



# Early Medieval Charcoal Pits and Early Post-medieval Brick Kilns at Nayland Road, Great Horkesley, Essex Archaeological Excavation Report

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# Early Medieval Charcoal Pits and Early Post-medieval Brick Kilns at Nayland Road, Great Horkesley, Essex

## *Archaeological Excavation Report*

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## Summary

Between the 15th March and 29th April 2021, Oxford Archaeology East (OA East) undertook an archaeological excavation at Nayland Road, Great Horkesley, Essex. In total, c.2ha was investigated by three areas of excavation (Areas 1-3) within a 9.5ha development area surrounding Horkesley Manor.

The locations of the excavation areas were based on the results of previous stages of geophysical survey and trial trenching work conducted across the development area between June and July 2019. The evaluation confirmed the presence of *in situ* brick kilns shown on the geophysical survey as areas of burning along the base of the slope in the eastern part of the site, west of Black Brook. Elements of a network of 19th century field boundaries and smaller plot divisions were also revealed along with a recent garden feature-type brick structure probably associated with the manor house, which was constructed at the end of the 19th century. The remains of undated charcoal-rich pits were also scattered across the site.

The excavation areas revealed more charcoal-rich pits amongst other discrete features determined to be natural tree throws. These pits are interpreted as the truncated remains of pit kilns excavated for the production of charcoal in *Cestrewald*. This was an ancient woodland which stretched across Horkesley during the early medieval period before it was transformed into heathland through deforestation, probably in part by repeated charcoal making campaigns. Oak charcoal from three pits was radiocarbon dated to the 12th-13th century AD.

Two heavily truncated intercutting Suffolk-type brick kilns were also revealed in Area 3, brick samples from which indicate an early post-medieval date. This was confirmed by the results of two radiocarbon assays, both centred on the 16th century. An almost entirely truncated kiln of wholly different design was excavated in Area 2 which was similar in form to a 17th century tile kiln excavated at nearby Stanway. This kiln was also radiocarbon dated to the 16th century. Inspection of historical maps dating back to 1777 demonstrated that the development site lay in an area heavily involved in brick (and possibly tile) production, and the associated extraction of clay, from the 15th to 19th centuries.

These two episodes of industrial activity are significant additions to the archaeological record of Great Horkesley and contribute to wider discussions into early medieval charcoal-making techniques and the early history of brick and tile making in the parish.

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The project was managed for Oxford Archaeology by Patrick Moan. The fieldwork was directed by Anthony Haskins, who was supported by Ed Cole, Jack Easen, Jack Everett, Molly Vowles, Max Jacobs, Martha Caruthers, Anna Rogers and Toby Knight. Survey and digitising was carried out by Valerio Pinna and Daria Adamson, with photogrammetry models (Figs 7, 9 and 10; Plates 7 and 8) produced by Gareth Rees. Thanks are also extended to the teams of OA staff that cleaned and packaged the finds under the management of Natasha Dodwell, processed the environmental remains under the supervision of Rachel Fosberry, and prepared the archive under the supervision of Katherine Hamilton. Thanks are also extended to the various specialists for their contributions.

## 1 INTRODUCTION

### 1.1 Scope of work

- 1.1.1 Between 15th March and 29th April 2021 Oxford Archaeology East (OA East) conducted an excavation on a c.9.5ha area of land off Nayland Road, Great Horkesley, Essex (NGR TL 98271 29407; Fig. 1). This archaeological work, commissioned by Horkesley Heath Ltd, followed an evaluation conducted by OA East and was undertaken in advance of a proposed development of 80 residential dwellings with associated infrastructure, green space and allotments (Colchester Borough Council Planning Application No.: 190302, Condition 8).
- 1.1.2 The excavation was undertaken in accordance with a Brief issued by Dr Richard Hoggett (Consultant Archaeological Advisor) in January 2021 on behalf of Colchester Borough Council (CBC) outlining the Local Authority's requirements for work necessary to inform the planning process. A Written Scheme of Investigation (WSI) was produced by OA East (Gilmour 2021) detailing the methods by which OA East proposed to meet the requirements of the Brief. This document outlines how OA East implemented the specified requirements detailed in the WSI.
- 1.1.3 The current phase of archaeological work comprised the strip map and excavation of three mitigation areas (Areas 1-3) within the development site to target features identified by the previous phases of geophysical survey (Armstrong and Fortuny 2019) and evaluation trenching (Lucking 2019).
- 1.1.4 The site archive is currently held by OA East and will be deposited with Colchester and Ipswich Museum Service under the Site Code ECC4605 in due course.

### 1.2 Location, topography and geology

- 1.2.1 The site consists primarily of fields under arable use surrounding Great Horkesley Manor. To the west the field is bounded by Nayland Road. To the north the site is bounded Ivy Lodge Road, to the east by plantations and to the south by residential gardens
- 1.2.2 The site lies either side of the 45m contour OD upon a ridge of higher ground between the valleys of the Colne and the Stour. The bedrock geology of the area is mapped as Thames Group Formation overlain with superficial Diamicton (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>, accessed 29th July 2021).

### 1.3 Archaeological and historical background

- 1.3.1 The following section is a summary of the archaeological and historical background of the site that has been produced using information contained in the Desk Based Assessment for this project (Brooks 2019) and the subsequent evaluation report (Lucking 2019). The Essex Historic Environment Record (EHER) was also consulted. Pertinent records from the EHER are shown on Fig. 2.

### *Neolithic and Bronze Age (c.4000-800BC)*

- 1.3.2 There are no prehistoric finds within the site, but the discovery of Neolithic axes is reported from Blackbrook Road, 180m south-wouth-west (MCC7601). It is difficult to say whether these are from a hoard of deliberately-buried axes, or just casual losses. The site is not far off the line of 'The Causeway' – the best dry route across Horkesley Heath before modern drainage.

### *Late Iron Age (c.100BC-AD43)*

- 1.3.3 Perhaps the most intriguing (and yet least well-defined) archaeological site in the Search Area is the Rampers (MCC10067). This is a postulated earthwork dyke linking Salary Brook and Black Brook, to the north of Colchester. It is a potential northern extension of the oppidum of Camulodunum, north of the Colne. There is, however, currently no archaeological evidence for this feature. Its speculative line, as marked on HER, ends 100m north-east of the site.

### *Romano-British (c.AD43-410)*

- 1.3.4 A coin of the Roman emperor Claudius is reported from St John's Crescent, 150m West of site (MCC7603). The Causeway, or Nayland Road (A134; MCC7148) is generally thought to be a Roman road running north out of Colchester and is shown as such on the modern OS 1:50,000 map and in the standard sources (Going 1996, 96, Drury & Rodwell 1980). However, as in many Roman roads, hard archaeological evidence for the road is lacking. The idea that the Causeway is actually the agger of the Roman road is a very attractive one, in no way diminished because the Victoria County History (VCH; below) believes it is a medieval green. It presumably could be a Roman road agger which later became a medieval green. Before enclosure, the Causeway (whether Roman road or not) was the driest way of crossing Salary Brook and the wet ground implied by the place name Horkesley ('foul clearing'). There are undated elements in the cropmark group MCC9333, particularly the curved ?enclosure. This may be Roman, but could equally be later or earlier.

### *Anglo-Saxon and medieval (c.AD410-1540)*

- 1.3.5 There are no reported Anglo-Saxon finds or sites within the site or its surroundings.
- 1.3.6 Any consideration of the medieval period begins with Domesday. The following is the text for Great Horkesley (from Williams 2003, 1004).

SWEIN OF ESSEX: HUNDRED OF LEXDEN.

R[obert fitzwymarc] held Nayland as 1 manor and as 55 hides. Now S[wein] holds [it] in demesne. Then as now [there were] 18 villans. [There were] then 33 bordars; now 42. Then as now [there were] 7 slaves and 2 ploughs in demesne and the men [had] 10 ploughs. [There is] woodland for 600 pigs.

[There are] 24 acres of meadow. Then as now [there was] 1 mill. It was then worth £10; now 12. Of this manor, Godbald holds of Swein 15 hides and 30 acres and [there are] 2 villans and 8 bordars and 2 ploughs in demesne and the men [have] 2 ploughs. It is worth 60s. in the above valuation. The same holds also 37 free men dwelling on 3 hides of land, whom Robert had TRE and Swein later. [There were] then among them 4 [ploughs].

- 1.3.7 As can be seen from the Domesday text, Horkesley was at that time part of the manor of Nayland, and did not have its own manor house. Interestingly for the present study, it must be understood that Great Horkesley Manor is not a medieval site (it is, in fact, post-enclosure and 19th-century).

*Post-medieval to modern (c.AD1540-present)*

- 1.3.8 The heath on which the site was located was finally enclosed in 1815 and subdivided into rectilinear fields (Horkesley Heath, MCC9148). In other words, this was marginal heathland until 1815, before which it was probably covered by woodland – *Cesterwald*.

## 1.4 Previous work

- 1.4.1 The Historic Environment Desk Based Assessment (DBA) undertaken in 2019 by Colchester Archaeological Trust (CAT) did not identify any archaeological sites or finds within the proposed development site itself (Brooks 2019). A geophysical survey of the site was carried out in June 2019 which detected no anomalies suggestive of significant archaeological features. However, anomalies suggesting the presence of firing or burning activity were detected along the base of the slope in the south-eastern part of the site (Armstrong and Fortuny 2019; Fig. 3). An archaeological evaluation of the site conducted by OA East in July 2019 revealed that these anomalies corresponded with a demolished, brick-built brick kiln and the *in situ* remains of a later brick-built structure. The latter possibly represented either a brick kiln or ancillary structure; the bricks were dated to between the early 18th to early 19th century (Lucking 2019; Fig. 3).

## 2 EXCAVATION AIMS AND METHODOLOGY

### 2.1 Aims

2.1.1 The original aims of the project set out in the WSI were to preserve by record the archaeological evidence contained within the footprint of the development area, prior to damage by development, and investigate the origins, date, development, phasing, spatial organisation, character, function, status, and significance of the remains revealed, and place these in their local, regional and national archaeological context.

### 2.2 Site Specific Research Objectives

2.2.1 Based on the recommendations of the brief and the results of the evaluation of the site (Lucking 2019), which discovered a group of undated charcoal-rich pits and what appeared to be early 18th to early 19th century brick kilns, more site specific aims and research questions were formulated prior to the excavation, as follows:

- i. To understand the date and function of the charcoal-rich pits located during the trench evaluation; and
- ii. To confirm the nature and date of brick manufacture on the site.

### 2.3 Regional Research Aims

2.3.1 The site specific objectives were drawn from, and will contribute to, the goals of Regional Research Frameworks relevant to this area:

- i. Glazebrook J. 1997 Research and Archaeology: A Framework for the Eastern counties: 1. Resource Assessment. East Anglian Archaeology Occasional Papers 3;
- ii. Brown, N. & Glazebrook, J. 2000 Research and Archaeology: A Framework for the Eastern counties: 2. Research Agenda and Strategy. East Anglian Archaeology Occasional Papers 8; and
- iii. Medlycott, M. 2011 Research and Archaeology Revisited: A Revised Framework for the East of England. East Anglian Archaeology Occasional Papers 24.

### 2.4 Fieldwork Methodology

2.4.1 The methodology used followed that detailed in the WSI which required the strip, map and excavation of three excavation areas (Area 1 = c.1ha; Area 2 = c.0.3ha; Area 3 = c.0.7ha) totalling c.2ha be machine stripped to the level of natural geology or the archaeological horizon.

2.4.2 Machine excavation was carried out by a 20-tonne tracked 360° type excavator using a 2m wide flat-bladed ditching bucket under constant supervision of a suitably qualified and experienced archaeologist.

2.4.3 Spoil, exposed surfaces and features were scanned with a metal detector. All metal-detected and hand-collected finds were retained for inspection, other than those which were obviously modern.

- 2.4.4 All archaeological features and deposits were recorded using OA East's pro-forma sheets. Trench locations, plans and sections were recorded at appropriate scales and high resolution digital photographs were taken of all relevant features and deposits.
- 2.4.5 The site was surveyed with a survey-grade differential GPS (Leica CS10/GS08 or Leica 1200) fitted with "smartnet" technology with an accuracy of 5mm horizontal and 10mm vertical.
- 2.4.6 A total of 27 environmental bulk samples were taken from across the site, these were taken and processed in accordance with OA East's sampling policy.

### 3 RESULTS

- 3.1.1 The results of the excavation are presented below and include a description of the archaeological remains based on stratigraphic relationships, spatial associations and, to a certain extent, similarity of features. Where possible this has been combined with dating evidence provided by stratified artefacts. Cut and structure numbers are given in **bold**, and feature group numbers utilise the lowest cut number (not bold) in that group.
- 3.1.2 The findings of the evaluation trenches excavated by OA East (Lucking 2019; Fig. 3) will also be included in the results section where relevant. Details of all contexts are included in Appendix A, Table 4, with finds and environmental reports presented in Appendices B and C respectively.
- 3.1.3 An overall phased excavation plan of Areas 1-3 with groupings of features alongside the findings of the evaluation trenches is presented as Fig. 4. Detailed plans of each excavation area alongside selected sections of features are given as Figs 5-7. Photographs of a selection of features are included in Plates 1-16.
- 3.1.4 Four periods of activity have been identified:
- Period 0: natural features
    - tree throws/tree root systems
  - Period 1: early medieval (c.AD1150-1250)
    - charcoal-making pits
  - Period 2: early post-medieval (c.AD1500-1600)
    - brick kilns
  - Period 3: modern (c.AD1700-present)
    - ditches, brick structures/garden features, field drains and pits

### 3.2 General soils and ground conditions

- 3.2.1 Areas 1 and 2 were underlain by natural geology of reddish-brown or pale whitish-grey sands and gravels. The most elevated part (Area 3) was also mostly underlain by this deposit with its lower eastern extent underlain by reddish-brown clay. These deposits were overlain by a shallow (c.0.1m-thick) subsoil which was in turn overlain by ploughsoil with an average thickness of c.0.3m.
- 3.2.2 Ground conditions throughout the excavation were generally good, however, periods of wet weather made excavation of the lower eastern part of Area 3 difficult. Archaeological features, where present, were generally easy to identify against the underlying natural geology.

### 3.3 Period 0: natural features

#### *Tree throws/tree root systems*

- 3.3.1 No tree throws/tree root systems were uncovered during the evaluation. However, the excavation of Areas 1-3 revealed a total of 62 such features, of which 29 were excavated (Table 1). These features appeared to mostly extend across the site from Area 1 in the north to the western part of Area 3.
- 3.3.2 They were sub-circular or amorphous in plan and measured between 0.5-3.35m in diameter and a maximum of 1m deep. Each tree throw pit was filled with light to dark greyish brown silty sand or mid orange brown sandy clay with flint gravel inclusions. Only a few scraps of datable ceramics (pottery, ceramic building material and clay tobacco-pipe) spanning the Roman to modern periods were recovered from their fills, meaning that none are closely datable.

Area	Fig.	Treeboles	Finds
1	5	206, 208, 210, 212, 216, 218, 220, 222, 224, 228, 230, 242, 251, 260, 262, 266, 268, 281	220: 2 sherds (4g) of 18th-19th century pottery
2	6	4000, 4002, 4006, 4039	4006: 1 sherd (10g) Roman pottery; 1 sherd (14g) medieval pottery; 2 fragments (24g) of Roman and medieval CBM; 9 fragments of sheep/goat bone
3	8	6002, 6004, 6009, 6011, 6014, 6029, 6031	6004: 1 fragment (3g) of 19th century pottery and 1 fragment of clay tobacco pipe

Table 1: Excavated tree throws inventory

### 3.4 Period 1: early medieval (c.AD1150-1250)

#### *Charcoal-rich pits*

##### *Evaluation trenches*

- 3.4.1 A total of 10 undated sub-circular pits, up to 1.2m in diameter and 0.6m deep, with charcoal-rich fills were encountered in Trenches 8, 15, 23, 29, 30 and 49 during the evaluation phase of the investigation (Lucking 2019, 27). Most of these pits were later encompassed by Area 1 (Fig. 5, pits **35** and **48**), Area 2 (Fig. 6, pits **10**, **12** and **19**) and Area 3 (Fig. 8, pit **88**, **91**, **94** and **96**) with pit **52** excavated in Trench 23 to the west (Fig. 4).
- 3.4.2 The only find from these features was fired clay from pit **19**. Two charcoal samples taken from the backfills were sent for radiocarbon dating. A sample of charred oak fruit from pit **12** was radiocarbon dated to 1050-1220 cal AD (95.4% confidence; SUERC-99910; 884 ± 26 BP) with a narrower date range of 1125-1220 cal AD at 77.5% confidence. A charcoal sample of one year old growth oak roundwood from pit **48**

was radiocarbon dated to 1180-1275 cal AD (95.4% confidence; SUERC-99911; 811 ± 26 BP).

**Excavation Areas 1 and 2** (Figs 5 and 6)

- 3.4.3 The excavation phase of the investigation revealed a further 14 sub-circular pits with charcoal-rich fills scattered across the south-eastern corner of Area 1 and the northern part of Area 2 (Table 2; Plates 1-4; Fig. 6 S. 6). These small, shallow features were of similar morphology, with varying quantities of charcoal in the backfills. Each pit measured between 0.6-1.5m in diameter and 0.1-0.46m deep with U-shaped profiles. The pits were generally filled by light to dark greyish brown silty sand or sandy clay with flint gravel inclusions. Pits **200** (Plate 1; Fig. 5 S. 32), **234** and **4023** (Plate 2) contained two or three fills. A 0.04m thick layer of charcoal was noted at the base of pit **200**.
- 3.4.4 A small sherd of 12th-13th century pottery was recovered from pit **4023**. A sample of oak charcoal bark from pit **200** returned a 13th century date to complement the two medieval dates achieved for the charcoal-rich pits excavated by the evaluation trenches.

Area	Fig.	Charcoal-rich pits	Finds	Radiocarbon dating
1	5	200, 234, 238, 240		<b>200</b> : 1220-1280 cal AD (95.4% confidence; SUERC-99915; 798 ± 26 BP)
2	6	4004 (Plate 3), 4013, 4015, 4017, 4019, 4021, 4023, 4026 (Plate 4), 4028 (Plate 4), 4031	<b>4023</b> : 1 sherd (6g) of 12th-13th century pottery	

Table 2: Charcoal-rich pits excavated in Areas 1 and 2

**3.5 Period 2: early post-medieval (c.AD1500-1600)**

**Brick kilns**

**Area 2** (Fig. 6)

**Brick kiln 4033** (Fig. 7)

- 3.5.1 The heavily truncated remains of a probable brick kiln **4033** (Plates 5 and 6; Fig. 6, S. 20) was located in the southern part of Area 2. Its long axis lay on a west-south-west to east-north-east alignment with its flue facing east-north-east. Its rectangular construction cut measured 5m long by 1.6m wide.
- 3.5.2 To the west, the outer brick wall linings of the probable brick firing chamber had been entirely truncated. However, their footprint could be discerned by linear patches of vitrified natural where these walls had presumably radiated heat into the natural ground. This rectangular chamber therefore probably measured 3.5m long by 1.6m wide. Within the firing chamber lay patches of burnt material (4041 and 4042) overlying the natural ground, up to 0.07m thick, which consisted of dark greyish

brown/black/reddish brown silty sand with frequent inclusions of charcoal and fired clay. Five pieces (2.774kg) of post-medieval brick were collected from the light greyish brown clayey silty sand backfill (4034).

To the east, the presumed extent of the single flue was delineated to the north and south by single surviving courses of brickwork (4045 and 4046) set onto the natural ground. This flue was slightly narrower than the firing chamber, measuring 1.5m long by 1m wide.

