LAND EAST OF MOORFIELD ROAD AND SOUTH OF A505, DUXFORD, CAMBRIDGESHIRE:

ARCHAEOLOGICAL EXCAVATION

## POST-EXCAVATION ASSESSMENT

LOCAL PLANNING AUTHORITY: SOUTH CAMBRIDGESHIRE DISTRICT COUNCIL


PCA REPORT NO: R11661

# LAND EAST OF MOORFIELD ROAD AND SOUTH OF A505, DUXFORD, CAMBRIDGESHIRE 

## AN ARCHAEOLOGICAL INVESTIGATION

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Land East of Moorfield Road and South of the A505, Duxford, Cambridgeshire: Archaeological Excavation. Post-Excavation Assessment

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#### Abstract

This report describes the results of an archaeological excavation carried out by PreConstruct Archaeology Ltd on land east of Moorfield Road and south of the A505, Duxford, Cambridgeshire, between $15^{\text {th }}$ July and $23^{\text {rd }}$ August 2013. The excavation was commissioned by Welch's Group Holdings Limited and Wrenbridge (Moorfield Road) Ltd as part of a planning condition attached the development of the site as a new logistics depot. An earlier trial trench evaluation had identified a focus of $1^{\text {st_}}$ century AD occupation in the south-west corner of the site.


The excavation revealed an early Roman pottery production site dating to the first few decades after the Roman Conquest (c. AD 50-80/100). Six pottery kilns were identified, several of which were very well preserved. These were associated with large assemblages of pottery, mostly produced in the kilns, and, most significantly, an exceptionally large and diagnostic assemblage of kiln plates used to construct the suspended floors upon which the kiln load was placed during firing. The site forms part of a group of other early Roman kiln sites in the Cambridge environs, including those at Addenbrooke's and Greenhouse Farm. The kilns were predominantly used for firing flagons, in a range of fabrics. Both the techniques being used and the repertoire of vessels suggest that the manufacturing was being carried out by itinerant potters who had learned their trade on the Continent. Flagons are scarce in domestic assemblages from Late Iron Age and early Romano-British rural settlements excavated to date in Cambridgeshire, so it is possible that the flagons were intended mainly for use in 'special' contexts, for example as grave goods, or that the market for these Continental-style tablewares was in an as yet unidentified higher-status settlement somewhere in the vicinity.

The kilns were located in an area of agricultural infield, likely to have been mainly used as damp grazing for cattle, on the periphery of an unidentified settlement, probably to the west. Use of the site both for agriculture and pottery production, as well as evidence for nearby occupation, came to an abrupt end in the late $1^{\text {st }}$ century.

## 1 INTRODUCTION

### 1.1 General Background

1.1.1 This report describes the results of an archaeological excavation carried out by Pre-Construct Archaeology Ltd on land east of Moorfield Road and south of the A505, Duxford, Cambridgeshire (centred on Ordnance Survey National Grid Reference (NGR) TL 4810 4700) (hereafter 'the site'), between $15^{\text {th }}$ July and $23^{\text {rd }}$ August 2013 (Fig. 1; Plate 1).
1.1.2 The site is located in Duxford in South Cambridgeshire, approximately 1 km north of the centre of the village. It comprises two adjoining arable fields separated by a hedged boundary, bordered by the A505 to the north, Moorfield Road, which heads south into Duxford, to the west and agricultural fields to the south. The London to Cambridge railway line is a short distance to the east, with Whittlesford Parkway station on the north side of the A505. The total area of the site is 3.85 ha , with the excavation area totalling c. 0.4 ha (1 acre). The site is previously undeveloped.
1.1.3 The archaeological work was commissioned by Welch's Group Holdings Limited and Wrenbridge (Moorfield Road) Ltd in response to an archaeological planning condition attached to the construction of new facilities for Welch's Transport Group, incorporating a storage and distribution building; vehicle sales, service, MOT and repair building; associated offices; and customer car, staff car, truck and crane parking (Planning Reference: S/1726/12/FL).
1.1.4 The site had been previously subject to phases of non-intrusive investigation, comprising an aerial photographic assessment (Palmer 2012) and geophysical survey (Masters 2012), followed by a trial trench evaluation undertaken by PCA between $12^{\text {th }}$ and $19^{\text {th }}$ July 2012 (Anderson with Hinman 2012). These phases of investigation confirmed the high archaeological potential of the site, with the evaluation identifying features associated with an area of probable $1^{\text {st }}$-century AD settlement in the south-west corner of the site.

### 1.1.5 As a result of these investigations, Cambridgeshire County Council Historic

Environment Team (CCC HET) advised that an archaeological excavation would be required in the south-west corner of the site. A Brief for archaeological excavation was prepared by Andy Thomas of CCC HET (Thomas 2013) and a Written Scheme of Investigation (WSI) prepared by Mark Hinman of PCA (Hinman 2013). The excavation was carried out in accordance with these documents.
1.1.6 The aim of the excavation was to 'preserve by record' any archaeological remains present within the excavation area, which would otherwise be damaged or destroyed by the proposed development, and to reconstruct the past history and land-use of the site.

### 1.2 Research Aims

1.2.1 The broad research aims of the excavation were:
1.2.2 To investigate the extent and character of the settlement identified by the evaluation and contribute to an understanding of the pattern of Late Iron Age and Roman Conquest-period settlement in south Cambridgeshire.
1.2.3 To use the full spectrum of environmental techniques appropriate for this aspect of investigation to attempt to model the past landscape of the area and how it was transformed by the settlement's inhabitants and by natural events.
1.2.4 Specific objectives, mainly based on those highlighted as research priorities in the East Anglian regional research agenda (Medlycott 2011), were:
1.2.5 To investigate dating and chronology, both in site-specific terms, and to enhance understanding of regional ceramic sequences. Radiocarbon-dating should be employed, particularly for features with good pottery assemblages, and especially where they are associated with datable metalwork, in order to refine regional ceramic chronologies (Medlycott 2011, 29).
1.2.6 To better understand the character and scale of manufacturing and industry, including, for example, the extent to which the eastern region played a role in provisioning the Roman army in the Rhineland during the Augustinian
period, the importance of cereal production as a possible basis for Trinovantian wealth and power, the nature and extent of manufacturing i.e. how much was on a commercial basis and how much was small-scale and localised cottage industry/ production (ibid., 30).
1.2.7 To investigate the Iron Age to Roman transition. Does the evidence suggest a seamless transition, a change in use of the land or farmstead, or continued occupation of the site but a change in building types or agricultural practice? How far is there assimilation of Late Iron Age culture into Roman or does acculturation occur? To what extent do indigenous building styles persist? Is there continued use of field systems as late as the early $2^{\text {nd }}$ century AD? The nature and extent of pre-Conquest contact and interaction with the Continent also needs examination (ibid., 31).
1.2.8 Investigation of settlement types, focusing on issues of distribution, density and dynamics, needs further work in the eastern region. Questions include, for example, the zonation and use of internal spaces both within settlements and in individual buildings, interactions between settlements and their hinterlands, and settlement locations with reference to topography, geology, resources and communication routes (ibid.).
1.2.9 To better understand the nature of the agrarian economy, including the relative proportions of cereals and livestock and whether there was a changing dynamic throughout the period. In addition, recording and analysis of palaeo-environmental and faunal data, and micro-morphological analysis of buried soils and colluvial/ alluvial deposits to shed light on agricultural regimes and their contemporary environmental contexts (ibid.).
1.2.10 To investigate any evidence for social organisation. Specific questions include: how far are ritual/ religious elements (e.g. structured deposits) evidence for the presence of an elite? To what extent did the native elite change or perpetuate its presence and control, or how far was it assimilated into the Roman civil administration? Who had control of/ access to early Continental imports? The chronology, distribution and range of evidence for Iron Age burial practices also needs further study. South Cambridgeshire is
particularly important in this regard, as the northern limit of the AylesfordSwarling pottery distribution and as the location of both the greatest range and some of the earliest examples. Whether cremation burial and pyre goods are an indication of social hierarchies needs to be established, as does the fate of the rest of the population - for example, whether excarnation and curation of ancestors' bones was the norm. The phenomenon of 'ad hoc' burials and human 'spare parts' buried in Iron Age boundaries and other features is not fully-understood, nor is the role of funerary monuments such as barrows and mortuary enclosures at this time (ibid.).
1.2.11 To investigate any evidence for regional/ tribal differences and borders between polities, particularly between (broadly) the northern and southern parts of East Anglia? This would be achieved through comparison of site morphology, agriculture and material culture assemblages with the evidence from settlements excavated elsewhere in Cambridgeshire and the wider eastern region. Investigation of chronological and spatial variations in the impact of Roman material culture is also important. Any evidence of settlement dislocation and population movement between c. 300 BC and AD 0 will help to refine understanding of the middle to late Iron Age transition. Any settlements, landscape features and finds assemblages from the 'early/ earliest Belgic' period are critical for understanding the date and character of the transition from the middle to late Iron Age.
1.2.12 This Post-Excavation Assessment (PXA) describes the results of the excavation and their research significance. The site periodization, phasing and stratigraphic narrative (Section 5: Archaeological Sequence) presented herein are complete. Specialist analysis and reporting on the finds and environmental assemblages is also largely complete (Section 6: The Finds). The significance and implications of the project results are discussed in Section 7, which also presents proposals for further analysis and research and for dissemination of the project results through publication in the journal Britannia. Following completion of the project, the site archive will be deposited at Cambridgeshire County Archaeology Store.

## 2 <br> GEOLOGY AND TOPOGRAPHY

2.1 The solid geology of the site is Nodular Chalk of the Holywell Formation overlain in the south of the excavation area by alluvium (British Geological Survey 2014).
2.2 The overburden comprised $0.30-0.35 \mathrm{~m}$ of ploughsoil (72) which directly overlaid the natural chalk (70) in the north of the site. In the south of the excavation area, it sealed up to 0.50 m of subsoil (71), which comprised a mixture of alluvium from the stream to the south of the site and hill-wash/ colluvium from upslope to the north-west, all disturbed and mixed to some extent by past agricultural land use.
2.3 The river Cam flows northwards 150 m east of the site ( 300 m east of the excavation area) (Fig. 1). A stream, probably canalized in places, branches off the Cam just east of Duxford village centre and flows north towards the site, before turning north-eastwards and flowing along the site's southern boundary. The stream was largely dry during the excavation but summer 2013 was one of the hottest, driest summers on record.
2.4 The excavation area is at an elevation of $24-25 \mathrm{~m}$ above Ordnance Datum ( m OD), sloping down slightly to the south and east, towards the stream. The surrounding landscape rises gently to the west and north, towards a local high point (38m OD) c. 450m north-west.
2.5 The land around the site is primarily arable agricultural land on the west side of the shallow valley of the river Cam, between the villages of Duxford, 500 m to the south, and Whittlesford 1.5 km to the north. Existing industrial/ commercial buildings occupy the neighbouring site on the opposite side of Moorfield Road, to the west.

## 3 ARCHAEOLOGICAL BACKGROUND

### 3.1 Prehistoric (to AD 43)

3.1.1 During the Mesolithic and Early Neolithic periods, occupation was probably at a low density, consisting of small, mobile groups exploiting the valleys of the Cam, Granta and Rhee for hunting, fishing and for extraction of workable flint from the natural river gravel deposits (Price et al. 1997). Struck flints dating from the Early Mesolithic to the Late Bronze Age were recovered during fieldwalking of the southern field of the nearby Hinxton Quarry site (Cambridgeshire Historic Environment Record (HER) No. 10875), while archaeological investigations at Duxford Mill found Late Mesolithic/ Early Neolithic struck flint in degraded peat deposits at the edge of a palaeochannel (HER 11808; Schlee and Robinson 1995).
3.1.2 A Bronze Age spearhead has been found in Duxford (HER 04093) and a Bronze Age inhumation, of a woman accompanied by worked flint, has been found at No. 26 Rectory Road (HER CB14522). Another Bronze Age burial, accompanied by a Beaker pottery vessel, was found by men working a gravel pit close to Whittlesford Station (HER 04105).
3.1.3 Duxford is located on the route of the Icknield Way, an ancient route between the Thames Valley and the north Norfolk coast consisting of a series of braided, broadly parallel trackways, which forded the Cam at this point (Taylor 1997; 2002; Margary 1963).
3.1.4 A Middle Iron Age settlement has been excavated at Pepperton Hill, 2 km to the south-west of the site (HER 14692; Price et al. 1997). This was a mixed farming settlement with an emphasis on pastoralism. At Great Abington, 4 km to the north-east, excavation has revealed a Middle Iron Age site with more than 50 cereal storage pits, which were backfilled with placed deposits, possibly to signify the end of use of the site at a time of rising groundwater levels (HER 17382; Kemp 1999; Sealey et al. forthcoming).
3.1.5 Further significant remains of Iron Age, Romano-British and early AngloSaxon date have been excavated 1 km south of the site on land off Hinxton Road in Duxford village centre (Lyons et al. 2011). The Iron Age remains
included human and animal burials, a shrine and numerous pits containing selected and placed items and continued in use as a burial ground into the Roman period. In the early part of the Saxon era, the site was occupied by a small farmstead.
3.1.6 At Hinxton, 2 km to the south, a nationally-important late Iron Age to early Roman Aylesford-Swarling-type burial site has been found (HER 11306; Hill et al. 1999). Another significant burial site is located at Bartlow Hills, south of the Roman villa at Linton. This comprises a group of large conical mounds which contained exceptionally richly-accompanied cremation burials, with other accompanied cremations found nearby (Essex HER 4751; Hull 1963, 394).
3.1.7 Several Iron Age hillforts are located in this part of south Cambridgeshire, suggesting that it was on the border between the territories of different tribal groups - the Catuvellauni to the south, Iceni to the north and north-east, and Trinovantes (annexed by the Catuvellauni shortly before the Roman conquest) to the south-east. These hillforts include 'War Ditches' in Cherry Hinton, 10km to the north (HER 04963), the large fort at Wandlebury, 8km to the north (HER 04636; French 2004), and Borough Hill, Sawston, 2.5km to the north of the site (HER 09742; Taylor et al. 1994).

### 3.2 Romano-British (c. AD 43-410)

3.2.1 The local landscape at the time of the Roman Conquest was largely agricultural, with field systems recorded 500m to the north-west (HER 9741) and beside a relict course of the river Cam at Dernford Farm, Sawston (Newton 2013).
3.2.2 Roman small towns developed at Great Chesterford, 5 km to the south-east, at a strategic location controlling a branch of the Icknield Way and the river Cam (Draper 1986; Rodwell 1972), and at Cambridge, 10km to the north. Great Chesterford was fortified at the time of the Boudiccan revolt (AD 60-1) and a possible (short-lived) fort may have been constructed at Cambridge around the same time.
3.2.3 The site lies close to several Roman roads (Malim 2000), one of which is
now the A11. The exact location of these roads is not yet full established (Evans et al. forthcoming). Two branches of the Romanised Icknield Way also ran through Duxford, one of them conjectured to have run very close to, or possibly through, the current site.
3.2.4 Several probable Roman settlements (e.g. HER 4142) and a villa complex (HER 4314; SAM 255) are located at Whittlesford, 1.5km to the north. Around 2 km to the south-east, a Roman farmstead, corn-drying oven (HER 9738) and field systems (HER 8822; 11687; 11978a) have been identified at Hinxton. A Roman villa and barn are known at Ickleton (HER 4153), while at Foxton, 8 km to the north-west, was a Roman farmstead with an early Roman drying building, ditches, pits and hearths (HER 14689); a late Roman inhumation cemetery with 24 burials was also present. A substantial Roman villa with a family burial ground is known near Linton (HER 9841; Neville 1847; 1851; 1857; HER 6165).
3.2.5 Other Roman finds consist of an iron shackle (HER 04224), metalworking residues (HER 04225) and a small quantity of Romano-British pottery and animal bone found during fieldwalking on the line of the Hinxton to Pampisford water pipe. To the east of Duxford Airfield and to the west of the current site, c. 500m away, excavations have revealed an extensive RomanBritish field system and possible settlement site (HER 09741).

### 3.3 Anglo-Saxon and Medieval (c. AD 410-1540)

3.3.1 To the south-west of the site, immediately to the south of the adjacent industrial/ commercial development (owned by Volvo) on the opposite side of Moorfield Road, is a medieval moated site known as Coldham's Moat (HER 01007). At the north end of Duxford village is the earthwork remains of another moated site called Lacey's Manor (HER 01263). The moat is situated in a grass field to the east of the main road at the north end of the village and close to Duxford Mill. It is rectangular in shape and surrounded by a shallow wet moat. This is the site of the medieval manor which passed into the hands of Sir Henry Lacy in the 1270s and remained in the possession of the Lacy family until 1350. Little is known of its later history.
3.3.2 A further moated site is located to the south-east of St Peter's Church, Duxford. It is a square-shaped moat situated on low ground beside the river Cam and is classified as a Scheduled Ancient Monument (Cambridgeshire No. 111). The enclosure formerly measured about 60 m square with arms 18 m wide and 1.6 m deep, and was fed from the river into the north-east. This is the site of Bustler's Manor, held by Hardwin de Scalers in 1086, which then passed to the Le Goyz family in the $12^{\text {th }}$ century, when the moat is likely to have been constructed. The manor was sold by 1327 to Sir William le Busteler and soon after became known as Busteler's manor.
3.3.3 Two earthwork remains of medieval fish ponds (HER 10840) are situated a short distance to the north-west of Bustler's manor and it is suggested that they may be the remains of d'Abernons manor.
3.3.4 To the north-east of the site, just east of Whittlesford Parkway Station, lies the chapel of the Hospital of St John. The hospital of St John was founded by William de Colville around AD 1200. By 1337 it had closed and the building became a free chapel and later a barn. The small rectangular chapel (Grade II* listed building and SAM 24432) was rebuilt in the first half of the $13^{\text {th }}$ century. The chapel is a single-storey building, measuring approx. 20 m east to west and 6.5 m north to south, and consisting of a chancel and nave.
3.3.5 Immediately to the south of St John's church is College farmhouse and attached barn (HER 04129), the property of Cauis College, Cambridge; both have listed status. Close by is the Grade II* listed timber-framed building of the Red Lion Hotel, which dates from 1500 (HER 04131).

### 3.4 Previous Archaeological Investigation of the Site

3.4.1 The geophysical (fluxgate gradiometer) survey of the site identified a wide range of magnetic variation, most of which reflected modern ferrous disturbances such as fencing, telegraph poles and ferrous litter (horseshoes, brick and tile) (Masters 2012). A series of ephemeral and ill-defined linear and curvilinear anomalies resembled ditches, although it was considered more likely that these reflected variations in the underlying geology or soil
(ibid.). However, two parallel linear anomalies in the south of the site, interpreted as recent vehicle ruts, are in approximately the same positions as later Roman DITCHES 18 and 19 recorded during the excavation (see Section 5.10, below).
3.4.2 The aerial photographic assessment of the site identified no archaeological features within or immediately adjacent to the site, with the exception of the previously-known probable moat to the west-south-west (Palmer 2012). An area of activity probably dating to the $2^{\text {nd }}$ World War was identified in the eastern part of the site.
3.4.3 The trial trench evaluation involved the excavation of 12 linear trial trenches (total 540m) distributed across the site (Anderson with Hinman 2012). A concentration of ditches and pits, associated with $1^{\text {stt }}$-century AD pottery and small amounts of animal bone, and thought to indicate a focus of late Iron Age/ early Roman domestic occupation was identified in Trenches 1 and 2, in the south-west corner of the site. With the exception of a few postmedieval and natural features in the eastern corner of the site (Trenches 11 and 12), the other trial trenches contained no archaeological remains.

## 4 METHODOLOGY

### 4.1 General

4.1.1 The excavation comprised a roughly rectangular area of 0.4 ha (approx. 1 acre) in the south-west corner of the site, where the trial trench evaluation had identified a focus of late Iron Age/ early Roman occupation.

### 4.2 Excavation Methodology

4.2.1 Ground reduction during the excavation was carried out under archaeological supervision using a 21 -ton $360^{\circ}$ mechanical excavator fitted with a 2 m -wide toothless ditching bucket. Topsoil and subsoil deposits were removed in spits down to the level of the undisturbed natural geological deposits where potential archaeological features could be observed and recorded. No features or deposits of archaeological interest survived above the level of the natural geology.
4.2.2 Exposed surfaces were cleaned by trowel and sand-hoe as appropriate and all further excavation was undertaken manually using hand tools.

### 4.3 Recording and Finds Recovery

4.3.1 The limits of excavations, heights above Ordnance Datum (m OD) and the locations of archaeological features and interventions were recorded using a Leica 1200 GPS rover unit with RTK differential correction, giving threedimensional accuracy of 20 mm or better. Manual plans at a scale of $1: 10$ or 1:20 were drawn of complex areas and of intrinsically interesting features such as the Roman kilns.
4.3.2 Deposits or the removal of deposits judged by the excavating archaeologist to constitute individual events were each assigned a unique record number (often referred to within British archaeology as 'context numbers') and recorded on individual pre-printed forms (Taylor and Brown 2009). Archaeological processes recognised by the deposition of material are signified in this report by round brackets (thus), while events constituting the removal of deposits are referred to here as 'cuts' and signified by square brackets [thus]. Where more than one slot was excavated through an individual feature, each intervention was assigned additional numbers for the
cutting event and for the deposits it contained (these deposits within cut features being referred to here as 'fills'). Multiple sections excavated across a single feature were later grouped together by unique 'group numbers', signified here by capitals: e.g. DITCH 1. The record numbers assigned to cuts, deposits and groups are entirely arbitrary and in no way reflect the chronological order in which events took place. All features and deposits excavated during the evaluation and excavation are listed in Appendix 2. Artefacts recovered during excavation were assigned to the record number of the deposit from which they were retrieved.
4.3.3 Metal-detecting was carried out during the topsoil and subsoil stripping and throughout the excavation process. Archaeological features and spoil heaps were scanned by metal-detector periodically.
4.3.4 High-resolution digital photographs were taken of all relevant features and deposits, and were used to keep a record of the excavation process. In addition, monochrome photographs were taken of significant features.

### 4.4 Sampling Strategy

4.4.1 Discrete features were 100\% excavated, having first been half-sectioned, photographed and recorded by a cross-section scaled drawing at an appropriate scale (either 1:10 or 1:20). Some features found to be modern or of natural origin (e.g. the result of tree rooting or animal burrowing) were only half-sectioned.
4.4.2 Linear features, principally ditches, were investigated through a series of regularly-spaced slots, each a minimum of 1 m wide and amounting to at least a $10 \%$ sample of each feature. Where possible, investigation concentrated on areas away from any junctions or intersections in order to recover uncontaminated dating evidence. Where the stratigraphic relationship between features could not be discerned in plan, relationship slots were also excavated and these were recorded as part of the GPS survey and noted on the relevant record sheets. Excavation also focused on ditch terminals as these are known to have often been focal points for deliberate deposits of artefacts, particularly on prehistoric sites.
4.4.3 The six kilns were $100 \%$ excavated. Deposits within the kilns were removed in stratigraphic sequence, individually recorded on context sheets, and photographed. Plans were made of significant levels e.g. phases of demolition, dumping events and use deposits. A 'running section' was recorded along the long axis of each kiln, with information added to the section each time an additional deposit was excavated, until the base of the feature was reached. Digital and monochrome photos were taken of all deposits and working shots were taken as a record of the excavation process; additional photos, from a variety of angles, were taken when the kilns had been fully excavated. All finds in the kilns were recovered. A sample amounting to c. $25 \%$ of the kiln chamber lining was also removed for specialist analysis.

### 4.5 Environmental Sampling

4.5.1 A total of 34 bulk soil samples (generally 20-40 litres in volume) were taken to extract and identify micro- and macro-botanical remains. The aim of this sampling was to investigate the past environment and economy of the site, and particularly to identify any evidence relating to the nature of the agricultural regime in which the enclosure system operated. An additional aim of the sampling was to recover any evidence relating to the fuel used in the kilns. These samples were taken from sealed deposits. In order to assess any spatial or functional patterning in the deposition/ presence of plant remains, a range of different feature types (ditches, pits and natural features), distributed across all areas of the site, were sampled.

## 5 ARCHAEOLOGICAL SEQUENCE

### 5.1 Phasing (Figs. 2 and 3)

5.1.1 Features have been assigned to chronological periods on the basis of typological dating of associated finds (mainly pottery) and consideration of stratigraphic relationships. Stratigraphy was mainly of use in the south of the site where there was a relatively complex sequence of deep intercutting ditches; features in the northern half of the excavation were generally too dispersed and few in number for this to be of much value.
5.1.2 The vast majority of features on the site can be dated on ceramic evidence (mostly pottery produced in the identified kilns) to the early Roman period, specifically the second half of the $1^{\text {st }}$ century AD (c. AD 50-80/100). Within this period, an attempt has been made to divide features into four phases, based on a combination of stratigraphy and apparent spatial associations between features. The occurrence of kiln-related material (e.g. broken kiln lining, kiln furniture and pottery) at different levels within the fills of the large enclosure ditches is an important indicator of the relative positions of the different kilns and ditches in the chronological sequence i.e. which kilns were contemporary with which ditches. However, this does rely on the assumption that dumps of kiln material are most likely to be associated with kilns located close by. Phasing on the basis of perceived spatial associations is to some extent subjective and open to reinterpretation, as are some of the assumptions made about the retention of enclosure ditches between phases.

Periods:
Period 1: Mesolithic to Early Neolithic
Period 2: Middle to Late Iron Age (c. 350-50 BC)
Period 3: Early Roman (c. AD 50-80/100)
Period 3.1: Early Roman I
Period 3.2: Early Roman II
Period 3.3: Early Roman III
Period 3.4: Early Roman IV
Un-phased Early Roman
Period 4: Late Roman ( $3^{\text {rd }}-4^{\text {th }}$ century AD)

Period 5: Modern Features
Undated Features
Natural Features

### 5.2 Period 1: Mesolithic to Early Neolithic

## Residual Struck Flint

5.2.1 A small but fairly homogenous assemblage of struck flint (124 pieces) was either found residually in later contexts or recovered from the stripped surface of the natural chalk and gravel in the south-east of the excavation area. The bulk of the assemblage is the product of a systematic bladebased industry typical of the Mesolithic to Early Neolithic; diagnostic pieces such as a Later Mesolithic scalene triangle microlith indicate that at least some of the assemblage dates to the earlier part of this range (see Bishop, Section 6.1). The assemblage is essentially 'domestic' in character and reflects long-lived, if transient, occupation.

PIT 1: [323]
5.2.2 A small pit towards the north-west corner of the excavation area contained Early Neolithic pottery. PIT 1 ([323]) was severely truncated by early Roman DITCH 9. It was circular in plan with steep rounded sides and a flattish base ( $1.16 \mathrm{~m} \times 1.14 \mathrm{~m}$ wide and 0.32 m deep) and contained a single fill of mid orangey-brown sandy silt with frequent redeposited natural chalk flecks (324). Five sherds from an Early Neolithic (3700-3500 BC) plain bowl were present (see Brudenell, Section 6.2). Other finds, including kiln lining fragments, a small amount of iron-smithing slag (136g) and animal bone, were intrusive from DITCH 9. PIT 1 was located next to the limit of the excavation area and close to the western edge of the site, so its precise context is unclear. However, the discovery of six sherds of residual Neolithic pottery in a Roman ditch 20 m to the east (DITCH 3 Slot [396]) demonstrates that it was probably not an isolated feature.

## Discussion

5.2.3 These features and finds reflect human activity along the margins of the river Cam during the Mesolithic and Early Neolithic period. This activity certainly involved exploitation of the apparently good quality raw flint available in the
natural gravels and probably also involved hunting and fishing. The presence of a pit containing Neolithic pottery, and the inferred existence of at least one other, destroyed, feature, also suggests occasional small-scale occupation. PIT 1 contained 'refuse' from one such sporadic visit. Due to the severe truncation of the pit, it is not possible to say whether there was any structuring to this deposit of occupation debris, as has been identified at Early Neolithic 'pit sites’ such as Kilverstone, Norfolk (Garrow 2006).
5.2.4 A few residual struck flint flakes and flake cores might indicate a low level of activity on the site in the Late Neolithic to Early Bronze Age and perhaps beyond (see Bishop, Section 6.1.6).

### 5.3 Period 2: Middle to Late Iron Age (c. 350-50 BC)

PIT 2: [337]
5.3.1 A pit (PIT 2) containing Middle Iron Age pottery was located next to Neolithic PIT 1. PIT 2 ([337]) had been truncated on its south side by early Roman DITCH 9. It appeared to be circular in plan with fairly steep concave sides and a flattish base ( $1.62 \mathrm{~m} \times 1.01 \mathrm{~m}+$ wide $\times 0.25 \mathrm{~m}$ deep) and contained a single fill of compact dark orangey-brown/ grey silty sand and flint gravel (338). The pit contained four sherds of Middle Iron Age pottery tempered with quartz sand and chalk, two of which are from the same slackshouldered vessel and another of which has a slightly burnished exterior with traces of sooting. Three pieces of burnt flint and two fragments of horse and sheep bone were also present. PIT 2 was a rubbish pit and indicates occupation somewhere in the vicinity during the Middle Iron Age (c. 350-50 $B C)$.
5.3.2 It is of note that, with the possible exception of an Iceni coin (c. 65-50 BC or slightly later) found on the surface of the natural chalk in the north of the excavation area (SF 5; see Crummy, Section 6.5; Plates 2-3), there is no evidence for activity on the site between the Middle Iron Age and the inception of pottery production in the early Roman period. In the light of this absence, it is perhaps more likely that the Iceni coin was an old issue which was still in use, either as currency or as an heirloom, in the mid $1^{\text {st }}$ century AD, and that it was deposited during the main phase of on-site activity in the
early Roman period.

### 5.4 Period 3: Early Roman (c. AD 50-80/100)

## Overview

5.4.1 The vast majority of the features and finds on the site relate to an intensive but relatively brief phase of activity during the early Roman period. At this time, the excavation area formed part of the agricultural infield of an (unidentified) settlement probably located a short distance to the west. This infield area occupied low-lying, seasonally waterlogged ground beside a stream and would have suited use as pasture for cattle, a fact which is supported by the cattle-dominated animal bone assemblage (see Rielly, Section 6.6). However, in addition to agriculture, the site was also intermittently used, over a period of a few years or decades, for pottery manufacture carried out by itinerant potters and focusing on the production of flagons (see Anderson, Section 6.3). Six well-preserved pottery kilns were identified within the excavation area, along with dumps of kiln lining, kiln furniture and wasters in the contemporary field boundary and enclosure ditches adjacent to the kilns. It is probable that at least one or two other kilns are located outside the excavation area, particularly to the south. This period of activity began shortly after the Roman conquest and had ended by the later $1^{\text {st }}$ century AD, with no sign of further activity until the $3^{\text {rd }}$ century, when a track defined by parallel ditches crossed the site.

### 5.5 Period 3.1: Early Roman I

5.5.1 The initial phase of early Roman activity involved the establishment of two kilns, KILN 1, located in the south-east of the site, and KILN 2, located in the south-west. The kilns were situated in an area of agricultural infield, divided by large ditches into adjoining curvilinear enclosures (ENCLOSURES 1 and 2) that extended beyond the excavation area to the south and west. KILN 2 was within one of these enclosures; KILN 1 was outside the identified enclosures but other enclosure ditches may have existed outside the excavation area and not been 'picked up' by the trial trenches. A single large pit (PIT 3), used to extract natural clayey chalk or sand and containing an unusual deposit of a human skull, was also identified and can be
assigned to this phase on stratigraphic grounds.
5.5.2 Small amounts of domestic-type waste in the ditches, including animal bone and some non-kiln-related pottery, indicate that this area was on the periphery of a settlement, probably located a short distance to the west. The enclosures were situated on low-lying ground (modern maps show the southern part of the site as floodplain) and appear to reference the stream which flows along the southern boundary of the site, so may have been areas of seasonally-wet grazing for livestock. Significantly, the limited finds and stratigraphic evidence suggest that the settlement and associated infield were already established before this area began to also be used, periodically, for pottery manufacture.

ENCLOSURE 1: DITCHES 1, 4 and 24
5.5.3 Two adjoining curvilinear enclosures surrounded by large ditches were partially revealed in the west (ENCLOSURE 1) and south (ENCLOSURE 2) of the excavation area. The east side of ENCLOSURE 1 was formed by DITCH 1, the south side by DITCH 4 and the south-east side by DITCH 24, which also formed the north side of an adjoining enclosure, ENCLOSURE 2. The exposed part of ENCLOSURE 1 measured c. $27 \times 16 \mathrm{~m}$. DITCHES 1 and 4 were retained in the subsequent early Roman phase and some of their middle and upper fills were deposited during this period.

DITCH 1: Slot [381] fill (380)
5.5.4 DITCH 1 was linear in plan, approximately 14 m long and aligned north to south. It was cut to the north by DITCH 7 and to the south by DITCH 14; a conjectural reconstruction of its original course is shown on Fig. 3.

Ditch Slot [381] had moderately-sloping concave sides and a rounded base in the excavated slot and was 1.7 m wide and 0.40 m deep. It had two successive greyishbrown silty sand fills: (380) and (379). The lower fill (380) contained small pieces of cattle and sheep bone and kiln material including two plate fragments and a piece of fired clay kiln lining. The kiln material is likely to be associated with contemporary KILN 2, located 9 m to the south. The upper fill (379) is likely to have been deposited during the next early Roman phase, in which DITCH 1 was retained (see below).

DITCH 4: Slot [317] fills (329) and (318), Slot [30]
5.5.5 DITCH 4 was linear in plan, $12 \mathrm{~m}+$ long and aligned west-north-west to east-south-east. It was cut by DITCH 14 to the east and extended beyond the excavation area to the west.

Ditch Slot [317] had moderately-sloping straight sides and a wide, flattish base in the excavated slot and measured 2.56 m wide and 0.71 m deep. The lowest fill (329) predominantly consisted of weathered and slumped natural chalk and sand from the north side of the ditch but also contained a fragment of cattle radius and four sherds of mid- to late-1 ${ }^{\text {st }}$-century AD pottery, including one from a beaded rim jar. This fill was overlain by a dark brown firm clay layer (318) which contained a fragment of a copper-alloy early Roman military armilla (SF 8) (see Crummy, Section 6.5). The subsequent ditch fills ((331), (330) and (332)) are likely to relate to the next early Roman phase, during which DITCH 4 was retained (see below). The absence of kiln material in the lower fills of DITCH 4, despite its physical proximity to two identified kilns (KILNS 2 and 3), might indicate that it was already in place before episodic pottery manufacture began on the site.

Ditch Slot [30] (Trial Trench 1) had a steep rounded profile and was 1.15 m wide and 0.70 m deep. Its lower fill was a light to mid grey sandy clay (58). This was overlain by a mid grey sandy clay with frequent flint inclusions (57). The uppermost fill was a firm mid grey sandy clay (31) containing 16 sherds (298g) of $1^{\text {st }}$-century AD pottery. Trial Trench 2 was machined slightly deeper than the excavation level and the identified portion of DITCH 4 in Slot [30] was probably only its lower portion.

ENCLOSURE 2: DITCH 24
5.5.6 ENCLOSURE 2 was partially revealed in the south of the site; it mostly lay outside the excavation area. Its north side was demarcated by large DITCH 24 , which also formed the south-east side of adjoining ENCLOSURE 1.

DITCH 24: Slots [147] and [154]
5.5.7 DITCH 24 had mostly been truncated away by a later recut along the same alignment (DITCH 14; see below) but it still survived beneath this later cut in two excavated slots, with possible evidence for its presence in a further two. Due to the very partial survival of DITCH 24, its existence at this time is
conjectural and its extent and alignment are largely inferred from the later ditches demarcating ENCLOSURE 2. The ditch is likely to have entered the excavation area from the south and extended north-eastwards, turning approximately halfway along its exposed length to an east-south-eastward alignment and continuing beyond the site.

Ditch Slot [147] had steep straight sides and a flat base and was 2.10 m wide and 0.85 m deep. Its fills had been largely destroyed by recut [173] (DITCH 14). The lowest surviving fill on the south-east side of the ditch was a pale grey to mid orangey-brown silty sand slumped natural deposit (150). The lowest surviving fill on the north-west side of the ditch was a pale grey slightly sandy silty clay and chalk (151), again the result of slumping of weathered natural material from the side of the open ditch. Neither fill contained finds.

Ditch Slot [154] had a steep straight, slightly stepped side to the south, a steep concave side to the north, and a flat base. It was 2.70 m wide and 0.70 m deep. Its fills had been largely destroyed by recut [174] (DITCH 14). The lowest surviving fill on the south side of the ditch was a mid orangey-brown sand and degraded weathered chalk (400) that had slumped from the side of the ditch. The lowest surviving fill on the north side of the ditch was a yellowish-brown sand with small rounded chalk fragments (157) which contained two small, undiagnostic sherds of early Roman (later- $1^{\text {stt }}$-century AD) pottery.

KILN 1 ([189]; fills (281), (402), (226), (225)=(252), (231), (230), (220)=(224) and (209))
5.5.8 KILN 1 ([189]) (Plates 4-8) was located in the south-east of the excavation area, adjacent to PIT 3. It was cut by later DITCH 2. KILN 1 was an elongated 'keyhole' shape in plan, measuring 2.47 m long, 0.95 m wide and 0.48 m deep. A steep-sided linear stokehole (1.57m long $\times 0.72 \mathrm{~m}$ (max.) wide $\times 0.41 \mathrm{~m}$ deep) extended north-eastwards, connecting via a surviving flue arch (Plate 8) to a circular kiln chamber ( $0.78 \mathrm{~m} \times 0.66 \mathrm{~m}$ wide at the base $\times 0.48 \mathrm{~m}$ deep) with near-vertical sides, a flat base and a broadly rectangular fired/ vitrified clay central pedestal ( 0.32 m long x 0.22 m wide x 0.23 m high) (402) (Plates 6-7). The kiln chamber had a vitrified clay lining (281) up to 11 cm thick which extended out of the chamber and along
approximately 0.60 m of the stokehole. The lining had a 'ragged' appearance in the stokehole, suggesting that it represented the truncated remnants of a lining which had been partly scoured away by raking-out of the kiln chamber.
5.5.9 The earliest deposit in the kiln was a black ash layer 0.11 m deep (226), present in the flue between the stokehole and kiln chamber, and deriving from the kiln's last firing. This was sealed by layers representing the abandonment and initial silting-up of the disused kiln (251) and (252)=(225), the latter of which contained six fragments of kiln plate ( 2.45 kg ). This was followed by several large, deliberately dumped deposits of wasters, kiln furniture and fired clay lining and structural fragments. The first of these (231) consisted mainly of broken pottery (predominantly whiteware flagon sherds, some with handle stumps, almost all of which are definite kiln products) and kiln lining/ superstructure fragments (Plate 5), the next (230) was mainly kiln lining/ pedestal fragments, and the final deposit (220)=(224) was of broken lining and superstructure fragments (9.6kg). The first two of these dumps were only present in the kiln chamber; the latter was present in the kiln chamber and stokehole, though it was truncated by DITCH 2 (Slot [195]). In view of the distance (30-40m+) between KILN 1 and the other kilns which are likely to have been in use either at the same time or shortly afterwards (KILNS 2 and 3), this dumped kiln material is most likely to have come either from another, unidentified, kiln located to the south of the excavation area, or to represent material from the use and demolition of KILN 1 itself. This dumping phase was followed by another period of silting (209) before the disused and completely infilled kiln was cut by DITCH 2.

