	WM	R	JAR/BOWL	1	11	LC1BC-ADE/MC1
503	LPRIA	SRW	WM	R	JAR/BOWL	1	17	C1
506	LPRIA	SRW	WM	U	JAR	1	8	ADC1
519	EMOD	emod	WM			6	278	C18-C19
520	LPRIA	OW(GRITTY)	HM	U	AMPH	1	15	C1BC-ADC1
520	ERB	SGW(PROTO)	WM	B	JAR	1	9	MC1-E/MC1AD
520	LPRIA	SRW	WM	U	JAR	1	10	C1AD
521	ERB	SGW(PROTO)	WM	UD	JAR/BOWL	2	13	ADC1

Table 23: Late pre-Roman Iron Age and Romano-British pottery catalogue

E.6 Burnt Clay

By Alice Lyons

Introduction

E.6.1 A total of 896 fragments of burnt clay, weighing 9.949kg, were recovered. This assemblage consists of a limited range of fabrics and types (Table 24), the majority (89.81% by weight) of which are categorised as 'daub'.

E.6.2 Daub is hardened clay, used in the production of ovens, kilns and dwellings.

E.6.3 Pure clay was mixed with different proportions of sand, manure and straw to make it plastic and easy to work. Daub also sometimes bears the impressions of pliable branches used to make wattles and withies that formed the superstructures of the buildings it was used to construct.

E.6.4 Daub does not generally survive as it is vulnerable to water damage and also very friable; only when it has been fired or burnt will it become semi-permanent.

Methodology

E.6.5 The burnt clay was counted and weighed, by form and fabric type and any complete dimensions measured (mm). Levels of abrasion, any evidence of re-use or burning were also recorded. This follows guide lines laid down by Archaeological Ceramic Building Materials Group (ACBMG 2002). The terminology used follows Brodribb (1987).

The Assemblage

E.6.6 Five burnt clay fabrics were identified (Table 24), the majority of which consists of an almost pure pale white clay (Fabric 1), although a sandier fabric (Fabric 2) was also produced. While Fabric 1 was used only to produce daub, Fabric 2 (a harder and more durable fabric) was used to make daub, hearth lining and more substantial plates. Three other fabrics were found in very small quantities. Fabrics 3 and 4 are sandier versions of Fabrics 1 and 2 (respectively), while Fabric 5 is also similar to Fabric 1, although tempered with grog.

E.6.7 Although the site lies on solid chalk geology, the source of this clay may have been the nearby river bank or pockets of marly grey clay within the chalk (British Geological Survey, 2002). It is unlikely that the clay would have been imported from a great distance.

E.6.8 Of particular interest are the plate fragments that were recovered. The plates are solid (unperforated) with fumed surfaces that are between 31 and 35mm thick and have a curved outer edge. They are all made from the sandier fabrics (Fabrics 2, 3 and 4). These are consistent with the portable or temporary kiln floor plates that were used as kiln furniture in the Late pre Roman Iron Age and Early Roman eras (Swan 1984, 64-65). At least one pottery kiln has previously been identified at War Ditches (Evans *et al.* 2008, 102-106) and it is possible that these plates are associated with that kiln or others that were misidentified as 'fire-places' (Swan 1984, 61) or yet others still to be located.

Fabrics	Daub		Hearth Lining		Plates	
Fabric 1	585	5813				
Fabric 2	239	3224	3	64	6	384
Fabric 3	2	15			7	85
Fabric 4	1	10			17	184
Fabric 5	36	170				
TOTAL(g)	**863**	**9232**	**3**	**64**	**30**	**653**

Table 24: The burnt clay listed by fabric and type

List of Fabrics

Fabric 1; (585 fragments, weighing 5813g, 58.43% of the assemblage by weight)

White (2.5Y) to pale pink (7.5YR 8/2) in colour, some examples have a grey (2 for gley core 6/1) (some examples are entirely grey). Fairly pure clay with very occasional small (2-10mm) flint stones. Many of the fragments have smoothed upper surfaces, with impressions of vegetation still visible.

Fabric 2; (248 fragments, weighing 3672g, 36.91% of the assemblage by weight)

Burnt orange (2.5YR 5/6), many examples have a paler buff surface. The clay mixed with sand, although one example is also tempered with seeds. Many of the fragments have smoothed upper surfaces, with impressions of vegetation still visible.

Fabric 3; (9 fragments, weighing 100g, 1.01% of the assemblage by weight)

As Fabric 1, but with added sand

Fabric 4, 18 fragments, weighing 194g, 1.95% of the assemblage by weight)

As fabric 2, but with more frequent sand

Fabric 5, 36 fragments, weighing 170g, 1.71% of the assemblage by weight)

As Fabric 1, but with grog added as a temper

Burnt Clay by period Group

When this material is examined by Period Group (Table 25) it can be seen that burnt clay is not commonly found in deposits pre-dating the Late pre Roman Iron Age. Indeed, the majority of burnt clay was found in layers dated to the transitional period between the Late Pre Roman Iron Age and the Early Roman era (Period Group 7).

Period Group	Fabric 1		Fabric 2		Fabric 3		Fabric 4		Fabric 5		Period total (g)
4: EIA	1	1	1	7	1	11					**19**
5: LPRIA	120	1436	18	770			1	10	33	116	**2332**
6: TRANS	90	806	8	182					2	8	**996**
7: TRANS	372	3564	215	2687					1	46	**6297**
8: TRANS	2	6									**6**
0: unphased			6	26	8	89	17	184			**299**
Fabric total (g)	**585**	**5813**	**248**	**3672**	**9**	**100**	**18**	**194**	**36**	**170**	**9949**

Table 25. The burnt clay shown by Period Group and fabric

Conclusion

E.6.9 This is a relatively small and fragmentary assemblage of burnt clay, the majority of which related to the later phases of activity at the War Ditches site. Most of this material can only be categorised as 'daub', although it is possible that some of the material at least may have originated from an early pottery kiln. The burnt clay was manufactured locally for local purposes and it has no characteristics (such as maker's stamps or hob nail impressions) that could be associated with military activity. This type of assemblage is typical of the area and may be considered normal (Evans *et al.* 2008, 82-3).

Further work

E.6.10 No further analysis of the burnt clay is considered necessary. It is suggested that the results of this assessment be integrated into the publication text as appropriate.

E.6.11 The only other aspect of research that may be of interest would be an analysis of the seeds used as temper in one of the Fabric 2 daub fragments. This may indicate what crop or other plants were being grown in the vicinity.

APPENDIX F. ENVIRONMENTAL REPORTS

F.1 Faunal Remains

By Chris Faine

Introduction

F.1.1 Two-hundred and twenty phased spits or contexts from the War Ditches excavations contained faunal material, with a total weight of 19.6 kg, dating from the Early Iron Age to 1st century AD. Almost all material was recovered from the ring ditch. The majority of faunal material is concentrated in Groups 2-7. Thirty-nine environmental samples contained faunal material, with a total weight of 50 grams. The average weight of material per sample is 2 grams, although three samples contain relatively large amounts (NISP: 70+) of anuran amphibian remains. The material is stored in 6 cardboard boxes measuring 38 x 25.5 x 13cm, with the material from environmental samples being stored in 1 box measuring 24 x 18 x 16cm. One-thousand three-hundred and seventy fragments were recovered from the site with 861 fragments identifiable to species 62% of the total sample).

Phasing

F.1.2 As mentioned above the majority of faunal material was recovered from Groups 2-7, with a small amount from Group 1 and undated contexts. Table 26 shows the number of identifiable fragments (NISP) by group. For the purposes of this assessment the assemblage has been divided into the following periods:

- Groups 1-4: Early Iron Age (5th - 4th century B.C.)
- Groups 5-7: Late Iron Age (100 - 50 B.C.)

Group	**NISP**
1	18
2	144
3	34
4	182
5	89
6	80
7	314
Total	**861**

Table 26: Numbers of identifiable fragments by group

F.1.3 The assemblage was analysed at this stage using standard OA methodology for assessments. All data will be entered into a specially written MS Access database. Each context was quantified in terms of weight (g), fragment size and preservation. Preservation was assessed using a numbered scale of 0-5, with 0 representing excellent preservation and 5 being so badly degraded identification is impossible. The presence of a particular taxon in the context was noted along with the number of

fragments. Species identification was carried out using a comparative collection and reference manuals. Material from samples will only be identified as “mammal/bird/fish” at this stage. Elements not identifiable to species were classed as “large/medium/small mammal” where possible and their presence within each context noted. The numbers of measurable elements, ageable mandibles and bones (through numbers of fused epiphyses, after Silver, 1969) were noted. Fragmentary adult remains where any standard measurement is possible were included (largely following von den Driesch, 1976) . An ageable mandible represents one where all three molars are present for tooth wear analysis (after Grant, 1982). The presence of any elements assignable to gender were also noted, whether by morphological (e.g. Armitage & Clutton-Brock, 1976, Hatting, 1995 and Ruscillo, 2006), or metrical criteria (e.g. Grigson, 1982). Finally the presence of any butchery or pathology within the context were noted.