### *Area 3* (Fig. 8)

- 3.5.3 Evidence for the presence of brick kilns was first determined by the geophysical survey which detected a row of firing/burning patches extending from north to south across the eastern part of the site (Fig. 3). The remains of three brick kilns were unearthed along this alignment, towards the eastern edge of Area 3. Two of these kilns were 'intercutting' features (Plates 7 and 8) with the firing chamber of the earlier kiln (6118) reused as the stoke pit for the later kiln (6070). Only the western part of the third kiln's firing chamber (6040) lay within this area, the remainder of this feature extending eastwards beyond the excavation limit. Each of these constructions contained large quantities of brick broadly dated to the early post-medieval period.

#### *Brick kiln 6118* (Fig. 9a and Fig. 11, S. 59 and 60)

- 3.5.4 This kiln was aligned west-south-west to east-north-east and consisted of a stoke pit to the east connected by two parallel flues to a brick firing chamber to the west. In total, this construction measured 7m long and 5m wide.
- 3.5.5 Stoke pit 6060 measured between 2.5-5m in diameter by 0.23m deep with a shallow, U-shaped profile that contained two fills. The primary fill (6063) was a thin layer of charcoal and brick fragments. A charcoal sample of 1 year old growth Leguminosae (pea or bean family) roundwood from this layer was radiocarbon dated to 1495-1645 cal AD (95.4% confidence; SUERC-99917; 313 ± 26 BP). This was overlain by a burnt deposit (6061) of light greyish brown silty sand with lenses of burnt white fuel ash and charcoal. The fill contained frequent brick rubble, from which one piece of brick (0.8kg) was recovered.
- 3.5.6 Two parallel linear flues, set 0.8m apart, led west from the stoke pit. Each flue (6119 and 6120) measured 4.5m long by 0.5m wide and were cut 0.4m into the natural ground with vertical sides and flat bases (Fig. 11, S. 59 and 60). The eastern half of the flues were separated by an island of natural ground with their western halves extending into the brick firing chamber. Three *in situ* remnants (6094, 6096 and 6126) of the brick walls that lined their eastern extent between the stoke pit and firing chamber were recorded which had survived from the base of the cuts to the subsoil horizon. These flues were filled by burnt deposits (6130-1) of grey/reddish brown clayey sand with frequent fragments of brick and charcoal. These deposits were truncated by Period 3 Ditch 6022.
- 3.5.7 The soot-stained flues could be discerned extending through (and beneath) the sub-rectangular firing chamber (6118) at the western end of the kiln. This chamber was cut 0.4m into the natural ground with vertical sides and a flat base and measured 2.5m by 2.2m across. It contained burnt backfills (6080, 6098, 6121-6 and 6129) of

orange/grey/reddish brown clayey sand with charcoal inclusions and frequent brick rubble from which four pieces of post-medieval brick (1.127kg, 0.92kg, 0.915kg and 0.727kg) were recovered.

*Brick kiln 6070* (Fig. 9b)

- 3.5.8 After the disuse of brick kiln **6118**, the brick firing chamber of this feature was partly re-excavated as a stoke pit for a later brick kiln on a perpendicular north-north-west to south-south-east axis. Its design was identical to that of the earlier kiln. In total, this later construction measured 7.5m long and 3.25m wide.
- 3.5.9 The sub-square stoking pit (**6071**) excavated into the backfill of brick kiln **6118** measured 3.25m long by 2m wide and 0.3m deep with a shallow, U-shaped profile. It contained burnt deposits (6081-2 and 6127-8) of clayey silt and sand in a mixture of red/yellow/brown/grey hues with frequent brick rubble and charcoal inclusions from which five pieces of post-medieval brick (1.41kg, 1.575kg, 1.681kg, 0.932kg and 1.47kg) were recovered.
- 3.5.10 Two parallel flues (**6075** and **6084**) of the same dimensions as those excavated in kiln **6118** extended north from the stoke pit and into the brick firing chamber for 5.2m. The southern part of each flue was similarly separated by an island of natural ground before entering the chamber, where soot stains delineated their farther extent. The burnt fills of each flue (6076-8 and 6085-6) contained brick fragments and charcoal. A charcoal sample of 3 year old growth Leguminosae (pea or bean family) roundwood from fill of flue **6075** was radiocarbon dated to 1460-1630 cal AD (95.4% confidence; SUERC-99916;  $364 \pm 26$  BP).
- 3.5.11 The sub-rectangular firing chamber (**6070**) measured 4m by 3.2m across and 0.4m deep with vertical sides and a flat base. It contained eight burnt backfills (6072-4, 6079, 6087-9, 6090-2 and 6101) of yellow/orange/grey/reddish brown clayey sand or silt with frequent brick rubble and charcoal inclusions. Two pieces of brick (0.474kg and 0.438kg) were recovered from this fill. This fill also yielded a sherd (9g) of 14th-16th century pottery.

*Brick kiln 6040*

- 3.5.12 A rectangular pit (**6040**) was revealed 3m south-east of brick kiln **6118** which probably represented a further partly exposed brick firing chamber. It extended into the excavation for 2.8m from the east and measured 3m in breadth. It had vertical sides and a flat base with two flues cut into its base in a similar arrangement to those of kilns **6118** and **6070** (Plate 9; Fig. 11, S. 70). It contained a stratified series of 24 burnt deposits (6041-9, 6051-7, 6106-13) of clayey silt or silty clay in varying red/yellow/grey/brown hues with frequent fragments of brick and fired clay (Plate 10) presumably relating to its disuse.

*Pit*

- 3.5.13 Approximately 30m south of brick kiln **6040** lay an isolated sub-circular pit (**6064**) which measured between 1.6-3m in diameter and 0.1m deep. It contained a 0.05m thick charcoal-rich primary fill (6065) and a burnt upper fill (6066) of mid reddish orange silty clay.

## 3.6 Period 3: modern (c.AD1700-present)

### *Boundary ditches*

#### *Areas 1-3* (Figs 4, 5, 6 and 8)

- 3.6.1 Areas 1 and 3 revealed two sections of a major linear boundary, shown on historical maps dating back to 1813, which extended north-north-west to south-south-east across the full extent of the development site (Figs 12 and 13). It was excavated as ditch **43** in evaluation Trench 15 (Fig. 4) and produced fragments of post-medieval brick. This ditch (**245**) entered the western part of Area 1 from the north-north-west and continued across the full width of the excavation where it measured 1.65m wide and 0.95m deep with a flat-based profile. A ceramic field drain was also found to be placed into its cut (Plate 11). It was filled by dark greyish brown silty sand with occasional gravel inclusions. This ditch was flanked to the west by a probable hedge (**270=272**). The southward continuation of this boundary along the western edge of Area 3 was not excavated. However, it was excavated as ditch **116** in evaluation Trench 45 (which lay within the footprint of the excavation) but did not produce any artefacts.
- 3.6.2 Each of the excavation areas revealed sections of narrow boundary ditches (Ditch 204, Ditch 4009 and Ditch 6022) with U-shaped profiles which commonly curved towards the east. The northernmost ditch (Ditch 204) in the eastern part of Area 1 is shown as a boundary between two parcels of land on the 1813 map of Great Horkesley (Fig. 13). The remaining boundaries to the south probably represent lesser subdivisions not marked on the map.

In Area 1, Ditch 204 (comprising cuts **204**, **226**, **232** and **249**) measured between 1-1.5m wide by 0.2m deep and was filled with mid brown sandy silt. Its fill produced 20 pieces (2.385kg) of post-medieval brick and two fragments of large mammal bone. This feature was excavated in evaluation Trenches 17 (**29**) and 26 (**33**).

In Area 2, Ditch 4009 (comprising cuts **4009**, **4047**, **4049**, **4051** and **4053**) measured between 0.38-0.54m wide and 0.34-0.56m deep. Its fill consisted of mid to dark greyish brown silty sand with gravel inclusions which yielded three fragments (228g) of post-medieval brick and a sherd (4g) of 19th century pottery. This feature was excavated in evaluation Trenches 29 (**6**) and 30 (**8**) and produced fragments of post-medieval pottery, clay tobacco pipe and brick.

In Area 3, Ditch 6022 (comprising cuts **6022**, **6024** (Plate 12), **6033**, **6036**, **6038** (Plate 13), **6067**, **6097** and **6099**) truncated Period 2 brick kiln **6118**. It measured between 0.6-1.4m wide and 0.15-0.96m deep and was filled with mid orange brown or light brownish grey silty clay. Its fill contained brick rubble of which eight pieces (0.987kg) were recovered.

### *Brick structures of uncertain function*

#### *Area 3* (Fig. 8)

##### *Possible garden features*

Brick structure 6017, 6018, 6019 (Fig. 10)

In the south-eastern corner of Area 3 lay a structure made of unbonded bricks set into the fill of Ditch 6022 where it turned from the north-west to the east (Plates 14 and 15). This masonry was first revealed in evaluation Trench 53. Following the curvature of the ditch alignment, a flat, floor-like 'causeway' construction (6017) was bounded

to the north-east and south-west by slightly raised 'wall' elements 6018 and 6019. The overall appearance of this feature was of a garden feature constructed to afford easier passage across the ditch line when waterlogged, where it crossed a notable depression in the topography. A 0.5m-thick build-up of clay colluvium/alluvium (6028) within this hollow was also recorded at this location. This depression equates to the southwestern corner of a pond – a flooded clay extraction pit – shown on an 1813 map of Great Horkesley (Fig. 13). During the evaluation, a wheel rut (84; not illustrated) was recorded extending over the colluvium in Trench 53.

Brick feature 6008

- 3.6.3 Approximately 12m north of the possible brick causeway lay a smaller structure of unbonded bricks extending over Ditch 6022, which may represent a remnant of a smaller *ad hoc* footway across this feature when waterlogged (Plate 16).

### *Field drains*

*Areas 1 and 3* (Figs 5 and 8)

- 3.6.4 Field drains containing ceramic pipes to aid drainage of the grounds east of the Hall were excavated in Area 1 (214, 285 and 288) and Area 3 (unnumbered).

### *Pits*

*Area 1* (Fig. 5)

- 3.6.5 A group of four recent pits (254 (Plate 17), 257 (Plate 17), 264 and 295 (Fig. 5, S. 56) was excavated in Area 1. They are of unknown function but were possibly associated with the construction of Great Horkesley Manor. Pits 254 and 257 cut field drains in Area 1. These pits measured between 2.28-5m in diameter and 0.24-0.98m deep with irregular or U-shaped profiles. They contained between one and five sterile fills which, combined, produced 21 fragments (3.987kg) of predominantly post-medieval ceramic building material (CBM) with a couple of residual Roman and medieval pieces. In addition, two fragments of clay tobacco pipe were recovered from pit 264. It is likely that some of the finds in the natural tree throws (Period 0) relate to recent tree clearance across the site.

## 3.7 Finds and environmental summary

### *Introduction*

- 3.7.1 The finds recovered from the excavated features consist of: post-medieval bricks; a couple of Roman and medieval CBM fragments; a few small sherds of medieval, post-medieval and modern pottery; and a few fragments of animal bone.

### *Pottery*

- 3.7.2 Thirty-one sherds of pottery weighing 637g were collected from 12 contexts during the evaluation and excavation. Two sherds of medieval pottery were recovered from Period 1 charcoal-rich pit 4023 and Period 2 brick kiln 6070. The majority of pottery recovered from the site is of post-medieval date from Period 3 Ditch 4009, ditches 25 and 27 (Trench 18) and the fill of a small natural hollow (Trench 28). More recent

pottery of broadly 18th/19th-century date comprised eight sherds from: Period 0 tree throws **100**, **201**, **6004**; Period 2 brick kiln **4033** (Area 2); and Period 3 Ditch 4009 (Area 2) and ditch **25** (Trench 18). Apart from a small concentration of pottery in ditch **25** (Trench 18), the pottery was thinly spread across the site and probably represents manuring and the distribution of night soil from local settlements.

### *Ceramic building material*

3.7.3 Fragmentary and complete bricks and tiles totalling 204 pieces (45,798g) were recovered from 17 contexts in the evaluation and 21 in the excavation. The majority of CBM is of late medieval and early post-medieval date. Post-medieval bricks form the largest part of this assemblage, but they only represent a small proportion of the brick which was present on the site. Most were recovered as samples of the Period 2 brick kiln structures in Areas 2 and 3 or were found in the demolition deposits and other nearby features. Although they appear to be in a wide range of fabrics, these are probably a result of different batches using slightly different mixes of clay, and the overall range of inclusions suggests that most were made at the production site.

### *Animal bone*

3.7.4 Excavations at the site uncovered a total of 13 recordable fragments of animal bone. Of these, 10 fragments were identifiable to only two taxa; cattle and sheep/goat. Primarily these specimens represent domestic waste. The assemblage is dominated by sheep/goat bone from Period 0 tree throw **4006**.

### *Environmental samples*

3.7.5 Twenty-seven bulk samples were taken from early medieval (Period 1) pits that may have been for the purpose of making charcoal, early post-medieval (Period 2) brick kilns and modern (Period 3) features. The most charcoal-rich sample was taken from Period 1 pit **48** excavated in Trench 15, later encompassed by Area 1. The environmental samples produced significant amounts of charcoal as evidence of the exploitation of an area of oak forest that was probably cleared in the medieval period to form Horkesley Heath. Pit kilns were a way of producing charcoal in the early medieval period. The recovery of the gorse/broom from the Period 2 brick kilns is consistent with the primary wood fuel used in late 15th-16th century 'industrial' kilns.

### *Radiocarbon dating*

3.7.6 Six samples of organic remains were selected for radiocarbon dating (Table 3).

Area/Fig	Sample type	Cxt.	Cut	Feature type	Group	Period	Radiocarbon Age BP	Date	Certificate
Area 2 / Fig. 6	Sample 2: charred fruit cup: Quercus	13	12	Charcoal-rich pit		1	884 ± 26	1046-1224 cal AD	95.4% SUERC-99910 GU58453
								1125-1224	77.5% SUERC-

Area/Fig	Sample type	Cxt.	Cut	Feature type	Group	Period	Radiocarbon Age BP	Date	Certificate
								cal AD	99910 GU58453
Area 1 / Fig. 5	Sample 6: charcoal- round wood, 1yr growth: cf Quercus	49	48	Charcoal- rich pit		1	811 ± 26	1179- 1275- cal AD	95.4% SUERC- 99911 GU58454
								1206- 1275- cal AD	92.5% SUERC- 99911 GU58454
Area 1 / Fig. 5	Sample: charcoal- bark: cf Quercus	202	200	Charcoal- rich pit		1	798 ± 26	1216- 1277- cal AD	95.4% SUERC- 99915 GU58455
Area 2 / Fig. 6	Sample 112: charred plant remains: <i>Triticum</i> Sp.	4042	4033	Brick kiln	Brick kiln 4033	2	284 ± 29	1500- 1794- cal AD	95.4% SUERC- 99981 GU59007
								1500- 1600- cal AD	58.9% SUERC- 99981 GU59007
Area 3 / Fig. 8	Sample 205: charcoal- round wood, 3 yrs growth: leguminosae	6076	6075	Brick kiln	Brick kiln 6070	2	364 ± 26	1456- 1633- cal AD	95.4% SUERC- 99916 GU58456
Area 3 / Fig. 8	Sample 210: charcoal- round wood, 1yr growth: leguminosae	6063	6060	Brick kiln	Brick kiln 6118	2	313 ± 26	1495- 1645- cal AD	95.4% SUERC- 99917 GU58457
								1495- 1602- cal AD	74.3% SUERC- 99917 GU58457

Table 3: Radiocarbon dating results

## 4 DISCUSSION

### 4.1 Introduction

- 4.1.1 Excavation Areas 1 and 2 uncovered a dispersed group of charcoal-rich pits dated by radiocarbon assay to between the 11th to 13th centuries AD with most probably dating to the 13th century, the early medieval period. It was notable during the site work that many other excavated discrete features proved to be sterile which appear to represent vestiges of tree root systems forming part of a woodland that once extended across the site. None of the charcoal-rich pits were visible in the geophysical survey and were only discovered through trenching. The excavations also encountered a group of three heavily truncated brick kilns in Area 3 which correspond with discrete patches of burning detected by the geophysical survey of the site. It can therefore be deduced that the remaining patches of burning detected by the survey which extended north from Area 3 in a linear fashion and passing east of Area 2 probably represent further unexcavated brick kilns. A fourth heavily truncated burnt brick structure of differing morphology uncovered in Area 2 (which was not detected by the geophysical survey) has also been interpreted as a probable brick kiln. The limited evidence for brick dimensions from them suggests they were in operation during the late 15th or early 16th century. For example, the brick sizes from the Area 2 kiln are comparable with those at Jesus College and Queen's College, Cambridge and the more unusual narrow widths of the bricks from the kilns in Area 3 resemble those at Faulkbourne Hall, Essex. Overall, an early 16th century date for this site is more likely (see App. B.2.25-6).
- 4.1.2 Radiocarbon dates achieved for the kiln in Area 2 and the group of kilns in Area 3 are similarly centred on the 16th century, the early post-medieval period. The environmental and finds assemblages are dominated by wood charcoal from the 13th century pits and brick from the 16th century kilns. The lack of any significant quantities of domestic debris (such as pottery sherds or animal bone) from across the site suggests this site lay beyond the reach of any domestic activity across the entirety of the medieval and post-medieval periods.
- 4.1.3 The later groups of drainage gullies, garden features, boundaries and pits attributed to Period 3 appear to relate to the grounds established around Great Horkesley Manor when it was established on this site at the end of the 19th century (Cooper 2001a). These later features do not contribute to the research objectives of the project and will not be discussed further. It is likely that landscaping of grounds associated with the establishment of the manor may have caused the high degree of truncation observed of both the charcoal-rich pits and the brick kilns.

### 4.2 Historical setting

- 4.2.1 The development site is mapped as having extended across plots of clay farmland (mostly west of the Black Brook with a smaller portion to its east) surrounding a group of buildings marked as Manorhouse Farm – the later site of Great Horkesley Manor – as far back as 1876 (Fig. 12). The extraction of clay for medieval pottery production in this parish is preserved in the 1839 tithe map which lists Potkins (pot kilns) Field where the school now stands, *c.*350m west of the site (Brooks 2019, 18 map 3). An 1813 map

of Great Horkesley shows that, immediately prior to the Enclosure of the parish in 1815, the site encompassed parts of nine parcels of land surrounding Manorhouse Farm (Fig. 13; Essex Records Office (ERO) ref: D/DHt P35). The proprietor and occupier of this land was John Freeman Esq. (ERO ref: D/DU 409/13). Two of the parcels listed as 'Lower Pond' and 'Upper Pond' occupied broad stretches of ground along the base of the tributary valley presently drained by Black Brook. The course of the causeway that separated these ponds is preserved as the trackway that currently leads east from the present manor house. The land surrounding the ponds is described on the 1813 map as 'For Right of Soil'. Therefore, it might be surmised that the ponds represent flooded clay extraction pits with the surrounding land similarly set aside for future clay pits.