KILN 2 ([277]; fills (389), (374), (362), (361), (360), (373), (355), (315) and (314))
5.5.10 KILN 2 ([277]) was located in the south-west of the site, just inside ENCLOSURE 2 (Plates 9-11). It was severely truncated by DITCHES 5 and 14, which cut it to the south and north, respectively; only approximately half of the kiln chamber and the beginning of the flue into the stokehole survived. The kiln was aligned east-north-east to west-south-west, with the kiln chamber to the east. It appears, like the other kilns on the site, to have
originally been an elongated 'keyhole' shape in plan with steep concave to near-vertical sides. Its dimensions, at its greatest surviving extent, were 1.60 m long, 0.80 m wide (narrowing to 0.63 m in the flue/ stokehole) and 0.39 m deep. A pale orange vitrified clay lining c. 10 cm thick (389) survived on the north side of the kiln chamber and continued for the first few centimetres of the flue.
5.5.11 The earliest deposits present in the kiln chamber and flue were two thin silt layers ((374) and (362)), indicating a short period during which the kiln was not in use and was open to the elements. These were sealed by a thick deposit of ash (361) which extended almost fully across the kiln chamber and the surviving part of the flue, although it appeared to thin out in the stokehole (DITCH 14 truncated the stokehole at this point). This represents one or more episodes of firing. The upper portion of this deposit had built up around a large rectangular block of pale vitrified clay (Plate 10), apparently positioned centrally within the kiln chamber, which was probably a removable central pedestal to support the kiln floor. Following this firing (or firings) the kiln's flue was deliberately blocked with mid orangey-red clay (360) containing broken kiln plates, fired clay kiln lining fragments and pottery, including 47 sherds (217g) from a buff-surfaced flagon produced in the kilns. As in KILN 3 (see below) this blocking is likely to have taken place during the final firing of the kiln; it showed signs of having been fired, although it had not vitrified.
5.5.12 The next layer in the kiln chamber was a dark silt and ash deposit (355) containing 17 sherds ( 137 g ) from several flagons, probably representing the mixed remains of the kiln's final firing and some washed-in material from after its disuse. At the same stratigraphic level in the flue/ stokehole was a thick deposit of puddled yellow unfired clay intermixed with a few pieces of broken kiln furniture (373). This may represent the dumped remains of the final kiln load after an unsuccessful firing, mirroring layer (248) in the stokehole of KILN 3 (see below). Both the kiln chamber and the stokehole were then backfilled with dumped kiln debris including waster sherds, broken kiln plates (16 fragments; 2588g) and fired clay lining and demolished
structural fragments (2.4kg) (315) (Plate 9). The remaining hollow in the top of the kiln then gradually silted up (314). Overall, the fills contained large quantities of kiln plate and potsherds, mainly from flagons and some jars, in a range of fabrics, and including many definite kiln products.

PIT 3: [378]
5.5.13 A large pit located in the south-east of the excavation area (Plates 12-14) was one of only five Roman pits found during the fieldwork and stood out both for its large size and the discovery of a human skull and vertebrae in one of its fills. The sequence of fills within PIT 3 indicates that it had already been open and weathering for some time before the deposition of the human skull and that during this time, small quantities of general domestic debris had found their way into it from settlement areas somewhere nearby. In view of its size (considerably larger than any of the early Roman rubbish pits), its slightly stepped edge to the north-east (possibly facilitating access) (Plates 13-14), and the generally only small quantities of domestic debris in its earlier fills, PIT 3 is likely to have been a quarry pit dug to extract natural clayey chalk or sand (there were numerous yellow sandy patches in the natural geology in this part of the site).
5.5.14 The destination of the quarried material is unknown. It is possible that the extracted chalky clay was used on-site, either for pottery manufacture or for fashioning kiln lining/ furniture. Alternatively, sand from the pit could have been used as temper in some of the sand-tempered kiln fabrics (see Anderson, Section 6.3). However, the almost complete absence of kilnrelated material, apart from one lining fragment from fairly high up in its backfill, suggests that the pit was initially dug before the adjacent kiln (KILN 1) was in use. Therefore, the quarried material was either used in unidentified earlier kilns located outside the excavation area (probably to the south) or it had some other non-kiln-related use, for example, for daub in buildings located in the conjectured settlement to the west.
5.5.15 The 'meaning' of the deposit of a human skull in the pit, some time after it was dug, is equally open to conjecture. While it is not uncommon to find small amounts of disarticulated human bone in later prehistoric and

Romano-British settlement sites, this skull would still have had soft tissue intact and been recognisably human when deposited (Plate 12). This, combined with the apparent decapitation of the individual (see Tierney, Section 6.7), make it highly unlikely that this was a casually-discarded deposit. It is thus tempting to view its burial as a 'foundation deposit' associated with the beginning of pottery manufacture at the site.

PIT 3 was roughly circular in plan, with steep to near-vertical straight sides rounding to a concave base around most of its circumference and a slightly stepped side to the north-east. It was $3.22 \times 2.90 \mathrm{~m}$ across and 1.15 m deep. It contained four fills. The basal fill was a compact mixture of weathered chalk, yellow sand and pale grey silty clay (394), representing a combination of slumped weathered material from the sides of the pit and alluvium from flooding of the stream to the south. It contained three pieces of cattle bone and a large sherd from an early Roman (AD 40-80) jar. Above this was a deep deposit of firm light grey silty clay (377), probably also largely alluvial in origin, which contained three pieces of residual Mesolithic struck flint, a sheep humerus and two more early Roman jar sherds.

On the pit's north side, the upper part of fill (377) also contained a semi-complete human skull and vertebrae (see Tierney, Section 6.7) likely to have still been articulated (i.e. 'fleshy') when they were deposited. The bones are from an adult male and show evidence of sharp force trauma, consistent with a double-blow decapitation, and likely to have been the cause of death. This was the only human bone found on the site.

Following the deposition of the human skull, PIT 3 was used for deliberate dumping of general domestic 'rubbish'. The upper fill was a mid brownish-grey clayey silt (376) which contained a small, mixed assemblage of animal bone (including cattle, sheep and pig), seven sherds of early Roman (c. AD 40-80) pottery including jar sherds, a single piece of kiln lining and several residual Mesolithic or Early Neolithic blades. The pit's final fill (375) was a layer of sterile chalk up-cast, presumably deposited during the digging of early Roman DITCH 2 (see below), which cut the north side of PIT 3.

### 5.6 Period 3.2: Early Roman II

5.6.1 ENCLOSURE 1 remained in use as agricultural infield, with DITCHES 1 and 4 still open. A new ditch, DITCH 5, replaced DITCH 24 as the northern
boundary of ENCLOSURE 2 and the south-east side of ENCLOSURE 1. A new kiln, KILN 3, was built inside ENCLOSURE 1, the two earlier kilns having gone out of use. In the eastern part of the excavation area, a north-west- to south-east-aligned trackway (TRACKWAY 1) was established.

ENCLOSURE 1: DITCHES 1, 4 and 5
DITCH 1: Slot [381] fill (379)
5.6.2 DITCH 1 remained open, with upper fill (379) accumulating during this phase.

Ditch Slot [381] fill (379) was a compact mid greyish-brown silty sand 0.20 m deep, which contained a flagon handle (AD 50-100), two other undiagnostic body sherds and a small piece of kiln lining. The flagon handle, which is a kiln product, and the fired clay lining fragment, may have come from nearby and contemporary KILN 3.

DITCH 4: Slot [317] fills (330), (331) and (332)
5.6.3 DITCH 4 remained open and continued to demarcate the southern boundary of ENCLOSURE 1. Its middle and upper fills (330), (331) and (332) were deposited during this phase.

Ditch Slot [317] fills (330) and (331) consisted of firm mid orangey-brown sandy silt with frequent small chalk pieces. Neither contained finds and both represent a period of weathering and slumping of the natural geology from the sides of the open ditch. The final deposit in the ditch (332) was a dark brown clayey silt containing 29 sherds $(354 \mathrm{~g})$ of pottery, a piece of kiln lining and two pieces of horse bone. The pottery comprises flagons, jars and other closed forms that are not closely identifiable, and includes several probable kiln products including a jar (AD 40-80) with a wonky rim, possibly a kiln 'second' (see Anderson, Section 6.3). These finds are probably a combination of kiln waste from adjacent KILN 3 and dumped refuse from nearby settlement areas to the west.

## ENCLOSURE 2: DITCH 5

DITCH 5: Slot [278] fill (279), Slot [289] fills (288) and (287), Slot [350] and Slot [359]
5.6.4 DITCH 5 was curvilinear in plan and $29 m+$ long. It entered the excavation
area from the south-west and extended east-north-eastwards, turning to an east-south-eastward alignment approximately halfway along its exposed length and extending beyond the limit of excavation. It was positioned a few metres south of, and followed broadly the same course as, earlier DITCH 24, which it replaced as the northern boundary of ENCLOSURE 2. DITCH 5 cut KILN 2 and was cut by later DITCHES 14 and 18. Four slots were excavated at intervals along its length, which are described below from west to east.

Ditch Slot [278] had steep, fairly straight sides and a ' v '-shaped base and was 1.90 m wide and 0.80 m deep. Its basal fill was a thick layer of dark grey silt (279), deposited by water flowing along the base of the ditch, which contained oyster shell, eight fragments $(1290 \mathrm{~g})$ of kiln plate and 17 sherds $(224 \mathrm{~g})$ of mid- to late- $1^{\text {st }}$-century pottery, in a range of fabrics, including a flagon handle (probably a kiln product) and a necked, beaded jar. The kiln material is either associated with contemporary KILN 3 , 4.5 m to the west, or was residual from KILN 2, which was cut by DITCH 5 at this point. Fill (279) was overlain by fill (280), which was deposited during the next phase of early Roman activity (see below).

Ditch Slot [289] had moderately-steep, slightly stepped concave sides and a rounded base and was 2.75 m wide and 1.15 m deep (Plate 15). Its basal fill (288) comprised light brownish-grey clayey silt and small pieces of chalk, representing a combination of silting from water flowing along the base of the ditch and weathering from the ditch edges. This was overlain by a thin layer of friable brownish-yellow sand (287) which had slumped in from the north side of the ditch. The absence of finds and particularly kiln material in either lower fill suggests that the ditch was already in place before adjacent KILN 4 (see Early Roman III, below) was built. The middle and upper fills of Slot [289] ((286), (285), (284) and (286)) were deposited during the subsequent early Roman phase (see below).

Ditch Slot [350] was heavily truncated by DITCH 14 to the north and extended beyond the limit of the excavation area to the south. It appeared to have a moderately steep concave side; its base was not seen. Due to truncation, only one of its upper fills (349) was revealed and this is likely to date to the subsequent early Roman phase (see below).

Ditch Slot [359] was heavily truncated by DITCH 14 to the north and was mostly outside the limit of excavation to the south. It appeared to have a moderatelysloping concave side; its base was not seen. Due to the ditch extending beyond the limit of the excavation area, only one of its upper fills (358) was revealed and this is likely to date to the subsequent early Roman phase (see below).

## TRACKWAY 1: DITCHES 2 and 3

5.6.5 TRACKWAY 1 was located in the eastern part of the excavation area. It was aligned north-west to south-east and was defined by meandering parallel ditches (DITCHES 2 and 3) spaced 3-4m apart. These ditches were shallow and rooted at many points along their lengths and may either have been accompanied by hedgerows or actually have been the bases of hedges themselves. The reconstructed route of TRACKWAY 1 shown on Fig. 3 involves some conjecture based on the likelihood that these hedges had not always penetrated the natural geology. Whether the conjectured extent of the track is correct or not, the identified portions of its ditches nevertheless appeared to lead down towards the stream to the south of the site, although its construction could also have been connected with the need to transport fired pots off the site.

DITCH 2: Slots [371], [404], [195] and [364]
5.6.6 DITCH 2 was curvilinear and aligned broadly north-west to south-east. It was cut by numerous later features along its length. The surviving portion of the ditch began in the eastern part of the excavation area, where it was cut by DITCH 8, and extended south-eastwards before being cut by DITCHES 19 and 11. It then cut through the infilled stokehole of KILN 1 and PIT 3, before being cut by DITCH 6. In total, the surviving part of the ditch was 26 m long. Particularly in its northern parts, DITCH 2 was shallow and poorly-defined and could have been the base of a hedge rather than a ditch. A conjectural reconstruction of its full original extent is shown on Fig. 3. Four slots were excavated at intervals along its length. Few finds were present so the ditch has been phased mainly on the basis of its stratigraphic relationships with KILN 1, PIT 3 and DITCH 6.

Ditch Slot [371] had a moderately-steep irregular side to the east and a flattish undulating base and measured $1.10 \mathrm{~m}+$ wide and 0.22 m deep. It was filled with fairly firm mid greyish-brown sandy, slightly clayey silt (372) which contained 17 sherds $(169 \mathrm{~g})$ of pottery including parts of a beaded rim jar and a flagon handle, the latter a probable kiln product. These finds may have been intrusive from later Ditch Slot [135] (DITCH 8), which cut the west side of DITCH 2 at this point, as there was no contemporary kiln located close to Ditch Slot [371].

Ditch Slot [404] had a fairly straight side to the east; its base did not survive. It measured $0.33 \mathrm{~m}+$ wide and 0.20 m deep. It was filled with compact redeposited pale to mid grey chalk and small flint gravel (403) which contained no finds. It was cut by Ditch Slot [158] (DITCH 8) to the west.

Ditch Slot [195] had steep straight sides and a flat base and measured 0.84 m wide and 0.23 m deep. It was filled with fairly loose dark greyish-brown silty sand with frequent flint gravel inclusions (196) which contained 20 sherds $(261 \mathrm{~g})$ of pottery (c. AD 40-80), in a range of fabrics, and including flagon and jar sherds, some of which are probable kiln products. Much of this pottery was residual from KILN 1, which was cut by DITCH 2 at this point. A few kiln lining fragments were also present.

Ditch Slot [364] had moderate concave sides and a rounded base and measured 0.90 m wide and 0.23 m deep. It was filled with firm dark brownish-grey sandy silt (363) which contained no finds. It cut PIT 3.

DITCH 3: Slots [366], [63], [368], [370], [396], [138] and [160]
5.6.7 DITCH 3 was curvilinear and aligned approximately north-west to south-east, entering the excavation area from the north-west and extending broadly south-eastwards for 45 m before being cut by DITCH 19. As discussed above, DITCH 3 was shallow, irregular and rooted; it is possible that it was actually the base of a hedge. It is conjectured (based on the continuation of parallel DITCH 2) to have originally continued further south-eastwards (see Fig. 3) but to have not left any trace. Approximately halfway along its exposed length it was cut by KILN 5 and the terminus of DITCH 9, a later replacement of part of DITCH 3. Seven slots were excavated at intervals along the ditch. Few finds were present so the ditch has been phased on
the basis of stratigraphic relationships and its apparent spatial association with DITCH 2.

Ditch Slot [366] had fairly steep concave sides and a rounded base and measured 0.61 m wide and 0.17 m deep. It was filled with a moderately compact mid brownishgrey sandy silt (365) which contained no finds.

Ditch Slot [63] (Trial Trench 2) had a steep rounded profile and measured 0.60 m wide and 0.27 m deep. It was filled with mid greyish-brown firm sandy clay (64) which contained residual struck flint, a fragment of animal bone and one sherd of $1^{\text {st }}$-century AD pottery.

Ditch Slot [368] had shallow, diffuse sides and a concave base and measured 0.72 m wide and 0.16 m deep. It was filled with fairly loose mid brownish-grey sandy silt (367) which contained a fragment of cattle skull and a sheep radius.

Ditch Slot [370] had shallow concave sides and a rounded base and measured 0.55 m wide and 0.09 m deep. It was filled with friable mid greyish-brown sandy silt (369) which contained no finds. DITCH 3 was cut by KILN 5 at this point.

Ditch Slot [396] had a moderately-sloping rounded side to the north and a flattish/ rounded base and measured 0.63 m wide and 0.15 m deep. It was filled with fairly firm mid to dark greyish-brown sandy silt which contained six sherds of residual probable Neolithic pottery (see Brudenell, Section 6.2). The south side of DITCH 3 was cut by DITCH 9 (Slot [399]) at this point.

Ditch Slot [138] had a shallow, irregular side to the west, a steep rounded side to the east and a flattish base and measured 0.86 m wide and 0.20 m deep. It was filled with mid brownish-grey illuviated clayey sand (139) which contained two residual struck flint flakes.

Ditch Slot [160] had moderately-sloping, slightly irregular rounded sides and a concave base and measured 1.17 m wide and 0.25 m deep. It was filled with firm dark orangey-brown clayey sand (161) which contained a residual Mesolithic to Early Neolithic flint blade.

KILN 3 ([229]; fills (340), (299), (316), (300), (298), (297), (248), (246), (247), (245))
5.6.8 KILN 3 ([229]) was located in the south-west corner of the excavation area, within ENCLOSURE 1 (Plates 16-18). It was cut by small later DITCH 15. It was a 'keyhole' shape in plan, measuring 1.83m long, 0.86m (max.) wide and 0.36 m deep, and aligned east to west. A linear stokehole with steep concave sides and a slightly 'bulbous' east end ( 0.91 m long $\times 0.44 \mathrm{~m}$ wide (max.) $\times 0.30 \mathrm{~m}$ deep) extended westwards into a circular kiln chamber ( 0.78 $x 0.75 \mathrm{~m}$ wide at the base $\times 0.36 \mathrm{~m}$ deep) with near-vertical sides and a flattish base, which sloped down gently to the west, possibly a result of repeated raking-out of the chamber floor between firings. The kiln chamber and the first c. 0.25 m of the stokehole extending away from it had a clay lining up to 7 cm thick (340), which had been fired hard (vitrified) and had a pale orange colour on its exposed surfaces but was oxidised red and was slightly softer (more 'crumbly') a few centimetres back from the surface. Extending out from the rear edge of the kiln chamber and across its full width was an elongated 'tongue'-shaped fired clay pedestal, constructed at the same time as, and integral to, the kiln lining. The central part of the pedestal had been destroyed by DITCH 15.
5.6.9 The earliest deposit within the kiln was a pocket of ash (299), preserved in a dip in the north-west corner of the kiln chamber floor, and representing the remnant of an early firing which had otherwise been raked out of the chamber. Although it had no direct stratigraphic relationship with (299), a silty clay layer (316) sealing the kiln chamber floor on the south side of the tongue pedestal appears from its relative level to have been a later deposit and to represent a brief period of disuse when the kiln chamber was open to the elements in between firings. This was in turn sealed by another black ash firing deposit (300), which extended across the southern half of the kiln chamber and along the full length of the stokehole (Plate 16). There was then another short period when the kiln was open to weathering and a layer of washed-in silt accumulated (298), after which the flue - where the stokehole and kiln chamber met - appears to have been deliberately blocked with a wall made from fired/ vitrified clay lining fragments (297) packed tightly
together (Plate 16). This deliberate blocking of the flue probably took place during the kiln's final firing, sealing the burning fuel and kiln load in the chamber. That this firing failed is suggested by the composition of the next dumped layer filling the stokehole (248), which was a mixture of ash and puddled yellow unfired clay, perhaps representing a combination of burnt fuel and the raw clay from the unfired kiln load.
5.6.10 The kiln chamber was then left to silt up for a time (layer (246), which also contained two broken kiln plate fragments) before elements of the fired clay kiln lining ( $2.9 \mathrm{~kg}+$ present) and structure collapsed (247) into the kiln chamber and stokehole. The remaining hollow in the top of the kiln then continued to fill with washed-in silt (245) before DITCH 15 was dug through it.
5.6.11 Although the total pottery assemblage from KILN 3 is the smallest from any of the kilns ( 72 sherds weighing 616 g ), almost all the material is definite or probable kiln produce.

### 5.7 Period 3.3: Early Roman III

5.7.1 This was the most intensive phase of early Roman activity at the site, with two of the identified kilns likely to have been in use, evidence for maintenance and redefinition of the existing infield enclosures, the creation of at least one additional adjoining enclosure, and changes to the trackway that had been established during the previous phase.
5.7.2 ENCLOSURE 1 was modified, its eastern boundary (formerly DITCH 1) being shifted slightly eastwards, realigned and demarcated by new DITCH 7. The southern boundary of ENCLOSURE 1 (previously demarcated by DITCH 4, which had by now filled in) now lay outside the limit of the excavation. It is possible that DITCHES 20 and 21 (Un-phased Early Roman Features; see below), identified in Trial Trench 2 but not seen during the excavation, formed some kind of subdivision within the enclosure. A new kiln, KILN 4, was constructed inside ENCLOSURE 2, which continued to be bounded on its north side by DITCH 5; large dumps of wasters and kiln material from KILN 4 were present in the middle and upper fills of the
adjacent slot through DITCH 5. A new curvilinear enclosure (ENCLOSURE 3), bounded to the north by DITCH 6 and extending southwards beyond the excavation area, was added to the east side of ENCLOSURE 2. To the north of this, the conjectured former route of TRACKWAY 1 was blocked by DITCH 11, which in conjunction with new DITCH 8 appeared to redirect the track to a narrow eastward route. KILN 5, the largest of those found on the site, was built over part of the former western trackway boundary ditch (DITCH 3). The affected section of the trackway boundary was replaced by DITCH 9, which contained dumps of discarded kiln material in those slots which lay adjacent to KILN 5.

ENCLOSURE 1: DITCHES 7 and 5
DITCH 7: Slot [296] fills (295) and (294), Slot [306] fills (304), (303) and (302) and Slot [100] fill (328).
5.7.3 DITCH 7 entered the excavation area from the north-west and extended south-eastwards for 28 m before being cut by DITCH 14. It is thought to have originally intersected with DITCH 5, although it is equally possible that there was a gap or entrance into the enclosure in this corner. Around halfway along its exposed length, DITCH 7 was also cut by later Roman DITCH 19. Three slots were excavated through the ditch at intervals.

Ditch Slot [296] had steep, slightly convex sides and a flat base and measured 2.07 m wide and 0.85 m deep. Its lowest fill was a thin layer of compact light yellowish-brown sand with frequent chalk (295), representing weathered and slumped material from the north side of the ditch. No finds were present. This was overlain by a 0.30 m deep deposit of firm dark grey sandy silt (294) which contained two sherds $(30 \mathrm{~g})$ of mid- to late-1 ${ }^{\text {st }}$-century AD pottery (AD 40-70). The upper fill of the ditch (293) was probably deposited during the subsequent phase (see below).

Ditch Slot [306] had steep straight sides and a flat base and measured 1.52 m wide and 0.68 m deep. Its basal fill was a thin layer of compact weathered chalk in a silty matrix (304). This was overlain, on the north side of the ditch, by a layer of firm dark grey clayey silt (303). The next fill (302) was a firm mid grey clayey silt up to 0.62 m deep. None of these fills contained any finds. The upper fill of the ditch (301) is likely to have been deposited during the next phase of early Roman activity
(see below).

Ditch Slot [100] had slightly convex sides and a flat base and measured 2.26 m wide and 0.70 m deep (Plate 19). Its lower fill (328) was a firm dark greyish-brown clayey silt, probably deposited by water running into and along the base of the ditch. It contained 12 small sherds of early Roman pottery (AD 40-70) in fine sandy fabrics. The overlying fill (101) is likely to have been deposited during the next phase (see below).

## ENCLOSURE 2: DITCH 5

DITCH 5: Slot [278] fills (280) and (353), Slot [289] fills (286), (285), (284) and (268), Slot [350] fill (349) and Slot [359] fill (358)
5.7.4 DITCH 5 remained in use as the northern boundary of ENCLOSURE 2 and the south-eastern boundary of ENCLOSURE 1. The middle and upper fills of Slot [289] contained large quantities of dumped kiln-related pottery from adjacent KILN 4. These were presumably vessels which had either not survived the firing process intact or which were broken during removal of the kiln's temporary superstructure to access the kiln load.

Ditch Slot [278] middle fill (280) was a deep accumulation of orangey-grey clayey silt (280) containing 33 sherds of pottery, including 27 sherds ( 389 g ) from a buffsurfaced sandy ware flagon (AD 50-80), probably a kiln product. The final fill of Slot [278] was a layer of compact chalk up-cast (353) from the digging of adjacent DITCH 14, a later replacement of DITCH 5. This layer of chalk up-cast was sporadically present across the central southern edge of the site, infilling the tops of any earlier features which were still partially open (including DITCH 5 Slot [289] and KILN 4; see below).

Ditch Slot [289] fill (286) was a layer of sandy silt and weathered chalk containing lenses of ash, kiln lining fragments (798g), mid- to late-1 ${ }^{\text {stt }}$-century early Roman pottery ( 26 sherds; 267 g ) and four pieces of animal bone (including cattle and horse). Above (286) were two further successive sandy silt layers (285) and (284). Both contained large dumps of kiln material, most likely to be from KILN 4, which was located immediately south of this slot. Fill (285) contained a large assemblage ( 104 sherds; 857 g ) of kiln-related pottery; a few fragments of kiln lining $(348 \mathrm{~g})$ were also present. With the exception of the kilns, fill (284) contained one of the largest assemblages of pottery from anywhere on the site, consisting of 281 sherds
(2.8kg+), mainly from jars and flagons in buff-surfaced and whiteware fabrics, and nearly all definite kiln products. Dumped kiln lining fragments (1607g) were also present. The final fill in the top of the infilled ditch was a layer of natural chalk upcast (268) from the digging of adjacent DITCH 14, which replaced DITCH 5.

Ditch Slot [350] fill (349) was a light yellowish-grey silty sand which contained three sherds of early Roman pottery. It was the only identified fill of Ditch Slot [350], the feature having been heavily truncated by DITCH 14 (Slot [348]) and extending beyond the limit of the excavation area.

Ditch Slot [359] fill (358) was a loose light yellowish-grey silty sand which contained no finds. It was the only identified fill of Ditch Slot [359], the feature mostly lying outside the southern limit of the excavation. It was cut by DITCH 14 to the north.

## ENCLOSURE 3: DITCH 6

DITCH 6: Slot [48] fills (69) and (68), Slot [216] fills (235)=(239) and (236=240), Slot [213] fills (212) and (211), and Slot [202] fills (219) and (218)
5.7.5 DITCH 6 was broadly linear in plan and aligned east-north-east to west-south-west. It was $30 \mathrm{~m}+$ long, extending beyond the excavation area in both directions. Towards both ends, particularly to the west, it curved southwards, apparently enclosing an area largely outside the excavation (ENCLOSURE 3). Its west end was cut by DITCH 14 but it is thought to have originally intersected with DITCH 5 . Four slots were excavated at intervals along its length.

Ditch Slot [48] (Trial Trench 2) had slightly stepped concave sides and a rounded base and was 1.98 m wide and 0.91 m deep. Its basal fill was a light grey weathered chalky clay (69), which was overlain by a mid grey silty clay (68). Upper fills (67) and (49) are likely to date to the next phase of early Roman activity.

Ditch Slot [216] was 3.02 m wide and 1.33 m deep with steep straight sides breaking to a flattish base. It contained five fills (from basal to uppermost): (235)=(239), $(236)=(240),(237)=(241),(255)=(242)=(217)$ and $(238)=(243)$. The basal fill was a dark grey sandy silt containing fine flint gravel and charcoal (235)=(239), which contained nine fragments of animal bone (mainly cattle) and probably represents a
combination of silting from water running along the base of the ditch and some accumulation of waste material from adjacent settlement areas. Above this was a light to mid grey clay with fine flint gravel (236)=(240), representing the residue from water running along the ditch; it contained no finds. The middle and upper fills of the ditch are likely to relate to the next phase of early Roman activity (see below).

Ditch Slot [213] was 2.52 m wide and 1.04 m deep with steep ' v '-shaped sides breaking to a steeper-sided, flat-based channel in the base of the ditch. It contained five fills (from basal to uppermost): (212), (211), (210), (401) and (221). The basal fill was a light brownish-grey silty sand with frequent small to mediumsized chalk lumps and flints (212), representing a combination of silt from water running along the base of the ditch and weathered and slumped material from the ditch sides. It contained two fragments of cattle bone, six sherds (172g) from a shell-tempered jar and a large pottery sherd in sand-tempered fabric with black slip; both are of mid- to late- $1^{\text {st }}$-century AD date. Above this was a mid orangey-grey silty sand with moderate chalk inclusions (211), which contained two sherds of early Roman pottery and two or three pieces of sheep bone and probably represents slumped natural material from the sides of the open ditch. The subsequent fills of the ditch are likely to have been deposited during the next phase of early Roman activity (see below).

Ditch Slot [202] had steep, ' v '-shaped sides breaking to a vertical-sided and flatbased channel in the base of the ditch (Plate 20). It was 2.20 m wide and 0.94 m deep. It contained six fills (from basal to uppermost): (219), (218), (201), (200), (199) and (198). The basal fill was a light brownish-grey silty sand with frequent small to medium-sized chalk lumps and flints (219), probably representing a combination of silt from water running along the base of the ditch and weathered and slumped material from the ditch's sides. It contained two sherds ( 62 g ) of early Roman pottery and animal bone (a cattle humerus and another cattle-sized bone fragment). Above this was a light yellowish-grey silty sand (218) containing two fragments of animal bone including a sheep tibia. It represents weathered and slumped material from the sides of the open ditch. The middle and upper fills of the ditch were probably deposited during the next phase of early Roman activity (see below).

DITCH 11: Slots [120], [52] and [291]

### 5.7.6 DITCH 11 was 40 m long and orientated west-south-west to east-north-east,

positioned between 4 and 5.5 m north of DITCH 6 and aligned parallel with it. Its north side was truncated along almost its full length by later Roman DITCH 19. To the west, DITCH 11 terminated close to (within c. 1 m ) the east end of DITCH 12, which then curved south-westwards for 7 m towards DITCH 5. This relationship may indicate that DITCHES 11 and 12 were contemporary and together formed a boundary extending off DITCH 5. Between 1.5 and 3 m north of DITCH 11, the eastern half of DITCH 8 extended east-north-eastwards on a parallel alignment, with both ditches terminating at roughly the same point. Together, they formed a trackway, realigning earlier TRACKWAY 1, which had been blocked by DITCH 11. Three slots were excavated through DITCH 11. As its eastern half only became visible after it had been exposed to weathering for a month, its eastern terminus was not excavated.

Ditch Slot [120] had shallow concave sides and a flat base and measured $1.26 \mathrm{~m}+$ wide and 0.13 m deep. It was filled with firm mid greyish-brown silty clay with gravel inclusions (119) which contained no finds. It was truncated by DITCH 19 Slot [122] to the north.

Ditch Slot [52] (Trial Trench 2) had moderate rounded sides and a concave base and measured 0.70 m wide and 0.15 m deep. It contained a single fill of firm brownish-grey silty clay (53).

Ditch Slot [291] had steep concave sides and a flattish base and measured $0.82 \mathrm{~m}+$ wide and 0.37 m deep. Its lower fill was a loose mid greyish-brown sandy silt with frequent large ( $<90 \mathrm{~mm}$ ) flints (292), which contained no finds. Its upper fill was a mid orangey-brown sandy silt (354) which contained a fragment of horse bone and six sherds of early Roman (AD 50-80) pottery. It cut DITCH 2 Slot [195] to the south and was itself truncated by DITCH 19 Slot [131] to the north. The large quantity of flints in fill (292) stood out during excavation and can be interpreted either as a result of the ditch passing through a particularly gravelly patch of natural geology at this location or a deliberate dump of flints from field clearance.

DITCHES 12 and 13: Slots [244], [388] and [386]
5.7.7 DITCHES 12 and 13 were continuations of the same ditch. It was curvilinear
in plan and orientated approximately south-west to north-east. In total, it extended for 7 m from the north side of DITCH 14 and ended in a rounded terminus close to the west end of DITCH 11, with which it may have formed a boundary. It also deepened to the south-west, possibly to help act as a drainage channel into the larger enclosure ditches to the south. It was cut to the south by DITCH 14 but is thought to have originally intersected with DITCH 5 slightly further to the south. The area in between DITCHES 12 and 13 was obscured by truncation from later PIT 5 and Tree Hollow [274]. Three slots were excavated.

Ditch Slot [244] had moderate to steep concave sides and a rounded base and measured 1.20 m wide and 0.45 m deep. It was filled with light yellowish-grey silty sand (254), which contained five fragments of animal bone (including cattle and sheep), five sherds $(16 \mathrm{~g})$ of pottery from a necked, beaded jar and a small amount of kiln lining ( 31 g ).

Ditch Slot [388] had moderate concave sides and a rounded base and measured 0.53 m wide and 0.08 m deep. It was filled with fairly compact mid greyish-brown silty sand (387) which contained no finds.

Ditch Slot [386] was the rounded north-eastern terminus of DITCH 12. It had moderately-sloping sides and a concave base and measured 0.60 m wide and 0.17 m deep. It had a single fill (385) of fairly compact mid greyish-brown silty sand which contained no finds.

DITCH 8: Slots [177], [143], [135], [117], [158], [129], [109] and [352]
5.7.8 DITCH 8 began in an elongated terminus in the north-east of the excavation area. It extended south-eastwards for 24 m before turning sharply to an east-north-east alignment parallel with DITCH 11, $1.5-3 \mathrm{~m}$ to the south, and continuing for a further 23 m before terminating. It appeared to form the east side of a north-west to south-east-aligned trackway which curved eastwards as it continued south, defined to the west by the retained southern part of DITCH 3 and to the south by DITCH 11. In its northern section, DITCH 8 followed the same course as and cut earlier DITCH 2; in its south-eastern part it was cut by later Roman DITCH 19. Seven slots were excavated at
intervals along its length.

Ditch Slot [177] was the north-western terminus of DITCH 8. It had steep to nearvertical concave sides and a flat base and measured 0.68 m wide and 0.26 m deep. Its lower fill was a loose mid yellowy-brown sandy clay with frequent gravel (178). Its upper fill was a mid greyish-brown sandy clay (179). Neither fill contained any finds.

Ditch Slot [143] had moderate to steep sides and a concave base and measured 1.93 m wide and 0.45 m deep. Its east side was heavily-rooted. It contained three fills (from basal to uppermost): (142), (141) and (140). The basal fill was a firm light greyish-white chalk (142) which contained no finds and represents weathered and slumped material from the sides of the open ditch. Above this was a compact dark orangey-brown illuviated silty clay (141) which contained no finds. The upper fill of the ditch was a loose mid greyish-brown silty sand with frequent small flints (140) which contained eight sherds ( 24 g ) of early Roman pottery (AD 40-70).

Ditch Slot [135] had fairly steep concave sides and a rounded base and measured 1.14 m wide and 0.40 m deep. Its lower fill was a firm light grey clayey sand with frequent flint inclusions (136), which contained three sherds (12g) of early Roman pottery, two pieces of animal bone and a small amount of kiln lining. It was probably a combination of weathered natural material from the ditch edges and illuviation of sandy silt deposited by water flowing along the ditch base. The upper fill was a loose dark brown sandy silt (137) containing two sherds of an early Roman (AD 30-70) butt beaker and five sherds from a buff-surfaced flagon, eight pieces of animal bone (including cattle, sheep and horse) and a small amount of kiln lining. This fill was probably the result of natural silting-up and some dumping of rubbish.

Ditch Slot [117] was underneath [135]. It was recorded as a possible earlier cut of the ditch but as no evidence for a recut was seen in any of the other slots, it may simply be that the lower portion of the ditch had a different profile. Ditch Slot [117] had steep to near-vertical straight sides and a flat base and measured 0.45 m wide and 0.25 m deep. It contained a single fill of light brown sandy silt with frequent weathered chalk and flint gravel inclusions (118), which contained two sherds (32g) of early Roman pottery.

Ditch Slot [158] had moderately steep rounded sides and a concave base and measured 1.17 m wide and 0.29 m deep. It contained a single fill of mid greyish to orangey-brown silty sand with frequent flint gravel (159) which contained 35 sherds ( 507 g ) of mid- to late- $1^{15 \text { st}}$-century pottery including 24 sherds ( 414 g ) from a sandtempered necked jar with an everted, thickened rim, four residual Mesolithic to Early Neolithic struck flints (including three blades), 166g of kiln lining and two fragments of bone from a cattle-sized animal. The pottery and kiln lining were in the top of the fill and are likely to have been dumped during the use of adjacent KILN 6 in the next early Roman phase.

Ditch Slot [129] had a steep rounded north side and a fairly flat base and measured $0.90 \mathrm{~m}+$ wide and 0.23 m deep. It was truncated by DITCH 19 Slot [131] to the south. It was filled with a mid greyish-brown sandy silt with common medium-sized flints (130), which contained two residual flint blades and two sherds ( 6 g ) of mid- to late-1 $1^{\text {st }}$-century pottery including one from a jar decorated with tooled horizontal lines.

Ditch Slot [109] had steep rounded sides and a flat base and measured 0.49 m wide and 0.15 m deep. It was filled with loose dark greyish-brown silty sand which contained no finds (108).

Ditch Slot [352] was the eastern terminus of DITCH 8. It had shallow concave sides and a rounded base and measured 0.70 m wide and 0.11 m deep. It was filled with loose mid orangey-brown sandy silt (351) which contained no finds.

DITCH 9: Slots [185], [321], [38], [144] and [399]
5.7.9 DITCH 9 was a re-cut of the western part of earlier trackway DITCH 3, which had been truncated halfway along its exposed length by the construction of KILN 5 (see below). The south-eastern part of DITCH 3 may have been retained, continuing to form the western boundary of a realigned trackway with parallel DITCH 8 (see Fig. 3). DITCH 9 was linear in plan, 29m+long, and aligned broadly west-north-west to east-south-east, although it was slightly meandering in its alignment, possibly because it followed a hedgeline. It extended beyond the excavation area to the west; to the east it terminated a few metres past the point where KILN 5 had cut DITCH 3. Five
slots were excavated along its length. The three eastern slots contained large assemblages of broken pottery apparently thrown into the open ditch while KILN 5 was in use.

