Northamptonshire Archaeology

Archaeological excavation of land at College Road, Aston Clinton, Buckinghamshire: Assessment report and updated project design

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OASIS REPORT FORM

PROJECT DETAILS	**OASIS: 147436**	
Project title	Archaeological excavation on land at College Road, Aston Clinton, Buckinghamshire, Assessment report and updated project design	
Short description	Archaeological earthwork survey and excavation was undertaken by Northamptonshire Archaeology on land at College Road North, Aston Clinton, Buckinghamshire, between November 2011 and February 2012. The works were undertaken on behalf of Prospect Archaeology for Arla Foods and were monitored on behalf of Aylesbury Vale District Council by the archaeological officers for Buckinghamshire County Council. *An area of late Iron Age/ Romano-British settlement was located on a slight ridge of ground situated adjacent to ponds and marshy ground. There seemed to have been a short-lived attempt at cultivation, perhaps a vineyard, in the Late Iron Age/ early Roman period, but this was quickly abandoned. Activity was subsequently focussed on the slight ridge and comprised multiple enclosures arranged around a series of ponds. A possible rectangular timber building was constructed in the 1st or 2nd centuries AD and a possible roundhouse was built in the 2nd century. Both buildings had fallen out of use by the 3rd or 4th centuries.* A number of burials and cremations dated to the 1st and 2nd centuries and included three examples of decapitation	
Project type	Earthwork Survey and Excavation	
Previous work	Desk-based heritage assets (Prospect Archaeology 2010), geophysical survey (Clements and Smith 2010), trial trenching (Walker and Maull 2011)	
Future work	Unknown	
Monument type and period	Iron Age and Roman settlement	
Significant finds	Iron Age and Roman pottery; Roman burials	
PROJECT LOCATION		
County	Buckinghamshire	
Site address	Land off College Road North, Aston Clinton	
Easting and northing	SP 877 135	
Area	55ha	
Height OD		
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator	Eliza Alqassar, Buckinghamshire County Archaeological Service	
Project Design originator	Northamptonshire Archaeology (NA)	
Director/Supervisor	Jim Burke and Carol Simmonds (NA)	
Project Manager	Adam Yates and Anthony Maull (NA) and Nansi Rosenberg (Prospect Archaeology)	
Sponsor or funding body	Prospect Archaeology on behalf of Arla Foods	
PROJECT DATE		
Start date	November 2011	
End date	February 2012	
ARCHIVES	Location (Accession no.)	Content (eg pottery, animal bone etc)
Physical	AYBCM:2010.223	Iron Age and Roman pottery, animal bone, human bone, cremations, flint, small finds, plant fossils
Paper	AYBCM:2010.223	Proforma sheets, plans, sections, black and white contact sheets, colour slides and digital photograph contact sheets
Digital	AYBCM:2010.223	Report, map and site data, digital images
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report (NA report)	
Title	Archaeological excavation on land at College Road, Aston Clinton, Buckinghamshire, Assessment report and updated project design	
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ARCHAEOLOGICAL EXCAVATION

ON LAND AT COLLEGE ROAD, ASTON CLINTON, BUCKINGHAMSHIRE

ASSESSMENT REPORT AND UPDATED PROJECT DESIGN

Abstract

Archaeological earthwork survey and excavation was undertaken by Northamptonshire Archaeology on land at College Road North, Aston Clinton, Buckinghamshire, between November 2011 and February 2012. The works were undertaken on behalf of Prospect Archaeology for Arla Foods and were monitored on behalf of Aylesbury Vale District Council by the archaeological officers for Buckinghamshire County Council.

An area of late Iron Age/ Romano-British settlement was located on a slight ridge of ground situated adjacent to ponds and marshy ground. There seemed to have been a short-lived attempt at cultivation, perhaps a vineyard, in the Late Iron Age/ early Roman period, but this was quickly abandoned. Activity was subsequently focussed on the slight ridge and comprised multiple enclosures arranged around a series of ponds. A possible rectangular timber building was constructed in the 1st or 2nd centuries AD and a possible roundhouse was built in the 2nd century. Both buildings had fallen out of use by the 3rd or 4th centuries.

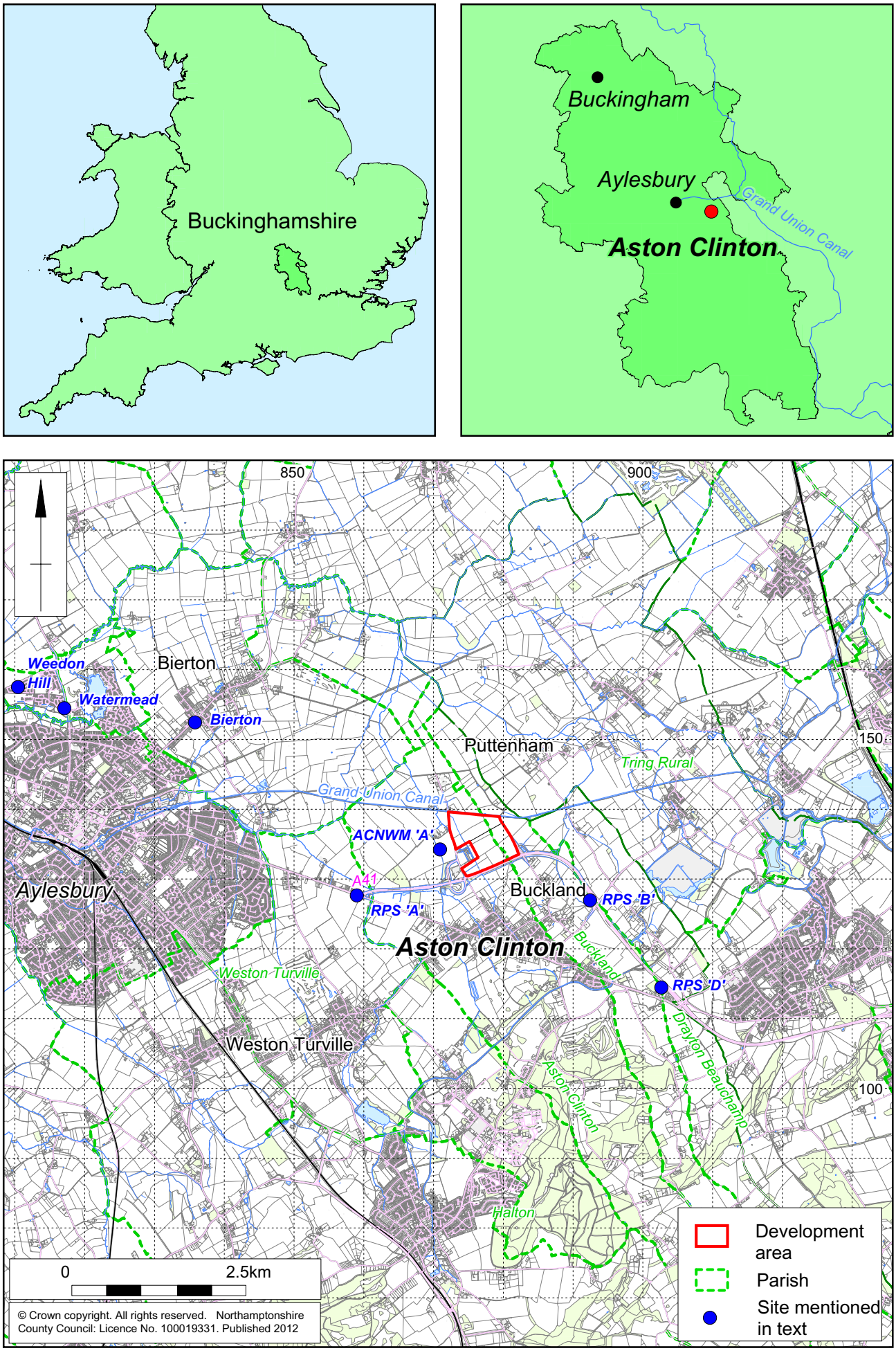
A number of burials and cremations dated to the 1st and 2nd centuries and included three examples of decapitation.

1 INTRODUCTION

1.1 Background

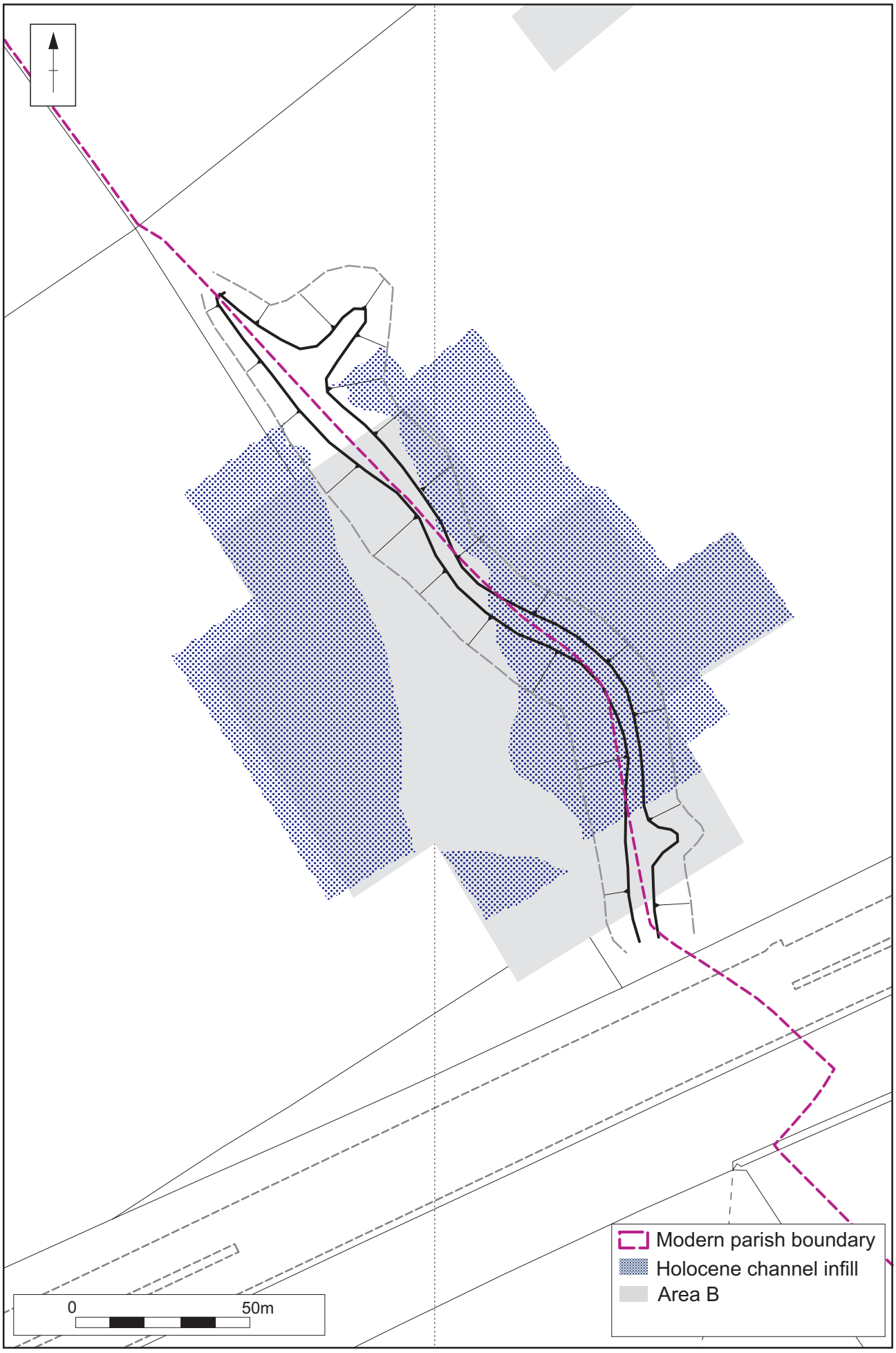
The development area is located on land to the east of College Road, Aston Clinton, Buckinghamshire (NGR SP 877 135; Fig 1). The excavation was undertaken on behalf of Prospect Archaeology for Arla Foods, who were granted planning permission by Aylesbury Vale District Council to construct a dairy and associated works. This stage of investigation followed on from a geophysical survey (Clements and Smith 2010) and subsequent trial trench evaluation (Walker and Maull 2011) which had identified an area of Iron Age/Romano-British activity in the south-eastern part of the site.

Archaeological works were designed and overseen by Nansi Rosenberg of Prospect Archaeology Ltd. Monitoring was undertaken by Sandy Kidd and Eliza Alqassar of Buckinghamshire County Council (BCC) on behalf of Aylesbury Vale District Council (AVDC).



Scale 1:75,000

Site Location Fig 1



Scale 1:1,500 @ A4

The Holocene channels and earthwork bank Fig 2

870
890
140
120
Grand Union Canal
College Road North
Area A
Area B
ACNWM 'A'
(Ro settlement &
funerary remains)
A41
Aston Clinton bypass
ACNWM 'B'
(Ro)
RPS Site A
(BA, IA)
RPS Site B
(BA, IA, Ro, Sax)
Buckland
Vetches Farm
(LIA burial)
Quaintways Farm
(LIA settlement?)
Aston Clinton
projected course of Akeman Street
RPS Site D
(LIA and Sax cemetery)
Development area
Parish boundaries
0
500m

Scale 1:12,500 (A3)

Archaeological context Fig 3

1.2 Location, topography and geology

The site comprised *c* 55ha of pasture fields on level ground and is located to the north of the villages of Aston Clinton and Buckland, Buckinghamshire (centred on SP 877 135). It is bounded to the south by the Aston Clinton bypass (A41), to the north by the Aylesbury Arm of the Grand Union Canal, to the west by College Road North and to the east by the Buckland field road. The site straddles the parish boundary between Buckland and Aston Clinton. The areas of excavation were situated in the south-eastern part of the site, adjacent to the bypass (Fig 1).

The area is underlain by a series of fossiliferous marine sediments belonging to the Lower Cretaceous Gault Formation. Superficial geology comprises deep deposits of calcareous marls of glacial date, probably Late Devensian (Allen, this report). These deposits were examined in the lowest part of the landscape and form two very large and almost totally infilled periglacial outwash channels, which can still be seen as slight topographical features running either side of a ridge.

Within the upper part of the glacial or perigalcial channels were shallower channels which were formed during the Holocene period. These were apparent on the east of the site in particular, indicated by greyish calcareous alluvium to the east of the occupation deposits. The calcareous alluvium was a slow water deposit, possibly indicating standing swampy conditions rather than free-flowing water in channels.

The ridge lying between the channels remained as a sinuous earthwork bank, although parts of it had shifted to the east (Fig 2). The parish boundary follows the alignment of the bank, suggesting that the shift in alignment occurred during the Roman/early medieval periods.

1.3 Historical and archaeological background

The development area and its environs have been subject to previous archaeological investigation comprising a Heritage Assessment (Prospect Archaeology 2010) and detailed geophysical magnetometer survey (Clements and Smith 2010). A subsequent trial trench evaluation of the site identified two discrete areas of archaeological activity of Iron Age and Roman date (Walker and Maull 2011). Archaeological work was also undertaken in advance of the construction of the Aston Clinton bypass (Fig 3), and comprised fieldwalking (Farley and CMAG 1989) and excavation (RPS 2005). The following archaeological background is taken from both bodies of work augmented by data from Buckinghamshire's Historic Environment Record (BHER) and more recent archaeological work undertaken by Northamptonshire Archaeology but not yet reported.

Prehistoric

There had been human activity in the area since at least the Mesolithic period. Fieldwalking within the site in advance of the construction of the Aston Clinton bypass collected a total of 17 prehistoric worked flints. These included a tranchet axe dated to the Mesolithic period (Prospect Archaeology 2010).

Excavation at The Woodlands Roundabout, 2km to the west, in advance of the construction of the Aston Clinton Bypass, found evidence of late Bronze Age to early Iron Age activity, including pits and postholes (Site A; RPS 2005). A four-post structure may have been an excarnation platform. The area was abandoned by the middle Iron Age.

About 1.4km to the east of the site, excavation at the RPS Site B, also carried out in advance of the Aston Clinton Bypass, found a number of Bronze Age cremations (RPS

2005). Subsequent early Iron Age occupation comprised at least one roundhouse and a number of four-post grain storage structures. The roundhouse was thought to have been used for stock storage, given the large amounts of animal bone associated with it.

Within Aylesbury itself, 3km to the west, the outcrop of Portlandian limestone underlying the historic core of the town was occupied by a hillfort during the middle Iron Age.

Late Iron Age/Roman period

By the middle/late Iron Age at the latest there is ample evidence suggesting that large tracts of the Buckinghamshire landscape had been cleared of woodland and an open grassland environment predominated (Kidd 2007). During the late Iron Age a large number of sites were either extensively modified or occupied for the first time, perhaps indicating a fundamental shift in settlement organisation together with an expansion into previously unoccupied areas. Certainly, the settlement and agricultural exploitation of the claylands, as at Aston Clinton, was much more prevalent in this period than previously. Sites based on the heavy clay soils appear to have predominantly specialised in a pastoral economy, more suited to this geology than arable farming (Kidd 2007).

At RPS Site B there was a shift in settlement and a re-organisation of the landscape during the late Iron Age/early Romano-British period with the creation of regular ditched plots flanking a trackway aligned north-west to south-east. The site straddled the route of the Lower Icknield Way, a track which is thought to have prehistoric origins but no evidence supporting that theory was found during the excavation. The site remained broadly unchanged until the middle Roman period, suggesting a continuity of settlement. Finds from later features suggest the presence of a Romanised building in the vicinity, possibly to the west of the site.

The north-west/south-east alignment of the trackway and flanking plots appears to have been mirrored at other sites of a similar date particularly at Coldharbour Farm (Bonner *et al* 1997). More generally there appears to be an underlying trend where landscape elements are orientated in this alignment including the enclosure at Watermead Roundabout (Dalwood and Hawkins 1988) and the Romano-British enclosures at Weedon Hill (Wessex Archaeology 2007). In the case of the RPS Site B, the course of the trackway seems to have been fossilised in the modern parish boundary (RPS 2005). Bull (1993) noticed this phenomenon across Buckinghamshire and surrounding counties and posited that a bi-axial landscape of roads and trackways was created in the Iron Age.

Evidence for high status sites close to Aston Clinton includes the site at Bierton, located on the more favourable Portlandian limestone ridge to the west (Fig 1). The layout of the site appeared to be fairly typical in that it comprised enclosures and roundhouses, although only small areas have been investigated. The orientation of the settlement at this site was also on a broad north-west/south-east axis. Finds from the site included Gallo-Belgic and Central Gaulish pottery imported in the Tiberio-Claudian period (14-54 AD) via *Camulodunum* (Colchester), suggesting that the site was of more than usual importance. During the Roman period the settlement appears to have evolved into a villa.

To the south of Bierton and west of Aston Clinton a possible late Iron Age, La Tene III style cremation in an amphora was found at Vetches Farm, similar to others found at the oppidum sites at St Albans and Colchester and indicative of a high status burial (Fig 3). The remains of a possible late Iron Age settlement were found 400m to the

east at Quaintways Farm, where significant quantities of 'Belgic' pottery were found, along with a possible 'fire bar'.

The course of the Roman road of Akeman Street, between Verulamium (St Albans) and Bicester, follows the current A41 (Fig 3). It was identified during the Woodland Roundabout excavations (RPS 2005). A series of quarry pits, found mainly on the southern side of the road, were evidence of the continued maintenance and repair of the road throughout the Roman period. Settlement appears to have concentrated close to the newly created road networks, perhaps evidenced by the planned settlement at Berryfields (north-west Aylesbury). Although there appears to have been some form of settlement in the area of the Iron Age hillfort in Aylesbury, the focus of settlement in the area appears to have shifted to Fleet Marston, situated on the western side of Aylesbury on Akeman Street (Zeepvat and Radford 2007).

Recent excavations undertaken by Northamptonshire Archaeology to the west of College Road in advance of the new Thames Water pipelines, have revealed part of an occupation site of probable early Roman date. Superficially this appears to be similar in character to the Aston Clinton site comprising a series of superimposed enclosures defined by substantial ditches (ACNWM Site A). Also present was a mortuary structure associated with two cremation burials. Further to the west evidence of the Roman agricultural landscape was also seen in the form of trackways and field boundaries aligned north-west to south-east (ACNWM Site B; Adam Yates pers comm).

Within the south-western corner of the site, fieldwalking undertaken in 1991 collected a few sherds of Roman pottery but it was not thought sufficient to suggest a settlement or other intensive Roman activity was taking place in this part of the site. The geophysical survey identified a probable archaeological site, of uncertain date, straddling the boundary between two fields in the southern part of the site, Fields 8 and 9. It comprised a small group of ditches which defined parts of several rectilinear plots or enclosures.

Saxon/medieval and later

Ridge-and-furrow cultivation systems, of medieval or later date were visible on aerial photographs confirming that the site lay within the medieval open fields and was mainly under arable cultivation. Ridge-and-furrow was detected in two fields during the geophysical survey. Trial trenching identified what was thought to have been a ditch marking the parish boundary (Walker and Maull 2011). Historic maps show that the site had been largely undeveloped with the exception of small field buildings through the post-medieval period. The Aylesbury Arm of the Grand Union Canal was constructed to the north of the site in the early 19th century. The parish boundary is aligned north-west to south-east through the centre of the site.

1.4 Scope of mitigation works

The purpose of the archaeological works was to mitigate against the impact of the development on the archaeological deposits through preservation by record. To this end two areas targeting known zones of archaeological activity were mechanically stripped and excavated (Fig 4). The course of the parish boundary, which survived as an earthwork bank, was surveyed prior to machine excavation.

The two separate areas comprised:-

Area A: 0.25ha which was placed to confirm the extent of the late Iron Age activity.

Area B: 1.7ha centred on the area of the late Iron Age-Romano-British settlement as defined by the evaluation. The originally envisaged area of excavation was larger but

this was modified during fieldwork in agreement with Buckinghamshire County Council as it became apparent that the focus of activity could be fully encompassed by the reduced site area.

1.5 Methodology

The archaeological mitigation works for the proposed development were designed and overseen by Nansi Rosenberg for Prospect Archaeology Ltd on behalf of Arla Foods. Management for Northamptonshire Archaeology was undertaken by Anthony Maull and Adam Yates. The fieldwork for Northamptonshire Archaeology was led by Jim Burke and Carol Simmonds. Monitoring of the programme of fieldwork was carried out by Sandy Kidd and Eliza Alqassar of Buckinghamshire County Archaeology service on behalf of Aylesbury Vale District Council. All works were conducted in accordance with the Institute for Archaeologists (IfA) *Standard and guidance for archaeological excavation* (2008) and the *Code of Conduct* of the Institute for Archaeologists (2010). All works were carried out in accordance with a Brief (Bucks CC 2011) and a Written Scheme of Investigation (NA 2011).

Earthwork Survey

The bank material (a possible 'medieval headland' or former parish boundary) was surveyed in November 2011 prior to excavation, by means of Leica 1200 Global Positioning System (GPS) to a 3D accuracy of +/- 0.05m (using SMARTNET real-time corrections). The features were surveyed relative to Ordnance Survey National Grid; levels related to Ordnance Survey datum. The tops and bottoms of slopes were surveyed in order to define the earthworks and a series of profiles generated. This was supplemented by digital photography and written descriptions.

Excavation

The excavation work took place between November 2011 and February 2012. Removal of the topsoil and other overburden (including the bank) was carried out by a tracked 360-degree mechanical excavator, fitted with a toothless ditching bucket, operating under archaeological supervision. Two baulks were left *in situ* for recording of the bank and other overburden in section (Fig 4). These, together with a baulk left in the area of water pipes and water trough, were removed at the end of the works to ascertain the full extent of archaeological remains below the bank and other overburden. Initially a layer of 'brown earth' (9180) and a back 'midden' deposit (9181) underlying the bank material were left *in situ*. The layers were later mechanically excavated away to reveal underlying ditches defining enclosures and a post and gully built structure.

Two machine-excavated sondages were excavated to ascertain the geoarchaeological sequence (Allen, below). They were excavated in the north-eastern corner and the south-western corner of Area B. Other machine-excavated sondages were excavated across the ponds, as agreed onsite with Buckinghamshire County Council.

All features were hand-excavated and recorded following standard NA procedures (NA 2011).

2 RESEARCH OBJECTIVES

2.1 General objectives

The objectives for the excavation were identified in the brief provided by the County Archaeological Service (BCAS 2011). The general objective was to advance understanding of the historic environment at a local and regional scale with particular reference to relevant research agenda for the Solent Thames Region. The following specific objectives were identified:

- Establish the chronology, character, status and economic basis of occupation and investigate its relationship to the field system(s). If necessary, confirm the dating of the earliest and final phases of occupation by scientific dating;
- Identify any phases of occupation, building on the evidence from the evaluation;
- Establish the chronology, layout and development and economic function (e.g. arable/pastoral) of any identifiable field system(s)/droveways and associated features (e.g. crop processing or storage areas);
- Establish the extent, date and character of any ritual or burial remains and investigate the nature of such activities conducted on the site and their relationship to settlement and fields;
- Establish the link between the parish boundary, the 'palaeochannel' and the earthwork bank and obtain environmental and geoarchaeological data from these features;
- Establish the date of the parish boundary ditch and the 'palaeochannel', through scientific dating if necessary;
- Establish the date and nature of the structures present on the site;
- Interpret the results of the project within the context of current knowledge and research on the late Iron Age and Roman periods in the Vale of Aylesbury/'Icknield Belt', specifically how the settlement characteristics compare with other settlements recorded in the area;
- Changes in animal rearing strategies;
- Identify any evidence of crop-processing;
- Identify the date and extent of ironworking on the site.