- 4.2.2 Although small valleys were dammed in the post-medieval period to create ornamental fishponds in landscape gardens (e.g. Beaulieu, Clarke 2020, 13), ponds were also a common feature next to kiln sites as the raw excavated clay needed to weather for a time before churned with water to the correct consistency for brick and tile making. The extraction of clay east of Nayland Road would have supplied the Great Horkesley Brickworks located at the western end of Brick Kiln Lane, c.500m south-west of the site, currently the grounds of Kiln House. These brickworks are listed in the EHER as having operated until the c.1870s. The proprietors also owned brickworks in the neighbouring Mile End and West Bergholt parishes (EHER Industrial Record MCC5347; <https://colchesterheritage.co.uk/Monument/MCC5347> accessed 23rd September 2021). After the close of the brickworks, the ponds/clay diggings on the site had evidently been completely infilled by the time of the 1876 Ordnance Survey.
- 4.2.3 In the preceding century, the Chapman and André 1777 map of Essex shows the site lying at the north-eastern end of Horkesley Heath (Brooks 2019, 17 map 2). The buildings at the location of Manorhouse Farm are evidently present at this earlier date. Along the eastern fringes of the site lay Black Brook with a less extensive pond than the two shown on the 1813 map. The presence of this pond strongly suggests that clay extraction for brick making was taking place on this site at least as far back as the later 18th century; the clay pit having flooded. This early clay pit had clearly continued to have been worked and expanded in size to become the two ponds shown on the 1813 map. These features are projected onto the 1876 OS map as Figure 12. To the west of Nayland Road, further groups of buildings are shown at Tile House Farm and Beckwith's Farm. Horkesley Manor 'does not occupy an ancient site' according to the Victoria County History with the site of the medieval manor house not recorded (Cooper 2001a). Nevertheless, the presence of Manorhouse Farm on this site as far back as at least 1777 raises the possibility that this site may have been occupied earlier, perhaps in the 16th century when the brick kilns on this site were in use.
- 4.2.4 There appear to be no pre-18th century maps that would help to chart the medieval or early post-medieval development of Great Horkesley and the development site. The heathland extending across this parish during the post-medieval and early modern periods was a result of the clearance of *Cestrewald* during the early medieval period, an extensive forest which once stretched across multiple parishes north of Colchester (Cooper 2001b). The Causeway (possibly of Roman origin), also known as Nayland Road, was the main dry route through this damp, open landscape (Brooks 2019, 14).

The earliest records of potters arriving in Great Horkesley to exploit the clay date towards the end of the 13th century, an industry which continued in the village throughout the medieval period and possibly also into the post-medieval period (Cooper 2001b). A group of potteries investigated in the 1970s either side of the Causeway where it met Old House Road, c.800m north of the site (Drury and Petchey 1975, fig. 1). As discussed above, 19th century map evidence demonstrates other potteries probably existed to the south and nearer the site in medieval times. Documentary evidence for brick works extracting clay in Horkesley dates back to the end of the 15th century and into the 16th century. Brick making and the excavation of clay pits continued through to the 19th century (Cooper 2001b). Kiln debris dating to the 16th century has been found at the site of Kiln House to the south-west and Ivy Road to the north of the site (Fig. 13; *Ibid.*; Brooks 2019, fig. 3 no.12).

### 4.3 Charcoal-making

- 4.3.1 Until the 14th century, the site probably lay in the well-wooded environment of the *Cestrewald* forest, the local extent of which is probably partly fossilised in the Chapman and André 1777 map of Essex as Boxstead Heath and Horkesley Heath extending east and west of Black Brook respectively (Brooks 2019, 17 map 2). A total of 24 shallow sub-circular pits were excavated on this site whose morphology, lack of finds, occasional scorched cuts and relatively charcoal-rich fills have recently come to be associated with charcoal-making in woodlands. These are now recognised as a distinct feature-type from other forms of burnt features such as cooking pits found in domestic settings.
- 4.3.2 Excavations north of Colchester have revealed 12 sites of charcoal-rich pits dating from the Iron Age, Roman and early medieval periods to suggest a long-lived, if possibly intermittent, charcoal-making tradition in this locality (Hicks and Pooley 2019, table 14). Pits from three of these sites were radiocarbon dated to between the 10th and 12th centuries AD: Severalls Hospital, c.800m south-east (House 2017); Colchester Northern Gateway Sports Hub, c.1km east (Pooley 2018); and Lodge Farm, 1.5km north of the site (Hicks and Pooley 2019). An outlying site of charcoal-rich pits to this group, radiocarbon dated to the 9th century, was excavated at Chitts Hill, Stanway, c.4km to the south-west (Graham 2019). The current crop of radiocarbon dates indicates woodland and charcoal-making persisted at the site into the 13th century.
- 4.3.3 Charcoal identification work from the current site supports previous work from the neighbouring sites mentioned above that the medieval charcoal workers, or colliers, were primarily harvesting oak (App. C.2.9; Pooley 2018, 26; Hicks and Pooley 2019, 16). Whether the woodland in Horkesley was managed or coppiced in regulated cycles to slow growth is unknown, although it was probably completely denuded and replaced by heathland by the post-medieval period. This production site must have benefitted from the close proximity of the Causeway – of possible Roman origin – upon which charcoal could be transported with relative ease to Colchester or other iron producing centres. Charcoal was produced through heating wood in an airless environment to restrict the supply of oxygen which would otherwise burn the wood to ash. Two charcoal-making techniques are known from the medieval period which

can similarly scar the underlying geology, with pit cuts such as those found at Nayland Road. These techniques are described in turn below.

- 4.3.4 Charcoal was being produced primarily to fuel iron production, specifically for smelting iron (Bishop and Proctor 2011; Hicks and Pooley 2019, 20). The use of charcoal over wood was driven by its smaller bulk and its property of burning without smoke at a higher temperature. The link between iron production and charcoal-rich pits has also been made in the Low Countries where circular 'pit kilns' – *grubenmeiler* – dating to the early medieval period have been excavated on sites in woodland contexts (Deforce 2020, fig. 3). Recent studies into these sites have drawn on present-day ethnographic evidence to demonstrate that it can take between seven hours and 3 days to produce charcoal in shallow circular pits measuring between 0.4-2m in diameter by 0.3-0.5m in depth. The pits were sealed with leaves and earth or sods (*ibid.*, 3). Considering the c.0.3-0.5m depth of topsoil/subsoil overburden stripped at Nayland Road, these measurements are entirely consistent with the truncated vestiges of charcoal-rich pits encountered at the site, suggesting that these represent the deepest cut examples with an unknown number having been entirely truncated by the plough. Further study into the chronology of the *grubenmeiler* concluded that pit kilns went out of use in the Low Countries at the end of the 13th century after which 'mound kilns' were used; known in Britain variously as charcoal clamps, charcoal piles or wood stacks, *etc.* This shift in charcoal-making technique on the continent was attributed to the far larger volumes of charcoal required when iron smelting technology shifted from the use of bloomery to blast furnaces (*ibid.*, 9; see also Deforce *et al.* 2018).
- 4.3.5 This interpretation differs from that given for charcoal-rich pits dated by pottery to between the 12th and 14th centuries excavated at Lodge Farm north of the site, where charcoal clamps/mound kilns were considered to have been in use. These pits are described as having been excavated to hold upright posts, around which wood was stacked before being covered in kindling and sealed within domed mud structures (a staged reconstruction shown in Powell *et al.* 2012, fig. 2). Therefore, the charcoal-rich pits were interpreted as the only surviving element of charcoal clamps otherwise invisible in the archaeological record (Hicks and Pooley 2019, 19). However, much ground preparation was required prior to the construction of a charcoal clamp which can potentially leave traces in the ground such as the removal of turf and levelling a platform (Powell *et al.* 2012, 1198). In the East Sussex Weald, the site of 'charcoal-burning platforms' which supplied the 18th century blast furnace at Darwell have been identified. These are completely flat sub-circular areas, typically between 6-8m in diameter (Prus 2005, 27; see also Hazell *et al.* 2017, 8). Recent research into the visibility of charcoal 'wood stacks' in geophysical survey also concluded that rather than heated ground, the contamination of ground from heated sealing material offered the greatest potential for their identification (Powell *et al.* 2012). In this regard, therefore, it may be significant to the present interpretation that geophysical survey of this site did not reveal any burnt patches which correspond with charcoal-rich pits, nor did the excavation encounter any areas of burnt sealing material or charcoal in the overburden. In addition, the charcoal-rich pits were centred on sloping ground across the eastern part of the site where there was no evidence for the construction of any platforms. The use of the more primitive pit kiln/*grubenmeiler* technique outlined

above is therefore considered to have been employed for making charcoal on this site during the 13th century and possibly earlier.

- 4.3.6 As an interesting footnote to this discussion, a form of higher carbon content charcoal known as 'biochar' is made in present-day pit kilns which leave behind the same imprint in the ground as the early medieval pit kilns described above. This biochar is used as a fertiliser and highlights the potential for the production of different charcoals in the past for its uses other than iron production. Biochar pit kilns are not sealed as with the technique described above but layers of wood are periodically added as ash starts to appear on the wood surface to keep raising the fire front above the wood below which continued to char and not burn. At the end of the process, the pit is then quenched with water or sealed with soil before being left for a day to cool (Taylor *et al.* ND; Hoffman-Krull ND, 17-18; [https://wiki.opensourceecology.org/wiki/Earth\\_Pit\\_Kiln](https://wiki.opensourceecology.org/wiki/Earth_Pit_Kiln)). Expanding on this theme of other uses, charcoal was also used in some pre-industrial lime kilns, particularly in areas where charcoal was plentiful (Historic England 2018, 5; Hazel *et al.* 2017, 20).

## 4.4 Brick (and tile) making

### *Conventional 'Suffolk-type' updraught brick kilns*

- 4.4.1 The group of three brick-built kiln structures radiocarbon dated to between the late 15th and 17th century, with one definitely of 16th century date, were excavated in Area 3 which were of the normal type of rectangular updraught brick kiln form found at tileries and brick making sites between the 13th to 18th centuries, before forms changed significantly towards the end of the 18th century (appearance of much larger bottle kilns, *etc*). The size of their firing chambers (between c.2.2-3.2m in width and c.2.5-4m in length, excluding the stoke pits) also conforms to the usual dimensions for these elements. In Essex, the remains of two similar intercutting late 17th/early 18th century examples, also truncated to ground level, were excavated at Danbury (Drury 1975). For each kiln, two separate firing tunnels were set into the ground which led beneath the kiln chamber from the stoke pits. Either a pierced floor or well-spaced brick built archways would have vaulted the tunnels at ground level that allowed heat to enter the brick-built firing chamber. The firing chambers at Danbury were described as having been perhaps as high as 2m above ground and were provided with roof coverings, although the nature of these coverings was speculative (*ibid*, 210-11).
- 4.4.2 Similar to the present site, the reusable bricks at the Danbury kilns had been robbed when the structure was demolished to leave only vestiges of its lining. There was also a similar scarcity in domestic debris associated with the kilns. The presence of pegtiles in the backfill of the more heavily truncated smaller kiln (2.9m in width, excluding the stoke pit) at Danbury was taken as evidence for the production of tile. The better-preserved larger kiln (4m in width by 5.5m in length, excluding the stoke pit) was interpreted as a brick kiln. The backfills of the kilns and later features at Nayland Road produced predominantly brick with some tile to suggest both products may also have been manufactured at this site.
- 4.4.3 A rapid review of other conventional, two-tunnel and brick-built updraught kiln sites excavated on the periphery of Colchester has brought to light a similar 17th to 18th

century example excavated nearby Roman River at Olivers Spinney, Stanway (Fawn 1984; 1985). Interestingly, this kiln (c.3.5m x c.5m across, excluding the stoke pit), constructed over two phases of use, appeared to overlie and truncate an earlier fired clay 'clamp kiln'. This kiln is described by the author as a 'Suffolk-type' brick kiln (see below) and provides a useful reconstruction drawing of what the kilns at Nayland Road may have looked like when in use (Fawn 1984, fig. 2). A further 17th century kiln was excavated at Garlands, Bourne Road, West Bergholt (Holbert 1978; McMaster 1978). However, its design differed with its firing chamber (4m x 3m across) fed by flues extending from both its northern and southern ends.

- 4.4.4 Further afield, the Essex Archaeology and History journal provides summaries of a brick kiln of similar configuration excavated at Stoneymore Wood, Fryeming (late 16th/early 17th century; Eddy 1981, 53). Similar brick kilns have also been unearthed in the grounds of higher status sites where they were probably associated with their construction, such as Beeleigh Abbey, Maldon (16th century; Bennett 2005, 158) and Beaulieu Palace, Chelmsford (Stocks-Morgan 2017). As a final note, this type of kiln was apparently not confined to rural settings with a late 17th/early 18th century example (3.5m in width by 5.5m in length, excluding the stoke pit) was excavated at Legg Street, Chelmsford (Hawkins and Sudds 2011, 212-4, fig. 5).
- 4.4.5 In Suffolk, this type of updraught kiln is known as a 'Suffolk-kiln' and recognised as the prevalent kiln type across East Anglia during the late medieval and post-medieval periods. This design differed from Scotch kilns found elsewhere in the country (Brooks 2015a, 12-14). A particularly well-preserved example was excavated at Wash Pits Field, Euston (*ibid.*) with further notable examples unearthed at Gedding Hall (Anderson and Tester 2003) and Clare (Brooks 2015b).

#### *Possible tile kiln*

- 4.4.6 A probable kiln structure of wholly different design to those excavated in Area 3 was revealed in Area 2. Only its heavily truncated outline was observed but it appeared to comprise two elements: a rectangular firing chamber at its west end (3.5m in length by 1.6m in width) with a single broad flue extending to its east. The few surviving *in situ* bricks defining the flue suggests this was also a brick-built structure. A charred sample from the patches of *in situ* burning on the firing chamber base returned a similar radiocarbon date as the brick kilns in Area 3. A similar feature was excavated at Roman River, Stanway which shared this feature's configuration with its kiln chamber measuring 4.1m long and 2.4m wide (Hall 1959). This better-preserved feature retained some of its structure and contained an *in situ* arrangement of portable fire bars with the backfill containing much fragmentary tile (also evident as a surface scatter), which strongly suggests this kiln manufactured tile. It is possible that the similar feature excavated at Nayland Road was also deliberately constructed for tile-making following a standardised, if less-well known, design. Considering the fire bars recorded at the Roman River kiln, it is possible this type of structure was relatively portable and could be more easily deconstructed and moved elsewhere, perhaps explaining this feature's almost complete disappearance and this kiln type's lesser prominence in the archaeological record generally.

## 4.5 Significance

- 4.5.1 The remains encountered in this excavation are of local significance to the history of Great Horkesley. The excavated remains have provided secure radiocarbon dates for 13th century charcoal-making in this parish and underscores the value of radiocarbon assay to understand the chronology of this industry (and that of brick productions) This was an important industry and the results have some bearing on future discourse into the use and clearance of the woodland in the hinterland of Colchester and the relationship of this resource with iron working centres more widely. Useful insight has also been gained on the exploitation of heathland for clay extraction once this woodland had disappeared. Significantly, the investigation has revealed that east of Nayland Road, the grounds of Great Horkesley Manor was the site of an early centre of brick (and possibly tile) production in the parish, later eclipsed by the brickworks west of Nayland Road, centred on Kiln House which still operated in the 19th century.

## 5 PUBLICATION AND ARCHIVING

### 5.1 Publication

- 5.1.1 Following approval of this report by the County Archaeologist, it will be lodged with the EHER and made available digitally via the OA Library (<https://oxfordarchaeology.com/oalibrary>) and via the ADS.
- 5.1.2 Requirement for any further form of publication will be agreed with the County Archaeologist on acceptance of this report. It is anticipated that both the early medieval charcoal making pits and early post-medieval brick kilns will be published together as a short article in the *Transactions of the Essex Society for Archaeology and History*.

### 5.2 Archiving, Retention and Dispersal

- 5.2.1 The site archive (including those generated by the evaluation phase of the investigation) will be deposited with Colchester and Ipswich Museum Service under Site Code ECC4605 and comprises a maximum of two bulk finds boxes of representative brick samples from the 16th century brick kilns and one document box.
- 5.2.2 The following finds assemblages have been selected for discard due to their small, fragmentary nature and low potential to yield further information: pottery, glass, clay tobacco pipe and fragmentary CBM.

## APPENDIX A CONTEXT INVENTORY

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
1	200		0	1	cut	pit	Charcoal making				1.1	0.26	U-shaped
1	201	200	0	1	fill	pit	Disuse	light brownish-red	sand		1	0.11	
1	202	200	0	1	fill	pit	Disuse	black		charcoal	1.2	0.04	
1	203	200	0	1	fill	pit	Disuse	dark grey-brown	silty sand	occ charcoal	1.1	0.1	
1	204		Ditch 204	3	cut	ditch	Boundary				0.9	0.2	U-shaped
1	205	205	Ditch 204	3	fill	ditch	Silting	mid brown	sandy silt		0.9	0.2	
1	206	0	0	0	cut	tree throw	Natural				1.6	0.2	U-shaped
1	207	206	0	0	fill	tree throw	Natural	mid brown	sandy silt	occ pea gravel	1.6	0.2	
1	208	0	0	0	cut	tree throw	Natural				1.69	0.25	U-shaped
1	209	208	0	0	fill	tree throw	Natural	mid greyish-brown	silty sand	frequent flint unsorted	1.69	0.25	
1	210	0	0	0	cut	tree throw	Natural				1.2	0.11	U-shaped
1	211	210	0	0	fill	tree throw	Natural	mottled mid greyish-brown and orangey-brown	silty sand	frequent flint unsorted	1.2	0.11	
1	212	0	0	0	cut	tree throw	Natural				1.22	0.15	
1	213	212	0	0	fill	tree throw	Natural	dark greyish-brown	silty sand	frequent unsorted flint	1.22	0.15	
1	214	0	0	3	cut	Field drain	Drainage				0.8	0.35	V-shaped
1	215	214	0	3	fill	Field drain	Backfill	mid yellowish grey	silty sand	occasional small sub rounded stones	0.8	0.35	
1	216	0	0	0	cut	tree throw	Natural				0.69	0.13	U-shaped
1	217	216	0	0	fill	tree throw	Natural	mid greyish-brown	silty sand	moderate flint	0.69	0.13	
1	218	0	0	0	cut	tree throw	Natural				0.5	0.07	U-shaped

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
1	219	218	0	0	fill	tree throw	Natural	mid greyish-brown	silty sand	frequent flint gravel	0.5	0.07	
1	220	0	0	0	cut	tree throw	Natural				0.49	0.04	U-shaped
1	221	220	0	0	fill	tree throw	Natural	mid greyish-brown	silty sand	frequent flint gravel	0.49	0.04	
1	222	0	0	0	cut	tree throw	Natural				0.85	0.14	U-shaped
1	223	222	0	0	fill	tree throw	Natural	dark greyish-brown	silty sand	frequent flint gravel and charcoal	0.85	0.14	
1	224	0	0	0	cut	tree throw	Natural				1.3	0.26	U-shaped
1	225	224	0	0	fill	tree throw	Natural	light greyish-brown	silty sand	occasional flint gravel	1.3	0.26	
1	226	0	Ditch 204	3	cut	ditch	Boundary					0.22	wide U-shape
1	227	226	Ditch 204	3	fill	ditch	Silting	mid greyish-brown	silty sand	frequent flint gravel		0.22	
1	228	0	0	0	cut	tree throw	Natural				0.97	0.16	wide U-shape
1	229	228	0	0	fill	tree throw	Natural	light yellowish-brown	silty sand	occasional flint gravel	0.97	0.16	
1	230	0	0	0	cut	tree throw	Natural				0.8	0.12	
1	231	230	0	0	fill	tree throw	Natural	light greyish-brown	silty sand	occasional flint gravel	0.8	0.12	
1	232	0	Ditch 204	3	cut	ditch	Boundary					0.28	wide U-shape
1	233	232	Ditch 204	3	fill	ditch	Silting	mid greyish-brown	silty sand	frequent flint gravel		0.28	
1	234	0	0	1	cut	pit	Charcoal making				1.1	0.4	U-shaped
1	235	234	0	1	fill	pit	Disuse	light yellowish-brown	silty sand	moderate sub-rounded flint gravel	1.1	0.2	
1	236	234	0	1	fill	pit	Disuse	dark greyish-brown	silty sand	occasional flint gravel, moderate charcoal	0.65	0.18	