Ditch Slot [185] had steep rounded sides and a concave base and measured 0.87 m wide and 0.25 m deep. It was filled with fairly compact mid greyish-brown sandy silt (186) which contained 11 small sherds of early Roman pottery and four pieces of animal bone (two of cattle). Ditch Slot [185] cut Middle Iron Age PIT 2.

Ditch Slot [321] had fairly steep rounded sides and a flattish base and measured 0.87 m wide and 0.23 m deep. It was filled with mid brownish-grey sandy silt with localised charcoal lenses (322) which contained 161 g of kiln lining. It cut Neolithic PIT 1.

Ditch Slot [38] (Trial Trench 2) had steep straight sides and a flat base and measured 0.90 m wide and 0.45 m deep. It was filled with firm pale greyish-brown silty sand (39) which contained a large assemblage of early Roman pottery (108 sherds; 667g).

Ditch Slot [144] was adjacent to KILN 5. It had steep rounded sides and a rounded base and measured 0.81 m wide and 0.35 m deep. Its basal fill was a mid brown clayey sand (171) containing a fragment of animal bone and kiln lining (116g). It was overlain by a localised dump of charcoal (146), present in the central part of the slot, which contained 23 sherds of pottery, including 17 ( 289 g ) from a sandtempered necked, beaded jar. Kiln lining (251g) and four fragments of animal bone (including a horse radius and a sheep humerus) were also present. The upper fill of the ditch was a mid brown sandy silt (145) containing 135 sherds (1681g) of dumped mid- to late-1 $1^{\text {st }}$-century pottery, including large parts of several jars and flagons made in the kilns.

Ditch Slot [399] had steep rounded sides and a flat base and measured 0.98 m wide and 0.43 m deep. Its lower fill was a mid yellowish-brown silty sand (398) with abundant small flint gravel, which contained 122 sherds ( 967 g ) of pottery including large portions of a buff-surfaced flagon and a sand-tempered jar with combed decoration. Several are definite kiln products. A fragment of animal bone and a kiln plate fragment were also present. The upper fill was a firm mid to dark greyishbrown sandy silt (397) and is likely to post-date the use of adjacent KILN 5.

DITCH 10: Slots [307] and [309]
5.7.10 DITCH 10 was 2 m north of DITCH 9 and followed the same alignment. It extended eastwards from the western boundary of the site for 10 m before terminating. It was similar in size and morphology to the other ditches associated with TRACKWAY 1 and was probably also related to it.

Ditch Slot [307] had fairly steep rounded sides and a flattish base and measured 0.60 m wide and 0.24 m deep. It was filled with mid brownish-grey sandy silt (308) which contained no finds.

Ditch Slot [309] had steep rounded sides and a rounded base and measured 0.61 m wide and 0.15 m deep. It was filled with compact mid brownish-grey sandy silt (310) which contained no finds.

KILN 4 ([258]; fills (342), (341), (339), (312), (327), (283), (313), (290), (282), (311), (266), (265), (267), (223))
5.7.11 KILN 4 ([258]) was located in the south of the excavation area inside ENCLOSURE 2 (Plates 21-22). It was truncated on its north side by late Roman DITCH 18. The kiln was 'keyhole'-shaped in plan, aligned east to west with the oven chamber to the west and stokehole to the east, and measured a maximum of 2.29 m long, 1.27 m wide and 0.41 m deep. In contrast to KILNS 1, 2 and 3, its stokehole was circular in plan (dimensions: 1.27 m across and 0.41 m deep), with steep concave sides and a flattish base which sloped down slightly to the west. To the west, the stokehole joined a broadly circular kiln chamber ( $0.60 \mathrm{~m} \times 0.75 \mathrm{~m}$ wide at the base and 0.35 m deep) which had steep concave sides and a flat base; the floor of the kiln chamber was stepped up a few centimetres higher than the stokehole. The kiln chamber walls and the flue where the chamber joined the stokehole were lined with clay (342) up to 20 cm thick, which was vitrified by firing to a pale orange colour on its exposed surfaces. The clay also formed an integral vertical-sided pedestal which extended east for 0.50 m from the rear wall of the kiln chamber.
5.7.12 The earliest fill of KILN 4 was a thin layer of dark red/ black ashy clay (341)
present on the north side of the flue and representing an episode of firing which had otherwise been entirely raked-out. It was overlain by a loose pale grey silty clay and gravel (339), which contained a small assemblage of pottery ( 15 sherds weighing 180 g , much of it kiln-related) and represents a combination of collapse from the edges of the stokehole and surface material washed-in during a short period of disuse. Layer (339) was only present around the edges of the stokehole. This episode of disuse was followed by the re-lining of the sides of the flue with compact (subsequently vitrified) yellow clay $c .10 \mathrm{~cm}$ thick (312). The kiln was then re-fired at least once, leaving a 0.10 m deep layer of black ash (327) in the flue and stokehole. KILN 4 was thus used at least twice, with an episode of repair between the firings.
5.7.13 The deposition of ash layer (327) was followed by the disuse of the kiln. The next deposit across the stokehole and kiln chamber was a dumped layer of loose dark greyish-brown silty clay (313)=(283) containing charcoal, kiln waste and demolition debris, including 3.2 kg of kiln lining, three fragments of kiln plate and 28 sherds $(266 \mathrm{~g})$ of pottery. On the north side of the kiln chamber, this was overlain by the collapsed/ demolished upper part of the kiln's central pedestal (290), which was overlain in turn, across the chamber, by a deposit of fired/ vitrified kiln lining fragments (282) (3.1kg+ recovered). The next deposit in the disused kiln, consisting of firm mid yellowy-brown clayey silt (311), was present in the flue and part of the kiln chamber. It contained four sherds of pottery from possible kiln products and kiln lining fragments (1281g). It might have been a dump of potting clay or clay intended for use in kiln repairs. It was overlain by a layer of washed-in mid to dark grey silty clay (266), in turn sealed by a deposit of compact yellowbrown sandy clay with frequent chalk inclusions (265), probably dumped to level the ground where the kiln had been. A final washed-in grey silt deposit (267), probably the result of flooding from the stream to the south of the site, was present in the end of the stokehole. The infilled kiln was entirely sealed by a layer of chalk up-cast (223) from the digging of adjacent DITCH 14, which also overlaid much of DITCH 5. Layers (266), (265) and (267) together contained a few fragments of kiln lining and a fairly large
assemblage of kiln-related pottery including numerous flagon sherds in sand-tempered buff-surfaced and whiteware fabrics.
5.7.14 Although KILN 4 contained relatively little pottery compared with some of the other excavated kilns, large dumps of kiln products and waste were found in the adjacent slot through enclosure DITCH 5 (see above). All of the ringnecked flagons from the site came from this ditch dump and from nearby PIT 5, which is thought to contain demolition material from KILN 4 (see below). This suggests that KILN 4 alone was used for the firing of ring-necked flagons (see Anderson, Section 6.3).

KILN 5 ([153]; fills (207), (194), (181), (183), (175), (182), (197), (208), (193), (188), (206), (180), (204), (184), (167), (168))
5.7.15 KILN 5 ([153]) was located in the north of the excavation area beside DITCH 9 (Plates 23-29). It was 'keyhole'-shaped in plan, with overall dimensions of 2.78 m long, 1.56 m wide and 0.58 m deep. A circular stokehole (dimensions: $1.56 \times 1.48 \mathrm{~m}$ wide $\times 0.45 \mathrm{~m}$ deep) at the east end of the kiln fed into a circular kiln chamber (dimensions: $0.90 \times 0.82 \mathrm{~m}$ wide at the base $\times 0.58 \mathrm{~m}$ deep) to the west. The stokehole had steep concave sides and a flattish base which sloped down slightly towards the flue and kiln chamber, possibly due to repeated raking-out, while the kiln chamber had steep straight to near-vertical sides and a flat base. The kiln chamber was lined with a layer of clay up to 0.24 m thick (181), which had vitrified to a pale brownish-orange colour on its exposed surfaces but was a darker reddish-brown a few centimetres further away from the source of heat. The kiln chamber lining had an integral ledge $2-4 \mathrm{~cm}$ deep, approximately 0.31 m up from the kiln chamber floor, into which the outside edge of the kiln plates forming the suspended floor would have slotted (Plate 27). Where the kiln chamber joined the stokehole, the clay lining also formed a surviving flue arch (Plate 26). A roughly rectangular vitrified/ fired clay pedestal (194) (dimensions: 0.42 m long $\times 0.28 \mathrm{~m}$ wide $\times 0.24 \mathrm{~m}$ high) was positioned centrally within the kiln chamber.
5.7.16 Uniquely among the kilns on the site, KILN 5 had evidence for originally having had a different layout. The lower part of the stokehole had a
surviving clay lining (207), up to 0.16 m thick and $11-13 \mathrm{~cm}$ high, which had been fired fairly hard and changed to yellowish-orange in colour but had not vitrified (Plate 28). This indicates that the stokehole (east end) of KILN 5 was originally the kiln chamber and the kiln chamber (west end) was originally the stokehole. The reason for the reversal of the kiln's original layout is not known but two factors can be suggested. First, the original kiln chamber would have been very large at c. 1.28 m wide at the base, far in excess of the average c. 0.80 m at base of the other kiln chambers. This may have been too large to function effectively, a possibility perhaps reinforced by the fact that the lining (207) had not fired to the same extent as in the other kiln chambers (although this could also be the result of a shorter period of use). Secondly, there was a general trend in the later kilns on the site for the stokehole to face east, away from the prevailing wind. It may be that west-facing stokeholes, as originally present in KILN 5, had too much up-draught.
5.7.17 The earliest fill of the kiln was a thin layer of black silty clay and ash (183) in the lowest part of the flue. This was overlain by a brownish-grey ashy clay deposit (197) filling the kiln chamber, which had built up around the central pedestal. The two deposits do not necessarily represent different firing events, layer (183) possibly simply representing the illuviated lower part of fill (197) at the interface with the natural chalk. At the same stratigraphic level as (197) in the flue and stokehole was dark grey/ black silty clay and ash layer with a higher charcoal content (208). These deposits represent the remains of one or more firings of the kiln. That the kiln was fired several times after its layout was reversed is suggested by the positions of several kiln plates which lay in-situ where they had fallen: several had fallen before (197) built up around them. Additionally, a repair had been made at some point to the top of the north wall of the kiln chamber ((175) and (182)), utilising recycled fragments of kiln lining and some fresh clay; the hardening and discolouration of this area of repair indicates that the kiln was re-fired at least once after it was made. The north wall of the kiln chamber was probably always a weak point: as the west end of the kiln had originally been the stokehole, the construction cut was too large at this end and when it was
converted into the kiln chamber, the chamber lining was built as a partly freestanding wall on the north side, with a void behind. Layer (197) contained a very large group of broken kiln plates, a few in positions that suggest they lay where they had fallen, others broken and discarded. A large amount of pottery, mainly flagons in sand-tempered whiteware and buff-surfaced fabrics, was also present. A similar, though smaller, pottery assemblage was recovered from fill (208).
5.7.18 Fills (197) and (208) were overlain by a dense dump of broken pottery and kiln furniture from the kiln's final firing (193) (Plate 29). Further large kiln plate and pottery assemblages, the latter of similar composition to that in (197) but including more jar sherds alongside the broken flagons, were present in this layer. It was sealed by a further dump of broken and discarded pottery and kiln material (188), this containing a markedly larger proportion of kiln lining fragments $(4.9 \mathrm{~kg})$ and deriving at least partly from the demolition of elements of the kiln structure. Layer (206), at the same stratigraphic level in the stokehole, was a dump of kiln lining/ structural fragments from the same demolition 'event'.
5.7.19 Following this phase of dumping and demolition after the kiln's final firing, the upper parts of the kiln chamber and stokehole were left to weather and siltup naturally. The first of these layers was a fairly firm mid greyish-brown silty sand (180)=(204) containing $5 \mathrm{~kg}+$ of weathered and collapsed kiln lining. Above this, in the stokehole, was a localised patch of charcoal and burnt clay (184), possibly the remains of a temporary fire made in the remaining hollow of the largely infilled kiln. The uppermost fill was a 0.25 m deep accumulation of mid greyish-brown silty sand (167)=(168). The quantity of discarded kiln-related pottery in these final fills suggests that pottery manufacture was still going on in the vicinity after the disuse of KILN 5, presumably in nearby KILN 6.
5.7.20 The fills of KILN 5 contained fragments from at least 28 kiln plates, the largest group found on the site (see Marter Brown, Section 6.4), as well as the largest dump of pottery, totalling 795 sherds weighing 10.5 kg , and representing a minimum of 63 vessels, the vast majority of them kiln
products. A total of 48 of the vessels are flagons, all collared vessels (see Anderson, Section 6.3).

### 5.8 Period 3.4: Early Roman IV

5.8.1 During the final phase of early Roman activity, the three adjoining enclosures that had been established during the earlier phases remained in use, with DITCHES 7 and 6 still open and continuing to demarcate ENCLOSURES 1 and 3, respectively. The northern boundary of ENCLOSURE 2, which had previously been demarcated by DITCH 5, was recut by large DITCH 14, which followed the same curving alignment. The chalk up-cast from the digging of this ditch covered many of the earlier infilled enclosure ditches in the central southern part of the excavation area and also sealed KILN 4. A pit (PIT 5) adjacent to the north side of DITCH 14 contained a large dump of pottery and kiln lining fragments from the demolition of KILN 4. A new kiln was constructed in the east of the site, blocking the realigned trackway defined by DITCH 8 and retained DITCH 3. KILN 6 was well-preserved and contained large assemblages of kiln products and kiln plates. It is possible that KILN 5 also remained in use, with the reversal of its original layout (stokehole to the east, kiln chamber to the west) potentially dating to this phase. Small DITCH 15, which ran parallel to the western part of DITCH 14, cutting KILN 3, might also date to this phase. It was shallow and petered-out after a short distance so its purpose and relationships remain uncertain.

ENCLOSURE 1: DITCHES 7 and 14
DITCH 7: Slot [296] fill (293), Slot [306] fill (301) and Slot [100] fill (101)
5.8.2 DITCH 7 remained open and in use, demarcating the east side of ENCLOSURE 1.

Ditch Slot [296] upper fill (293) was a firm mid brown sandy silt which contained six sherds $(76 \mathrm{~g})$ of mid- to late-1 ${ }^{\text {st }}$-century AD pottery, part of a residual Mesolithic/ Early Neolithic flint blade and two kiln plate fragments. It was some distance from any contemporary kilns, suggesting the possible presence of an additional kiln to the west of the excavation area.

Ditch Slot [306] upper fill (301) was a firm mid grey clayey silt with frequent small
flints and chalk lumps, representing a combination of natural silting and weathering of the ditch sides. It contained seven sherds of pottery ( 237 g ) including three large sherds from a storage jar with combed decoration, all dating to $c$. AD 40-100.

Ditch Slot [100] upper fill (101) was a firm mid brownish-grey sandy silt which contained a large dump of finds. This includes 87 sherds ( 899 g ) of pottery, mainly in sand-tempered fabrics and including a number of jar sherds, all fitting a c. AD 4070 date. Small fragments of kiln lining and a coin of Nero (AD 64-8) (see Crummy, Section 6.5) (Plate 31) were also present.

ENCLOSURE 2: DITCH 14
DITCH 14: Slots [173], [384], [34]=[54], [228], [174], [348] and [319]
5.8.3 DITCH 14 entered the excavation area from the south-west and extended north-eastwards before turning east-south-east approximately halfway along its exposed length and continuing beyond the excavation area. In total it was 37 m long. It replaced DITCH 5 as the northern boundary of ENCLOSURE 2, most of which lay outside the excavation area to the south. Seven slots were excavated at intervals along its length. The ditch's basal fill was a dense silty clay deposited by water flowing along the ditch, highlighting the damp ground conditions within the enclosures. The presence of a concentration of marsh/ freshwater snail shells in the bulk sample from Slot [319] confirms that the ditch was seasonally wet. The scarcity of kiln-related material in the ditch, apart from where it cut through earlier KILN 2, reflects the lack of contemporary kilns in its immediate vicinity and could further indicate that most of its infilling took place after the on-site pottery manufacture had ended.

Ditch Slot [173] had steep straight sides and a narrow ' $v$ '-shaped base and measured 2.10 m wide and 0.90 m deep. Its lower fill was a dense dark grey silty clay (149), deposited by water flowing down the ditch, which contained 38 g of kiln lining and two pieces of animal bone including a cattle skull fragment. Its upper fill was a pale grey very silty clay (148) containing 22 g of kiln lining.

Ditch Slot [384] was part-excavated in order to define its relationship with adjacent KILN 2, which it cut. It had a steep concave side and measured 2.70 m wide and at
least 0.35 m deep; its base was not reached. Its lowest excavated fill was a firm mid greyish-brown clayey silt (383) which contained 17 fragments (4.4kg) of kiln plate, almost certainly originally from KILN 2 . The final fill of the ditch was a firm mid yellowish-brown clayey silt (382) containing five sherds (32g) of mid- to late-1 ${ }^{\text {stt }}$ century pottery including one from a buff-surfaced flagon produced in the kilns. Four pieces of animal bone (cattle and horse) and a single piece of kiln plate were also present.

Ditch Slot [34]=[54] (Trial Trench 1) had steep slightly convex sides and a rounded base and measured 2.30 m wide and 0.70 m deep. The lowest fill, present on the south-east side of the ditch, was a light grey clay (62). This was overlain by a dense dark grey clay (59)=(56). The upper fill (35)=(55) was a mid grey firm clay. Eight sherds of early Roman pottery were present in fill (55) and one in (56). A small amount of fired clay was also found.

Ditch Slot [228] had steep fairly straight sides and a flat base and measured 2.35 m wide and 0.90 m deep (Plate 32). Its earliest fill was a slump of loose orange gravelly sand (257) from its southern edge, which contained no finds. Above this was a deep accumulation of dark grey silty clay (227), deposited by water action, which contained a small amount of kiln lining (155g), two fragments of cattle bone and 16 sherds ( 166 g ) of mid- to late- $\mathrm{-}^{\text {stt-century AD pottery including a sherd }(66 \mathrm{~g}) ~}$ of Baetican amphora. A large, near-complete red deer antler (see Rielly, Section 6.6) was also present, lying flat fairly close to the base of the ditch (Plate 30). The upper fill was a fairly loose brown sandy silt (256) containing kiln lining (374g) and 18 sherds (92g) of pottery including one from a Colchester colour coat cornice rim beaker (AD 50-100).

Ditch Slot [174] had steep fairly straight sides and a flattish base and measured 2.24 m wide and 0.58 m deep. Its lower fill was a dense dark grey silty clay (155) deposited by running water. It contained two sherds (8g) of early Roman pottery. The upper ditch fill was a pale greyish-brown very silty sandy clay (156) containing 15 sherds $(70 \mathrm{~g})$ of mid- to late- $1^{\text {st }}$-century pottery.

Ditch Slot [348] had steep straight sides and measured 3.08 m wide and at least 0.52 m deep. Its two lowest identified fills comprised a deposit of light orangey-grey sandy silt (346) on the north side of the ditch and a layer of loose mid yellowishgrey silty sand (347) on the south side. These were overlain by a mid brownish-
grey silty sand (345) which contained four animal bone fragments (two of cattle) and six sherds $(62 \mathrm{~g})$ of early Roman pottery.

Ditch Slot [319] had fairly steep, stepped sides and a flattish base and measured 2.50 m wide and 1.03 m deep. The stratigraphically earliest fill (333) was a slump of loose light yellowish-grey silty sand natural on the north side of the ditch. It was overlain by an accumulation of mid to dark brownish-grey sandy silt (334). The upper fill was a compact mid brownish-grey sandy silt (320). The moderate assemblage of animal bone from the ditch ( 24 fragments, mainly from cattle and cattle-sized animals) and much of the pottery, which is later Roman in date, was intrusive from DITCH 18, which cut DITCH 14 at this point (see below).

ENCLOSURE 3: DITCH 6
DITCH 6: Slot [48] fills (67) and (49), Slot [216] fills (237)=(241), (255)=(242), (217) and (238)=(243), Slot [213] fills (210), (401) and (221), and Slot [202] fills (201), (200), (199) and (198)
5.8.4 DITCH 6 remained open and in use, demarcating the north side of ENCLOSURE 3. The middle and upper fills of the ditch are likely to have been deposited during this phase of activity. The steep profile of the ditch fills, at least in the two eastern slots through the ditch ([213] and [202]), suggests an episode of cleaning-out/ re-cutting between this and the last phase. Some of the largest finds assemblages from the site were contained in these fills and include a combination of 'domestic' waste from settlement areas somewhere very nearby alongside discarded kiln material. The latter was found predominantly in the eastern slot ([202]), which was some distance away from the identified kilns, suggesting the presence of another kiln outside the excavation area.

Ditch Slot [48] middle fill (67) was a dark grey silty clay. It was overlain by upper fill (49), a light to mid brownish-grey silty clay, which contained five sherds of early Roman pottery.

Ditch Slot [216] middle fill (237)=(241) was a mid brownish to slightly yellowish-grey clayey sandy silt with frequent flints, representing a combination of natural weathering and silting-up of the ditch and dumped occupation/ kiln waste. It
contained 15 sherds $(316 \mathrm{~g})$ of pottery, including flagon and jar sherds in sandtempered and whiteware fabrics, and including probable kiln products (c. AD 4080). Nine fragments of animal bone (mainly cattle) were also present. Above this was (255)=(242), a lens of grey clay and charcoal, possibly representing a deliberate dump of kiln waste. Fill (255)=(242) can be equated with fills (401) and (200) present at the same stratigraphic level in the other two slots excavated through the ditch. Another lens of probable dumped kiln waste (217), comprising orangey-grey partially-fired clay mixed with charcoal, was present at the same stratigraphic level on the north side of the ditch. The final fill of the ditch, sealing (217) and (255)=(242) was (238)=(243), a layer of mid brownish-grey sandy silt and flint gravel which contained two sherds of mid- to late-1 ${ }^{\text {st }}$-century pottery, eight fragments of animal bone (five of them from cattle) and 187g of kiln lining. This represents occupation material and small amounts of kiln waste which had found their way into the top of the largely infilled ditch.

Ditch Slot [213] middle fill (210) was a mid brownish-grey silty sand which contained a large assemblage of pottery and 22 pieces of animal bone (cattle, sheep and horse). The pottery assemblage comprises 112 sherds ( 1.8 kg ), mainly from jars, in a range of sand and shell-tempered fabrics and exhibiting an array of combed, fingernail, rilled and tooled decoration, some with evidence of sooting. The group can be dated to $c$. AD 40-70 and includes at least one kiln product. The deposit can be interpreted as a deliberate dump of mainly 'domestic' rubbish. Above this was (401), a lens of dark grey/ black organic silty sand containing a single sherd of pottery and one fragment of cattle bone, again representing deliberately dumped refuse. Fill (401) was very similar in appearance and was located at approximately the same stratigraphic level as fill (200) in Slot [202]. Above (401) was (221), a mid greyish-brown silty sand containing nine sherds of fairly undiagnostic early Roman pottery and 395 g of kiln lining. This represents the final silting-up of the uppermost part of the ditch and the incorporation of small quantities of finds which were probably present as surface material in the vicinity.

Ditch Slot [202] middle fill (201) consisted of mid brownish-grey silty sand. It contained a small amount of kiln lining (63g), four pieces of animal bone (cattle and sheep) and a fairly large assemblage of early Roman pottery (AD 40-70) including fragments of a grog-tempered ripple-shouldered everted jar and a single small sherd of terra rubra (1g). It appeared to represent a combination of natural silting and deliberate dumping of occupation debris. Above this was (200), a dark grey/
black silty sand lens with an organic appearance, containing frequent charcoal. It contained a sherd of grog-tempered pottery, a pig ulna and 3.3 kg of dumped kiln lining/ superstructure fragments. Above this was (199), a mid brownish-grey silty sand which represents another phase of natural silting-up and deliberate dumping of waste from nearby kilns and settlement areas. It contained a large amount of pottery ( 63 sherds; 1261g) including numerous jars, many of them necked with beaded rims, whiteware and buff flagon sherds (definite kiln products) and sherds from a large storage jar. Ten pieces of animal bone (cattle and sheep) and two fragments of kiln plate were also present. The uppermost surviving fill of the ditch (198) was a mid greyish-brown silty sand which contained five sherds of pottery (including a flagon handle produced in the on-site kilns), eight pieces of residual struck flint including several Mesolithic to Early Neolithic blades, and a fragment of cattle bone. This represents the final silting-up of the upper part of the open ditch and the incorporation of finds that were probably present on the ground surface in the vicinity.

## DITCH 15: Slot [249]

5.8.5 DITCH 15 was aligned north-east to south-west, parallel to the western part of DITCH 14. It was traced for $3 m$. To the north it was cut by later Roman DITCH 18 and did not appear on the far side, while to the south it peteredout at the edge of Trial Trench 1. However, it was not seen on the opposite side of the trench. The ditch truncated the kiln chamber of KILN 3. Its observed stratigraphic relationships therefore place the ditch in early Roman phase III or IV, with IV favoured because of the ditch's apparent spatial relationship with DITCH 14.

DITCH Slot [249] had moderate rounded sides and a flattish base and measured 0.80 m wide and just 0.07 m deep. It was filled with mid brownish-grey sandy silt (250) containing residual kiln lining from KILN 3.

KILN 6 ([152]; fills (203), (191), (192), (190), (187), (176), (166), (165))
5.8.6 KILN 6 ([152]) was located in the east of the excavation area between parallel DITCHES 3 and 8 (Plates 33-36). This positioning would have blocked the trackway defined by the ditches, suggesting that it was no longer in use; this spatial relationship is the main piece of evidence upon which

KILN 6 has been assigned to the latest of the early Roman phases. The kiln was oval in plan (overall dimensions: 2.83 m long $\times 1.08 \mathrm{~m}$ wide $\times 0.62 \mathrm{~m}$ deep) with a steep, concave-sided elongated stokehole ( 1.87 m long $\times 1.08 \mathrm{~m}$ wide $\times 0.52 \mathrm{~m}$ (max.) deep) to the north-west, extending south-eastwards into a circular kiln chamber with near-vertical sides and a flat base ( $0.75 \mathrm{~m} x$ 0.66 m across at the base $\times 0.62 \mathrm{~m}$ (max.) deep), which sloped down slightly towards the rear, possibly as a result of repeated raking-out. The kiln chamber was lined with a layer of clay (203) up to 20 cm thick in places. As in the other kilns, this lining was vitrified to a pale orangey-brown/ whitish colour on its exposed surfaces but oxidised to a darker reddish-orange further away from the source of heat. The lining had a slight lip/ ledge 2-3cm deep and $0.34-0.38 \mathrm{~m}$ up from the base of the kiln chamber (Plate 36) where the outside edge of the kiln plates would have rested. Where the kiln chamber joined the stokehole, the lining curved inwards from either side to form the beginnings of a flue arch but the arch itself did not survive.
5.8.7 The lowest deposit in KILN 6 was a thin layer of mid to dark grey/ black clayey silt with abundant ash/ charcoal (191) which derived from one or more firings of the kiln and contained a large dump of pottery and kiln plate fragments. The deposit was only present as a band around the edges of the kiln chamber and in the flue (the first $c .40 \mathrm{~cm}$ of the stokehole extending north-westwards from the kiln chamber), indicating that it had accumulated around a central pedestal which was subsequently removed. An isolated pocket of charcoal on the base of the stokehole at its north-west end (192) represents rake-out from kiln firing(s). Fill (191) was overlain, in the kiln chamber, by a layer of broken and dumped kiln plates (190) (24 pieces weighing $6.5 \mathrm{~kg}+$, with additional fragments assigned to the underlying fill). Again, this layer was only present in a band around a central void where the pedestal had later been removed (Plate 35).
5.8.8 This was sealed by a thick deposit of compact light greenish-yellow/ occasionally red clay (187) containing further kiln plate and lining fragments ( $2.1 \mathrm{~kg}+$ ) and a large dump of pottery. It did not extend beyond the kiln chamber. This clay layer may be unfired potting clay or clay which was
ready to be used for repairs to the kiln structure that was dumped in the kiln when it was demolished. Alternatively, given that the top of this deposit formed a relatively level surface, it could represent a re-lining of the kiln chamber floor which was then, in the event, not used, although this seems improbable given the large number of finds contained in it. Above (187) was a deposit of firm mid orangey-red clay (176), which was up to 0.20 m deep at the back of the kiln chamber but thinned-out towards the flue and did not continue into the stokehole. The deposit had been exposed to heat but had not generally fired hard, suggesting that it could represent collapsed elements of the kiln's superstructure that had been located away from direct heat. It included 6.1 kg of kiln lining fragments and another large group of flagon and jar sherds, the vast majority of which are kiln products. The next deposit in the kiln, present across the chamber and up to halfway along the stokehole, was a dumped layer of demolished kiln lining, pottery and kiln furniture (mostly perforated kiln plates) (166) (Plates 33-34). This was sealed by a mid brown silty sand (165), present across the kiln chamber and stokehole, resulting from the natural silting-up of the remaining hollow formed by the disused kiln.
5.8.9 The total pottery assemblage from KILN 6 is the second largest from the site (after KILN 5) and totals 676 sherds, weighing $11.4 \mathrm{~kg}+$, and representing a minimum of 88 different vessels (see Anderson, Section 6.3). At least 70 are kiln products, overwhelmingly flagons, with a few jars also present.

PIT 5: [259]
5.8.10 PIT 5 was oval in plan with steep straight sides and a concave base and measured 2.10 m long, 1.80 m wide and 0.32 m deep. It contained a large dump of kiln material (253) likely to be from the demolition of nearby KILN 4. This dump included 164 sherds (1799g) of pottery, representing a minimum of 23 vessels including large parts of several jars and flagons, and including at least 28 sherds from kiln products (see Anderson, Section 6.3). Kiln lining (13.8kg+) and kiln plate fragments ( 87 pieces; 4.4 kg ) were also present in large quantities. PIT 5 truncated DITCH 13 and was clipped on its south side by DITCH 14.

### 5.9 Un-phased Early Roman Features

PITS 4 and 7: [169] and [44]
5.9.1 Two pits contained mid- to late-1 ${ }^{\text {st }}$-century AD pottery but could not be assigned to one of the specific early Roman phases due to their lack of stratigraphic relationships or spatial associations. PIT 4 was a small rubbish pit located in isolation in the north of the excavation area and PIT 7, recorded during the evaluation (Trench 2), was another small rubbish pit located centrally just to the west of DITCH 3.

PIT 4 ([169]) was a circular pit with steep concave sides and a rounded base, which measured $0.96 \mathrm{~m} \times 0.87 \mathrm{~m}$ wide and 0.34 m deep. It contained two fills. The lower fill was a dark greyish-brown coarse sandy silt containing abundant charcoal (172) but no finds. The upper fill was a mid greyish-brown sandy silt with common charcoal (170) which contained a single sherd (8g) of early Roman (AD 40-100) pottery and 16 pieces of animal bone, mainly of cattle but also some from sheep, and including a fairly complete skull from a mastiff-sized dog (see Rielly, Section 6.6).

PIT 7 ([44]) had steep rounded sides and an undulating base and measured 1.15 m wide and 0.30 m deep. Its fill was firm dark brown silty clay (45) containing 22 sherds $(166 \mathrm{~g})$ of $1^{\text {st }}$-century AD pottery and six pieces of animal bone, two from horses and four less diagnostic pieces from large-sized animals.

DITCHES 20 and 21: Slots [32] and [60]
5.9.2 Two ditches in the south-west of the site were identified in Evaluation Trench 1 but were not seen when this area was fully stripped during the excavation. They both appeared to be aligned north-west to south-east and could have formed some kind of internal subdivision within ENCLOSURE 1, possibly succeeding adjacent DITCH 4, which was on the same alignment, though there was no stratigraphic relationship between them. DITCH 21 cut DITCH 20.

DITCH 20 Slot [32] was 1.50 m wide and 0.27 m deep. It had a single fill of firm mid grey sandy clay (33) which contained two sherds of early Roman pottery and a small amount of burnt clay.

DITCH 21 Slot [60] had very steep rounded sides and a rounded base and measured 0.50 m wide and 0.30 m deep. It was filled with dark brown silty clay (61) which contained a single sherd of early Roman pottery and a fragment of quernstone.

### 5.10 Period 4: Late Roman ( $3^{\text {rd }}-4{ }^{\text {th }}$ century AD)

5.10.1 There was a complete break in archaeologically-visible activity on the site between the later $1^{\text {st }}$ century and the $3^{\text {rd }}-4^{\text {th }}$ century AD, when a trackway extended across the excavation area. This was formed by two parallel ditches (DITCHES 18 and 19) spaced 9-10m apart and aligned east to west (Plate 37). The track had been redefined at least once, with evidence of an earlier cut of each ditch (DITCH 16 (beneath DITCH 18) and DITCH 17 (beneath DITCH 19)). The track cut across the earlier agricultural landscape, generally not referencing it in any way. There were two exceptions to this: first, both the trackway and the larger early Roman enclosure boundaries were aligned broadly east to west, possibly following the stream to the south, and secondly, DITCH 19 terminated to the east at the same point as early Roman DITCHES 11 and 8, possibly indicating some continuity in landscape organisation.
5.10.2 The slots through these ditches contained few finds and these were mainly residual from the early Roman features which the trackway cut across. This paucity of finds reflects the predominantly agricultural character of the surrounding landscape during the later Roman period. The single exception to this was a fairly large and homogenous assemblage of later Roman pottery, assigned to DITCH 14 Slot [319] (320) but actually almost certainly intrusive from DITCH 18 Slot [357], which was not seen during the initial excavation of this slot (see Anderson, Section 6.3). The size and chronological homogeneity of this pottery group indicates the presence of a focus of late Roman occupation somewhere in the vicinity of the site. A coin of Edward I found lying on the surface of DITCH 19 during the machine stripping (see Crummy, Section 6.5) suggests that the later Roman ditch(es) may have remained visible as slight earthworks into the medieval period.

DITCH 16: Slot [391]
5.10.3 DITCH 16 was present in the south-west of the site. It was aligned east to west and was 9 m long. It was cut by DITCH 18 on its south side. It was an earlier cut of DITCH 18 that was only visible in one location.

Ditch Slot [391] had moderately-sloping sides and an irregular flat base and measured $1.32 \mathrm{~m}+$ wide and 0.23 m deep. It was filled with light yellowish-brown sandy silt (390) which contained 3 sherds (59g) of residual early Roman pottery.

DITCH 17: Slot [127]
5.10.4 DITCH 17 was located in the west of the site. It was aligned east to west and was $7 \mathrm{~m}+$ long, extending beyond the excavation area to the west and being cut by DITCH 19 to the east. It was an earlier cut of DITCH 19 that had elsewhere been entirely destroyed by the later ditch.

Ditch Slot [127] had moderately steep sides and a flat base and measured $0.62 \mathrm{~m}+$ wide (truncated) and 0.33 m deep. It was filled with loose mid orangey-brown sandy silt (126).

DITCH 18: Slots [260], [271], [222], [344] and [357]
5.10.5 DITCH 18 extended across the excavation area on an east to west alignment for 45 m (Plate 37), continuing beyond it to the west, and veering slightly south-eastwards at its east end and continuing beyond the southern limit of excavation.

Ditch Slot [260] had steep rounded sides and a concave base and measured 1.10 m wide and 0.34 m deep. It was filled with fairly loose mid brown sandy silt (261) which contained a sherd of residual early Roman pottery and a fragment of horse skull.

Ditch Slot [271] had moderate rounded sides and a concave base and measured 0.79 m wide and 0.21 m deep. It was filled with fairly compact mid yellowish-brown sandy silt (272) which contained two sherds of residual early Roman pottery.

Ditch Slot [222] cut DITCH 5 to the north and the side of KILN 4 to the south. It had moderate concave sides and a rounded base and measured 1.35 m wide and 0.28 m
deep. Its lower fill was a mid to dark greyish-brown silt (262), overlain by a layer of friable mid orangey-brown sandy silt (263). The lower fill contained kiln lining (1kg) from the truncated kiln chamber of KILN 4.

Ditch Slot [344] had steep concave sides and a rounded base and measured 1.07 m wide and 0.43 m deep. It was filled with mod orangey-grey sandy silt (343).

Ditch Slot [357] had steep concave sides and a rounded base and measured 0.90 m wide and 0.36 m deep. It was filled with mid orangey-grey silty sand (356). Slot [357] cut DITCH 14 Slot [319] and many of the finds assigned to the upper fill (320) of this earlier ditch are likely to have been intrusive from DITCH 18, which was not initially seen during excavation. This group comprises 69 sherds $(536 \mathrm{~g})$ from at least 10 different vessels, including two Nene Valley colour-coated beakers, one of which is an indented version, one Hadham black-burnished straight-sided dish, one Nene Valley whiteware mortaria sherd and one sherd from an Oxfordshire redslipped vessel (see Anderson, Section 6.3).

DITCH 19: Slots [125], [107], [114], [105], [46], [122], [131], [111] and [112]
5.10.6 DITCH 19 was aligned east to west and extended across the southern part of the excavation area for 67 m , continuing beyond the site to the west and terminating 1 m from the eastern limit of excavation.

Ditch Slot [125] had steep straight sides and a flat base and measured 1.58 m wide and 0.35 m deep. Its lower fill was a compact light greyish-brown sand with frequent chalk inclusions (128), representing weathered material from the sides of the open ditch. This was overlain by a firm mid brown sandy silt with frequent flint gravel (124). The final fill of the ditch was a mid orangey-brown sandy silt (123) which contained two sherds $(14 \mathrm{~g})$ of residual early Roman pottery.

Ditch Slot [107] had steep straight sides and an irregular flat base and measured 1.56 m wide and 0.28 m deep. It was filled with fairly loose mid greyish-brown clayey silt (106) which contained a single sherd of early Roman pottery.

Ditch Slot [114] had gently-sloping fairly straight sides and an undulating flat base and measured 2.15 m wide and 0.33 m deep. Its lower fill was a firm light grey clayey sand (115), representing illuviation of the lower part of the ditch fill. Its upper
fill was a mid to dark brown silty sand (116) which contained one sherd $(5 \mathrm{~g})$ of residual early Roman pottery.

Ditch Slot [105] had shallow straight sides and a ' v '-shaped base and measured 2.60 m wide and 0.30 m deep. It was filled with fairly compact mid brownish-grey silty clay (104).