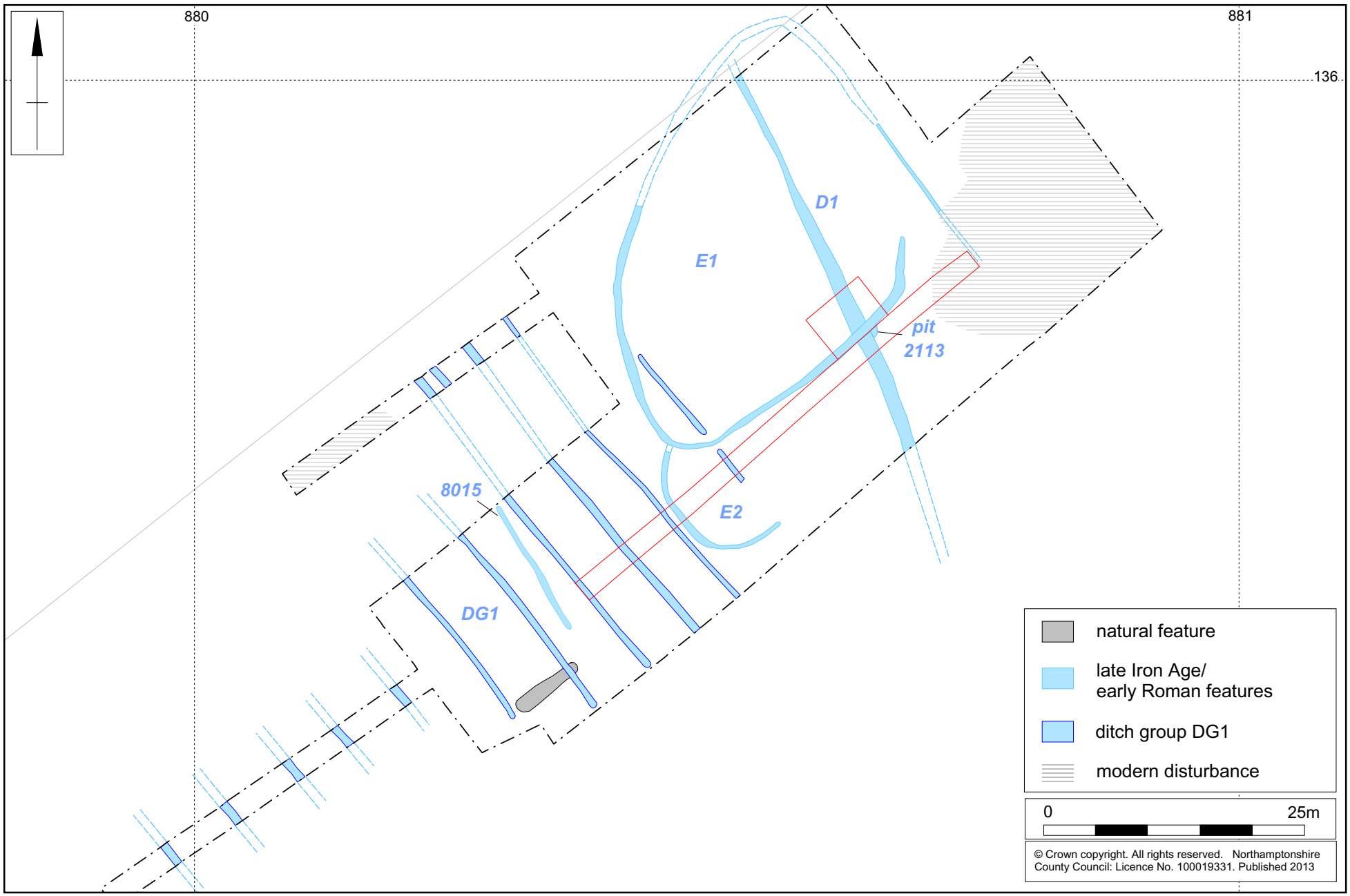
2.2 Research agenda

The national framework for research is set out by English Heritage (1997).The broad research agenda for the Solent Thames region of England are set out by Lambrick (2010) for the Iron Age and by Fulford and Allen (2010) for the Roman period. The Research Aims set out in these documents were addressed by the project, specifically:

- The characterisation of Iron Age and Roman rural settlements and the development of the agrarian landscape;
- The investigation of sites with well-preserved deposits of both late Iron Age and Roman date in order to examine continuity of local tradition;
- Evidence for variation in resources from different scales of farm needs to be investigated.

Scale 1:1,500 (A4)

General site plan (Areas A and B) Fig 4



Scale 1:500 (A4)

The late Iron Age and early Roman features in Area A Fig 5

3 THE LATE IRON AGE AND ROMAN SETTLEMENT

3.1 Topography of the site during the Iron Age/Romano-British period

Shallow channels formed during Holocene period were present during the Iron Age and Romano-British periods. They appear to have formed swampy areas either side of the ridge upon which the settlement was located. Infilling of the channels comprised slightly humic material interpreted as originating from the settlement. Pottery and charcoal were present near the base of the channels indicating that the profile of the landscape was much more acute than at present. The ridge appears to have been a much more prominent feature which was bordered by seasonal, and possibly permanent, swampy conditions.

Occupying the ridge and enhancing its profile, were rural dark earth, midden and occupation deposits associated with the Iron Age and Romano-British activity. This deposit can be paralleled at an increasing number of late prehistoric to early medieval sites in southern England, and is the consequence of rural occupation and possibly of the demise of daub-walled buildings and occupation debris. The remainder of the ridge was surveyed as part of the site investigation (Fig 2). The parish boundary, formed during the medieval period, follows the alignment of this ridge.

Table 1: Summary of site chronology

Period	Key features
Late Iron Age/early Roman	Cultivation trenches and creation of enclosures
1st to 2nd centuries AD	Enclosures, timber structure and burials
2nd century AD	Land reclamation, redefinition of enclosures, further burials
2nd to 4th centuries AD	Re-organisation of enclosures. Abandonment in the 4th century; midden layers

3.2 Late Iron Age and early Roman cultivation and enclosures (1st century BC-1st century AD)

Archaeological deposits forming the Late Iron Age and early Roman occupation encompassed all of Area A and much of the western and southern part of Area B (Figs 5 and 7). The contemporary weather conditions probably resulted in marshy ground conditions and localised ponds in the areas of infilled Holocene channels. In Area B evidence for this period is fragmentary because of the high degree of later modification. Two early boundary ditches, pits, four enclosures and a set of parallel gullies were recorded. The majority of the features were aligned parallel or perpendicular (on a north-west to south-east alignment) to the higher ground in Area B and respected the position of the large pond/marshy area in the north-eastern corner of Area B. The fills of the features were generally sterile, comprising compact brownish-grey clays with chalk flecking.

The pottery assemblage comprised hand-built wares from the 1st-century BC to the 1st-century AD. Low quantities of animal bone were recovered and comprised a mix of cattle, sheep and horse. Low concentrations of seeds and charcoal were recovered during palaeo-environmental processing and analysis.

Area A

In the south-eastern part of Area A there was a pit [2113], from the fill of which sherds of late Iron Age pottery had been recovered (Walker and Maull 2011). This pit was cut by boundary ditch, D1 which was aligned north-west by south-east, and extended beyond the limits of excavation. It had been recut suggesting at least one phase of maintenance.

There was also a shallow gully [8015] which was roughly parallel to the boundary ditch. Neither feature appears to be related to any of the other features in the area and it is unclear as to what their function could be.

Enclosures (E1 and E2)

The remnants of two conjoined, ovoid enclosures (E1 and E2) were defined by shallow, narrow gullies. Enclosure E1 encompassed an area of at least 572 sq metres and enclosure E2 encompassed a 66 sq metre area. The fragmentary enclosures probably had north-east and south-east facing entrances; however, the gullies appear to have been removed to the north and east, perhaps as a result of later deep-ploughing and modern disturbance.

Cultivation trenches (Ditch group DG1)

In the western part of Area A there was evidence for an area of discrete, localised, parallel gullies, of probable 1st-century AD date (Figs 5 and 6). The twelve features within the area were averagely spaced at 6m intervals and were between 0.29m and 0.90m wide and up to 0.51m deep. The majority of the trenches had well defined flat bases with near vertical sides, with rare examples having splayed weathered sides (Fig 6). This suggests that the trenches were not open to the elements for a prolonged period. At least three of the trenches terminated within the excavation area suggesting that the southern extent was not much further south-east than the confines of the area. Together with the lack of similar features in the evaluation trenches to the north and west (Walker and Maull 2011), it is likely that ditch group, DG1, occupied a small area encompassing no more than 3500 sq metres.

Rare, heavily abraded, sherds of 1st-century AD pottery were recovered, perhaps indicative of manuring. No viable palaeo-environmental evidence was recovered from the fills.

Section showing the profile of one of the gullies (DG1) in Area A Fig 6

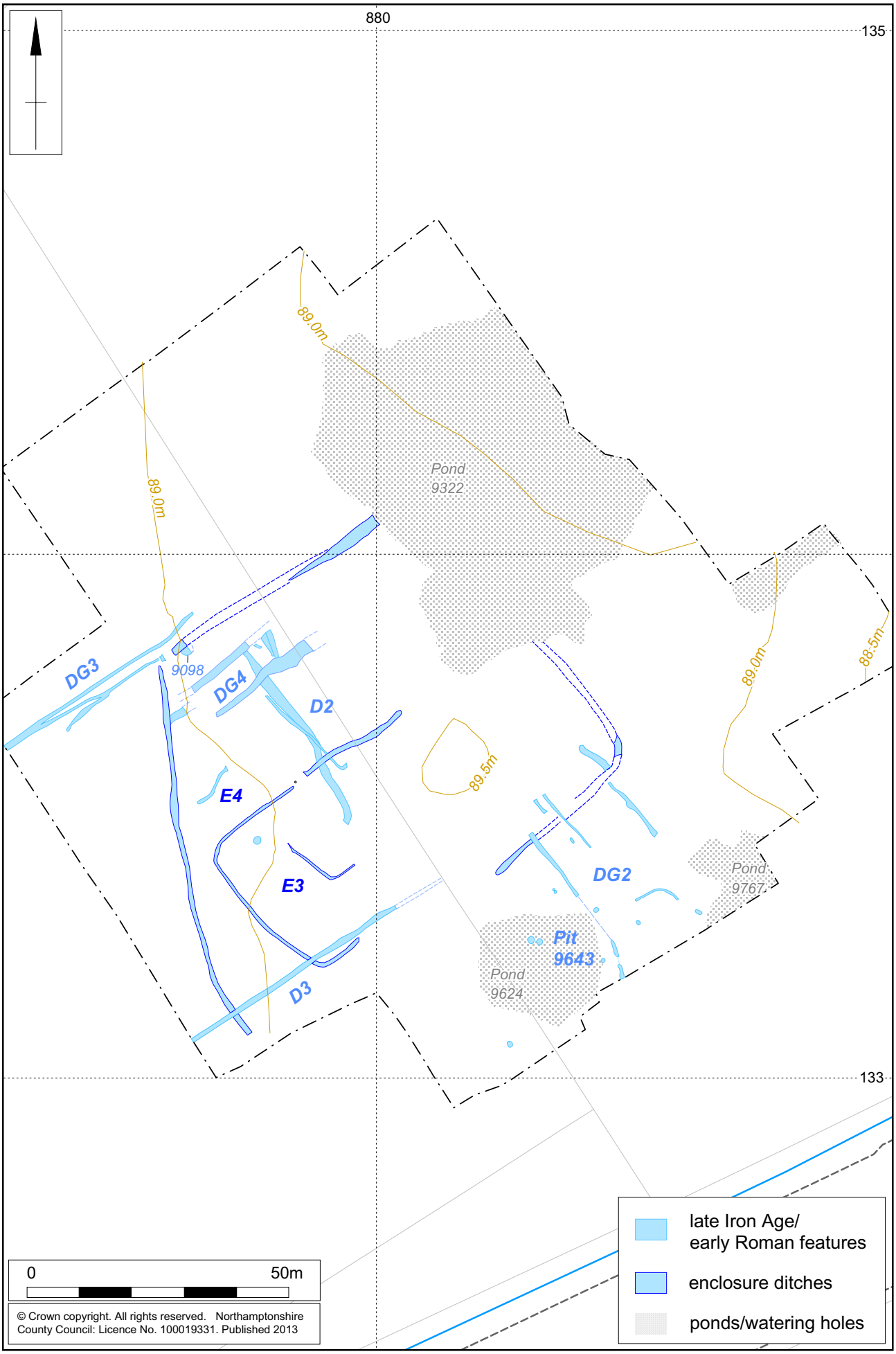
Area B

Pond formation

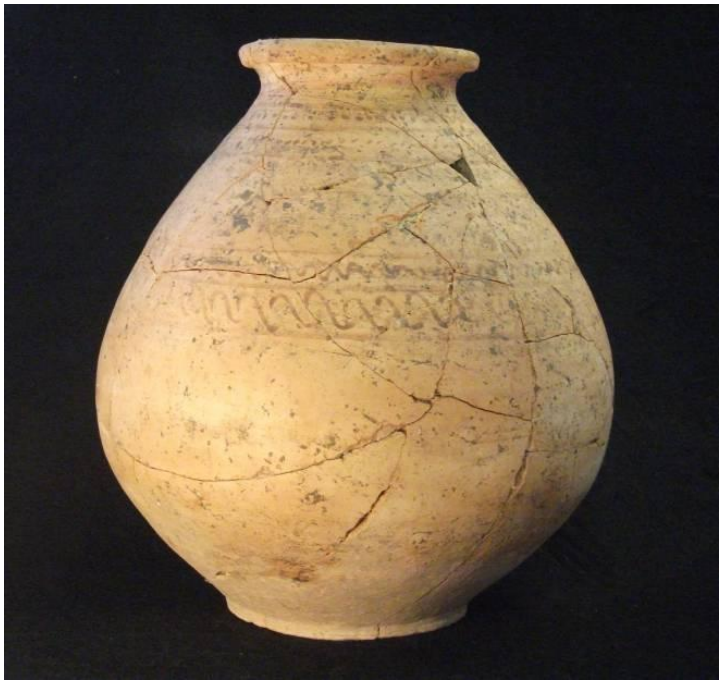
In the early Roman period, the late Holocene channels appears to have become increasingly marshy, and ponds may have been cut in an attempt to prevent the encroachment of water and to provide water for livestock. One of the more substantial ponds [9322], in the north-eastern part of Area B, formed a visible barrier and was used as a boundary for the settlement in lieu of a ditch/bank. It measured at least 70m north-west to south-east by 50m west to east, and was filled with mixed alluvial sediments.

A sub-circular pond or watering hole [9624] was situated in the southern part of the site. It covered an area measuring 25m by 23m and up to 2.26m deep. It was filled with a succession of silts, the latest of which was a rich organic material not dissimilar to the 'dark-earth' midden layer of the 3rd/4th-centuries.

What is notable was the presence of two circular pits at the base of the pond which were filled with similar material as the basal silts of pond [9624]. A placed deposit of a complete but broken, narrow-necked jar (Fig 8) of pink grog-tempered fabric with red-painted decoration was recorded in one of the pits [9643].



Scale 1:1,000 (A4) Late Iron Age and early Roman enclosures and ditches in Area B Fig 7



Narrow-necked jar from pit [9643] Fig 8

Early boundaries and pits

There were four isolated pits in the western part of Area B, of which one [9098] was cut by the northern boundary of E4.

A ditch (D2), 40m long and aligned north-west to south-east, was located in the central portion of Area B. A shallow gully was cut along much of its length and may relate to later subdivision of an enclosure.

Area B

Enclosures (E3, E4 and DG2)

The remnants of Enclosure E3, which was roughly rectangular in plan, measured at least 45m east to west by 30m north to south. Its northern boundary cut ditch D2, suggesting that D2 had ceased to function. Three sides of this enclosure were visible with the eastern and south-eastern sides lost to later truncation. The entrance for this enclosure is likely to have been situated on the eastern side or south-eastern corner.

It sat within a larger trapezoid-shaped enclosure (E4) or L-shaped boundary which was defined to the north and west by a ditch (Fig 9). The enclosure measured at least 70m north to south by 65m east to west. The eastern portion of the enclosure ditch had been affected by continuous recutting later in the Roman period. The northern arm terminated at/respected the western side of pond [9322].

North-western corner of the ditch bounding enclosure E4, looking north-east Fig 9

There was some indication of subdivision of the enclosures, for example in enclosure E3 there was a shallow, L-shaped gully. There were at least two entrance ways into this enclosure, one probably along the southern edge and there was a small 3m wide gap in the north-western corner of the enclosure.

To the south-east of E3 was a fragmentary and segmented group of shallow and narrow ditches (DG2) and associated postholes or pits. The ditches were on a north-west to south-east alignment and measured at least 40m long. Positioned in the southern-third of the area was a short length of curvilinear ditch which was generally aligned perpendicular to the other gullies.

Field system/ drainage ditches

Enclosure E3 and probably E4 were later replaced by gullies D3, DG3 and DG4 aligned north-east to south-west.

Ditch D3, at least 44m long, cut across the southern part of E3 and E4. Its eastern end had been cut away by later enclosure ditches which were situated on the higher ground. This ditch was at least 1m wide and 0.56m deep.

Parallel to Ditch D3 and further to the north-west were two sets of gullies (DG3 and DG4) which were between 0.40m and 0.68m wide and up to 0.20m deep. DG3 lay 60m to the north-west of D3 and comprised three merging, poorly defined shallow gullies which were traced for 40m.

DG4 lay within the north-western part of E4 and comprised three lengths of gully ranging between 4m and 24m in length.

Summary

The late Iron Age and early Roman occupation of fragmentary small enclosures, drainage and boundary ditches and cultivation trenches suggest a multi-phased, pastoral economy which was replaced or operated in conjunction with small-scale

cultivation. The early ditches were probably field boundaries later adapted and added to form the enclosures. The enclosures were defined by narrow, shallow gullies and were likely to have been augmented by low banks, hedges or wattle fences, subsequently lost to ploughing.

By the 1st century AD the enclosures, particularly E3, had fallen into disuse. Subsequent alterations in land management, incorporating the later drainage gullies, were probably caused by changes in weather condition which led to wetter and marshier ground, particularly in the lower lying areas of the infilled Holocene channels.

The identification of the twelve parallel trenches in Area A, suggests an attempt at small-scale localised cultivation. Comparative sites elsewhere in the Midlands suggest that cultivation trenches were cut for the growing of soft fruit such as grapes. Sites at Wollaston Quarry, Northamptonshire (Meadows 1996) and at Ampthill, Bedfordshire (Brown 2010) recorded similar features, but on a much larger scale. At Wollaston, a smaller area of gullies, interpreted as a nursery for vines was identified. Given the unweathered appearance of the cultivation gullies at Aston Clinton, they were not open for any length of time. The exact crop also remains unknown at this stage, further recommended analysis of the charred plant and charcoal remains from one of the trenches [8043]/(8039) may provide suitable evidence of crop regime (see section 7.9).

3.3 Early Roman enclosures (1st-2nd centuries AD)

During the later 1st century and early 2nd century AD there was a shift in occupation to the eastern side of Area B, primarily within the higher ground between the silted Holocene channels. This period of activity saw the imposition of a more organised pattern of rectangular ditched enclosures (E5, E6 and E7) and an outlying field system which were arranged around pond [9322]. The orientation for the enclosures mirrored the earlier field boundaries and enclosures. The ditches were recut on a number of occasions which, together with later disturbance from a succession of enclosure ditches, made it difficult to resolve all the individual enclosure forms and phasing. One of the enclosures, E5, had a small, rectangular post and beam slot structure [9366] centrally located within it. Four inhumations and two cremation deposits were present.

The artefactual assemblage comprised pottery from a range of contexts including pits and from the fills of ditches. Pottery was also recovered from the cremation deposits and an inhumation. The animal bone assemblage suggests a pastoral economy comprising a mix of cattle and sheep.

Enclosures (E5, E6 and E7)

The rectangular enclosures, almost 1ha in extent, were situated on top of the slightly higher ground in the centre of the site. The enclosures were defined by ditches, which tended to be more substantial in the central area, enclosure E5, and shallower in enclosures E6 and E7. In places the enclosure ditches had been heavily truncated by later occupation, particularly the ditches defining enclosure E6.

Scale 1:1,125 (A4)

Early Roman enclosures (1st-2nd centuries AD) Fig 10

Enclosure E5 was defined on its eastern side by pond [9322] and on its northern and western sides by a ditch, which was up to 1.30m by 0.96m deep. The northern part of the enclosure had been subdivided by two shallow gullies on a north-east to south-west alignment. In the centre of the smaller sub enclosure was a timber-built structure (Structure 9366- see below).

Enclosure E6 covered a minimum area of 57m by 35m. It had remnants of sub-divisions with a ditch aligned south-west to north-east in the eastern part of the enclosure and a fragmentary L-shaped gully in the northern part of the enclosure. There was a cluster of three pits, one of which, [9634], had been used as a cess pit as evidenced by light grey and green silty clays.

Enclosure E7 was 10m to the east of E5. On three sides it was defined by ditches and its north-eastern side was bounded by pond [9322]. The western ditch terminated 7.5m south-east of the pond indicating that this was the access point into the enclosure.

Field system

Extending to the south and north-east of the enclosures were ditches which defined the boundaries of a field system. The ditches were shallower than the ditch forming enclosure E5, being 0.38m to 1.72m wide and between 0.07m and 0.76m deep. Two inhumations (B6 and 7) were found to the south.

Structure 9366

The remnants of a small, rectangular structure (Structure 9366), aligned north-west to south-east, were identified within enclosure E5 (Fig 11). The surviving remains, comprising gullies and the bases of three internal postholes, encompassed an area measuring 10m north to south by 5m east to west. Gullies defined three of the four sides with the north-west facing side being left open. The gullies were between 0.35m and 0.70m wide and up to 0.25m deep. The postholes within the northern half of the structure were between 0.28m and 0.47m in diameter and up to 0.18m deep.

Structure 9366 prior to excavation, looking north-east Fig 11

Two later gullies cut across the structure's north-western boundary and the terminal end of a later 2nd to 4th-century gully (G3) destroyed the south-western corner.

Burials

The human remains, compromising both inhumations and cremations, were in two separate areas. The first, comprising three fragmented adult inhumations (B6, B7 and B8) were buried within the eastern field system. Burials 6, 7 and 8 were aligned north-east to south-west.

The second group was clustered to the north-west of pond [9322], comprising three inhumations (B5, B10 and B15) and a cremation deposit (B9). Burials B5 and B15 were aligned south to north and were disturbed by the ditch forming the northern boundary to later enclosure E8. Inhumation B10, aligned north-east to south-west, was adjacent to a pit [9301] (Fig 12) and was overlain by the later deposit associated with cremations (B2 and B3).

Burial B10, looking south-west, scale 0.5m Fig 12

Both cremated deposits and inhumations had associated grave goods including pottery vessel deposits and cremated animal bone.

Summary

The 1st to 2nd-century occupation of the site re-established the enclosure system defined in the late Iron Age but on a more organised basis. In part the enclosures framed by well defined, deeper ditches, may have been a response to a change to adverse weather systems creating wetter ground conditions. The rectangular enclosures, which appear to have been the focus for occupation, lay on the higher ground within a wider field system which was wrapped around the large pond in Area B. Instead of draining water away to the south-west (as in the late Iron Age and early Roman settlement), the ditches appear to have drained water away to the east

and south-east On higher ground and within enclosure E5 there was a small timber-built rectangular structure, provisionally interpreted as a barn. A small number of burials were present, although these are not unusual in Roman rural settlements.