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
1	237	234	0	1	fill	pit	Disuse	mid greyish-brown	silty sand	occasional flint gravel rare charcoal	0.77	0.14	
1	238	0	0	1	cut	pit	Charcoal making				0.7	0.14	irregular
1	239	238	0	1	fill	pit	Disuse	dark greyish-brown	silty sand	occasional flint gravel and rare charcoal	0.7	0.14	
1	240	0	0	1	cut	pit	Charcoal making				0.6	0.14	U-shaped
1	241	240	0	1	fill	pit	Disuse	mottled dark greyish-brown and reddish-brown	silty sand	occasional flint gravel, charcoal and Iron pan	0.6	0.14	
1	242	0	0	0	cut	tree throw	Natural						irregular
1	243	242	0	0	fill	tree throw	Natural	light greyish-brown	silty sand	occasional charcoal and rare gravel	0.56	0.14	
1	244	242	0	0	fill	tree throw	Natural	light brownish-yellow	silty sand	rare gravel	0.2	0.06	
1	245	0	0	3	cut	ditch	Boundary				1.65	0.95	flat bottomed U-shape
1	246	245	0	3	fill	ditch	Silting	dark greyish-brown	silty sand	occasional sub-angular stones	1.65	0.95	
1	247	0	0	3	cut	pit	Unknown				0.7	0.4	U-shaped
1	248	247	0	3	fill	pit	Backfill	mid brownish-grey	silty sand	occasional stone	0.7	0.4	
1	249	0	Ditch 204	3	cut	ditch	Boundary				1.5	0.22	wide U-shape
1	250	249	Ditch 204	3	fill	ditch	Silting	mid greyish-brown	silty sand	occasional gravel	1.5	0.22	
1	251	0	0	0	cut	tree throw	Natural				1.29	0.28	U-shaped
1	252	251	0	0	fill	tree throw	Natural	light greyish-brown	silty sand	moderate flint gravel	1.29	0.13	
1	253	251	0	0	fill	tree throw	Natural	mid orangey-brown	silty sand	moderate flint gravel	1.29	0.18	

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
1	254	0	0	3	cut	pit	quarry				5	0.6	irregular
1	255	254	0	3	fill	pit	deliberate backfill	light grey	sand	occasional small sub-rounded stones	1.3	0.5	
1	256	254	0	3	fill	pit	deliberate backfill	light grey	sand	occasional small sub rounded stones	2	0.5	
1	257	0	0	3	cut	pit	Unknown				3.75	0.75	U-shaped
1	258	257	0	3	fill	pit	Backfill	dark brownish-black	peat	occasional sub rounded stones	2.6	0.35	
1	259	257	0	3	fill	pit	Backfill	mid greyish-brown	silty sand	frequent sub angular stones	3.27	0.3	
1	260	0	0	0	cut	tree throw	Natural				1.35	0.22	U-shaped
1	261	260	0	0	fill	tree throw	Natural	mid greyish-brown	silty sand	frequent flint gravel	1.35	0.22	
1	262	0	0	0	cut	tree throw	Natural				0.78	0.1	U-shaped
1	263	262	0	0	fill	tree throw	Natural	mid greyish-brown	silty sand	rare flint gravel	0.78	0.1	
1	264	0	0	3	cut	pit	Backfill				2.28	0.24	wide U-shape
1	265	264	0	3	fill	pit	Backfill	dark greyish-brown	silty sand	frequent gravel	2.28	0.24	
1	266	0	0	0	cut	tree throw	Natural				0.52	0.2	U-shaped
1	267	266	0	0	fill	tree throw	Natural	mid greyish-brown	silty sand	frequent flint gravel	0.52	0.2	
1	268	0	0	0	cut	tree throw	Natural				0.54	0.1	U-shaped
1	269	268	0	0	fill	tree throw	Natural	mid greyish-brown	silty sand	rare flint gravel	0.54	0.1	
1	270	0	0	3	cut	hedge	Natural				1	0.25	
1	271	270	0	3	fill	hedge	Natural				1	0.25	
1	272	0	0	3	cut	hedge	Natural				1.5	0.5	U-shaped
1	273	272	0	3	fill	hedge	Natural	dark greyish-brown	clayey silt	occasional rounded stone	0.4	0.15	
1	274	0	0	3	cut	ditch	Boundary				0.8	0.16	shallow open U-shape

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
1	275	274	0	3	fill	ditch	Silting	light greyish-brown	silty sand	frequent small and medium sub rounded stones	0.8	0.16	
1	277	272	0	3	fill	hedge	Natural	mid brownish-grey	clayey silt	occasional rounded stones	0.35	0.3	
1	278	272	0	3	fill	hedge	Natural	light brownish-grey	clayey sand	occasional rounded stones	1.1	0.3	
1	279	272	0	3	fill	hedge	Natural	mid brownish-grey	clay silt	occasional sub-rounded stones	1	0.15	
1	280	272	0	3	fill	hedge	Natural	dark grey	sand	occasional rounded stone	1	0.08	
1	281	0	0	0	cut	tree throw	Natural				0.6	0.05	U-shaped
1	282	281	0	0	fill	tree throw	Natural	mid greyish-brown	silty sand	rare flint gravel	0.6	0.05	
1	285	0	0	3	cut	Field drain	Drainage				0.45	0.36	U-shaped
1	286	285	0	3	fill	Field drain	Backfill	light brownish grey	gravelly sand	frequent s-m sub angular stones		0.14	
1	287	285	0	3	fill	Field drain	Backfill	dark blackish brown	silty sand	rare small sub rounded stones		0.14	
1	288	0	0	3	cut	ditch	Boundary				0.62	0.64	U-shaped
1	289	288	0	3	fill	ditch	Silting	mixed light yellow/mid orange and mid grey brown	sand	frequent small sub rounded stones		0.64	
1	295	0	0	3	cut	pit	Unknown				2.6	0.98	U-shaped
1	296	295	0	3	fill	pit	Backfill	mottled bluish grey (orange patches)	silty sand	infrequent gravel	2.04	0.32	
1	297	295	0	3	fill	pit	Backfill	dark greyish black	sandy silt	occasional charcoal	1.34	0.22	
1	298	295	0	3	fill	pit	Backfill	mottled mid brownish grey	silty sand	infrequent gravel	1.06	0.28	
1	299	295	0	3	fill	pit	Backfill	mottled light greyish brown	silty sand	infrequent gravel	2.26	0.2	
1	300	295	0	3	fill	pit	Backfill	mid orangish brown	silty sand	infrequent gravel	2.6	0.42	

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
2	4000	0	0	0	cut	tree throw	Natural				3	0.25	U-shaped
2	4001	4000	0	0	fill	tree throw	Natural	mid orangish brown	sandy clay	occasional stone	3	0.25	
2	4002	0	0	0	cut	tree throw	Natural				1.15	0.3	U-shaped
2	4003	4002	0	0	fill	tree throw	Natural	mid orangish brown	sandy clay	occasional stone	1.15	0.3	
2	4004	0	0	1	cut	pit	Charcoal making				1.3	0.25	U-shaped
2	4005	4004	0	1	fill	pit	Disuse	dark orangish brown	sandy clay	occasional stone	1.3	0.25	
2	4006	0	0	0	cut	tree throw	Natural				2.38	0.34	U-shaped
2	4007	4006	0	0	fill	tree throw	Natural	dark brownish grey	sandy silt	moderate gravels		0.27	
2	4008	4006	0	0	fill	tree throw	Natural	mottled dark brownish grey + mid orangey brown	silty sand	occasional gravels		0.34	
2	4009		Ditch 4009	3	cut	ditch	Boundary				0.52	0.34	U-shaped
2	4010	4009	Ditch 4009	3	fill	ditch	Silting	mid greyish brown	silty sand	occasional small gravels		0.34	
2	4013	0	0	1	cut	pit	Charcoal making				1.02	0.22	flat bottomed V-shape
2	4014	4013	0	1	fill	pit	Disuse	mid greyish brown	silty sand	occasional small rounded stones			
2	4015	0	0	1	cut	pit	Charcoal making				1.2	0.3	U-shaped
2	4016	4015	0	1	fill	pit	Disuse	mid greyish brown	sandy clay	occasional stone, charcoal	1.2	0.3	
2	4017	0	0	1	cut	pit	Charcoal making				0.75	0.18	U-shaped
2	4018	4017	0	1	fill	pit	Disuse	mid brownish grey	sandy clay	occasional stone, charcoal	0.75	0.18	
2	4019	0	0	1	cut	pit	Charcoal making				1.1	0.2	U-shaped

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
2	4020	4019	0	1	fill	pit	Disuse	mid brownish grey	sandy clay	occasional stone	1.1	0.2	
2	4021	0	0	1	cut	pit	Charcoal making				1.2	0.2	U-shaped
2	4022	4021	0	1	fill	pit	Disuse	dark brownish grey	sandy clay	occasional stone, charcoal	1.2	0.2	
2	4023		0	1	cut	pit	Charcoal making				0.7	0.1	U-shaped
2	4024	4023	0	1	fill	pit	Disuse	mid brownish grey	sandy clay	occasional stone		0.07	
2	4025	4023	0	1	fill	pit	Disuse	dark brownish grey	sandy clay	occasional stone and charcoal		0.03	
2	4026	0	0	1	cut	pit	Charcoal making				0.9	0.2	wide shallow V-shape
2	4027	4026	0	1	fill	pit	Disuse	dark brownish grey	silty sand	occasional s-m sub angular stones, frequent charcoal	0.9	0.2	
2	4028	0	0	1	cut	pit	Charcoal making				1.44	0.46	Square cut
2	4029	4029	0	1	fill	pit	Disuse	mid greyish brown	silty sand	occasional s-m sub angular stones	1.44	0.46	
2	4031	0	0	1	cut	pit	Charcoal making				0.95	0.2	U-shaped
2	4032	4032	0	1	fill	pit	Disuse	dark reddish brown	sandy clay		0.95	0.07	
2	4033	0	Brick kiln 4033	2	cut	Brick kiln	Brick firing chamber and flue				4	0.36	
2	4034	4033	Brick kiln 4033	2	fill	Brick kiln	Disuse	light greyish brown	clayey silty sand	occasional flint gravel	4	0.23	
2	4036	4031	0	1	fill	pit	Disuse	light greyish brown	sandy silt	occasional small sub rounded stones	0.9	0.14	
2	4039	0	0	0	cut	tree throw	Natural				0.3	0.1	U-shaped

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
2	4040	4039	0	0	fill	tree throw	Natural	mid greyish brown	silty sand	moderate flint gravel	0.3	0.1	
2	4041	4033	Brick kiln 4033	2	fill	Brick kiln		dark greyish brown/black mixed with reddish brown vitrified clay/natural and mid greyish brown silt	silty sand, patches of clay	frequent charcoal, 50% -> occasional flint gravel	0.75	0.05	
2	4042	4033	Brick kiln 4033	2	fill	Brick kiln	Disuse				0.9	0.07	
2	4043	4033	Brick kiln 4033	2	fill	Brick kiln	Disuse	mid greyish brown with occasional patches of light yellowish brown	silty sand + occasional clayey sand	moderate flint gravel + fragments of demolition brick mixed in from layer (4044), rare charcoal	1.6	0.14	
2	4044	4033	Brick kiln 4033	2	fill	Brick kiln	Disuse	mid greyish brown	clayey silty sand	abundant brick rubble 60% - occasional flint gravel -rare charcoal	1.5	0.14	
2	4045	4033	Brick kiln 4033	2	masonry	Brick kiln	Flue wall				0.1		
2	4046	4033	Brick kiln 4033	2	masonry	Brick kiln	Flue wall				0.1		
2	4047	0	Ditch 4009	3	cut	ditch	Boundary				0.49	0.51	U-shaped
2	4048	4047	Ditch 4009	3	fill	ditch	Silting	mixed mid greyish brown + light grey + orangey brown	silty sand + clay	flint -moderate	0.49	0.51	

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
2	4049	0	0 Ditch 4009	3	cut	ditch	Boundary				0.54	0.53	U-shaped
2	4050	4049	Ditch 4009	3	fill	ditch	Silting	mid greyish brown	silty sand	frequent flint	0.54	0.53	
2	4051	0	Ditch 4009	3	cut	ditch	Boundary				0.5	0.56	U-shaped
2	4052	4051	Ditch 4009	3	fill	ditch	Silting	mid greyish brown	silty sand	occasional gravel	0.5	0.56	
2	4053	0	Ditch 4009	3	cut	ditch	Boundary				0.38	0.5	U-shaped
2	4054	4053	Ditch 4009	3	fill	ditch	Silting	mid greyish brown	silty sand	abundant gravel	0.38	0.5	
3	6002	0	0	0	cut	tree throw	Natural					0.49	U-shaped
3	6003	6002	0	0	fill	tree throw	Natural	light greyish brown	silty sand	moderate flint gravel, very rare charcoal		0.49	
3	6004	0	0	0	cut	tree throw	Natural					0.92	U-shaped
3	6005	6004	0	0	fill	tree throw	Natural	mid greyish brown	silty sand	moderate flint gravel		0.59	
3	6006	6004	0	0	fill	tree throw	Natural	mid greyish brown with lenses of redeposited light orangey brown natural	silty sand	moderate flint gravel		0.37	
3	6008	0	0	3	structure	wall							
3	6009	0	0	0	cut	tree throw	Natural				1.2	0.29	U-shaped
3	6010	6009	0	0	fill	tree throw	Natural	light grey	silty sand	occasional flint gravel rare charcoal	1.2	0.29	
3	6011	0	0	0	cut	tree throw	Natural				1.25	0.36	U-shaped
3	6012	6011	0	0	fill	tree throw	Natural	dark grey/black	silty sand	occasional flint gravel	0.98	0.09	
3	6013	6011	0	0	fill	tree throw	Natural	dark grey	silty sand	occasional flint gravel	1.25	0.28	

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
3	6014	0	0	0	cut	tree throw	Natural				1	0.25	flat based U-shape
3	6015	6014	0	0	fill	tree throw	Natural	dark grey/black	silty sand	occasional flint gravel, frequent charcoal	0.92	0.12	
3	6016	6014	0	3	fill	pit	Disuse	dark grey	silty sand	moderate flint gravel, occasional charcoal	1	0.14	
3	6017	0	0	3	structure	floor	Causeway?				2.6		
3	6018	0	0	3	structure	wall	Causeway?				0.215		
3	6019	0	0	3	structure	wall	Causeway?				0.215		
3	6020	0	0	3	layer	colluvium	Natural	mid greyish brown	silty clay	regular rounded pebbles and rare CBM inclusions		0.44	
3	6022	0	Ditch 6022	3	cut	ditch	Boundary				0.6	0.6	U-shaped
3	6023	6022	Ditch 6022	3	fill	ditch	Silting	mid orangish brown	silty clay	frequent brick/brick rubble/rounded stone	0.6	0.6	
3	6024	0	Ditch 6022	3	cut	ditch	Boundary				1.3	0.95	U-shaped
6025 3	6025	0	Ditch 6022	3	fill	ditch	Silting	mid orangish brown	silty clay	frequent brick/brick rubble/rounded stone	1.3	0.95	
3	6026	0	0	3	layer	levelling layer	levelling ground	light brownish yellow	silty clay	rare small stone		0.2	
3	6028	0	0	0	layer	colluvial		mid grey brown	clay	occasional gravel		0.5	
3	6029	0	0	0	cut	tree throw	Natural				0.6	0.4	U-shaped
3	6030	6029	0	0	fill	tree throw	Natural	dark grey/black	silty sand	moderate flint gravel/occasional burnt flint	0.6	0.4	
3	6031	0	0	0	cut	tree throw	Natural				2.7	0.22	irregular
3	6032	6031	0	0	fill	tree throw	Natural	dark grey/black/mid-grey	silty sand	moderate flint gravel/occasional burnt flint	2.7	0.22	

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
3	6033	0	Ditch 6022	3	cut	ditch	Boundary				0.75	0.15	U-shaped
3	6034	6033	Ditch 6022	3	fill	ditch	Silting	mid orangish brown	silty clay	occasional rounded stone and brick fragments	0.75	0.15	
3	6036	0	Ditch 6022	3	cut	ditch	Boundary				0.8	0.28	U-shaped
3	6037	6036	Ditch 6022	3	fill	ditch	Silting	light brownish grey	silty clay	occasional small assorted natural stones	0.8	0.28	
3	6038	0	Ditch 6022	3	cut	ditch	Boundary				1.4	0.58	
3	6039	6038	Ditch 6022	3	fill	ditch	Silting	light brownish grey	silty clay	occasional small assorted natural stones	1.4	0.58	
3	6040	0	Brick kiln 6040	2	cut	Brick kiln	Brick firing chamber				3	1	Square cut
3	6041	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	black	sandy soot				
3	6042	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	mid grey	medium sand				
3	6043	0	Brick kiln 6040	2	fill	Brick kiln	Disuse	dark grey brown	silty sand	occasional small fragments (0.02m) crushed CBM			
3	6044	0	Brick kiln 6040	2	fill	Brick kiln	Disuse	mottles of dark grey brown and black	sandy silt				
3	6045	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	mottles of light yellow brown mid brown red and black	clay silt	occasional fragment of CBM/fired clay			
3	6046	0	Brick kiln 6040	2	fill	Brick kiln	Disuse	light grey discoloured to black on lower	clay silt	occasional small flecks (0.01m) of crushed CBM			

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
								interface to the south					
3	6047	0	Brick kiln 6040	2	fill	Brick kiln	Disuse	dark red brown	clay silt	occasional fragments of crushed CBM to 0.02m			
3	6048	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	mid yellow brown with mottles of light grey	clay silt	occasional small flecks crushed CBM			
3	6049	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	mottled light grey brown and dark red brown	silty clay	occasional small fragments of [ibid]			
3	6051	0	Brick kiln 6040	2	fill	Brick kiln	Disuse	strong brown red	clay silt	fragments of CB/kiln lining to 0.3m			
3	6052	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	dark red brown	clay silt	occasional small fragments 0.01m CBM			
3	6053	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	light grey	clay silt	occasional fragments of CBM to 0.02m			
3	6054	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	mid red brown	clay silt	frequent crushed CBM to 0.02m			
3	6055	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	light yellow brown	clay silt				
3	6056	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	mid yellow brown	clay silt	frequent crushed CBM to 0.01m			
3	6057	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	mid brown grey	silty clay	CBM to 0.05			
3	6060	0	Brick kiln 6118	2	cut	Brick kiln	Stoke pit				2.5	0.23	U-shaped

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
3	6061	6060	Brick kiln 6118	2	fill	Brick kiln	Disuse	mixed fill - generally light greyish brown with layers of white ash and black charcoal/burnt deposit	silty sand	moderate CBM (poorly preserved/crushed ) occasional charcoal	3	0.23	
3	6063	6060	Brick kiln 6118	2	fill	Brick kiln	Disuse	black	charcoal	some CBM	1.5		
3	6064	6064	0	2	pit	Brick kiln	in situ burning	dark reddish brown	silty clay	occ small stone	1.6	0.1	
3	6065	6064	0	2	fill	Brick kiln	unknown	dark brownish grey	silty clay	occ small stone	1.1	0.1	
3	6066	6064	0	2	fill	Brick kiln	in situ burning	mid reddish orange	silty clay	occ small stone	1.55	0.1	
3	6067	0	Ditch 6022	3	cut	Ditch	Boundary					0.96	U-shaped
3	6068	0	Ditch 6022	3	fill	Ditch	Silting	mid orange brown	silty clay	regular red brick, tile, and rounded pebble inclusions		0.96	
3	6069	0	Ditch 6022	3	fill	Ditch	Silting	mid brownish grey	silty clay	regular tile, red brick, and round pebble inclusions		0.54	
3	6070	0	Brick kiln 6070	2	cut	Brick kiln	Brick firing chamber				3.2	0.4	U-shaped
3	6071	0	Brick kiln 6070	2	cut	Brick kiln	Stoke pit				2	0.3	U-shaped
3	6072	6070	Brick kiln 6070	2	fill	Brick kiln	Disuse	mid greyish brown	clayey sand			0.21	
3	6073	6070	Brick kiln 6070	2	fill	Brick kiln	Disuse	light orangey pink	sandy clay			0.04	