Ditch Slot [46] (Trial Trench 2) had moderate rounded sides and a concave base and measured 0.60 m wide and 0.15 m deep. It was filled with firm brownish-grey silty clay (47).

Ditch Slot [122] had a shallow concave side (it was only part-excavated to define its relationship with DITCH 11 Slot [120]) and a rounded base and measured 2.25 wide and 0.21 m deep. It was filled with firm mid orangey-brown sandy silt (121) which contained two sherds ( 6 g ) of residual early Roman pottery.

Ditch Slot [131] had fairly steep rounded sides and an undulating rounded base and measured 1.75 m wide and 0.40 m deep. Its basal fill was a firm mid greyish-brown silty sand with frequent flints (132), representing weathered and slumped natural material, which contained three sherds $(47 \mathrm{~g})$ of residual early Roman pottery. This was overlain by a layer of firm mid brownish-grey sandy silt (133) which contained a further eight sherds (132g) of residual early Roman pottery and a small amount of kiln lining. The final fill of the ditch was a firm dark greyish-brown sandy, slightly clayey silt (134) which contained another four sherds ( 54 g ) of $1^{\text {st }}$-century $A D$ pottery. The greater quantity of pottery found in this slot was due to its proximity to early Roman KILN 1.

Ditch Slot [111] had gently-sloping rounded sides and a flat base and measured 1.61 m wide and 0.20 m deep. It was filled with firm dark brown clayey silt (110) which contained a single sherd of residual early Roman pottery.

Ditch Slot [112] was the roughly 'square'-ended eastern terminus of DITCH 19. It had fairly steep, irregular sides and a concave base and measured 1.2 m wide and 0.25 m deep. It was filled with pale grey to mid orangey-brown silty sand (113) which contained a single small fragment of animal bone, residual struck flint and a fairly large assemblage of residual early Roman pottery ( 46 sherds; 410 g ) including numerous sand-tempered jar sherds, some with black slip and some with tooled
horizontal line decoration. The presence of this assemblage strongly implies the presence of earlier Roman occupation, or perhaps an additional kiln, somewhere a short distance to the east or south-east of the excavation area, a possibility which is also suggested by the quantities of domestic waste and kiln-related finds in the eastern slots through early Roman DITCH 6.

### 5.11 Period 5: Modern Features

5.11.1 DITCHES 22 ([22]) and 23 ([65]), identified in Trial Trench 12 in the far east of the site, were parallel small drainage ditches, on the same alignment as the extant field boundary hedge to the east, one of which contained modern glass.

### 5.12 Undated Features

PIT 6: [234]
5.12.1 Two undated pits were identified. PIT 6 was located in the south of the excavation area, just east of Early Roman IV PIT 5. It was oval in plan with steep rounded sides and a flat base and measured 1.93 m long $\times 1.57 \mathrm{~m}$ wide $x 0.49 \mathrm{~m}$ deep. Its lower fill was a dark brownish-grey silty sand (233) containing 11 fragments of animal bone (cattle, horse and pig) and a burnt cobble-sized stone. Its upper fill was a mid greyish-brown silty sand with frequent small angular flints (232), which contained no finds. It is likely to have been an early Roman rubbish pit.

PIT 8: [20]
5.12.2 PIT 8 was a small, possibly circular pit, which was partially revealed at the south end of Trench 11, in the east of the site. It had moderate concave sides and a rounded base and measured 1.30 m wide and 0.30 m deep. It contained a single fill of firm mid grey clayey sand with darker grey patches (21), which contained no finds.

### 5.13 Natural Features

Tree Hollows: [36], [40], [42], [274], [276], [335] and [336]
5.13.1 Seven tree hollows with diffuse edges and sterile fills were recorded. Two ([40] and [42]) were adjacent to Un-phased Early Roman PIT 7 in Trial Trench 2, while another was towards the north end of Trench 2 ([36]). Two
([274] and [276]) were cut by Early Roman IV PIT 5, with [274] itself cutting Early Roman III DITCH 12. Tree Hollows [335] and [336] were in the northwest of the excavation area next to DITCH 9. The former contained a fragment of cattle radius and an iron strap-guide which could be Roman or medieval (Crummy, Section 6.5). These finds are thought to have worked their way naturally into the fill of the feature from the subsoil.

Palaeochannels: [24], [26], [269] and [392]=[393]
5.13.2 Two broadly east to west-aligned frost cracks [269] and [392]=[393] in the surface of the natural geology were recorded in the south-west of the excavation area. Two additional naturally-formed gullies [24] and [26] were found in Trial Trench 12, at the eastern edge of the site.

## 6 THE FINDS

### 6.1 Lithics

## By Barry John Bishop

Introduction
6.1.1 The excavations resulted in the recovery of worked flint, unworked burnt flint and burnt and/ or potentially worked sandstone. All of the material is considered by the excavator to have been residual and recovered from later contexts. Each piece has been catalogued in detail and this report presents a summary description of the assemblages.

| Type | No. | \% Struck |
| :--- | :--- | :--- |
| Decortication flake | 6 | 4.8 |
| Core rejuvenation flake | 4 | 3.2 |
| Flake | 37 | 29.8 |
| Blade-like flake | 7 | 5.6 |
| Non-prismatic blade | 18 | 14.5 |
| Prismatic blade | 33 | 26.6 |
| Flake fragment | 4 | 3.2 |
| Blade core | 2 | 1.6 |
| Flake core | 3 | 2.4 |
| Conchoidal chunk | 1 | 0.8 |
| Retouched | 8 | 6.5 |
| Micro-burin | 1 | 0.8 |
| Burnt flint (no.) | 10 |  |
| Burnt flint (wt; g.) | 408 |  |
| Other stone (no.) | 17 |  |
| Other stone (wt; g.) | 3253 |  |

Table 1: Quantification of lithic material

Struck Flint (Table 1; Appendix 3)
6.1.2 A total of 124 pieces of struck flint were recovered from 39 separate contexts. As might be expected of a residual assemblage, most pieces show some evidence of post-depositional chipping or abrasion, although this is rarely pronounced. Degrees of re-cortication vary from absent to heavy but this appears to have little or no chronological significance.
6.1.3 The assemblage is mostly manufactured from translucent flint which varies in colour from black to brownish-grey, with some opaque speckled pieces also used. Surviving cortex is variable: it is mostly rough, but thin and weathered and thermal surfaces are also common. This suggests that the raw materials were obtained from superficial deposits, most likely from either surface eroded seams which are known to outcrop in the area or from the Lowestoft Formation glacial deposits a short distance to the north. Around one third of the pieces, however, have a much thicker and less weathered cortex and it is possible that some of these came from nodules quarried directly out of the chalk, as has been documented both at the Heathfield estate in Duxford (Dickens and Dodwell 1997; Dodwell 1997; McFadyen 1999) and closer-by at Hunt's Road (Evans 1991). A single flake is made from 'bullhead bed' flint, which occurs at the junction of the Cretaceous Chalk and overlying Tertiary deposits.
6.1.4 The assemblage as a whole was clearly manufactured over a long period, although the bulk of it is the product of a systematic blade-based reduction strategy that can be dated to the Mesolithic or Early Neolithic. The former period is certainly represented, as demonstrated by the presence of a diagnostically Later Mesolithic scalene triangle microlith of Jacobi's type 7a1 (Jacobi 1976; 1978). The on-site manufacture of microliths is also demonstrated by the presence of a micro-burin. Other pieces associated with these are the two truncated blades, and the burin, which are all types most commonly found in Mesolithic contexts. Many of the blades are very finely made and exhibit a high degree of standardization and these are also perhaps more likely to belong with the Mesolithic material. Nevertheless, some technological variation is apparent within the blades and the presence of many non-prismatic examples, along with a collection of larger and more 'chunky' prismatic types, does suggest that activity continued across the transition into the Early Neolithic period, a situation recorded at numerous sites along the Cam valley.
6.1.5 The composition of the assemblage can be described as broad-based or 'domestic' in nature. It includes relatively high proportions of retouched
implements and debris from core working and blade production, and much lower proportions of initial processing and primary reduction waste, such as characterizes at least the Early Neolithic 'quarrying' assemblages from Heathfield and Hunt's Road. In these respects, it is much more comparable in composition to the palimpsests of knapping scatters recorded from along the valley floor of the river Cam, such as those seen at the Genome Complex or at Spicer's in Sawston (Bishop forthcoming; Bishop in press). These have been taken to indicate intensive and persistent, if transient, occupation alongside the river margins.
6.1.6 A few pieces also suggest that activity continued at the site after the Early Neolithic, although they are relatively small in quantity. A number of competently but not systematically produced flakes may date to the Later Neolithic or Early Bronze Age and one of the flake cores is reminiscent of Levallois-like types that are characteristic of the Later Neolithic. However, no retouched or other diagnostic pieces were identified that can be definitively associated with these periods. A number of flakes are more crudely produced, being thick and short with wide, unmodified and obtuse striking platforms. These are comparable to Martingell's 'squat' flakes and may date to the later second or even first millennia BC. Again, no retouched pieces can be unequivocally assigned to these periods but a few flakes with irregular or inverse retouch and also the two possible core tools are most characteristic of industries of this date.

## Burnt Flint (Appendix 4)

6.1.7 Ten pieces of flint weighing 408 g were recovered from seven separate contexts. These have previously been burnt but show no other evidence of modification. The intensity of the heat to which they have been exposed varies but all have changed colour and become 'fire-crazed'. The quantities recovered are small and most suggestive of incidentally burnt background waste emanating from hearth use at the site.

## Other Stone (Appendix 5)

6.1.8 Fourteen pieces of siliceous sandstone weighing 3,253g were recovered from nine separate contexts. These comprise rounded cobbles and slabs
and were most likely obtained as erratics from the Lowestoft Formation glacial deposits present in the area; these are usually present in low densities, suggesting that the stones in the assemblage may have been gathered from a relatively wide area and brought back to the site. Most are burnt and a few exhibit smooth facets consistent with having been used as grinding stones or pounders, although none are unequivocally worked.

Significance and Recommendations
6.1.9 The assemblage is significant in that it demonstrates flint-working occurring at the site during the Mesolithic or Early Neolithic and also during the later prehistoric period. However, its small size and the absence of secure contextual associations mean that further technological or metrical analyses would be unproductive; therefore, no further analytical work is proposed. The assemblage does, however, contribute to the growing body of evidence for prehistoric activity in the area and a full description should be included in the published account of the fieldwork.

### 6.2 Prehistoric Pottery

## By Matt Brudenell

Introduction
6.2.1 A small assemblage comprising 15 sherds (72g) of handmade prehistoric pottery with a low mean sherd weight of 4.8 g was recovered from the excavations at Moorfield Road. The pottery derives from three contexts: PIT 1 ([323] (324)), PIT 2 ([337] (338)) and DITCH 3 ([396] (395)), and is characterised by small plain sherds with slightly abraded edges. With the exception of two rim sherds from PIT 1 - both belonging to the same vessel - there are no sherds with diagnostic features. The dating of the material is therefore largely reliant on an assessment of the different fabrics represented and an understanding of their regional currency.
6.2.2 This report provides a brief summary of the material by context. All the pottery has been fully recorded following the recommendations laid out by the Prehistoric Ceramics Research Group (2009) (Appendix 6). Sherds from all contexts have been counted, weighed (to the nearest whole gram) and
assigned to the fabric groups described below. Sherd type has been recorded, along with any evidence for surface treatment and the presence of soot and/ or residue. Rim forms have been described using a codified system recorded in the catalogue, and assigned vessel numbers.

### 6.2.3 Fabrics and sherd totals:

F1: Moderate to common medium and coarse burnt flint (1-4mm). Six sherds, 25 g (all from DITCH 3). ?Neolithic.
F2: Common finely crushed burnt flint (<1.5mm). Five sherds, 6 g (all from PIT 1). Early Neolithic.

Q1: Moderate to common quartz sand. Two sherds, 16 g (all from PIT 2). Middle Iron Age.

CHQ1: Moderate medium to coarse chalk ( $1-4 \mathrm{~mm}$ ) and moderate quartz sand. Two sherds, 25 g (all from PIT 2). Middle Iron Age.

## Pottery by Context

6.2.4 PIT 1: Five small sherds in Fabric F2 $(6 \mathrm{~g})$ were recovered from the fill of PIT 1. The sherds are all from the same vessel, are burnished internally and externally and include two rim fragments. The rims are rounded and outturned in a fashion characteristic of the Early Neolithic and are likely to belong to a plain bowl dating to $c .3700-3500 \mathrm{BC}$.
6.2.5 PIT 2: Four sherds (41g) were recovered from PIT 2, in two different fabrics: CHQ1 (two sherds, 25g) and Q1 (two sherds, 16g). The sherds in Fabric CHQ1 derive from two different vessels; one has a slightly burnished exterior with traces of sooting $(14 \mathrm{~g})$. The two sherds in Fabric Q1 are plain shoulder fragments, probably belonging to the same slack-shouldered vessel. The character of these fabrics is typical of the Middle Iron Age in southern Cambridgeshire, and can be dated to c. 350-50 BC.
6.2.6 DITCH 3: Six small plain body sherds in Fabric F1 (25g) were recovered as residual material from early Roman DITCH 3. The flint inclusions are very coarse and poorly sorted and the sherds probably derive from the same vessel. The character of the fabric suggests a Neolithic origin, although a Late Bronze Age date cannot be ruled out.

## Discussion

6.2.7 Despite the small size of the assemblage and its highly fragmented condition, is has been possible to identify Neolithic and Middle Iron Age pottery. The sherds have been assigned to these periods primarily on the basis of their fabrics. The material from PITS 1 and 2 can be dated with some degree of confidence; that from DITCH 3 is a little more ambiguous but is likely to be Neolithic in origin.

Recommendations
6.2.8 No further work is required on this assemblage. The pottery has been recorded to archive standard and no sherds are thought worthy of illustration or publication.

### 6.3 Roman Pottery

By Katie Anderson

Introduction
6.3.1 A large quantity of predominantly early Roman (mid to late $1^{\text {st }}$ century AD) pottery was recovered from the Moorfield Road excavations, totalling 3791 sherds, weighing 48,755g, and representing 48.18 EVEs (estimated vessel equivalent). The pottery predominantly dates to the early Roman period, with a peak between AD 40 and AD 100, and includes a large quantity of material deriving from the six kilns.

Methodology
6.3.2 All of the pottery was examined and recorded in accordance with the guidelines laid out by the Study Group for Roman Pottery (Perrin 2011) and using the standard terminology and codes advocated by the Museum of London Archaeology Service (Symonds 2002) (Appendix 7). Pottery from each context was sorted initially by fabric type. A fabric series has been created for all of the locally produced wares (see below). Fifteen different fabrics associated with kiln products were identified. However, it should be noted that there are some examples of non-kiln products which also occur within these fabric groups. A separate note regarding whether a sherd/ group of sherds represent kiln products was made in a separate column so
that the data could easily be separated into kiln versus non-kiln material. Within each fabric group, vessels were then sorted by basic form type (jar, bowl, dish etc.) and were then sorted into a more specific vessel type, which differentiated sherds by rim, base and handle type. Where possible, rim and base diameters were measured and a record of percentage of vessel present was also noted, to allow for calculation of EVEs. Decoration and use-wear evidence was recorded, along with the positions of these on the sherds. Each sherd/ group of sherds was given a date range based on the earliest and latest possible date, based on fabric and form combinations. Each context was then assigned a date based on these dates.

Assemblage Composition
6.3.3 The assemblage is relatively mixed in composition with some large, fresh sherds as well as small, abraded examples. This is reflected in the relatively low assemblage mean weight of 12.9 g . The material from the kilns has a slightly higher mean weight than the site average at 14.3 g . However, there are no examples of complete/ semi-complete kiln products even when refitted. A minimum of 365 vessels (MNV) can be identified based on the number of unique rims, bases and handles, of which 205 are kiln products.
6.3.4 A range of vessel fabrics were identified (Table 2). These primarily comprise locally made wares, including 15 fabric groups identified as site-made kiln products. Romano-British fabrics dominate, representing $95.5 \%$ of the assemblage. Unsurprisingly, the kiln fabrics represent the largest of the fabric groups, totalling 2045 sherds weighing 26,197g.

### 6.3.5 Fabric descriptions:

GROG
G1: Fine to medium sandy clay matrix with common small, sub-rounded grog.
G2: Medium sandy fabric with common to frequent medium to large grog.

SAND
Q1: Medium coarse sandy clay with occasional poorly-sorted, sub-rounded quartz grains (up to 1 mm ) and silver mica.

Q2: Fine sandy clay; no other inclusions visible.

Q3: Coarse sandy clay with common small quartz inclusions.
Q4: Medium fine sandy clay matrix with common very small, well-sorted white (limestone?) rounded inclusions and common silver mica. Some with red iron ore.
Q5: Fine sandy clay with common small, rounded, well-sorted limestone(?) inclusions and common very small/ small silver mica.
Q6: Fine sandy clay with common small silver mica and rare sub-rounded limestone inclusions.

Q7: Fine to very fine sandy clay with common very small silver mica.
Q8: Medium sandy ware with occasional small limestone inclusions and occasional red iron ore inclusions.

Q9: Medium fine sandy clay with rare to occasional rounded clay pellets and common silver mica.

Q10: Medium coarse sandy clay with common to frequent black iron ore inclusions and common small clay pellets/ grog.
Q11: Medium coarse sandy clay with common/ frequent small white (quartz?) rounded inclusions.

QF1: Medium fine sandy clay with rare to occasional flint/ burnt angular flint inclusions, which are poorly-sorted.

QG1: Medium coarse sandy fabric with common small, moderately-well-sorted grog and common silver mica.

QG2: Medium fine sandy clay with occasional to common small sub-rounded grog/ clay pellets.
QC1: Fine to medium sandy clay matrix with occasional linear calcareous inclusions.
QC2: Medium coarse sandy fabric with common small, moderately-well-sorted calcareous inclusions. Also occasional silver mica.

WW1: Soft, powdery whiteware; medium coarse sandy.
WW2: Soft, powdery, medium coarse sandy with occasional to common poorlysorted red iron ore inclusions.

WW3: Fine/ very fine sandy clay with common small rounded red iron ore.
6.3.6 Fabric Q1 is the largest of the fabric groups, totaling 607 sherds weighing 8336 g , and representing $16 \%$ of the total assemblage. This encompasses a variety of vessel finishes, including a black-slipped version, an oxidized version, a buff ware and a whiteware variant. Within this fabric group, 241
sherds $(2877 \mathrm{~g})$ can be identified as kiln products. Fabrics Q6, Q5, Q4 and WW are also well represented overall and include significant quantities of kiln material.
6.3.7 Romano-British finewares total 15 sherds weighing 89g. These comprise nine Oxfordshire red-slipped wares, four Nene Valley colour-coated sherds and a single example of an early Colchester colour-coated ware. The only other sourced wares identified consist of a single Hadham black-burnished ware sherd and a single Verulamium whiteware sherd.
6.3.8 Imported wares comprise just six sherds weighing 85 g and consist of one Baetican amphora sherd, one terra rubra sherd and four South Gaulish Samian sherds, of which only one sherd has an identifiable form: a cup from DITCH 6 (Slot [216]).

| Fabric | No. | Weight (g) |
| :---: | :---: | :---: |
| BAET | 1 | 66 |
| BLKSL | 18 | 144 |
| BUFF | 68 | 357 |
| COLCCE | 1 | 2 |
| CSGW | 82 | 988 |
| CSOX | 32 | 544 |
| FSBUFF | 182 | 1431 |
| FSGW | 8 | 72 |
| FSMGW | 6 | 32 |
| FSMOX | 1 | 3 |
| FSOX | 9 | 41 |
| G1 | 11 | 178 |
| G2 | 4 | 411 |
| HADBB | 1 | 18 |
| NVCC | 4 | 29 |
| NVWW | 1 | 64 |
| OXFRS | 9 | 40 |
| OXIS | 32 | 143 |
| Q1 | 607 | 8336 |
| Q2 | 98 | 1085 |
| Q3 | 175 | 2269 |
| Q4 | 327 | 4766 |
| Q5 | 308 | 2642 |
| Q6 | 430 | 4183 |
| Q7 | 14 | 61 |
| Q8 | 404 | 5554 |
| Q9 | 166 | 2499 |
| Q10 | 47 | 469 |
| Q11 | 56 | 2433 |
| QC1 | 2 | 91 |
| QC2 | 9 | 77 |
| QF1 | 1 | 16 |
| QG1 | 46 | 1618 |
| QG2 | 26 | 253 |
| SAMSG | 4 | 18 |
| SHELL | 52 | 887 |
| TR | 1 | 1 |
| VRW | 1 | 19 |


| WW | 309 | 4050 |
| :--- | :--- | :--- |
| WW1 | 112 | 1029 |
| WW2 | 102 | 1446 |
| WW3 | 24 | 390 |

Table 2: All pottery by fabric (fabrics in bold denote those which include kiln products)
6.3.9 Flagons are the dominant vessel form (Table 3) due to these being the primary (and possibly exclusive) kiln product. The flagons are discussed in more detail below. Jars are also well represented, with a minimum of 119 different vessels identified. These occur in a variety of sizes, with rim diameters from 8 cm to 40 cm reflecting a range of different functions. The smaller vessels are likely to have been used (or intended for use) as cooking vessels, whereas the large jars would have functioned as storage vessels. The assemblage also contains a relatively large number of non-diagnostic sherds, including those which can only be identified as 'closed' vessels. The remaining vessel forms are poorly represented, with five or fewer examples of beakers, bowls, cups, dishes, platters and lids. This lack of diversity in the range of vessel forms present is not surprising given that this was a pottery production site rather than a settlement.

| Form | No. | Weight (g) | MNV |
| :--- | :--- | :--- | :--- |
| Amphora | 1 | 66 | 0 |
| Beaker | 8 | 62 | 5 |
| Bowl | 3 | 287 | 2 |
| Closed form | 1031 | 9969 | 19 |
| Cup | 12 | 56 | 2 |
| Dish | 3 | 40 | 3 |
| Flagon | 1389 | 19147 | 190 |
| Jar | 877 | 16303 | 119 |
| Lid | 1 | 7 | 1 |
| Mortaria | 2 | 80 | 0 |
| Open form | 4 | 18 | 2 |
| Platter | 5 | 52 | 2 |
| Tazza/jar | 3 | 324 | 0 |
| Unknown | 452 | 2344 | 20 |
| TOTAL | 3791 | 48755 | 365 |

Table 3: All pottery by vessel form

The Kilns
6.3.10 The pottery kilns produced over half of the total assemblage (53\%) by count, totalling 2020 sherds weighing $22,839 \mathrm{~g}$, although it should be noted that this figure encompasses all pottery recovered from the kilns, including sherds which had been caught up during their backfilling. Overall, a total of 2113 sherds weighing $27,072 \mathrm{~g}$ can be identified as kiln products, of which 1558 sherds $(21,547 \mathrm{~g})$ were recovered from kilns, with the remaining 55 sherds ( 5525 g ) deriving primarily from ditches, as well as PIT 5.
6.3.11 Based on the vessel forms, the kiln products all date to AD 50-80/100, suggesting that pottery production at the site was relatively short-lived, although evidence from the kilns themselves demonstrates that there were multiple firing events.
6.3.12 The primary kiln products comprise flagons, with a minimum of 189 different vessels recorded based on the number of rims, bases and handles identified. There are, however, no complete or semi-complete vessels present. Two main types of flagon were produced: collared flagons and ringnecked flagons, the former accounting for a minimum of 21 different vessels
and the latter for 10. Two different types of handle were noted: H 1 , comprising a rippled handle, and H 2 , characterised by the thickening/ beading of both edges of the handle while the interior remains flat. A minimum of 71 flagons with H 1 handles are present, and 45 with H 2 handles. It should be noted at this point that while some of the flagons have single handles, there are examples of vessels with two handles and this should be taken into account when considering the MNV based on handles. The remainder of the flagon sherds comprise foot-ring bases and body sherds, including 23 sherds with the stump of a handle.
6.3.13 Although the primary products made in the Duxford kilns were flagons, there are some examples of other vessel forms which occur in kiln fabrics and which are also suggested as being kiln products. Nevertheless, even if confirmed as kiln products, these vessels appear never to have formed a major component of kiln repertoire. A minimum of 11 different jars have been identified as possible kiln products, totalling 104 sherds weighing 2356 g . Necked, beaded rim jars are the most commonly occurring form and eight of the vessels are decorated with either rilling, tooled horizontal lines or, in one case, tooled chevrons. One jar from DITCH 4 (Slot [317]) has a slightly 'wonky' rim, which could be interpreted as a 'second'.
6.3.14 A range of fabrics are present within the kiln material and within these groups there is some variety in the finish of the vessels, with oxidized, buff and whiteware variants of most fabric types. Table 4 shows the breakdown of kiln products by fabric type. Overall, Fabrics Q6, Q4, Q1, Q8 and WW are the best-represented, accounting for a combined $67.5 \%$ of all kiln products by sherd count.
6.3.15 Interestingly, the sherd count and MNV figures show somewhat differing pictures, particularly in the case of Fabric Q11, which despite comprising a relatively small number of sherds (55), represents a minimum of 41 different vessels. Q11 appears to have been a slight variant of Fabric Q1, with common larger quartz as opposed to occasional/ moderate quartz inclusions. It is possible that thin-section analysis of the fabrics would justify amalgamation of these two (and possibly other) fabric groups. The
discrepancy between sherd count and MNV is largely because of a high number of different handles recovered (accounting for all 41 vessels), most of which derive from KILN 6 (fill (187)). There is no obvious correlation between fabric groups and kilns, with each of the six kilns seemingly producing vessels in a range of different fabrics, although, of course, the material recovered from the kilns does not necessarily represent the products of those specific kilns. Each kiln is considered in more detail below.

| Fabric | No. | Weight (g) | MNV |
| :--- | :--- | :--- | :--- |
| Q1 | 264 | 3117 | 11 |
| Q2 | 63 | 705 | 15 |
| Q3 | 113 | 1412 | 12 |
| Q4 | 254 | 3724 | 28 |
| Q5 | 288 | 2376 | 10 |
| Q6 | 378 | 3542 | 17 |
| Q8 | 243 | 3066 | 28 |
| Q9 | 15 | 482 | 5 |
| Q10 | 2 | 98 | 1 |
| Q11 | 55 | 2429 | 41 |
| QC2 | 4 | 45 | 1 |
| WW | 289 | 3918 | 23 |
| WW1 | 69 | 398 | 3 |
| WW2 | 96 | 1381 | 8 |
| WW3 | 50 | 853 | 5 |
| TOTAL | 2183 | 27546 | 208 |

Table 4: All kiln products by fabric type

KILN 1 ([189])
6.3.16 A total of 187 sherds of pottery, weighing 3433 g , and representing a minimum of 13 vessels, were recovered from KILN 1. Kiln products account for $85 \%$ of the assemblage ( 160 sherds; 2678g; 12 vessels). Six fabrics can be identified, with Fabrics Q4 and WW3 the most frequently occurring. A minimum of 11 different flagons are present, which comprise collared variants with H 1 handles. One jar is present, which may be a kiln product.

KILN 2 [277]
6.3.17 KILN 2 contained 145 sherds, weighing 1209 g , and representing a minimum of nine vessels and . 34 EVEs. Kiln products account for $76 \%$ of the assemblage. This totals 110 sherds weighing 917 g and representing a minimum of five vessels. Diagnostic sherds comprise collared flagons and H1 handles. Six fabric types are present among the kiln products.

KILN 3 ([229])
6.3.18 The assemblage from KILN 3 is the smallest from any of the kilns, with a total of 72 sherds, weighing 616 g , and representing 0.30 EVEs and a minimum of three different vessels. With the exception of one sherd, all the material from this feature is definite or probable kiln produce. Nine different fabrics are present. Apart from a single H 1 handle, the remainder of the pottery consists of non-diagnostic body sherds.

KILN 4 ([258])
6.3.19 A total of 145 sherds of pottery, weighing 1537 g , and representing 1.70 EVEs and a minimum of seven vessels, were collected from KILN 4. A little over half of these (53\%; 78 sherds; 1003g; five vessels) are kiln products. Six different fabrics are present, of which Fabrics Q8 and Q3 are the most common. In terms of vessel forms, the only diagnostic sherds comprise H 1 handles and two foot-ring bases.
6.3.20 A dump of kiln material, believed mainly to be associated with KILN 4 based on its spatial proximity, was recovered from DITCH 5 (Slot [289]). This slot contained a total of 349 sherds ( 3237 g ) of kiln products, thus totalling more than the assemblage from the kiln itself. Interestingly, it is within this ditch dump that almost all of the ring-necked flagons occurred (eight of the ten examples recorded), the remaining two coming from PIT 5 ([259]), which was also located nearby. If this dump did derive exclusively from KILN 4, it suggests that this kiln alone was used for the firing of the ring-necked flagons.

KILN 5 ([153])
6.3.21 KILN 5 contained the largest dump of material, totalling 795 sherds, weighing $10,591 \mathrm{~g}$, and representing 9.78 EVEs and a minimum of 63 vessels. Of this, kiln products account for $87 \%$ ( 693 sherds; 8332g; 53 vessels). Ten different kiln fabrics are present, with Q6 being the most common, followed by Q8, Q1 and Q4.
6.3.22 A total of 48 of the vessels are flagons, all collared vessels with H 1 handles (of those sherds which are diagnostic). There are also three beaded rim jars, along with a unusual bowl?, possibly also a kiln product.
6.3.23 Two possible associated dumps were identified within adjacent DITCH 9 (Slots [144] and [399]). These comprise a total of 78 sherds weighing 1810 g and consist of probable kiln-derived material including three flagons (two collared vessels) and one jar.

KILN 6 ([152])
6.3.24 A total of 676 sherds of pottery, weighing $11,453 \mathrm{~g}$, and representing 5.10 EVEs and a minimum of 88 vessels were recovered from seven different contexts within KILN 6. Of these, 76\% are kiln products (515 sherds; 8562g; 70 vessels), thus making this the second largest kiln assemblage behind KILN 5. Ten different kilns fabrics are present, with Fabrics Q5 and WW the most common.
6.3.25 Of the minimum 70 kiln vessels recorded, 65 are flagons, including three rims and two bases. The majority of flagon sherds are handles, with both H 1 and H 2 represented. It is of interest that handle type H 2 occurred exclusively within this kiln. The remaining five vessels are jars.
6.3.26 A probable associated dump of material from this kiln was identified within adjacent DITCH 8 (Slot [158]). This includes a further flagon handle as well as two jars.

Pottery from Other Features
6.3.27 In total, $53 \%$ of the assemblage derives from the six pottery kilns. A further $42 \%$ of the pottery was collected from ditches, with the remaining $5 \%$ coming
from pits. A complete list of all contexts containing pottery, along with their associated spot-date, can be found in Appendix 7. In total, pottery was recovered from 41 ditch slots in varying quantities, with two standing out as containing significant quantities of material.
6.3.28 The largest assemblage of material from a single slot was from Ditch Slot [289] (DITCH 5). This group comprises 409 sherds, weighing 3949g, recovered from three fills. In total, $85 \%$ of the pottery can be identified as probable kiln products ( 349 sherds; 3237 g ), deriving from two of the three fills (284) and (285), thought to be associated with KILN 4 ([258]) (see above). This includes 28 flagons, including handles and ring-necked variants, the latter occurring almost exclusively with this feature. The nonkiln products account for the remaining 15\% of the assemblage and include eight jars and sherds from an imitation CAM12 platter. There is no clear difference in date in the pottery from the three different fills; however, the lack of any kiln products in lower (though not basal) fill (286) suggests the ditch had earlier origins than the associated kiln(s).
6.3.29 Ditch Slot [144] (DITCH 9) contained 166 sherds of pottery weighing 1937 g . The group includes 55 sherds $(630 \mathrm{~g})$ of probable kiln products, all from upper fill (145), comprising several flagon sherds and one jar. The remaining two fills (146) and (171) contained no obvious kiln material but did include 78 sherds (993g) from a single rilled jar with cordon decoration, which is partially complete when refitted.
6.3.30 Interestingly, just one context postdated the later $1^{\text {st }}$ century AD. Ditch Slot [319] (DITCH 14) contained pottery dating to the $3^{\text {rd }}-4^{\text {th }}$ century AD. However, the majority of this is likely to be intrusive from DITCH 18, which cut DITCH 14 at this point. A total of 69 sherds were recovered, weighing 536 g , and representing a minimum of ten different vessels. This includes two Nene Valley colour-coated beakers, one of which is an indented version, one Hadham black-burnished straight-sided dish, one Nene Valley whiteware mortaria sherd and one sherd from an Oxfordshire red-slipped vessel. A further sherd from an Oxfordshire red-slipped C7 bowl was recovered from DITCH 14 Slot [228]; however, the remainder of the pottery
from this context is earlier Roman in date, suggesting that this sherd was intrusive. This small collection of later Roman pottery sherds is of great interest. Not only do they provide the only evidence for post-kiln activity on the site, they also highlight the distinct lack of any material dating to the period between the kilns and the $3^{\text {rd }}$ century AD. Roman-period activity at the site was not continuous. Instead, the pottery suggests that the main phase of activity in the mid to late $1^{\text {st }}$ century $A D$ came to an end when production of pottery ceased, with no further utilisation of the site until the later Roman period. The later Roman activity appears to have been shortlived and not intensive in character.
6.3.31 One pit produced an interesting assemblage of pottery. PIT 5 ([259]) contained 164 sherds, weighing 1799 g , and representing a minimum of 23 vessels. Of this, 28 sherds ( 355 g ) are kiln products and include the only examples of ring-necked flagons outside of nearby DITCH 5 Slot [289]. As discussed briefly above, this pit contained a dump of kiln material. However, it is uncertain which (if any) of the six excavated kilns this particular dump belongs to. The occurrence of the two ring-necked flagons may suggest an association with DITCH 5 and consequently with KILN 4. However, it is also possible that the kiln material from this pit was associated with a kiln located outside the excavation area.

## Discussion

6.3.32 The kilns and their associated products provide evidence of what is likely to have been a fairly short-lived yet relatively intensive small pottery production site centred on the production of flagons. The Duxford pottery assemblage has great regional importance for our understanding of pottery production in the early Roman period. The range of vessels being made in the Duxford kilns is of great interest, given that very few flagons occur on contemporary settlement sites in this part of Cambridgeshire. Overall, flagons typically account for less than $5 \%$ of contemporary domestic assemblages. The date of the kiln products, the ways in which the clays have been processed and the repertoire produced at the site are suggestive of itinerant potters rather than local potters learning new techniques.
6.3.33 The kilns date to a period which saw some fundamental changes in the ways people made and used pottery. Within Cambridgeshire the transition from using pottery in the Late Iron Age tradition (and in some cases handmade Middle Iron Age transition) to completely Romanized assemblages did not occur immediately after the Roman conquest. Instead, it appears to have been a much slower, more piecemeal process, with the full Roman repertoire not occurring in domestic settlement sites for several decades. That is not to say that the material was not available, as the evidence from this and other kilns proves, rather it appears that the earliest examples of fully Romanized pottery were reserved for use in 'special' contexts, namely burials (Anderson in Evans et al. 2008). This is certainly the case with the occurrence of flagons outside of urban centres and cemeteries in the early Roman period.
6.3.34 It is therefore of great interest that flagons were the main vessel form produced in the Duxford kilns and if, as suggested by the character of the material, the kilns relate to itinerant potters, this suggests that there must have been a local market, or at least a conceived market, for these wares. Such a market has yet to be identified in any of the local settlement sites excavated to date (e.g. see Evans et al. 2008).
6.3.35 The significance of the Duxford pottery kilns is perhaps best understood within their wider context, as they are comparable to a small group of contemporary pottery production sites located in and around Cambridge. This includes Foxton, Cherry Hinton (Evans 1991), Addenbrooke’s (Webley and Anderson in Evans et al. 2008) and Greenhouse Farm (Gibson and Lucas 2002). All of these broadly contemporary sites produced Romanized pottery at a similar scale of production, seemingly for similar durations. The products made at each of the sites are not the same, with some showing a wider repertoire of goods. However, there are clearly some correlations and thus relationships between these various pottery manufacturing sites, which need to be explored in more detail.
6.3.36 Overall the Duxford kilns are very informative about early Roman pottery production in South Cambridgeshire, and when put in their regional context as part of a series of such sites, have the potential to reveal even more.

Recommendations
6.3.37 All of the pottery has been fully recorded. However, it is recommended that a selection of the kiln products are sent for thin-section analysis, in order to further differentiate them and also to clarify the clay sources used. When this has been complete it will be important to compare the thin-sectioning results with those obtained by Alice Lyons, as part of her MA dissertation, from the kilns at Cherry Hinton, Addenbrooke's and Greenhouse Farm. General comparisons between the pottery produced at Duxford and these other kiln sites in the Cambridge environs should also be explored in more detail, including form analysis.
6.3.38 It is recommended that a selection of the kiln products are illustrated (up to 23 different vessels).

### 6.4 Kiln Material

By Kayt Marter Brown
Introduction
6.4.1 Material deriving from the six excavated kiln structures and associated features comprises a large assemblage (c. 245 kg ) of both permanent and portable kiln furnishings. Much of the kiln lining was left in-situ with - in all but one instance - good preservation of the kiln pedestals. Decayed fragments of possible superstructure were retrieved and samples were taken of the extant kiln linings. Within the portable furniture recovered are a small quantity of fire bars and a single clay disc; however, it is the perforated clay floor plates that are of particular importance in providing one of the largest groups of this distinctive material type identified in the region in recent years. The assemblage is overall in a moderately good condition: although much of the assemblage is fragmentary, three complete plates can be identified, with a further 51 fragmentary plates recorded.

Method
6.4.2 As a minimum, all the material retained has been recorded by weight for each context. Additional records such as fragment count, thickness, length/ width, number and shape of perforations have also been noted for the clay
plates. This information can be found in Appendix 8. Sketches were made of all diagnostic pieces (in archive) to show the variety present and a sample of these have been selected for full illustration prior to publication. In order to quantify the number of clay plates, a count was made of the narrower rounded-end fragments, which revealed 47 examples, 28 of which were found within KILN 5 [153].
6.4.3 A visual examination of samples from the kiln linings indicates that the same clay fabric was utilised both for construction of the kilns and in the manufacture of the vast majority of internal elements such as the pedestals and floor plates. This predominant fabric comprises a basic sandy matrix with varying proportions of additional quartz, sparse angular flint and ferruginous pellets. One notable exception to this fabric is the partial clay disc from DITCH 14 Slot [384], which occurs in a finer fabric with creamcoloured clay swirls.