Overview of Assemblage

Preservation

F.1.4 Table 27 shows the preservation levels for the entire assemblage (including large/medium mammal fragments), with 0 denoting excellent preservation and 5 denoting extremely poor condition. Whilst material from 6 & 7 is generally slightly better preserved than earlier groups, each group on the whole displays a wide variety of preservation levels.

Group	0	1	2	3	4	5
1	0%	0%	33%	33%	0%	33%
2	10%	20%	10%	20%	30%	10%
3	0%	0%	0%	50%	25%	25%
4	7.5%	7.5%	10%	27.5%	35%	12.5%
5	0%	9%	0%	63.6%	27.2%	0%
6	0%	14.2%	42.8%	14.2%	28.5%	0%
7	3.9%	23%	34.7%	15.4%	21.1%	1.9%

Table 27: Preservation levels for the whole assemblage.

Species

F.1.5 Table 28 shows the species distribution by number of contexts. In terms of the Early Iron Age material the most numerous taxon by context is cattle, along with smaller numbers of sheep/goat. There are few contexts containing other domestic and wild mammal species, with pig and dog being the next most prevalent taxa. Red deer is present in a single context (antler only). Environmental samples yielded both small mammal and anuran amphibian remains, with contexts **249** (S.253) and **254** (S.262) containing large numbers (NISP 50+) of amphibian remains of varying sizes. Whilst individual elements were generally not identified it is worth noting that in terms of NISP the Early Iron Age sample is scattered, with only five contexts containing more than 10 identifiable fragments (all from Group 4). Most notable of these are contexts **133** and **134**, containing a juvenile pig skeleton and a variety of domestic mammal elements respectively.

F.1.6 The Late Iron Age assemblage shows a broader species distribution, with cattle and sheep/goat the most prevalent taxa, but with higher instances of pig, horse and dog remains than the Early Iron Age sample. No wild mammal remains were recovered. Numbers of contexts containing small mammals are similar but with higher prevalences of anuran amphibian remains. Contexts are generally larger than in the Early Iron Age assemblage. Context **89** in particular contains around 60 burnt fragments of sheep long bone and cranial fragments.

Species	**Un-Phased**	**EIA**	**LIA**
Cattle *(Bos)*	6	31	21
Sheep/Goat *(Ovis/Capra)*	4	19	17
Pig *(Sus scrofa)*	0	4	13
Horse (*Equus caballus)*	1	1	11
Dog *(Canis familiaris)*	0	6	10
Red deer *(Cervus elaphus)*	0	1	0
Bird	0	1	1
Small mammal	0	5	5
Amphibian	0	4	10
Unis large/med mammal	7	59	72
Total	**11**	**131**	**160**

Table 28: Species distribution (no. of contexts)

	Group	**No. of species**	**Species present**
EIA	**1**	3	Cattle, Sheep/Goat, Horse
	2	4	Cattle, Sheep/Goat, Pig, Bird
	3	1	Cattle
	4	6	Cattle, Sheep/Goat, Pig, Horse,Dog, Bird, Deer
LIA	**5**	5	Cattle, Sheep/Goat, Pig, Horse, Dog
	6	5	Cattle, Sheep/Goat, Pig, Horse, Dog
	7	6	Cattle, Sheep/Goat, Pig, Horse, Dog, Bird

Table 29: No of identifiable species by group

Ageing, sexing and measurement data

F.1.7 Tables 29 and 30 show the numbers of ageable mandibles and bones for the assemblage. As one would expect given its larger size and generally better preservation the Later Iron Age sample contains a greater number of ageable elements, with some potential for inter or intra-site comparison. There are also greater numbers of measurable elements in the later Iron Age sample compared to the Early Iron Age material (see Table 31). These may be enough to compare stature/breed within the assemblage itself. It may also be possible to compare gender proportions in the

assemblage through metrical analysis of the later Iron Age assemblage, although no bones could be sexed on purely morphological grounds.

	EIA	**LIA**
Cattle	0	3
Sheep/Goat	1	8
Pig	1	1
Total	**2**	**12**

Table 30:Number of ageable mandibles

	EIA	**LIA**
Cattle	13	37
Sheep/Goat	5	24
Pig	0	2
Total	**18**	**63**

Table 31: Number of ageable epiphyses

	EIA	**LIA**
Measurable bones	23	62
Measurements	33	89

Table 32: Number of measurable elements

Butchery and pathology

F.1.8 Elements from 116 spits/contexts showed evidence of butchery (52.7% of all contexts. Only one instance of pathology was observed in the Late Iron Age sample (loss of the Dp4 and subsequent alveolar resorption on a dog mandible from context **52** (S.72)).

Conclusions and recommendations

F.1.9 The faunal material from War Ditches is a medium sized and fragmentary assemblage. There is potential for intra site comparison of body part distribution, biometrical data and ageing (despite the lack of mandibles) via epiphyseal fusion. Although relatively small compared to nearby contemporary assemblages from Wandlebury (French & Gnadiec, 1996), Addenbrooke's (Evans, *et al.* 2008) and Babraham Road (Hinman, 2001) there is some potential for comparison that should aid in interpreting the site in the context of the wider landscape. The relatively large numbers of anuran amphibian remains are unusual, with the two assemblages from Group 2 possibly being suitable for C14 dating if required.

F.2 Archaeobotanical Remains

By Rachel Ballantyne

Summary

F.2.1 The bulk samples from War Ditches, Cambridge are mostly from chalk rubble ditch fills in the outer boundary of an Iron Age ring monument. All samples from the test pits have produced high amounts of intrusive roots and plant debris, with low amounts of vitrified charcoal that is unsuitable for further analyses. The charred plant macrofossils in the ring ditch fills seem to represent at least three sources; cleaned grain products, small wild seeds of cereal weeds or fodder and, very rarely, wetland resources such as great fen sedge. Well-represented cereal types are spelt wheat, emmer wheat and hulled barley, with free-threshing hexaploid wheat (bread wheat type) only in one Group 8 fill. The wheat identifications have been confirmed by diagnostic chaff fragments and are overall a typical range for later prehistory in southern Britain.

F.2.2 Charred plant macrofossils are relatively rich in the mid to upper fills of the ring ditch, and so can address basic questions regarding economic activities for Groups 5 to 8. The Phase 8 fills all represent grain products, whereas lower fills tend to be dominated by small wild seeds, suggesting a change in the contributing patterns of activity or discard. The best preserved charcoal occurs in ring ditch fills from Group 8 and at the interface between Groups 4 and 3. In both cases, the charcoal is accompanied by numerous burnt mollusc shells that may indicate fires either within or very close to the ring ditch. The contrasting 'populations' of charred and rich uncharred mollusc types in the ring ditch would be worthy of more detailed analysis, to inform understanding of the formation pathways represented.

F.2.3 There is some evidence that smaller charred items have moved down the porous, poorly-sorted chalk rubble matrix, and this will limit the resolution of any temporal reconstruction and C14 dating. Furthermore, the likely disassociation between deposition context and past activity areas means that the charred plant remains can only provide a very general picture of past activities. Despite these caveats, further analysis of the charred plant remains is recommended to provide a broad reconstruction of crop processing activities and to add to the range of ring monuments in the region with associated charred plant assemblages. There is no evidence for waterlogging or mineral-replacement of plant tissues by calcium phosphate or calcium carbonate, so the plant assemblage cannot address past local environment.

Introduction

F.2.4 The main excavation trench was opened along 9m of a very large chalk-cut ditch, which once formed the outer south-east boundary of an Iron Age ring monument. Several test pits were also opened to examine the survival of features exterior to and within the monument.

F.2.5 The ring monument is located on a free-draining chalk hilltop *c*. 46m OD, overlooking the southern fen-edge and valley of the River Cam. The sampled ring ditch fills are alkaline, porous, poorly-sorted, and contain high proportions of chalk rubble. Bulk samples of possible buried soils from the test pits include high amounts of intrusive, recent plant material.

F.2.6 Key research aims are to establish the duration and nature of the infill sequence within the ditch, to provide absolute dating for these activities and infills where possible, and to

add to the existing corpus of information from past excavations through the application of a suite of modern environmental sampling techniques and analyses.

F.2.7 Extensive bulk sampling was undertaken by site staff with the aim of maximising the range of bioarchaeological remains recovered from all feature types, phases and areas. All bulk samples have now been sub-sampled for flotation sieving and assessment.

F.2.8 This report summarises the types and preservation quality of plant remains present across the War Ditches bulk samples and the preliminary results are very briefly contrasted to published Iron Age assemblages from nearby Wandlebury Ringwork (Cyganowski 2004), Haddenham (Jones 2006) and Wardy Hill Ringwork (Murphy 2003). Finally, the potential of the archaeobotanical remains to address the aims outlined in D.1.6 is explored, with recommendations made for the updated project design.

Methodology

F.2.9 The site directors ensured coverage by bulk sampling of all feature types and phases during excavation, with particular focus on the ring ditch fill sequence. A proportion (usually 10–20 litres of an overall 40 litres) of all 68 bulk samples was flotation sieved for assessment, using a modified version of the Siraf tank (Williams 1973). Flots were collected in 300 micron sieves, with residues washed over 1mm mesh – both fractions were then dried and bagged. All samples have been analysed for this assessment, and all the heavy residues have been sorted by OAE staff.