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
3	6074	6070	Brick kiln 6070	2	fill	Brick kiln	Disuse	mid pinkish red	sandy clay	occasional flecks and lenses and one large sub rounded stone and occasional small assorted natural stones		0.17	
3	6075	0	Brick kiln 6070	2	cut	Brick kiln	Kiln flue				0.5	0.4	U-shaped
3	6076	6075	Brick kiln 6070	2	fill	Brick kiln	in situ burning	dark blueish grey - near black	sandy silt	nearly pure charcoal		0.07	
3	6077	6075	Brick kiln 6070	2	fill	Brick kiln	Disuse	light orangey pink	sandy clay		0.5	0.05	
3	6078	6075	Brick kiln 6070	2	fill	Brick kiln	Disuse	mid grey brown	clayey silt	moderate degraded angular CBM		0.23	
3	6079	6070	Brick kiln 6070	2	fill	Brick kiln	Disuse	light blueish grey	clayey silt	occasional small assorted natural stones and occasional rubble fragments	3.18	0.32	
3	6080	6118	Brick kiln 6118	2	fill	Brick kiln	Disuse	mid mixed yellow/brown + (brick) red	mostly brick rubble, clayey sand			0.24	
3	6081	6071	Brick kiln 6118	2	fill	Brick kiln	Disuse	mottled mid greyish blue and mis greyish brown	clayey silt and sandy silt	moderate angular brick fragments		0.35	
3	6082	6071	Brick kiln 6118	2	fill	Brick kiln	Disuse	light blueish grey	sandy silt	occasional small angular and sub-angular CBM fragments		0.15	

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
3	6084	0	Brick kiln 6070	2	cut	Brick kiln	Kiln flue				0.5	0.4	U-shaped
3	6085	6084	Brick kiln 6070	2	fill	Brick kiln	In situ burning	Dark bluish black	charcoal	Occasional brick		0.06	
3	6086	6084	Brick kiln 6070	2	fill	Brick kiln	disuse	Light grey	gravelly	sand (burnt)		0.03	
3	6087	6070	Brick kiln 6070	2	fill	Brick kiln	disuse	mid brownish pink	sand	small brick rubble (ground down)		0.06	
3	6088	6070	Brick kiln 6070	2	fill	Brick kiln	Disuse	mid reddish brown	sandy silt	occasional small rounded stones		0.36	
3	6089	6070	Brick kiln 6070	2	fill	Brick kiln	Disuse	Light brownish yellow	clayey sand	occasional charcoal		0.2	
3	6090	6070	Brick kiln 6070	2	fill	Brick kiln	Disuse	mixed mid brownish red	clayey sand	brick rubble		0.3	
3	6091	6070	Brick kiln 6070	2	fill	Brick kiln	Disuse	Mixed yellowish grey		charcoal and occasional medium rounded stones		0.3	
3	6092	6070	Brick kiln 6070	2	fill	Brick kiln	Disuse	light grey	ashy deposit	occasional brick rubble, charcoal		0.4	
3	6094	6119	Brick kiln 6118	2	masonry	Brick kiln	Flue Wall	Reddish brown (blackened inner face of flue)		fired clay bricks with silty sand bonding material	0.1	0.35	
3	6096	6119	Brick kiln 6118	2	masonry	Brick kiln	Flue Wall	Reddish brown (blackened inner face of flue)		fired clay bricks with silty sand bonding material	0.1	0.2	
3	6097	6097	Ditch 6022	3	cut	ditch	enclosure				0.75	0.3	U-shaped
3	6098	6097	Ditch 6022	3	fill	ditch	disuse	mid brownish grey	sandy silt	occasional flint gravel, occasional		0.3	

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
										brick fragments, rare charcoal			
3	6099	0	Ditch 6022	3	cut	ditch	Boundary				1.2	0.3	U-shaped
3	6100	6099	Ditch 6022	3	fill	ditch	Silting	mid brownish grey	silty clay	occasional gravel	1.2	0.3	
3	6101	6070	Brick kiln 6070	2	fill	Brick kiln	Disuse	light brownish grey	ashy silty sand	occasional brick, small stones, charcoal		0.35	
3	6104	6075	Brick kiln 6070	2	fill	Brick kiln	Disuse	mid yellowish blue	clayey sand	occasional gravels		0.05	
3	6105	0	Brick kiln 6118	2	fill	Brick kiln	Disuse	mixed white and black	silty sand	frequent charcoal, occasional fragment of brick	0.6		
3	6106	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	black	ash	occasional charred plant remains			
3	6107	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	mid greyish red	clayey silt	frequent fragments of fired clay to 0.02		0.15	
3	6108	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	mid yellowish red	clayey silt	frequent fragments of fired clay		0.14	
3	6109	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	mid reddish brown to light grey	silt	n/a		0.04	
3	6110	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	mottled mid yellowish brown and light grey	clayey silt	n/a		0.1	
3	6111	6040	Brick kiln 6040	2	fill	Brick kiln	Disuse	mid greyish red	silty clay	occasional fragment of fired clay		0.11	
	6112	0	Brick kiln 6040	2	fill	Brick kiln	Disuse	dark reddish brown	clayey silt	layer of broken CBM at base of context		0.22	

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
3	6113	0	Brick kiln 6040	2	fill	Brick kiln	Disuse						
3	6116	6084	Brick kiln 6070	2	fill	Brick kiln	Disuse	light greyish yellow/brown	sandy gravelly burnt	charcoal occasional		0.04	
3	6118	6118	Brick kiln 6118	2	cut	Brick kiln	Brick firing chamber				2.45	0.4	Square cut
3	6119	6119	Brick kiln 6070	2	cut	Brick kiln	Kiln flue				0.5	0.4	Square cut
3	6120	6120	Brick kiln 6070	2	cut	Brick kiln	Kiln flue				0.5	0.4	Square cut
3	6121	6118	Brick kiln 6118	2	fill	Brick kiln	Disuse	mid pinkish brown		CBM		0.06	
3	6122	6118	Brick kiln 6118	2	fill	Brick kiln	Disuse	mixed mid brownish orange	clayey sand	CBM rubble, charcoal		0.14	
3	6123	6118	Brick kiln 6118	2	fill	Brick kiln	Disuse	light grey	clayey sand	charcoal		0.3	
3	6124	6118	Brick kiln 6118	2	fill	Brick kiln	Disuse	mixed mid reddish brown	clayish sand	frequent CBM rubble, small		0.1	
3	6126	6120	Brick kiln 6118	2	masonry	Brick kiln	Flue Wall				0.6		
3	6127	6071	Brick kiln 6070	2	fill	Brick kiln	Disuse	light blueish grey	clayey sand	abundant brick rubble			
3	6128	6071	Brick kiln 6070	2	fill	Brick kiln	Disuse	black	charcoal				

Area	Context	Cut	Group	Period	Category	Feature Type	Function	Colour	Fine component	Coarse component	Breadth	Depth	Profile
3	6129	6118	Brick kiln 6118	2	fill	Brick kiln	Disuse	light brownish grey	clayey sand	brick rubble frequent			
3	6130	6119	Brick kiln 6118	2	fill	Brick kiln	Disuse	dark bluish black	charcoal	n/a		0.04	
3	6131	6120	Brick kiln 6118	2	fill	Brick kiln	Disuse	dark bluish black	charcoal	n/a		0.04	

*Table 4: Context inventory*

## APPENDIX B FINDS REPORTS

### B.1 Pottery

*By Sue Anderson and Carole Fletcher*

#### *Introduction*

B.1.1 Thirty-one sherds of pottery weighing 637g were collected from 12 contexts during the evaluation and excavation. Table 5 shows the quantification by fabric; a summary catalogue is included as Table 6.

Description	Fabric	Essex fabric	Date range	No	Wt/g	eve	MNV
Early medieval ware	EMEMS	13	11th-13th c.	1	4		1
Late medieval redwares	LMTE	40	M.14th-M.16th c.	1	9		1
Glazed red earthenware	GRE	40	M15th-18th c.	10	105		9
Iron-glazed blackware	IGBW	40	16th-18th c.	1	17		1
Tin-glazed earthenware	TGE	46	L.16th-M.18th c.	1	3		1
?Metropolitan slipware	METS	40A	17th c.	9	430	0.34	2
London-type stoneware	ESWL	45	L.17th-19th c.	1	40		1
Staffs white salt-glazed stoneware	SWSW	47	18th c.	1	2		1
Creamware	CRW	48C	18th-19th c.	1	4	0.04	1
Pearlware	PEW	48P	L.18th-19th c.	5	23		5
<i>Totals</i>				<i>31</i>	<i>637</i>	<i>0.38</i>	<i>23</i>

*Table 5: pottery quantification by fabric*

#### *Methodology*

B.1.2 Quantification was carried out using sherd count, weight and estimated vessel equivalent (eve). A full quantification by fabric, context and feature is available in the archive. All fabric codes were assigned from the Suffolk post-Roman fabric series, which includes Norfolk, Essex, Cambridgeshire and Midlands fabrics, as well as imported wares. Form terminology follows MPRG (1998) and identification follows the Essex type series (Cunningham 1985; Drury 1993b; Cotter 2000). Recording uses a system of letters for fabric codes. The results were input directly onto an Access database, which forms the archive catalogue. The small assemblage from the evaluation has been incorporated based on the original report (Fletcher in Lucking 2019).

## Results of analysis

- B.1.3 One sherd of medieval pottery was present, a fragment of a heavily abraded early medieval ware jar rim (Fabric 13) with thumbing at the edge. The rim form was more typical of south Suffolk than Essex, being a thickened everted type. The sherd was recovered from the fill (4025) of Period 1 charcoal-rich pit **4023**. A probable late medieval rod handle in a hard oxidised fabric with reduced surfaces and a thin smear of glaze was found in kiln chamber fill 6079 of Period 2 brick kiln **6070**.
- B.1.4 The majority of pottery recovered from the site was of post-medieval date. The bulk of this group, including nine sherds from two slip-decorated 17th-century Post-medieval Redware bowls, was recovered from ditch **25** in Trench 18. Other fragments came from ditch fill 9 (Trench 30/Area 2: Period 3 Ditch 4009, cut **8**), Period 3 fill (18) of a small natural hollow (Trench 28) and gully fill 28 (Trench 18: Period 3 ditch **27**). Post-medieval Glazed red earthenwares are by far the most common vessel fabric of this period, but there was also a small fragment of English tin-glazed earthenware which had lost its glaze, and a fragment from a blackware vessel with a kiln scar on the base.
- B.1.5 More recent pottery of broadly 18th/19th-century date comprised eight sherds. A small base fragment of white salt-glazed stoneware was found in Period 2 brick kiln **4033** backfill 4034. A base fragment of a London stoneware jug or mug came from ditch fill 26 (Trench 18: Period 3 ditch **25**). A creamware ?plate rim was from ditch fill 4052 (Area 2: Period 3 Ditch 4009, cut **4051**). Pearlwares were recovered from four contexts. An abraded fragment with transfer-printed decoration came from Period 0 tree throw **100** (Trench 40). From tree throw fill **220** (Area 1) there was a small piece of a footring base and a body sherd with moulded decoration in the form of a holly leaf and berries. From tree throw **6004** there was a body sherd with a blue transfer-printed scene externally.

## Discussion

- B.1.6 The overall assemblage includes a very small proportion of medieval pottery and is largely of post-medieval date. Apart from a small concentration in ditch **25**, the pottery was thinly spread across the site and probably represents manuring and the distribution of night soil from local settlements.

Cxt.	Cut	Group	Period	Fabric	Type	No	Wt/g	MNV	Form	Rim	Decoration	Spot date
9	8	Ditch 4009	3	GRE	D	2	12	2				M15-18
18			3	GRE	D	1	5	1				M15-18
26	25		3	ESWL	B	1	40	1	JG/MG			L17-19
26	25		3	TGE	U	1	3	1			no glaze surviving	L16-M18
26	25		3	IGBW	B	1	17	1				L16-17
26	25		3	METS	RD	7	380	1	BL	THEV	trailed slip wavy lines, dashes, petals	17
26	25		3	METS	RD	2	50	1	BL	THEV	trailed slip wavy line	17

Cxt.	Cut	Group	Period	Fabric	Type	No	Wt/g	MNV	Form	Rim	Decoration	Spot date
26	25		3	GRE	D	1	34	1				M15-18
26	25		3	GRE	RD	2	14	1	JR	THEV		M15-18
26	25		3	GRE	H	1	27	1				M15-18
26	25		3	GRE	D	2	7	2				M15-18
28	27		3	GRE	D	1	6	1				M15-18
101	100		0	PEW	D	1	2	1			TP	L18-M19
221	220		0	PEW	D	1	3	1			moulded holly leaf & berries, green & red	19
221	220		0	PEW	B	1	1	1				L18-19
4025	4023		1	EMEMS	R	1	6	1	JR	THEV	TR	12-13
4034	4033	Brick kiln 4033	2	SWSW	B	1	2	1				18
4052	4051	Ditch 4009	3	CRW	R	1	4	1	PL?	EV		19
6006	6004		0	PEW	D	1	3	1			TP blue scene ext	19
6079	6070	Brick kiln 6070	2	LMTE	H	1	9	1				M14-M16

*Table 6: pottery catalogue*

Type: R – rim; U/D – undecorated/decorated body sherd; B – base; H – handle.

Form: JR – jar; BL – bowl; PL – plate. Rims: EV – everted; THEV – thickened everted.

## B.2 Ceramic building material

*By Sue Anderson*

### *Introduction*

B.2.1 Fragmentary and complete bricks and tiles totalling 204 pieces (45798g) were recovered from 17 contexts in the evaluation and 21 in the excavation (Table 11). Ceramic building material (CBM) recovered during the evaluation (Levermore 2019) has been incorporated as far as possible.

### *Methodology*

B.2.2 The excavation assemblage was quantified (count, weight, minimum no. of objects) by fabric and form. Fabrics were identified on the basis of macroscopic appearance and main inclusions. The width, length and thickness of bricks and floor tiles were measured, but roof tile thicknesses were only measured when another dimension was available. Forms were identified following work in Norwich (Drury 1993a) and Essex (Ryan 1996); other form terminology follows Brunskill's glossary (1990). A full catalogue by context, fabric and form is available in the archive, as an Access database.

### *Forms and fabrics*

B.2.3 Table 7 shows the CBM quantification by form (evaluation and excavation combined). Most of the CBM recovered was either post-medieval brick or plain roof tile.

Form	Code	No.	Wt/g	Min. No.
Roman tile?	RBT?	1	10	1
Flanged <i>tegula</i>	FLT	3	942	2
Plain roof tile: medieval	RTM	6	231	6
	RTM?	1	19	1
Plain roof tile: post-medieval	RTP	47	3560	32
	RTP?	1	8	1
Ridge tile	RID	1	11	1
Pantile	PAN	1	341	1
Post-medieval brick	LB	133	36940	108
	LB?	2	33	2
Floor brick	FB	1	469	1
Quarry floor tile	QFT	2	3151	1
	QFT?	1	59	1
Unidentified	UN	4	24	4
<i>Totals</i>		<i>204</i>	<i>45798</i>	<i>162</i>

Table 7: CBM quantities by form

B.2.4 Table 8 shows the quantities by form and fabric, based on minimum numbers of objects (fabric was not recorded for three unidentified fragments found in the evaluation).

fabric	code	eval	RBT	FLT	RTM	RTP	RID	PAN	LB	FB	QFT	UN	Totals
fine sandy	fs	I										1	1
fs with clay pellets	fsfp		1			1							2
fs with flint	fsf	A, D				9			11				20
fsfp with flint	fsfcp	G		3	2	17					1		22
fs with ferrous oxide	fsfe								2				2
fsfe with flint	fsffe	B, H							9				9
fsfe micaceous	fsmfe					1							1
fs with grog	fsg					4		1					5
medium sandy	ms				3	1	1						5
silty with clay pellets	scp	J			2	6			1				9
silty with ferrous oxide	sfe								1				1
sfe with flint	sffe	F							5		2		7
sfe with voids	svfe	E?							110				110
svfe with chalk	svcfe								2				2
white-firing fs	wfs	C								1			1

Table 8: CBM by fabric and form (fragment count; uncertain amalgamated with certain)

B.2.5 A wide range of fabric groups was recorded, but this was in part due to the lack of clean breaks for some of the more intact objects, or the small size of other pieces. The three main fabrics were an orange to dark red silty fabric with sparse fine sand, soft red ferrous oxide/clay pellets and fine voids (svfe), fine sandy with flint/rounded quartz pebbles (fsf) and fine sandy with clay pellets and flint (fsfcp). Other fabrics were similar with additional natural inclusions such as mica or chalk in some, and only a few pieces had deliberate additions of grog. Only one fragment was white-firing, the majority being orange to dark red in colour.

### *Area 1 (including Trenches 15-17 and 26)*

#### *Period 3*

- B.2.6 Twenty fragments of CBM were collected from two pits in this phase. Pit **264** contained 14 of these, of which all but one were post-medieval bricks in fabrics svfe and scp. The remaining fragment was a piece of medieval roof tile (fabric fsfcp). The bricks in this group were similar to those recovered from kiln **4030** in Area 2 (see below), measuring between 101–106mm wide and 45–55mm thick.
- B.2.7 Fragments from pit **295** comprised three fragments of Roman flanged *tegulae* (fabric fsfcp), a small piece of ?post-medieval brick and a fragment of ?post-medieval roof tile.
- B.2.8 Twenty-four fragments came from sections of Ditch 204, including four fragments from the evaluation. CBM from this ditch included three fragments of medieval roof tile (fabrics ms and fsfcp), four pieces of post-medieval roof tile (fabrics fsg and svfe), and a piece of pantile (fabric fsg). Fifteen fragments of post-medieval bricks were recovered, mostly in fabric svfe and some with vitrification of the surfaces. Only a few fragments could be measured, and these ranged in thickness between 50–54mm. A fragment in evaluation fabric B (fsffe) was 100mm wide and 45mm thick (the evaluation assemblage was measured to the nearest 5mm). One fragment was identified as a possible floor tile (eval fabric G). One other fragment of svfe brick (47mm thick) came from pit **259**.

### *Area 2 (including Trenches 29-30)*

#### *Period 0*

- B.2.9 Fragments of possible Roman tile (fabric fsfcp) and medieval roof tile (ms) were found in tree-bole **4006**.

#### *Period 2*

- B.2.10 Five brick fragments were sampled from the wall and backfill of brick kiln **4033**. All were in fabric svfe. Three fragments were part of a brick recovered from *in situ* wall **4045** and measured 221 x 108 x 45mm. It had slightly sunken margins. The two fragments from the fill measured 104 x 48mm and 102 x 45mm respectively. The smaller of the two was reduced, overfired with a cracked base, and had a slight sunken margin.