3.4 Roman enclosure and field system (2nd century AD)

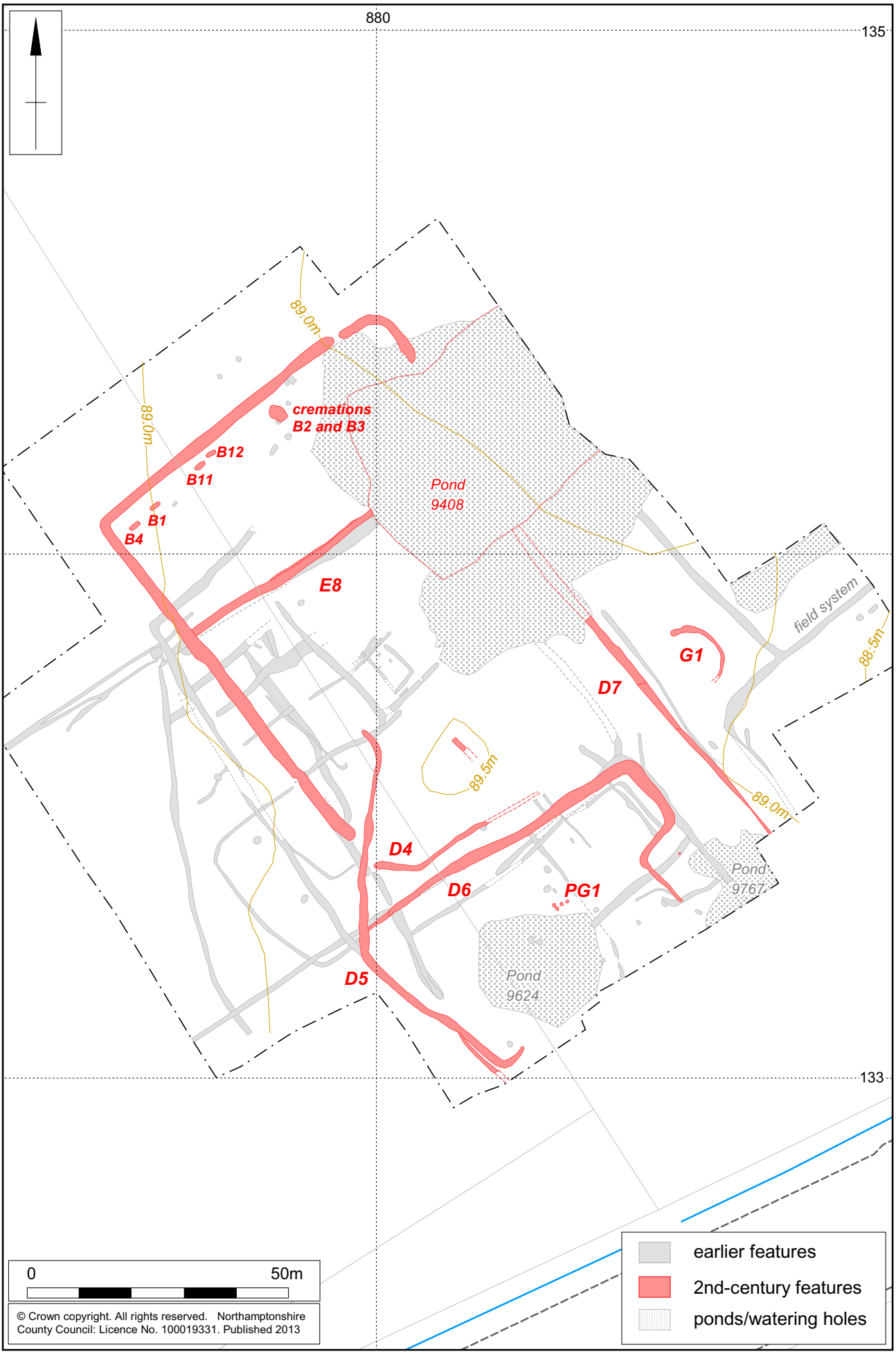
In the 2nd century the focus of occupation continued to be on the higher ground, but the potential area of occupation was increased extending the site into the wetter area to the north-east (Fig 14).

The occupation was defined by large ditched enclosure (E8, D4) and field system (D5, D6 and D7) on a north-west to south-east axis wrapped around the pond [9408]. Smaller, discrete features comprised a small curvilinear gully (G1) and a group of four postholes (PG1). A further four inhumations and two cremation deposits were situated in the northern part of enclosure E8, continuing the use of this area as a burial ground.

Land reclamation and Enclosure

The late Iron Age/early Roman pond [9322] had become silted up by the 2nd century and in its place, pond [9408] was established. This was defined by straight, vertically cut edges, probably indicating a timber revetment. The fill of the pond comprised a series of dumps of organic clay containing occupation debris interspersed with episodes of silting (Fig 13).

Western boundary of pond [9408], looking south-east; the revetment lies 0.5m to the right of the scale (scale 2m) Fig 13



Scale 1:1,000 (A4)

Roman enclosure (2nd century AD) Fig 14

Rectangular enclosure (E8) was arranged around pond [9408] and enclosed a total area of 0.5ha (Fig 14). It was defined by three segments of ditch along its northern, western and southern boundaries (D4). Much of the southern boundary (D4) had been cut away by later ditches and its eastern boundary may have been defined by ditch D7. The enclosure ditches were well defined, with flattish bases and steep, sloping sides (Fig 15).

The north-western corner of enclosure E8, looking north-west Fig 15

In the north-eastern corner there was a gap of 1.2m which defined an entrance into the northern part of the enclosure. At the southern terminal of the enclosure's western arm and opposite the western terminal of ditch D4 was a second gap, measuring 6m wide.

The enclosure was subdivided by a ditch, 41m long, 1.5m wide and up to 0.55m deep. The eastern end of this ditch had been cut away by the revetment for pond [9408], suggesting that the formalisation of this feature took place subsequent to the establishment of the enclosures. In contrast to the sterile, brownish-grey silty clay fills of the late Iron Age and early Roman ditches, the fills of enclosure E8 ditches contained quantities of dark, organic material (Fig 16).

The sub-division ditch of E8, recutting the earlier deeper ditch of E4, looking south-west Fig 16

Field System

The area of enclosure had been substantially reorganised towards the end of the 2nd century, however, much of the outlying field system to the east probably continued to be in use. The ditches associated with enclosure E6 fell into disuse and were replaced by a sparser field system (D5 and D6). Ditch D5, a bow-shaped ditch at least 80m long, lay in the south-eastern corner of the site. Approximately 3m to south of ditch D4 was a shallower, narrow ditch (D6) which disturbed the western edge of D5. It was parallel with ditch D4 and was approximately 93m long.

Gullies and postholes

In the southern part of the site, 14m to the south of ditch D6, there was a group of four postholes in an L-shaped arrangement. The bases of the ovoid postholes were spaced approximately 0.50m apart. They varied in size between 0.45 and 0.82m long, 0.28m to 0.76m wide and up to 0.11m deep. Pottery and animal bone were recovered from the fills of some of the postholes. However, the group was overlain by the 3rd/4th century 'midden'/'dark earth' layer and it is likely that the upper portions of the posthole fills contained intrusive material from this layer.

Approximately 10m to the east of ditch D7, was a curvilinear gully (G1) which was recut on at least one occasion. The gully was 15m long, 0.67m wide and up to 0.34m deep at its well defined north-western terminal and had a projected internal diameter of *c* 10m (Figs 14 and 17). The gully may be the fragmentary remains of a roundhouse ring ditch, which may have had a domestic function.

North-western terminal of curvilinear gully G1, looking east Fig 17

Burials

The extension of the area of activity to the north brought the northern burial ground within the area of enclosure, although it continued in use. Prior to the 2nd-century reorganisation of the settlement, human burials had lain outside the enclosures. The 2nd century burials comprised four inhumations (B1, 4, 11 and 12) and cremations B2 and B3.

Two of the four inhumations (B1 and B12) were notable in that they had been decapitated with their heads positioned between their legs (Fig 18) and a third (B4) had indications of trauma to the throat. The two cremations lay within a rectangular, shallow pit [9040], overlying 1st/2nd-century inhumation B10. A number of artefacts including iron nails were recovered from the fill and cremated animal bone was also recovered from deposit B2.

Burial B1, looking south-west Fig 18

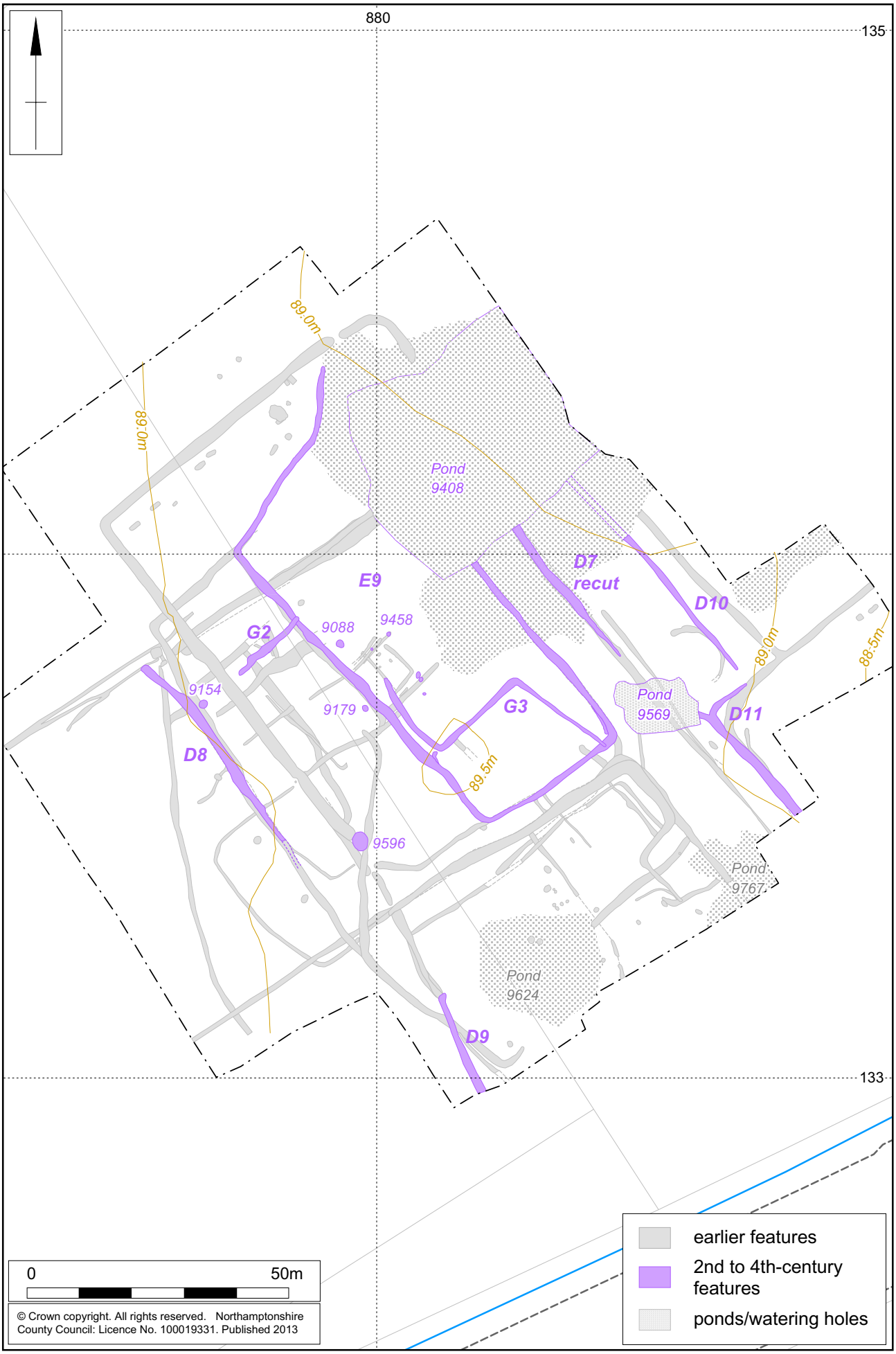
Summary

The 2nd-century occupation saw the simplification of the pattern of activity with the replacement of a series of small enclosures with a single larger feature in an effort to reclaim and use the available land as effectively possible. This was still focussed around the pond in the eastern edge of the site, which itself had been formalised, probably in an effort to prevent it completely silting up.

3.5 Late Roman enclosure (2nd to 4th centuries AD)

Where the 2nd-century occupation was defined by large, rectangular enclosures bounded by wide, deep ditches, the later Roman activity occupied a smaller area (Fig 19). The focus of the site was still pond [9408] with enclosure (E9) respecting its position. The enclosure was set within a ditched field system, which reused the line of earlier boundaries (D7 recut, D8 and D11). There were a number of discrete pits within and outside the enclosure. For the most part the fills comprised grey silty clays although the pits and some of the upper ditch fills comprised darker, more organic silty clay.

The artefactual assemblage included pottery and animal bone. Much of the pottery from the fills of the features comprised a mix of 1st to 4th century wares, indicating a significant level of residuality. The remains of a dwarf hound were recovered from the fill of a gully terminal, G3 and it has been suggested that this is evidence of herding of livestock on the site.



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Late Roman enclosures (2nd to 4th centuries AD) Fig 19

Ponds

Pond [9408] was still in use and its western edge acted as a visible boundary defining enclosure E9. Approximately 38m to the south-west of this was an irregular-shaped pond [9569] which cut the ditches associated with 1st to 2nd century-enclosure E7 (Fig 20). This is likely to have been a pond or watering hole associated with the later settlement and field systems.

General view of pond [9569], looking north-east Fig 20

Enclosure and field system

The sparse enclosure and field system was defined by narrow ditches measuring between 0.59 and 1.65m wide and 0.20m to 0.72m deep. Enclosure E9 was situated on the higher ground in the centre of the excavation area with ditches D8 and D9 to the west and ditches D7 (recut), D10 and D11 in the area of the 1st to 2nd century field system. A number of the ditches had weathered profiles and ill defined edges, due in part to poor stability of the soils and the truncation of earlier features. This could be seen where ditch D8 cut the western edge of enclosure E5 and the boundaries between the fills were merging (Fig 21).

Enclosure E9 was rectangular in plan and encompassed 0.25ha (Fig 19). Its north-eastern boundary was defined by pond [9408] and the northern arm of the enclosure splayed outwards and terminated. A gap of 4.5m between the terminal and the north-west corner of the pond marked a possible entrance into the enclosure. The south-eastern corner of the enclosure respected pond [9569].

Approximately 24m to the west of enclosure E9, ditch D8 was aligned parallel to the long axis of the enclosure and was at least 43m long. For much of its length it was on the same line and position as the western boundary of earlier enclosure E5 (Fig 21).

Sequence of ditches and pits in the western part of Area B; ditch D8 (left) cuts ditch for enclosure E5 (centre) and pit 9154 (right) Fig 21

Ditch D9 was 41m to the south-east of ditch D8 and cut across the intersection of the south-western boundaries of enclosure E5 and part of ditch D5. It was aligned north-west by south-east and was at least 20m long.

To the south-east of enclosure E9, ditches D7, D10 and D11 defined a series of narrow plots aligned north-west to south-east, possibly representing small fields or paddocks clustered around pond [9569].

The north-western corner of D11 cutting across the earlier field system (right), looking north-west Fig 22

Pits/ postholes

Eight circular or oval shaped pits or postholes were identified in the western part of Area B. Of these, five lay within the central portion of the enclosure E9 and the remainder lay between D8 and enclosure E9.

The pits within the enclosure were between 0.4m and 1m in diameter and between 0.08m and 0.6m deep. Pits [9088] and [9458] were filled with deposits of organic rich material, however, they have a low potential for further palaeo-environmental study (Allen, this report).

The three pits, [9154], 9179] and [9596], which lay between ditch D8 and enclosure E9, were variable in size and character. Pits [9154] and [9147] were adjacent to contemporary ditches and were up to 1.13m in diameter and up to 0.64m deep. By contrast pit [9596], which cut earlier enclosure ditches, was more substantial, measuring 3.2m (north to south) and 2.5m (east to west) and 0.94m deep (Fig 23). Its fills comprised a sequence of sterile grey silty clays

Post-enclosure features

Enclosure E9 was cut by two gullies (G2 and G3). Gully G2, 15m long and up to 1.3m wide and 0.25m deep, cut across the western boundary of the enclosure. It had irregular sides and a shallow bowl-shaped profile filled with dark grey silty clays.

Gully G3 was Z-shaped and 58m long. Its south-eastern terminal cut the edge of the southern boundary of E9 and the northern terminal [9194] cut the south-western corner of earlier structure [9366]. A dog had been buried in the northern terminal of this gully.

Pit [9596], looking north-west Fig 23

Summary

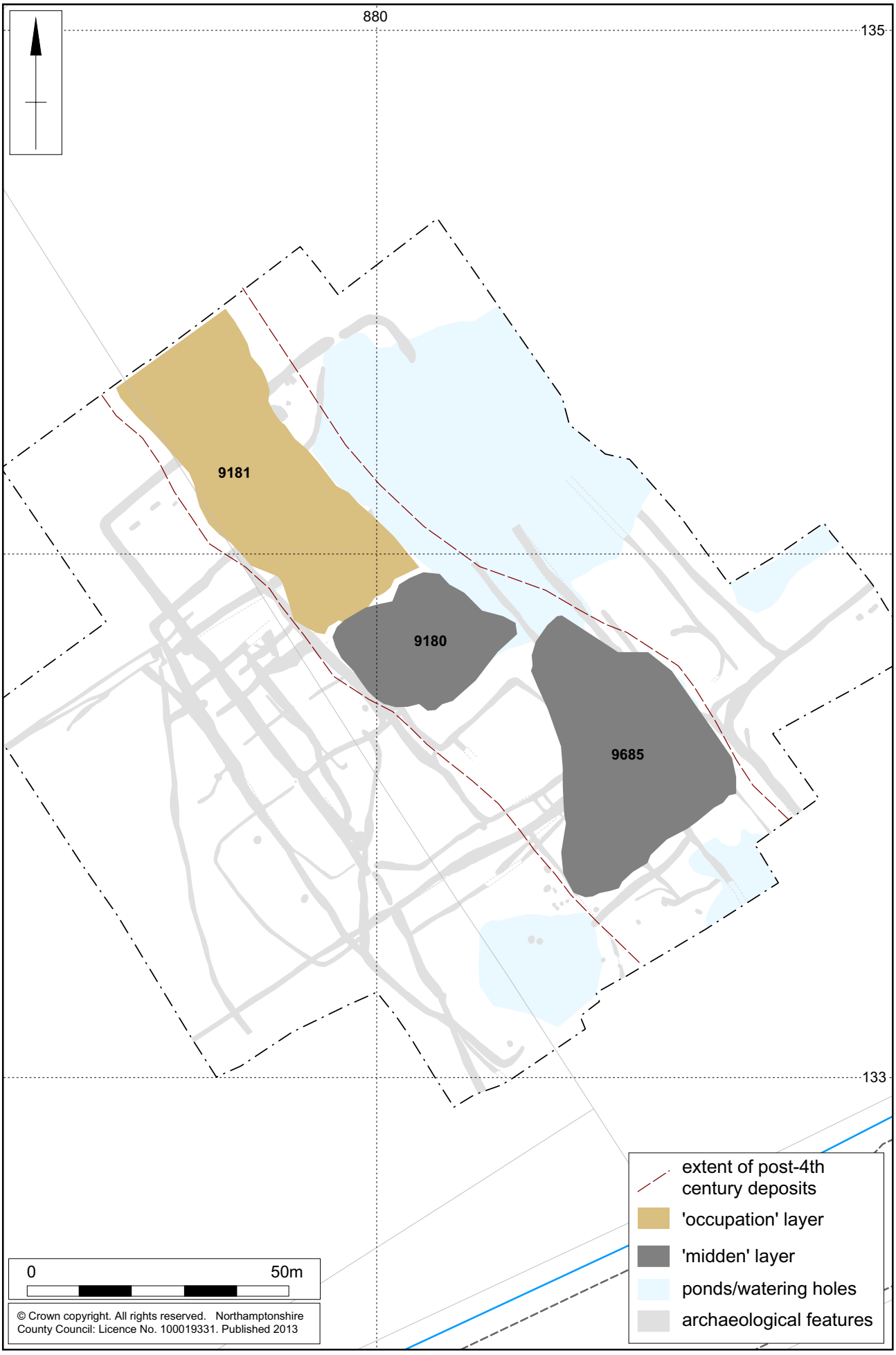
The post-2nd-century settlement of the site suggests a continuation of the mixed-pastoral economy, albeit on a smaller scale. The inhabitants of the site continued to utilise the higher ground with the focus of occupation shifting eastwards, perhaps in response to wetter, marshy ground conditions to the west.

The fragmentary post-enclosure activity, comprising two gullies (G2 and G3), may indicate a shift away from settlement to a field system as the site became less feasible for occupation.

The pottery from the features represented a broad date range (2nd to 4th centuries). Unlike previous phases of settlement on the site the precise use and end date of usage of the enclosure cannot be clearly defined at this stage.

3.6 Settlement abandonment (4th century AD)

Towards the end of the 4th century, the settlement was abandoned. There was a gradual accumulation of deposits on the centrally located higher ground, which provided a *terminus post quem* for the structure [9366] and parts of the enclosure ditches. The significant deposits comprised a black earth layer (Fig 24) overlain in the northern part of the area by a layer of brown silty clay (9181). Both deposits have been described as a 'rural dark earth' and are thought to have been the result of accumulation occupation deposits and degraded wattle and daub buildings (Allen, this report).



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Settlement abandonment (4th century AD) Fig 24

The black earth layer, described as a 'midden' deposit, was identified in the trial trench evaluation (trenches 27 and 32, Walker and Maull 2011) and in the excavation it was defined by two localised areas ((9180) to the north and (9685) south; Fig 25).

The dark 'midden' layer (9685) in the southern part of the site, looking north-east
Fig 25

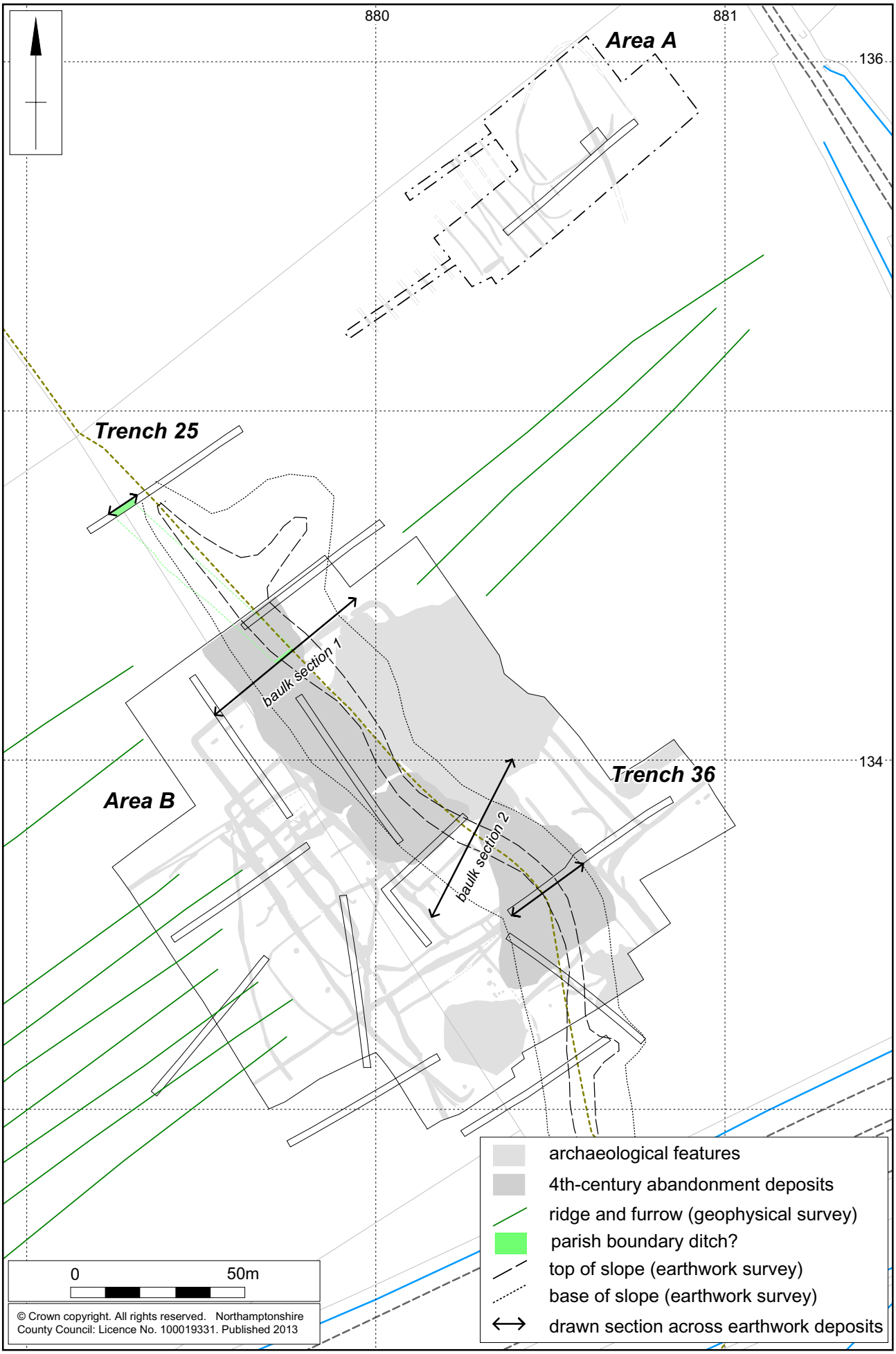
It comprised very dark brownish-black silty clay, with flint and chalk inclusions, between 0.18 and 0.24m thick. A significant quantity of 2nd to 4th-century date pottery, weighing 1490g, was recovered from the midden deposits, and included sherds from four Samian vessels. A number of iron and lead objects were also recovered.

The brown silty clay deposit (9181) encompassed approximately 1418m^2 in the northern part of Area B. A quantity of 2nd to 4th-century Roman pottery and medieval pottery was recovered from this deposit suggesting it represents later incorporation of material derived from the Roman settlement into a later cultivation soil.

4 MEDIEVAL AND POST-MEDIEVAL PARISH BOUNDARY

After the 4th-century abandonment of enclosures the site was used as both pastoral and agricultural land.

Aerial photographs covering the site area indicated that in the medieval period the development area was used as agricultural land within the strip parishes of Aston Clinton and Buckland. Ridge-and-furrow earthworks, which were the relicts of the medieval open field system of agriculture, were observed in the imagery. The geophysical survey identified faint positive magnetic anomalies suggesting the presence of ridge and furrow within the areas of excavation. However, neither the evaluation nor the excavation identified visible remains of medieval open field system.



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The medieval and post-medieval parish boundary Fig 26

The parish boundary dividing the ‘strip’ parishes of Buckland and Aston Clinton was aligned north-west to south-east through the centre of the site (Fig 26). Within the area of excavation this closely followed the natural ridge upon which the Roman settlement was concentrated. In Area B this was visible as an earthwork bank comprising an accumulation of deposits of mixed grey, greyish-brown and bluish-grey silty clays which were up to 0.8m thick. The deposits overlay the pre-existing artificial rise created by the ‘midden’ and ‘brown-earth’ layers. The earthwork was perhaps created as a headland ploughing up to the existing artificial rise and using it as a division between plough strips.