F.2.10 Each flot was scanned under a low-power binocular microscope (x0.5–x40) and the abundance of the different charred plant macrofossil types noted (grain, chaff, wild plant seeds, potentially identifiable charcoal >2mm, charcoal <2mm). No flots were rich enough to require subdivision with a riffle box.

F.2.11 The text in this report refers to findings by group, and only specific finds are referred to by context; detail is provided by the full raw data in Table 34.

Quantification

F.2.12 All biological items have been recorded qualitatively, with minimum numbers of individuals divided into the categories: * 1 or 2 items, + less than 10 items, ++ 10 to 50 items, +++ more than 50 items. Individuals are defined as single fruits, seeds or chaff items, so three cotyledons (seed halves, such as in peas) would be counted as representing a minimum of two seeds. Heavily fragmented larger items cannot easily be quantified (such as wood charcoal or nutshell), and in these cases the estimated volume is also recorded.

F.2.13 All plant nomenclature follows Stace (1997) for plant remains, and the morphological classifications in Zohary and Hopf (2000) for cereals. Identifications have been limited at this stage to the most significant items (e.g. economic plants, and those that are numerous or unusual). Other small ecofacts in the flots have been noted, including untransformed plant items that are probably intrusive.

Species Present

Plants

Cereals

F.2.14 Most of the charred plant remains are cereal grains that are too puffed, abraded and/or fragmented to be identifiable beyond genus.

F.2.15 Wheat is the most frequent and numerous grain type, with diagnostic glume bases (chaff fragments) indicating that both spelt wheat (Triticum spelta) and emmer wheat (Triticum dicoccum) are represented. One wheat free-threshing rachis internode in upper fill **3** is identifiable as a hexaploid type (Triticum aestivum sensu lato).

F.2.16 Hulled barley grain is also frequent, but there is no diagnostic barley chaff and the majority of grain appears too poorly preserved to distinguish straight or twisted forms.

Fruits, nuts and vegetables

F.2.17 Two large legume fragments in context **52** (S.73, G.7) and **132** (G.4) are of sufficient size to be Celtic bean (Vicia faba var. minor) or pea (Pisum sativum), but each is too poorly preserved for closer identification.

F.2.18 One small fragment of hazelnut shell (Corylus avellana) in context **5** (S.10 G.7) could represent food waste, or fruits introduced with brushwood fuel.

Other wild plants

F.2.19 The charred wild plant seeds within the ring ditch fills appear to represent two distinct groups, according to seed size and broad location by phase:

F.2.20 Group 8 and 7 fills, and some from Groups 6, 5 and 4, include low numbers of large, heavy items from likely arable weeds such as wild radish capsules (Raphanus raphanistrum) and seeds of black bindweed (Fallopia convolvulus), goosegrass (Galium aparine), brome grass (Bromus sp.), oats (Avena sp.), and fescues (Festuca sp.). All these items are difficult to clean from harvested crops and so are often retained with the grain product (Jones 1984).

F.2.21 Group 5 fills, and a few from Groups 7, 6, 4 and 3, include sometimes numerous small, heavy seeds of possible arable weeds such as docks (Rumex spp.), orache (Atriplex prostrata/patula), fat hen (Chenopodium album), clover or medicks (Trifolium/Medicago sp.), meadow-grass (Poa sp.) and timothy (Phleum sp.). Chickweed (Stellaria media) seeds are particularly numerous in context **5** (S.13,G.7) and context **107** (S.113, G.5). All these seed forms may be removed from a harvested crop by fine sieving (ibid.). A number of these taxa, notably clover/medicks, meadow-grass and timothy, have ecological traits that could also represent grassland habitats and a collected resource such as fodder.

F.2.22 The limited range of wild plants precludes detailed reconstruction of crop husbandry practices, other than to note that all the listed taxa are found widely in later prehistoric charred crop assemblages from southern Britain (Jones 1988; Greig 1991).

F.2.23 Of note is a single charred seed of great fen sedge (Cladium mariscus) in Group 7 ditch fill **5** (S.31), which provides the only clear evidence for wetland resources; this highly rhizomatous semi-aquatic plant could not be expected on arable land nor wild upon the surrounding free-draining chalk hills, and thus must represent a collected resource brought. A small number of persicaria (Persicaria sp.) and sedge seeds (Carex spp.) may represent weeds of damp arable margins or other collected wetland resources, but these taxa include species also recorded on dry land in Cambridgeshire (Cambs flora note) (Perring *et al.* 1964).

Other biota

F.2.24 Numerous mollusc shells occur throughout the section, as do small vertebrates (notably eel and amphibians); these have been assessed by relevant specialists.

Preservation

F.2.25 Charred plant macrofossils occur in moderate densities in the upper to middle ring ditch fills (Groups 8 to 5). The three upper fills of Group 4 also contain low densities of charred macrofossils, but these may be displaced from higher fills. Group 3 to 1 contexts are almost devoid of charred plant remains, with only Group 3 fill **202** (S.208) containing more than one charred macrofossil type.

F.2.26 Quality of preservation is moderate to poor for cereal grain, which is often puffed and distorted from charring and/or heavily fragmented and so not identifiable beyond genus. Frequently, larger weed seeds are also puffed, abraded and fragmented, and chaff items are often fragmented.

F.2.27 Many of the small, heavy wild seeds exhibit quite good preservation by charring, with little distortion or abrasion of surfaces. This trait may add credence to the suggestion that more than one source of charred plant remains is represented.

F.2.28 Fragmentation and surface abrasion of charred macrofossils suggests weathering and trampling may have been factors between charring and final burial, with the associated implications of mixing of multiple sources.

F.2.29 The majority of charcoal in the ring ditch is very fragmented (<2mm) and in low quantities. Charcoal is abundant and well preserved only in Group 8 fills (contexts **4** and **6**), and those at the interface between Groups 4 and 3 (contexts **183**, **185** (S.189), 202 (S.206, S.208). Other contexts with moderate amounts of charcoal that could merit processing the remainder of their samples are Group 7 fill **5** (S.11), Group 5 fills **107** (S.108) and **121** (S.122) and Group 3 fills **211** (S.215) and **229** (S.226) .

F.2.30 Almost all charcoal in the subsoil from the test pits is highly fragmented and vitrified, and thus unsuitable for analysis. Context **514** exhibits slightly better preservation, but further analysis is likely to be precluded by the ambiguity of the formation pathway for this context, its stratigraphic phasing, and the extensive bioturbation suggested by high levels of intrusive roots and plant matter.

Contamination

F.2.31 Low amounts of untransformed, probably modern rootlets occur in all the sampled ring ditch fills. Many of the fills that are richest in charred plant remains overlie fills with similar inclusions in much lower densities, suggesting that smaller items have moved down the profile; this is highly plausible given the numerous voids in the poorly-sorted chalk rubble fills. Detailed temporal analyses by fill spits cannot therefore be justified.

F.2.32 A small number of distinct events are however discernible in the broad infilling sequence. For example, Group 7 fill **5** (S.31) and Group 5 fill **107** (S.113) are locally abundant in charred chickweed seeds. Secondly, Group 8 fills are grain-dominated with low numbers of large wild seeds, whereas Group 5 fills are more mixed, with small wild seeds, chaff and grain, a contrast in compositions that suggests different activities may be very broadly distinguished through time.

F.2.33 High amounts of untransformed, probably modern rootlets occur in all the test pit samples. Other untransformed plant remains include seeds/fruits of ivy-leaved speedwell (Veronica hederifolia), hawthorn (Crataegus monogyna), sloe (Prunus

spinosa) and wild rose (Rosa sp.); the latter two show rodent-knawing. It is likely that bioturbation has been high in all these contexts.

Sampling Bias

F.2.34 The assemblage is a true reflection of the excavated site as all context types encountered were sampled, and all the samples have been assessed. The assemblage is heavily weighted towards ring ditch fills, which were the predominant context type encountered. It is noticeable that settlement features are almost absent, as only one such feature was encountered in a test pit.

Statement of Research Potential

F.2.35 The range and abundance of charred plant macrofossils and charcoal in the Group 3 to 8 ring ditch fills can provide a fairly coarse temporal reconstruction of crop processing activities associated with the ring monument. No further charred plant analysis is, however, recommended for the test pit samples.

F.2.36 The range of economic plant taxa identified at War Ditches compares very well to the cereal-dominated assemblages reported at other Iron Age ring monuments (or ringworks) in the region at nearby Wandlebury (Cyganowski 2004) and Wardy Hill (Murphy 2003), and the settlement enclosure at Haddenham (Jones 2006).

F.2.37 As only the ring ditch feature is well represented by samples at War Ditches, comparison to assemblages from more fully excavated ring monuments (and other Iron Age settlement types) will be critical to interpreting the charred plant remains. For example, at Wardy Hill the inner enclosure ditch was found to contain higher concentrations of charred plant remains than many settlement features, including ring gullies (Murphy 2003, Figure 57).

F.2.38 The charred plant macrofossils from Groups 8 to 4 appear to represent both cleaned grain products and small weed seeds removed by sieving; activities associated with the later stages of crop processing, probably after storage in bulk spikelet form (cf. Hillman 1981). The two rich charcoal horizons in Groups 8 and 3 to 4 may represent nearby fires given the associated burnt mollusc shells. Finally, there is very limited evidence for the presence of gathered wetland resources, specifically great fen sedge in Group 7 fill **5** (S.31), which may have been brought several kilometres for thatching or kindling.