Kiln Furniture
6.4.4 The clay plates are either straight or slightly tapered wedge-shaped forms and, although roughly consistent in size, some variations were noted. The narrower end or apex end of the plates are rounded or squared, while the other end is bifurcated, with two sections separated by a ' $U$ '-shaped notch. A wide range of styles can be observed in the finishing of these bifurcated ends: some examples are neatly finished with a central notch, while others are asymmetrical and show a much greater variety in size, shape and finish. Given the fragmentary nature of much of this material, no attempt has been made to establish a typology for these fragments, although a selection has been illustrated.
6.4.5 The vast majority of the plates are perforated with one or two pre-firing holes within the centre of the plate, approximately $80-120 \mathrm{~mm}$ from the bifurcated end. These perforations are either rounded or elongated, measuring 2030 mm in diameter or $30 \times 60 \mathrm{~mm}$, respectively. There is no clear correlation between the overall form of the plate, bifurcate end and shape of the prefiring holes. The plate fragments are rectangular in section and range in thickness from $20-35 \mathrm{~mm}$, generally increasing in thickness and width
towards the bifurcated end. The three complete examples recorded (to be illustrated, nos. 1-3) are in the range of $320-340 \mathrm{~mm}$ in length and 140 mm at their widest point. Although the complete width dimensions recorded for all fragments range between $100-170 \mathrm{~mm}$, there is a clear concentration between $130-140 \mathrm{~mm}$ in width.
6.4.6 In addition to the clay plates, four incomplete kiln bars with two tapering ends (from KILN 5, PIT 5, and KILN 2) and a single clay disc fragment (measuring 160mm diameter, DITCH 14 Slot [384]) are also present (to be illustrated, nos. 9-11).

## Discussion

6.4.7 Kiln furniture was recovered from all six of the kilns, in varying quantities and levels of preservation (Table 5). KILNS 1, 3 and 4 contained few examples and those from KILN 2 are very fragmentary and mostly central plate fragments. In the cases of KILNS 3 and 4, this may largely be due to the level of vertical truncation and disturbance to which they had been subjected. Another possibility is that they were of slightly different internal design to KILNS 5 and 6, being of integral pedestal rather than central pedestal type. KILN 5 contained the largest assemblage of clay plates, with a minimum number of 28 plates recorded (103 fragments). There is always the possibility that the material retrieved from a structure is the result of discard from previous firings elsewhere and does not relate to the actual processes occurring in a specific kiln. In this instance, the differentiation in material present could also reflect chronological development in manufacture, with KILNS 1-4 placed stratigraphically earlier in the site sequence than KILNS 5 and 6 . The diversity of forms present, particularly in KILN 5, could be due to reuse of clay plates from previous firings, relating to this or any of the other kilns. Both KILNS 5 and 6 displayed evidence of a groove or narrow ledge around the internal wall, level with the height of the central pedestal. A modification of this nature would have enabled the bifurcated end of the clay plates to be held in place while the rounded ends rested on the central pedestal to create the necessary suspended floor. There is evidence in Roman Britain of kiln bars being pushed into clay linings
while the linings were still wet in an attempt to fix the bars during firing, and of ledges for kiln bars (Swan 1984, 62), in which case the internal groove would have provided a suitable support mechanism for the plates.
6.4.8 Within the known kiln groups in the locality, such as War Ditches, Cherry Hinton (White 1964), Greenhouse Farm (Gibson and Lucas 2002) and Addenbrooke's (Evans et al. 2008), and slightly further afield at Longthorpe (Dannell and Wild 1987), Duxford is unusual in the survival of a large group of kiln furniture. The kiln material from Greenhouse Farm, for example, comprises fragments of linear firebars and few, if any, floor plates (Gibson and Lucas 2002, 103). Although not comparable in terms of assemblage size, the best parallel for the Duxford plates are the perforated bars from Addenbrooke's (Evans et al. 2008, 83, fig. 2.36). The Addenbrooke's material comprises just 29 fragments, as opposed to the 279 diagnostic pieces from Duxford. However, the measurements given compare well with the material under discussion here. Swan, in her gazetteer of Roman kilns in Britain (1984), mentions the presence of similar perforated plates or bars, and refers specifically to an 1828 illustration by Artis of an early Lower Nene Valley kiln (ibid., 71, fig. XI). She largely dismisses this occurrence given the lack of excavated material in the region and highlights the absence of Continental examples in this style. Swan does, however, go on to mention the discovery of 'roughly-made perforated clay plates', again in the Lower Nene Valley area, and suggests that they may be precursors to the $2^{\text {nd }}-$ century kilns of the colour-coated industry, possibly the result of contact between Continental and native potters. In the illustration by Artis, the plates rest on kiln bars, which are surprisingly scarce at Duxford. In most instances where perforated plates occur, they are recovered alongside kiln bars, with possibly the best example being Kiln IV at Elstow, where kiln bars and plates had been abandoned in-situ (Dring 1971). More recently, an experimental firing by Hines $(2012,30)$ has shown that perforated plates can function without the additional support of kiln bars when resting between pedestal and the wall ledge. What is of particular significance here is the suggested continental link inferred both by Swan and also by the products being manufactured at Duxford. The concentration of flagons, particularly ring-
necked and collared flagons, both of which have military connections, combined with the discovery of a Roman military armilla (See Crummy, Section 6.5), all suggest either a Continental background to the potters working at Duxford or perhaps a military stimulus to the production (Woolhouse, this report).

List of examples to be illustrated:

KILN 3 ([229]) Early Roman II
1 Complete clay plate, no perforations. (245) and (246)

KILN 5 ([153]) Early Roman III
2 Complete clay plate. (197)
3 Complete clay plate. (197)
$4 \quad$ Bifurcated end of clay plate. (197)
5 Rounded end of clay plate. (197)
6 Squared end of clay plate. (197)
$7 \quad$ Bifurcated end of clay plate. (188)
8 Rounded end of clay plate. (188)
9 Clay bar. (188)

DITCH 5 (Slot [278])
10 Partial clay bar. (315)

DITCH 14 (Slot [384])
11 Partial ceramic disc. (383)

|  | Apex | Bifurcated <br> end | Central <br> fragment | Total fragment <br> count |
| :--- | :--- | :--- | :--- | :--- |
| KILN 1 | 4 | 3 | 2 | 9 |
| KILN 2 | 8 | 1 | 58 | 67 |
| KILN 3 | 3 | 1 | 1 | 5 |
| KILN 4 | 1 |  | 2 | 3 |
| KILN 5 | 28 | 24 | 43 | 95 |
| KILN 6 | 4 | 8 | 36 | 48 |
| Other features | 6 |  | 46 | 52 |
| Total fragment count | 54 | 37 | 188 | 279 |

Table 5: Quantification by fragment count of perforated clay plates by individual kilns

### 6.5 Metalwork and Small Finds

## By Nina Crummy

6.5.1 The assemblage is small and ranges in date from Late Iron Age to medieval or later.
6.5.2 Three of the fourteen objects are coins. The earliest, found in the subsoil, is a silver unit of the Iceni (SF 5; Plates 2 and 3), a variant of Hobb's East Anglian Bury type, called the Diadem type by van Arsdell. Van Arsdell dates the type to between c. 65 and 50 BC (1989, 80-1), while Hobbs places it slightly later, after the Norfolk Wolf JB types and before the early issues of the Face/ Horse series (1996, 30-1). A copper-alloy as of Nero (SF 1; Plate 31 ) is dated to AD 64-8 and was found in the fill of enclosure DITCH 7 (Slot [100]). A silver penny of Edward I minted at Bristol mint in AD 1299-1302 came from the fill of later Roman trackway boundary DITCH 19 (103), which must have survived as an open landscape feature until at least the medieval period.
6.5.3 The other finds consist chiefly of small pieces of scrap metal from the fills of various ditches and from KILN 1. The only noteworthy items are a fragment of an early Roman military armilla that has been reworked into either a finger-ring or a pendant (SF 8; to be illustrated), an iron strap-guide (SF 3) and a piece of smithing slag from iron-working.
6.5.4 From the fill of enclosure DITCH 4 (Slot [317]), the armilla was a military award given to ranks below that of centurion for force of arms in battle, and the examples found in southern Britain form a distinctive group that can be dated to the conquest period and are often found associated with other pieces of military equipment, including military brooches such as Aucissa and Hod Hill-types, and with early Roman coins (Crummy 2005, 93-4, 98100). Most come from the eastern region, although there are examples from as far west as Gloucestershire and as far north as Humberside (ibid., tables 1-2). The recovery of several examples on rural sites may relate to land grants to veterans (ibid., 100, table 2).
6.5.5 The strap-guide is from the fill of a tree hollow (335) and probably comes from horse harness. It cannot be closely dated but may be medieval rather than Roman. The slag was intrusive in PIT 1 ([323]) and probably came from DITCH 9, which cut the pit. Its presence points to at least limited ironworking in the vicinity of the site during the early Roman period.

Plates 2 and 3. SF 5. (71), Subsoil. Silver unit of the Iceni, a variant of Hobb's East Anglian Bury type (1996, nos. 3524-7), van Arsdell's Diadem type (1989, 80-1). Obverse, head left (Hobbs profile c), before pellet in ring. Reverse, horse right, above pellet in ring, with pellet (?in ring) before and pellet-ring Hobbs variant a below tail. The reverse is deeply dished and the upper edge retains raised patches of smooth silver obscuring the design; there is probably another pellet above the horse. The lower edge appears to bear the raised legend $\mathrm{M} I /-$, with small pellets at the points of the $M$, but the latter may be a blundered motif, or, much as on the upper edge, both letters may merely be patches of smeared metal left when the coin was struck. The latter possibility is reinforced by a number of streaks running in from the lower edge. Diameter 15mm, weight 1.19g.

Plate 31. SF 1. (101), Slot [100], DITCH 7. Copper-alloy as, Nero, Lyons mint, AD 64-8. Obverse, IMP NERO CAESAR AVG P MAX TR P PP, bare head, right, small globe at point of bust; reverse, S C in field, Victory flying left carrying shield inscribed SPQR. As RIC 543. Diameter 28 mm , weight 11.39 g .

SF 2. (103), [102], DITCH 19. Silver long cross penny, Edward I, Bristol mint, probably Class IXb with star on breast, 1299-1302. Obverse, E/-/R ANGL DNS

HYB, crown with three points to side lis; reverse, VILL BRI /-/ IE. North 1960, 1037. Diameter 17 mm , weight 1.4 g .
(To be illustrated), SF 8. (318), Slot [317], DITCH 4. Fragment of a copper-alloy military armilla (Crummy 2005), with the broken end rolled over the surviving terminal to form an asymmetric ring, possibly to convert the fragment into a fingerring or pendant. A hole pierced in the centre of the broken end may have been made either to provide a means of suspension or to take a rivet to secure the two ends of the ring together, although there is no matching hole in the terminal. The main part of the armilla has broad marginal mouldings and three narrow inner cable-decorated mouldings separated by slightly broader plain ones, placing it in Group C (ibid., 96). Although worn, the decorated mouldings retain the angled grooves and terminal dots from the S-decoration that characterise many of these armlets. The terminal is slightly wider than the main body; its surface is worn and no clear design can be distinguished, but slight indentations in the metal suggest that it consisted of either the stamped palmettes or the broad zigzag linking annulets seen on Group C armillae from Harlow, Baldock and Stonea (ibid., fig. 3, 11, 15, 28). Maximum diameter 26 mm , width $19-21 \mathrm{~mm}$.

SF 6. (198), Slot [202], DITCH 6. Small fragment consisting of two layers of copper-alloy sheet, with much of one layer missing; possibly the remains of a composite plate brooch. $17 \times 11 \mathrm{~mm}$, maximum thickness 1.5 mm .

SF 7. (220), [189], KILN 1. Curved copper-alloy strip fragment, plano-convex in section. Length 21 mm , width 3.5 mm , 2 mm thick.
(130), Slot [129], DITCH 8. Iron nail shank with poorly-preserved traces of mineralreplaced wood along its length. Length 62 mm .
(136), Slot [135], DITCH 8. Amorphous iron fragment, in two pieces. $12 \times 10 \times 5$ mm.
(146), Slot [144], DITCH 9. Amorphous iron fragment. $26 \times 24 \times 10 \mathrm{~mm}$.
(101), Slot [100], DITCH 7. Iron bolt or nail shank fragment. Length 71 mm .
(324), [323], PIT 1. Fragment of iron-smithing slag. Weight 136 g .

SF 3. (335), fill of tree hollow. Rectangular iron strap-guide, damaged at one corner. $33 \times 31 \mathrm{~mm}$.

SF 4. (71), Subsoil. Thick L-shaped iron strip fragment, tapering towards each broken end and with the short arm also much reduced in thickness; probably part of a bracket or similar fitting. Length of arms 35 and 22 mm , maximum width 15 mm , thickness $2-8 \mathrm{~mm}$.

Unstratified; metal-detected. Two lead strip fragments corroded together; possibly debris from the manufacture of lead window cames. Length 27 mm , maximum width 9 mm .

### 6.5.6 Abbreviations

RIC Roman Imperial Coinage

### 6.6 Animal Bone <br> By Kevin Rielly

Introduction
6.6.1 There excavations identified two early pits, one dated to the Neolithic and the other to the Middle Iron Age, followed by an array of early Roman pits, ditches and six kilns, all dated to the second half of the $1^{\text {st }}$ century AD. The pottery manufacture clearly took place within an area of agricultural land, with the ditches defining a series of adjoining enclosures and associated trackways. It is assumed that these features were related to an unidentified Romano-British settlement located to the west of the site. Stratigraphic evidence and consideration of spatial and functional interrelationships have enabled the division of the various early Roman features into four subphases. No further Roman levels were found with the exception of a late Roman trackway, this dated to the $3^{\text {rd }}$ century. It can perhaps be envisaged that the abandonment of the $1^{\text {st }}$-century 'settlement' was associated with the Boudiccan rebellion of AD60-61. No later archaeological features were identified.
6.6.2 Most of the faunal remains were found in the $1^{\text {st }}$-century features, with small quantities derived from each of the sub-phases. A smaller amount was also recovered from the Neolithic and Iron Age pits. All of the bones were recovered by hand.

Methodology
6.6.3 The bone was recorded to species/ taxonomic category where possible and to size class in the case of unidentifiable bones such as ribs, fragments of long-bone shaft and the majority of vertebra fragments. Recording followed the established techniques, whereby details of element, species, bone portion, state of fusion, wear of the dentition, anatomical measurements and taphonomic (including natural and anthropogenic) modifications to the bone were registered (See Appendix 9). A concerted effort was undertaken to refit as many bones as possible, noting the actual number of fragments prior to refitting.

Description of the Faunal Assemblage
6.6.4 The site yielded a total of 684 hand-recovered bones, this reducing to 311 after refitting. All but 13 of the latter total have been placed within the stratigraphic sequence extending from the Neolithic through to the later Roman period. There is a moderate to high level of fragmentation amongst these collections, as clearly shown by the reduction in numbers following refitting. Preservation is generally mixed, with the majority of bones showing a degree of root-etching (see Table 6).

| Phase | Neo | MIA | ER | ER1 | ER2 | ER3 | ER4 | LR |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Fragmentation |  |  |  |  |  |  |  |  |
| Sum of bones: |  |  |  |  |  |  |  |  |
| Before refitting | 6 | 6 | 22 | 24 | 38 | 221 | 299 | 18 |
| After refit | 3 | 2 | 16 | 24 | 9 | 85 | 147 | 4 |
| \% reduction after refitting | 50 | 66.7 | $27.3 \%$ | $0 \%$ | 61.7 | 61.5 | 49.2 | 77.8 |
|  |  |  |  |  |  |  |  |  |
| Preservation |  |  |  |  |  |  |  |  |
| Root etching: |  |  |  |  |  |  |  |  |
| Slight | 0 | 1 | 12 | 17 | 4 | 49 | 128 | 3 |
| Moderate | 2 | 0 | 3 | 6 | 3 | 22 | 12 | 0 |
| Poor | 1 | 1 | 5 | 1 | 2 | 14 | 10 | 1 |
| \%Moderate and Poor | 100 | 50 | 45.4 | 35.0 | 55.5 | 42.3 | 12.9 | 25 |

Table 6: Species distribution in each period based on total fragment counts of hand-collected bones

Neolithic
6.6.5 There were just three bones dated to this phase (see Table 7), taken from PIT 1 ([323]). These include a cattle loose mandibular tooth and a metatarsus (foot bone), and a complete equid tibia. The significance of this apparently early collection must be weighed against the presence of numerous later (Roman) materials due no doubt in part to the truncation of the pit by early Roman DITCH 9. The equid can be described as ponysized, with a shoulder height of 1307.1 millimetres (extrapolated from the lateral length of this bone, following von den Driesch and Boessneck 1974).

| Phase | Neo | MIA | ER | ER1 | ER2 | ER3 | ER4 | LR |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Species |  |  |  |  |  |  |  |  |
| Cattle | 2 |  | 6 | 12 | 2 | 28 | 56 |  |
| Equid | 1 | 1 | 2 |  | 2 | 5 | 7 | 1 |
| Cattle-size |  |  | 11 | 4 | 1 | 29 | 37 | 2 |
| Sheep/Goat |  | 1 | 2 | 6 | 3 | 13 | 22 |  |
| Pig |  |  |  | 1 |  |  | 6 |  |
| Sheep-size |  |  |  | 1 | 1 | 6 | 15 | 1 |
| Red deer |  |  |  |  |  |  | 1 |  |
| Dog |  |  | 1 |  |  |  | 1 |  |
| Indeterminate |  |  |  |  |  | 2 | 1 |  |
| Grand Total | 3 | 2 | 22 | 24 | 9 | 83 | 146 | 4 |

Table 7: Species distribution in each period based on total fragment counts of hand-collected bones

Middle Iron Age
6.6.6 Just two bones were recovered from PIT 2 ([337]), comprising an equid tibia and a sheep/goat loose maxillary tooth. The former shaft fragment is heavily fragmented and in poor condition.

## Early Roman

6.6.7 This phase contained the major part of the site collection, with obvious concentrations dated to the later two sub-phases (see Table 7). A notable proportion of the bones in each phase, with the exception of the earliest subphase, were taken from the large enclosure ditches (see Table 8). Particular concentrations were also present in early Roman PIT 4 ([169]) with 16 bones, early Roman I PIT 3 ([378]) with 13 bones, early Roman III and IV DITCH 6 (Slots [202], [213] and [216]) with 22, 30 and 30 bones, respectively, early Roman IV KILN 6 ([152]) with 17 bones, and early Roman IV DITCH 14 ([319]) with 24 bones.

| Phase | ER | ER1 | ER2 | ER3 | ER4 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Feature type |  |  |  |  |  |
| Ditch |  | 8 | 9 | 75 | 139 |
| Kiln |  | 3 |  | 8 | 17 |
| Pit | 22 | 13 |  |  | 10 |

Table 8: Distribution of early Roman bones by feature type
6.6.8 The identifiable portions of these major collections and indeed of the phase assemblages are largely composed of cattle bones, with somewhat lesser quantities of sheep/goat and pig. Equid bones are frequently, if not commonly, represented, while dog and red deer provide a minor component. It should be mentioned that the larger domesticates may well be overrepresented due to the obvious fragmentation and preservation issues. However, assuming a similar level of damage throughout the early Roman sequence, it can be suggested that no obvious change in domesticate abundance occurred during the $1^{\text {st }}$-century occupation sequence. Other sites dated to the Iron Age and extending into the early Roman period have displayed a species representation pattern related to feature type, generally with more sheep than cattle in pit fills compared to more cattle than sheep in ditch fills (referring specifically to Hampshire sites as described in Maltby 1981, 165 and Maltby 1994, 88). This may have some relevance to the obviously greater array of bones from pits in Early Roman I; however, while quantities are rather small, these early levels clearly follow the general cattle-rich abundance pattern. Notably, these domesticates are represented by a diverse array of parts, signifying mixed dumps of processing and food waste throughout the sub-phase deposits.
6.6.9 Both cattle and sheep/goat are represented by a variety of ages, although with a preponderance of adult individuals. This pattern may again demonstrate a survival bias; however, it does also show a notable presence of animals culled following some secondary usage. The state of the bones will have diminished the survival of butchery cuts as well as limiting the quantity of bones which could be measured. However, there are a few cattle bones with heavy cut marks, generally signifying methods used to divide the
carcass.
6.6.10 As mentioned, equid bones are relatively frequent, these occurring in each sub-phase collection with the exception of early Roman I. The largest quantity was found in the later sub-phases. These may include a partial skeleton of an adult individual, comprising four bones, all in DITCH 6, with one from early Roman III fills in Slot [213] and three from early Roman IV fills of Slot [216]. The complete metacarpus allows the calculation of a shoulder height of 1219.2 millimetres. Alongside a slenderness index from this bone of 15.1 , it can be suggested that this animal was rather small and robust, probably a pony-sized equid. Dogs are represented by a relatively complete skull from early Roman PIT 4 ([169]), clearly from a large male, perhaps up to the size of a mastiff (comparing sizes of dog skulls found at London bearbaiting arenas; Rielly 2013). Finally, the red deer from early Roman IV DITCH 14 (Slot [228]) is represented by a near-complete antler featuring at least 65 points. This signifies an age of at least 4 to 5 years (after Lawrence and Brown 1974, 131). Unfortunately it was broken at the base, so it cannot be surmised whether this was taken from a carcass (signifying hunting) or whether it had been dropped (potentially signifying raw material for antler working purposes).

## Late Roman

6.6.11 The trackway, composed of two parallel ditches, provided three bones from DITCH 18 and one from DITCH 19. This collection features just one identifiable piece, an equid skull fragment (a premaxilla) from DITCH 18 (Slot [260]). The dentition is sufficiently complete to estimate an age of about 7 years for this individual (following Goody 1983, 41).

Conclusions and Recommendations for Further Work
6.6.12 There is a reasonable-sized collection from the $1^{\text {st }}$-century AD levels, apparently dating mainly to the latter part of this early sequence, as shown by the greater proportion of bones in the last two sub-phases. The state of the bones in these collections is undoubtedly an issue affecting their potential value; however, the generally moderate degree of fragmentation with a similar level of root damage suggests that the information gleaned
from these bones merits further consideration. Of some importance in this respect is the impact of Roman occupation on Late Iron Age meat eating habits. The notably high proportion of cattle bones would appear to suggest a marked degree of Romanization (following King 1978 and 1984). However, the generally perceived sheep-rich Iron Age diet (see Grant 1984) may not necessarily apply to this area, with cattle-keeping perhaps being more prevalent in the open land adjacent to the River Cam. A better understanding of this problem can be gleaned by comparison with evidence from other sites in this area, for example, the recently excavated site at Denford Farm in Sawston (Newton 2013).
6.6.13 Other aspects of the domestic animals should be referred to in the publication report, including age and size, although again with reference to the possible biases suggested by the state of the bones. Comparisons should again be made with any similarly dated sites in the locality.
6.6.14 It is therefore recommended that this collection, limited to the early Roman bones, is worthy of further attention. This will entail additions to the present report concerning the potential status of the site as shown by the degree of Romanization and a more detailed review of the domesticate age and size data.

### 6.7 Human Bone <br> By Aileen Tierney

Introduction
6.7.1 This report is an assessment and analysis of the unburnt human remains recovered during the excavations at Moorfield Road. There was only one feature which contained unburnt human bone. A human cranium and a number of vertebrae were found deposited in a pit (PIT 3; [378] (377)) dating to the early Roman period.

## Methodology

6.7.2 The remains were excavated in accordance with Institute for Archaeologists guidelines (McKinley and Roberts 1993).
6.7.3 The general methods used in the osteological evaluation of human skeletal material were those of Buikstra and Ubelaker (1994). Assessment of age was based on the stages of dental development and eruption (Bass 1995) and epiphyseal union, and on the degree of dental attrition (Brothwell 1981). Cranial sutures were also consulted where applicable. The age categories used in this report are:

| infant | $0-4$ years |
| :--- | :--- |
| juvenile | $5-12$ years |
| subadult | $13-18$ years |
| young adult | $19-25$ years |
| middle adult | $26-44$ years |
| mature adult | 45 years + |

6.7.4 There may be overlaps between categories or a broad category, such as adult, where insufficient evidence was present to refine age estimation any further. In addition to these ageing criteria, degenerative diseases have been used to further estimate the age at death of human remains and to suggest "middle" or "mature" as opposed to simply identifying fused bone and stating 'adult".
6.7.5 The sex of adult individuals was ascertained where possible from sexually dimorphic traits of the skeleton (Buikstra and Ubelaker 1994) and metrical data.
6.7.6 Each element was identified macroscopically. Identification of elements allowed for completeness of skeleton to be ascertained.

## Material

6.7.7 Fragments of at least six cervical vertebrae, in addition to a semi-complete cranium, were uncovered during the excavation of an early Roman pit (PIT 3; [378]) located in the south-eastern part of the excavation area. The fragmentary nature of the vertebrae has resulted in an estimated number of vertebrae which may be less than six. The cranium is in a similar fragmentary state although partial reconstruction was possible.

Results
6.7.8 The glabella of the frontal suggests that the individual is male (Score $4 / 5$; Buikstra and Ubelaker 1994), while the nuchal crest of the occipital and the mastoid process of both temporals all score probable male/ ambiguous sex (Score 3/4; ibid.).
6.7.9 Dental evidence indicates that this is an older individual. This is evidenced by resorption of the alveolar bone at the location of upper right second premolar. No teeth were recovered from the context apart from the remains of the root of the upper right first molar. The absence of the remainder does not contribute to the ageing of this individual, as all the tooth sockets are still visible and show no sign of bone re-growth. There is no evidence of dental disease. The partially obliterated cranial sutures support the middle-mature age of this male individual.
6.7.10 Reconstruction of the cranium highlights evidence of sharp force trauma; none of the potential lesions show any evidence of healing. Differential direction of the cut marks indicate that at least two blows may have occurred to execute a successful decapitation.
6.7.11 Significant root etching of the outer cranium surface has degraded the quality of the bone; however, the cut marks are still quite distinct. Plates 38 and 39 illustrate the differing angles of the main cut marks and the complex nature of the potential attack. Arrows have been included to show the evidence of sharp force trauma.

## Conclusions and Recommendations

6.7.12 The cranium and a number of vertebrae belonging to an older male individual were uncovered during the excavation of a large early Roman pit (PIT 3; [378]) in the south-eastern part of the excavation area. The cut marks on the cranium suggest a double-blow decapitation attempt. The lack of any evidence of healing suggests that this was the cause of death.
6.7.13 It is recommended that the possible cut marks identified by the author on this cranium should be examined by another osteologist. Photographs of the cut marks on the cranium have been sent to two osteologists (Megan Stoakley
and Samantha Dickinson) but practical handling of the material is advised.
6.7.14 The cranium and associated vertebrae have been bagged carefully, are supported with acid-free tissue paper, and are stored using their associated cut [378] and fill (377) numbers. It is recommended that the remains are retained for future study.

### 6.8 Plant Macrofossils and Other Remains

 By Val Fryer
## Introduction and Method Statement

6.8.1 The excavations recorded features of Iron Age and Roman date including field and enclosure ditches, pits and six pottery kilns. Samples for the retrieval of plant macrofossil assemblages were taken from across the excavated area and thirteen were submitted for assessment.
6.8.2 The samples were processed by manual water flotation/ washover and the flots were collected in a 300 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x16 and the plant macrofossils and other remains noted are listed in Appendix 10. Nomenclature within the appendix tables follows Stace (1997) for the plant macrofossils and Kerney and Cameron (1979) and Macan (1977) for the mollusc shells. All plant remains are charred. Modern roots and seeds were also recorded.
6.8.3 The non-floating residues were collected in a 1 mm mesh sieve and sorted when dry. All artefacts/ ecofacts were retained for further specialist analysis.

Results
6.8.4 Cereals, chaff and seeds of common weeds are present at a low to moderate density within all thirteen assemblages. Preservation is generally very poor. The majority of the cereal grains are severely puffed and distorted, almost certainly as a result of exposure to extremely high temperatures during combustion. Many of the grains and seeds are also very fragmentary.
6.8.5 Oat (Avena sp.), barley (Hordeum sp.) and wheat (Triticum sp.) grains are present, although most cereals are too poorly preserved for close identification. Wheat grains occur most frequently, with most of the identifiable grains being of an elongated 'drop' form typical of spelt ( $T$. spelta). Spelt glume bases are present within five assemblages and a possible spikelet fragment was found in Sample 29 (fill (300), KILN 3). Other chaff elements are scarce, but a detached cereal sprout was also recovered from Sample 29.
6.8.6 Weed seeds are scarce, with most occurring as single specimens within an assemblage. However, the assemblage from Sample 20 (fill (208), KILN 5) does include numerous specimens of orache (Atriplex sp.) and goosegrass (Galium aparine), both common field weeds. Other taxa noted include brome (Bromus sp.), small legumes (Fabaceae), black bindweed (Fallopia convolvulus), corn gromwell (Lithospermum arvense), small grasses (Poaceae) and dock (Rumex sp.). A single bur-reed (Sparganium sp.) nutlet was recovered from Sample 20, a fragment of hazel (Corylus avellana) nutshell is present within the assemblage from Sample 27 (fill (302), Slot [306], DITCH 7) and Sample 34 (fill (338), Middle Iron Age PIT 2) included what appears to be a heavily charred hawthorn (Crataegus sp.) -type fruit stone. Charcoal/ charred wood fragments are present throughout the assemblages, although rarely at a high density. Other plant macrofossils are scarce but small pieces of charred root/ stem were noted within a number of the assemblages studied.
6.8.7 The fragments of black porous and tarry material, present within all assemblages, probably largely derive from the combustion of organic remains (including cereal grains) at extremely high temperatures, possibly on repeated occasions. However, some pieces are hard and brittle and it is thought most likely that these are bi-products of the combustion of coal, small pieces of which were noted within nine assemblages. Small fragments of burnt or fired clay are present within all but one of the kiln samples and three of the ditch/ pit assemblages. Other remains occur less frequently but include small fragments of bone (some of which are burnt/ calcined) and
splinters of burnt stone.
6.8.8 Although specific sieving for molluscan remains was not undertaken, shells are present within all thirteen assemblages, with the highest density occurring within Sample 30 (fill (320), Slot [319], DITCH 14). However, the contemporaneity of the material with the sampled contexts is uncertain, as many specimens are well preserved, retaining both delicate surface structuring and colouring. All four of Evans (1972) ecological groups of land snails are represented, with open country species occurring most frequently. Shells of marsh/ freshwater obligate species are also present, with the highest density occurring within the aforementioned sample from DITCH 14.

## Discussion

The Roman Kilns
6.8.9 Six kilns of $1^{\text {st }}$-century AD date were excavated, recorded and sampled; single samples from each feature were submitted for assessment. The recovered flots are all small (i.e. <0.1 litres in volume), possibly suggesting that the kilns were kept scrupulously clean as a means of preventing accidental fires. However, the few macrofossils which are recorded are of interest, particularly the fact that three of the assemblages (from KILNS 2, 3 and 6 ) include high densities of very heavily burnt grain. This would initially appear to indicate that cereal processing waste was being used as tinder, kindling or fuel for the kilns, as has been recorded with other contemporary features (for example Postwick, Norwich; Fryer and Murphy 1997). However, in the latter instance and in other similar assemblages, cereal chaff and weed seeds are generally more abundant than in the current assemblages. Although this virtual lack of 'dross' may, in part, be due to the high temperatures at which the material was obviously burnt, it is also tentatively suggested that the kilns were occasionally used for purposes other than the production of pottery, namely the parching or drying of small batches of processed grain or even culinary preparation. The latter might explain the presence of burnt bone fragments within the assemblage from KILN 5. Other evidence from the kilns is minimal. However, the presence of a burnt shell of Helicella itala (a snail common within calcareous grassland
habitats) could indicate that dried herbage was being used to ignite and/ or fuel the kilns. Why shells of marsh/ freshwater obligate snails are present in the samples from three of the kilns is currently unknown. However, as all are of species commonly found in small bodies of water prone to seasonal drying, it is perhaps most likely that after the kilns fell out of use, their fired bases retained sufficient moisture to create a suitable microhabitat in which these snails could survive. Seasonal flooding from the stream located to the south of the site is likely.

## The Ditch and Pit Assemblages

6.8.10 Of the seven other samples submitted for assessment, five are from ditch fills of Roman date, one is from Middle Iron Age PIT 2 (fill (338); Sample 34) and one is from early Roman PIT 3 (fill (377); Sample 40). The ditch assemblages are generally sparse, although Sample 30 (fill (320), Slot [319], DITCH 14) does contain a very high density of mollusc shells. Although plant macrofossils are scarce, the assemblages are similar enough in composition to those from the kilns to suggest that the material may be derived from a common source: that is, charred refuse from within the kilns. Seeds occur less frequently, but such lightweight elements would easily blow away if the material was exposed to the elements for any considerable period prior to incorporation within the ditch fills. The mollusc assemblage from DITCH 14 is of note, although it is doubtful whether the remains are contemporary with the ditch fill. Notwithstanding this, the assemblage suggests that short-turfed grassland conditions were locally prevalent, while the ditch itself was probably intermittently shaded and seasonally damp or wet at its base.
6.8.11 The pit assemblages are both quite sparse, although Sample 34 does contain moderately high densities of charcoal/ charred wood, black porous and tarry residues and, somewhat surprisingly, coal fragments. It is perhaps most likely that all of this material is intrusive within the pit fill, representing kiln waste in the fill of DITCH 9, which cut PIT 2.

Conclusions and Recommendations for Further Work
6.8.12 In summary, the assemblages recovered from the samples submitted for
assessment are generally small and somewhat limited in composition. This is probably largely a result of the area being primarily industrial, supporting at least six pottery kilns and other possible ancillary features, which would have been placed peripherally to any main foci of habitation in order to minimise the risk of accidental fires. Domestic and/ or agricultural refuse is, therefore, largely absent. The temperatures at which the kilns were fired have also probably diminished the assemblages, and the macrofossils which survive are mostly severely burnt and often impossible to identify. It is suggested that, occasionally, the kilns may have been used for purposes other than those for which they were intended, but it should be stressed that the evidence for this is tenuous. It would appear that at some point after the kilns fell out of use, the site was subjected to at least one period of inundation, which facilitated the formation of small damp/ wet microhabitats within the earlier features.
6.8.13 Although three of the kiln assemblages do contain a sufficient density of material for quantification (i.e. 100+ specimens), the macrofossils are so poorly preserved that further analysis would add little to the data already contained within this assessment. Therefore, no further work is recommended at this stage. However, a summary of this report should be included within the publication.

## 7 <br> DISCUSSION AND UPDATED RESEARCH AIMS

### 7.1 Discussion

## Overview

7.1.1 The excavation allowed the investigation of a pottery production site dating from the first few decades after the Roman Conquest in AD 43. The site fits into a group of other very early Roman kiln sites in the Cambridge environs (Greenhouse Farm (Gibson and Lucas 2002), Addenbrooke’s (Webley and Anderson 2008), Cherry Hinton (Evans 1991) and Foxton). When viewed in conjunction with these sites, the Duxford kilns have the potential to significantly enhance current understanding of pottery production during the early Romano-British period. When viewed in its contemporary human landscape context, the site can also help to refine current understanding of the social and economic context of pottery production at this time. The assemblage of kiln furniture from Duxford is particularly large and wellpreserved and increases our knowledge of kiln technology and the manufacturing process (Marter Brown, Section 6.4).

## Landscape Setting

7.1.2 The excavation opened a small window on the early Roman-period landscape of the Cam valley. At this time, the site was an area of agricultural land on the periphery of an (unidentified) settlement. The 'infield' character of this farmland is clear from the effort invested in repeated recutting and reinstatement of the enclosure boundaries. Its topographical setting, on low-lying ground next to a stream, makes it most likely that it was used as damp grazing for cattle. The dense clayey silt fills of the large enclosure ditches in the south of the site appeared to have been deposited by running water and environmental samples taken from these and other features in the southern half of the excavation area (including disused KILNS 3, 4 and 6) contain evidence for periodic water-logging (Fryer, Section 6.8). Although the stream at the southern edge of the site was dry during the excavation, 2013 was one of the hottest, driest summers on record. Modern agricultural irrigation must also have lowered the ancient water-table to some extent. Nevertheless, the south of the site is shown as floodplain on modern

Environment Agency maps. The ditches were presumably intended to keep water in the meadows alongside the stream and away from the settlement area to the west/ ?arable land to the north. The plant macrofossil assemblages suggest an environment of short-turfed grassland with common field weeds, though crop remains (generally too heavily burnt to identify) imply that some cereal growing also took place in the surrounding landscape.
7.1.3 The proximity of the site to contemporary domestic occupation is reflected in the moderate quantities of animal bone (including both butchery and food waste; see Rielly, Section 6.6) and some non-kiln-related pottery (Anderson, Section 6.3) found in features across the excavation area. There was no chronological patterning to the distribution of this material - rather, the backdrop of domestic activity was continuous throughout the early Roman period. The trial trenches across the remainder of the development site, to the east of the excavation, contained almost no archaeological features, and none of Iron Age or Roman date, so the settlement with which the agricultural infield and kilns were associated is most likely to have been located a short distance to the west of the excavation. A few imported Contintental wares, including south Gaulish samian (Anderson, Section 6.3), suggest a degree of status, as do the two Iron Age and early Roman coins, but there is nothing exceptional. With the possible exception of the $1^{\text {st }}$ century BC Iceni coin (which could conceivably have remained in circulation for a century or more as currency or an heirloom), there is nothing from the site to indicate occupation before the mid $1^{\text {st }}$ century $A D$ (there is unlikely to have been any continuity from the Middle Iron Age, which was represented by a single pit). The early Roman features present on the site therefore represent expansion on to previously unused or, at least, not intensivelyused land.
7.1.4 The use of the site for pottery production appears to have been secondary to its use for agriculture. This is apparent from the way that the kilns were inserted ad hoc into the enclosures, often 'squeezed in' at the side or in a corner (e.g. the positioning of KILNS 3 and 4 in ENCLOSURES 1 and 2,
respectively), with no sign of the enclosures having been designed around them. Kilns were also built in areas which must have been seasonally wet (e.g. south of DITCH 5), reinforcing the sense of pottery production taking place in an unplanned way, in peripheral areas that were not needed for other things. The episodic rather than continuous nature of pottery production is suggested by stratigraphic relationships between the kilns and the ditches (and dumps of kiln material present at different levels in the ditch fills). One or two kilns were built, used several times and then abandoned. The site then reverted to solely agricultural use for a period, with enclosure ditches continuing to silt-up or being re-cut or repositioned, before the potters returned, new kilns were built and manufacturing recommenced. It is possible, especially bearing in mind the 'wet' locations of several of the kilns, that pottery manufacture was a seasonal activity during the summer months.
7.1.5 The span of time over which this activity took place is not known. The period of early Roman activity was brief but intensive, with almost all the identified features belonging to the period c. AD 50-80/100 based on the character of the associated pottery. However, this 'phase' could conceivably have taken place over a much shorter timeframe, perhaps only one or two decades. The ditches could have weathered and silted-up rapidly if they were subject to regular inundation, necessitating frequent re-cutting and redefinition even over a short period. The presence of a coin of Nero in the uppermost fill of one of the later enclosure ditches (DITCH 7) gives a possible end date for activity as early as the mid 60s AD, although it could, of course, have remained in circulation for some time before its deposition.
7.1.6 The choice of the site for pottery production is likely to have had much to do with the availability of water and raw materials. The local chalk has a high clay content and could have been the source for some of the potting clay and the clay used to line the kilns, fashion pedestals and manufacture kiln plates. One or two of the identified kiln fabrics do contain calcareous inclusions (e.g. Fabric QC2, see Anderson, Section 6.3; though it should be noted that this accounts for only a few sherds of pottery from the site). The local geology, particularly in the south of the site, also has sand pockets
which could have been a source for some of the sand temper used in many more of the kiln fabrics. Thin-section analysis of the kiln products and kiln furniture could help to refine understanding of the clay sources. However, the choice of the site must also have had much to do with favourable social and economic conditions: permission from the local landowner(s) and the existence of local markets where there was demand for the vessels being made.