**Period 3**

- B.2.11 One small fragment of ?post-medieval brick (fabric fsfe) and two post-medieval roof tiles came from Ditch 4009 (cuts **4047** and **4049**). One of these, in fabric fsmfe, measured 118mm wide and 13mm thick – the size and context may suggest that it was part of a horseshoe-type drain tile cover, rather than a roof tile.
- B.2.12 Also belonging to Ditch 4009, ditch **8** in Trench 30 contained three pieces of plain roof tile, one medieval and two post-medieval. Two undiagnostic fragments were collected from gully **4** and ditch **6** in Trench 29.

**Area 3 (including Trenches 50, 52 and 53)**

**Period 0**

- B.2.13 Tree throw **76** in Trench 50 was close to brick kiln **6070** (see below) and contained 24 fragments of overfired bricks with vitrified surfaces, and an undiagnostic fragment. Most of these were in evaluation fabrics E and H. The fragments were 45mm thick and one piece was 95mm wide.
- B.2.14 Tree throw **70** in Trench 52 contained four pieces of a post-medieval plain tile in fabric J.
- B.2.15 Nine fragments of overfired or vitrified bricks were collected from tree throw **82** in Trench 53. Fragments were 50mm thick, and one had a width of 95mm. Another tree throw in the same trench, **104**, contained six pieces of brick (fabrics A, E and F) and eight fragments of post-medieval roof tile (fabrics D and G). The bricks in this group were of different sizes and dates, with two measuring 60mm thick (one of these was 105mm wide) and two 45mm thick (one 95mm wide). One of the thicker bricks was partly vitrified, and five fragments of roof tile were overfired and warped.

**Period 2**

**Brick kiln 6118**

- B.2.16 A large fragment of post-medieval brick in fabric svfe came from stoke pit **6060**. It measured 103 x 45mm.
- B.2.17 Five bricks were sampled from this kiln, as shown in Table 9.

context	Function	form	fabric	abr	length	width	height
6080	rubble collapse, ash box	LB	sffe		200	91	48
		LB	sffe			92	47
6122	kiln fill	LB	sffe			95	47
		LB	sffe			101	45
6129	demolition layer	LB	svfe			103	50
		QFT*	sffe	+			

*Table 9: Brick samples from brick kiln 6118*

B.2.18 One sample from 6080 had vitrified surfaces. A warped brick from 6122 had traces of clay mortar, which suggests that it had originally formed part of the kiln structure. Like the bricks in kiln **6070**, this group does not fit well in either Ryan’s or Drury’s typologies.

*Brick kiln 6070*

B.2.19 Five fragments of bricks and two pieces of a quarry floor tile were recovered from the backfill of this kiln. Table 10 shows the measurements of the brick and tile samples.

context	Function	form	fabric	abr	length	width	height
6127	demolition layer	LB	svfe			95	55
		LB	svfe		212	94	57
		QFT	sffe		212	210	44
		QFT*	sffe	+			
6079	kiln chamber fill	LB	svcfe	+		99	54
		LB	svcfe	++		98	50

*Table 10: Brick samples from Kiln 6070 (\* same tile as 6127)*

B.2.20 The two bricks from 6079 were both underfired, soft, buff-coloured and had sunken margins. One example from 6127 was also soft, orange in colour and possibly roughly chamfered. All other bricks and the floor tile in this group were overfired, hard, dark red and cracked. Two bricks from 6127 had vitrified surfaces. The bricks in this group do not fit well in either Ryan’s or Drury’s typologies.

*Period 3*

B.2.21 Ditch 6022 produced four fragments of brick, three of plain tile and a fragment of ridge tile, all of post-medieval date. Three of the bricks were in fabric svfe and were overfired, fully or partly reduced and had partial sunken margins. They measured between 53-55mm thick and one was 95mm wide.

B.2.22 Wheel rut **84** contained two pieces of an overfired brick (50mm thick), three fragments of two other bricks (45–50mm thick), and pieces of two roof tiles.

B.2.23 Several samples were collected from a foundation trench and wall **106** (Trench 53, part of Period 3 brick structure **6017-9**). These comprised four post-medieval bricks, one floor brick (110 x 35mm) in a white-firing fabric, and two pieces of a warped and blown overfired roof tile. The four bricks were between 100–105mm wide and 55–60mm thick, but were in a variety of fabrics and probably represented at least two periods of brick manufacture/use. The structure appears to date to the 19th century.

*Discussion*

B.2.24 Although there is a small quantity of Roman and medieval tile from the site, the majority of CBM is of late medieval and early post-medieval date. Post-medieval bricks form the largest part of this assemblage, but they only represent a small proportion of the brick which was present on the site. Most were recovered as samples of the brick kiln structures or were found in the demolition deposits, large extraction pits and

other nearby features. Although they appear to be in a wide range of fabrics, these are probably a result of different batches using slightly different mixes of clay, and the overall range of inclusions suggests that most were made at the production site. Most were in a silty fabric with soft red ferrous oxide/clay pellet inclusions, sometimes with voids/calcareous inclusions, and little visible quartz sand. A few later, non-local fragments, such as a gault clay floor brick, were also present.

- B.2.25 Brick sizes and types in brick kiln **4033** ranged between 104–108mm wide and 45–48mm thick. Only one length was complete and measured 221mm. Some sunken margins were present. This rather limited evidence suggests a late 15th- or early 16th-century date for the bricks, which are of a size comparable with bricks at Jesus College and Queen's College, Cambridge, a sample from a fireplace in Prittlewell (British Museum), and a gatehouse at Carlinge, Kent (Lloyd 1925, 89). The uniform firing might suggest rather that these brick fall into Ryan's (1996, 95) 'Late 17th to Early 18th-century bricks' group, although sunken margins would be unusual at this late date and the Great Horkesley bricks do not contain sizeable fragments of flint/quartz, which is another characteristic of Ryan's type. The single brick recovered from brick kiln **6118** was probably of the same type as those from kiln **4033**.
- B.2.26 The bricks from kilns **6070** and **6118** were in broadly similar fabrics to those in kiln **4033**, but were generally narrower, shorter and thicker. Only two were complete in length (200–212mm), with widths varying between 91–103mm and thicknesses between 45–57mm. One brick from the infill was 101 x 45mm and one from the demolition layer was 103 x 50mm; these may fit better with the group from kiln **4033**. The others were all below 100mm wide and tended to be thicker than the **4033** group, although there is still a 10mm difference between the thinnest and thickest examples. Even the underfired bricks were only 95–99mm wide, suggesting that the narrow width was intentional and not the result of shrinkage due to overfiring. The size of these bricks is unusual, the best parallel being Faulkbourne Hall, Essex (8½ x 3¾ x 2"; Lloyd 1925, 89), which was built before 1494. Narrow bricks (c.90mm) of medieval date are present in Thorrington and Rayleigh churches (Ryan 1996, 40), but these are thinner than the Great Horkesley examples at 40–45mm. Thicker examples have been identified in Fordham church (c.215 x 95–400 x 50mm; Ryan 1996, 41), and Ryan suggests that these may be of early 15th-century date. However, the radiocarbon date from kiln **6070** flue burnt layer was 1456–1633 cal AD (95%), and that from the primary fill of earlier kiln **6118** was 1495–1645 cal AD (95%), suggesting that the bricks are unlikely to predate 1495. On balance, an ?early 16th-century date appears most likely.
- B.2.27 Brick waste, in the form of overfired, warped and vitrified brick fragments, was found in Period 3 Ditch 204 and in the area of possible extraction pits to the south-east of Area 3. Those from Ditch 204 were all between 50–51mm thick, although one brick varied in thickness between 50–54mm. As their widths were not measurable, these bricks could relate to either of the two kilns, or perhaps another located closer to Area 1. Three bricks from Period 3 Ditch 6022 (cut **6036**) were most likely to relate to kiln **6070**, based on their size and proximity.
- B.2.28 Overfired, vitrified, warped and blown fragments of roof tiles were recovered from the area of the extraction pits, some of which appear to have been used in the Period 3

garden feature. This may indicate that tiles were also made at the site. If so, very little waste was recovered and any such production may have been short-lived.

B.2.29 The bricks recovered from the two kilns are not easily datable. It is likely that they are of early post-medieval date but employed older 'traditional' techniques of manufacture. Certainly this brickworks pre-dates the known Great Horkesley Brickworks (EHER MCC5347) to the west of Nayland Road, which operated in the 19th century.

Cxt.	Cut	Group	Period	fabric	form	no	wt/g	minno	abr	length	width	height	peg	mortar	comments	date
227	226	Ditch 204	3	svfe	LB	2	25	2	++						orange silty fabric with sparse fs, Fe/cp and fine voids	pmed
227	226	Ditch 204	3	svfe	LB	1	113	1	+						incl v coarse Fe	pmed
227	226	Ditch 204	3	svfe	LB	1	34	1	+						reduced surface	pmed
227	226	Ditch 204	3	svfe	LB	1	195	1	+			51				pmed
227	226	Ditch 204	3	svfe	LB	1	20	1							harder fired, red	pmed
227	226	Ditch 204	3	svfe	LB	1	40	1				50			harder fired, red-purple	pmed
227	226	Ditch 204	3	svfe	LB	1	418	1				50-54			reduced surfaces, near-vit in places	pmed
227	226	Ditch 204	3	svfe	LB	1	22	1							vit surface	pmed
227	226	Ditch 204	3	svfe	RTP	2	38	2					1 x R			pmed
227	226	Ditch 204	3	fsg	RTP	2	326	1					1 x S		coarse grog on upper surface, hard	lmed/pmed?
227	226	Ditch 204	3	ms	RTM	1	11	1							reduced core	med/lmed
227	226	Ditch 204	3	fsfcp	RTM	1	80	1							soft (could be Rom?)	med/lmed
227	226	Ditch 204	3	fsg	PAN	1	341	1								pmed
233	232	Ditch 204	3	ms	RTM	1	35	1	+						reduced core	med/lmed
250	249	Ditch 204	3	svfe	LB	2	604	1	+			51				pmed
250	249	Ditch 204	3	svfe	LB	1	83	1	++						reduced surfaces	pmed
265	264		3	scp	LB	1	1053	1	+		106	50+			soft	pmed
265	264		3	svfe	LB	7	363	6	++							pmed
265	264		3	svfe	LB	1	320	1	+			55				pmed
265	264		3	svfe	LB	1	97	1	+			50				pmed

Cxt.	Cut	Group	Period	fabric	form	no	wt/g	minno	abr	length	width	height	peg	mortar	comments	date	
265	264		3	svfe	LB	1	127	1	+			45			1 side reduced	pmed	
265	264		3	svfe	LB	1	508	1	+		101	55			base and stretcher reduced	pmed	
265	264		3	svfe	LB	2	234	2				46			reduced/vit surfaces	pmed	
265	264		3	fsfcp	RTM	1	50	1	+						reduced core (could be Rom?)	med/lmed	
297	295		3	fsfcp	FLT	2	890	1	+		>160	20			FIW 13-20+, FIH 44, rectangular-section flange; reduced core	Rom	
259	257		3	svfe	LB	1	265	1				47			reduced surfaces	pmed	
300	295		3	fsfcp	FLT	1	52	1	+			19			poss same as 297 but not joining	Rom	
300	295		3	fsg	RTP?	1	8	1							flake, no surfaces	pmed?	
300	295		3	fsfe	LB?	1	20	1	+						dark red	pmed?	
4008	4006		0	ms	RTM	1	14	1							reduced core	med/lmed	
4008	4006		0	fscp	RBT?	1	10	1	+						chamfered edge? Doesn't appear knife-cut. May be pot base, but inner surface lost	Rom+	
4034	4033	Brick kiln 4033	2	svfe	LB	1	1122	1	+		104	48					pmed
4034	4033	Brick kiln 4033	2	svfe	LB	1	115	1			102	45			reduced, overfired, cracked base, slight sunken margin	pmed	
4045	4033	Brick kiln 4033	2	svfe	LB	3	1537	1	+	221	108	45			slight sunken margins	pmed	
4048	4047	Ditch 4009	3	fsmfe	RTP	1	203	1			118	13					pmed
4050	4049		3	fsfe	LB?	1	13	1									pmed
4050	4049		3	fsg	RTP	1	12	1									pmed
6037	6036	Ditch 6022	3	fsg	RTP	1	53	1									pmed
6039	6038	Ditch 6022	3	ms	RTP	1	139	1									pmed
6039	6038	Ditch 6022	3	ms	RID	1	11	1				11					pmed
6039	6038	Ditch 6022	3	fscp	RTP	1	11	1	+								pmed

Cxt.	Cut	Group	Period	fabric	form	no	wt/g	minno	abr	length	width	height	peg	mortar	comments	date
6039	6038	Ditch 6022	3	sfe	LB	1	22	1	+							pmed
6061	6060	Brick kiln 6118	2	svfe	LB	1	800	1	++		103	45			underfired, soft, buff-orange	pmed
6068	6067	Ditch 6022	3	svfe	LB	1	334	1	+			54			overfired, reduced, sunken margin	pmed
6068	6067	Ditch 6022	3	svfe	LB	1	157	1	+			55			overfired, reduced, sunken margin	pmed
6068	6067	Ditch 6022	3	svfe	LB	1	260	1	+		95	53			overfired, reduced header, sunken margins	pmed
6079	6070	Brick kiln 6070	2	svcfe	LB	1	474	1	+		99	54			underfired, soft, buff, sunken margins	pmed?
6079	6070	Brick kiln 6070	2	svcfe	LB	1	438	1	++		98	50			underfired, soft, buff, sunken margins	pmed?
6080	6071	Brick kiln 6118	2	sffe	LB	1	1410	1		200	91	48			cracked, hard, dk red	pmed
6080	6071	Brick kiln 6118	2	sffe	LB	1	920	1			92	47			cracked, hard, dk red, vit surfaces	pmed
6122	6118	Brick kiln 6118	2	sffe	LB	1	915	1			101	45		traces of clay mortar?	hard, slightly warped	pmed
6122	6118	Brick kiln 6118	2	sffe	LB	1	727	1			95	47			cracked, hard, dk red, vit surfaces	pmed
6127	6126	Brick kiln 6070	2	svfe	LB	2	1575	1		212	94	57			cracked, hard, dk red, partly vit surfaces	pmed
6127	6126	Brick kiln 6070	2	sffe	QFT	1	1681	1		212	210	44			cracked, hard, dk red; same as 6127	pmed
6127	6126	Brick kiln 6070	2	svfe	LB	1	932	1	+		95	55			roughly chamfered?, soft, orange	pmed

Cxt.	Cut	Group	Period	fabric	form	no	wt/g	minno	abr	length	width	height	peg	mortar	comments	date
6129	6118	Brick kiln 6118	2	sffe	QFT	1	1470								same as 6127	pmed
6129	6118	Brick kiln 6118	2	svfe	LB	1	1127	1	+		103	50				pmed

*Table 11: CBM from the excavation*

## APPENDIX C ENVIRONMENTAL REPORTS

### C.1 Animal Bone

*By Zoë Uí Choileáin*

#### *Introduction and methodology*

- C.1.1 Excavations at the site uncovered a total of 13 recordable fragments of animal bone. Of these 10 fragments were identifiable to only two taxa; cattle and sheep/goat. The remaining material was categorised as large mammal and is recorded in Table 14.
- C.1.2 All material is post-medieval in date. Only hand collected material has been recorded.
- C.1.3 The method used to quantify this assemblage was a modified version of that devised by Albarella and Davis (1996). Identification of all bone was attempted but only those that could be clearly narrowed to species were used for NISP (Number of identifiable species) and MNI (minimum number of individuals) counts. Both epiphyses and shaft fragments were identified where possible. Fragmented elements are not counted multiple times which narrows down the assemblage and produces more accurate NISP and MNI results. MNI (minimum number of individuals) was calculated for all species present. MNI estimates the smallest number of animals that could be represented by the elements recovered. Identification of the faunal remains was carried out at Oxford Archaeology East. References to Hillson (1992), Schmid (1972) were used where needed for identification purposes.
- C.1.4 The surface condition of the bone was assessed using the 0-5 scale devised by McKinley where 0 represents no erosion and 5 represents the total erosion of the surface bone (2004, 16, fig. 6).
- C.1.5 For all identifiable bone butchery marks, burning and gnawing were recorded where observed. Measurements of the sheep bone was based on Von Dem Dreisch and Boessneck (1974).

#### *Results of analysis*

- C.1.6 The surface condition of the bone is variable, however the main bulk represents a 1 on the McKinley scale (2004, 16, fig. 6), meaning that very little of the surface of the bone was masked by erosion.
- C.1.7 Two taxa were identifiable; cattle and sheep/goat. Cattle is represented by a single pelvis found in context 40 (Trench 8; Period 3 ditch 39) during the evaluation stage. The sheep/goat bone primarily represents a single animal from context 4008 (Area 2: Period 0 tree throw 4006). Unfortunately, the small size of the assemblage does mean that any interpretation on prevalence would be greatly biased. A full summary of the number of identifiable specimens (NISP) and minimum of individuals (MNI) per taxon are presented in the tables below.

Taxon	NISP	NISP%	MNI	MNI %
Cattle	1	7.69	1	33.33
large mammal	3	23.08	1	33.33
sheep/goat	9	69.23	1	33.33
<b>Totals</b>	<b>13</b>	<b>100</b>	<b>3</b>	<b>100</b>

Table 12: Number of identifiable specimens (NISP) and Minimum number of individuals (MNI)

- C.1.8 Fusion data is recordable from six fragments. These are all long bones from the sheep/goat skeleton in 4008 (Period 0 tree throw **4006**) and represent a fully grown animal.
- C.1.9 Only a single fragment of bone was burnt. The distal epiphysis of the right sheep/goat femur in context 4008 is faintly charred most probably from domestic cooking.
- C.1.10 A sheep/goat femur and tibia from context 4008 are complete for a greatest length measurement. Measurements are recorded in the table below.

Context	Taxon	Element	GL (mm)
Femur	Sheep/goat	Tibia	208
4008	Sheep/goat	Femur	188

Table 13: Greatest length (GL) measurements for sheep/goat bone in context 4008

## Discussion

- C.1.11 Primarily these specimens represent domestic waste. The assemblage is dominated by sheep/goat bone from Period 0 tree throw **4006**. Due to the small size of the assemblage few other conclusions can be reached as regards the butchery or dietary practices of this population.

Trench / Area	Period	Group	Cut	Cxt.	Type	Taxon	Element	No. of frags	Erosion
8	3		39	40	Ditch	Cattle	Pelvis	1	3
8	3		39	40	Ditch	Large mammal	Radius	1	3
1	3	Ditch 204		227	Ditch	Large mammal	Mandible	1	2
1	3	Ditch 204		227	Ditch	Large mammal	Long bone	1	3
2	0			4008	Tree throw	Sheep/Goat	Tibia	1	1
2	0			4008	Tree throw	Sheep/Goat	Femur	1	1
2	0			4008	Tree throw	Sheep/Goat	Pelvis	1	1
2	0			4008	Tree throw	Sheep/Goat	Sacrum	1	1
2	0			4008	Tree throw	Sheep/Goat	Humerus	1	1
2	0			4008	Tree throw	Sheep/Goat	Radius	1	1
2	0			4008	Tree throw	Sheep/Goat	Humerus	1	1
2	0			4008	Tree throw	Sheep/Goat	Femur	1	1
2	0			4008	Tree throw	Sheep/Goat	Loose max cheek tooth	1	1
<b>Total</b>								<b>13</b>	

Table 14: Catalogue of bone by context

## C.2 Environmental Samples

*By Rachel Fosberry*

### *Introduction*

- C.2.1 Twenty-seven bulk samples were taken from features within the three excavated areas of the site, predominantly from deposits that were noted on excavation as being rich in charcoal. The features included early medieval (Period 1) pits that may have been for the purpose of making charcoal, post-medieval (Period 2) brick kilns and modern (Period 3) enclosure/boundary ditches and pits.
- C.2.2 Thirteen bulk samples taken during the evaluation of the site produced variable amounts of charcoal with no preservation of other plants such as cereals or weeds. The most charcoal-rich sample was taken from early medieval (Period 1) pit **48** in Trench 15 (Lucking 2019).
- C.2.3 The purpose of this assessment is to determine whether plant remains are present, their mode of preservation and whether they are of interpretable value with regard to domestic, agricultural and industrial activities, diet, economy and rubbish disposal.