F.2.39 Extreme caution should be used when considering the charred plant remains for C14 dating, due to the possibility of small items moving down the profile. It is recommended that, wherever possible, much larger items such as human or animal bone are targeted. 'Events' that may be suitable for C14 dating if absolutely necessary are the charcoal-rich horizons noted in Groups 8 and 4 to 3, depending on the taxa present, and the two fills with numerous charred chickweed seeds noted in Groups 7 and 5.

F.2.40 The ring ditch samples, whilst of quite limited interpretive value, provide the only opportunity to examine charred plant remains, and thus plant use from the largely destroyed War Ditches ring monument. Furthermore, the charred plant remains form an important addition to the regional corpus of material from these enigmatic Iron Age landscape features. In future years, the archived charred grain may, for example, prove of value for novel scientific analyses such as stable isotope investigation of growing locations and conditions.

Further Work and Updated Project Design (Methods Statement)

F.2.41 It is recommended that a number of the Group 8 to 3 bulk samples should be fully processed to maximise the recovery of charred plant remains.

F.2.42 The possible movement of smaller items down the profile suggests that, to improve confidence that the charred plant remains examined are originally associated with each group, samples should ideally be from mid to lower fills within each group.

F.2.43 The suggested range of bulk samples (and their contexts) to be fully processed and analysed for charred plant macroremains is thus:

- Group 8: samples <1> **3** and <3> **6** (sample <2> **4** already fully processed)
- Group 7: samples <5> **5**, (S.32), <7> **5** (S.27), <8> **5** (S.25), <9> **5** (S. 31), <10> **52** (S.56), <12> **52** (S.57)
- Group 6: no samples recommended other than as already exists
- Group 5: samples <21> **107** (S.116), <22> **107** (S.108), <23> **107** (S.113), <24> **107** (S.114), <26> **121** (S.122)
- Group 4: samples <38> **183**, <40> **185** (S.189)
- Group 3: samples <41> **202** (S.206), <42> **202** (S.208)
- Group 2: sample <52> **249** (S.251)
- Group 1: no samples unless also required for recovery of other remains

F.2.44 Each sample should be processed as for this assessment: by flotation sieving using a Siraf tank (Williams 1973). The flots should be collected over 0.3mm mesh, and the heavy residue over 1mm or 0.3mm mesh, depending on whether mollusc analysis is also desired for that sample. Both flots and residues should be dried prior to sorting.

F.2.45 Sorting of flots will require a low-power binocular microscope (x0.5–x40), with access to a seed reference collection and relevant seed atlases. All items should be identified to where possible, and quantified numerically to minimum numbers of individuals (e.g. grains, chaff items, seeds/fruits). Taxonomy would follow Stace (1997) and the morphological taxonomies in Zohary and Hopf (2000) for cereals.

F.2.46 Full microscope analysis of the plant macrofossils could be expected to take 4 days, with an additional 3 days required for tabulation, analysis and interpretation of results, including more detailed comparison with existing ring monument and smaller settlement assemblages from the region.

F.2.47 Formal charcoal assessment may be desirable for the Group 8, 4 and 3 ring ditch contexts noted above that appear to represent nearby or in-situ fires (samples <2>, <38>, <40>, <41>, <42>). Such work would require access to a high-power microscope with transmitted and reflected light, appropriate reference collections and identification literature and could be expected to take *c*. 2 days (a separate quote is required, and should be commissioned after the additional proportions of the selected bulk samples have been flotation sieved).

Phase	No of samples	Litres processed	Grain	Chaff	Seeds	Charcoal >2mm	Burnt molluscs
1	5	50				*	
2	6	60	*		*	++	*
3	10	87	*		+	+++	+++
4	12	120	+	+	+	+++	
5	8	80	+++	+	++	+++	
6	3	30	++		+	+	
7	12	140	+++	+	++	+++	+
8	3	50	+++	+	*	+++	++

Table 33: Summary by phase of charred plant remains in the ring ditch

Phase	Context number	Sample number	Spit within context	Cut number	Feature type	Processed volume	Overall sample volume	Grain	Chaff	Seeds	Charcoal volume/ ml	Charcoal >2mm	Charcoal <2mm	Burnt molluscs	Small bone	Rootlets	Intrusive other	Comments
1	(264)	<63>	-	[269]	ditch	10	40				<1		*			*	* moss	
1	(266)	<64>	-	[269]	ditch	10	10				<1		*			*		
1	(266)	<65>	-	[269]	ditch	10	40				<1		*			*		
1	(267)	<66>	(266)	[269]	ditch	10	40				<1	*	*			*		
1	(268)	<67>	-	[269]	ditch	10	10				<1		*			*		
2	(250)	<51>	(249)	[269]	ditch	10	30				<1		+			+	* moss	
2	(251)	<52>	(249)	[269]	ditch	10	80			*	<1	*	+		*	++		Indeterminate seed fragment, amphibian bone
2	(252)	<53>	(249)	[269]	ditch	10	40				1	+	+			+		
2	(253)	<54>	(249)	[269]	ditch	10	40	*			1	+	+			+		
2	(255)	<56>	(254)	[269]	ditch	10	40				<1	*	+				* moss, Fumaria	
2	(262)	<55>	(254)	[269]	ditch	10	40				<1		+	*				
3	(206)	<41>	(202)	[269]	ditch	10	40				20	+++	+++	++		+		
3	(208)	<42>	(183)	[269]	ditch	10	40			+	10	++	+++	+++		++		Not oak charcoal, small trigonous Carex sp., Trifolium/Medicago, large seed indet.
3	(212)	<43>	?211	[269]	ditch	2	2				2	+	+++	*		+		
3	(215)	<44>	(211)	[269]	ditch	10	40				8	++	+++					
3	(226)	<45>	(183)	[269]	ditch	5	5				5	++	+++	*	*	+		Amphibian bone
3	(229)	<46>	(213)	[269]	ditch	10	20				1	+	++					Lots of amorphous CaCO3 crystals

3	(230)	<47>	(230)	[269]	ditch	10	40				<1		+	*		-		
3	(237)	<48>	(236)	[269]	ditch	10	10				<1	*	+	++		+		
3	(244)	<49>	(230)	[269]	ditch	10	40				<1	*	+			+		
3	(245)	<50>	(230)	[269]	ditch	10	40	*			<1	+	+			++		Lots of amorphous CaCO3 crystals
4	(130)	<27>	(120)	[269]	ditch	10	40		+	*	2	+	++			++		Triticum spelta glume base, Avena sp.
4	(131)	<29>	-	[269]	ditch	10	40	*		*	<1	+	++			+		Triticum cf. dicoccum grain, Hordeum vulgare grain, Bromus sp. fragment, 1 burnt fungal sclerotium
4	(132)	<30>	-	[269]	ditch	10	40	*		*	<1	*	+			+		Stellaria media, large legume fragment
4	(141)	<32>	(136)	[269]	ditch	10	40	*			2	+	++			++		Hordeum vulgare grain
4	(147)	<34>	(136)	[269]	ditch	10	40				<1	*	++			+		
4	(150)	<33>	(136)	[269]	ditch	10	40				<1		+			+		
4	(160)	<31>	(136)	[269]	ditch	10	40				<1	*	+			+		
4	(166)	<35>	(162)	[269]	ditch	10	40				<1	*	+			+		
4	(177)	<36>	(175)	[269]	ditch	10	40				<1		+			-		
4	(180)	<37>	(175)	[269]	ditch	10	40	*			<1	*	+					
4	(183)	<38>	-	[269]	ditch	10	40				8	++	+++			+		Not oak charcoal
4	(189)	<40>	(184)	[269]	ditch	10	40				10	++	+++	+		+++		
5	(106)	<14>	-	[269]	ditch	10	20	++		+	1	+	++			+		Hordeum vulgare, Triticum cf. dicoccum, Phleum sp., Stellaria media, small grass indet.
5	(108)	<22>	(107)	[269]	ditch	10	40	+	+	*	3	++	++			+		Triticum spelta/dicoccum grain, glume bases, spikelet fork, Trifolium sp., Bromus cf. secalinus
5	(113)	<23>	(107)	[269]	ditch	10	40	*		++	<1	*	++			+		Triticum sp. grain, Atriplex patula/prostrata, Poa sp., many Stellaria media