The Kilns
7.1.7 Six kilns were found in the excavation. The presence of dumps of kiln material some distance from the identified kilns, notably in a slot through the east end of DITCH 6, suggests that other kilns may exist outside the excavation area, particularly to the south.
7.1.8 All the kilns consisted of a stokehole, which was either elongated or roughly circular in plan, leading into a circular kiln chamber and giving an overall 'keyhole' shape. The term 'flue' has been used in this report to refer to the meeting point where the stokehole joined the kiln chamber, at which point vitrified clay flue arches survived in KILNS 1 and 5 . The beginnings of arches were also present in KILNS 3 and 6 but not in KILNS 2 and 4 due to the level of vertical truncation to these kilns.
7.1.9 Two basic designs of kiln were present: those with free-standing clay pedestals positioned centrally within the kiln chamber and those with projecting 'tongue' pedestals integral to the kiln lining. There was no particular chronological patterning to these different designs. The two earliest kilns (KILNS 1 and 2; early Roman I) both had central pedestals, the next in sequence (KILN 3; early Roman II) had a tongue pedestal, followed by two contemporary (early Roman III) kilns, KILNS 4 and 5, with tongue and central pedestals, respectively. The final kiln (KILN 6; early Roman IV) appears to have been of central pedestal type, although the pedestal had been removed before it was backfilled.
7.1.10 The kilns were all cut into the natural chalk and a thick layer of clay lining applied to the walls of the kiln chamber and flue. If the kiln was of integral
pedestal type, a projecting wall of clay was also built extending out from the midpoint of the rear wall of the kiln chamber, across almost its full width. If the kiln was of central pedestal type, a free-standing roughly rectangular block of clay $c .25 \mathrm{~cm}$ high was positioned in the middle of the kiln chamber floor. Clay flue arches, built out from the sides of the kiln chamber where it joined the stokehole, and integral to the chamber walls, survived in two of the kilns (KILNS 1 and 5) and were probably originally present in them all.
7.1.11 The pedestals would have originally supported a raised floor of removable wedge-shaped kiln plates (see Marter Brown, Section 6.4), which radiated out to the walls of the kiln chamber and, in at least two kilns (KILNS 5 and 6), slotted into slight (c. $2-3 \mathrm{~cm}$ deep) lips/ ledges in the chamber walls, approximately $30-35 \mathrm{~cm}$ up from the base of the kiln chamber and level with the top of the pedestal. No evidence of these lips was present in either of the integral pedestal kilns (KILNS 3 and 4), so it is possible either that the outer edges of the kiln plates rested on removable pieces of kiln furniture or that when a complete set of plates were in-situ and butting up against each other and against the kiln chamber wall, they were mutually supporting. The same observation is true of KILN 1 (central pedestal type). The kiln load would have been stacked on this suspended floor and a fire would have been set below. The flue appears to have been blocked during firing, usually using bits of old kiln lining, kiln bar fragments and raw clay. Perforations in the kiln plates allowed hot air to pass through and fire the pots stacked above. A temporary ?domed superstructure of turves was presumably constructed over the kiln but had to be broken into in order to remove the fired kiln load. The clay elements of the kiln lining and structure became hard-fired during the use of the kilns. High temperatures caused the outside faces of the lining and pedestal to vitrify and turn an orange/ orangey-white colour to a depth of a few centimetres. Further back from the exposed surfaces, the clay was oxidised to a darker brownish-red and, although hardfired, was slightly more 'crumbly'. It is not known whether the kiln was given an initial firing after construction in order to solidify these elements of the structure before use, or whether their firing was entirely incidental to the firing of kiln loads.
7.1.12 There was surviving evidence in most of the kilns for having been used 2-3 times. Evidence for other uses may have been entirely raked-out between firings. However, the overall impression from the six excavated kilns is that repeated firing of the lining and pedestal and the act of breaking into/ demolishing the superstructure to remove the fired pots after each firing, made the structure brittle and not suitable for further use. In any case, the episodic and possibly seasonal nature of the manufacturing means that the kilns may have only ever been intended to fire a few loads, so the absence of evidence for more than 2-3 uses may be an accurate reflection of their lifespans.
7.1.13 If the stokehole is taken into account, there was considerable variation in the overall size of the kilns. However, it is doubtful whether the size of the stokehole was of major significance to the way that the kiln functioned or that its size was a matter of careful design or planning. The size of the kiln chamber, by contrast, was remarkably consistent at around 0.80 m wide internally at the base, KILN 5's being slightly larger (see Table 9).
7.1.14 The kilns were mostly aligned more or less east to west (KILNS 2, 3, 4 and 5). There was some variation, as KILN 1 was orientated south-west to northeast and KILN 6 north-west to south-east. There was little consistency in the position of the kiln chamber, varying between the east and west ends in the majority of the kilns. There is some slight indication of a chronological trend here, with the two earliest kilns (KILNS 1 and 2) having their kiln chambers towards the east and stokeholes to the west, and the next three kilns having their chambers at the west end and stokeholes to the east. Kiln orientation may have been connected with the prevailing west-south-westerly wind, which presumably would have enhanced up-draught in those kilns positioned with their stokeholes to the west and oven chambers to the east. This positioning was favoured in the earliest two kilns but was later abandoned in favour of a reversed arrangement. It may be reading too much into the small dataset but it is possible that this change in layout was in response to too great a flow of air into the kiln when the stokehole faced west. The reversal of KILN 5's original layout may have been a reaction to the same problem.

The alignment of the latest kiln, KILN 6, is somewhat anomalous but its north-west-facing stokehole would have been angled slightly away from the prevailing wind.
7.1.15 With two exceptions, there is no evidence to link particular kilns to particular fabrics or types of vessel (see Anderson, Section 6.3). One exception is KILN 4, which seems to have been the only kiln to produce ring-necked flagons. The other is the occurrence of type H 2 handles (characterised by the thickening/ beading of both edges while the interior remains flat) only in association with KILN 6.

## Social and Economic Context

7.1.16 The kilns were used overwhelmingly, although not exclusively, for the production of flagons (see Anderson, Section 6.3). As discussed above, the choice of this site for pottery manufacture must have been partly based on the existence of local markets where there was demand for these sorts of products. A Roman fort existed at Great Chesterford, 5km to the south, probably from the time of the Boudiccan revolt (AD 60-1) (Draper 1986; Rodwell 1972). At Cambridge, there was an existing defended Iron Age settlement which saw Roman reorganisation soon after the Conquest, and the establishment of a possible (short-lived) fort in the aftermath of the Boudiccan rebellion (Taylor 1999). The Roman soldiers, civilian hangers-on, and officials based in these locations could account for some of the demand for Continental-style pottery, but their numbers are unlikely to have been sufficient to have supported all the early Roman kiln sites identified in the Cambridge hinterland.
7.1.17 Demand for Continental tablewares on this scale can perhaps more reasonably be associated with the adoption of 'Roman' dining habits, including (in the case of flagons) wine consumption, among the native population of the area. South Cambridgeshire is on the northern fringe of that part of south-eastern Britain where there had been demand for Continental-style material culture, particularly among the Romanising Catuvellaunian elite, before the Roman Conquest (though outlying late Iron Age sites with evidence for 'Belgic' material culture continue to be found ever
further northwards, including one site in Lincolnshire). Production of these sorts of vessels to meet local demand during the early Romano-British period therefore fits in with an existing trend.
7.1.18 It is of note, then, that flagons are extremely rare in domestic assemblages from early Romano-British rural settlements excavated in Cambridgeshire to date (Anderson, Section 6.3). Instead, they are usually found in 'special' contexts, particularly as grave goods. Therefore, the flagons made on the site were either intended mainly for funerary use or the settlements where they were used have not yet been found. As many of the vessels accompanying Romano-British burials appear to have been 'seconds', the latter seems a plausible destination for the best kiln products. A possible site for a large and wealthy late Iron Age - early Roman settlement is at the Babraham Institute, where a densely-packed inhumation cemetery with rich grave goods suggests the presence of something more than a typical small farmstead/ rural settlement (Mark Hinman, pers. comm.).
7.1.19 The early date of the pottery, the ways in which the clay was processed, and the repertoire of vessels being produced (Anderson, Section 6.3), in addition to the kiln technology which was utilised (Marter Brown, Section 6.4), indicate that production was almost certainly being carried out by itinerant potters who had learned their trade on the Continent rather than native craftsmen picking up new techniques. At this early post-Conquest date, the potters might plausibly have been hangers-on who followed the Roman army and provided for its needs but were also ready to exploit commercial opportunities in the newly annexed province, particularly where markets for their products already existed. The presence of a Roman military armilla in a stratigraphically early context reinforces the possible military connection (see Crummy, Section 6.5). It may be fanciful conjecture, but one or more of the potters could have been retired soldiers returning to their former trade.

## The End of Activity

7.1.20 Both the pottery production and use of the site as agricultural infield came to an abrupt end in the later $1^{\text {st }}$ century AD. The reason for this is unknown but several possible reasons can be put forward. The first possible scenario is
essentially economic: that there was a brief period in the mid to late $1^{\text {st }}$ century AD when demand for Continental-style pottery in the new Roman province was met by itinerant potters, operating seasonally from a multiplicity of different small-scale production sites. By the later $1^{\text {st }}$ century, larger and more permanent pottery production sites, for example at Verulamium and in the Nene valley, had become established and were taking over an increasing share of the market, crowding out small-scale manufacture and perhaps also drawing in many craftsmen who had previously been working independently.
7.1.21 A more dramatic alternative can also be put forward: that the end of pottery production at the site was linked with suppression of the local population in the wake of the Boudiccan revolt of AD 60-1 and a consequent economic depression/ fall in demand. The presence of a coin of Nero in the uppermost fill of one of the later ditches (DITCH 7) gives a terminus post-quem of AD 64 , which would fit rather neatly with such an explanation. The sudden end of all activity on the site in the later $1^{\text {st }}$ century, including not just pottery manufacture but also the previously-intensive maintenance of the agricultural infield, is difficult to explain in purely economic terms.
7.1.22 The key to deciding between these alternatives will be an assessment of the evidence from other early Romano-British sites in this part of South Cambridgeshire and whether there are any wider signs of settlement discontinuity or economic decline in the later $1^{\text {st }}$ century that could be linked to post-Boudiccan suppression.
7.1.23 The cessation of ditch maintenance (and thus the rapid silting-up of any ditches and other hollows that could act as 'traps' for settlement-related debris) at the site could simply be a logical response to the flood-prone nature of the land which, after a decade or two of use, had proven itself to be too much effort to maintain.
Land east of Moorfield Road, Duxford, Cambridgeshire: Archaeological Excavation ©Pre-Construct Archaeology Limited, March 2014

| Kiln | $\begin{aligned} & \text { Cut } \\ & \text { No. } \end{aligned}$ | Pedestal <br> Design | Shape in Plan | Overall Length (m) | Internal Diameter of Kiln Chamber (max.at base) (m) | Max. <br> Depth <br> (m) | Orientation (chamber end in bold) | No. of uses* | Flue arch intact? | Lip? |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | [189] | Central | Keyhole | 2.47 | 0.78 | 0.48 | SW-NE | 1 | Y | N |
| 2 | [277] | Central (removable) | ?Keyhole (truncated) | 1.60+ <br> (truncated) | 0.80? (truncated) | 0.39 | W-E | 3 ? | N | N |
| 3 | [229] | Integral | Keyhole | 1.83 | 0.78 | 0.36 | WNW-ESE | 2-3 | N | N |
| 4 | [258] | Integral | Bulbous <br> keyhole | 2.29 | 0.75 | 0.35 | W-E | 2 | N | N |
| 5 | [153] | Central | Bulbous <br> keyhole | 2.78 | 0.90 | 0.58 | W-E** | 3 | Y | Y |
| 6 | [152] | Central (removable) | Elongated oval | 2.83 | 0.75 | 0.62 | NW-SE | 1-2 | N | Y |

* Number of uses for which evidence was present. Other uses may have left no discernible trace due to raking-out of kilns after use etc. ${ }^{* *}$ KILN 5 was originally the opposite way around, with the kiln chamber at the east end. This arrangement was later reversed: the former kiln chamber became the stokehole and the original stokehole was lined with clay and became the kiln chamber.


### 7.2 Further Analysis to be completed

Stratigraphic Evidence
7.2.1 To carry out further research into parallels for the form of the kilns, particularly comparison of their size and morphology with the kilns at Greenhouse Farm, Addenbrooke's, Cherry Hinton and the other early Roman kiln sites in the Cambridge area.
7.2.2 To digitise the fully-excavated kiln plans and running sections for publication, in addition to any mid-excavation plans showing significant use or demolition -related dumping deposits.

Finds
Pottery
7.2.3 To complete cataloguing and analysis of the pottery assemblage from the trial trench evaluation and incorporate into the report on the excavation assemblage.
7.2.4 To send a selection of kiln products for thin-section analysis in order to further differentiate the kiln fabrics, clarify the clay sources used, and facilitate comparison with the thin-sectioning results from the kilns at Cherry Hinton, Addenbrooke's and Greenhouse Farm.
7.2.5 To undertake further detailed comparison of the pottery from the kilns with that from these and other kiln sites in the Cambridge hinterland, including form analysis. The aim of this analysis is to better understand the similarities and differences in production at these respective sites, including the background of the potters, the technologies being used, and the markets being catered for.
7.2.6 To illustrate a selection of both the representative and more unusual kiln products for publication (up to 23 vessels).

## Kiln Material

7.2.7 To illustrate the more complete kiln plates, bars and other furniture (11 examples) for publication.
7.2.8 To carry out further library research into parallels for the kiln furniture in order to better understand the technological, social and economic context of the manufacturing at Duxford, particularly the possibility of a military connection (including, particularly, the kilns excavated by Artis at Durobrivae).

Small Finds
7.2.9 To illustrate the Roman military armilla for publication.

Animal Bone
7.2.10 To carry out further comparison of the animal bone assemblage with that from other local Iron Age and Roman settlement sites e.g. Dernford Farm, Sawston (Newton 2013) in order to clarify whether the cattle-dominated husbandry pattern is typical of this area in the late Iron Age/ early Roman period or whether it is atypical and possibly indicative of a marked degree of 'Romanization' at this early date. The nature of the Iron Age and early Roman agrarian economy is a regional research priority (Medlycott 2011, 31).
7.2.11 To carry out a more detailed review of domesticate age and size data against other local sites, to see how it fits the general pattern and what it can add to current understanding of late Iron Age/ early Roman animal husbandry in this part of Cambridgeshire.

Human Bone
7.2.12 To seek second opinions from two other osteologists, in order to confirm the identification of a double blow decapitation on the human skull from PIT 3.

Plant macrofossils
7.2.13 To incorporate the plant macrofossil evidence from the evaluation into the report on the excavation assemblage.

### 7.3 Research Aims

7.3.1 The original excavation aims (see Section 1.2, above) were based on the assumption that this was a $1^{\text {st }}$-century AD settlement site possibly spanning the Iron Age to Roman transition. In the event, the excavation area turned
out to be peripheral to settlement areas but to contain regionally to nationally significant evidence of very early Roman pottery manufacture. Nevertheless, several of the original research aims remain relevant. In addition, the pottery kilns give rise to new research questions, some of which have already been addressed in this report.

## Updated Research Aims

7.3.2 To identify the markets for the kiln products (particularly the flagons), that is, where the vessels manufactured on the site were going. This will be achieved through a review of the pottery reports from excavated contemporary settlements and cemeteries within c. 10km of Duxford. This review will involve published excavation reports, HER data, 'grey literature' and, potentially, finds held in archive for any unpublished sites which appear to be significant in this regard. The aim is to fully understand the social and economic context of the pottery manufacture.
7.3.3 To identify whether the apparent cultural affinities of the early Roman-period site (i.e. Romanizing) are in keeping with those of other contemporary sites in the surrounding area or whether they stand out as anomalous. This will be achieved through a review of the evidence from other published and unpublished early Roman-period settlement and cemetery sites, particularly, in view of its physical proximity, the site at Hinxton Road, Duxford (Lyons et al. 2011). The focus of research will be the overall picture of cultural identity (in its broadest sense) provided by the material cultural, dietary, architectural and funerary evidence from the different sites. The aim is to further clarify the social and economic context of the pottery production and the markets it was serving.
7.3.4 To identify whether the cessation of activity at the site in the later $1^{\text {st }}$ century $A D$ is part of a wider pattern of settlement discontinuity. This will be achieved through research into other excavated mid- to late- $1^{\text {st }}$-century sites in this part of Cambridgeshire (both published and unpublished), specifically whether they also show signs of abandonment or reorganisation/ shift, or whether they continued to be occupied into the $2^{\text {nd }}$ century without any interruption. The aim is to decide whether the end of activity at Moorfield

Road is likely to have been largely due to changing market conditions for pottery manufacture (e.g. the rise of the Nene Valley industry) or whether it can be linked to wider economic depression in the wake of the Boudiccan revolt/ its suppression. The nature of the Iron Age to Roman transition in the region is a research priority (Medlycott 2011, 31).
7.3.5 To identify parallels for the possible foundation deposit in PIT 3, with the aim of better understanding its 'meaning'. The phenomenon of human 'spare parts' and of ad hoc burials in Iron Age boundary ditches and other features is well-attested, though not yet fully-understood (Medlycott 2011, 31). A review of any parallels for these sorts of deposits which occur specifically in association with industrial sites, or on sites where there was a marked change in land-use or settlement organisation in the early Roman period, may help to refine this understanding.

## 8 PUBLICATION PROPOSAL

### 8.1 General

8.1.1 Due to the regional significance of the kilns and the almost unique size and preservation of the kiln furniture assemblage, it is proposed to publish the results of the project as an article in Britannia, entitled 'Early Roman pottery kilns at Duxford, Cambridgeshire'.

### 8.2 Report Structure

| Word Count | 15,000 |
| :--- | :--- |
| Figures | 14 |
| Plates | 6 |
| Tables | c. 6 |

Table 10: Estimated report statistics

Abstract (200 words)
Introduction (1000 words)
Reason for excavation, earlier stages of investigation, geological and topographical context, known Iron Age and Roman archaeology and history of surrounding area, research context of the kilns highlighting the existence of several other very early Roman kiln sites in the Cambridge hinterland, references for further info - grey report, OASIS, archive location.

Methodology (300 words)
Excavation methods, focusing on the digging and recording of the kilns.

Pre-Roman Activity (Periods 1 and 2) ( 300 words)
Brief mention of Mesolithic - Early Neolithic activity, Middle Iron Age pit and, in somewhat more detail, the Iron Age coin

Specialist description of Iceni coin by Nina Crummy (150 words)

## The Early Roman Period (c. AD 50-80/100; Period 3)

Phasing Methodology ( 200 words)

Description of the rationale behind the sub-phasing, its evidential basis and limitations.

The Enclosure System (500 words)
Description of the system of agricultural infield enclosures, their topographical context and likely association with livestock, and a summary of the associated settlement, environmental and faunal evidence (not full specialist reports). The description will focus on the overall picture of repeated reinstatement and redefinition of a series of adjoining enclosures over the course of the early Roman occupation, with reference to 'group' numbers rather than individual ditch slots and an accompanying multi-phase plan showing the sequence of development over phases 3.I-3.IV. This provides a vital contextual backdrop for the early Roman pottery manufacture. The relative positions of the kilns in the site sequence will be discussed.

Specialist description of military armilla and coin of Nero by Nina Crummy (300 words).

Possible Foundation Deposit (500 words)
Description of PIT 3 (its early stratigraphic position, fills, associated finds and possible function) and associated deposit of human skull/ vertebrae fragments. Discussion of broader context of such deposits (e.g. deposits of human 'spare parts' in Iron Age settlements, structured deposits in disused Iron Age storage pits etc.) and of any close parallels identified on early Roman pottery production/ other industrial sites.

Specialist description of the human bone and the evidence for sharp force trauma by Aileen Tierney (300 words)

The Kilns (3000 words)
Overview of the kilns - discussion of the common elements of their design, construction, size, conjectured method of use, alignment etc, followed by a detailed description of each individual kiln and the evidence for its use and demolition/ decay, each with an accompanying figure showing its full-excavation plan, running section and one or more photos of the fully-excavated kiln and any significant use/ demolition deposits. References to parallels for kilns of similar design found at
other sites. Discussion of the associated dumps of kiln material and pottery in adjacent enclosure ditches.

The Roman Pottery by Katie Anderson (4000 words)
Detailed description of the kiln products, as contained in this report but with the additional analysis described above.

The Kiln Material by Kayt Marter Brown (1500 words)
As contained in this report.

Thin-Section Analysis

## Discussion (3000 words)

Landscape context in relation to resources and contemporary settlement, timespan over which the manufacturing took place, cultural affiliations (i.e. Romanizing, possible military links) and similarities/ contrasts with other excavated local $1^{\text {st }}-$ century AD sites, social and economic context of the manufacture as indicated by technology, repertoire, probable destination/ markets for the kiln products (as suggested by further research) and relationships/ similarities/ differences with other very early Roman pottery production sites in the Cambridge environs. Reasons for the abrupt end of activity.

## Conclusions

## Acknowledgements

## Bibliography

Figures
Figure 1: Site Location
Figure 2: The Iron Age and Roman Landscape (showing sites and finds in area)
Figure 3: Site Sequence (multi-phase plans showing development of site)
Figure 4: Roman military armilla (Small Find illustration)
Figure 5: Kiln 1 (composite, comprising full-ex plan and running section + photos)

Figure 6: Kiln 2 (as above)
Figure 7: Kiln 3 (as above)
Figure 8: Kiln 4 (as above)
Figure 9: Kiln 5 (as above)
Figure 10: Kiln 6 (as above)
Figure 11: Pottery Illustrations (x23)
Figure 12: Kiln Furniture (x11)
Figure 13: Reconstruction drawing of operational kiln with suspended floor in-situ
Figure 14: Comparative plans of similar kilns at other sites

## Plates

Plate 1: The site during excavation, aerial view
Plate 2: Iceni coin
Plate 3: Possible Foundation Deposit (human skull and vertebrae in-situ in PIT 3)
Plate 4: Evidence of sharp force trauma on human skull
Plate 5-6: Working shots of kilns during excavation, to supplement photos on composite kiln plans

Tables
c. 6

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## 10 BIBLIOGRAPHY

### 10.1 Printed Sources

Anderson, K. with Hinman, M. 2012 Archaeological Evaluation at Moorfield Road, Duxford, Cambridgeshire. Pre-Construct Archaeology Report No. 11272 (unpublished)

Bass, W.M. 1995 Human Osteology: A Laboratory and Field Manual. Missouri Archaeological Society Special Publications No. 2

Bishop, B.J. forthcoming 'The lithic material' in S. Kenny Hinxton, Cambridgeshire: Part 1 - Prehistoric to Romano-British. East Anglian Archaeology Report

Bishop, B.J. in press 'The lithic material' in S. Paul and K. Colls Life on the Edge. Mesolithic to Post-Medieval Archaeological Remains at Mill Lane, Sawston, Cambridgeshire; A Wetland/ Dry Land Interface. British Archaeological Reports

Brothwell, D.R. 1981 Digging Up Bones. $3^{\text {rd }}$ Revised Edition (Cornell University Press)

Buikstra, J.E. and Ubelaker, D.H. 1994 Standards for Data Collection from Human Skeletal Remains. Arkansas Archaeological Survey Research Series No. 44

Crummy, N. 2005 'From bracelets to battle-honours: military armillae from the Roman conquest of Britain' in N. Crummy (ed.) Image, Craft and the Classical World. Essays in honour of Donald Bailey and Catherine Johns. Instrumentum Monograph 29 (Montagnac), 93-106

Dannell, G.B. and Wild, P.J. 1987 Longthorpe II: The Military Works Depot. Britannia Monograph 8 (London)

Dickens, A. and Dodwell, N. 1997 Further Archaeological Investigations at Heathfield, nr. Duxford Airfield, Cambridgeshire. Cambridge Archaeological Unit Report 216 (unpublished)

Dodwell, N. 1997 An Archaeological Evaluation at The Heathfield Estate, near Duxford Airfield, Cambridgeshire. Cambridge Archaeological Unit Report 210 (unpublished)

Draper, J. 1986 'Excavations at Great Chesterford, Essex, 1953-5', Proceedings of the Cambridge Antiquarian Society 75, 3-41

Driesch, A., von den and Boessneck, J.A. 1974 'Kritische Anmerkungen zur Widerristhöhenberechnung aus Längenmaßen vor- und fr Tierknochen', Saugetierkundliche Mitteilungen 22, 325-48

Dring G.J. 1971 'Romano-British pottery kiln site near Elstow, Bedfordshire', Archaeological Journal 6, 69-72

Evans, C. 1991 Archaeological Excavations at Duxford (Part II - Trial Excavations). Cambridge Archaeological Unit Report (unpublished)

Evans, C. with Mackay, D. and Webley, L. 2008 Borderlands. The Archaeology of the Addenbrooke's Environs, South Cambridge (Cambridge, Cambridge Archaeological Unit)

Evans, C. with Appleby, G., Lucy, S. and Regan, R. forthcoming Process and History: Prehistoric and Roman Fen-edge Communities at Colne Fen, Earith. The Archaeology of the Lower Ouse Valley Volume I (Cambridge, McDonald Institute for Archaeological Research)

Evans, J. 1972 Land Snails in Archaeology (London)

Evans, J. 1991 'The Cherry Hinton Finewares’, Journal of Roman Pottery

Studies 3, 18-29

French, C. 2004 'Evaluation, survey and excavation at Wandlebury ringwork, Cambridgeshire, 1994-7', Proceedings of the Cambridge Antiquarian Society 93, 15-65

Fryer, V. and Murphy, P. 1997 Charred Macrobotanical and Other Remains from a Roman Pottery Kiln, Heath Farm, Postwick: An Assessment. Assessment report for NAU Archaeology

Garrow, D., Lucy, S. and Gibson, D. 2006 Excavations at Kilverstone, Norfolk: An Episodic Landscape History. East Anglian Archaeology No. 113 (Cambridge Archaeological Unit)

Gibson, D. and Lucas, G. 2002 'Pre-Flavian Kilns at Greenhouse Farm and the social context of early Roman pottery production in Cambridgeshire', Britannia 33, 95-128

Goody, P.C. 1983 Horse Anatomy. A pictorial approach to equine structure (London)

Grant, A. 1984 'Animal husbandry in Wessex and the Thames valley' in B. Cunliffe and D. Miles (eds.) Aspects of the Iron Age in Central Southern Britain. University of Oxford Committee of Archaeology Monograph No. 2, 102-20

Hill, J.D., Evans, C. and Alexander, M. 1999 ‘The Hinxton Rings: a late Iron Age cemetery at Hinxton, Cambridgeshire, with a reconsideration of Northern Aylesford-Swarling distributions', Proceedings of the Prehistoric Society 65, 243-73

Hines, B. 2012 'Romano-British kiln building and firing experiments: two recent kilns', Journal of Roman Pottery Studies 15, 26-38

Hinman, M. 2013 Written Scheme of Investigation for an Archaeological Excavation on Land East of Moorfield Road, South of A505, Duxford, Cambridgeshire. Pre-Construct Archaeology (unpublished)

Hobbs, R. 1996 British Iron Age Coins in the British Museum (London)

Hull, M.R. 1963 The Roman Potters' Kilns of Colchester. Report of the Research Committee of the Society of Antiquaries, London 21 (Oxford)

Jacobi, R.M. 1976 'Britain inside and outside Mesolithic Europe', Proceedings of the Prehistoric Society 42, 67-84

Jacobi, R.M. 1978 ‘The Mesolithic of Sussex’ in P.L. Drewett (ed.) Archaeology in Sussex to AD 1500. Council for British Archaeology Research Report 29 (London), 15-22

Kemp, S.N. 1999 A Middle Iron Age Site at Abington Park, Great Abington, Cambridgeshire. Cambridgeshire County Council Archaeological Field Unit Report No. 161 (unpublished)

Kerney, M.P. and Cameron, R.A.D. 1979 A Field Guide to the Land Snails of Britain and North-West Europe (Collins)

King, A.C. 1978 'A comparative survey of bone assemblages from Roman sites in Britain', University of London Institute of Archaeology Bulletin 15, 207-32

King, A.C. 1984 'Animal bones and the dietary identity of military and civilian groups in Roman Britain, Germany and Gaul' in T.C. Blagg and A.C. King (eds.) Military and Civilian in Roman Britain: cultural relationships in a frontier province. British Archaeological Reports British Series 136 (Oxford), 187-218

Lawrence, M.J. and Brown, R.W. 1974 Mammals of Britain: their tracks,
trails and signs (London, Blandford Press)

Lyons, A. 2011 Life and Afterlife at Duxford, Cambridgeshire: archaeology and history in a chalkland community. East Anglian Archaeology No. 141 (Bar Hill, Oxford Archaeology East)

Macan, T.T. 1977 British Fresh- and Brackish Water Gastropods: A Key. Freshwater Biological Association Scientific Publication No. 13

Malim, T. 2000 'Roman communications' in T. Kirby and S. Oosthuizen (eds.) An Atlas of Cambridgeshire and Huntingdonshire History (Cambridge, Centre for Regional Studies, Anglia Polytechnic University), 21

Margary, I.D. 1963 Roman Roads in Britain (London)

Martingell, H. 1990 'The East Anglian peculiar? The 'squat' flake’, Lithics 11, 40-43

Masters, P. 2012 Geophysical Survey of Land at Duxford, Cambridgeshire. Cranfield Forensic Institute Report No. 062 (unpublished)

McFadyen, L. 1999 An Archaeological Evaluation at Heathfield 2, Duxford, Cambridgeshire (TL 4541 4599). Cambridge Archaeological Unit Report 326 (unpublished)

McKinley, J.I. and Roberts, C. 1993 Excavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains. IfA Technical Paper No. 13

Medlycott, M. (ed.) 2011 Research and Archaeology Revisited: A Revised Framework for the East of England. East Anglian Archaeology Occasional Paper No. 24 (ALGAO East of England)

Newton, A.A.S. 2013 Prehistoric and Anglo-Saxon Activity at Dernford Farm,

Sawston, Cambridgeshire. Archaeological Solutions Publication Draft.

North, J.J. 1960 English Hammered Coinage 2: Edward I to Charles II, 12721662 (London)

Palmer, R. 2012 Welch's Transport, Moorfield Road, Duxford, Area Centred TL 482 470, Cambridgeshire: Aerial Photographic Assessment. Air Photo Services Report No. 2012/7 (unpublished)

Perrin, R. 2011 A Research Strategy and Updated Agenda for the Study of Roman Pottery in Britain. Study Group for Roman Pottery Occasional Paper No. 1

Price, J., Brooks, I.P. and Maynard, D.J. (eds.) 1997 The Archaeology of the St Neots to Duxford Gas Pipeline 1994. British Archaeological Reports British Series 255 (Oxford)

Rielly, K. 2013 Assessment of Animal Bone Recovered from the Empire Warehouse, 1 Bear Gardens and 1-2 Rose Alley, London Borough of Southwark (EMH12). Pre-Construct Archaeology Report (unpublished)

Rodwell, W. 1972 'The Roman fort at Great Chesterford, Essex’, Britannia 3, 290-3

Schlee, D. and Robinson, B. 1995 An Archaeological Evaluation of Land Adjacent to Duxford Mill, Duxford: Late Mesolithic and Early Neolithic Activity on the Floodplain of the River Cam. Cambridgeshire County Council Archaeological Field Unit Report No. 113 (unpublished)

Sealey, P.R., Connor, A. and Kemp, S. forthcoming Prehistoric Ritual, Settlement and Ceramics: Excavations at Abington Park, Great Abington and Limes Farm, Landbeach, Cambridgeshire. East Anglian Archaeology

Stace, C. 1997 New Flora of the British Isles. 2 ${ }^{\text {nd }}$ Edition (Cambridge

University Press)

Swan, V.G. 1984 The Pottery Kilns of Roman Britain. Royal Commission on Historical Monuments Supplementary Series 5

Symonds, R. 2002 Recording Roman Pottery: a description of the methodology used at Museum of London Specialist Services (MoLSS) and Museum of London Archaeology Service (MoLAS) (unpublished document, MoLSS)

Taylor, A. 1997 Archaeology of Cambridgeshire, Vol. 1: South-West Cambridgeshire (Cambridge, Cambridgeshire County Council)

Taylor, A. 1999 'Discussion and conclusions’ in J. Alexander and J. Pullinger 'Roman Cambridge: excavations on Castle Hill 1956-1988', Proceedings of the Cambridge Antiquarian Society 86, 75-83

Taylor, C.C. 2002 'Nucleated settlement: a view from the frontier', Landscape History 24, 53-71

Taylor, C.C., Topping, P. and Oswald, A. 1994 'A prehistoric enclosure at Sawston, Cambridgeshire. A survey by the Royal Commission on the Historical Monuments of England', Proceedings of the Cambridge Antiquarian Society 82, 5-9

Thomas, A. 2013 Brief for Archaeological Investigation: Land East of Moorfield Road, South of A505, Duxford. Cambridgeshire County Council Historic Environment Team (unpublished)
van Arsdell, R.D. 1989 Celtic Coinage of Britain (London)

Webley, L. and Anderson, K. 2008 'The Late Iron Age and Roman pottery’ in C. Evans with D. Mackay and L. Webley Borderlands. The Archaeology of the Addenbrooke's Environs, South Cambridge (Cambridge, Cambridge

Archaeological Unit), 63-75

White D.A. 1964 'Excavations at the War Ditches, Cherry Hinton, 1949-51, with excavations at the War Ditches, Cherry Hinton, 1961-2', Proceedings of the Cambridge Antiquarian Society

### 10.2 Online Sources

British Geological Survey 2014 Geology of Britain Viewer
http://mapapps.bgs.ac.uk/geologyofbritain/home.html?location=IP9\ 3DG
Accessed 24/01/14

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EARLY ROMAN II


Early Roman I Retained/conjectured


## 14 APPENDIX 1: PLATES



Plate 1: The excavation in progress, aerial view from west of site


Plate 2: Iceni coin (SF 5), obverse


Plate 3: Iceni coin (SF 5), reverse


Plate 4: KILN 1, view north-east (1m scale)


Plate 5: Pottery and kiln furniture dump (231) in fill of KILN 1 (40cm scale)


Plate 6: KILN 1, excavation of kiln chamber, view west


Plate 7: KILN 1, kiln chamber, view north-east (40cm scale)


Plate 8: KILN 1, view north-east towards kiln chamber through flue arch ( 40 cm scale)


Plate 9: KILN 2, view south-east showing layer of kiln plate fragments and demolished superstructure (315) dumped after the kiln went out of use. The block of pale vitrified clay in the centre of the kiln chamber (rear) was a removable central pedestal stratified below layer (315) (1m scale)


Plate 10: KILN 2, refitted removable central pedestal


Plate 11: KILN 2, fully-excavated, view south-east towards DITCH 5 with truncation from DITCH 14 in foreground ( 1 m and 50 cm scales)


Plate 12: Human skull and vertebrae in PIT 3 fill (377), view east ( 50 cm scale)


Plate 13: PIT 3, fully-excavated, view north-west (2m scale)


Plate 14: PIT 3 being recorded, view west across southern part of excavation area


Plate 15: DITCH 5 Slot [289] (centre) with DITCH 14 (Slot [228]) to north and KILN 4 to south, mid excavation, view north-west


Plate 16: KILN 3, view west showing blocking of flue (297) with ash use deposit (300) beneath ( 1 m and 40 cm scales)


Plate 17: KILN 3 mid-excavation, view west


Plate18: KILN 3, fully-excavated, view east (scales 1 m and 50 cm )


Plate 19: DITCH 7 Slot [100], view south-east (2m scale)


Plate 20: DITCH 6 Slot [202], view east (2m scale)


Plate 21: KILN 4, mid-excavation, view south-east


Plate 22: KILN 4, fully-excavated, view west (2m scale)


Plate 23: KILN 5, fully-excavated, view east (40cm scale)


Plate 24: KILN 5, excavation of flue, view south


Plate 25: KILN 5, kiln chamber fully-excavated, view south (1m scale)


Plate 26: KILN 5, fully-excavated, view east through flue arch ( 40 cm scale)


Plate 27: KILN 5, detail of ledge for kiln plates, view south


Plate 28: KILN 5, lining (207) of original kiln chamber (the layout was later reversed and this became the stokehole), view west ( 1 m scale)


Plate 29: KILN 5, dumping layer (193), mid-excavation


Plate 30: Near-complete red deer antler in DITCH 14 Slot [228] (40cm scale)


Plate 31: Coin of Nero (AD 64-8) (SF 1) from upper fill of DITCH 7 Slot [100]


Plate 32: DITCH 14 Slot [228], view east (2m scale)


Plate 33: KILN 6, mid-excavation, showing layer of dumped pottery, kiln plate and lining fragments (166), view south-east


Plate 34: KILN 6, mid-excavation showing dumping layer (166), view west (1m scale)