The evaluation suggested that a broad, shallow ditch augmented the earthwork as the parish boundary to the north of Area B. The ditch lay immediately beneath the topsoil (trenches 2, 25 and 68; Walker and Maull 2011). No obvious ditch profile was seen in the northern section baulk of Area B (Fig 26; baulk section 1); however, there was a series of undulating deposits which may suggest multiple, recut ditches, perhaps indicative of a shift in the boundary over time. Further to the south, where the ‘midden’ deposits were prevalent, no ditch was observable in section (Fig 26, baulk section 2) or in trench 36 (Walker and Maull 2011).

5 THE FINDS

5.1 The flint by Yvonne Wolframm-Murray

Twelve pieces of worked flint were recovered as residual finds. The flint comprised nine flakes, two blades, of which one was broken, and an implement fragment (Table 2).

The condition of the assemblage was good. The flints showed little post-depositional edge damage, comprising the occasional edge nicks. Patination was present on a small proportion of the assemblage apparent as complete white or a mottled white discolouration of the surface.

The raw material is a vitreous flint of light to dark coloured greys and browns. There is also a component of a dark brown/honey-coloured flint. Cortex is present on the dorsal surface on seven pieces and typically off-white or light grey in colour with a generally smooth, rolled and weathered surface. The raw material was likely to have been derived from local gravel deposits.

The majority of flints procured consisted of waste flakes and blades comprising nine flakes, of which one was broken and two blades, of which one was broken. There were flakes with cortical striking platforms and relatively broad striking platforms.

Additionally a worked implement fragment was recovered, which was bi-facially worked but not finished.

The technological characteristics of the assemblage are broadly Neolithic to Late Neolithic/Early Bronze Age.

Table 2: Summary of worked flint

Fill/cut/feature	Flake/ Blade	Portion	Tool	Period	Patination	Comments
8069/ 8070 DG1	flake	whole	-	-	-	cortical wide striking platform
9039/ 9040 Burial 2	blade	distal	-	-	heavy	heavy edge damage
8022/ 8023 E8	blade	proximal	-	-	heavy	utilised
9077/ 9079 E8	flake	whole		-	-	-
9077/ 9079 E8	flake	whole	-	-	milky	edge damage post-depositional
9181/ 9084 Layer	natural	-	-	-	-	
9554/ 9557 E6	-	-	implement fragment	Neolithic	-	implement fragment, bi-facially worked, partially finished
9595/ 9596 Pit	flake	whole	-		-	-
9597/ 9599 D5	flake	whole	-		-	broad striking platform
9606/ 9607 D6	flake	whole	-		-	cortical striking platform
9699/ 9701 G1	flake	proximal	-		medium	post-depositional edge damage
9750/ 9751 FS	flake	whole	-		Heavy	edge damage, post-depositional
9790/ 9791 D2	flake	whole	-		-	small, cortical striking platform

5.2 **Iron Age and Roman pottery** by Rob Perrin

A total of 3800 sherds of pottery weighing *c* 62.75kg was recovered with an estimated rim equivalence (EVE) of nearly 54.5. Less than one percent of the total came from Area A.

Fabrics

Three main fabric categories, grog-tempered wares, reduced grey wares and oxidised wares account for around ninety percent of the pottery by sherd count and weight. Continental samian ware comprises around a further two percent and flint and shell-tempered wares, and various regional imports, the remainder (Table 3).

Table 3: Summary of the Iron Age and Roman pottery

Fabric	No	%site	Wt (g)	%site	Rim%	%site	Base%	%site
Grogs	2015	53.03	34281	54.63	2078	38.17	2421	35.63
Greys	761	20.03	14098	22.47	1753	32.2	1977	29.1
Oxidised	672	17.68	8460	13.48	943	17.32	1457	21.45
Misc	276	7.26	4692	7.48	481	8.84	626	9.21
Samian	76	2	1222	1.95	189	3.47	313	4.61
Total	**3800**	**-**	**62753**	**-**	**5444**	**-**	**6794**	**-**

Grog-tempered wares

A few sherds are in fabrics where the grog occurs with pieces of shell and/or flint, or where the grog is in more than one colour. The grog in the majority of the sherds is black or dark-coloured, though it is obviously less easy to identify where the clay matrix is the same colour. The main differences within the wares appear to relate to the overall fabric colour (Table 4). The main colour groups are likely to be the result of intentional oxidising or reducing firing conditions. Some of the other colours or colour combinations may be due to subsequent usage or variations within intended firing conditions. Reduced grog wares account for at least half. Most of the grog-tempered wares are hard-fired, with some being very hard.

Table 4: Grog-tempered pottery

GROGS	No	%grogs	Wt (g)	%grogs	Rim%	%grogs	Base%	%grogs
Buff etc	119	5.9	2129	6.21	144	6.93	230	9.5
Pink etc	330	16.38	9663	28.19	501	24.11	667	27.55
Grey etc	1196	59.35	17493	51.03	1032	49.66	1174	48.49
Red-br	315	15.63	3924	11.45	301	14.49	288	11.9
Red-yell	45	2.23	962	2.81	66	3.18	62	2.56
Grog+	10	0.5	110	0.32	34	1.64	0	0
Total	**2015**	**-**	**34281**	**-**	**2078**	**-**	**2421**	**-**

Grey wares

The grey wares vary in colour from light grey through to dark grey which, together with the range of variations between surface and core colours, reflect different firing conditions. The fabrics vary from coarse to fine. Some vessels have burnished external surfaces and a few sherds show traces of a possible cream slip.

Oxidised wares

While separate buff, cream and pink oxidised wares do occur (Table 5), these colours often merge on certain vessels, and different coloured cores, including reduced, can be found, especially on thicker-walled vessels. The reddish-yellow and reddish-brown oxidised wares are more consistent in colour, though these can also have a grey-coloured core. The fabric texture of all of the oxidised wares can vary from coarse to fine. Some vessels have burnished or slipped surfaces and one or two may have been mica-dusted.

Table 5: Oxidised wares

OXID	No	%oxid	Wt (g)	%oxid	Rim%	%oxid	Base%	%oxid
Buff	285	42.42	3098	36.62	276	29.27	635	43.58
Cream	95	14.14	1414	16.71	135	14.32	307	21.07
Pink	74	11.01	1079	12.75	193	20.47	111	7.62
Red-yell	169	25.14	2761	32.64	336	35.63	394	27.04
Red-brown	49	7.29	108	1.28	3	0.32	10	0.69
Total	**672**	**-**	**8460**	**-**	**943**	**-**	**1457**	**-**

Miscellaneous wares

Eleven different wares comprise the miscellaneous category (Table 6), together accounting for between only five and eight percent of the total assemblage, depending on the quantification measure. Sherds of Lower Nene Valley colour-coated ware (LNVCC), Dorset black-burnished ware (BB1), Verulamium ware (Ver) and Oxfordshire colour-coated and white wares (OXCC, OXWH) represent regionally traded pottery while Southern Spanish amphora and Lower Rhineland colour-coated ware (LRCC) are continental imports in addition to samian ware. Some sherds in a hard, fine reddish-yellow ware have traces of a red slip or colour-coat (RYCC). The flint in the flint-gritted ware occurs as either large or small fragments and some may have been crushed. The colour of the shell-gritted ware varies from dark brown through to buff and red. A few sherds are from vessels which appear to have limestone fragments in the temper.

Table 6: Miscellaneous wares

MISC	No	Wt (g)	Rim%	Base%
Flint	46	269	44	22
Shell	51	1270	117	43
Amp	7	782	-	-
LNVCC	5	54	12	100
OXCC	16	398	65	100
OXWH	30	1022	129	29
CC	108	537	94	300
LRCC	2	12	-	-
BB1	5	38	16	16
Limestone	5	108	-	16
Ver	1	202	20	-
Total	**276**	**4692**	**477**	**626**

Forms

A rough count, during processing, based mainly on separate rims and including samian ware, noted some 420 vessels (Table 7). The miscellaneous vessels comprise three rims in reduced grog-tempered ware which may be lids, a lid in cream ware and a grey ware colander or strainer with holes pierced pre-firing.

Table 7: Individual forms by percentage

	Jar	Bowl/ Dish	Beaker	Flagon	Mortarium	Misc	Total	%
Grog	131	7	1	1	-	3	143	34
Grey	80	36	2	1	-	1	120	28.5
Oxid	36	18	7	8	-	1	70	17
Shell/flint	14	1	-	-	-	-	15	3.5
Misc	2	6	8	-	14	-	30	7
Samian	1	41	-	-	-	-	42	10
Total	264	109	18	10	14	5	420	-
%	**63**	**26**	**4**	**2.5**	**3.5**	**1**	**-**	**-**

It is not surprising that most of the grog-tempered vessels are jars. These occur with various rims forms, particularly curved, bead and everted, and they also vary in size, including some large enough to be storage jars. The most common decoration on the grog-tempered jars is scored lines, either vertical, horizontal or curvilinear and these often occur together with incised horizontal grooves or raised cordons on the shoulder and/or girth. One of the grog-tempered bowls has a corrugated profile and another has a sloping lid-seated rim. Some of the other jars may be wide-mouthed bowls and many of the reduced grog-tempered jars are of a globular, neckless, shoulderless, plain-

rimmed type reminiscent of Iron Age forms. The one possible grog-tempered flagon comprises three rim sherds, perhaps from a disc-rim type, in a thin hard pink-reddish-yellow fabric with a grey core.

One narrow-mouthed jar in a pink grog-tempered fabric with a grey core was found broken but intact. It has two rows of red-painted dots between bands on its shoulder and two rows of red-painted interlocking 'S' shapes between bands on its girth. Perhaps the most interesting grog-tempered jars, however, are those associated with the cremations. All are in a thin hard pink to reddish-yellow or reddish-brown fabric with a grey core. Two, of different size, are globular with everted rims, short necks and neck cordons, while two others, also of different size, are also globular and have similar short necks and rims, but with these the rims have a definite lid-seating and both have vestigial traces of rows of external wavy line decoration. Another vessel with similar rim and decoration occurs, though not obviously associated with a cremation and there are also three sherds from other contexts with traces of the same decoration. Two other vessels in the same fabric associated with the cremations comprise a pedestal base, burnt externally, and a lid-seated curved-sided bowl or dish, though its base appears to have broken away and the break smoothed.

Within the grey wares, jars outnumber other forms by a ratio of 2:1. The jars have a similar range of sizes and rim forms to those in grog-tempered ware, with the addition of lid-seated rims and narrow-mouthed forms. Many vessels have incised horizontal grooves or raised cordons on the shoulder and/or the girth. Other decorative techniques which occur are burnished lines or lattice and blocks of barbotine dots, similar to the decoration found on so-called ‘poppy-head’ jars or beakers. The dishes and bowls have bead, plain or triangular rims and some flanged bowls also occur. Some bowls are carinated with grooved or reeded rims and there is one vessel, with a fragmentary stamp, imitating a samian ware form 33; another base also has a fragmentary stamp. One of the beakers comprises the base of an indented type.

The ratio between jars and other vessels is more equal in the oxidised wares. The bowls and dishes include more imitations of samian ware forms, specifically forms 31, 36 and 38. There are also a number of carinated bowls with grooved or reeded rims, bowls and dishes with bead rims, two curved-sided flanged bowls and a campanulate bowl. One of the beakers has incised notches and rosettes similar to decoration found on some Oxfordshire products and another may be a small globular single-handled jar; it has a bead rim, no neck and a burnished lattice decoration. The other beakers have plain or bead rims, while one of the flagons is ring-necked. The jars have lid-seated, curved, bead, triangular undercut or everted rims. Two reddish-yellow sherds are worthy of note – one has overslip white-painted decoration and the other traces of barbotine decoration.

Two jars occur in flint-gritted ware, one a globular vessel with a curved rim and the other a neckless, shoulderless, plain-rimmed Iron Age type. All of the vessels in shell-gritted ware are jars, apart from one buff-coloured wide-mouthed bowl with an inturned grooved rim.

All but one of the mortaria in the miscellaneous wares are products of the Oxfordshire kilns, the other is from Verulamium. One of the Oxfordshire products is colour-coated and the dishes and bowls include OXCC imitations of samian ware forms 31, 36 and 38. Other imitations of samian ware form 36 occur in a hard fine reddish yellow ware with traces of a red slip or colour-coat. The LRCC vessel is a ‘hunt cup’ beaker while the LNVCC beakers include an indented beaker and one with a bead rim.

The samian ware comprises forms 15/17 or 18, 18, 18/31, 18/31R, 18/31 or 31, 27, 31, 31R/Lud Sb, 33, 33a, 35, 36, 35/36, 37, 38, Curle 11, together with a cup, a dish, a bowl and a jar of uncertain form.

Sources

No local kiln or other pottery production sites are known, but Aston Clinton is at the junction of two Roman roads, Akeman Street and the Icknield Way, so would presumably have been well placed to receive goods from further afield. The nearest known kiln site, producing late grey wares, is at Berkhampstead, 10km to the south-east (Swan 1984, 138). Grogged wares were being produced in the Milton Keynes area, some 20 kilometres to the north, in the mid 1st century (Bletchley and Walton: Swan 1984, 134) and it is likely that much of the reduced grog-tempered wares from the site were locally produced. Pink grogged ware is common on sites in the Milton Keynes area and one probable source has been identified in the Stowe area (Booth 1999, Booth and Green 1989; Marney 1989; Taylor 2004). The fabric of this ware tends to be soft, however, and different from much of the Aston Clinton material. While, therefore, the assemblage may include some soft pink grogged ware, the hardness of the fabric suggests another source is likely. Some of the shell-gritted pottery may be products of the kilns at Harrold in Bedfordshire (Brown 1994). Oxidised and grey wares were produced in the Milton Keynes area and in more distant kiln sites in South Northamptonshire and at Gerrards Cross, Fulmer, Luton, Toddington (Swan 1984, 133-4), Verulamium and Oxford. The Aston Clinton assemblage includes Oxfordshire colour-coated ware and parchment ware and mortaria from the both the Oxford and Verulamium production centres, and it is therefore possible that some of the other oxidised and reduced wares were made there. Indeed, during processing, between a quarter (number of sherds) and a third (weight) of the oxidised wares and around 15 per cent of the grey wares were noted as having coarser fabrics similar to those at both the Oxfordshire and Verulamium potteries. It is not known where the vessels in a hard, fine reddish-yellow ware with or without traces of a red slip or colour-coat were made, though some are superficially similar to Oxfordshire products. The flint gritted pottery is likely to have been locally produced.

Date

The flint-tempered wares, the mixed flint and shell or grog wares and some of the coarser quartz-gritted wares indicate activity in the early to mid Iron Age. The large amount of reduced grog-tempered wares attests occupation at least in the late Iron Age/1st century and probably into the 2nd. 'Soft' pink grog-tempered ware appears to have had a long duration from the 2nd century in its core usage area (Booth and Green 1989, 82; Taylor 2004, 60) but Aston Clinton is in the outer zone where only the later types would be expected (Taylor ibid, 63-4, fig 3). Some of the vessels from the site are of the characteristic later storage jar types, but reduced and pink grog-tempered wares often occur together in contexts, suggesting they were in contemporaneous use on the site. Grey ware curved-rim jars with neck or girth grooves and cordons can be dated to the later 1st century and throughout the 2nd century. The carinated bowls with grooved or reeded rims in both grey and oxidised wares are a late 1st to 2nd century type, while the bowls or dishes in grey ware with plain, triangular and bead rims are most likely to be of mid 2nd to 3rd century date. The grey ware vessels with lattice and barbotine dot decoration and the ring-necked flagon, the imitations of samian ware forms, the curved-sided flanged bowls and the campanulate bowl in oxidised ware are probably of 2nd century date. The Verulamium mortarium is of 2nd century date while the Oxfordshire white ware mortaria are types dated *c* AD180-240 and *c* AD 240- 300. The samian ware ranges in date from the mid-1st century through to the early 3rd century. The samian assemblage suggests that activity appears to have increased markedly in the 2nd century, although possibly not until the second quarter of the century. The LRCC hunt cup is of mid to late 2nd-century date. The OXCC and LNVCC products are of 3rd or 4th-century date and buff-coloured shell-gritted ware wide-mouthed bowl with an inturned grooved rim is a 4th-

century type. The sherd from an Oxfordshire parchment ware bowl or dish will be 4th century in date.

Overall, the impression is that there was some occupation on the site in the Iron Age with much increased activity in the later Iron Age to early Roman period and the mid to later 2nd century, perhaps with a lull in between. Some 3rd and 4th-century pottery is present, but in much smaller amounts, suggesting a lessening of activity in the later Roman period.

Assemblage characteristics

Around half of the flint-tempered wares are from Area A, suggesting that this was the main focus for Iron Age activity. Jars comprise almost two-thirds of the vessels in the assemblage with over a third of the bowls and dishes occurring in samian ware. The overall amounts of samian ware and 'table-ware' vessels such as flagons and beakers are low, but mortaria are quite well represented. There is one colander or strainer base with holes pierced pre-firing and a number of the jar bases have holes pierced post-firing. Two other pots have holes pierced just below the rim and three samian vessels have rivet repair holes. Apart from samian ware, the only pottery of continental origin are a few sherds from Southern Spanish amphorae and a hunt cup beaker from the Lower Rhineland. Almost all the regionally-traded wares in the assemblage are from the closer production centres at Verulamium and near Oxford, with only a few sherds, less than might have been expected, from other centres such as the Lower Nene Valley and Dorset. Overall the impression is that the activity on the site was basically utilitarian agricultural and domestic and not of a particularly high status in terms of the amounts of fine wares and imported regional and continental wares.

5.3 Ceramic building material by Pat Chapman

Tile

The assemblage of 57 tile sherds weighs 6.2kg (Table 8). The sherds are small, the largest only 80mm by 90mm, and many are abraded. There are eight roof tile sherds, seven *tegulae* and one *imbrex*. Of eight box flue tile sherds, seven come from one context, most likely from the same tile. Ten sherds, with fragments, come from thicker floor or hypocaust tiles. The remainder are undetermined body sherds.

The two main fabrics are F1, sandy clay, and F2, silty clay. F1, the predominant fabric is hard fine sandy orange to orange-brown to red-brown, comprising 27 sherds including the roof tiles and some floor tiles. Eighteen sherds are made from hard fine silty fabric, F2, varying in colour from orange to pale grey, this includes some floor tiles sherds and one box flue tile sherd. These two fabrics are very similar to the Type 1A and Type 1B from the Aston Clinton bypass (Slowikowski 2005, 190). The other seven box flue tile sherds are made in a distinctive hard fine silty sandy dark reddish-brown fabric, F3. One floor tile sherd is made from slightly soft fine silty white to pale orange to pale grey fabric, F4, similar to Slowikowski's Type 4 Gault.

Table 8: Quantification of Roman ceramic tile

Fill/cut	Feature	Sherd no	Wt (g)	Tile type	Description and measurements (mm)
9029/9031	E8	2	56	body	F1, fragment
9047/9050	E5	4	650	floor	F2, 45 thick + 3 fragments
9094/9098	Pit	1	32	body	F1, 12 thick
9096/9098	Pit	1	12	body	F1, 12 thick, nailhole 16 diameter
9105/9106	E5	1	283	*tegula*	F1, 20 thick, flange 55 high, cutaway
9153/9154	Pit	8	405	floor	F2, 40 thick + 7 fragments
9162/9164	Midden	2	338	body	F2, 22 thick
9163/9164	Midden	1	436	floor	F1, 38 thick
9167/9169	E9	1	13	body	F1, 12 thick
9180	Midden	8	1014	floor	F2, 30 thick + fragment
				floor	F1, 35 thick
				tegula	F1, 20 thick, flange 60 high, burnt
				tegula	base
				tegula	F1, flange fragment
				body	F1, 18 thick, flange 38 high
					F1, 20 thick x 2 + fragment
9207/9208	E9	1	90	body	F1, 28 thick
9209/9210	E9?	2	150	floor	F1, 35 thick
				body	F2, 15 thick
9227/9228	E8	1	55	body	F1, 12 thick
9282/9284	E4	1	80	*tegula*	F1, 28 thick, finger swirl
9291/9292	E8	1	49	body	F1, fragment
9329/9330	E9	1	225	floor	F1, 30 thick
9389/9391	Structure	1	25	body	F1, fragment
9409	Structure?	8	1034	*tegula*	F1, 25 thick, flange 50 high
				flue	F3, 7-17-20 thick, wavy and incised
9421/9422	Structure	2	44	body	F1, 18 thick
9434/9436	Structure	1	58	flue	F2, 17 thick, broad straight comb
9472/9474	E5	1	216	floor	F1, 30 thick
9477/9480	Pit	4	332	floor	F4, 42 thick, + 3 fragments
9525/9526	D5	1	185	body	F1, fragment
9570/9573	E6	1	12	body	F1, fragment
9583/9564	D5	1	283	*imbrex*	F1, 13 thick, broad curve
9606/9607	D6	1	185	*tegula*	F1, 22 thick, flange removed
Totals		**57**	**6162**		

The *tegula* sherds are 18-28m thick with measurable flanges 38-60mm high. The *tegula* flange from context (9105) has a cutaway at the end typical of a Warry Type C (2007) datable to AD 160-260. One *tegula* sherd, from context (9180), has a burnt base that may indicate reuse in a hearth. The *imbrex* sherd from context (9583), 15mm thick, has a very broad curve suggestive of a ridge tile, although it is rather thin for that purpose. A box flue tile from context (9434) is 17m thick and decorated with a straight broad comb design. The seven flue tiles from context (9409) have very worn wavy and straight lines on three joining sherds, and sharp incised lines forming a saltire on another sherd. The floor tiles are between 30mm and 45mm thick. The remaining body sherds are between 12mm and 28mm thick, so most of them are probably from roof tiles. One body sherd has a remnant nail hole 16mm in diameter.

The 219 tile sherds from the evaluation, weighing 5.5kg, are virtually all small fragments of floor tiles. However, a number of those fragments are most likely the type

1 fired clay as described below. The relatively small number of tile sherds in this assemblage include roof and box flue tile sherds.

Fired clay

There are 284 fragments of fired clay in two distinctive types, with very few exceptions, weighing 6775g and generally found in separate contexts.

Type 1, which comes from 35 contexts, comprises slightly less than half the assemblage, 47.5% by number, but is three-fifths, 59.8%, by weight (Table 9). The fragments are made from hard silty clay in fine laminated layers, with a few small gravel inclusions, occasionally more. The pieces are typically buff to orange in colour, with a few having a white deposit on the surfaces, some also have wide black organic cores. Stem and seed impressions are on many surfaces, occasionally being very dense. The larger fragments are mainly structural in appearance. Some are brick-like, 30-45mm thick with flat slightly uneven surfaces and vertical edges which are often marginally wider than the body. Other pieces are slabs, the surviving straight edges suggesting that they were originally square or rectangular in shape, 15-23mm thick.

The fired clay from excavations along the Aston Clinton Bypass (Slowikowski 2005, 193-4) has close similarities in both fabric and thicknesses. The rectangular slabs and the 'bricks' were not interpreted as kiln furniture, due to the lack of any relevant structural remains in this area, rather that they could have been used in bread ovens, as surfaces near hearths, or for lining pits. Very similar material was found about five miles away at Bierton in 1979, where it was suggested that they could be hearth debris as found at other sites (Allen 1986, 16, fig 9). This type of fired clay would appear to have a domestic function as suggested above, rather than a structural one.

Table 9: Quantification of fired clay, type 1

Fill/cut	Feature	No	Wt (g)	Fill/cut	Feature	No	Wt (g)
9085/9088	Pit	4	18	9339/9343	E8	1	37
9087/9088	Pit	8	217	9378/9382	E4	4	102
9099/9102	E9	5	115	9380/9382	E4	5	195
9094/9098	Pit	2	86	9381/9382	E4	6	142
9144/9147	E5	13	190	9385/9388	E4	1	95
9155/9826	E4	12	78	9410/9412	Structure	1	98
9162/9164	Midden	8	190	9455/9458	Structure	1	6
9167/9169	E9	5	105	9481/9484	Pit	2	78
9181	Layer	1	28	9508/9509	Structure	1	159
9183/9189	E4	11	133	9554/9557	E6	4	330
9207/9208	E9	1	195	9617/9619	Pit	1	17
9220/9222	G3	2	8	9629/9630	Cess pit	3	62
9229/9232	E9	1	6	9690/9691	PG1	7	300
9230/9232	E9	1	13	9734/9735	DG2	1	16
9238/9239	Pit	3	108	9774/9775	E6	7	230
9253	Layer	1	124	9780/9782	D6	3	103
9313/9317	E5	1	78	9792/9793	Pit	2	140
9336/9338	E9	5	240	-		-	-
9337/9338	E9	1	15	**Total**		**135**	**4057**

Three large fragments from ditch [9544], enclosure E9, weighing 710g, are made in a different fabric, a hard dense silty clay with frequent gravel, mainly flint and quartz, up to 15mm long. One is white, *c* 35mm thick, with a broad curve and rounded edge, another is buff and 40mm thick.

The distribution of the Type 1 fired clay, together with the tile, may suggest a possible focus for a building or buildings.

Type 2 fired clay comprises 145 typically small flattish plates, *c* 40x40x15mm and smaller, with smooth uneven surfaces. It is made from quite hard fine silty homogeneous clay with occasional small sub-rounded gravel and is generally pale orange to grey in colour. There were no wattle impressions. There are also six fragments made from buff to hard red-brown coarse sand with small gravel which have been provisionally identified as Type 2 fired clay. These 151 small fragments together weighing 2123g, were scattered through 51 contexts.