5	(114)	<24>	(107)	[269]	ditch	10	10	+			<1	*	+			*		Triticum sp. grain
5	(116)	<21>	(107)	[269]	ditch	10	40	+	*	*	2	+	++			+		Hordeum vulgare, Triticum cf. spelta grain, Triticum spelta glume base, Avena sp.
5	(118)	<25>	(107)	[269]	ditch	10	40	*		*	<1	*	+			*		Hordeum vulgare, Triticum sp. grain, Phleum, Stellaria media
5	(122)	<26>	(121)	[269]	ditch	10	40	+	*	+	3	++	++			+	* leaf frag	hulled Hordeum vulgare, Triticum spelta/dicoccum grain, Bromus cf. secalinus, Avena sp., Chenopodium album
5	(125)	<28>	(119)	[269]	ditch	10	40				<1	*	+					
6	(96)	<19>	(95)	[269]	ditch	10	40	+		*	1	*	++			+		hulled Hordeum vulgare, indeterminate grain fragments, Bromus sp.
6	(100)	<18>	(95)	[269]	ditch	10	40	+		*	<1	*	+			+		Triticum spelta/dicoccum grain, Atriplex patula/prostrata, Stellaria media
6	(104)	<20>	(95)	[269]	ditch	10	40	+			2	+	++			++		hulled Hordeum vulgare, indeterminate grain fragments
7	(10)	<4>	(5)	[269]	ditch	20	40	++		*	1	+	++			++		Hulled Hordeum vulgare grain, Triticum sp. grain, indeterminate grain fragments, Corylus avellana nut shell, Galium aparine, Avena sp.
7	(11)	<6>	(5)	[269]	ditch	10	40	++		+	5	++	+++			++		Hulled Hordeum vulgare grain, Triticum sp. grain, Raphanus raphanistrum capsule frag, Festuca, Atriplex prostrata/patula, eel vertebra
7	(27)	<7>	(5)	[269]	ditch	10	40	+	*	+	2	+	+			+		Galium aparine, Fallopia convolvulus, Bromus/Avena, Triticum spelta/dicoccum glume base
7	(25)	<8>	(5)	[269]	ditch	10	40	+		*	1	-	++			+++		Hulled Hordeum vulgare grain, Triticum spelta/dicoccum grain, Festuca

7	(31)	<9>	(5)	[269]	ditch	10	30	+	*	++	1	-	++	*		+		Hordeum vulgare grain, Triticum sp. grain, Triticum spelta/dicoccum glume base, Rumex sp., Cladium mariscus nutlet, many Stellaria media seeds
7	(32)	<5>	(5)	[269]	ditch	20	40	+	*	*	2	+	++			++		Hulled Hordeum vulgare grain, Triticum spelta glume base, Avena sp.
7	(56)	<10>	(52)	[269]	ditch	10	40	+	*	*	2	+	++	*		+	- hawthorn leaf and petals	Triticum dicoccum glume base, Poa sp. seed, 1 burnt fungal sclerotium
7	(67)	<12>	(52)	[269]	ditch	10	40	+		*	1	*	++			+		Triticum/Hordeum grain, Trifolium, Persicaria maculosa, Galium aparine, Festuca sp. Bromus/Avena
7	(73)	<13>	(52)	[269]	ditch	10	40	*		*	1	*	++			+		Indeterminate grain, 1 large legume fragment
7	(78)	<15>	(52)	[269]	ditch	10	40				<1	*	+			+		
7	(86)	<17>	(52)	[269]	ditch	10	20	+			<1	*	+			+		Triticum spelta, Triticum sp.
7	(89)	<11>	-	[90]	pit	10	40			*	5	++	+++	+	-	+		1 trigonous Carex sp., 1 amphibian bone
8	(3)	<1>	-	[269]	ditch	20	40	+	*		1	+	++	+		+++	+ moss	Hulled Hordeum vulgare, indeterminate grain frags, 1 hexaploid Triticum aestivum sl wheat rachis internode
8	(4)	<2>	-	[269]	ditch	10	10	+			10	+++	+++	+		++		Triticum cf. spelta grain, grain indet.
8	(6)	<3>	-	[269]	ditch	20	40	+++	*	*	2	++	+++	*		+++		Triticum cf. spelta grain, hulled Hordeum vulgare grain, Triticum spelta/dicoccum spikelet fork, indeterminate grain fragments, Avena sp.
-	(503)	<57>	-	-	subsoil	10	40				2	++	++			+++		+ almost all vitrified
-	(505)	<58>	-	-	subsoil	10	20				1	+	++			+++		all vitrified
-	(506)	<59>	-	-	subsoil	10	20				2	+	++			+++		1 rodent eaten Prunus spinosa, some

																		vitrified
-	(508)	<60>	-	-	subsoil	10	40				1	+	++			+++		1 rodent eaten Rosa sp., some vitrified, V.hederifolia, Crataegus, puparium
-	(514)	<61>	-	-	subsoil	10	20	*			3	++	++			+++		Triticum sp. grain
-	(515)	<62>	-	-	subsoil	10	20				1	*	+			+++		vitrified
-	(522)	<68>		[523]	feature	10	40				<1	*	+			+++	+	Veronica hederifolia leaves

Table 34: Environmental catalogue

F.3 Land Snails

By E.C. Stafford

Introduction

F.3.1 25 samples were submitted from the excavation for the assessment of land snails. The samples derive from a series of deposits infilling the main rampart ditch dating from the Early Iron Age to the Early Roman period The purpose of the assessment was to ascertain if the shell assemblages can provide data on the local site environment for the various phases of activity represented. At the most basic level the assessment aimed to:

- Determine the presence/absence of molluscan remains
- Give preliminary data on taxonomic content
- Indicate the potential for further work

Method

F.3.2 The assessment comprised rapid scanning of bulk sample flots under a low power binocular microscope at magnifications of up to x40. The volume of processed sediment for each sample ranged between 5 litres and 20 litres, although the original sample sizes average 40 litres. Due to the rubbly nature of the fills and safety issues the samples were retrieved from individual contexts excavated in plan rather than from vertical sections through the ditch profile.

F.3.3 Due to the super-abundance of shell and differing volumes of sediment processed each flot was split using a riffle box and a proportion, equivalent to *c.* 1 litre of processed sediment, was scanned. Estimates of the minimum number of individuals in each sample was be recorded on a sliding scale (e.g. E=1-4, D=5-12, C=12-25, B=26-50, A=51-100, AA=100-500, AAA=>500). Note was made on the predominant ecological group (eg. O = open country, S = shade-demanding, M = mixed assemblage) as well as the key taxa. Nomenclature follows Kerney (1999) and habitat information follows Evans (1972).

Results

F.3.4 The results of the assessment are presented in tabular format (Table 34). Overall, shell was very well preserved in the majority of the samples assessed. Shell was most abundant in Group 2 and some of the Group 4 and 5 samples (500->800 individuals/litre). Shell abundance was significantly lower in Group 1 (10-20 individuals/litre) and Group 8 deposits (<50 individual/litre). There was some indication of modern contamination in most of the samples to varying degrees. This included the presence of modern roots and the burrowing mollusc Cecilloides acicula. On a cautionary note, in some samples a number of the shells were translucent with periostracum intact suggesting some shells in the assemblages may be relatively recent. This was not confined to any specific species.

F.3.5 Overall 22 species have been noted thus far. In terms of assemblage composition all the samples produced broadly similar results in that they are of low diversity and wholly

dominated by a few open country taxa with varying numbers of catholic species. The most abundant open country species are the Vallonia and Pupilla muscorum with lesser numbers of helicids, predominantly Helicella itala, Vertigo pygmaea and Truncatellina cylindrica. The catholic taxa are dominated by Trichia hispida but Cochlicopa sp. are also present. Shade-demanding species are very sparse and those that are present tend to be more the catholic species of this group e.g. the Punctum group (Punctum pygmaea, Vitrina pellucida, Nesovirea hammonis, Euconulus fulvus), Carychium tridentatum as well as the zonitids Oxychillus cellarius and Aegopinella nitidula. Overall this suggests a long established very dry and open local environment throughout the period of infilling; probably short turfed (grazed) grassland. The small shade-demanding component may be related to the micro-environment prevailing within of the ditch but there does not appear to have been a significant growth of vegetation such as rank grass or scrub, often such a notable feature of ditch profiles during abandonment Groups. This may indicate the ditch was cleaned out/maintained and/or the bottom of the feature was being grazed by livestock.

F.3.6 There is some slight indication of change through the profile. In terms of relative abundance V. excentrica tends to dominate slightly over V. costata in the earlier fills (Groups 1-3), where as V. costata predominates in the later fills. V. pygmaea is also much more abundant in the earlier fills, as is T. hispida. P. muscorum appears to become a more important component in the upper fills. What these changes represent is not entirely clear, although is probably related to the microenvironment of the ditch as well as episodes of erosion and the presence of unstable/stable surfaces. P. muscorum for example generally tends to proliferate where there are broken surfaces bare of vegetation (Evans 1972:146) and T hispida can become very abundant in the base of features where conditions are slightly more humid.

F.3.7 Examples of burnt shells were noted in three samples but they predominantly occurred in Group 3, sample 42, and included the Vallonia, P. muscorum, T. hispida and V. pygmaea

F.3.8 Of note in some of the earlier fills (Groups 1-3) is the presence of a number of species that usually inhabit much wetter environments such as floodplain marsh or fen. This includes Lymnaea truncatula, cf. Vertigo angustior, Vertigo antivertigo, cf. Carychium minimum and Vallonia pulchella. This group of species appears to be out of place with rest of the assemblages and may represent shells brought to the site attached to vegetation collected from a wetland environment. It seems less likely the ditch would have held standing water given the low numbers, geology, elevated location and the absence of other taxa usually associated with such conditions.

Recommendations

F.3.9 This assessment has served well in broadly characterising the composition of the molluscan assemblages. All of the samples produced broadly similar results in that the assemblages are dominated by a few open country-species most likely indicative of a grassland environment. There are a few interesting points of note such as the species of wetland environments identified in the earlier phases of infilling and some indication of a broad change in the proportion of the open country and catholic components in the upper fills.