Plate 35: KILN 6, mid-excavation showing broken kiln plate layer (190), view north (1m scale)


Plate 36: KILN 6, fully-excavated, view north ( 2 m and 1 m scales) Note that the hole in the centre of the kiln chamber is a naturally-formed solution hollow


Plate 37: Southern part of excavation area, view east with DITCH 19 on left-hand side


Plate 38: Angle of reconstructed cranium showing evidence of sharp force trauma


Plate 39: Angle of reconstructed cranium showing evidence of sharp force trauma


| Context | Cut | Type | Category | Period | Interpretation | Group |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 1 | Trench | Trench | NA | NA | VOID |
| 2 | 2 | Trench | Trench | NA | NA | VOID |
| 3 | 3 | Trench | Trench | NA | NA | VOID |
| 4 | 4 | Trench | Trench | NA | NA | VOID |
| 5 | 5 | Trench | Trench | NA | NA | VOID |
| 6 | 6 | Trench | Trench | NA | NA | VOID |
| 7 | 7 | Trench | Trench | NA | NA | VOID |
| 8 | 8 | Trench | Trench | NA | NA | VOID |
| 9 | 9 | Trench | Trench | NA | NA | VOID |
| 10 | 10 | Trench | Trench | NA | NA | VOID |
| 11 | 11 | Trench | Trench | NA | NA | VOID |
| 12 | 12 | Trench | Trench | NA | NA | VOID |
| 13 | 13 | Void | Void | Void | Void | VOID |
| 14 | 14 | Void | Void | Void | Void | VOID |
| 15 | 15 | Void | Void | Void | Void | VOID |
| 16 | 16 | Void | Void | Void | Void | VOID |
| 17 | 17 | Void | Void | Void | Void | VOID |
| 18 | 18 | Void | Void | Void | Void | VOID |
| 19 | 19 | Void | Void | Void | Void | VOID |
| 20 | 20 | Cut | Pit | Undated | Unknown | PIT 8 |
| 21 | 20 | Fill | Pit | Undated | Unknown | PIT 8 |
| 22 | 22 | Cut | Ditch | Modern | Drainage | DITCH 22 |
| 23 | 22 | Fill | Ditch | Modern | Drainage | DITCH 22 |
| 24 | 24 | Cut | Natural | Undated | Palaeochannel | NATURAL FEATURES |
| 25 | 24 | Fill | Natural | Undated | Palaeochannel | NATURAL FEATURES |
| 26 | 26 | Cut | Natural | Undated | Palaeochannel | NATURAL FEATURES |
| 27 | 26 | Fill | Natural | Undated | Palaeochannel | NATURAL FEATURES |
| 28 | 28 | Void | Void | Void | Void | VOID |
| 29 | 29 | Void | Void | Void | Void | VOID |
| 30 | 30 | Cut | Ditch | Early Roman 1 | Enclosure | DITCH 4 |


| 31 | 30 | Fill | Ditch | Early Roman 1 | Enclosure | DITCH 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 32 | 32 | Cut | Ditch | Early Roman | Unknown | DITCH 20 |
| 33 | 32 | Fill | Ditch | Early Roman | Unknown | DITCH 20 |
| 34 | 34 | Cut | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 35 | 34 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 36 | 36 | Cut | Natural | Undated | Tree Hollow | NATURAL FEATURES |
| 37 | 36 | Fill | Natural | Undated | Tree Hollow | NATURAL FEATURES |
| 38 | 38 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 9 |
| 39 | 38 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 9 |
| 40 | 40 | Cut | Natural | Undated | Tree Hollow | NATURAL FEATURES |
| 41 | 40 | Fill | Natural | Undated | Tree Hollow | NATURAL FEATURES |
| 42 | 42 | Cut | Natural | Undated | Tree Hollow | NATURAL FEATURES |
| 43 | 42 | Fill | Natural | Undated | Tree Hollow | NATURAL FEATURES |
| 44 | 44 | Cut | Pit | Early Roman | Refuse | PIT 7 |
| 45 | 44 | Fill | Pit | Early Roman | Refuse | PIT 7 |
| 46 | 46 | Cut | Ditch | Later Roman | Trackway | DITCH 19 |
| 47 | 46 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 48 | 48 | Cut | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 49 | 48 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 50 | 50 | Void | Void | Void | Void | VOID |
| 51 | 50 | Void | Void | Void | Void | VOID |
| 52 | 52 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 11 |
| 53 | 52 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 11 |
| 54 | 54 | Cut | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 55 | 54 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 56 | 54 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 57 | 30 | Fill | Ditch | Early Roman 2 | Enclosure | DITCH 4 |
| 58 | 30 | Fill | Ditch | Early Roman 2 | Enclosure | DITCH 4 |
| 59 | 34 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 60 | 60 | Cut | Ditch | Early Roman | Unknown | DITCH 21 |
| 61 | 60 | Fill | Ditch | Early Roman | Unknown | DITCH 21 |
| 62 | 34 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 63 | 63 | Cut | Ditch | Early Roman 2 | Trackway | DITCH 3 |


| 64 | 63 | Fill | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 65 | 65 | Cut | Ditch | Modern | Drainage | DITCH 23 |
| 66 | 65 | Fill | Ditch | Modern | Drainage | DITCH 23 |
| 67 | 48 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 68 | 48 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 69 | 48 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 70 | 0 | Layer | Natural | Geological | Geology | NATURAL GEOLOGY |
| 71 | 0 | Layer | Subsoil | Undated | Colluvium and alluvium | SUBSOIL |
| 72 | 0 | Layer | Topsoil | Modern | Cultivation soil | TOPSOIL |
| 100 | 100 | Cut | Ditch | Early Roman 3 | Enclosure | DITCH 7 |
| 101 | 100 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 7 |
| 102 | 102 | Cut | Ditch | Later Roman | Trackway | DITCH 19 |
| 103 | 102 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 104 | 105 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 105 | 105 | Cut | Ditch | Later Roman | Trackway | DITCH 19 |
| 106 | 107 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 107 | 107 | Cut | Ditch | Later Roman | Trackway | DITCH 19 |
| 108 | 109 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 109 | 109 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 110 | 111 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 111 | 111 | Cut | Ditch | Later Roman | Trackway | DITCH 19 |
| 112 | 112 | Cut | Ditch | Later Roman | Trackway | DITCH 19 |
| 113 | 112 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 114 | 114 | Cut | Ditch | Later Roman | Trackway | DITCH 19 |
| 115 | 114 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 116 | 114 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 117 | 117 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 118 | 117 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 119 | 120 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 11 |
| 120 | 120 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 11 |
| 121 | 122 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 122 | 122 | Cut | Ditch | Later Roman | Trackway | DITCH 19 |
| 123 | 125 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |


| 124 | 125 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 125 | 125 | Cut | Ditch | Later Roman | Trackway | DITCH 19 |
| 126 | 127 | Fill | Ditch | Later Roman | Trackway | DITCH 17 |
| 127 | 127 | Cut | Ditch | Later Roman | Trackway | DITCH 17 |
| 128 | 125 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 129 | 129 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 130 | 129 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 131 | 131 | Cut | Ditch | Later Roman | Trackway | DITCH 19 |
| 132 | 131 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 133 | 131 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 134 | 131 | Fill | Ditch | Later Roman | Trackway | DITCH 19 |
| 135 | 135 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 136 | 135 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 137 | 135 | Fill | Ditch | Early Roman 4 | Trackway | DITCH 8 |
| 138 | 138 | Cut | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| 139 | 138 | Fill | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| 140 | 143 | Fill | Ditch | Early Roman 4 | Trackway | DITCH 8 |
| 141 | 143 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 142 | 143 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 143 | 143 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 144 | 144 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 9 |
| 145 | 144 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 9 |
| 146 | 144 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 9 |
| 147 | 147 | Cut | Ditch | Early Roman 1 | Enclosure | DITCH 24 |
| 148 | 173 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 149 | 173 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 150 | 147 | Fill | Ditch | Early Roman 1 | Enclosure | DITCH 24 |
| 151 | 147 | Fill | Ditch | Early Roman 1 | Enclosure | DITCH 24 |
| 152 | 152 | Cut | Kiln | Early Roman 4 | Pottery kiln | KILN 6 |
| 153 | 153 | Cut | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 154 | 154 | Cut | Ditch | Early Roman 1 | Enclosure | DITCH 24 |
| 155 | 174 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 156 | 174 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |


| 157 | 154 | Fill | Ditch | Early Roman 1 | Enclosure | DITCH 24 |
| ---: | :--- | :--- | :--- | :--- | :--- | :--- |
| 158 | 158 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 159 | 158 | Fill | Ditch | Early Roman 4 | Trackway | DITCH 8 |
| 160 | 160 | Cut | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| 161 | 160 | Fill | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| 162 | 162 | Void | Void | Void | Void | VOID |
| 163 | 162 | Void | Void | Void | Void | VOID |
| 164 | 154 | Void | Void | Void | Void | VOID |
| 165 | 152 | Fill | Kiln | Early Roman 4 | Pottery kiln | KILN 6 |
| 166 | 152 | Fill | Kiln | Early Roman 4 | Pottery kiln | KILN 6 |
| 167 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 168 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 169 | 169 | Cut | Pit | Early Roman | Refuse | PIT 4 |
| 170 | 169 | Fill | Pit | Early Roman | Refuse | PIT 4 |
| 171 | 144 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 9 |
| 172 | 169 | Fill | Pit | Early Roman | Refuse | PIT 4 |
| 173 | 173 | Cut | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 174 | 174 | Cut | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 175 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 176 | 152 | Fill | Kiln | Early Roman 4 | Pottery kiln | KILN 6 |
| 177 | 177 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 178 | 177 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 179 | 177 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 180 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 181 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 182 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 183 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 184 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 185 | 185 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 9 |
| 186 | 185 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 9 |
| 187 | 152 | Fill | Kiln | Early Roman 4 | Pottery kiln | KILN 6 |
| 188 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 189 | 189 | Cut | Kiln | Early Roman 1 | Pottery kiln | KILN 1 |
|  |  |  |  |  |  |  |


| 190 | 152 | Fill | Kiln | Early Roman 4 | Pottery kiln | KILN 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 191 | 152 | Fill | Kiln | Early Roman 4 | Pottery kiln | KILN 6 |
| 192 | 152 | Fill | Kiln | Early Roman 4 | Pottery kiln | KILN 6 |
| 193 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 194 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 195 | 195 | Cut | Ditch | Early Roman 2 | Trackway | DITCH 2 |
| 196 | 195 | Fill | Ditch | Early Roman 2 | Trackway | DITCH 2 |
| 197 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 198 | 202 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 199 | 202 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 200 | 202 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 201 | 202 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 202 | 202 | Cut | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 203 | 152 | Fill | Kiln | Early Roman 4 | Pottery kiln | KILN 6 |
| 204 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 205 | 158 | Fill | Ditch | Early Roman 3 | Refuse | DITCH 8 |
| 206 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 207 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 208 | 153 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 5 |
| 209 | 189 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 1 |
| 210 | 213 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 211 | 213 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 212 | 213 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 213 | 213 | Cut | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 214 | 214 | Void | Void | Void | Void | VOID |
| 215 | 215 | Void | Void | Void | Void | VOID |
| 216 | 216 | Cut | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 217 | 216 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 218 | 202 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 219 | 202 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 220 | 189 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 1 |
| 221 | 213 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 222 | 222 | Cut | Ditch | Later Roman | Trackway | DITCH 18 |


| 223 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 224 | 189 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 1 |
| 225 | 189 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 1 |
| 226 | 189 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 1 |
| 227 | 228 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 228 | 228 | Cut | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 229 | 229 | Cut | Kiln | Early Roman 2 | Pottery kiln | KILN 3 |
| 230 | 189 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 1 |
| 231 | 189 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 1 |
| 232 | 234 | Fill | Pit | Undated | Refuse | PIT 6 |
| 233 | 234 | Fill | Pit | Undated | Refuse | PIT 6 |
| 234 | 234 | Cut | Pit | Undated | Refuse | PIT 6 |
| 235 | 216 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 236 | 216 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 237 | 216 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 238 | 216 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 239 | 216 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 240 | 216 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 6 |
| 241 | 216 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 242 | 216 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 243 | 216 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 244 | 244 | Cut | Ditch | Early Roman 3 | Boundary | DITCH 13 |
| 245 | 229 | Fill | Kiln | Early Roman 2 | Pottery kiln | KILN 3 |
| 246 | 229 | Fill | Kiln | Early Roman 2 | Pottery kiln | KILN 3 |
| 247 | 229 | Fill | Kiln | Early Roman 2 | Pottery kiln | KILN 3 |
| 248 | 229 | Fill | Kiln | Early Roman 2 | Pottery kiln | KILN 3 |
| 249 | 249 | Cut | Ditch | Early Roman 4 | Unknown | DITCH 15 |
| 250 | 249 | Fill | Ditch | Early Roman 4 | Unknown | DITCH 15 |
| 251 | 189 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 1 |
| 252 | 189 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 1 |
| 253 | 259 | Fill | Pit | Early Roman 4 | Refuse | PIT 5 |
| 254 | 244 | Fill | Ditch | Early Roman 3 | Boundary | DITCH 13 |
| 255 | 216 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |


| 256 | 228 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 257 | 228 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 258 | 258 | Cut | Kiln | Early Roman 3 | Pottery kiln | KILN 4 |
| 259 | 259 | Cut | Pit | Early Roman 4 | Refuse | PIT 5 |
| 260 | 260 | Cut | Ditch | Later Roman | Trackway | DITCH 18 |
| 261 | 260 | Fill | Ditch | Later Roman | Trackway | DITCH 18 |
| 262 | 222 | Fill | Ditch | Later Roman | Trackway | DITCH 18 |
| 263 | 222 | Fill | Ditch | Later Roman | Trackway | DITCH 18 |
| 264 | 222 | Fill | Ditch | Later Roman | Trackway | DITCH 18 |
| 265 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 4 |
| 266 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 4 |
| 267 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 4 |
| 268 | 289 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 5 |
| 269 | 269 | Cut | Natural | Undated | Palaeochannel | NATURAL FEATURES |
| 270 | 269 | Fill | Natural | Undated | Palaeochannel | NATURAL FEATURES |
| 271 | 271 | Cut | Ditch | Later Roman | Trackway | DITCH 18 |
| 272 | 271 | Fill | Ditch | Later Roman | Trackway | DITCH 18 |
| 273 | 274 | Fill | Natural | Undated | Tree hollow | NATURAL FEATURES |
| 274 | 274 | Cut | Natural | Undated | Tree hollow | NATURAL FEATURES |
| 275 | 276 | Fill | Natural | Undated | Tree Hollow | NATURAL FEATURES |
| 276 | 276 | Cut | Natural | Undated | Tree Hollow | NATURAL FEATURES |
| 277 | 277 | Cut | Kiln | Early Roman 1 | Pottery kiln | KILN 2 |
| 278 | 278 | Cut | Ditch | Early Roman 2 | Enclosure | DITCH 5 |
| 279 | 278 | Fill | Ditch | Early Roman 2 | Enclosure | DITCH 5 |
| 280 | 278 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 5 |
| 281 | 189 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 1 |
| 282 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 4 |
| 283 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 4 |
| 284 | 289 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 5 |
| 285 | 289 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 5 |
| 286 | 289 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 5 |
| 287 | 289 | Fill | Ditch | Early Roman 2 | Enclosure | DITCH 5 |
| 288 | 289 | Fill | Ditch | Early Roman 2 | Enclosure | DITCH 5 |


| 289 | 289 | Cut | Ditch | Early Roman 2 | Enclosure | DITCH 5 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 290 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 4 |
| 291 | 291 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 11 |
| 292 | 291 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 11 |
| 293 | 296 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 7 |
| 294 | 296 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 7 |
| 295 | 296 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 7 |
| 296 | 296 | Cut | Ditch | Early Roman 3 | Enclosure | DITCH 7 |
| 297 | 229 | Fill | Kiln | Early Roman 2 | Pottery kiln | KILN 3 |
| 298 | 229 | Fill | Kiln | Early Roman 2 | Pottery kiln | KILN 3 |
| 299 | 229 | Fill | Kiln | Early Roman 2 | Pottery kiln | KILN 3 |
| 300 | 229 | Fill | Kiln | Early Roman 2 | Pottery kiln | KILN 3 |
| 301 | 306 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 7 |
| 302 | 306 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 7 |
| 303 | 306 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 7 |
| 304 | 306 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 7 |
| 305 | 305 | Void | Void | Void | Void | VOID |
| 306 | 306 | Cut | Ditch | Early Roman 3 | Enclosure | DITCH 7 |
| 307 | 307 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 10 |
| 308 | 307 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 10 |
| 309 | 309 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 10 |
| 310 | 309 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 10 |
| 311 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 4 |
| 312 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 4 |
| 313 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 4 |
| 314 | 277 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 2 |
| 315 | 277 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 2 |
| 316 | 229 | Fill | Kiln | Early Roman 2 | Pottery kiln | KILN 3 |
| 317 | 317 | Cut | Ditch | Early Roman 1 | Enclosure | DITCH 4 |
| 318 | 317 | Fill | Ditch | Early Roman 1 | Enclosure | DITCH 4 |
| 319 | 319 | Cut | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 320 | 319 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 321 | 321 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 9 |


| 322 | 321 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 9 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 323 | 323 | Cut | Pit | Neolithic | Refuse | PIT 1 |
| 324 | 323 | Fill | Pit | Neolithic | Refuse | PIT 1 |
| 325 | 325 | Void | Void | Void | Void | VOID |
| 326 | 325 | Void | Void | Void | Void | VILN 4 |
| 327 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | DITCH 7 |
| 328 | 100 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 4 |
| 329 | 317 | Fill | Ditch | Early Roman 1 | Enclosure | DITCH 4 |
| 330 | 317 | Fill | Ditch | Early Roman 2 | Enclosure | DITCH 4 |
| 331 | 317 | Fill | Ditch | Early Roman 2 | Enclosure | DITCH 4 |
| 332 | 317 | Fill | Ditch | Early Roman 2 | Enclosure | DITCH 14 |
| 333 | 319 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 334 | 319 | Fill | Ditch | Early Roman 4 | Enclosure | NATURAL FEATURES |
| 335 | 335 | Fill | Natural | Undated | Tree Hollow | NATURAL FEATURES |
| 336 | 336 | Fill | Natural | Undated | Tree Hollow | PIT 2 |
| 337 | 337 | Cut | Pit | Middle Iron Age | Refuse | PIT 2 |
| 338 | 337 | Fill | Pit | Middle Iron Age | Refuse | KILN 4 |
| 339 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 3 |
| 340 | 229 | Fill | Kiln | Early Roman 2 | Pottery kiln | KILN 4 |
| 341 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | KILN 4 |
| 342 | 258 | Fill | Kiln | Early Roman 3 | Pottery kiln | DITCH 18 |
| 343 | 344 | Fill | Ditch | Later Roman | Trackway | DITCH 18 |
| 344 | 344 | Cut | Ditch | Later Roman | Trackway | DITCH 14 |
| 345 | 348 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 346 | 348 |  | ill | Ditch | Early Roman 4 | Enclosure |
| 347 | 348 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 348 | 348 | Cut | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 349 | 350 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 5 |
| 350 | 350 | Cut | Ditch | Early Roman 2 | Enclosure | DITCH 5 |
| 351 | 352 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 352 | 352 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 8 |
| 353 | 278 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 5 |
| 354 | 291 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 11 |
|  |  |  |  |  |  |  |


| 355 | 277 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 356 | 357 | Fill | Ditch | Later Roman | Trackway | DITCH 18 |
| 357 | 357 | Cut | Ditch | Later Roman | Trackway | DITCH 18 |
| 358 | 359 | Fill | Ditch | Early Roman 3 | Enclosure | DITCH 5 |
| 359 | 359 | Cut | Ditch | Early Roman 2 | Enclosure | DITCH 5 |
| 360 | 277 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 2 |
| 361 | 277 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 2 |
| 362 | 277 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 2 |
| 363 | 364 | Fill | Ditch | Early Roman 2 | Trackway | DITCH 2 |
| 364 | 364 | Cut | Ditch | Early Roman 2 | Trackway | DITCH 2 |
| 365 | 366 | Fill | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| 366 | 366 | Cut | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| 367 | 368 | Fill | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| 368 | 368 | Cut | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| 369 | 370 | Fill | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| 370 | 370 | Cut | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| 371 | 371 | Cut | Ditch | Early Roman 2 | Trackway | DITCH 2 |
| 372 | 371 | Fill | Ditch | Early Roman 2 | Trackway | DITCH 2 |
| 373 | 277 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 2 |
| 374 | 277 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 2 |
| 375 | 378 | Fill | Pit | Early Roman 1 | Quarry | PIT 3 |
| 376 | 378 | Fill | Pit | Early Roman 1 | Quarry | PIT 3 |
| 377 | 378 | Fill | Pit | Early Roman 1 | Quarry | PIT 3 |
| 378 | 378 | Cut | Pit | Early Roman 1 | Quarry | PIT 3 |
| 379 | 381 | Fill | Ditch | Early Roman 2 | Enclosure | DITCH 1 |
| 380 | 381 | Fill | Ditch | Early Roman 1 | Enclosure | DITCH 1 |
| 381 | 381 | Cut | Ditch | Early Roman 1 | Enclosure | DITCH 1 |
| 382 | 384 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 383 | 384 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 384 | 384 | Cut | Ditch | Early Roman 4 | Enclosure | DITCH 14 |
| 385 | 386 | Fill | Ditch | Early Roman 3 | Boundary | DITCH 12 |
| 386 | 386 | Cut | Ditch | Early Roman 3 | Boundary | DITCH 12 |
| 387 | 388 | Fill | Ditch | Early Roman 3 | Boundary | DITCH 12 |


| 388 | 388 | Cut | Ditch | Early Roman 3 | Boundary | DITCH 12 |
| ---: | :--- | :--- | :--- | :--- | :--- | :--- |
| 389 | 277 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 2 |
| 390 | 391 | Fill | Ditch | Later Roman | Trackway | DITCH 16 |
| 391 | 391 | Cut | Ditch | Later Roman | Trackway | DITCH 16 |
| 392 | 392 | Fill | Natural | Undated | Palaeochannel | NATURAL FEATURES |
| 393 | 393 | Fill | Natural | Undated | Palaeochannel | NATURAL FEATURES |
| 394 | 378 | Fill | Pit | Early Roman 1 | Quarry | PIT 3 |
| 395 | 396 | Fill | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| 396 | 396 | Cut | Ditch | Early Roman 2 | Trackway | DITCH 3 |
| 397 | 399 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 9 |
| 398 | 399 | Fill | Ditch | Early Roman 3 | Trackway | DITCH 9 |
| 399 | 399 | Cut | Ditch | Early Roman 3 | Trackway | DITCH 9 |
| 400 | 154 | Fill | Ditch | Early Roman 1 | Enclosure | DITCH 24 |
| 401 | 213 | Fill | Ditch | Early Roman 4 | Enclosure | DITCH 6 |
| 402 | 189 | Fill | Kiln | Early Roman 1 | Pottery kiln | KILN 1 |
| 403 | 404 | Fill | Ditch | Early Roman 2 | Trackway | DITCH 2 |
| 404 | 404 | Cut | Ditch | Early Roman 2 | Trackway | DITCH 2 |

APPENDIX 3：STRUCK FLINT CATALOGUE

| $\begin{aligned} & \times \\ & \stackrel{⿺}{0} \\ & 0 \\ & \hline \end{aligned}$ |  |  |  |  |  | $\begin{array}{\|l} 0 \\ 2 \\ 2 \\ \hline \end{array}$ |  |  |  |  |  | $\begin{array}{\|l\|} \hline 0 \\ \vdots \\ 2 \\ \hline \end{array}$ |  |  | $\left\|\begin{array}{c} \text { 동 } \\ \text { bud } \end{array}\right\|$ |  | $\begin{gathered} 0 \\ \vdots \\ \\ \hline \end{gathered}$ |  |  | \％ | ¢ | $\stackrel{1}{2}$ | 2 |  |  |  |  |  | \％ |  | 1010 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { 言 } \\ & \text { o } \\ & 0 \end{aligned}$ |  |  |  |  |  |  |  |  |  |  |  |  | 號 | 気 | $\stackrel{\rightharpoonup}{\mathrm{y}}$ |  |  | $\begin{aligned} & 5 \\ & \hat{y}_{6} \\ & \frac{5}{5} \\ & \hline \end{aligned}$ |  |  | 5 | 砍 |  |  | 5 |  |  |  | ¢ |  |  |
| $\stackrel{\circ}{2}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\stackrel{\otimes}{\text { ¢ }}$ |  |  |  | － |  |  |  |  |  | $\begin{aligned} & \frac{8}{8} \\ & \hline 0 \\ & \hline \\ & \hline \\ & \hline \end{aligned}$ |  | 怣 | $\frac{\otimes}{20}$ |
| － | $\stackrel{\text { 악 }}{ }$ | $\stackrel{\circ}{\square}$ |  | $\bigcirc$ | $\bigcirc$ | $\stackrel{N}{7}$ | $\stackrel{\stackrel{3}{-}}{ }$ | － | － | $\stackrel{\text { d }}{\sim}$ | $\stackrel{\text { ch }}{ }$ | ¢ | ， | $\stackrel{+}{\sim}$ |  | － | $\stackrel{\%}{\square}$ | $\stackrel{\sim}{7}$ |  | ¢ | $\stackrel{\sim}{-}$ | － |  |  |  |  |  | $\stackrel{8}{4}$ | $\stackrel{4}{+}$ | ， | 7 |


| 149 | Flake core | Translucent black | Thin and rough | Slightly chipped | None | Late | Recorticated thermal potlid spall with steep parallel 'retouch' around part of perimeter. Possibly natural but does look like it was deliberately made as a scraper |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 153 | Prismatic blade | Unknown | None | Slightly chipped | White | Meso/ENeo | Medial section |
| 159 | Retouched | Speckled opaque black | None | Slightly chipped | None | Meso/ENeo | Burin: sturdy flake with one or more spalls removed from the distal end up the left margin. Minor retouch along the distal and some traces of wear |
| 159 | Non-prismatic blade | Translucent black | None | Slightly chipped | Blue | Meso/ENeo |  |
| 159 | Prismatic blade | Translucent black | None | Slightly chipped | Incipient | Meso/ENeo | Medial section |
| 159 | Non-prismatic blade | Unknown | None | Slightly chipped | Blue | Meso/ENeo | Some possible very fine edge retouch |
| 161 | Prismatic blade | Unknown | None | Slightly chipped | Blue | Meso/ENeo | Distal end missing |
| 166 | Flake | Translucent grey brown | None | Slightly chipped | Incipient | Meso-EBA | Curved, multi-directional dorsal scars cf thinning flakes |
| 166 | Non-prismatic blade | Translucent black | None | Chipped | Incipient | Meso/ENeo | Bulbar end missing |
| 166 | Non-prismatic blade | Translucent black | Rough, thick | Slightly chipped | Incipient | Meso/ENeo |  |
| 166 | Retouched | Translucent black | None | Slightly chipped | None | Meso/ENeo | Piercer: small non-prismatic blade with a small notch and light retouch strengthening a small hooked point at distal end |
| 166 | Flake | Unknown | Thermal scar | Slightly chipped | Blue | LNeo-BA | Large, thick, possibly later prehistoric |
| 166 | Prismatic blade | Unknown | None | Good | Blue | Meso/ENeo | Possible light edge retouch/use wear |
| 166 | Non-prismatic blade | Unknown | Thermal scar | Slightly chipped | Blue | Meso/ENeo |  |
| 167 | Prismatic blade | Translucent black | None | Chipped | Blue | Meso/ENeo | Medial section of large blade, broken revealing flint colour |
| 167 | Flake | Translucent black | Thermal scar | Chipped | None | Late | Squat flake, possibly edge retouched but could be postdepositional damage |
| 167 | Flake | Unknown | None | Chipped | Blue | Meso-EBA | Core shaping, possibly rejuvenation |
| 167 | Prismatic blade | Unknown | Thin and rough | Slightly chipped | Blue | Meso/ENeo |  |
| 168 | Prismatic blade | Translucent grey brown | None | Slightly chipped | Blue | Meso/ENeo | Nearly complete, part of distal missing |
| 186 | Flake | Translucent grey brown | Rough, thick | Slightly chipped | Incipient | LNeo-BA | Quite thick but with a edge trimmed platform, possibly later prehistoric |
| 191 | Retouched | Translucent black | None | Good | None | Meso | Microlith: scalene triangle, oblique truncation at bulbar end forming 'obtuse' end and retouch extending part of the way along the right margin. Measures 35X6X2mm |
| 196 | Blade-like flake | Translucent black | Rough, thick | Slightly chipped | Blue | Meso/ENeo |  |
| 198 | Flake core | Translucent grey brown | Thermal scar | Chipped | None | LNeo-BA | Angular thermal chunk with a series of small and often narrow flakes removed from one end forming a curved acute edge. Unsure if intended only to produced flakes or was also used as a chopping tool. Weighs 71 g |
| 198 | Flake | Translucent grey brown | Thin and rough | Slightly chipped | None | LNeo-BA | Bulbar end missing |
| 198 | Flake | Translucent grey brown | Thin and rough | Slightly chipped | None | Meso-EBA | Small patch of possible steep scalar retouch on right margin |
| 198 | Decortication flake | Translucent grey brown | Thin and rough | Slightly chipped | None | Undated |  |
| 198 | Prismatic blade | Translucent black | None | Chipped | Blue | Meso/ENeo | Both ends missing |
| 198 | Blade-like flake | Translucent black | None | Chipped | Blue | Meso/ENeo | Possible light edge retouch, distal end missing |
| 198 | Flake | Translucent black | Thin and rough | Slightly chipped | None | Meso-EBA |  |
| 198 | Prismatic blade | Unknown | None | Slightly chipped | Blue | Meso/ENeo |  |
| 199 | Blade core | Translucent black | Thin and rough | Slightly chipped | None | Meso/ENeo | Disintegrated, probably made on a large flake/quartered nodule |


| 199 | Non-prismatic blade | Unknown | Rough, thick | Slightly chipped | Blue | Meso/ENeo | Distal missing |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 204 | Prismatic blade | Unknown | Rough, thick | Slightly chipped | Blue | Meso/ENeo | Prismatic but thick, possibly intended to rejuvenate platform, part of which remains at distal end |
| 205 | Prismatic blade | Translucent black | Rough, thick | Slightly chipped | Incipient | Meso/ENeo |  |
| 209 | Blade-like flake | Translucent grey brown | None | Slightly chipped | Incipient | Meso-EBA | Has a facetted platform - rejuvenation flake? |
| 209 | Flake | Translucent grey brown | None | Slightly chipped | None | Undated | Trimming flake |
| 209 | Prismatic blade | Translucent grey brown | Thin and rough | Slightly chipped | None | Meso/ENeo |  |
| 209 | Flake | Speckled opaque black | None | Slightly chipped | None | LNeo-BA | Quite thick, possibly later prehistoric |
| 209 | Blade-like flake | Translucent black | Thin and rough | Slightly chipped | None | Meso/ENeo | Distal end of possible blade |
| 209 | Conchoidal chunk | Translucent black | Thermal scar | Slightly chipped | None | Undated | Fragment from a core or mis-hit flake |
| 209 | Retouched | Translucent black | None | Slightly chipped | None | Meso-EBA | Narrow flake that appears to have attempts to blunt its edges and be thinned - possibly a thinning flake itself |
| 209 | Flake | Translucent black | Thin and rough | Slightly chipped | None | Meso-EBA | Thinning flake type platform |
| 225 | Prismatic blade | Translucent black | Rough, thick | Good | None | Meso/ENeo | Prismatic but thick, core shaping |
| 227 | Flake | Translucent grey brown | Thin and rough | Slightly chipped | Blue | Meso-EBA |  |
| 241 | Decortication flake | Translucent grey brown | Rough, thick | Slightly chipped | Incipient | Meso-EBA |  |
| 241 | Retouched | Speckled semi-opaque black | None | Slightly chipped | Incipient | Meso | Truncated blade: bulbar end of prismatic blade truncated with slightly oblique and slightly concave steep scalar retouch. Measures 31X20X5mm |
| 241 | Non-prismatic blade | Speckled semi-opaque black | Thin and rough | Slightly chipped | None | Meso-EBA | Thick core shaping blade |
| 241 | Blade core | Translucent black | Thin and rough | Slightly chipped | Incipient | Meso/ENeo | Has two opposed platforms, one on the front and one on the back, appears to be made on a large flake/quartered nodule. Weighs 45 g |
| 241 | Flake | Translucent black | Thermal scar | Slightly chipped | None | Meso-EBA |  |
| 241 | Blade-like flake | Unknown | None | Slightly chipped | Blue | Meso-EBA |  |
| 243 | Decortication flake | Translucent grey brown | Thin and rough | Slightly chipped | None | Undated |  |
| 243 | Core rejuvenation flake | Speckled semi-opaque black | None | Slightly chipped | None | Meso/ENeo | Longitudinal core rejuvenation flake removing hinge fractures and edge crushing |
| 243 | Flake | Translucent black | Rough, thick | Chipped | Blue | Meso-EBA | Large |
| 243 | Flake | Translucent black | None | Chipped | Incipient | Meso-EBA | Thinning flake type platform |
| 243 | Core rejuvenation flake | Translucent black | None | Slightly chipped | None | Meso/ENeo | Plunged blade retaining striking platform on distal end |
| 243 | Decortication flake | Translucent black | Battered | Slightly chipped | None | Undated |  |
| 253 | Flake | Translucent grey brown | None | Slightly chipped | None | LNeo-BA |  |
| 256 | Flake core | Translucent black | Battered | Chipped | Incipient | LNeo-BA | Bifacially and centripetally worked flake core, possibly intended to produced Levallois-like flakes. Weighs 105 g |
| 256 | Flake | Translucent black | Thermal scar | Good | Incipient | Late |  |
| 261 | Retouched | Translucent black | Thin and rough | Chipped | Incipient | LNeo-BA | Thick short flake with inverse steep scalar retouch on right margin near bulbar end |
| 272 | Prismatic blade | Translucent black | None | Chipped | None | Meso/ENeo | Possibly notched but in very chipped condition |
| 277 | Flake | Translucent grey brown | Rough, thick | Slightly chipped | None | Late | Thick, relatively squat |
| 277 | Prismatic blade | Speckled semi-opaque black | None | Chipped | None | Meso/ENeo | Medial section |
| 277 | Fragment | Translucent black | None | Slightly chipped | None | Meso/ENeo | Bulbar end of probable blade |
| 277 | Decortication flake | Translucent black | Thin and rough | Slightly chipped | None | Undated |  |
| 277 | Flake | Translucent black | Thin and rough | Chipped | None | Meso-EBA |  |
| 293 | Prismatic blade | Speckled semi-opaque black | None | Slightly chipped | Incipient | Meso/ENeo | Bulbar end missing |
| 332 | Prismatic blade | Translucent black | None | Slightly chipped | Blue | Meso/ENeo | Medial section |


| 372 | Prismatic blade | Translucent black | None | Slightly chipped | Blue | Meso/ENeo | Bulbar end section |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 372 | Non-prismatic blade | Translucent black | Rough, thick | Good | Blue | Meso-EBA |  |
| 372 | Flake | Translucent black | Thermal scar | Chipped | Incipient | Meso-EBA | Thin, curved cf thinning flake |
| 376 | Flake | Translucent grey brown | Thin and rough | Chipped | None | LNeo-BA | Thick, wide platform, many undeveloped Hertzian cones |
| 376 | Prismatic blade | Translucent black | None | Slightly chipped | Blue | Meso/ENeo | Possibly lightly edge retouched / heavily utilized |
| 376 | Non-prismatic blade | Translucent black | Thin and rough | Slightly chipped | Blue | Meso/ENeo | Thick, core shaping |
| 376 | Prismatic blade | Translucent black | None | Slightly chipped | Blue | Meso/ENeo |  |
| 377 | Retouched | Translucent black | Thin and rough | Slightly chipped | Blue | Meso/ENeo | Odd retouched piece- flake or blade that has split laterally with extensive, steep scalar retouch undertaken along break. Retouch is similar to that used for scrapers but is linear and slightly sinuous possibly for blunting? |
| 377 | Fragment | Translucent black | Thin and rough | Chipped | None | Undated | Distal fragment |
| 377 | Retouched | Translucent black | None | Slightly chipped | None | Meso | Truncated blade: non-prismatic blade with distal end slightly obliquely truncated by abrupt retouch with edge damage suggesting use as a piercer/graver. Two burin-like flakes have also been removed from bulbar end. Measures 60X20X5mm |
| + | Flake | Translucent grey brown | Rough, thick | Chipped |  | Meso-EBA |  |
| + | Non-prismatic blade | Translucent black | None | Slightly chipped |  | Meso/ENeo | Large core shaping, distal missing |
| + | Flake | Translucent black | Rough, thick | Slightly chipped |  | Meso-EBA | Possibly some inverse secondary working around bulb of percussion? |
| + | Decortication flake | Translucent black | Thermal scar | Slightly chipped |  | Undated |  |
| + | Non-prismatic blade | Translucent black | None | Slightly chipped |  | Meso-EBA |  |
| + | Non-prismatic blade | Translucent black | Rough, thick | Good |  | Meso-EBA |  |
| + | Prismatic blade | Translucent black | None | Slightly chipped |  | Meso/ENeo |  |
| + | Prismatic blade | Translucent black | Thermal scar | Slightly chipped |  | Meso-EBA |  |
| + | Prismatic blade | Unknown | None | Slightly chipped |  | Meso/ENeo | Distal end missing |

APPENDIX 4: BURNT FLINT CATALOGUE

| Context | Burnt Flint <br> (no.) | Burnt Flint <br> (wt; g) | Cortex | Comments |
| ---: | ---: | ---: | :--- | :--- |
| 104 | 1 | 13 | None | Heavily burnt flint fragment |
| 146 | 1 | 7 | None | Heavily burnt flint fragment |
| 159 | 1 | 36 | Thermal scar | Heavily burnt flint fragment |
| 261 | 1 | 59 | None | Moderately burnt flint fragment |
| 380 | 1 | 57 | Thermal scar | Heavily burnt flint fragment |
| 163 | 2 | 21 | Rough, thick | Two heavily burn flint fragments |
| 338 | 3 | 215 | Alluvial | Large moderately burnt alluvial flint pebble and two small heavily burnt flint fragments |