5.4 The querns and millstones by Andy Chapman

Parts of three stones were recovered, two from hand-operated rotary querns, one a domed puddingstone quern and the other a flat quern with a raised rim in a fine-grained Millstone Grit. The third stone is a small fragment from a large diameter millstone, at least 130mm thick, in a coarse Millstone Grit, for use in a powered mill.

From the fill (9605) of ditch [9607], D6, there is just under a half (40%), of an upper rotary quern in Hertfordshire puddingstone. The stone is 320mm in diameter with a smooth, slightly concave grinding surface, and the upper surface has near vertical sides that curve smoothly into a domed top, up to 125m high. The stone is fractured vertically, leaving a remnant of the lower part of the central eye, which was *c* 25mm diameter, but there is no handle socket on the surviving half.

From layer (9162) of midden [9164], there is a fragment (15%) from the circumference of an upper flat quern in Millstone Grit, *c* 400mm diameter and 55mm thick at the circumference where there is a raised rim or kerb, 25mm wide and 5-8mm high. The upper surface and the circumference retain dimpled tool marks. The grinding surface is worn to a concavity centred on the surviving fragment, which is 140mm square, indicating that this piece was reused as a small grinding stone.

From the fill (9293) of ditch [9295], E8, there is a small fragment from the centre of a millstone in a coarse-grained Millstone Grit. The fragment has a large, vertical-sided central eye, 250mm, in diameter and the stone is 130mm thick. A small fragment of the heavily worn grinding surface survives, and retains faint remnants of tooled dimples. The size of the eye and the thickness of the stone indicate that the fragment comes from a large stone, perhaps approaching 1m in diameter, used in a powered mill.

5.5 Other finds by Tora Hylton with Ian Meadows

The excavations produced a small collection of finds spanning the late Iron Age and Roman period. With the exception of a single nail from Area A, all the finds were recovered from 34 individual deposits in Area B. Artefacts were recovered from all phases, six from late Iron Age/1st century AD deposits and 15 from 1st-2nd century AD deposits. The majority of the finds (52) were recovered from 2nd, 3rd and 4th century deposits. A large percentage of the finds were located in the fills of the linear features which covered the site, these were presumably casual losses and disposal etc.

Of interest is the presence of a small inhumation cemetery sited in the northern half of the site. Although there was no evidence in any of the graves to suggest that the bodies had been interred in a coffin, a small group of artefacts were recovered. Two burials contained grave goods in the form of ceramic vessels, while a further four contained small finds, including three with personal items (jewellery). The largest

concentration of artefacts (21) was recovered from a 4th century “midden” deposit and includes a range of tools and miscellaneous fittings.

Although the assemblage is small, the range of artefacts provides a brief insight into the nature of occupation; there are personal items for adornment and grooming and a small group of fittings and tools.

Quantity of material

In total 83 individual and group recorded small finds were recovered making a total number of 167 individual objects (Table 10). These quantifications exclude the 15 small finds recovered during the evaluation. All common materials are represented.

Table 10: Other finds quantified by material type

Material	Total
Copper alloy (ex. coins)	8
Iron objects	67
Lead	4
Bone	1
Glass	3
Total	**83**

Data Collection

All finds were recorded on site manually following NA guidelines. The majority of finds were recovered by hand, while smaller numbers were located by a metal detector. Metal detectors were used in advance of machining and their use increased the recovery of metal objects particularly copper alloy objects, and in particular the coins. Metal detecting was carried out at regular intervals through the excavation, by undertaking the systematic coverage of the exposed surface of the site and scanning the spoil heaps. The position of all excavated finds was recorded by three-dimensional co-ordinates, and the metal detected finds were given co-ordinates where possible.

All the individually recorded finds have been entered on to a computerised database (ACCESS). A basic catalogue has been compiled, comprising, material type and object identifications, together with stratigraphic information. All finds have been boxed by material type, in numerical small find order.

Condition

The copper alloy is in a stable condition. The ironwork is in a reasonable state of preservation, but much of it encrusted in corrosion products. With the exception of nails and small fragments, all the iron work has been x-rayed by Wiltshire Museum Conservation Service. This has not only provided a permanent record, but helped identification of the objects and highlighted features of interest. The worked bone object and the glass items are all in a good condition and require no further work. No waterlogged organic material was found.

Summary of the material recovered

The majority of artefacts date to the Roman period and form an assemblage comparable with those from other small Roman settlements of a similar date. Where possible all the finds have been assigned functional groups (Table 11).

Table 11: Other finds quantified by functional category

Functional category	Phase					
	LIA-1st	1st-2nd	2nd	2nd-4th	4th	U/S
Personal Possessions						
Costume and jewellery	-	1	5	-	1	1
Hobnails	-	1	-	75	2	-
Personal equipment	-	-	-	1	-	1
Equipment and furnishings						
Building equipment – general ironwork	-	-	1	1	2	-
Building equipment - nails	11	7	11	3	9	1
Tools - knives	-	-	-	-	2	1
Tools – wood working	-	-	-	-	1	1
Tools - misc (x 2)	-	1	1	-	-	-
Miscellaneous and unidentified						
Copper alloy	-	-	-	-	-	1
Iron	3	4	4	2	6	1
Lead	-	-	-	1	1	2
Bone	-	-	1	-	-	-
Glass	-	1	-	-	-	-

Copper alloy

There are eight copper alloy objects represented by small portable items that would have been worn as jewellery or held by an individual for personal use (toilet equipment). Items recovered include three brooches, two armlets, a cosmetic mortar and a toilet spoon.

All the brooches and one of the armlets were recovered from burial deposits. The brooches are represented by well-known types which date to the *c* 1st century. They include one Colchester, one Colchester Derivative and one Aucissa brooch. There are two armlets, a complete penannular armlet for use by a child and one terminal fragment.

Of interest is the presence of a cast bronze mortar from a two piece cosmetic set recovered from a midden layer in enclosure E4 [9180]. It comprises a crescent-shaped bow with bovid terminals (a bull) and it would have been used for grinding up mineral-based cosmetics. Cosmetic mortars are known to have been in use from the pre late Iron Age to the 1st and early 2nd centuries. Finally a copper alloy toilet spoon 'ear-scoop' was recovered from enclosure E8 [9232]. Although incomplete since both terminals are missing, enough survives to permit identification. Its small size suggests that it may have been part of a toilet set

Iron

There are 67 individually or group recorded iron objects, making a total number of 151. The assemblage is dominated by 124 nails, of which 78 are hobnails, including a group deposit of 75, presumably from a discarded shoe. The majority of the remaining 47 nails represent common types used for securing major timbers and light furnishings. In addition, dome- headed nails possibly for upholstery are represented.

Although the remaining assemblage includes undiagnostic fragments, there are a small number of objects which may relate to buildings; these include a double-spiked loop, a large perforated binding/reinforcement strap and parallel-sided strap fragments, some with terminal loops. In addition the presence of a slide key attests to the need for security.

There is a small group of tools, these include an adze blade and a wedge/chisel for wood working activities, two knives and a tanged ?tool.

Lead

There are four pieces of lead. Two are undiagnostic fragments of sheet metal, one is "squared" with an off-centre perforation and presumably it had been pierced by a nail. Two pieces appear to display signs of having been melted and may relate to some form of metal working.

Bone

One worked bone object was recovered, a short conical plug/point. It has a flat-top with signs of wear; the shank is knife trimmed and tapers to a point. It was recovered from a 2nd-century deposit.

Glass

There are three items manufactured from glass, two monochrome beads and a small fragment of vessel glass. The beads were recovered from burial B12, one is green and the other blue and both represent types commonly recovered from Roman burials. The vessel fragment, a base shard from a possible small bottle/flask, was recovered from a 1st/2nd-century deposit.

Roman coins by Ian Meadows

Nine coins were recovered comprising small low value coins of 3rd and 4th century date. The condition of the coins precluded their precise identification and some of the flans showed signs of the struck surface flaking away from the core indicating active corrosion. The burial environment must have been very hostile to the preservation of metals.

Catalogue

SF24 Unstratified. An 18mm diameter coin of Claudius II Gothicus (268-70) with an obverse of radiate head and partial legend]CLAVDIV[. The reverse shows Genius standing beside and altar with the partial legend]SEXER[

SF44 Unstratified. An illegible 18mm diameter flan with traces of a radiate crown on one face suggesting a probable 3rd-century date

SF22 (9001), Topsoil. About half of a 23mm diameter Follis of Constantine 1. The surviving portion of the obverse shows the front of a distinct Constantinian bust with the partial surviving legend]NTINVS[ ] FAVG. The reverse type and mint mark are illegible

SF23 (9001), Topsoil. A highly corroded 16mm diameter coin probably a 4th-century issue

SF31 (9063) Burial 4. An illegible 16mm diameter 4th-century coin. Traces of the hair were visible on the obverse and slight traces of letter forming a possible reverse legend could also be discerned

SF41 Unstratified. A highly corroded 17mm diameter coin probably a 4th-century issue

SF42 Unstratified. A corroded 18mm diameter example of a kneeling captive type reverse coin. The obverse bears a distinctive small 4th-century bust but the legend is not legible. A small 'nib' on the circumference of the flan suggests this might be an unofficial cast copy

SF43 Unstratified. An 18mm diameter CONSTANTINOPOLIS issue (330-35 AD) with a probable Trier mint mark partially visible TR[.

SF45 Unstratified. An 11mm diameter minim that would appear to be based on a 4th-century prototype (the obverse appears to bear a 4th-century type bust). The precise prototype of the coin is unclear

SF49 Unstratified. A corroded 19mm flan bearing little trace of its original obverse or reverse design. Probably 4th-century in date

SF51 Unstratified. A 16mm flan bearing traces of a 4th-century bust on one face. The piece is thicker than the normal struck pieces and may be a contemporary cast forgery although no trace of a casting gate was observed

This assemblage is not unusual in Roman rural contexts and mostly represents casual loss, although the coin from burial B4 may have been deliberately deposited.

6 THE FAUNAL AND ENVIRONMENTAL EVIDENCE

6.1 Roman burials by Sarah Inskip

The assemblage comprised ten inhumations and three cremations of Roman date. Three of the inhumations appear to have been decapitated with a further three buried in unusual positions.

The human remains were macroscopically assessed in terms of preservation, completeness, age, sex, pathology, metric and non-metric traits. The overall objective was to place the individuals in the context of burial rites in the late Iron Age and Roman period in Buckinghamshire and surrounding regions.

The inhumations were analysed according to the Institute of Field Archaeology's *Guidelines to the Standards for Recording Human Remains* (Brickley and McKinley 2004) and English Heritage's *Human Bones from Archaeological Sites: A Guideline for Producing Assessment Documents and Reports* (Mays, Brickley and Dodwell 2004).

Preservation and completeness

Table 12: Skeletal preservation categories

Preservation	% cortical surfaces remaining
Excellent	≥ 95%
Good	60 – 94%
Fair	<60
Poor	≤25%

The preservation of the material was generally good with five inhumations having good preservation and the remaining five being fairly preserved (Table 12). However the material suffered significantly from fragmentation. Later use of the site has resulted in four of the ten inhumations burials being significantly incomplete.

Age

It was possible to age six of the ten inhumations. None of the burials were juvenile as no unfused long bone epiphyses or deciduous teeth were present. Insufficient skeletal data existed to age the individuals in burials B5, B7, B8 and B11 beyond adult. This was due to significant fragmentation and incompleteness. Four of the six aged burials were classified as middle adults (35-50 years) and the remaining two individuals were aged as young adults (18-35 years). As the preservation is fairly good, it seems unlikely that old and juvenile individuals would be completely lost to taphonomic processes. The sample here potentially shows a bias in its age distribution but caution is required due to the small sample size.

Table 13: Summary results

Burial/ number	Complete	Preservation	Age/ Sex	Aligned	Arms	Skull	Legs
B1 4415	>75%	Good	M/ M	NE-SW	Crossed on abdomen	Between legs	Extended
B4 9062	>75%	Fair	Y/?M	NE-SW	Crossed on abdomen	Anatomical position	Extended
B5 9093	50-75%	Good	A / M	NW-SE	Extended?	Anatomical position	Extended, superior out of grave?
B6 9225	<75%	Fair	M /M	NE-SW	Extended?	Anatomical position	Extended
B7 9233	<25%	Fair	A / ?	NE-SW	No arms	No skull	Extended
B8 9254	25-50%	Fair	A/ ?M	NE-SW	Disturbed	Disturbed	Disturbed
B10 9344	>75%	Good	M /M	N-S	Flexed/ tucked by shoulders	Anatomical position	Extended, superior out of grave
B11 9357	50-75%	Fair	A / ?M	NE-SW	Humerus only; extended	Anatomical position	Extended
B12 9416	25-50%	Good	Y / ?F	NE-SW	No arms	Between legs	Semi flexed, splayed
B15 9515	25-50%	Good	M / ?F	E-W	Crossed on abdomen	Anatomical position but ?moved	No legs

Key: A=adult, M=male, F=female

Sex

It was possible to estimate sex in all but one individual, burial B7, which had no *os coxae* or skull. Six individuals were sexed as male or probably male and only two were sexed as possible females. In a normal population, where cultural sex selection is absent, even numbers of males and females would be expected. While it is not possible to test the significance of this sex imbalance statistically, due to the low sample number, it is certainly worthy of note especially as an age imbalance is also noted.

Pathologies

Joint diseases

Osteoarthritis is commonly observed in archaeological remains (Mays 2010, 186; Waldron 2009). Damage and destruction to the synovial cartilage causes changes to the underlying bone. Osteoarthritis occurs from age or trauma but also with repetitive activity (Roberts and Manchester 2005,; 138). According to Rogers and Waldron (1995) two indicators of osteoarthritis need to be simultaneously present for positive diagnosis. These features include sclerosis, pitting and new bone growth around the joint margin. Eburnation is pathognomonic for the disease (Roberts and Manchester 2005, 137) so its presence alone is an indicator of the disease. Osteoarthritis is scored following Rogers and Waldron (1995) on the acromioclavicular joint, glenohumeral joint, elbow, wrist, hands, hip, knee, ankle and foot.

Osteoarthritis (OA) was identified in eight of the ten individuals. Burial B7, not diagnosed with OA, had very few joint surfaces available for inspection. A high prevalence of affected individuals was observed in the material from Duxford,

Cambridgeshire (Duhig 2011). Table 14 presents the individuals and joints affected by OA.

Table 14: Joints observable and affected by osteoarthritis

Burial	Spine	AC	GH	Elbow	Wrist	hands	hip	Knee	Ankle	Foot
B1	p	u	u	a	a	a	a	u	a	p
B4	p	a	u	a	a	p	u	u	a	a
B5	p	u	a	p	p	a	p	u	u	u
B6	u	u	u	u	a	p	u	a	a	a
B8	p	u	u	a	a	p	p	u	a	a
B10	p	a	a	a	p	a	a	a	a	a
B11	u	u	u	u	u	p	u	u	u	u
B12	u	u	u	u	u	u	a	a	u	u
B15	path	a	a	u	a	a	u	u	u	u

Key: AC = acromioclavicular, GH = glenohumeral, p=present, a= absent, u=unobservable, path= pathological

It is difficult to comment confidently on the patterns of OA due to the small sample number, however, some interesting trends can be observed. Like most skeletal collections, the spine was the most commonly involved region with all five observable individuals being affected. While this is high, it could be a factor of small sample size. It is difficult to compare OA rates between populations due to the differences in reporting the condition but a high prevalence of spinal OA was also observed at nearby Baldock (Denston 1976) and Duxford Cambridgeshire (Duhig 2011) and further away at Boscombe Down, Dorset (McKinley 1996)

No examples of acromioclavicular, glenohumeral, knee or ankle OA were observed. This could be due to the small sample number and/or the young/middle age of the individuals as OA rarely appears before 40 years (Waldron 2009, 31). Three of seven observable individuals had wrist osteoarthritis and four of eight observable individuals had hand osteoarthritis. This is high in comparison to reports cited in Roberts and Cox (2003, 148). The hand osteoarthritis was particularly severe in burials B8 and B4 where multiple patches of eburnation were observed. While hand OA at the distal and intermediate phalangeal joints is normally idiopathic (West 1997), this is not the case for the proximal phalangeal metacarpal joint where burials B4 and B8 were affected. It is worthy of note that the affected individuals had pronounced flexor attachments on the palmer surface of the phalanges. This may suggest that the individuals from Aston were engaged in some activity that strained the wrists, and particularly, the hands.

In addition to spinal osteoarthritis, Schmorl's nodes were present in all of the observable spines. Schmorl's nodes are commonly observed in archaeological remains. They are created when the inner portion of vertebral disc (nucleus pulpous) herniates out through the outer layer of the vertebral disc (annulus fibrosus) in childhood or early adulthood, placing pressure on the bony surface of the vertebral body (Mays 2007, Mann and Murphy 1991, Roberts and Manchester 2005). A defect, which can vary greatly in size and shape, is formed and is characterised by the cortical surface in the bottom of the depression. Schmorl's nodes are usually caused by heavy lifting but a traumatic event can create the defect. The five individuals that had Schmorl's nodes were burials B1, B4, B5, B10 and B15. This, coupled with spinal OA

may suggest that heavy lifting and/or spinal trauma in young adulthood for the individuals from Aston Clinton.

Osteochondritis is caused by direct or repetitive trauma to synovial joint surfaces which results in localised necrosis of bone. This condition usually occurs in younger individuals (Mays 2007, Ortner 2003, Waldron 2009). A chip of bone can become loose within the joint surface or can reabsorb into the remaining cortical defect. Osteochondritis is characterised by depression in a synovial joint articular surface which has scalloped or rounded edges (depending on stage of healing) with the underlying trabecular bone exposed. Two defects were observed in the Aston Clinton material; one on the capitulum of the distal right humerus for individual in burial B5 and the other on the subtalar surface of the right talus of burial B8. This defect is a reasonably common finding in Roman archaeological remains (see Roberts and Cox 2003, 152).

The individuals in burials B6 and B8 had skeletal changes on the distal portion of the left and right first metatarsal respectively. The distal articular surfaces appeared to be laterally orientated. In addition, new bone growth is was present on the distal medial surface. Both metatarsals were porous at the distal ends with burial B6 having some remodelled periostotis. Both metatarsals had early signs of osteoarthritis with joint lipping and possible sclerosis. This combination of lesions has been identified by Mays (2007) in seven individuals at Wharram Percy and has been attributed to Hallux Valgus (bunions). These are normally the result of wearing restrictive footwear so its presence here in two individuals is interesting. This could be caused by the wearing of boots or sandals.

Metabolic disease

Porotic hyperostosis (PH) is caused by diploe expansion in the skull resulting in pitting or a ‘coral’ like appearance (Mays 2007, White and Folkens 2005). When the orbital roofs are involved it is known as cribra orbitalia (CO). PH and CO can be differentiated from other diseases such as scurvy through the lack of reactive new bone growth found in scurvy cases (Mays 2008). PH is usually observed in children and distributed symmetrically on the parietals. Multiple aetiologies have been suggested for the condition including dietary deficiency of iron or vitamin B, thalassaemia, blood loss, parasites, infection, diarrhoea, poor maternal health and general ill health (Mann and Murphy 1998, Mays 2007, Roberts and Manchester 2005, White and Folkens 2005). Lesions were classified according to Brothwell (1981, 165). Only burial B15 had active cribra orbitalia (type b) with a further three individuals presenting with the healed condition (type d) (Table 15) which is a total prevalence of (4/7 57%). This appears to be high in comparison to the rates presented by Roberts and Cox (2003,141) but these scores are presented as crude prevalence rates which may be significantly lower than the true rate. Three individuals had evidence of healed PH (3/6 50%). This suggests that the individuals of this sample had suffered from a significant stress affecting the amount or ability to process iron.

Table 15: Cribra orbitalia and porotic hyperostosis

Burial	Cribra Orbitalia	Porotic Hyperostosis
B1	Type d	a
B4	a	h
B5	Type d	a
B6	a	a
B7	u	u
B8	u	u
B10	Type d	h
B11	a	a
B12	u	h
15	Type b	a

Key: h=healed, a=absent, u=unobservable

The only other notable cranial pitting was observed on the zygomatic for the woman in burial B12. There was no evidence of periostotis which would indicate bleeding under the periosteum as would be observed in scurvy. As burial B12 has healed porotic hyperostosis, the pitting on the zygomatic may be related to this condition (Mann and Murphy 1998).

Hypoplasia is a general stress indicator and is caused by the recommencement of enamel formation after a period of cessation resulting from prolonged significant psychological or physical illness. As teeth do not remodel during life, these bands represent insults to health during childhood when the teeth are being formed (Hillson 1996, Roberts and Manchester 2005). Hypoplasia was identified in two of the eight (25%) individuals with dentition and on eleven of 178 (6.1%) teeth with crowns. This is a just a little higher than the prevalence presented for Baldock, Hertfordshire (5.1%) (Roberts 1984) and Kempston, Buckinghamshire (5.6%) (Boylston and Roberts 2000) and suggest that the individuals from Aston Clinton were in the normal range for the region. Burial B4 had one band on the upper incisors and canines while burial B10 had three bands on lower canines. One band was observed on the lower incisors but other bands may have been lost due to the extensive wear on the teeth.

Infectious disease

Infectious disease was a significant problem for pre-antibiotic populations of past and is a common finding in archaeology (Roberts and Manchester 2005). In the Aston Clinton material there were three skeletons with possible evidence for infection.

There were two possible cases of non-specific periostotis. Burial B12 had healed periostotis on the medial midshaft of the right tibia. The man from burial B6 had remodelled periostotis on left distal metatarsal 1 but this could be related to Hallux valgus.

In terms of specific infections there were erosive spinal lesions in the female of burial B15. Vertebral margin lesions (VML) were visible on the anterior portion of the body end plates of T9, 10, 11, 12, L1, L2, L3 and L5. There was no vertebral collapse. With the exception of lumbar 3 and 5, all were affected on the superior surface. T9 was affected on both the superior and inferior surface. The largest measurable lesion was on L2 (44mm) and the smallest was present on L5 (24.9mm). The trabecular bone in the lesions was irregular with a combination of large and small voids present. There was no evidence for new bone growth in the lesions but new bone growth was identified on the anterior surface of the vertebral bodies of L5, T12, T11 and some of the fragmented upper thoracic vertebral bodies. The lesions appeared sclerotic with osteophytes forming on eight of the affected vertebrae. Also present were voids (<5mm) in the anterior surfaces of L2-4. Some active periostitis was observable on the anterior surface of sacral vertebrae 2 and 3.

It is unusual for tuberculosis to affect more than two or three vertebrae (Ortner 2003). It would appear that the involvement of many vertebrae, possibly the sacrum and the lack of rib lesions rules out tuberculosis as a cause. In osteomyelitis, significant new bone formation might be expected (Mann and Murphy 1998). Furthermore the neural arches would not be spared (Ortner 2003). The anterior position of the lesions, the involvement of multiple vertebrae, formation of osteophytes and the presence of voids are indicative of brucellosis, a zoonotic disease contracted from the ingestion of infected animal products (Ortner 2003). Debate currently exists on how diagnostic vertebral lesions can be with Mays (2007) suggesting that trauma can cause very similar lesions. In a study on VML (vertebra margin lesions), a relationship between spondylolysis, extra vertebra and VML appears to exist suggesting that an unstable spine may also predispose the disc to rupture placing pressure on the anterior vertebral body. A number of spinal anomalies were observed in burial B15 including spondylolysis of L5 and S1 as well as spina bifida occulta of S1 and S2 but the presence of voids in the vertebral bodies and periostitis on the sacrum support a diagnosis of brucellosis. Capasso (1999) identified sixteen individuals from Roman Herculaneum with possible brucellosis lesions and notes how Romans drank untreated goat's milk. Due to the scanty evidence for brucellosis in the UK, and the presence of other spinal deformities, means that DNA analysis would be required to support this diagnosis and definitely rule out trauma and other infectious diseases.

Trauma

There were four individuals with six healed fractures; burial B1 had a compression fracture in the left foot. The base of metatarsals 4 and 5 appear to have been forced into the cuboid causing compression. This has resulted in osteoarthritis of the foot. Burial B4 has a compression fracture in the fifth lumbar vertebra on the left side. Burial B15 had a healed rib fracture and spondylolysis on L5 and S1, a lesion thought to be a fatigue fracture. Other spinal anomalies, including spina bifida occulta may have predisposed the individual in burial B15 to the condition. Finally, burial B10 has a healed fracture to the upper left maxilla where the bone covering the root of the upper incisor has been lost. This may have been caused by a blow to the face. The tooth however remains undamaged.

The tubercle of the right 5th metatarsal is ununited in burial B4. A rough surface on the metatarsal and the tubercle suggests that the bone was once fused so the condition is not a congenital anomaly. This is the most common fracture site of metatarsals in children and adolescences in modern populations (Herrera-Soto *et al* 2007). Two common types of fractures exist in this location. Jones fracture is where the distal section is entirely fractured (1.5mm from tubercle) (Wheeless 2012). An avulsion fracture is where the tubercle is pulled off by rapid muscular activity. The fracture is too low to be Jones fracture and is therefore likely to have been caused by rapid contraction of the peronius brevis muscle which attaches to the 5th metatarsal at the tubercle.