F.3.10 It is considered unlikely that detailed analysis in terms of full shell counts will provide significant additional information. Given the large sample sizes, complexity of the stratigraphy and the fact it was not possible to extract the samples from a vertical

section, one has to also consider some cross-contamination may have occurred within the broad phases.

F.3.11 However, it is recommended that a proportion of both the flots and residues are more comprehensively scanned to provide a full species list and that identifications are confirmed by comparison with modern reference collections held at Oxford Archaeology South and the Oxford University Museum of Natural History (with particular reference to V. angustior, V. pulchella and Carychium minimum). Further processing of sediment should not be necessary providing the fine residues from the bulk samples are available for scanning to 0.5mm. As the results within each phase were broadly similar scanning of two flots per phase should be adequate (total of 16 samples). Further consideration of the lithology and formation processes associated with individual contexts in relation to the shell assemblages will also be undertaken. A full publication report will be produced supported by tables which will include reference to the abundance of each individual species using an annotated scale.

Resources required

F.3.12 The resources required for the additional work would include 3 specialist days to scan to the flots and residues of up to 16 samples in more detail and confirm the identifications. 1.5 days would be required for consideration of contextual/lithological data and production of a report for publication.

Sample	Context	Phase	Predominant ecological group	Estimated no. individuals /litre sediment	Burnt shell	Key taxa (bold)
1	3	8	O	C		***P. muscorum*** **and** ***Vallonia*** **(mainly** ***V. costata*****)**, with helicids, *T. hispida, V. pygmaea, Cochlicopa* spp., Punctum Gp, *Carychium* spp., and cf. *V. angustior.*
3	6	8	O	A	YES	***Vallonia**** **(mainly** ***V. costata*****) and** ***P. muscorum*** with helicids, *T. hispida,* occ. Punctum Gp, *V. pygmaea* and cf. *V. angustior*
7	27	7	O	AA		***P. muscorum*** **and** ***Vallonia*** **(mainly** ***V. costata*****)**, with helicids, *T. hispida,* occ. *V. pygmaea and T. cylindrica.*
5	32	7	O	AA		***Vallonia*** **(mainly** ***V. costata*****) and** ***P. muscorum*** with *T. hispida,* occ. helicids
12	67	7	O	AAA		***Vallonia*** **(mainly** ***V. costata*****) and** ***P. muscorum****,* with helicids, *T. hispida,* occ. *T cylindrica.*
17	86	7	O	AA		***Vallonia*** **(mainly** ***V. costata*****)** ***and P. muscorum****,* with helicids, *T. hispida,* occ. *T. cylindrica.*
19	96	6	O	AA		***Vallonia*** **(mainly** ***Vallonia costata)*** with *P. muscorum, T. hispida,* occ. *T. cylindrica, Cochlicopa* spp.
20	104	6	O	A	YES	***Vallonia*** **(*****V. costata + excentrica*****)** with *P. muscorum*, T. hispida,* occ. helicids, *T. cylindrica.*

Sample	Context	Phase	Predominant ecological group	Estimated no. individuals /litre sediment	Burnt shell	Key taxa (bold)
22	108	5	O	AA		***Vallonia* (*mainly V. costata*)** with *P. muscorum, T. hispida,* helicids, occ. *Aegopinella/Oxychillus* spp.*, T. cylindrica, Cochlicopa* sp., Punctum Gp., *Cepaea/Arianta* sp., cf. *V. angustior.*
21	116	5	O	AAA		***Vallonia* (mainly *V. costata*)** with *P. muscorum, T. hispida,* helicids, occ. *Aegopinella/Oxychillus* spp.
26	122	4	O	AAA		***Vallonia* (mainly *V. costata*)** with *P. muscorum, T. hispida, Cochlicopa* spp., Punctum Gp, *Aegopinella/Oxychillus* spp., occ. helicids.
27	130	4	O	AAA		***Vallonia* (mainly *V. costata)*** with *P. muscorum, T. hispida, Aegopinella/Oxychilus* spp., helicids, occ. *T. cylindrica, Cochlicopa* spp. and Punctum Gp.
34	147	4	O	AAA		***Vallonia* (mainly *V. costata*)** with *P. muscorum, T. hispida,* helicids occ. *T. cylindrica, Cochlicopa* spp. and Punctum Gp.
33	150	4	O	AAA		***Vallonia* (*mainly V. costata*)** with *P. muscorum, T. hispida,* helicids occ. *Cochlicopa* spp. and Punctum Gp.
36	178	4	O	AA		***Vallonia* (*mainly V. costata*)** with *T. hispida, P. muscorum,* helicids, Punctum Gp., occ. *Aegopinella/Oxychillus* spp., *Coclicopa* spp.
38	183	4	O	AA		***Vallonia* (mainly *V. costata*), *P. muscorum* and *T. hispida*** with helicids, *V. pygmaea, Coclicopa* spp., occ. Punctum Gp., *Aegopinella/Oxychillus* spp.
42	206	3	O	AA	YES	***Vallonia* (V. costata+excentrica), P. muscorum* and T. hispida**** *with helicids, V. pygmaea*, Coclicopa sp., Punctum Gp., Aegopinella/ Oxychilus* spp., occ. *Carychium* spp.
45	226	3	O	AA		***Vallonia (mainly V. costata), P. muscorum and T. hispida*** *with helicids, Coclicopa sp., Punctum Gp., Aegopinella/Oxychilus* spp., occ. *L. truncatula*, cf. *V. pulchella.*
47	230	3	O	AA		***Vallonia* (mainly *V. excentrica*) and *T. hispida*** with *P. muscorum, V. pygmaea, Cochlicopa* spp., *Carychium* spp., Punctum Gp., occ. helicids.
49	244	3	O	AAA		***Vallonia* (mainly *V. excentrica*) and *T. hispida*** with *P. muscorum, V. pygmaea, Coclicopa* spp., *Carychium* spp., Punctum Gp., occ. cf. *V. angustior, L. truncatula.*
51	250	2	O	AA		***Vallonia* (mainly *V. excentrica*) and *T. hispida*** with *V. pygmaea, Cochlicopa* spp., *Carychium* spp., Punctum Gp., *P. muscorum, Aegopinella/ Oxychillus* spp.*,* occ. cf. *V. angustior L. truncatula ,* helicids*,* cf. *V. pulchella.*
52	251	2	O	AAA		***Vallonia* (*V excentrica + costata)* and *T. hispida*** with *P. muscorum, V. pygmaea, Cochlicopa* spp., *Carychium* spp., Punctum Gp., occ. cf. *V. angustior,* helicids, cf. *V. pulchella.*
53	252	2	O	AAA		***Vallonia* (*V. excentrica + costata*) and *T. hispida*** with *P. muscorum, V. pygmaea, Cochlicopa* spp., *Carychium* spp., *Punctum Gp.,* occ. *Aegopinella/ Oxychillus* spp., cf. *V. pulchella* and helicids.
63	264	1	O	C		***Vallonia* and *T. hispida*** with *P. muscorum, V. pygmaea, Coclicopa* spp., *Carychium* spp., Punctum Gp., occ. *Aegopinella/ Oxychillus* spp., cf. *V. angustior* and helicids, cf. *V. pulchella*
65	266	1	O	D		***P. muscorum* and *Vallonia*** with *T. hispida Cochlicopa* spp., occ. *T. cylindrica,* Punctum Gp., *Carychium* spp. and *L. truncatula.*

Table 35:Snail assessment results

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APPENDIX H. OASIS REPORT FORM

All fields are required unless they are not applicable.

Project Details

OASIS Number	Oxfordar3-74163		
Project Name	Exacavtion at War Ditches, Cherry Hinton,Ccambridge: PXA and UPD		
Project Dates (fieldwork) Start	23-03-2009	Finish	05-05-2009
Previous Work (by OA East)	Yes	Future Work	Unknown

Project Reference Codes

Site Code	CAM WAD 09	Planning App. No.	N/A
HER No.	ECB3130	Related HER/OASIS No.	oxfordar3-54869

Type of Project/Techniques Used

Prompt: Conservation/restoration

Please select all techniques used:

☐ Field Observation (periodic visits)	☒ Part Excavation	☐ Salvage Record
☐ Full Excavation (100%)	☒ Part Survey	☐ Systematic Field Walking
☐ Full Survey	☐ Recorded Observation	☐ Systematic Metal Detector Survey
☒ Geophysical Survey	☐ Remote Operated Vehicle Survey	☒ Test Pit Survey
☐ Open-Area Excavation	☐ Salvage Excavation	☐ Watching Brief

Monument Types/Significant Finds & Their Periods

List feature types using the NMR Monument Type Thesaurus and significant finds using the MDA Object type Thesaurus together with their respective periods. If no features/finds were found, please state "none".