APPENDIX 5: STONE CATALOGUE

| Context | No. fragments | Weight <br> (g) | Description |
| :---: | :---: | :---: | :---: |
| 146 | 3 | 68 | Three fragments of a rounded cobble, appears burnt but no obviously worked surfaces |
| 159 | 1 | 107 | Near complete rounded pebble of friable red sandstone, probably burnt |
| 170 | 1 | 222 | Fragment of a possibly burnt slab of siliceous micaceous sandstone with two smoothed outer edges although uncertain if deliberately worked |
| 170 | 1 | 181 | Fragment of a large rounded cobble of siliceous micaceous sandstone, possibly burnt |
| 170 | 1 | 92 | Fragment of a possibly burnt slab of siliceous micaceous sandstone with a smoothed outer edge and face although uncertain if deliberately worked |
| 199 | 1 | 267 | Burnt rounded cobble of siliceous sandstone with a smoothed facet, uncertain if deliberately worked |
| 199 | 1 | 281 | Burnt rounded cobble of siliceous sandstone, no obviously worked surfaces |
| 227 | 1 | 240 | Burnt rounded cobble (recently broken into two) of siliceous sandstone, no obviously worked surfaces |
| 227 | 1 | 22 | Burnt rounded cobble fragment of siliceous sandstone, no obviously worked surfaces |
| 233 | 1 | 368 | Burnt rounded cobble fragment of siliceous sandstone, no obviously worked surfaces |
| 256 | 2 | 971 | Two large fragments (one recently broken into two) of black iron-rich sandstone oxidised on the surface to mid brown and with one flat but not smoothed surface. |
| 332 | 1 | 244 | Burnt rounded cobble fragment of siliceous sandstone, no obviously worked surfaces |
| 332 | 1 | 185 | Burnt rounded cobble fragment of siliceous sandstone, no obviously worked surfaces |
| 338 | 1 | 5 | Small fragment of reddish brown siliceous sandstone retaining small patch of smooth exterior surface although uncertain if deliberately worked |

APPENDIX 6：PREHISTORIC POTTERY CATALOGUE

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| әъа | Middle Iron Age c．350－50 BC | Middle Iron Age c． $350-50 \mathrm{BC}$ | O <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br> 0 <br>  |  |  |  |  |
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| dnoıפ әıиъеә」 | $\begin{gathered} \sim \\ \stackrel{\rightharpoonup}{2} \\ \hline \end{gathered}$ | $$ | $\begin{array}{\|l\|l} \stackrel{\rightharpoonup}{a} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \stackrel{N}{2} \\ \hline \end{array}$ | M <br> T <br>  <br>  | $\stackrel{\Sigma}{\stackrel{\rightharpoonup}{a}}$ | $\stackrel{\Gamma}{\square}$ |
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APPENDIX 7：ROMAN POTTERY CATALOGUE


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| $\mid$ |  |  |  |  |  |  |  |  | ¢ |  |  |  |  | 尔 |  |  |  | 5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\begin{array}{\|l\|l} \frac{c}{2} \\ \frac{2}{5} \\ \frac{y}{5} \end{array}$ |  | － | ¢ |  |  |  |  |  |  |  |  |
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| $\begin{array}{\|l\|} \hline \frac{\infty}{x} \\ \bar{x} \\ \bar{o} \\ \hline \end{array}$ |  |  | $\begin{array}{l\|l} \frac{4}{4} & 3 \\ \overline{0} & 3 \\ 0 & 0 \\ \hline 0 & 0 \\ \hline 0 \end{array}$ |  |  | $$ |  |  | $\begin{array}{\|l\|l} \hline \infty \\ x \\ x \\ \infty \\ 0 \\ \hline \end{array}$ |  |  |  |  |  |  |  |  |  |  |  |  |  | $\left\{\begin{array}{l} u \\ \stackrel{u}{u} \\ \dot{心} \\ 0 \\ 8 \end{array}\right.$ |  | $\begin{array}{\|l\|l} 3 & n \\ 3 & x \\ 0 \\ 0 & 0 \\ 0 & 0 \\ \hline \end{array}$ | $\begin{array}{l\|l\|l} \hline \infty & \infty \\ & \mathscr{x} \\ 0 & 0 \\ \dot{O} & \dot{O} \\ \hline \end{array}$ |  |  |  | $\begin{aligned} & t \\ & \stackrel{y}{c} \\ & \hline \end{aligned}$ | $\begin{array}{l\|l} \infty & 3 \\ x & 3 \\ 0 & 1 \\ 0 & 0 \\ \hline \end{array}$ | $\left\lvert\, \begin{aligned} & 3 \\ & 3 \\ & 0 \\ & 0 \end{aligned}\right.$ |  |  |  |  |  |  | 䓂 |  |  |  |  |  |  | － |  |  |  |  |  |
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| $\stackrel{\bar{\sigma}}{\square}$ |  |  |  |  | $\stackrel{\text { ¢ }}{ } \stackrel{-}{ }$ |  |  |  |  |  |  | ন্ন |  |  |  |  |  |  |  |  |  |  | 骨 |  |  |  | $\stackrel{\text { ®＇}}{ }$ |  |  |  |  |  |  |  |  | $\stackrel{\text {－}}{ }$ |  |  |  | $\stackrel{\text { \％}}{\sim}$ |  |  |  | $\stackrel{\text { \％}}{\sim}$ |  | \％ | \％ | $\stackrel{\text { \％}}{\sim}$ |  |  | $\stackrel{\text { \％}}{\sim}$ |


















APPENDIX 9：ANIMAL BONE CATALOGUE

| $\begin{aligned} & \mathrm{g} \\ & \frac{\mathrm{D}}{\mathrm{O}} \\ & \mathrm{D} \\ & \hline \end{aligned}$ |  |  | $\left\|\begin{array}{l} \underset{\sim}{x} \\ \vdots \\ \underset{y}{z} \end{array}\right\|$ | $\left\lvert\, \begin{aligned} & \underset{\sim}{x} \\ & 0 \\ & 0 \\ & \\ & \hline \end{aligned}\right.$ | $\left\|\begin{array}{l} \underset{\sim}{\boldsymbol{q}} \\ \vdots \\ \vdots \\ \underline{\Phi} \end{array}\right\|$ |  | $\begin{aligned} & \underset{\sim}{w} \\ & \vdots \\ & \underset{~}{\mathbf{I}} \end{aligned}$ | $\left\|\begin{array}{l} \underset{\Omega}{\boldsymbol{\alpha}} \\ \vdots \\ \vdots \\ \underline{I} \end{array}\right\|$ | $\begin{array}{\|l} \omega \\ \stackrel{y}{\alpha} \\ 0 \\ 0 \\ \Sigma \\ \hline \end{array}$ | $\left\|\begin{array}{l} \underset{\sim}{\sim} \\ \stackrel{1}{\omega} \end{array}\right\|$ | $\left\|\begin{array}{c} \underset{\sim}{\varkappa} \\ \omega \\ \omega \end{array}\right\|$ | $\begin{array}{\|c} \underset{\sim}{\omega} \\ \stackrel{1}{\omega} \\ \hline \end{array}$ | $\begin{gathered} \underset{\sim}{\underset{\sim}{x}} \\ \underset{\alpha}{0} \\ \stackrel{1}{2} \end{gathered}$ |  |  | $\begin{gathered} 0 \\ \stackrel{0}{0} \\ \sum_{1}^{1} \\ \underset{\sim}{1} \end{gathered}$ | $\underset{\sim}{w}$ | $\begin{aligned} & 0 \\ & \sum_{2} \\ & x_{1} \\ & \underset{\sim}{2} \end{aligned}$ | $\|\underset{\sim}{\boldsymbol{w}}\|$ | $\begin{aligned} & \mathrm{O} \\ & \sum_{\underset{\sim}{\mathrm{u}}}^{\mathrm{O}} \\ & \hline \end{aligned}$ |  |  | $\left\|\begin{array}{l} \stackrel{\sim}{0} \\ 0 \\ 0 \\ 0 \end{array}\right\|$ | 山 | $\underset{\text { ய }}{\text { ¢ }}$ |  |  |  | $\left\|\begin{array}{l} 0 \\ \sum_{\underset{\sim}{1}}^{0} \\ \underset{\sim}{2} \end{array}\right\|$ |  |  | $\underset{\sim}{\text { ய }}$ | $\underset{\sim}{\text { ய }}$ |  |
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| $\begin{array}{\|l} \hline \times \\ \infty \\ \hline \end{array}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | $\checkmark$ | $\ulcorner$ | $\leftharpoondown$ | $\checkmark$ | $\bigcirc$ | $\checkmark$ | m | $\bigcirc$ | $\checkmark$ | $\sim$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\bigcirc$ | $\checkmark$ | － | $\bigcirc{ }^{-}$ | $\checkmark$ | 앙 | N | $\checkmark$ | $\bigcirc$ | m | $\bigcirc$ | N | $\checkmark$ | ल | $\cdots$ | $\checkmark$ | N | N | $\bigcirc$ | $\checkmark$ | $\bigcirc$ |
|  | ${ }^{-}$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | ल | $\checkmark$ | $\checkmark$ | $\sim$ | $\ulcorner$ | $\ulcorner$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | － | $\checkmark$ | $\checkmark$ | $\checkmark$ | － | $\checkmark$ | N | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | － | $\ulcorner$ | $\checkmark$ | $\checkmark$ |
| $\begin{array}{\|l\|l} \frac{\pi}{0} \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{O} \\ & \hline \mathrm{x} \\ & \hline \mathrm{a} \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{O} \\ & \underset{\sim}{\mathrm{Q}} \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|l} \mathrm{O} \\ \mathrm{y} \\ \hline \mathbf{a} \\ \hline \end{array}$ | $\frac{\infty}{0}$ | $\infty$ | $\stackrel{z}{\mathrm{z}}$ | の | 3 | $\frac{\infty}{0}$ | $\infty$ | $\begin{array}{\|c} \mathrm{O} \\ \mathrm{Y} \\ \mathrm{Q} \\ \hline \end{array}$ | $\infty$ | の |  | の | $\omega$ | 3 | $\infty$ | の | $\infty$ | の | $\infty$ | $\omega$ | $\omega$ | の | の | $\begin{array}{\|l} \mathrm{O} \\ \mathrm{y} \\ \mathrm{a} \end{array}$ | $\infty$ | の | $\stackrel{\leftarrow}{¢}$ | $\infty$ | $\omega$ | の | 0 |
| $\begin{aligned} & 0 \\ & \complement_{0}^{\circ} \\ & \hline \end{aligned}$ | $\stackrel{E}{\Sigma}$ | $\begin{aligned} & 0 \\ & 0 \\ & \hline \end{aligned}$ | $\begin{aligned} & z \\ & \vdots \\ & \vdots \\ & \hline \end{aligned}$ | $\underset{\substack{\mathrm{I}}}{ }$ | $\underline{\underline{u}}$ | $\sum$ | $\begin{array}{\|c} \hline \\ \hline \\ \hline \end{array}$ | $$ | $\frac{9}{\S}$ | $\begin{array}{\|c} \mathrm{u} \\ 9 \\ \hline \end{array}$ | $\begin{aligned} & z \\ & \vdots \\ & \vdots \end{aligned}$ | $\begin{array}{\|l\|} \hline 9 \\ \hline \end{array}$ | $\stackrel{\varrho}{\vdash}$ | $\underset{x}{x}$ | $\begin{array}{\|c} \hline 1 \\ 9 \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{u} \\ & 9 \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \stackrel{\sim}{4} \\ \vdash \end{array}$ | $\stackrel{E}{\Sigma}$ | $\frac{m}{\bar{\alpha}}$ | $\left.\begin{aligned} & 2 \\ & \vdots \\ & \vdots \end{aligned} \right\rvert\,$ | $\underset{\underline{\imath}}{\underline{Z}}$ | $\begin{aligned} & z \\ & \vdots \\ & \vdots \end{aligned}$ | $\underline{\underline{\imath}}$ | $\begin{aligned} & 0 \\ & \vdots \\ & \Sigma \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|l\|l\|l\|l\|} \hline \\ \hline \end{array}$ | $\frac{p}{\bar{q}}$ | $\left\lvert\, \begin{array}{\|c\|} \stackrel{Q}{〔} \\ \hline \end{array}\right.$ |  | $\underset{⿳ 亠 丷 厂}{\sum}$ | $\begin{aligned} & 7 \\ & \vdots \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline \underset{\sim}{w} \\ \hline> \end{array}$ | $\sum_{\grave{I}}$ | $\frac{\underline{m}}{\bar{\sim}}$ | 光 |
| $\begin{aligned} & 0 \\ & \dot{0} \\ & \dot{0} \\ & \dot{D} \\ & \dot{0} \end{aligned}$ | $\begin{array}{l\|l} 1 & \infty \\ 2 & 0 \\ 0 & \\ \hline \end{array}$ | $$ | $\begin{array}{\|l\|l} \infty \\ 0 \\ 0 \\ \hline \end{array}$ | $\begin{array}{\|l} \mathbf{r} \\ \mathbf{j} \\ > \\ \hline \end{array}$ | $\begin{gathered} \mathrm{N} \\ \boldsymbol{N} \\ 0 \end{gathered}$ | $\begin{array}{\|l\|} \hline \mathrm{N} \\ \mathrm{O} \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{N} \\ & \mathrm{~N} \end{aligned}$ | $\begin{array}{\|c} \vec{~} \\ \underset{\sim}{u} \\ \hline \end{array}$ | $\begin{array}{\|} \overrightarrow{0} \\ \underset{\sim}{u} \\ \hline \end{array}$ | $\begin{gathered} \mathrm{N} \\ \mathrm{~N} \\ \mathrm{O} \end{gathered}$ | $\begin{aligned} & \infty \\ & 0 \\ & 0 \\ & \hline \end{aligned}$ | $\begin{array}{\|l} \hline \\ 0 \\ 0 \\ \hline \end{array}$ | $\begin{array}{\|l} \stackrel{\rightharpoonup}{\mathrm{O}} \\ \hline \end{array}$ | $\begin{array}{\|l\|l} \infty \\ 0 \\ 0 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \mathrm{N} \\ \mathrm{~N} \\ \mathrm{C} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline N \\ \mathrm{~N} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 0 \\ 0 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \infty \\ 0 \\ \infty \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{N} \\ & \mathrm{~N} \\ & \mathrm{O} \end{aligned}$ | $\begin{array}{\|c\|} \hline 0 \\ 0 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline \\ \hline \end{array}$ | $\begin{array}{\|l} \hline \\ 0 \\ 0 \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{N} \\ & \mathrm{~N} \\ & \mathrm{O} \end{aligned}$ | $\begin{array}{\|l} \mathbf{r} \\ \mathbf{3} \\ \mathbf{O} \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{N} \\ & \mathrm{~N} \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \mathrm{N} \\ 0 \\ \hline \end{array}$ | $\begin{array}{\|} \overrightarrow{0} \\ \underset{\sim}{u} \\ \hline \end{array}$ | $\stackrel{\text { 은 }}{\underline{Z}}$ | $\begin{aligned} & \mathbb{1} \\ & 0 \\ & 0 \\ & \hline \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \mathrm{N} \\ & \mathrm{~N} \\ & 0 \end{aligned}$ | $\begin{aligned} & \infty \\ & 0 \\ & 0 \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{N} \\ & 0 \\ & \hline \end{aligned}$ | $\stackrel{\sim}{0}$ |
| $\left\|\begin{array}{l} \frac{0}{2} \\ \frac{0}{0} \\ 0 \end{array}\right\|$ |  | $\begin{aligned} & \frac{0}{0} \\ & \stackrel{\rightharpoonup}{0} \\ & \stackrel{\rightharpoonup}{5} \end{aligned}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $\begin{array}{\|l} \mathrm{O} \\ \text { O} \\ \text { O} \end{array}$ |  |  |  |  | $\begin{aligned} & o \\ & \bar{U} \\ & \vdots \\ & \stackrel{\rightharpoonup}{0} \end{aligned}$ | $\begin{aligned} & \hat{\imath} \\ & \stackrel{\rightharpoonup}{\alpha} \end{aligned}$ | $\frac{\stackrel{\wedge}{2}}{\stackrel{\rightharpoonup}{n}}$ | $\frac{\wedge}{\stackrel{\rightharpoonup}{n}}$ | $\frac{\stackrel{\rightharpoonup}{2}}{\bar{a}}$ |  |  | $\left\lvert\, \begin{gathered} 0 \\ \frac{T}{U} \\ \vdots \\ \hline \bar{a} \end{gathered}\right.$ |  |  |  |  | $\begin{array}{\|c} \infty \\ \frac{1}{U} \\ \vdots \\ \hline \mathbf{O} \\ \hline \end{array}$ | $\begin{array}{\|c} \infty \\ \frac{1}{U} \\ \vdots \\ \vdots \\ \hline \end{array}$ |  | $\begin{array}{\|c} \infty \\ \frac{1}{U} \\ \vdots \\ \vdots \\ \hline \end{array}$ | $\begin{aligned} & \infty \\ & \frac{\infty}{U} \\ & \hline \stackrel{1}{\square} \\ & \hline \end{aligned}$ |  |  |  | $\begin{array}{\|l} \hline 0 \\ \mathrm{I} \\ \mathrm{U} \\ \stackrel{1}{0} \\ \hline \end{array}$ | $\begin{array}{\|l} \hline \\ \mathrm{I} \\ \mathrm{U} \\ \stackrel{\rightharpoonup}{\mathrm{O}} \\ \hline \end{array}$ | $\begin{aligned} & 9 \\ & \frac{9}{U} \\ & \bar{O} \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 9 \\ & \bar{T} \\ & \bar{U} \\ & \hline \bar{O} \\ & \hline \end{aligned}$ | $\begin{aligned} & 9 \\ & \frac{I}{U} \\ & \frac{1}{\square} \\ & \hline \end{aligned}$ |  |  | $\begin{array}{\|l} \dot{I} \\ \bar{U} \\ \vdots \\ \bar{O} \\ \hline \end{array}$ |  |  |
| $\stackrel{\rightharpoonup}{5}$ | ¢ | ¢ | － | － | － | 寸 | F | \％ | 寸 | $\stackrel{+}{+}$ | $\stackrel{\infty}{+}$ | ＋ | 䍖 | ¢ | $\underset{\underset{\sim}{N}}{ }$ | $\begin{array}{\|l\|} \hline \stackrel{\mathrm{N}}{\mathrm{~m}} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline \stackrel{\leftrightarrow}{\mathrm{m}} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline \stackrel{\sim}{\mathrm{N}} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline \mathbf{M} \\ \stackrel{y y}{c} \\ \hline \end{array}$ | $$ | $\begin{array}{\|l\|} \hline \mathbf{N} \\ \stackrel{y y}{c} \\ \hline \end{array}$ | $\frac{7}{7}$ | $\stackrel{\forall}{\forall}$ | $\stackrel{\forall}{\forall}$ | $\underset{\sim}{\mid}$ | $\underset{\sim}{\ddagger}$ | $\underset{\sim}{\ddagger}$ | $\underset{F}{F}$ | $\begin{array}{\|c\|} \hline \stackrel{N}{\wedge} \\ \hline \end{array}$ | $\stackrel{N}{\sim}$ | $\stackrel{\star}{\text { N }}$ | $\stackrel{\star}{N}$ | $\stackrel{\text {－}}{\sim}$ |
| $\left\lvert\, \begin{aligned} & \stackrel{\rightharpoonup}{㐅} \\ & \stackrel{\rightharpoonup}{ट} \\ & \underset{0}{0} \end{aligned}\right.$ | $\bar{m}$ | N | ¢ | － | － | $\stackrel{\square}{+}$ | $\mid 6$ | $\stackrel{1}{\square}$ | $\stackrel{\square}{7}$ | $\hat{F}$ | $\underset{寸}{\infty}$ | $\stackrel{\infty}{+}$ | $16$ | $\stackrel{0}{6}$ | $\stackrel{m}{\leftarrow}$ | $\begin{array}{\|l\|} \hline \underset{~}{2} \\ \stackrel{m}{2} \\ \hline \end{array}$ | $\begin{aligned} & \mathbf{M} \\ & \stackrel{m}{2} \end{aligned}$ | $\begin{array}{\|l\|} \hline \stackrel{N}{\mathrm{~m}} \\ \hline \end{array}$ | $\begin{aligned} & \stackrel{\rightharpoonup}{m} \\ & \stackrel{y}{n} \end{aligned}$ | $\begin{array}{\|l\|} \hline \stackrel{N}{\mathrm{~m}} \\ \hline \end{array}$ | $\stackrel{N}{\mathrm{~m}}$ | $\begin{array}{\|l\|} \hline \stackrel{N}{\sim} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 8 \\ \hline \end{array}$ | $\stackrel{\stackrel{\circ}{\sim}}{\stackrel{0}{2}}$ | $\stackrel{\leftrightarrow}{\mathrm{L}}$ | $\begin{array}{\|l\|} \hline \underset{\sim}{\mid} \\ \hline \end{array}$ | $\underset{\sim}{\dot{T}}$ | $\begin{array}{\|c\|} \hline 0 \\ \stackrel{+}{2} \end{array}$ | $$ | $\underset{\sim}{\dot{F}}$ | $\underset{\leftarrow}{\text { }}$ | $\begin{aligned} & \hline 0 \\ & \hline \stackrel{0}{2} \end{aligned}$ | $\begin{aligned} & 0 \\ & \stackrel{n}{\sim} \end{aligned}$ | $\stackrel{6}{6}$ |
|  | $$ | $$ | $\begin{aligned} & n \\ & \hat{N} \\ & \end{aligned}$ | $\begin{aligned} & \hline, \\ & \stackrel{y}{N} \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0 \\ & \stackrel{0}{N} \\ & \hline \end{aligned}$ | $\begin{aligned} & 8 \\ & \hline \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline \stackrel{O}{\mathrm{~N}} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline \stackrel{N}{J} \\ \underset{N}{2} \end{array}$ | $\begin{gathered} \mathrm{N} \\ \mathrm{~N} \end{gathered}$ | $\begin{array}{\|c\|} \substack{\mathrm{N} \\ \mathrm{~N}} \end{array}$ | $\begin{array}{\|c\|} \hline \stackrel{N}{N} \\ \stackrel{1}{2} \end{array}$ | $\frac{\pi}{N}$ | $$ | $\begin{array}{\|l\|} \hline 0 \\ \underset{N}{N} \end{array}$ | $\begin{array}{\|c\|} \hline \stackrel{N}{N} \\ \stackrel{\rightharpoonup}{2} \end{array}$ | $\begin{array}{\|l\|} \hline \stackrel{\sim}{N} \\ \stackrel{\rightharpoonup}{\mathrm{~N}} \end{array}$ | $\begin{array}{\|c\|} \hline \stackrel{ল}{j} \\ \stackrel{ল}{2} \end{array}$ | $\begin{array}{\|l\|} \hline \stackrel{\sim}{N} \\ \stackrel{\rightharpoonup}{2} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline \stackrel{N}{N} \\ \stackrel{\sim}{e} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline \stackrel{N}{N} \\ \stackrel{\rightharpoonup}{2} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline \underset{\sim}{N} \\ \stackrel{\rightharpoonup}{\mathrm{~N}} \end{array}$ | $\left.\begin{array}{\|c\|} \hline \stackrel{\leftrightarrow}{N} \\ \stackrel{\rightharpoonup}{2} \end{array} \right\rvert\,$ | $\begin{array}{\|l\|} \bar{m} \\ \bar{\sim} \\ \hline \end{array}$ | $\begin{aligned} & \stackrel{\sim}{c} \\ & \stackrel{\rightharpoonup}{\mathrm{~N}} \end{aligned}$ | $\begin{array}{\|c\|} \hline \stackrel{N}{e} \\ \stackrel{\rightharpoonup}{e} \end{array}$ | $\begin{array}{\|l\|} \hline \stackrel{\rightharpoonup}{m} \\ \stackrel{\rightharpoonup}{e} \end{array}$ | $\stackrel{N}{\underset{\sim}{e}}$ | $\begin{array}{\|l\|} \hline \stackrel{N}{\mathrm{~N}} \\ \stackrel{\mathrm{~N}}{ } \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline \stackrel{M}{N} \\ \stackrel{N}{6} \end{array}$ | $\begin{aligned} & \hline \stackrel{m}{c} \\ & \stackrel{\rightharpoonup}{e} \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline \stackrel{y}{2} \\ \stackrel{\rightharpoonup}{e} \\ \hline \end{array}$ | $\begin{aligned} & \hline \stackrel{N}{n} \\ & \stackrel{N}{8} \\ & \hline \end{aligned}$ | $\begin{aligned} & \stackrel{0}{4} \\ & \stackrel{N}{e} \end{aligned}$ | N |








## 23 APPENDIX 10: CHARRED PLANT MACROFOSSILS AND OTHER REMAINS

Key to Tables
$x=1-10$ specimens $x x=11-50$ specimens $\quad x x x=51-100$ specimens xxxx $=100+$ specimens
cf = compare $f g=$ fragment $b=$ burnt
ER = Early Roman MIA = Middle Iron Age

| Sample No. | 23 | 37 | 29 | 33 | 20 | 16 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Context No. | 226 | 361 | 300 | 327 | 208 | 191 |
| Feature No. | 189 | 277 | 229 | 258 | 153 | 152 |
| Kiln No. | 1 | 2 | 3 | 4 | 5 | 6 |
| Period | ER1 | ER1 | ER2 | ER3 | ER3 | ER4 |
| Date |  |  | 50-80AD |  | 50-100AD | 50-100AD |
| Cereals |  |  |  |  |  |  |
| Avena sp. (grains) |  | x | x |  | x | x |
| Hordeum sp. (grains) |  | x |  | xcf |  | x |
| Triticum sp. (grains) | x | x | xx | x | x | xcf |
| T. spelta L. (glume bases) |  | x | x | x | x |  |
| (spikelet fragment) |  |  | xcf |  |  |  |
| Cereal indet. (grains) |  | xxx | xxx | x | xfg | xxx |
| (detached sprout) |  |  | x |  |  |  |
| Herbs |  |  |  |  |  |  |
| Atriplex sp. |  |  |  |  | x |  |
| Bromus sp. |  |  | x |  |  |  |
| Fabaceae indet. | x |  | x |  | x | x |
| Fallopia convolvulus (1.)A.Love |  |  | x |  |  |  |
| Galium aparine L. |  |  |  |  | xx |  |
| Lithospermum arvense L. |  | x |  |  |  |  |
| Plantago lanceolata L. |  |  |  |  |  | xcf |
| Small Poaceae indet. |  |  |  |  |  | x |
| Polygonum aviculare L. |  | xcf |  |  |  |  |
| Rumex sp. | x |  | x |  | x |  |
| Wetland plants |  |  |  |  |  |  |
| Sparganium sp. |  |  |  |  | x |  |
| Other plant macrofossils |  |  |  |  |  |  |
| Charcoal <2mm | xx | xx | x | $x$ | x | x |
| Charcoal >2mm | x | xx | x | x | x | x |
| Charcoal $>5 \mathrm{~mm}$ |  | x |  |  |  |  |
| Charred root/stem | x | x |  |  | x | x |
| Indet. seeds |  |  |  |  |  | x |
| Indet. tuber |  |  |  |  |  | xcffg |
| Other remains |  |  |  |  |  |  |
| Black porous 'cokey' material | xx | xxxx | xxx | xxx | xx | xxx |
| Black tarry material |  | x |  |  | xx |  |
| Bone |  |  | $x$ |  | $\times \mathrm{xb}$ |  |
| Burnt/fired clay | x | x | x |  | x | x |
| Burnt stone |  |  | x |  | x |  |
| Ferrous globule |  |  | x |  |  |  |
| Small coal frags. | x | x | x |  | xxx |  |
| Mollusc shells |  |  |  |  |  |  |
| Woodland/shade loving species |  |  |  |  |  |  |
| Aegopinella sp. |  | x |  |  |  |  |
| Oxychilus sp. |  | x |  |  |  | x |
| Vitrea sp. |  |  | x |  |  |  |
| Open country species |  |  |  |  |  |  |
| Helicella itala |  |  | x | x | xx xb | x |
| Pupilla muscorum | $x$ | x |  | xx | x | $x$ |
| Vallonia sp. | x |  | xx | $x$ | xx | x |
| V. costata | x | $x$ | x | xx | x | x |
| Catholic species |  |  |  |  |  |  |
| Cochlicopa sp. |  |  | x |  | x |  |
| Nesovitrea hammonis |  |  |  | $x$ |  |  |
| Trichia hispida group | x | xx | xx | xx | x | x |
| Marsh/freshwater obligate species |  |  |  |  |  |  |
| Anisus leucostoma |  |  |  | x |  | x |
| Armiger crista |  |  |  | x |  |  |
| Bathyomphalus contortus |  |  |  | x |  |  |
| Lymnaea sp. |  |  |  | x |  | x |
| Planorbis sp. |  |  |  | x |  |  |
| Succinea sp. |  |  | x |  |  | x |
| Other |  |  |  |  |  |  |
| Limacid plate |  |  |  |  | x |  |
| Sample volume (litres) | 10 | 10 | 20 | 20 | 40 | 30 |
| Volume of flot (litres) | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| \% flot sorted | 100\% | 100\% | 100\% | 100\% | 100\% | 100\% |


| Sample No. | 26 | 22 | 27 | 10 | 30 | 34 | 40 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Context No. | 279 | 217 | 302 | 146 | 320 | 338 | 377 |
| Feature No. | 278 | 216 | 306 | 144 | 319 | 337 | 378 |
| Feature type | Ditch 5 | Ditch 6 | Ditch 7 | Ditch 9 | Ditch 14 | Pit 2 | Pit 3 |
| Period | ER2 | ER4 | ER3 | ER3 | ER4 | MIA | ER1 |
| Date | 50-100AD |  |  | 40-100AD | 200-300AD |  | 40-80AD |
| Cereals |  |  |  |  |  |  |  |
| Hordeum sp. (grains) | xcf |  |  |  |  |  |  |
| Triticum sp. (grains) | $x$ | x |  |  | x |  |  |
| (glume bases) |  | x | x |  | x |  |  |
| (spikelet base) | x |  |  |  |  |  |  |
| T. spelta L. (glume bases) |  |  |  |  | x |  |  |
| Cereal indet. (grains) | xfg | x | x | xfg | xxfg | x | x |
| Herbs |  |  |  |  |  |  |  |
| Bromus sp. |  |  | xcf |  |  |  |  |
| Galium aparine L. |  |  |  |  |  |  | x |
| Rumex sp. |  | x |  |  |  |  |  |
| Tree/shrub macrofossils |  |  |  |  |  |  |  |
| Corylus avellana L. |  |  | x |  |  |  |  |
| Crataegus sp. |  |  |  |  |  | xcf |  |
| Other plant macrofossils |  |  |  |  |  |  |  |
| Charcoal <2mm | xx | $x$ | x | xx | x | xxx | xx |
| Charcoal $>2 \mathrm{~mm}$ | x | x |  | xx | xxx | xxx | x |
| Charcoal $>5 \mathrm{~mm}$ | x |  | x | x | x | x |  |
| Charcoal > 10 mm |  |  |  |  |  | x |  |
| Charred root/stem | x | x |  | $x$ |  | x | x |
| Indet. seeds |  |  |  | x |  |  |  |
| Other remains |  |  |  |  |  |  |  |
| Black porous 'cokey' material | x | $x$ | x | x | xx | xxxx | xx |
| Black tarry material |  | x |  |  |  | xx |  |
| Bone | xx | x |  |  | x xb | $\times \mathrm{xb}$ |  |
| Burnt/fired clay | x |  |  |  | $x$ | x |  |
| Fish bone |  |  |  |  | x |  |  |
| Small coal frags. |  | xx | $x$ | x |  | xxx | x |
| Small mammal/amphibian bones | x | x | x |  | x |  | x |
| Vitreous material |  | x |  |  |  | x |  |
| Mollusc shells |  |  |  |  |  |  |  |
| Woodland/shade loving species |  |  |  |  |  |  |  |
| Aegopinella sp. | x |  |  |  | $x$ |  |  |
| A. nitidula |  |  |  |  | x |  |  |
| Carychium sp. |  |  |  |  | $x$ |  |  |
| Oxychilus sp. | $x$ | x |  |  | xx |  |  |
| Punctum pygmaeum | x |  |  |  |  |  |  |
| Vitrea sp. |  |  |  |  | xx |  |  |
| Zonitidae indet. | x |  |  |  | x |  |  |
| Open country species |  |  |  |  |  |  |  |
| Helicella itala |  | x | x | x | x | x | x |
| Helicidae indet. |  |  |  |  | x |  |  |
| Pupilla muscorum | $x$ | $x$ |  | x | xxx | $x$ | $x$ |
| Vallonia sp. | xxx | $x$ | $x$ | $x$ | xx | $x$ | $x$ |
| V. costata | xxxx | x | xx | x | xxx | x | x |
| Catholic species |  |  |  |  |  |  |  |
| Cepaea sp. |  |  | x |  | x |  |  |
| Cochlicopa sp. | $x$ | x | x |  | xx |  |  |
| Nesovitrea hammonis | x |  |  |  |  |  |  |
| Trichia hispida group | xxx | x | xx | x | xxxx |  | x |
| Marsh/freshwater obligate species |  |  |  |  |  |  |  |
| Anisus leucostoma | x | x |  |  | xxxx |  |  |
| Bithynia sp. |  |  |  |  | x |  |  |
| Lymnaea sp. | x |  |  |  | xxxx |  |  |
| L. truncatula |  |  |  |  | xx |  |  |
| Pisidium sp. |  |  |  |  | x |  |  |
| Planorbis planorbis | x |  |  |  |  |  |  |
| Succinea sp. |  |  |  |  | $x$ |  |  |
| Sample volume (litres) | 40 | 20 | 40 | 8 | 40 | 40 | 40 |
| Volume of flot (litres) | <0.1 | <0.1 | <0.1 | <0.1 | 0.2 | <0.1 | <0.1 |
| \% flot sorted | 100\% | 100\% | 100\% | 100\% | 50\% | 100\% | 100\% |

## APPENDIX 11: OASIS FORM

OASIS ID: preconst1-175027

## Project details

| Project name | Moorfield Road, Duxford, Cambridgeshire: Excavation |
| :--- | :--- |
| Short description of |  |
| the project |  | | An archaeological excavation in advance of development on land east of |
| :--- |
| Moorfield Road and south of the A505, Duxford, revealed an early Roman |
| pottery production site dating to the first few decades after the Roman |
| Conquest (c. AD 50-80/100). Six pottery kilns were identified, several of |
| which were very well preserved. These were associated with large |
| assemblages of pottery, mostly produced in the kilns, and, most |
| significantly, an exceptionally large and diagnostic assemblage of kiln |
| plates used to construct the suspended floors upon which the kiln load was |
| placed during firing. The site forms part of a group of other early Roman kiln |
| sites in the Cambridge environs, including those at Addenbrooke's and |
| Greenhouse Farm. The kilns were predominantly used for firing flagons, in |
| a range of fabrics. Both the techniques being used and the repertoire of |
| vessels suggest that the manufacturing was being carried out by itinerant |
| potters who had learned their trade on the Continent. The kilns were |
| located in an area of agricultural infield, likely to have been mainly used as |
| damp grazing for cattle, on the periphery of an unidentified settlement, |
| probably to the west. Use of the site both for agriculture and pottery |
| production, as well as evidence for nearby occupation, came to an abrupt |
| end in the late 1st century. |


| Significant Finds | STRUCK FLINT Neolithic |
| :---: | :---: |
| Significant Finds | POTTERY Neolithic |
| Significant Finds | POTTERY Middle Iron Age |
| Significant Finds | POTTERY Roman |
| Significant Finds | KILN FURNITURE Roman |
| Significant Finds | COIN Late Iron Age |
| Significant Finds | COIN Roman |
| Significant Finds | COIN Medieval |
| Significant Finds | ANIMAL BONE Roman |
| Significant Finds | HUMAN BONE Roman |
| Investigation type | "Open-area excavation" |
| Prompt | Planning condition |
| Project location |  |
| Country | England |
| Site location | CAMBRIDGESHIRE SOUTH CAMBRIDGESHIRE DUXFORD Land East of Moorfield Road and South of the A505, Duxford, Cambridgeshire |
| Postcode | CB224AG |
| Study area | 0.40 Hectares |
| Site coordinates | TL 4810470052.1010434560 .162509602931520603 N 0000945 E Point |
| Height OD / Depth | Min: 24.00 m Max: 25.00 m |
| Project creators |  |
| Name of Organisation | Pre-Construct Archaeology Ltd |
| Project brief originator | Cambridgeshire County Council |
| Project design originator | Mark Hinman |
| Project director/manager | Mark Hinman |
| Project supervisor | Tom Woolhouse |
| Type of sponsor/funding body | Developer |

Name of Welch's Group Holdings Limited and Wrenbridge (Moorfield Road) Ltd
sponsor/funding
body

## Project archives

| Physical Archive recipient | Cambridgeshire County Council Archaeology Store |
| :---: | :---: |
| Physical Archive ID | CMRD13 |
| Physical Contents | "Animal Bones","Ceramics","Environmental","Human Bones","Metal","Worked stone/lithics" |
| Digital Archive recipient | Cambridgeshire County Council Archaeology Store |
| Digital Archive ID | CMRD13 |
| Digital Contents | "Animal Bones","Ceramics","Environmental","Human Bones","Metal","Survey",'Worked stone/lithics" |
| Digital Media available | "Database","Images raster / digital photography","Spreadsheets","Survey","Text" |
| Paper Archive recipient | Cambridgeshire County Council Archaeology Store |
| Paper Archive ID | CMRD13 |
| Paper Contents | "Animal Bones",""Ceramics","Environmental","Human Bones","Metal","Stratigraphic","Survey","Worked stone/lithics" |
| Paper Media available | "Context sheet","Drawing","Matrices","'Notebook - Excavation',' Research',' General Notes","Photograph","Plan","Report","Section","Survey ","Unpublished Text" |

## Project <br> bibliography 1

Publication type
Title Land East of Moorfield Road and South of the A505, Duxford, Cambridgeshire: Archaeological Excavation. Post-Excavation Assessment

Author(s)/Editor(s) Woolhouse, T.
Other bibliographic PCA Report No. R11661
details
Date 2014

Issuer or publisher Pre-Construct Archaeology
Place of issue or Stapleford
publication
Description 218 page bound A4 report with background to project, phased narrative description of the archaeology, 8 specialist reports on the finds and environmental assemblages, discussion and updated research aims,
publication proposal, three figures, 39 colour photos and 11 appendices including 8 specialist finds catalogues

Entered by Tom Woolhouse (twoolhouse@pre-construct.com)
Entered on
18 March 2014

## OASIS:

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