Two individuals had skulls placed between their legs (burials B1 and B12). It is important to note that the cervical vertebrae were with the heads because this suggests the head was placed at the legs while some soft tissue remained (Buckberry and Hadley 2007). This is a common occurrence in Roman Britain (Taylor 2010, Philpot 1991). Burial B12 had implement marks on the anterior inferior portion of the mandible on the right side. These were consistent with a sharp implement such as a sword blade. In addition to these two individuals, burial B4 also had an indicator of attempted decapitation. An incomplete cut mark was identified on one of the mid cervical vertebrae which could represent throat cutting. The remaining observable breaks on the skull did not have V-shaped or sharp edges as would be expected from a blade, or bevelling which would be associated with blunt trauma. As the cut is

incomplete, if the individual was decapitated, the vertebrae would have had to have been manually separated to remove the head. This action is suggested by Taylor (2010, 102), who infers that many decapitated burials may not have had the head removed with a fatal blow but were separated after death. This head removal could represent an attempt to prevent the dead from walking or deliberate mutilation after death. If the cuts were in combat, we might expect more blows and other injuries such as parry cuts or fractures. Burial B12 did have a superior inferior orientated cut mark to a rib fragment suggesting some violence around the time of death as there was no evidence of healing. It should be noted the significant disturbance at the site has resulted in significant post-mortem fragmentation making the identification of pre-mortem trauma was extremely difficult.

Dental disease

Dental caries are caused by acids secreted by bacteria that break down carbohydrates (Mays 2010, Roberts 2009). Eight individuals had dentition with a combined total of 186 teeth available for analysis. Three individuals (burials 1, B11 and B12) had a total of 15 caries providing a caries rate per tooth of 8%. Six teeth in the upper dentition were affected; two canines, one incisor, a right upper 2nd premolar, an upper 3rd molar and an upper 2nd molar which had total crown loss due to caries. Nine lower caries were identified on two 2nd molars, one 1st molar, one lower 2nd premolar and one lower 2nd incisor. Three lower teeth had complete crown destruction from caries. All of the caries were interproximal or appeared at the cementoenamel junction in line with Watling Street, London (White 2000) and Tolpuddle, Wiltshire (McKinley 1999). Occlusial caries were absent. This fits with trends for both the Iron Age and the Roman period. Occlusial caries become prevalent in the medieval period when sugary foods become more common (Mays 2010). Other teeth have possibly lost crowns to caries but are damaged rendering confident observation impossible. In comparison to local sites, the Aston Clinton falls within the range given for other regional sites (St Albans 6.9%, St Bartholomew's hospital London 5.9%, Baldock sites Hertfordshire 6.6-10.5% (Roberts and Cox 2003, 130). Furthermore, it is similar to the figure presented for the average for Roman Britain (7.5%) (Roberts and Cox 2003, 131).

Ante-mortem tooth loss (AMTL) is identified through observation of remodelled tooth sockets. A leading cause of AMTL is thought to be caries (Mays 2010). AMTL was observed in five individuals (Burials 5, 6, 11, 12 and 15). Upper and lower teeth were affected. All tooth types were involved but the majority lost were molars (11 upper and 2 lower) as well as one upper premolar, one upper canine, one upper first incisor and one upper second incisor. Molars are frequently lost because they have complex crowns and are positioned at the back of the mouth. This means molars are more difficult to keep clean and are subsequently prone to caries, especially without the benefit of modern dental care and products. AMTL loss is identified in local contemporaneous sites of Duxford (Duhig 2011) and Baldock (McKinley 1993) so is not unusual in its occurrence.

Calculus is mineralised plaque which is formed of salvia, dead bacteria and their secretions (Brothwell 1981, Hillson 1996, Mays 2010, White and Folkens 2005). Every individual with teeth available for analysis had some degree of calculus. The most affected teeth were the molars, as is normally observed in archaeology, but significant deposits were observed on some of the anterior teeth, especially in burial B11 where the lower incisors were nearly entirely encased in calculus. Burials B4 and B1 have incisors that score grade 2 for calculus. It is however difficult to comment in depth on calculus as much can be lost on excavation, during cleaning and in curation (Brothwell 1981). It is, however, clear that dental hygiene in this population was low which has allowed significant build up of plaque and calculus. It also signifies that the population were probably eating carbohydrates as does the presences of caries (Hillson 1996).

Roberts and Cox (2003) suggest Romans imported dates, figs and used honey as a sweetener which would contribute to the findings observed.

Brothwell (1981, 156) defines an abscess 'as a collection of pus surrounded by a denser tissue in a bodily cavity', in this case bone and tooth socket. Abscesses are related to periodontal and caries infection. In the jaws, abscesses appear at the tip of the tooth root (Brothwell 1981, Ogden 2008). Appearing as a rounded cavity in the bone, they have remodelled edges and can appear with periostitis caused by the inflammation of the periosteum. Two individuals had abscesses. Burial B15, had a mandibular abscess at the left first premolar. Burial B10 also had a maxillary abscess above left molar 1. A cyst is also observable above right upper premolar 2. Again, abscesses are a common finding in the Romano-British period with Roberts and Cox (2003, 136) presenting a prevalence of 0.2-26.8%.

A number of other dental anomalies were also observed. Burial B5 has retention of right upper deciduous molar 1 root and also has retained lower left premolar 1 in the crypt. It is visible in the jaw but it has not erupted past the alveolar margin despite the individual having all other adult teeth in occlusion. This represents an eruption anomaly and it is not certain as to why this occurs.

Four individuals have unusual patterns of dental wear and chipping (Burials B5, B10, B12 and B15). Grooving and chipping to the teeth is present as are striae on the lower premolars some of which are prematurely worn through to the dentine. The molars in these individuals are also unusually worn down in the corners (lingual cusps). Burial B12 has extensively worn lower incisors. These patterns are likely to be caused by the individuals using the teeth as a third hand in activity.

The upper lateral incisors for burial B12 were both reduced in medial lateral diameter and appeared peg like. This suggests that the individual had microdontia. Three types of microdontia exist (Purkait 2003). The generalised type is rare affecting all teeth and appears in pituitary dwarfism. Relative generalised type is where the teeth may be small in comparison to large jaws. The third type is localised microdontia where one or two teeth are affected in an otherwise normal arch. This is the case for the individual in burial B12. The most commonly affected tooth is the upper lateral incisors as described here (Cobourne and Sharp 2012, Mays 2010, Purkait 2003, 28). This is a reasonably common finding affecting around 2.5% in modern Caucasian populations (Cobourne and Sharp 2012). Prevalence in archaeological populations is lacking but Mays 2007 reported 20 individuals out of approximately 680 individuals (2.9%) from medieval Yorkshire with the condition, but it is not clear how many individuals were observable for the trait. The cause of the condition is not clearly understood but it is thought to be a genetically inherited trait (Alvesado and Portin 1969) but has been associated with congenital disorders including deafness (Cobourne and Sharp 2012). The lower third molars are also impacted in this individual.

Miscellaneous Pathologies

Burial B12 has a small remodelled lump on the frontal bone measuring 5.9mm x 5.0mm. It is clearly demarcated from the bone and is lamellar in appearance. This is known as a button lesion and is a common occurrence in archaeology at around 41% (Eshed *et al* 2002, 217). The exact cause of the growth is not known and is thought to be evolutionary (ibid). There are no symptoms for the condition unless it becomes so large that it impinges on soft tissue which would not have been the case here.

Os acromion was identified in burial B15. In this condition the acromion is prevented from fusing onto the scapula due to persistent arm or shoulder movement in childhood or adolescence (Roberts and Cox 2003). For example, it was identified in the Mary Rose skeletal sample where individuals were thought to be drawing bows which placed significant pressure on the shoulder joint (Stirland 1985).

Burial B15 and B10 had a rare trait at the craniovertebral junction described as third occipital condyles (Prasada Rao 2002) or precondylar tubercle (Hauser and De Stefano 1989). This was symmetrical in burial B15 and asymmetrical in burial B10 appearing on the right side of the foramen magnum. In addition to this both burials had hypercondylar arches. This is retention of an arch that is forms for all vertebrae but disappears on all except C1 where it forms the anterior arch of the atlas (Taitz 2000). This trait has not been fully explored in archaeological material but its expression in modern Europeans varies from 3.2 - 5% (Hauser and De Stefano 1989). At Great Chesterford, 5-7th century population from Essex the trait was absent in all observable skulls (n=35). The trait was also absent from eight observable Romano-British individuals from Huntsmans Quarry, Gloucestershire. The occurrence in two individuals of five in the Aston Clinton material is surprising and may suggest a relationship between the two individuals or that they had the same condition. Interestingly the legs of both individuals were superior to the rest of the body possibly indicating burial in a ditch or ill-fitting grave.

In addition to the precondylar tubercle, burial B15 also has an epitransverse process on the atlas which forms a pseudo joint with the paracondylar process on the occipital. This was identified following Taitz (2000). When epitransverse processes are associated with assimilation of the atlas, it can cause significant clinical symptoms due to the immobility of the atlas occipital junction. Furthermore a small atlas opening can impinge on the spinal cord. However, the atlas in individual B15, apart from the transverse bridging, appears normal and does not impinge on the foramen magnum. It should be remembered that burial B15 does have a number of other spinal anomalies and this may related to a systematic congenital condition that is unobservable without soft tissue.

Discussion of inhumations

In terms of the burial rites and general pathological conditions (OA, dental, infectious and general stress indicators) identified in the Aston Clinton material, parallels can be found both locally and nationally and Aston Clinton fits well within trends for the Roman period. Parallels for burial on the edge of a settlement or in ditches are found in many rural late Iron Age and Roman sites such as Market Harborough (Inskip 2012) Wilcote, Oxfordshire (Hands 1993). This position may relate to the tradition of burials near boundaries as well as situating the deceased away from living areas. This position of burial is thought to relate to Roman ideas of pollution. Mixed rite cemeteries are also common with similar examples being found at Watling Street in London (Mackinder 2000), at Tolpuddle bypass in Dorset (Hearne and Birbeck 1999) and Duxford, Cambridgeshire (Duhig 2011).

There appears to be a bias in the age and sex distribution of the group with most of the individuals being middle aged males. This male bias has been identified elsewhere (Duhig 2011, White 2000). Although this may suggest that we are looking at a specific section of society, the small sample size needs to be borne in mind. An additional interesting feature was that there appeared to be no immature individuals, or any that were particularly advanced in age. These individuals may be interred elsewhere. For example, infant burials are commonly found around buildings in the Roman period (Crawford 2008)

It is interesting that with the exception of burial B15 where there may be a possible infectious disease, there was little evidence for significant trauma or infection during life. This was similar to Duxford (Duhig 2011) and Watling Street in London where White (2000) suggests a short lifespan was the cause. In addition to this, it may infer that individuals were dying early of disease that did not affect the skeleton or that they died due to trauma which has become unobservable due to the significant post-

mortem fragmentation of the skeletons. This explains the lack of senile individuals in the group.

The collection however was not devoid of pathology. Nearly all of the skeletal changes observable were related to physical activity. This includes Schmorl's nodes, osteochondritis, spondylolysis, os acromion and OA (particularly the high prevalence of spinal, hand and wrist OA). All these modifications suggest that the individuals were undertaking a significant amount of high impact or loaded activity that particularly affected the spine and the hands, possibly from early in their lives. Early age of onset of spinal OA was also observed at Duxford in Cambridgeshire (Duhig 2011). Another indicator of hand activity could be the unusual striations found on the dental enamel of three individuals which infers that the teeth were used to aid some sort of manual task. Turner and Anderson (2003) identified unusual grooves in a medieval individual thought to hold nails in the teeth. In comparison it seems unlikely that the marks from Aston Clinton were created by nails as the grooves are too thin. It seems more likely that the damage was caused by something finer. The dental modifications may relate to shaping of metal with the teeth but greater material evidence is needed. Thread is an alternative material that causes the grooving seen in the teeth.

There were a number of foot pathologies in the collection. Two individuals appeared to have hallux valgus (bunions). This condition is caused usually by having poor fitting footwear. Boots and sandals would both have the potential to cause this deformity and were known to be worn by Roman individuals. Two burials (B1 and B4) had fractures to the feet. This again suggests that the group was physically active.

The presence of decapitated burials is relatively common in Roman Britain (eg Anderson 2001, McKinley 1993b, Philpot 1991, Taylor 2010). In a large study of Roman burial rites, Philpot (1991) noted that decapitated burials were more common on rural sites such as Aston Clinton rather than urban cemeteries. Taylor (2010) suggests that many of these decapitations were undertaken after death as well as during violent episodes and execution. While there may be a tendency to initially associate decapitated burials with capital punishment or low status individuals, other hypothesis have been proffered for these more unusual burials. This has included sacrifice and ritual. These hypotheses are based on ideas that the head may have had significance in that it was the seat of the soul or life-force and interference with this around death could alter the transition to the afterlife both negatively or positively (Philpot 1991). It is difficult to ascertain the exact reasons behind the decapitation of burials B1, B12 and possibly B4, but it may be important that three other burials also have unusual treatment including burials B5 and B10, which appeared to have been haphazardly placed into an ill-fitting grave. Burial B8, although partially disturbed, appeared to be oddly positioned in a pit, possibly being flexed or bound. In addition, burial B10's arms were tightly flexed with the hands at the shoulder. In addition to decapitation, burial B12 legs were splayed with the skull situated in between and a perimortem cut to the ribs was identified. This treatment may argue for a more negative outcome for the individuals involved. This could be execution or victims of a scuffle which could be supported with the demographic and pathology results. Caution needs to be exerted however, as Philpot (1991) argues that it might be possible that decapitation was used to aid the transition to the afterlife as part of a religious ritual for individuals who died under unusual circumstances or those that were handicapped in some way. It should be noted in this argument that burials B12, B10 and B15 individuals appeared with unusual skeletal traits which may have soft tissue ramifications. Unfortunately it will never be known for certain which of the two cases was behind the special treatment of individuals.

6.2 **The cremated deposits** by Sarah Inskip

The material was received washed and dried. Large fragments of extraneous material were removed. The cremated deposits were weighed to the nearest 0.1g before being passed through 10mm, 5mm and 2mm sieves. Each sieved fraction was then recorded and weighed. The material was then sorted into elemental groups. The largest fragment was measured to the nearest 0.1mm using sliding digital callipers.

Table 16: Sieve section weights for cremated deposits

Burial number	Weight (g)	10mm	5mm	2mm	<2mm
B2	540	95	192	221	32
B3	272	38	96	57	81
B9	1223	283	494	365	81

A complete modern adult cremation weighs between 1.5 – 3 kg (Mays 2010:326, McKinley 2000, 404). It seems that the cremated deposits are a little under weight as none appeared to be juvenile (Table 16). However, Cremation 9 is approaching this quantity and could therefore represent a more complete adult cremation. During the cremation process bone increases in crystallinty and loses the organic component. Accordingly cremated bone is more resistant to digenesis than unburnt bone and tends to preserve well. As such Cremations 2 and 3 are more likely to have been affected by incomplete deposition or excavation.

Importantly, McKinley suggests that all cremation burials are in fact 'token' (1997). It is very rare for the entire body to be collected from the pyre. Incomplete deposition therefore may have occurred on initial burial. McKinley (1997, 71) indicates that if a certain quantity of bone, or group of bones had to be collected from the pyre, greater uniformity in quantity or bone type would be seen in cremated deposits. Great variation in cremated deposits is observed all over the England during the Romano-British period.

There is a relationship between the degree of fragmentation and the number of skeletally distinguishable elements (McKinley 1997, 69). Generally most of the identifiable fragments will remain in the 10mm and 5mm sieve sections (Mays 2010, 326). As such the level of fragmentation gives an idea as to how much information would be available from each deposit. Table 16 displays the sieve section quantities for the three cremated deposits. All three deposits had a significant proportion of bone in the 10 and 5mm sieves. Accordingly it was possible to identify many skeletal elements.

Table 17: Skeletal elements representation

No	Skull	Upper limb	Lower limb	unident long bone	Ribs	vert and scap	hands and feet	pelvis	total ident	unident	total
B9	94	113	225	180	17	28	25	31	713	510	**1223**
B3	29	18	29	19	1	2	1	0	99	173	**272**
B2	46	24	69	20	0	9	1	1	170	370	**540**

Key: unident= unidentified, ident = identified, vert = vertebra, scap= scapula,

Identifiable bone fragments were placed in approximate anatomical groups. Unfortunately, it was difficult to identify the origin of some long bone fragments due to

small size so an elemental group for unidentified long bones was created. Table 17 presents the weights of each elemental group. Upper limb refers to clavicle, humerus, ulna and radius while lower limb refers to femur, tibia and fibula. Due to the low quantities of hand and foot bones, these were placed in a group together. There was no indication of multiple individuals in any of the cremated deposits.

Table 17 demonstrates that skull and long bones dominate the identified fragments. This is not unusual given that the skull and long bones have thicker cortical bone than those of the axial skeleton. The skull has many identifiable landmarks which can make even the smallest fragments identifiable. It is thought that vertebral bodies and bones with high trabecular content disintegrate easily. As such they make up large portions of the unidentifiable elements or are lost completely. As such, the elemental distribution of the Aston Clinton material is not unusual for cremated deposits.

Pyre conditions

Bone colour varied in each deposit and between deposits. Cremation B2 is uniform in its white to grey colouration. The upper limbs and skull are predominately white on the internal and external surfaces whereas the lower limbs fragments have greyer endosteal surfaces. This is probably the result of the thicker bone in the lower limbs which would have less exposure time to heat and oxygen than the thinner skull and upper limbs.

Cremation B3 is more mixed in colouration with black, brown (distal humerus), blue, grey and white fragments. The skull and long bones are predominately white on their external surfaces but are grey on the inner surfaces. This suggests that although the pyre temperature may have been high, it may not have been prolonged so that the inner surfaces were not as effectively cremated at the outer surfaces.

Cremation B9 is very uniform in colour with over 90% of fragments being white in colour. This suggests a more thorough cremation than cremations B2 and B3.

With all fragments having predominately white and grey fragments suggests that the pyres were reaching in excess of 600°C.

Age and Sex

Unfortunately, like most cremated deposits, there was not enough osteological material remaining to confidently age or sex the cremated deposits beyond adult. No unfused skeletal elements were identified in any of the cremated deposits. Cremation B2 had fragments of eight adult teeth also demonstrating the age of the individual to be skeletally mature.

Pathology

There was no evidence for pathology in any of the cremated deposits. This again is normal in the analysis of cremated material as the destructive nature of the cremation process usually renders its observation impossible.

Discussion and conclusions

The trends identified in the Aston Clinton material fit well with other Romano-British sites. This includes colour, element representation and fragmentation. All of the cremated deposits are likely to be the incomplete remains of adult individuals. Unfortunately it was not possible to make any further comment on age or sex beyond suggesting that the remains were of adult individuals. All of the deposits appear to have been exposed to temperatures in excess of 600°C; however some variation in exposure time or body position may be suggested due to the differences in the quantity of grey, black and brown fragments. There are a number of reasons why interburial colour variation may exist on the same site. Some individuals could have

been hastily cremated resulting in grey inner surface fragments and inconsistent colour distribution throughout the burial. The weather could play a part with rain having the potential to halt cremation and wind affecting the ability of the pyre to reach hot and consistent temperatures across the body (McKinley 2008). Greater research on the distribution of cremation colours is required on a regional and a national scale before something more meaningful can be said.

Cremations B2 and B9 both contained the remains of very young animals. In the case of cremation B2, this was both burned and unburned material. It is common in the Iron Age and Roman period for animals to be made as provisions for the afterlife (Jupp and Gittings 1999). These types of offerings may also represent symbols of deceased (Serjeantson 2009). As the animal remains are currently unidentified it is not possible to make a link between animals and specifics of the deceased.

6.3 The palaeo-environmental evidence

The charcoal and charred plant remains

A series of 53 bulk samples were taken for charred plant, charcoal and bone recovery. Following excavation these were reviewed and 37 priority samples were selected for initial processing and assessment. However, due to the few low priority samples as a result of targeted sampling in the field, all of the bulk samples were processed and the majority were assessed. Only seven samples, principally burial contexts, were not assessed. Samples of principally 40 litres, but varying from 10 to 48 litres, were processed by Northamptonshire Archaeology by standard washover flotation methods for the recovery of charred plant and charcoal remains. Flots and residues were provided for assessment; these comprised 44 flots and eight samples of larger charcoal recovered during processing (Table 18). In addition snail shells recovered from the samples (Table 19) were also assessed, along with any snails in the flots (Table 18).

Each sample flot was assessed for charcoal and charred plant remains (Table 18). The aims of assessment were to : -

- determine the presence, quantity, quality and diversity of palaeo-environmental remains to aid in the understanding and interpreting the features, the activity and economy of the site, and indicate the archaeological and palaeo-environmental significance of the assessed remains;
- determine samples suitable for analysis of charred plant remains and charcoal analysis;
- make recommendations for suitable analyses as, and if, necessary;
- assess the suitability of the remains for radiocarbon dating and make appropriate recommendations and selection.

All flots, together with charcoal and environmental remains recovered from the >5.6/4mm residues, were scanned under a ×10 - ×30 stereo-binocular microscope and the presence of charred plant and charcoal remains recorded in Table 18. The flots were sieved through 4mm sieves and all charcoal >4mm was added to charcoal retrieved from the residues. The volume of flot is the charred remains plus modern rooty material. Notes were made of the presence of charred remains and charcoal, but none were fully sorted. The tabulated results (Tables 18 and 19) are organised

chronologically and by feature type. The assessment recommendations are conditioned by the phasing as supplied. Changes to the phasing may affect the potential and significance, and also the recommendations. A proportion of the residues were scanned to examine for the potential presence of charred plant and charcoal remains that had not been recovered by flotation.

In total 46 samples were assessed; 44 flots and eight charcoal fragments (Table 18). Many of the unsorted flots contained a considerable proportion of modern uncharred roots, which indicates the potential for biotic reworking and intrusion of material from higher strata.

A high proportion (54%, n = 25) were devoid of charred and charcoal remains, and several others contained little grain, charred weed seeds, and chaff. In contrast nearly 40% (18 samples) contained very high numbers of grain (>40 charred caryopses), and most were accompanied with moderate quantities of charred chaff and weed seeds. All of these were from the southern part of Area B, and the majority were from Romano-British contexts. Most were from deposits in the enclosure ditches, rather than in pits. Grain included bread wheat and ?barley, but also rye/oats were present in at least one sample. A relatively high number of glume bases were noted amongst the chaff. The burial-related contexts and post-holes were generally devoid in charred remains.

Charcoal >4mm was present in only 30% (14) of the samples, and rarely more than ten pieces were present. The majority of the charcoal was branchwood fragments with few short-lived branchwood, roundwood or twiggy fragments present (these are noted with rw on Table 18), and many of which was clearly worn fragments. A few twiggy and roundwood elements were present in one pit and two ditch contexts, none in obvious burnt or hearth contexts.

The occurrence and distribution of charred and charcoal remains was far from even. There was no general background of charred remains as seen on many sites, and evidenced here by the 54% of samples containing no charred remains. Nevertheless, the presence of grain-rich deposits accompanied with chaff indicates storage and processing in parts of the site, principally in Romano-British phases. The lack of remains in pits may be a result of high groundwater tables (see snails and geoarchaeology) and its floodplain location making these unsuitable for grain storage.

This distribution and occurrence of remains tends to indicate debris discarded from fires and hearths relating to waste of crop processing activities.