Monument	Period	Object	Period
Ring ditch	Iron Age -800 to 43	Pottery	Iron Age -800 to 43
	Select period...	Pottery	Roman 43 to 410
	Select period...	HSR	Iron Age -800 to 43

Project Location

County	Cambridgeshire	Site Address (including postcode if possible)	East Pit Lime Kiln Road Cherry Hinton Cambridge
District	Cambridge		
Parish	Cherry Hinton		
HER	Cambridgshire		
Study Area	1000 sq m	National Grid Reference	TL 484 555

Project Originators

Organisation	OA EAST
Project Brief Originator	N/A
Project Design Originator	Richard Mortimer, Mark Hinman, Elizabeth Popescu
Project Manager	Richard Mortimer
Supervisor	Alexandra Pickstone

Project Archives

Physical Archive	Digital Archive	Paper Archive
Cambridgeshire County Stores	OA EAst	Cambridgeshire County Stores
CAMWAD09	CAMWAD09	CAMWAD09

Archive Contents/Media

	Physical Contents	Digital Contents	Paper Contents
Animal Bones	☒	☒	☒
Ceramics	☒	☒	☒
Environmental	☒	☐	☒
Glass	☐	☐	☐
Human Bones	☒	☒	☒
Industrial	☐	☐	☐
Leather	☐	☐	☐
Metal	☒	☒	☒
Stratigraphic		☐	☐
Survey		☐	☐
Textiles	☐	☐	☐
Wood	☐	☐	☐
Worked Bone	☐	☐	☐
Worked Stone/Lithic	☒	☒	☒
None	☐	☐	☐
Other	☐	☐	☐

Digital Media	Paper Media
☒ Database	☒ Aerial Photos
☐ GIS	☒ Context Sheet
☒ Geophysics	☒ Correspondence
☒ Images	☒ Diary
☒ Illustrations	☒ Drawing
☐ Moving Image	☒ Manuscript
☒ Spreadsheets	☒ Map
☒ Survey	☒ Matrices
☒ Text	☐ Microfilm
☐ Virtual Reality	☐ Misc.
	☒ Research/Notes
	☒ Photos
	☒ Plans
	☒ Report
	☒ Sections
	☒ Survey

Notes:

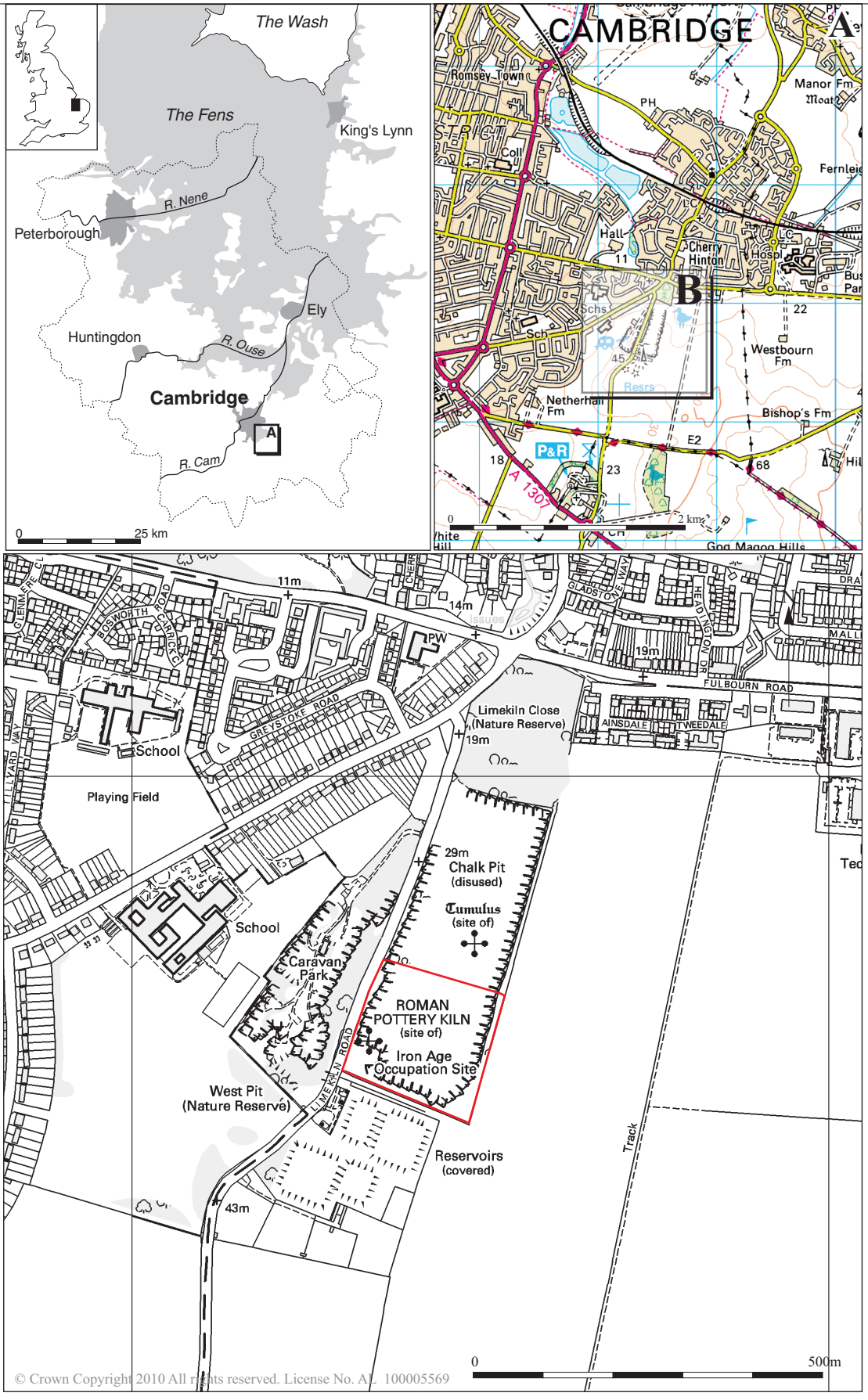

Figure 1 The site location

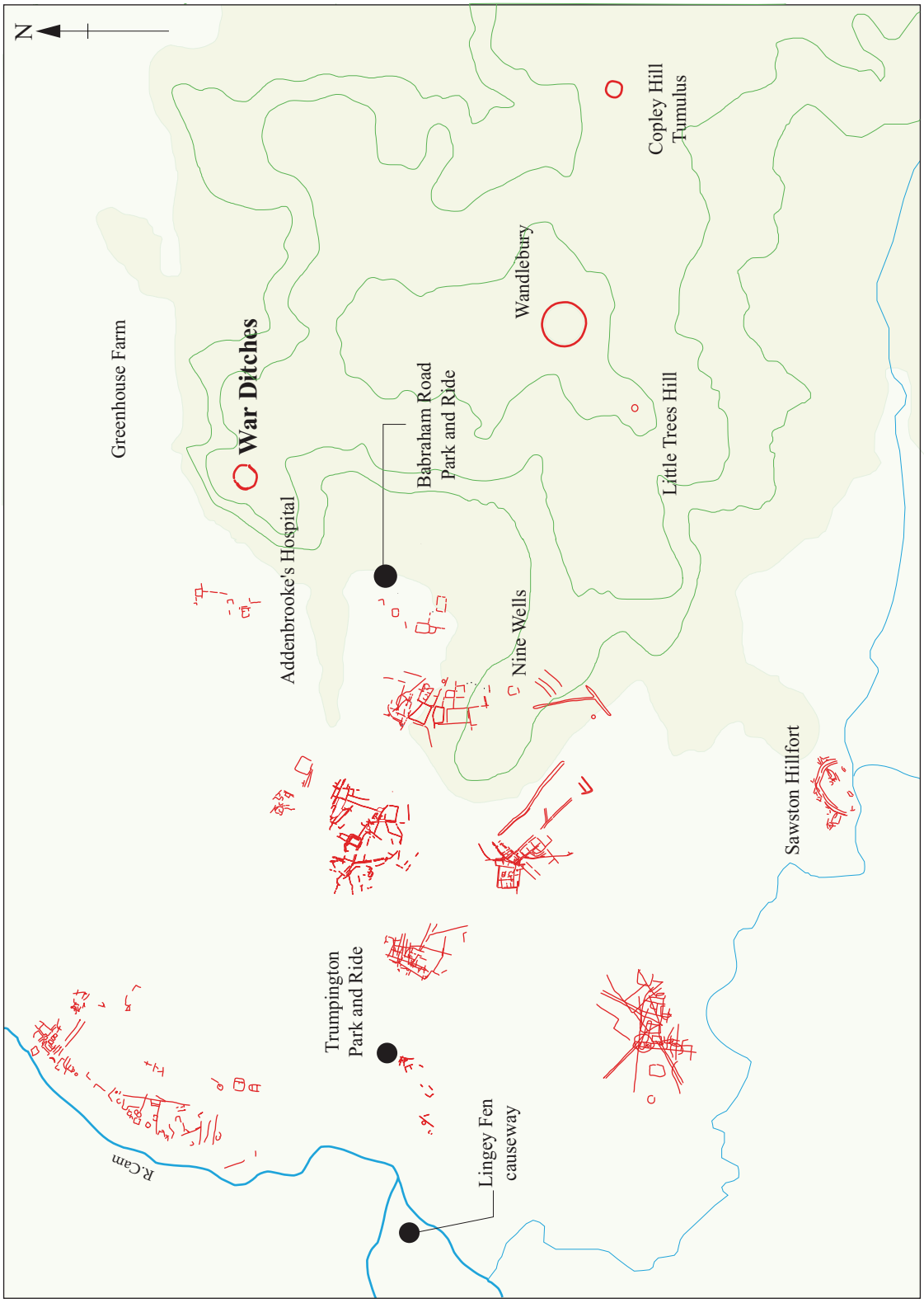

Figure 2: War Ditches and surrounding sites

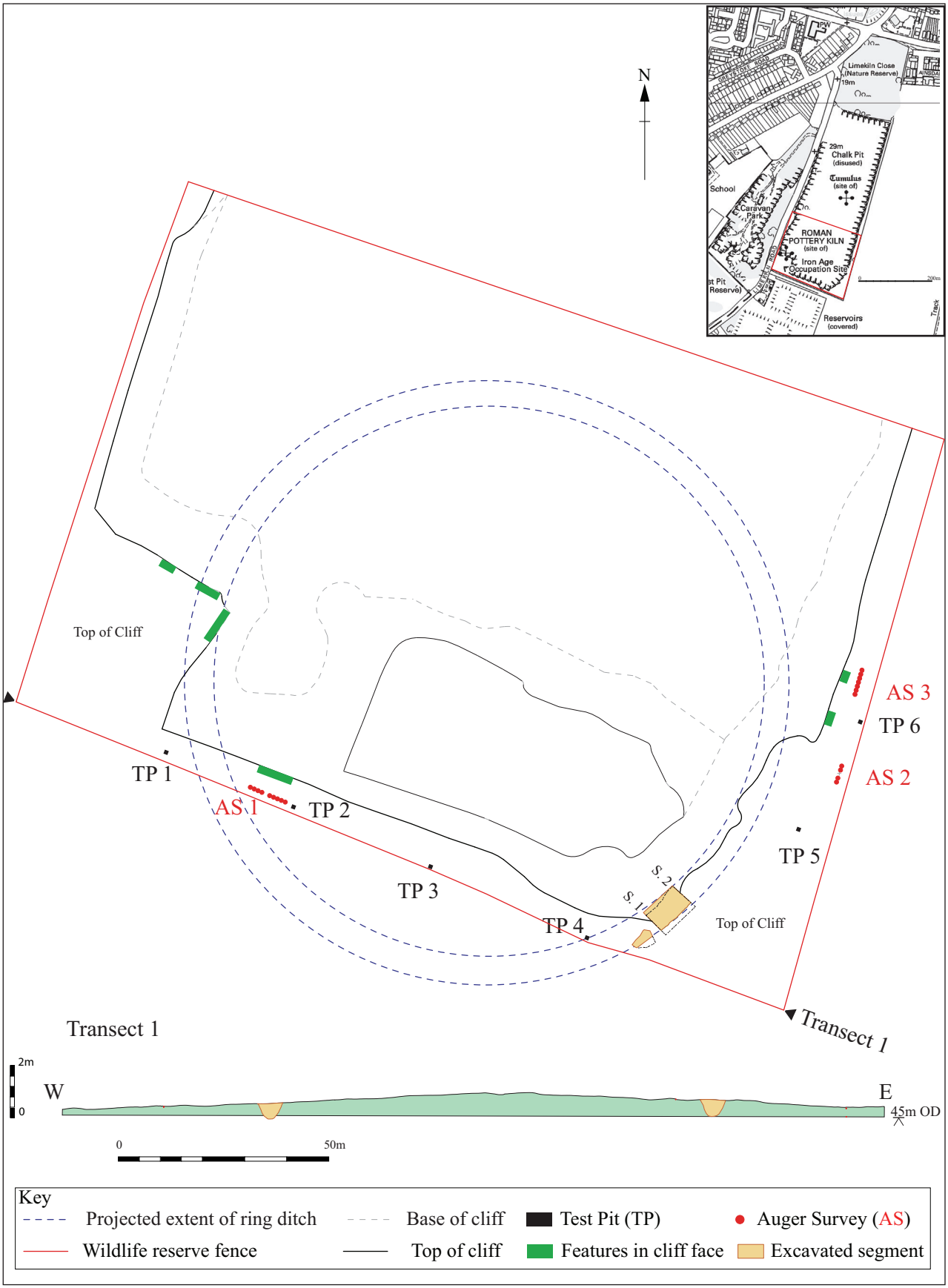

Figure 3: Location of excavated segment and test pits

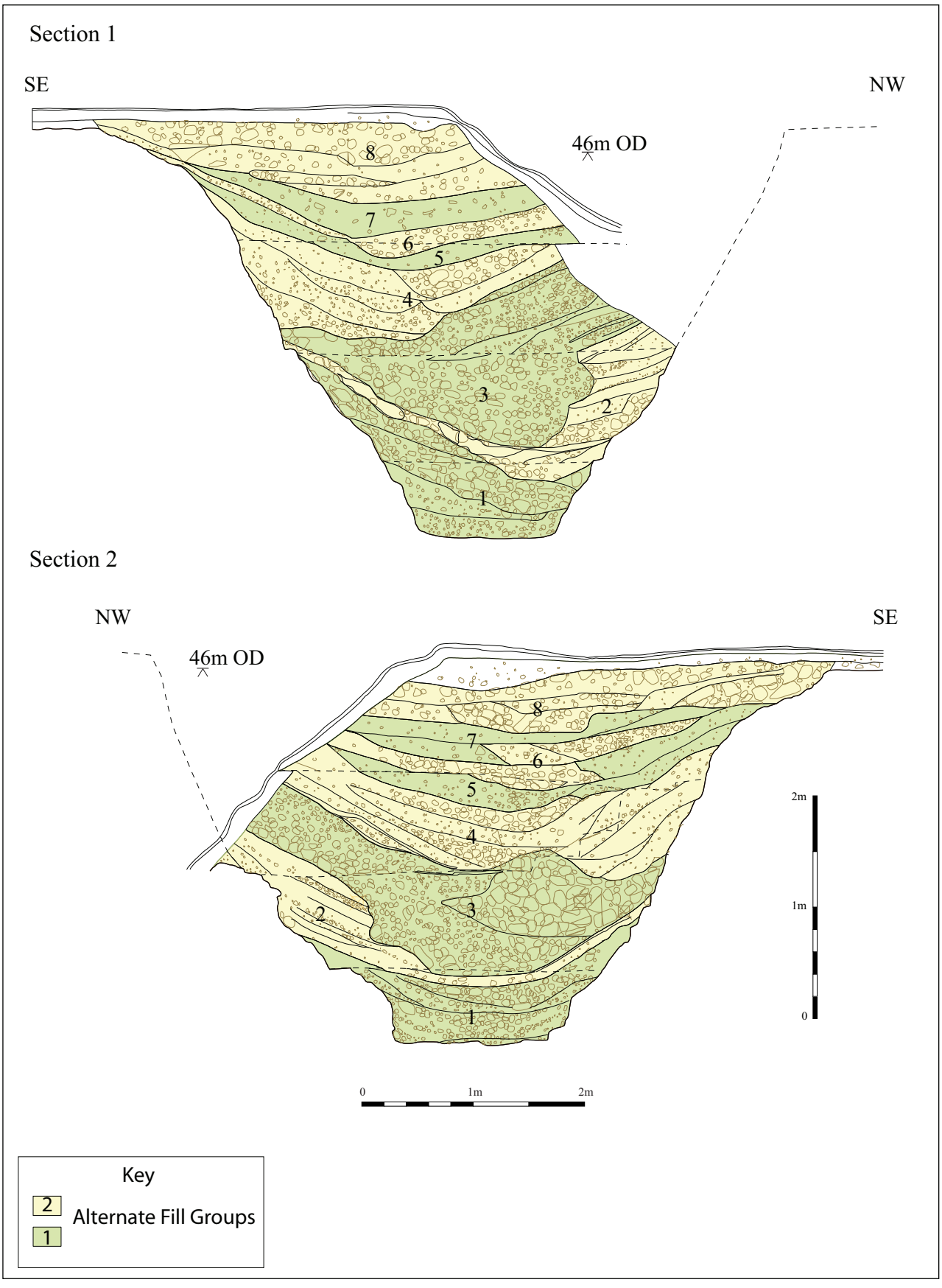

Figure 4 Sections

Head Office/Registered Office

Janus House
Osney Mead
Oxford OX2 0ES

t: +44 (0) 1865 263 800
f: +44 (0) 1865 793 496
e: info@thehumanjourney.net
w:http://thehumanjourney.net

OA North

Mill 3
Moor Lane
Lancaster LA1 1GF

t: +44 (0) 1524 541 000
f: +44 (0) 1524 848 606
e: oanorth@thehumanjourney.net
w:http://thehumanjourney.net

OA East

15 Trafalgar Way
Bar Hill
Cambridgeshire
CB23 8SQ

t: +44 (0) 1223 850500
f: +44 (0) 1223 850599
e: oaeast@thehumanjourney.net
w:http://thehumanjourney.net/oaeast

OA Méditerranée

115 Rue Merlot
ZAC La Louvade
34 130 Mauguio
France

t: +33 (0) 4.67.57.86.92
f: +33 (0) 4.67.42.65.93
e: oamed@oamed.fr
w: http://oamed.fr/

Director: David Jennings, BA MIFA FSA

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