### *Methodology*

- C.2.4 The samples were processed by tank flotation using modified Siraf-type equipment for the recovery of preserved plant remains, dating evidence and any other artefactual evidence that might be present. The floating component (flot) of the samples was collected in a 0.3mm nylon mesh and the residue was washed through 10mm, 5mm, 2mm and a 0.5mm sieve.
- C.2.5 A magnet was dragged through each residue fraction for the recovery of magnetic residues prior to sorting for artefacts. Any artefacts present were noted and reintegrated with the hand-excavated finds. The dried flots were subsequently sorted using a binocular microscope at magnifications up to x 60 and an abbreviated list of the recorded remains are presented in Table 15.
- C.2.6 Identification of plant remains is with reference to the Digital Seed Atlas of the Netherlands (Cappers *et al.* 2006) and the authors' own reference collection. Nomenclature is according to Zohary and Hopf (2000) for cereals, Hather 2000 for wood and Stace (2010) for other plants. Charcoal identifications were primarily done on single fragments in advance of submission for radiocarbon dating.

### *Quantification*

- C.2.7 For the purpose of this assessment, items such as cereal grains have been scanned and recorded qualitatively according to the following categories:
- # = 1-5, ## = 6-25, ### = 26-100, #### = 100+ specimens
- C.2.8 Items that cannot be easily quantified such as charcoal have been scored for abundance
- + = rare, ++ = moderate, +++ = frequent, ++++ = abundant, +++++ = super abundant

## Results

- C.2.9 Preservation of plant remains is through carbonisation with no evidence of waterlogged remains. Charcoal is frequent in most of the samples, often in large quantities, as evidence of the burning of wood. Oak (*Quercus* sp.) has been identified through an immature acorn cupule in Sample 105, fill 4020 of early medieval (Period 1) pit **4019** and roundwood in post-medieval (Period 2) kiln **6040**.
- C.2.10 Leguminosae charcoal has been identified from Period 2 brick kilns **6018** and **6070**. The species is most likely to be gorse (*Ulex* sp) or broom (*Cytisus scoparius*), however it could also be hairy greenwood (*Genista pilosa*), petty whin (*G. anglica*), or Dyer's greenweed (*G. tinctoria*). Leaf fragments of bracken (*Pteridium aquilinum*) and possibly heather (cf. *Erica tetralix*) have been tentatively identified in samples from brick kiln **6040**, possibly used as kindling.
- C.2.11 Single poorly preserved charred cereal grains occur in early medieval (Period 1) pit **4016** and modern (Period 3) features; pit **295** and ditch **4009**.

Period	Cut	Sample Nos	Cxt.	Feature Type	Area	% of deposit	Group	Volume processed (L)	Flot Volume (ml)	Cereals	Charcoal <2mm	Charcoal > 2mm	Charcoal Volume (ml)	Flot comments	Fired clay
0	6011	201	6012	Tree throw	3	40	0	16	250	0	++++	++++	250	charcoal only	0
1	200	5	202	pit	1	30	0	20	3000	0	+++++	+++++	3000	charcoal only	0
1	222	4	223	pit	1	50	0	10	1100	0	+++++	+++++	1100	charcoal only	0
1	4002	101	4003	pit	2	20	0	15	580	0	+++++	+++++	580	charcoal only	0
1	4004	102	4005	pit	2	20	0	14	40	0	+	0	1	vitrified charcoal	0
1	4013	109	4014	pit	2	20	0	16	40	0	0	+	40	charcoal only	0
1	4015	103	4016	pit	2	10	0	16	15	#	0	0	0	Single charred grain	0
1	4017	104	4018	pit	2	40	0	16	150	0	++++	++++	150	charcoal only	0
1	4019	105	4020	pit	2	20	0	16	200	0	++++	++++	200	oak cupule	0
1	4021	106	4022	pit	2	10	0	16	50	0	++++	++++	50	charcoal only	#
1	4023	108	4024	pit	2	50	0	16	100	0	++++	++++	100	charcoal only	0

Period	Cut	Sample Nos	Cxt.	Feature Type	Area	% of deposit	Group	Volume processed (L)	Flot Volume (ml)	Cereals	Charcoal <2mm	Charcoal >2mm	Charcoal Volume (ml)	Flot comments	Fired clay
1	40 26	107	40 27	pit	2	30	0	16	100	0	++++	++++	100	charcoal only	0
1	40 32	110	40 32	pit	2	30	0	18	20	0	+++	+++	20	charcoal only	0
2	40 33	112	40 42	kiln	2	100	Brick kiln 4033	20	40	0	+++	+++	40	charcoal only	0
2	40 33	113	40 43	kiln	2	20	Brick kiln 4033	16	60	0	+++	+++	60	charcoal only	####
2	60 40	207	60 44	kiln	3	50	Brick kiln 6040	2	5	0	+++	+++	5	charcoal only	0
2	60 40	202	60 41	kiln	3	50	Brick kiln 6040	8	20	0	++++	0	20	bracken and heather	0
2	60 40	203	60 42	kiln	3	50	Brick kiln 6040	5	1	0	+	0	1	possibly heather	###
2	60 40	206	60 53	kiln	3	10	Brick kiln 6040	16	1	0	++	0	1	charcoal only	###
2	60 60	210	60 63	kiln	3	10	Brick kiln 6018	17	500	0	++++	+++	500	charcoal only	0
2	60 75	204	60 76	kiln flue	3	40	Brick kiln 6070	16	180	0	++++	++++	180	roundwood fragments	0
2	60 75	205	60 76	kiln flue	3		Brick kiln 6070		5	0	0	+	5	charcoal only	0
2	60 84	208	60 85	kiln	3	40	Brick kiln 6070	16	580	0	+++++	+++++	580	roundwood fragments	0

Period	Cut	Sample Nos	Cxt.	Feature Type	Area	% of deposit	Group	Volume processed (L)	Flot Volume (ml)	Cereals	Charcoal <2mm	Charcoal >2mm	Charcoal Volume (ml)	Flot comments	Fired clay
2	6126	209	6128	kiln	3	50	Brick kiln 6070	8	270	0	+++++	+++++	270	charcoal only	0
3	257	1	258	pit	1	10	0	20	30	0	++	++	2	charcoal only	0
3	295	3	297	pit	1	5	0	20	50	#	++	+	<1	Single charred grain	0
3	4009	111	4010	ditch	2	10	Ditch 4009	15	10	#	++	0	10	Single charred grain, vitrified charcoal	0

Table 15: Bulk samples

## *Discussion*

C.2.12 The environmental samples from this site have produced significant amounts of charcoal as evidence of the exploitation of an area of oak forest that was probably cleared in the medieval period to form Horkesley Heath. Pit kilns were a way of producing charcoal in the early medieval period, leaving characteristic features with evidence of *in-situ* burning and charcoal residues. Medieval brick kilns at Beaulieu, Essex were also dominated by oak charcoal (Druce in Clarke 2020) and the recovery of the gorse/broom is consistent with the primary wood fuel used in late 15th-16th century 'industrial' kilns at Cringleford, Norwich (Druce in Collie and Clarke, forthcoming).

## APPENDIX D RADIOCARBON DATING CERTIFICATES



### RADIOCARBON DATING CERTIFICATE 13 September 2021

<b>Laboratory Code</b>	SUERC-99910 (GU58453)
<b>Submitter</b>	Rachel Fosberry Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
<b>Site Reference</b>	ECC 4356
<b>Context Reference</b>	13
<b>Sample Reference</b>	2
<b>Material</b>	charred fruit (cup) : Quercus
<b><math>\delta^{13}\text{C}</math> relative to VPDB</b>	-25.2 ‰
<b>Radiocarbon Age BP</b>	884 $\pm$ 26

**N.B.** The above  $^{14}\text{C}$  age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Laboratory and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon 58(1)* pp.9-23.

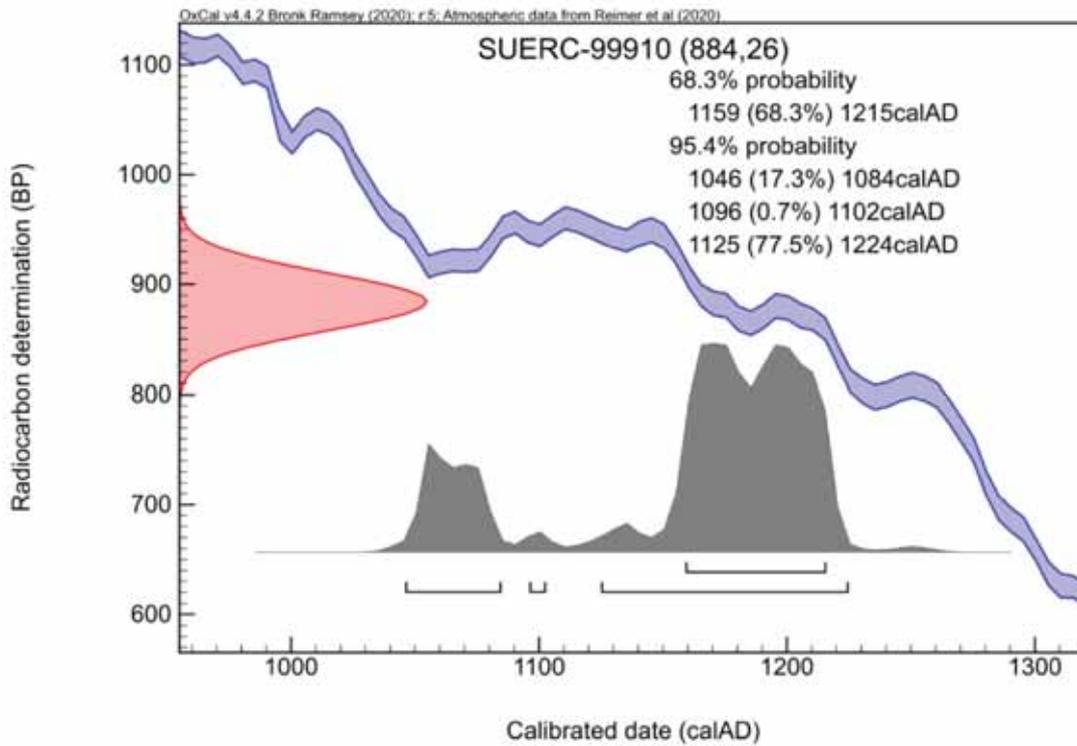
For any queries relating to this certificate, the laboratory can be contacted at [suerc-c14lab@glasgow.ac.uk](mailto:suerc-c14lab@glasgow.ac.uk).

Conventional age and calibration age ranges calculated by :



Checked and signed off by :





The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.\*

The above date ranges have been calibrated using the IntCal20 atmospheric calibration curve†

Please contact the laboratory if you wish to discuss this further.

\* Bronk Ramsey (2009) *Radiocarbon* 51(1) pp.337-60

† Reimer et al. (2020) *Radiocarbon* 62(4) pp.725-57



Scottish Universities Environmental Research Centre  
Rankine Avenue, Scottish Enterprise Technology Park, East Kilbride, Glasgow G75 0QF, Scotland, UK  
Director: Professor F M Stuart Tel: +44 (0)1355 223332 Fax: +44 (0)1355 228888 www.glasgow.ac.uk/suerc



**RADIOCARBON DATING CERTIFICATE**

13 September 2021

<b>Laboratory Code</b>	SUERC-99911 (GU58454)
<b>Submitter</b>	Rachel Fosberry Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
<b>Site Reference</b>	ECC 4356
<b>Context Reference</b>	49
<b>Sample Reference</b>	6
<b>Material</b>	charcoal-round wood, 1 yr growth : cf Quercus
<b><math>\delta^{13}\text{C}</math> relative to VPDB</b>	-27.4 ‰
<b>Radiocarbon Age BP</b>	811 $\pm$ 26

**N.B.** The above  $^{14}\text{C}$  age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Laboratory and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon* 58(1) pp.9-23.

For any queries relating to this certificate, the laboratory can be contacted at [suerc-c14lab@glasgow.ac.uk](mailto:suerc-c14lab@glasgow.ac.uk).

Conventional age and calibration age ranges calculated by :



Checked and signed off by :

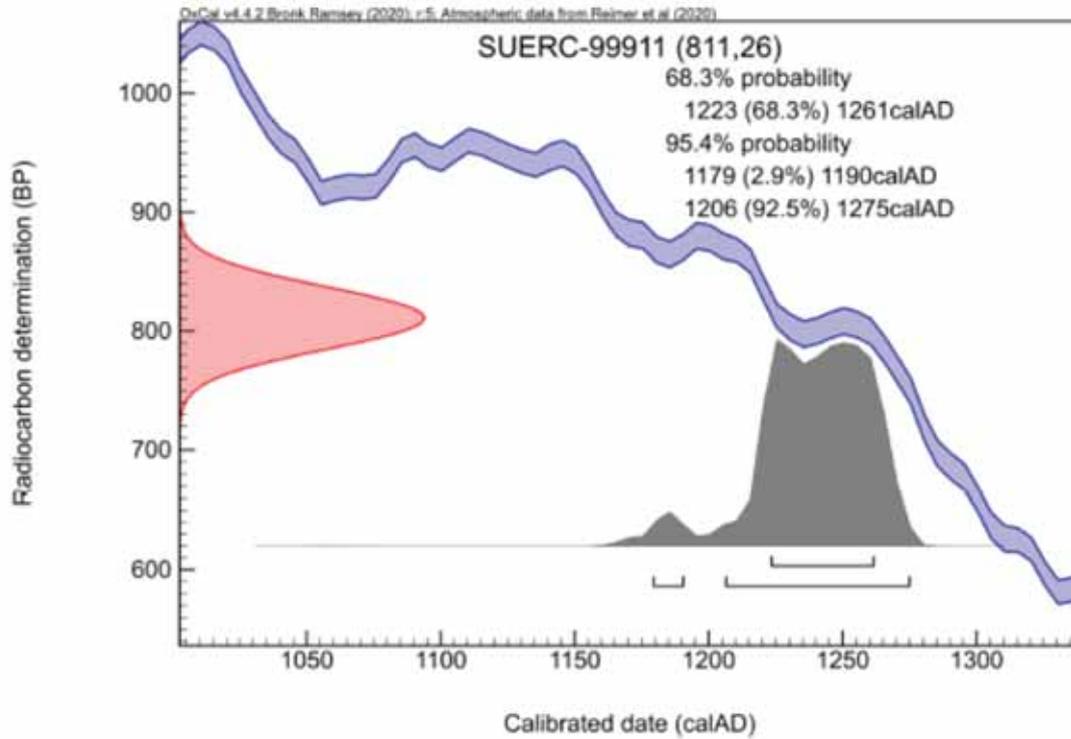


University  
of Glasgow

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The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.\*

The above date ranges have been calibrated using the IntCal20 atmospheric calibration curve†

Please contact the laboratory if you wish to discuss this further.



**RADIOCARBON DATING CERTIFICATE**

13 September 2021

**Laboratory Code** SUERC-99915 (GU58455)  
**Submitter** Rachel Fosberry  
Oxford Archaeology East  
15 Trafalgar Way  
Bar Hill  
Cambridgeshire  
CB23 8SQ  
**Site Reference** ECC 4605  
**Context Reference** 202  
**Material** charcoal-bark : cf Quercus  
 **$\delta^{13}\text{C}$  relative to VPDB** -26.0 ‰  
**Radiocarbon Age BP** 798  $\pm$  26

**N.B.** The above  $^{14}\text{C}$  age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Laboratory and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon* 58(1) pp.9-23.

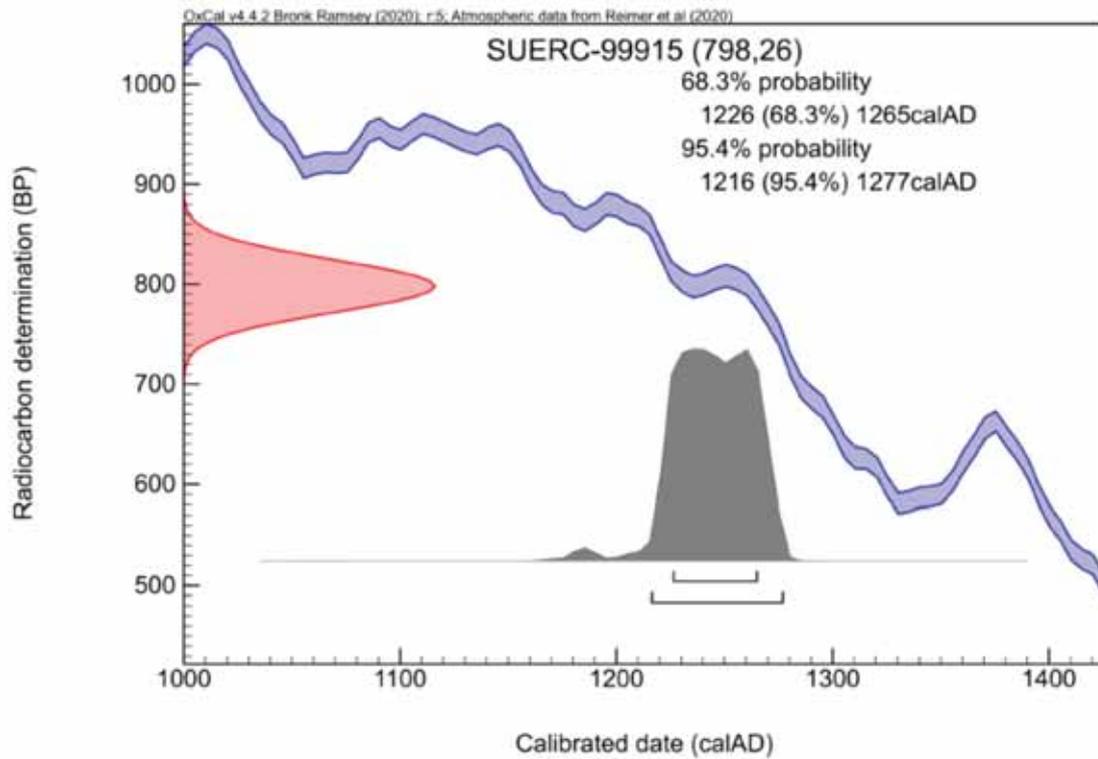
For any queries relating to this certificate, the laboratory can be contacted at [suerc-c14lab@glasgow.ac.uk](mailto:suerc-c14lab@glasgow.ac.uk).

Conventional age and calibration age ranges calculated by :



Checked and signed off by :





The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.\*

The above date ranges have been calibrated using the IntCal20 atmospheric calibration curve†

Please contact the laboratory if you wish to discuss this further.