Table 18: Assessment of charcoal and charred plant remains

Phase	Type	Feature	Context	Sample	Sample vol (litre)	Flot vol charred/ roots (ml)	Grain	Weed seeds/chaff	Flot charcoal > 4mm	notes / snails	analysis
AREA A											
LIA/ER	D1	8043	8039	10	40	1 / 99	C	C / C	18 lw, 1 rw	Snails inc Planorbids, *Trochulus, Vertigo, Pupilla, Vallonia, Lymnaea*	C
LIA/ER	E1	8049	8048	11	40	1 / 99	-	- / -	-	1 Planorbid	
LIA/ER	DG1	8052	8050	14	20	1 / 59	-	- / -	-	snails inc *Vallonia, Pupilla, Vertigo*	
AREA B											
LIA/ER	Pit (primary)	9480	9479	40	10	1 / 5	A	C / C	-	few *Trochulus*	P
LIA/ER	Pit (secondary)	9480	9478	41	10	0 / 3	-	- / -	-	rare fine comminuted charcoal; *Trochulus,* Planorbids	
LIA/ER	E3	9446	9444	34	40	0 / 70	-	- / -	-	Snails; *Trochulus, Lymnaea*	
LIA/ER	E4	9454	9542	35	40	0 / 70	-	- / -	-	Snails; *Trochulus, Lymnaea*	
LIA/ER	E4	9454	9453	36	40	0 / 100	-	- / -	-	-	
LIA/ER	D3	9592	9591	51	40	1 / 49	-	- / -	-	many snails; *Trochulus,* Zonitids, *Vertigo, Lymnaea*	
LIA/ER	Pond	9767	9785	61	40	1 /99	-	- / -	4 lw	*Trochulus, Vallonia, Oxychilus, Pupilla*	C
LIA/ER	DG2	9790	9791	55	20	0 / 15	-	- / -	-	-	
LIA/ER	DG2	9810	9808	58	20	0 / 30	-	- / -	-	-	
LIA/ER	DG2	9810	9809	59	20	0 / 30	-	- / -	-	-	
LIA/ER	Pit (upper fill)	9553	9551	48	48	5 / 50	A	B / C	-	occ *Vallonia*	
LIA/ER	Pit	9823	9821	60	40	0 /75	-	- / -	-	rare snails; *Trochulus, Vallonia*	
LIA/ER	E4	9120	9100	33	40	1 / 49	C	- / -	1 lw	common snails; *Cepaea, Trochulus, Lymnaea,* Zonitds	
1st-2nd	Pit (primary fill)	9061	9059	16	40	1 / 149	-	- / -	-	*Vallonia, Candidula*	
1st-2nd	Pit (upper fill)	9088	9085	18	40	1 / 299	C	C / -	3 lw	rare fine charcoal; snails inc *Vallonia*	
1st-2nd	Pit (lower fill)	9088	9087	19	40	2 / 198	B	C / -	2 lw	rare snails *Vallonia*, Planorbids	
1st-2nd	?Cess pit (2ndry fill)	9634	9632	53	40	0 / 60	-	- / -	-	-	

Phase	*Context/Feature/Type*	*Feature*	*Context*	*Sample*	*Sample vol (litre)*	*Flot vol charred/ roots (ml)*	*Grain*	*Weed seeds/chaff*	*Flot charcoal > 4mm*	*notes / snails*	*analysis*	
AREA B												
1st/2nd	E6	9580	9578	50	40	5 / 60	A*	C / B	-	many snails; *Trochulus, Lymnaea, Cochlicopa, Succinae, Vallonia*		
1st/2nd	E5	9147	9143	21	20	1 / 149	A	C / -	3 lw	snails inc *Vallonia,* Zonitids, *Lymnaea, Vertigo*		
1st/2nd	E5	9474	9471	39	40	2 / 48	-	- /-	5 lw	*Trochulus, Cochliopa, Vallonia, Pupilla*		
1st/2nd	E6	9573	9570	49	40	5 / 45	A **	B / A	1 lw	*Trochulus*	P	
?1st/2nd	Pit (upper fill)	9458	9455	37	40	100 / 0	A **	B / B	4 lw	Snails; *Lymnaea, Vallonia*	P	C
1st-2nd	Burial 5		9093	20	30	1 / 199	C	B / -	-	rare snails inc V*allonia*		
1st-2nd	Burial 6	9224	9223	23	30	1 / 59	-	- / -	-	*Trochulus* etc		
1st-2nd	Burial 8		9254	25	10	1 / 15	-	- / -	-	*Vallonia*		
1st-2nd	Burial 9	9290	9345	27	40	0 / 10	-	- / -	-	-		
1st-2nd	Burial 10	9346	9358	28	30	0 / 20	-	- / -	-	Planorbids		
1st-2nd	Pit	9514	9513	45	30	0 / 2	-	- / -	-	rare fine charcoal, *Trochulus, Vallonia*		
1st-2nd	Pit	9511	9510	42	40	0 / 30	-	- / -	-	rare fine comminuted charcoal		
1st-2nd	Pit	9511	9512	43	10	0 / 5	-	- / -	-	-		
1st-2nd	Pit	9514	9513	44	40	0 / 40	-	- / -	-	-		
2nd	D7	9722	9719	54	20	1 / 9	B	C / -	-	*Trochulus, Vallonia,* Planorbids		
2nd	Burial 4	9064	9063	17	40	0 / 150	-	- / -	-	*Vallonia, Vertigo* and marsh spp.		
2nd	Burial 12	9418	9417	29	20	0 / 10	-	- / -	-	-		
2nd	D5	9526	9525	47	40	25 / 5	AA	B / C	-	-	P	
2nd	E8	9058	9088	30	40	1 / 60	C	- / -	1 lw	rye/oat grain; snails *Vallonia* Planorbids		
2nd	E8	9058	9057	31	40	1 / 99	C	- / -	1 lw	*Trochulus*, Zonitids, Planorbids, *Vertigo*		
2nd	G1	9701	9699	62	40	1 / 29	C	- / -	-	Zonitids, *Lymnaea, Vallonia*		
2nd	E8	9686	9183	22	40	50 / 150	B	C / ?C	*c* 75 lw	much fine charcoal; snails *Vertigo, Trochulus,* Planorbids*, Lymnaea*	P	C

Phase	*Type*	*Feature*	*Context*	*Sample*	*Sample vol (litre)*	*Flot vol charred/ roots (ml)*	*Grain*	*Weed seeds/chaff*	*Flot charcoal > 4mm*	*notes / snails*	*analysis*
AREA B											
2nd-4th	E9	9102	9099	32	40	0 / 40	-	- / -	-	*Trochulus, Cochlicopa, Vallonia*	
2nd-4th	E9	9248	9246	24	40	1 /99	-	- / -	-	rare fine charcoal; snails *Trochulus*	
2nd-4th	G3	9469	9468	38	40	1 / 49	C	- /-	8 inc rw	*Trochulus*	
2nd-4th	D11	9803	9801	56	40	3 / 60	A *	B / B	8 inc rw	*Vertigo,* Zonitids, *Vallonia*	

Key: Charred items C = 1-5 items; B = 6-10 items, A = 11-40; A* = 40-100; A** =- 100-200; AA= >200: lw = large branch wood, rw = round wood.

ANALYSIS P = charred Plants; C = Charcoal

Table 19: Assessment of snails

Phase	Context/feature/type	Sample	Sample (litre)	Snails (assessment identification and quantification only)
LIA/ER	9478 / 9480 / Pit (secondary)	41	10	1 x *Succinaea*
LIA/ER	9444 / 9446 / E3	34	40	19: 17 x *Trochulus*, 1 x *Cepaea,* 1 x *Oxychilus*
LIA/ER	8039 / 8043 / D1	10	40	3 x *Cepaea*
LIA/ER	9591 / 9592/ D3	51	40	16: 15 x *Trochulus,* 1 x *Lymnaea*
LIA/ER	9785 / 9767 / Pond	61	40	15: 3 x *Cepaea*, 12 x *Troculus*
LIA/ER	9551 / 9553 / Pit (upper fill)	48	48	2 x *Candidula*
LIA/ER	9542 /9454 / E4	35	40	100+: 100 *Lymnaea,* 2 x *Trochulus*
LIA/ER	9143 / 9134 / DG4	21	20	1 x *Candidula*
LIA/ER	9821 / 9823 / Pit	60	40	3 x *Trochulus*
LIA/ER	9791 / 9790 / DG2	55	20	+ *Cepaea*
1st-2nd	9510 / 9511 / Pit	42	10	1 x Succinaea
1st/2nd centuries	9578 / 9580 / E6	50	40	20: 2 x *Cepaea,* 1 x *Arianta*, 6 x *Lymnaea*, 1 x *L. stagnalis*
1st/2nd centuries	9570 / 9573 / E6	49	40	1 x *Candidula,* + *Cepaea*
2nd century	9699 / 9701 / G1	62	40	1 x *Oxychilus*
2nd century	9183 / 9686 / E8	22	40	5: 2 x Planorbids, 1 x *Lymnaea*, 2 x *Trochulus*
2nd century	9525 / 9526 / D5	47	10	+ *Cepaea*; + *Trochulus*
2nd century	9057 / 9058 / E8	31	40	2: 1 x *Trochulus*, 1 x *Lymnaea*
2nd-4th centuries	9099 / 9102 / E9	32	40	11: 1 x *Cepaea,* 9 x *Trochulus,* 1 x *Lymnaea*
2nd-4th centuries	9468 / 9469 / G3	38	40	+ *Cepaea*
2nd-4th centuries	9801 / 9803 / D11	56	40	4 x *Trochulus*

Radiocarbon dating

The charred plant remains and charcoal (Table 18) provide the potential for radiocarbon dating specific events, but the charred remains need to be directly and functionally related to that event.

The potentially identifiable >4mm charcoal is generally too sparse to indicate discard from a specific single event or activity (Table 18), and most of it is large-wood fragments which may have considerable age-offset. Even the deposit of *c* 75 large and identifiable fragments from the primary fill of the 2nd-century enclosure ditch [9686] has no roundwood elements suitable for dating.

Identified cereal grains from specific deposits indicating dumps (ie where there are more than 10 or 40 grains, and examination of the field context records) can provide a date for the crop processing activity and the discard of that waste, and the fill of the feature into which it has been discarded. Many of the Iron Age features may fall on the radiocarbon plateau, making the calibrated results of little use. In contrast many of the Roman features may well be better dated after analysis of the artefact assemblages.

Potential

Although there is the potential to date some events and enclosures, the overall potential for radiocarbon dating on this site is low to moderate.

The potential for charcoal for radiocarbon dating relates largely on two main factors:

i) that the charcoal relates to a single deposition event or activity (rather than incidental charcoal blown into the feature and incorporated into the context). Here the charcoal quantity and the archaeological interpretation of the context and the charcoal inclusion are important;

ii) the presence of short-lived woody elements (ie branchwood and roundwood), rather than heartwood fragments that could have an age offset of up to *c* 350-400 years.

The general lack of roundwood and twiggy elements largely precludes the acquisition of radiocarbon dates with confirmed short age-offsets. There is, however, the potential to provide suitable radiocarbon dates on identified roundwood and twiggy charcoal from late Iron Age/early Roman ditch [8043], possible 2nd-4th-century Romano-British ditches [9469] and [9803]. Radiocarbon dating may be better served by selection of animal bone, or more intensive scrutiny of the charcoal from selected and specific sampled contexts.

The snails

Snails were observed in a number of the flots (Table 18), but also selected land and marine shells were recovered by the excavators from the coarse residues (Table 19).

Land snail preservation is low to moderate on the gleyic brown calcareous earths of the Block Association mapped and observed over the site. Nevertheless the calcareous substrates and the presence of slightly calcareous pelosols of the Evesham 2 Association (see geoarchaeology below) afford occasional and sporadic preservation of shells. Consequently no formal or specific samples were undertaken for snails, however, the flots of some of the large (40 litre) bulk samples produced shells. These were rapidly assessed with the charred plant remains (Table 18). The larger shells removed during processing by the excavator are also recorded (Table 19).

The main assemblages are presented in Table 19, where the taxa were recorded. Shell numbers vary from single numbers to well over 100 - but the actual estimated numbers are not recorded. A selection of the residues was scanned under ×10 to ×45

magnification and further apical fragments are present in the residues. The assessment here, therefore, principally considered the assessed flots (Table 18).

Results

The presence of shells is very variable; a number of the flots contain none or few shells, whilst others have statistically viable numbers for palaeo-ecological analysis. Overall the assemblages are dominated by catholic and open country species (*Trochulus, Vallonia, Pupilla* and to a lesser extent *Vertigo*), but with a significant amphibious *(Galba (Lymnaea) truncatula, Anisus leucostoma*) and freshwater (Planorbids) species. This suggests open, but not xerophilic conditions, with some more mesic conditions (?longer ungrazed grassland), and high water tables, intermittent flood events, and possible long term standing water. For assessment the *Vallonia* have not been identified to species, but are likely to contain all three species including both the more xerophile (*V. excentrica*) and damp and marsh-loving species (*V. pulchella*). The presence and relative occurrence of these can aid in providing detailed information of the local landscape. Similarly the Vertigniids include a range of habitat specific species; although *V. pygmaea* which enjoys more open a dry conditions is present, other species (not yet identified) may occur in wetter habitats.

A few contexts have more shade-loving assemblages with Zonitidae and *Oxychilus* present. These are exclusively ditches (LIA/ER ditches [9143] and [9592] and pond [9767] and 2nd-century ditches [9058] and [9803]). This may represent longer more mesic vegetation developing in the ditches, which might indicate episodes of less intensive activity.

This can be compared with the more detailed analysis of Later Bronze Age to Romano-British contexts from Aston Clinton (ring Hill site D and one from Woodlands Roundabout site A), which defined a similar lowland landscape and the presence of pasture and possibly of hedged fields (Allen 2003). It also tentatively detected intensification of land-use during the Romano-British period.

The geoarchaeology assessment

Three main geoarchaeological topics were addressed (Allen 2012), and a series of six monoliths of undisturbed sediment were taken. Full descriptions and subsampling of these have yet to be undertaken.

Those topics or deposits are:-

- Periglacial outwash channels
- Holocene channels
- Rural dark earth / Midden / occupation deposits

Periglacial outwash channels

These features and associated deposits were examined in the field, and two deep machine-excavated geoarchaeological test pits were located on the north-east and south-west corners of the excavation to examine the calcareous marls. In the south-west test pit undifferentiated stone-free calcareous marls were recorded to at least 2.38m where excavation stopped. In the north-east geoarchaeological test pit excavation continued to the underlying clays which were reached at *c* 4.2 depth. Again, a sequence of 4m of undifferentiated calcareous silty marls was recovered under the present topsoil. More detailed descriptions were made of these sequences to 2.4m, and summary records to 4.2m.

This confirms that the main calcareous marls are deep deposits of glacial date, probably Late Devensian, which seal extensive portion of this landscape and do not seal or contain archaeology, except in their uppermost facies where they have been re-worked in Holocene times. These deposits were examined in the lowest part of the landscape and form two very large and almost totally infilled periglacial outwash channels. Although largely infilled, they can still be seen as slight topographical features running either side of the ridge.

The provision of the profile field descriptions provides the basis of confirming the late glacial origin of these features. It will also assist in providing the Holocene landscape background upon which the human activities are both imprinted and restricted.

Holocene Channels

The glacial or periglacial channels give rise to shallower Holocene channels, particularly on the east of the side, which is shown by an extent of greyish calcareous alluvium to the east of the occupation deposits. These were machine-sectioned to reveal the extent, nature, and possibly date of the deposits and determine how they related to the Romano-British occupation.

The sections revealed a large area of nearly 2.5m deep of calcareous alluvium over the clay which rises forming the ridge occupied by the occupation. These deposits were sectioned and have been fully described and sampled in 2m of overlapping monolith tins (AEA samples 3, 4 5 and 6-see Allen 2012, fig 1).

The calcareous marl is a slow water deposit, possibly indicating standing swampy conditions rather than free-flowing water in channels. Slightly humic infills are seen derived from the settlement, and are almost reminiscent of tip lines (Allen 2012, fig 2), and may suggests an expanding or shrinking lagoonal area in the Roman period, into which occupation deposits were slipping or were deliberately dumped. Pottery and charcoal (the latter presumably derived from Roman settlement) is present near the base of the deposit at nearly 2.4m depth (from the stripped surface). This indicates that the Roman profile and topography was much more acute that the subtle rise seen today and that the ridge was a far more prominent feature flanked by seasonally if not permanent swampy conditions.

In determining the environment of the marl, it is unlikely that pollen will survive in these deposits (De Moulin pers comm 12/1/12 and R Scaife pers comm) and shell survival looks poor. Some better description of the deposits is facilitated by the 4 monoliths (AEA monolith samples 3-6) from site. Dating both the Holocene channel, and the development and demise of the calcareous marl may, however, be difficult.

Rural dark earth / *Midden* / *occupation deposits*

Occupying the ridge and flanked by swampy deposits in the Roman period is a large extent of moderately thick (180-240mm) rural dark earth, midden and occupation deposits. These have been described in two locations and sampled in large kubiena tins/small monoliths (AEA samples 1 and 2) – see Allen 2012, fig. 3. This deposit can be paralleled at an increasing number of late prehistoric to early medieval sites in southern England, and is the consequence of rural occupation and possibly of the demise of daub walled buildings and occupation debris.

The field descriptions provide some interpretational information, as would soil micromorphological investigation of the deposits which can be compared with other rural dark earths / occupation deposits such as Potterne (Allen 2000a; 2000b, Macphail 2000).

6.4 The animal bone by Phillip Armitage

The hand-collected assemblage totalled 1,046 specimens of which 735 (70.3%) are identified to species and anatomy. For the purposes of summarising all of the recovered material, the identified specimens from the sieved samples (cattle (23), sheep/goat (18), pig (3) and hare (3) bones), together with the 57 micro-faunal elements, are combined with the hand collected bones (Table 20). A precise quantification of the unidentifiable fraction from each sieved sample submitted proved unfeasible owing to the very high degree of fragmentation/pulverisation and this data in Table 21 must therefore be viewed with caution.

Table 20: Summary counts of identified bone elements/fragments

Bone	Totals
Mammals	
Horse	67
Cattle	479
Sheep/goat	161
Pig	11
Dog	48
Hare	4
House mouse	7
cf field mouse	2
Mouse/vole	5
Water vole	1
Field vole	5
Field/bank vole	2
Birds	
Domestic fowl	12
Amphibians	
Common	32
Toad	3

Ten mammalian, one avian and two amphibian species are represented: horse *Equus caballus* (domestic); cattle *Bos* (domestic); sheep *Ovis* (domestic); pig *Sus* (domestic); dog *Canis* (domestic); hare Lepus capensis; house mouse *Mus musculus (domestic)*; *cf* field mouse *Apodemus sylvaticus*; water vole *Arvicola terrestris*; field vole *Microtus agrestis*; domestic fowl *Gallus gallus* (domestic); common frog *Rana temporaria*; toad *Bufo bufo*. No bones of either fish or reptile are present.

Table 21: Summary counts of unidentified bone fragments

Bone	Totals
Cattle-sized fragments (H)	70
Cattle-sized fragments (S)	1
Sheep/goat-sized fragments (H)	16
Sheep/goat-sized fragments (S)	8
Indet.scrappy fragments mammal bones (H)	224
V.small/extremely scrappy frags. (S)	298
Bird femur shaft (sp.indet.) (H)	1
Bird tibiotarsus (sp.indet.) (S)	1
Totals	**619**

Hand collected bones (H) and sieved samples (S)

Deposition and preservation

Taphonomy and condition of the bone

The general condition/state of preservation of the hand-collected bones is assessed as fair (moderate) to good with relatively low numbers of poorly preserved bone which show evidence of leaching and/or weathering. Alternate episodes of wetting and drying whilst buried appeared to have rendered some of the bones brittle however, resulting in fragmentation *in situ* in antiquity and/or breakage during excavation/post-excavation handling. Disposal of the bones in wet ditches also resulted in many of them becoming encrusted with clay, which later hardened. Burnt bones are present in both the hand-collected and the sieved samples, but cannot be accurately quantified in the sieved material owing to the degree of fragmentation (Table 22). The incidence of dog-gnawed bones is relatively low but includes horse bones showing that horse flesh was fed to dogs in addition to human food scraps. Clear evidence of chopping is sporadic throughout the sites and the animal bones therefore offer limited insight into butchering techniques (Table 22). There is a sheep metatarsal bone from 2nd-century spread [9521] that has an irregular-edged circular hole bored in the proximal articular surface. It is unclear whether this modification had been anything to do with butchery practice or is evidence of bone-working.

Table 22: Chopped, dog gnawed and burnt bones

Bones	**Totals**
Chopped bones (all cattle) (H)	13
Chopped bones (all cattle) (S)	4
Dog-gnawed cattle bones (H)	15
Dog-gnawed sheep/goat bones (H)	1
Dog-gnawed horse bones (H)	4
Burnt bones (cattle & sheep) (H)	13
Burnt v.small/extremely scrappy frags. (S)	123
Totals	**173**

Hand collected bones (H) and sieved samples (S)

Body part distribution and Articulating/Associated Bone Groups (ABGs)

In general, all body parts are well represented by the disarticulated anatomical distributions of the main domesticates (food animals) (see Table 23) which is indicative of the disposal of waste from local slaughtering, butchering and consumption of the cattle, sheep and pigs. The presence of partial skeletons (ABGs) of a young bull [9366], female chicken [9338] and small dog [9194] (Table 24) may originally have been disposed of as complete carcasses but owing to post-depositional processes and disturbances there was a loss of certain elements. ABGs such as the hind leg bones and vertebrae of a young bull or ox [9565] and jawbones, part vertebral column, pelvis and hind leg bones of an adult horse [9338] and hind leg bones of a foal [9102] probably represent the products of butchering/cutting up of carcasses in the vicinity.

Table 23: Summaries of anatomical distributions of the major species represented

	Cattle	**Sheep/goat**	**Horse**	**Dog**
Horn core	5	1	-	-
Horn core & skull	1	-	-	-
Skull	7	7	-	2
Premaxilla	3	1	-	1
Maxilla	3	-	-	6
Mandible	34	8	5	2
Incisor	1	1	1	-
Canine	-	-	-	2
Upper cheekteeth	33	15	6	-
Lower cheekteeth	31	7	6	-
Indet tooth frag	-	-	1	-
Indet.vertebral frag.	9	2	-	-
Atlas	1	-	-	-
Axis	2	-	-	-
Cervical	7	2	3	1
Thoracic	22	1	1	1
Lumbar	15	-	1	1
Sacrum	3	-	-	1
Caudal	2	-	-	-
Rib	37	12	1	9
Scapula	26	3	-	1
Humerus	15	6	1	2
Radius	12	4	2	2
Ulna	2	1	1	1
Radius and ulna	-	-	1	-
Carpal	9	1	2	-
Metacarpus	13	6	7	-
Innominate	17	5	4	1
Femur	11	4	-	5
Tibia	8	13	3	4
Calcaneum	8	-	3	1
Fibula	-	1	-	-
Patella	-	1	-	-
Astragalus	6	-	2	1
Tarsal	1	-	4	-
Os centrotarsale	1	1	-	-
Metatarsus	22	7	6	2
Metapodial	-	1	2	1
Phalanx I	20	5	2	1
Phalanx II	11	2	1	-
Phalanx III	5	-	1	-
Sesamoid	10	-	-	-
Long bone shaft frag.	66	40	-	-
Totals	**479**	**161**	**67**	**48**

Table 24: Articulating / associated bone groups (ABGs)

Period	Context <sample>	Cut	Feature	Species	Age/sex	NISP	Type	Anatomical (body) parts represented & notes
1st-2nd	9455, 9455<37>, 9457	9366	structure/animal burial	cattle	3 year old/ ? Male	48	skull, jawbones and parts of the post-cranial skeleton	skull (highly fragmented), loose upper cheek teeth, R & L mandible, 9 thoracic vertebrae, 1 scapula, 1 metacarpus, 1 metatarsus, 13 phalanges(4 I, 6 II & 3 III), 3 carpals, 10 sesamoids
2nd-4th	9099, 9100	9102	E9	horse	less than 2 yrs old/sex indeterminate	10	right hind leg	1 tibia , 1 calcaneum, 1 astragalus, 4 tarsal bones, 1 metatarsus III, 1 metatarsus II , 1 splint bone
1st-2nd	9578	9580	E6	domestic fowl	adult/female	11	skeletal parts (wings & feet only are represented)	2 humerus, 2 ulna, 1 carpometacarpus, 2 femur, 2 tibiotarsus, & 2 tarsometatarsus (unspurred)
2nd-4th	9336	9338	E9	horse	adult (11-12 yrs old)/ Female	12	jawbones, part vertebral column, pelvis and right hind leg	2 mandible, 1 cervical, 1 thoracic vert., 1 rib, 2 innominate bones, R hind leg bones (1 tibia, 1 calcaneum, 1 astragalus, 1 metatarsus III and 1 metatarsus IV
2nd-4th	9564	9565	E9	cattle	young bull or ox (castrate)	22	right & left hind legs/feet plus 5 vertebrae	4 lumbar, 1 caudal plus pelvis, right and leg leg/feet bones
2nd-4th	9191	9194	G3	dog (dwarf hound)	adult/sex indeterminate	21	skull (part only), jawbones and post cranial skeleton (incomplete)	premaxilla, R & L maxilla ,R & L mandible, 1 thoracic vertebra, 6 ribs, left foreleg, 1 L innominate and parts of right & left hind legs

Descriptions of the species identified

Horses

A small, pony-sized animal is represented by a metacarpal bone from fill (9158) of ditch [9161], enclosure E4. Fill (9048) of ditch [9050], enclosure E5, yielded further evidence of a small pony-sized animal. Based on the lateral length measurement (266.0 mm) taken on the tibia of this animal, its stature (withers height) is estimated at 1.16 m (method of Kiesewalter 1888).

Two metacarpal III bones recovered from 1st to 2nd-century deposits are from horses with withers heights of 1.23 and 1.35 m. Ages in five horses may be established from the degree of wear in their teeth (method of Levine 1982), as follows: 2 to 3 years (1), 10 to 11 years (2 animals), 11 to 12 years (1) and 12 to 13 years (1). A very young foal, aged less than one year at time of death, is represented by a radius with unfused proximal epiphysis and another foal, aged less than two years, by a tibia with unfused distal epiphysis. At least one adult mare is represented by parts of a skeleton (including the pelvis) from fill (9336) of ditch [9338], enclosure E9. The young foals probably represent natural mortalities and with the evidence for the presence of at least one mare point to horse breeding at the site.

A horse of withers height 1.34 m is represented by a metatarsal bone III from (9802), ditch [9803], D11.

Cattle

A young (sub adult) medium-horned castrate (classification of Armitage & Clutton-Brock 1976) is represented by a very robust, right horn core from fill (9470) of ditch [9474], enclosure E5. The core is rather flattened and ovoid in cross-section, with the tip rounded, blunt ended. Measurements (in mm) are as follows: length of outer curve (LOC) 181.0; basal circumference (BC) 202.0; maximum basal diameter (MxD) 72.3; and minimum basal diameter 53.0.

Withers heights in three of the cattle were calculated from greatest length (GL) measurements taken on their metacarpal bones (method of Fock 1966); revealing a stature range of 105.4 to 119.5 cm, and average 111.9 cm. The ages at death of nine of the cattle from this period can be established from the dental eruption and wear in their jawbones, revealing evidence for the slaughter/consumption of some immature animals but also showing the majority of animals were being killed off between the ages of five to eight years (wear stage A3). This older age group may be interpreted as comprising culled old (barren) breeding/milking cows and worn out draught oxen. Support for this slaughtering pattern in the older age categories is provided by sexed metacarpals and innominate bones, which reveal females and castrates (oxen). Slaughter of an adult medium-horned bull is evidence by a part skull with attached horn core (LOC 175.0; BC 149.0; MxD 52.4; MnD 39.0 mm) from enclosure E8. Employment of certain of the cattle as draught/traction animals is evidenced by a first phalanx from ditch [9102], showing eburnation and grooving of the distal articular surface. Enclosure E9 (2nd to 4th century AD) yielded a second example of a cattle first phalanx with similar pathologies.

Sheep

The sheep in the late Iron Age/early Roman period appear to have been horned, small, slender-legged animals. Based on the greatest length (GL = 119.9 mm) of a metacarpal bone from [9183], enclosure E4, the withers height of the sheep represented is estimated at 58.6 cm (method of Teichert).

At least one adult female sheep is represented by a horn core from fill (9465) of pit outside structure [9366]. In general, the sheep in the 1st to 2nd centuries at Aston

Clinton were apparently small, slender-legged animals as in the late Iron Age; with no sign of improvement. The ages at death of five of the sheep from this period can be established from the dental eruption and wear in their jawbones, revealing evidence for the slaughter/consumption of some lambs as well as mature animals (probably culled worn out breeding/milking ewes kept also as wool producers).

Dogs

Two contexts (9470 and 9473) of the same ditch [9474], enclosure E5, yielded right maxilla from adult dogs. Comparative measurements taken on the dentition of these two dogs are shown in Table 25.

Table 25: Measurements of dog premolar and upper molar teeth

Right maxilla from (9470) fill of ditch [9474], enclosure E5		
	Length (L)	Greatest breadth (GB)
upper fourth premolar	15.5	9.1
Right maxilla from (9473) fill of ditch [9474], enclosure E5		
	Length (L)	Greatest breadth (GB)
upper fourth premolar	21.8	-
upper first molar	14.3	14.5
Female dog skull from (9075) fill of ditch [9079], enclosure E6		
	Length (L)	Greatest breadth (GB)
upper fourth premolar	19.1	11.1
upper first molar	15.5	15.4
upper second molar	8.9	11.6

Although recovered in a very much fragmented state, the skull of an adult dog from fill (9075) of ditch [9079], enclosure E8, is identified as female on the markings of the surviving basilar part of the occipital bone (criteria of The and Trouth, 1976). Also from E8 (fill (9057) of ditch [9058]), there is a left tibia, complete but recovered in fragmented condition with clay encrustation preventing reconstruction of the bone. However, measurements taken on the proximal and distal ends (proximal breadth Bp = 26.5 mm and distal breadth Bd = 17.7 mm) compare with a modern specimen in the author's collections of a dog (breed unknown) of shoulder height 41 cm.

The part-complete skeletal remains of an adult dog from the northern terminal of gully G3 merits special mention as an example of a so-called Roman dwarf hound (see Baxter 2006) characterised by its small-size (shoulder height estimated at 24 cm; method of Harcourt 1974) and bowed radius/ulna and tibia (*cf* with the normal straight shaft in the two femora). All the limb bones are robust (relative to length) and as noted by Baxter (2006, 15) in examples of similar dogs from other Roman sites, such animals were clearly "powerful" animals despite their short-legs. Unlike the other documented examples, however, which have normal dentition, in the Aston Clinton dog there is complete bilateral absence (non-development) of all of the premolar teeth in the jawbones (Table 26). This form of genetic disorder in which certain teeth fail to develop and/or erupt (anodontia) is commonly seen in modern small breeds of dogs.

Table 26: Anatomical anomalies and pathologies from the late Iron Age/early Roman and Roman deposits

CATTLE					
Period	**Context**	**Fill**	**Feature**	**Anatomy**	**Type/description**
2nd-4th centuries AD	9302	9303	D8	third lower molar tooth	3rd cusp absent/not formed = congenital condition
2nd-4th centuries AD	9100	9102	E9	first phalanx	eburnation and grooving of distal articular surface
2nd century AD	9029	9030	E8	third lower molar tooth	3rd cusp vestigal/not fully developed = congenital condition
Late Iron Age/early Roman	9551	9553	posthole	third lower molar tooth	3rd cusp absent/not formed = congenital condition
Late Iron Age/early Roman	9094	9098	pit	rib	healed fracture of shaft
2nd-4th centuries	9167	9169	E9	first phalanx	exostoses and eburnation of distal articular surface
HORSE					
Period	**Context**	**Fill**	**Feature**	**Anatomy**	**Type/description**
2nd-4th centuries AD	9593	9596	pit	lower right fourth premolar	abnormal wear / occlusal surface resulting in pointed crown
DOG					
Period	**Context**	**Fill**	**Feature**	**Anatomy**	**Type/description**
2nd-4th centuries AD	9191	9194	G3	ABG skeleton	dwarfism/short-legged, bowed radius & tibia - brachymel dog premolars absent in both right & left jawbones = congential partial anodontia

Minor species

Pigs – At least one male is represented by a lower canine tooth (tusk) from (9182) layer [9189], enclosure E4.

Hares – Four bones are recognised: 1 skull (much fragmented) and 1 jawbone from (9444) <sample 34> fill of ditch [9446], enclosure E3; 1 humerus of a small immature animal from (9471)<sample 39> fill of ditch [9474], enclosure E5; and 1 metatarsus II from fill (9209) of re-cut ditch [9210].

Domestic fowl – Apart from an isolated coracoid from fill (9209) of re-cut ditch [9210] the only other evidence for the presence of domestic fowl is the part skeleton (wing & feet bones) of an adult female bird recovered from (9578) the fill of ditch [9580], enclosure E6. Both birds represented were small, scrawny *cf* bantam-sized.

Microfauna – Material extracted from sieved samples, especially those from Roman 1st to 2nd century AD dated contexts, yielded evidence for the presence of microfaunal species; comprising house mouse, field mouse, water vole, field vole, common frog and toad.

Conclusions and discussion

There is no evidence among the submitted animal bones for the exploitation of wildfowl, aquatic resources (freshwater fish) or wild game apart from an occasionally hunted hare. Overall, the animal bone evidence points to the existence of a local pastoral economy, which in the Iron Age was based principally on sheep with cattle of

secondary importance. By the late Iron Age/early Roman and throughout the Roman period (1st to 3rd centuries), however, there appears by then to have been a shift in emphasis to a much higher proportion of cattle, with a corresponding reduction in the numbers of sheep.

For the Roman period, horses are also strongly represented and coupled with the evidence of horse breeding at the site, it is clear this animal was important to the livestock enterprise, and would have played an invaluable role during the movement of cattle and sheep between grazing areas and paddocks.

Dogs would additionally have been of service in livestock management. Although not entirely uncommon on Roman sites, the presence of the dwarf hound at the Aston Clinton site is noteworthy given its rural rather than urban context. Commenting on the presence of very small dogs in the Roman period, Harcourt (1974, 164) suggested these animals were too small to have served any other purpose than as household pets or lap dogs; a view also held by Teichert (1987, 71) who believed they would have been bred as high status, luxury pets. Baxter (2006, 19), whilst accepting some of these dogs were indeed kept as pets, makes the observation that at rural sites dwarf hounds may have been primarily used in herding cattle and sheep “in similar fashion to the recent Corgi”. This herding role would certainly provide the best explanation for the presence of such an animal at the Aston Clinton site.

Evidence from other Romano-British sites has indicated that keeping poultry was becoming increasing important in the rural farming economies. However, on the submitted evidence, very few chickens seem to have been kept at the Aston Clinton site. Likewise, there is very little evidence that pigs were other than a minor contribution to the local economy/food supply (although the main pig herd may have been kept elsewhere).

Insight into the surrounding environment comes from the micro-fauna recovered from the sieved samples. The existence in the area of bodies of water and ditches with grassy banks explains the occurrence of water vole, common frog and toad, whilst the presence of rough, ungrazed grassland is indicated by the field voles. House mice show that human habitation and/or farm buildings were nearby.

7 SUMMARY OF POTENTIAL AND RECOMMENDATIONS FOR FUTURE WORK

7.1 Archaeological features

The information from the site will add to the wider corpus of knowledge regarding the Iron Age/Roman periods within the area of Aston Clinton and the wider region.

Further analysis of the written record, stratigraphic relationships and finds evidence has the potential to refine the developmental sequence of activity within the site. The continuous improvement and maintenance of the ditch systems and enclosures has meant that stratigraphic relationships in parts of the site, particularly the eastern half, have been difficult to interpret. It is considered that further in-depth stratigraphic and finds analysis may be able to refine the phasing.

The definite remains of a single timber-built structure, as well as part of a possible roundhouse ring ditch, were present on site, but it is considered that further settlement within the site may have been less archaeologically visible, perhaps comprising houses based on sill-beams which have left no evidence of their former presence. Analysis of the distribution of finds, particularly pottery and fired clay, may indicate the location of any such structure.

Rural agricultural sites dating to the Iron Age and Romano-British periods are relatively common in this area. Comparative analysis with similar sites both locally and regionally will be undertaken, especially with regard to RPS Site B, Bierton, Weedon Hill and Berryfields.

7.2 The flint

No further works are proposed and a report on the assemblage will be included in the final publication.

7.3 Iron Age and Roman pottery

The assemblage derived from over 200 feature fills, but only around ten percent of these contain groups of pottery weighing near or over 1kg. Moreover, most of these appear to be of mixed character rather than sealed or homogeneous. The burial and cremation pots should be studied in more detail and some of the pottery, for example the pink grogged wares and the reddish-yellow colour-coated wares warrant further study as to possible source(s).

Half of the larger feature assemblages appear to be worthy of separate discussion and further analysis of the site stratigraphy will confirm this and perhaps indicate others. Otherwise, and in addition, it will be appropriate to describe a selection of the pottery in order to provide a comprehensive view of the range of wares and forms which occur on the site (*c* 60 vessels). The assemblage should be considered in respect of the pottery recovered during the evaluation of the site prior to further excavations (Evans and Mills 2011) and that from the excavations on the Aston Clinton bypass (Slowikowski 2005) and other local sites.

7.4 Ceramic building material

Tile

No further work is required on this assemblage. The report will be included and relevant photographs of the fragments will be included.

Fired clay

No further work is required on this assemblage. The report will be included and photographs of the fragments will be included.

7.5 The querns and millstones

No further work is required on this assemblage. The report will be included and selected pieces will be photographed.

7.6 Other finds

The finds have been x-radiographed and catalogued and a small number of the objects will require further research. Such further work will include more research of specific items such as the cosmetic mortar and brooches, a brief analysis of finds distribution by phase and analysis of functional categories and some further work on individual or groups of finds of interest (for example tools and finds recovered from the 4th century midden).

7.7 Roman burials

There will be further discussion of the cause of the wrist/ hand strain as well as the use of the teeth as a third hand. The report will also consider comparable sites for evidence of this trauma. The skeletal remains largely comprised a gender bias towards the male, so the report will consider the potential burial location of the remains of infants/ women and elderly people. The report will be included along with photographs of selected skeletal parts.

It is proposed that stable isotope analysis of the human bone assemblage will be undertaken. Generally there are two forms of isotope analysis, carbon and nitrogen (bone or teeth) to identify the diet of the individual and also strontium and oxygen (teeth) to determine the origin of the person (EH 2013). It is proposed that both forms of stable isotope be carried out on all the inhumations from the site, should suitable material be present.

7.8 Animal bone

The animal bone reporting was undertaken at an early stage of the post-excavation process and the phasing of the site has subsequently been revised. The animal bone assemblage will therefore require updating with regard to the phasing.

7.9 Charcoal and charred plant remains

The presence of grain-rich deposits with chaff and weed seeds provide the potential to examine the nature of activities on site (processing, roasting, grain preparation etc), and define the nature of the cereal crops. This may help define activities performed on site, and also the function of the site as a whole. The distribution of the grain-rich samples may aid in reconstruction of zones of site activities. The weed seeds may allow some indication of the soils cultivated and thus the likely location of the fields. There is also the potential to examine and compare the activities, crops, and economy between pre-Roman Iron Age contexts and the Romano-British activity, and any changes in crop processing and other activities represented by the charred remains.

Overall there is high potential for determining the economy and activities performed on site which might relate to the site's function and role, as well as examining differences and changes between the pre-Roman Iron Age and Romano-British occupation phases.

Charcoal was present in moderate to low quantities from a few deposits but moderate to large quantities in just one (Enclosure E8, ditch [9686]). This indicates an overall lack of burning, and certainly no large industrial burning activities, but a low level of domestic-type fires. The majority of the wood and fuel has probably been harvested from local woodlands, and thus there is the potential for examining the nature and composition of local woodland, and of any management, coppicing and pollarding. This information would, however, be limited, but would provide a general indication of woodland resources and of local woodland and landscape character.

A small programme of charred plan and charcoal analysis is proposed (see Tables 18 and 27). This includes both Iron Age and Romano-British contexts.

A series of five charred plant and four charcoal samples are suggested for analysis. The 1mm and 2mm residues of samples selected for charred plant remains should be sorted under ×10 or greater magnification to recover chaff, weeds seeds and grain that have not floated. A number of items are present in the residues.

Table 27: Proposed charcoal and charred plant remains analysis

Phase	Type	Feature	Context	Sample	analysis	
LIA/ER	Pit (primary)	9480	9479	40	P	
LIA/ER	D1	8043	8039	10		C
LIA/ER	Pond	9767	9785	61		C
1st/2nd	E6	9573	9570	49	P	
?1st/2nd	Pit (upper fill)	9458	9455	37	P	C
2nd	E8	9686	9183	22	P	C
2nd	D5	9526	9525	47	P	

7.10 Land and freshwater molluscs

There is clear potential to define the landscape character and the nature of the lived-in landscape. There is also the potential to examine change through time, and explore the possibility of episodes of wetter conditions and flooding or periods of less intense use, or even temporary abandonments not detectable in the archaeological and artefactual record.

A selection of well-dated samples from this assemblage will provide some rapid cost-effective information about the landscape and land-use character that can be amplified by geoarchaeological and pollen studies as, and if appropriate.

A selection of six to ten samples from dated ditch contexts (Table 18) covering the full chronology of the occupation (ie early Iron Age to 2nd century AD) should be selected by the specialist to define the character of the local landscape and hydrology and report the history of any changes in these conditions which might relate to localised abandonment, or intensification of activities etc. The entire residue fractions of all selected samples will require sorting under ×10 magnification to recover apical fragments and diagnostic shells and provide a more complete and less biased assemblage than seen in the flots (cf Evans 1972). The proposed analysis should be

reported with the geoarchaeological record and landscape history (see geoarchaeology below).

7.11 The geoarchaeology

Periglacial outwash channels

The geoarchaeological and topographical background, as determined from site visits, and the profiles described on site (which are recorded but not reported), provide the potential to outline the topographical background which has largely conditioned the topographical local of activity, and may have restricted the range of activities.

Holocene Channels

The Holocene channels lie within the upper parts of the glacial outwash channels. These may have been contemporary with the excavated settlement activity and certainly provided a bounding and restricting influence on the extent of settlement activities off the low-lying raised ground. The basic sedimentary and infill history (i.e. descriptions) of these provide the geographical and topographical background - and the upper elements provide information about the local environment contemporaneous with occupation. This basic record lies in a) the geoarchaeological field records, and b) the series of four overlapping monoliths (Allen 2012, fig .1).

Rural dark earth / *midden* / *occupation deposits*

The dark earth/midden or occupation deposit is a by-product of the activities on site (see Macphail 2000), and the determination of the formation and taphonomy of this deposit has the potential to significantly enhance the understanding of the nature of human activities. Many of these activities are largely invisible in the standard archaeological record (see Macphail 2000; Allen 2000b). This potential is largely realised via soil micromorphological investigation and two large kubiana/monolith samples were taken to facilitate this (Allen 2012; fig 3; AEA samples 1 and 2).

Proposed analysis

The six monoliths (AEA samples 1-6) should be cleaned, described and reported along with the field profile descriptions to provide an introduction to the local landscape and topography. This information in particular, will augment the proposed snail analysis and the two should be written together.

Undisturbed soil samples from the midden/occupation deposit should be prepared as soil thin sections, and then reported upon to examine its formation and taphonomy and define what human activities it was associated with and produced it. This analysis may also be able to add to the large land-use history (see above).

8 REVIEW OF RESEARCH OBJECTIVES

Establish the chronology, character, status and economic basis of occupation and investigate its relationship to the field system(s). If necessary, confirm the dating of the earliest and final phases of occupation by scientific dating.

The excavation has enabled a full chronology of the Iron Age/Romano-British activity at the site to be established. A small quantity of early to middle Iron Age pottery found as residual material in later features indicates some earlier activity. The site was first occupied during the late Iron Age, in the 1st century BC and was continuously settled until the 4th century AD, although there appear to have been fluctuations in the level of occupation during that time.

Pottery evidence suggests that the main focus of activity in the Iron Age was in Area A, with a slight shift in focus to Area B perhaps in the early 1st century AD. There may have been a slight hiatus in activity between the early Roman period and the mid-late 2nd century. During the 3rd and 4th centuries activity at the site slowly declined. The nature of the settlement appears to have been largely utilitarian agricultural and domestic, with little evidence of imported, higher status goods. The settlement sat within an identified field system supporting a mixed farming regime.

The final phase of the settlement comprised midden and disuse layers which overlay the infilled ditches.

Identify any phases of occupation, building on the evidence from the evaluation.

Timber-built structure 9366, situated within Enclosure E5, may have been a focus of occupation, although it is perhaps likely that there were other buildings on site that have left little archaeological trace. A pennanular gully, constructed in the 2nd century, may be the remains of a roundhouse ring ditch.

Initial analysis of the finds evidence shows that a higher proportion of Type 1 fired clay, thought to be associated with domestic buildings, was found in enclosure E6 ditches, as well as pits and postholes inside. This may indicate that a further structure was present within enclosure E6.

Establish the chronology, layout and development and economic function (eg arable/pastoral) of any identifiable field system(s)/droveways and associated features (eg crop processing or storage areas).

The artefactual assemblage derives from cut features, principally enclosure ditches, and from abandonment deposits. Assuming that the patterns of deposition reflect nearby activity then analysis of the distribution pattern has the potential to inform on the nature of occupation and whether any variation is apparent spatially and chronologically. The faunal and environmental evidence suggests that a mixed economy was being undertaken, perhaps with an emphasis on pastoral farming. In the Iron Age this was based on sheep with a shift in the Roman period to cattle. The refining of the phasing and subsequent updating of the faunal assessment may cause a shift in interpretation.

Establish the extent, date and character of any ritual or burial remains and investigate the nature of such activities conducted on the site and their relationship to settlement and fields.

Thirteen adults were recovered. The burials dated from the 1st and 2nd centuries AD and were concentrated in marginal areas of the site. There were no children or older adults identified and seven of the nine sexed individuals were male. The presence of grooving in the dental enamel of three individuals may indicate that the individuals were involved in some activity where the teeth were used as a third hand. Important in this notion is the fact that a high prevalence of hand and wrist osteoarthritis was

identified. Other patterns of pathology including osteoarthritis, metabolic and trauma fit with other sites from the surrounding region and beyond. These pathologies indicated some childhood stress and a physically demanding lifestyle possibly from an early age.

The most interesting factor lies with the burial of the individuals themselves. This possible age and sex bias accompanied by decapitation and unusual burial positioning marks this cemetery out as possibly containing the bodies of social deviants or as those who were unfortunate victims of violence. However, the cemetery appears to have been relatively long-lived and while some burials may be associated with violence; this does not represent a single event.

Establish the link between the parish boundary, the 'palaeochannel' and the earthwork bank and obtain environmental and geo-archaeological data from these features.

The geo-archaeological processes that contributed to the formation of the earthwork bank and associated features have been elucidated. Further analysis may also be able to add to the large land-use history. However, the parish boundary does appear to follow the same natural feature as was the focus for IA/RB settlement. A regression of available historic map sources will also be included to illustrate its development.

Establish the date of the parish boundary ditch and the 'palaeochannel', through scientific dating if necessary.

The parish boundary ditch post-dated the abandonment of the Romano-British settlement. It appears to have been post-medieval in date. The 'palaeochannel' has also been dated.

Establish the date and nature of the structures present on the site.

The possible structures dated to the 1st and 2nd centuries AD. Further analysis of the material evidence may indicate the presence of more buildings.

Interpret the results of the project within the context of current knowledge and research on the late Iron Age and Roman periods in the Vale of Aylesbury/'Icknield Belt', specifically how the settlement characteristics compare with other settlements recorded in the area.

The site at Aston Clinton has many similarities with other settlements recorded in the area. Further interpretative analysis will be undertaken as part of the final reporting.

Changes in animal rearing strategies.

There is a clear change in focus from sheep to cattle and an increase (or introduction) of horse rearing suggested by the results. The re-phasing of the animal bone assemblage will enable any changes in animal rearing strategies over time to be better understood.

Evidence of crop-processing.

The presence of grain-rich deposits with chaff and weed seeds provide the potential to examine the nature of activities on site (processing, roasting, grain preparation etc), and define the nature of the cereal crops. This may help define activities performed on site, and also the function of the site as a whole. The distribution of the grain-rich samples may aid in reconstruction of zones of site activities. The weed seeds may allow some indication of the soils cultivated and thus the likely location of the fields.

The date and extent of ironworking on the site.

No evidence for ironworking was found on the site.

The characterisation of Iron Age and Roman rural settlements and the development of the agrarian landscape.

This will be undertaken as part of the final report.

The investigation of sites with well-preserved deposits of both late Iron Age and Roman date in order to examine continuity of local tradition.

This will be undertaken as part of the final report.

Evidence for variation in resources from different scales of farm needs to be investigated.

This will be undertaken as part of the final report but it is noted that this farmstead appears to have changed in economic focus as well as in scale over time

9 REPORTING, PUBLICATION AND ARCHIVE

9.1 Reporting and publication

A full site report will be prepared by Northamptonshire Archaeology. This will be submitted to the Historic Environment Record and deposited with the Archaeological Data Service (ADS). The full report will form the basis of a short article proposed to be submitted to the journal of the Buckinghamshire Archaeological Society, the *Records of Buckinghamshire*. The proposed structure of the report is as follows:

1 INTRODUCTION

- **1.1 Location, topography and geology**
- **1.2 Historical and archaeological background**
- **1.3 Scope of mitigation works**
- **1.4 Methodology**

2 THE LATE IRON AGE/ ROMAN ACTIVITY

- **2.1 Late Iron Age and Early Roman cultivation and enclosures (1st century BC-1st century AD)**
- **2.2 Early Roman enclosures (1st-2nd centuries)**
- **2.3 Roman enclosure (2nd century)**
- **2.4 Late Roman enclosure (2nd to 4th centuries AD)**
- **2.5 Settlement abandonment (4th century AD)**

3 MEDIEVAL AND POST-MEDIEVAL PARISH BOUNDARY

4 THE FINDS

- **4.1 The Iron Age and Roman pottery** by Rob Perrin
- **4.2 The ceramic building material** by Pat Chapman
- **4.3 The querns and millstones** by Andy Chapman

Each section will be accompanied by appropriate illustrations. The introductory sections will include figures showing the location of the site and its topographic and geological context. Within the narrative text illustrations will include overall phase plans, detailed drawings of individual features or feature groups, photographs and finds illustrations. The discussion will include figures showing the archaeological context of the works in relation to other archaeological investigations discussed in the text and other figures as necessary.

9.2 Archive

A microfilm copy of the site archive and the site narrative will be made to RCHME standards and submitted to the National Archaeological Record. The archive will comprise all written, drawn and photographic records, and all material finds and processed sample residues recovered from the trial trench evaluation and excavation phases. All records and finds generated by the excavation will be compiled in a structured archive in accordance with the guidelines of Appendix 3 in the English Heritage procedural documents, *Management of Archaeological Projects* (EH 1991) and *MoRPHE* (EH 2006). Site details will be entered onto the OASIS online database.

9.3 Quantification of site records

Table 28: Site records

Type	Quantity - evaluation	Quantity- excavation
Plans and sections	10	25
Registers	18	146
Contexts (+ TT logs)	258	906
Colour Slides	169	660
Monochrome negatives	168	660
Digital photograph contact sheets	5	21

9.4 Quantification of the finds and palaeoenvironmental evidence

Table 29: Finds

Material	Quantity
Iron Age and Romano-British pottery	3800 sherds
Worked flint	12 items
Fired clay	284 fragments
Tile	57 sherds
Querns	3 fragments
Coins	9
Small finds	
Animal bone	1046
Flots, charcoal	44 flots + 8 charcoal

10 RESOURCES AND PROGRAMMING

10.1 Work completed

All work on the consolidation of the site archive, artefactual and ecofactual processing, basic site phasing, the assessment evaluation of finds and ecofacts, preparation of assessment reports and updated project design have been completed.

10.2 Future works

In order to fulfil the potential of the archaeological features and the artefactual and ecofactual assemblages set out in Chapter 7, a programme of future works will be undertaken. This will maximise the potential of the archaeological resource to fulfil the research objectives set out in Chapter 8, and will lead to the production of a final report that will form the basis of the publication.

Table 30: Task list

Tasks		Personnel
1.	Introduction and background	Carol Simmonds and Charlotte Walker
2.	Structural site narrative	Carol Simmonds
3.	Iron Age and Roman pottery	Rob Perrin
4.	The ceramic building material	Pat Chapman
5.	The querns and millstones	Andy Chapman
6.	Other finds	Tora Hylton and Ian Meadows
7.	Human skeletal material	Sarah Inskip
8.	Ecofactual evidence	Mike Allen
9.	Animal bone	Phillip Armitage
10.	Illustrations	NA drawing office
11.	Integration of specialist reports	Carol Simmonds and Charlotte Walker
12.	Report digest and discussion	Carol Simmonds
13.	Editing	Andy Chapman
14.	Preparation of research archive	Theodora Anastasiadou-Leigh

10.3 Programme

The programme will commence once the Assessment Report and Updated Project Design has been approved by the archaeological advisor to Buckinghamshire County Council.

Table 31: Post-excavation analysis programme

Task / month	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												

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