\* Bronk Ramsey (2009) *Radiocarbon* 51(1) pp.337-60  
 † Reimer et al. (2020) *Radiocarbon* 62(4) pp.725-57



*RADIOCARBON DATING CERTIFICATE*

13 September 2021

<b>Laboratory Code</b>	SUERC-99916 (GU58456)
<b>Submitter</b>	Rachel Fosberry Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
<b>Site Reference</b>	ECC 4605
<b>Context Reference</b>	6076
<b>Sample Reference</b>	205
<b>Material</b>	charcoal-round wood, 3 yrs growth : Leguminosae
<b><math>\delta^{13}\text{C}</math> relative to VPDB</b>	-26.4 ‰
<b>Radiocarbon Age BP</b>	364 ± 26

**N.B.** The above  $^{14}\text{C}$  age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Laboratory and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon* 58(1) pp.9-23.

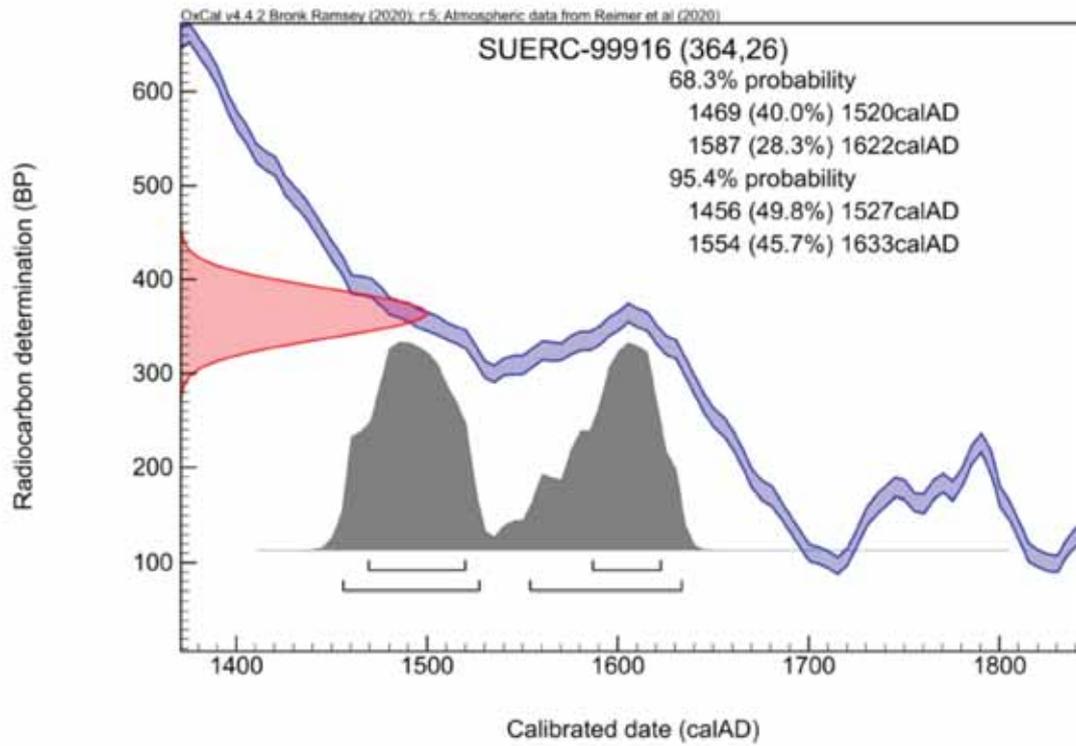
For any queries relating to this certificate, the laboratory can be contacted at [suerc-c14lab@glasgow.ac.uk](mailto:suerc-c14lab@glasgow.ac.uk)

Conventional age and calibration age ranges calculated by :



Checked and signed off by :





The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.\*

The above date ranges have been calibrated using the IntCal20 atmospheric calibration curve†

Please contact the laboratory if you wish to discuss this further.

\* Bronk Ramsey (2009) *Radiocarbon* 51(1) pp.337-60

† Reimer et al. (2020) *Radiocarbon* 62(4) pp.725-57



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**RADIOCARBON DATING CERTIFICATE**

13 September 2021

<b>Laboratory Code</b>	SUERC-99917 (GU58457)
<b>Submitter</b>	Rachel Fosberry Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
<b>Site Reference</b>	ECC 4605
<b>Context Reference</b>	6063
<b>Sample Reference</b>	210
<b>Material</b>	charcoal-round wood, 1 yr growth : Leguminosae
<b><math>\delta^{13}\text{C}</math> relative to VPDB</b>	-26.4 ‰
<b>Radiocarbon Age BP</b>	313 $\pm$ 26

**N.B.** The above  $^{14}\text{C}$  age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Laboratory and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon* 58(1) pp.9-23.

For any queries relating to this certificate, the laboratory can be contacted at [suerc-c14lab@glasgow.ac.uk](mailto:suerc-c14lab@glasgow.ac.uk).

Conventional age and calibration age ranges calculated by :



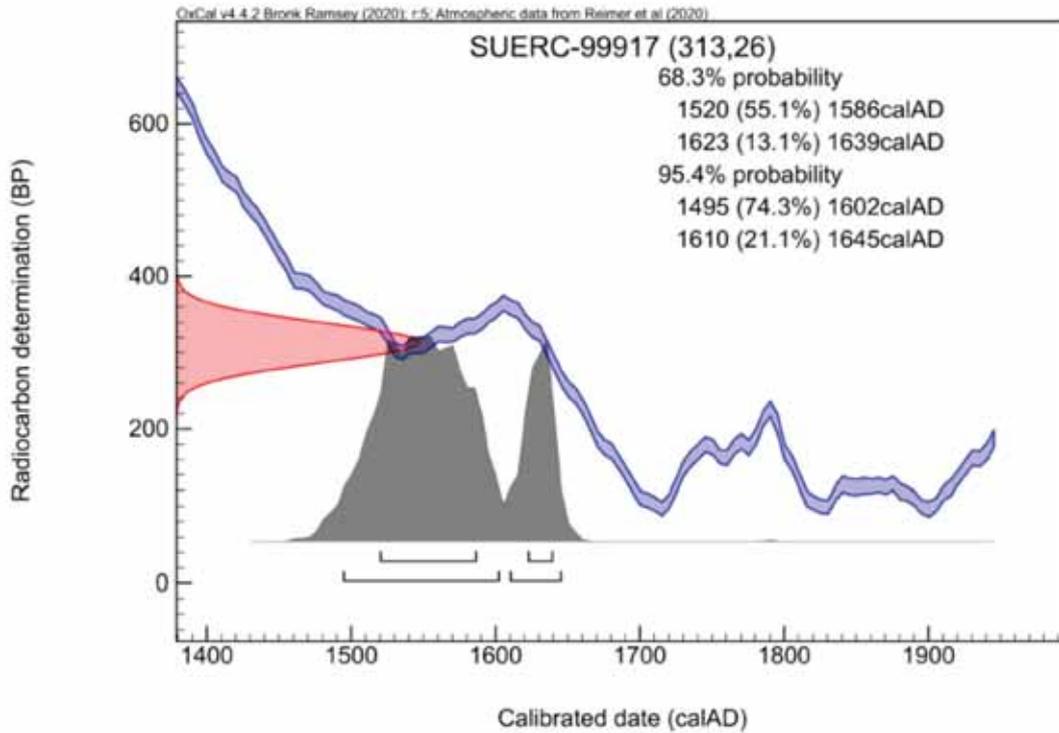
Checked and signed off by :



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Registered in Scotland, with registration number SC005338



The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.\*

The above date ranges have been calibrated using the IntCal20 atmospheric calibration curve†

Please contact the laboratory if you wish to discuss this further.

\* Bronk Ramsey (2009) *Radiocarbon* 51(1) pp.337-60

† Reimer et al. (2020) *Radiocarbon* 62(4) pp.725-57



*RADIOCARBON DATING CERTIFICATE*  
20 September 2021

**Laboratory Code** SUERC-99981 (GU59007)  
**Submitter** Rachel Fosberry  
Oxford Archaeology East  
15 Trafalgar Way  
Bar Hill  
Cambridgeshire  
CB23 8SQ  
**Site Reference** ECC4605  
**Context Reference** 4042  
**Sample Reference** 112  
**Material** Charred plant Remains : Triticum Sp.  
 **$\delta^{13}\text{C}$  relative to VPDB** -24.1 ‰  
**Radiocarbon Age BP** 284 ± 29

**N.B.** The above  $^{14}\text{C}$  age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

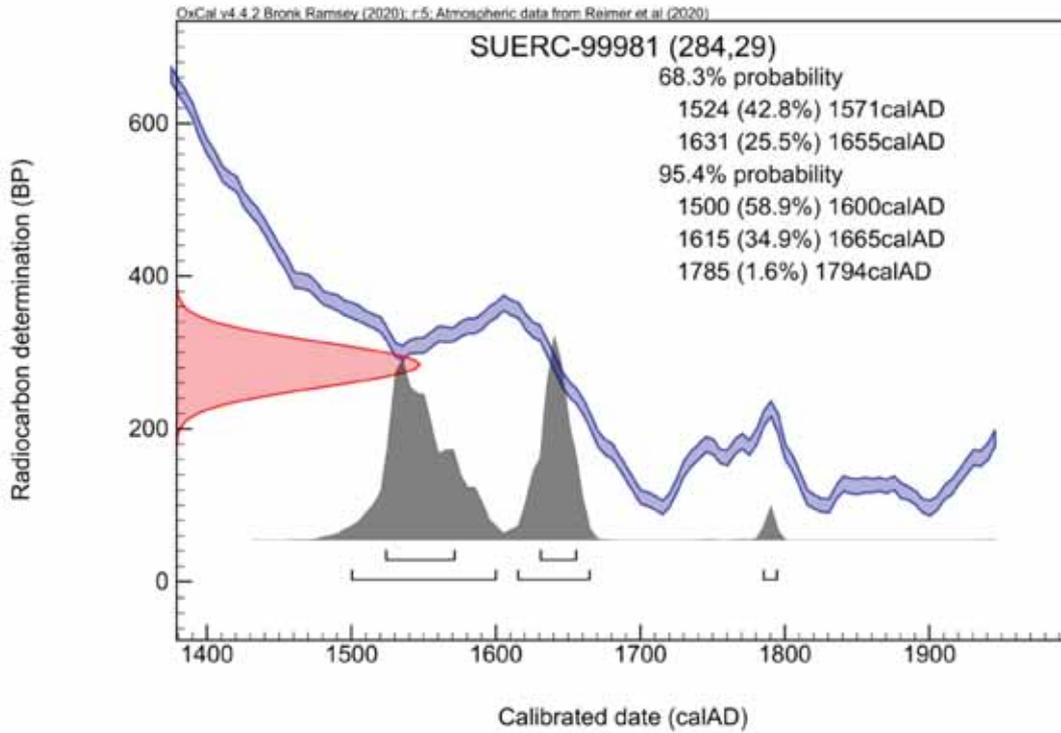
Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Laboratory and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon* 58(1) pp.9-23.

For any queries relating to this certificate, the laboratory can be contacted at [suerc-c14lab@glasgow.ac.uk](mailto:suerc-c14lab@glasgow.ac.uk).

Conventional age and calibration age ranges calculated by : E Dunbar

Checked and signed off by : 



The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.\*

The above date ranges have been calibrated using the IntCal20 atmospheric calibration curve†

Please contact the laboratory if you wish to discuss this further.

\* Bronk Ramsey (2009) *Radiocarbon* 51(1) pp.337-60

† Reimer et al. (2020) *Radiocarbon* 62(4) pp.725-57

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## APPENDIX F OASIS REPORT FORM

### Project Details

OASIS Number	oxfordar3-421565		
Project Name	Early Medieval Charcoal Pits and Early Post-medieval Brick Kilns at Nayland Road, Great Horkesley, Essex. Archaeological Excavation Report		
Start of Fieldwork	15/03/21	End of Fieldwork	29/04/21
Previous Work	Yes	Future Work	No

### Project Reference Codes

Site Code	ECC4605	Planning App. No.	190302
HER Number	ECC4605	Related Numbers	n/a

Prompt	Condition for planning
Development Type	Residential Development
Place in Planning Process	After full determination (eg. As a condition)

### Techniques used (tick all that apply)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Aerial Photography – interpretation | <input type="checkbox"/> Open-area excavation           | <input type="checkbox"/> Salvage Record                   |
| <input type="checkbox"/> Aerial Photography - new            | <input type="checkbox"/> Part Excavation                | <input type="checkbox"/> Systematic Field Walking         |
| <input type="checkbox"/> Field Observation                   | <input type="checkbox"/> Part Survey                    | <input type="checkbox"/> Systematic Metal Detector Survey |
| <input type="checkbox"/> Full Excavation                     | <input type="checkbox"/> Recorded Observation           | <input type="checkbox"/> Test-pit Survey                  |
| <input type="checkbox"/> Full Survey                         | <input type="checkbox"/> Remote Operated Vehicle Survey | <input type="checkbox"/> Watching Brief                   |
| <input type="checkbox"/> Geophysical Survey                  | <input type="checkbox"/> Salvage Excavation             |   |

Monument	Period	Object	Period
Tree throw	Choose an item.	Charcoal	Early Medieval (410 to 1066)
Pit	Medieval (1066 to 1540)	Brick	Post Medieval (1540 to 1901)
Brick kiln	Post Medieval (1540 to 1901)	Pottery	Roman (43 to 410)
Tile kiln	Post Medieval (1540 to 1901)	Pottery	Medieval (1066 to 1540)
Pit	Post Medieval (1540 to 1901)	Pottery	Post Medieval (1540 to 1901)
Ditch	Post Medieval (1540 to 1901)	Pottery	Modern (1901 to present)
		Animal bone	Early Medieval (410 to 1066)

Insert more lines as appropriate.

### Project Location

County	Essex	Address (including Postcode) Land to the East of Nayland Road, Great Horkesley, Essex, CO6 4EN
District	Colchester	
Parish	Great Horkesley	
HER office	Colchester Borough Council	

Size of Study Area		
National Grid Ref	TL 98271 29407	

## Project Originators

Organisation	Oxford Archaeology East
Project Brief Originator	Dr Richard Hoggett - CBC
Project Design Originator	Nick Gilmour – OAE
Project Manager	Patrick Moan – OAE
Project Supervisor	Anthony Haskins - OAE

## Project Archives

	Location	ID
Physical Archive (Finds)	Colchester Museum	ECC4605/TBA
Digital Archive	OA East	XEXGRH20
Paper Archive	Colchester Museum	ECC4605/TBA

Physical Contents	Present?	Digital files associated with Finds	Paperwork associated with Finds
Animal Bones	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ceramics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Environmental	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Glass	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Human Remains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industrial	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Leather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Metal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Stratigraphic		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Survey		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Textiles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worked Bone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worked Stone/Lithic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Digital Media

Database	<input checked="" type="checkbox"/>
GIS	<input checked="" type="checkbox"/>
Geophysics	<input type="checkbox"/>
Images (Digital photos)	<input checked="" type="checkbox"/>
Illustrations (Figures/Plates)	<input checked="" type="checkbox"/>
Moving Image	<input type="checkbox"/>
Spreadsheets	<input checked="" type="checkbox"/>
Survey	<input type="checkbox"/>
Text	<input checked="" type="checkbox"/>
Virtual Reality	<input type="checkbox"/>

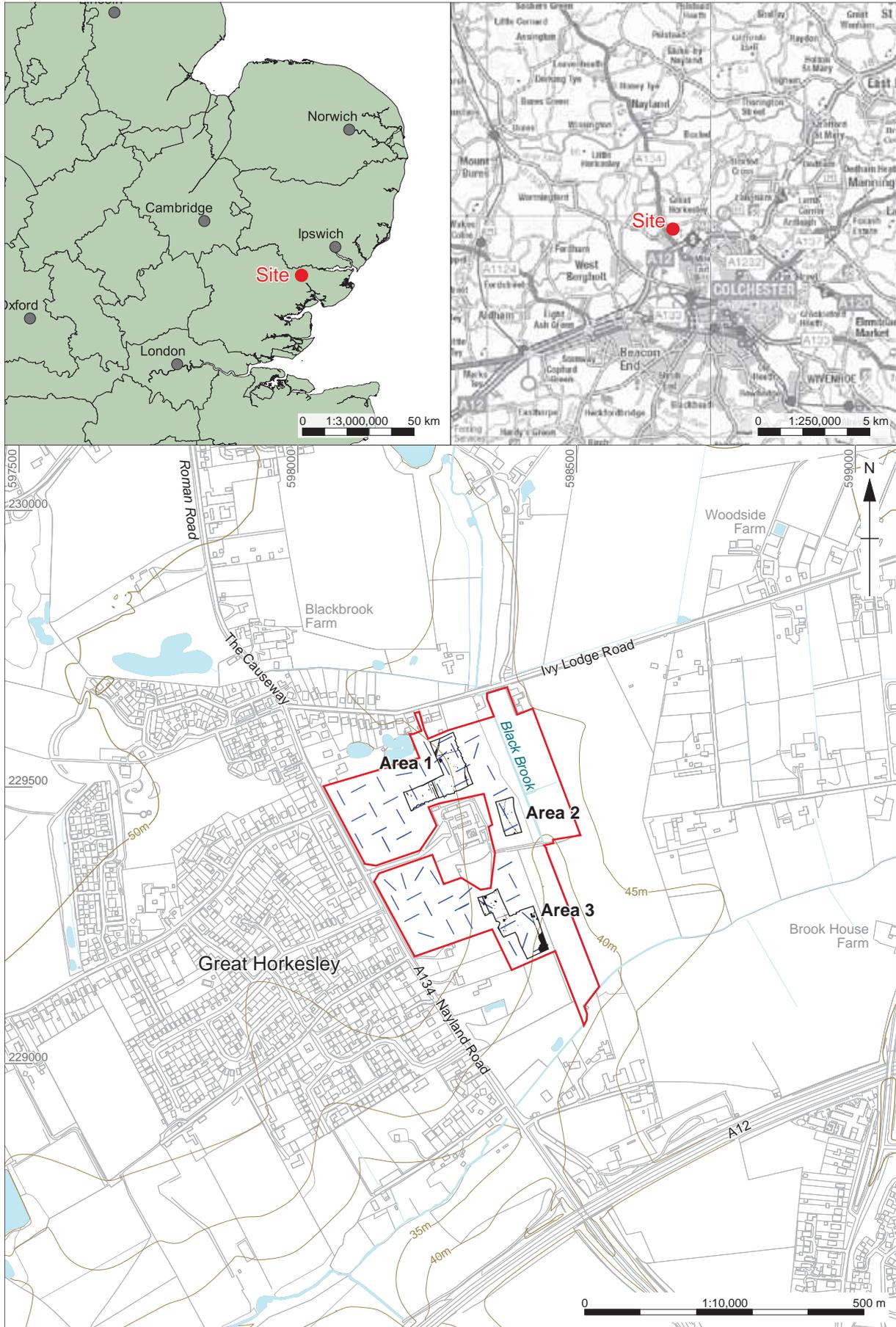
## Paper Media

Aerial Photos	<input type="checkbox"/>
Context Sheets	<input checked="" type="checkbox"/>
Correspondence	<input type="checkbox"/>
Diary	<input type="checkbox"/>
Drawing	<input type="checkbox"/>
Manuscript	<input type="checkbox"/>
Map	<input type="checkbox"/>
Matrices	<input type="checkbox"/>
Microfiche	<input type="checkbox"/>
Miscellaneous	<input type="checkbox"/>

Research/Notes	<input type="checkbox"/>
Photos (negatives/prints/slides)	<input type="checkbox"/>
Plans	<input checked="" type="checkbox"/>
Report	<input checked="" type="checkbox"/>
Sections	<input checked="" type="checkbox"/>
Survey	<input type="checkbox"/>

### Further Comments

Museum accession number provided once deposition is agreed.



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Figure 1: Site location showing excavation areas (black) and archaeological trenches (blue) in development area outlined (red)

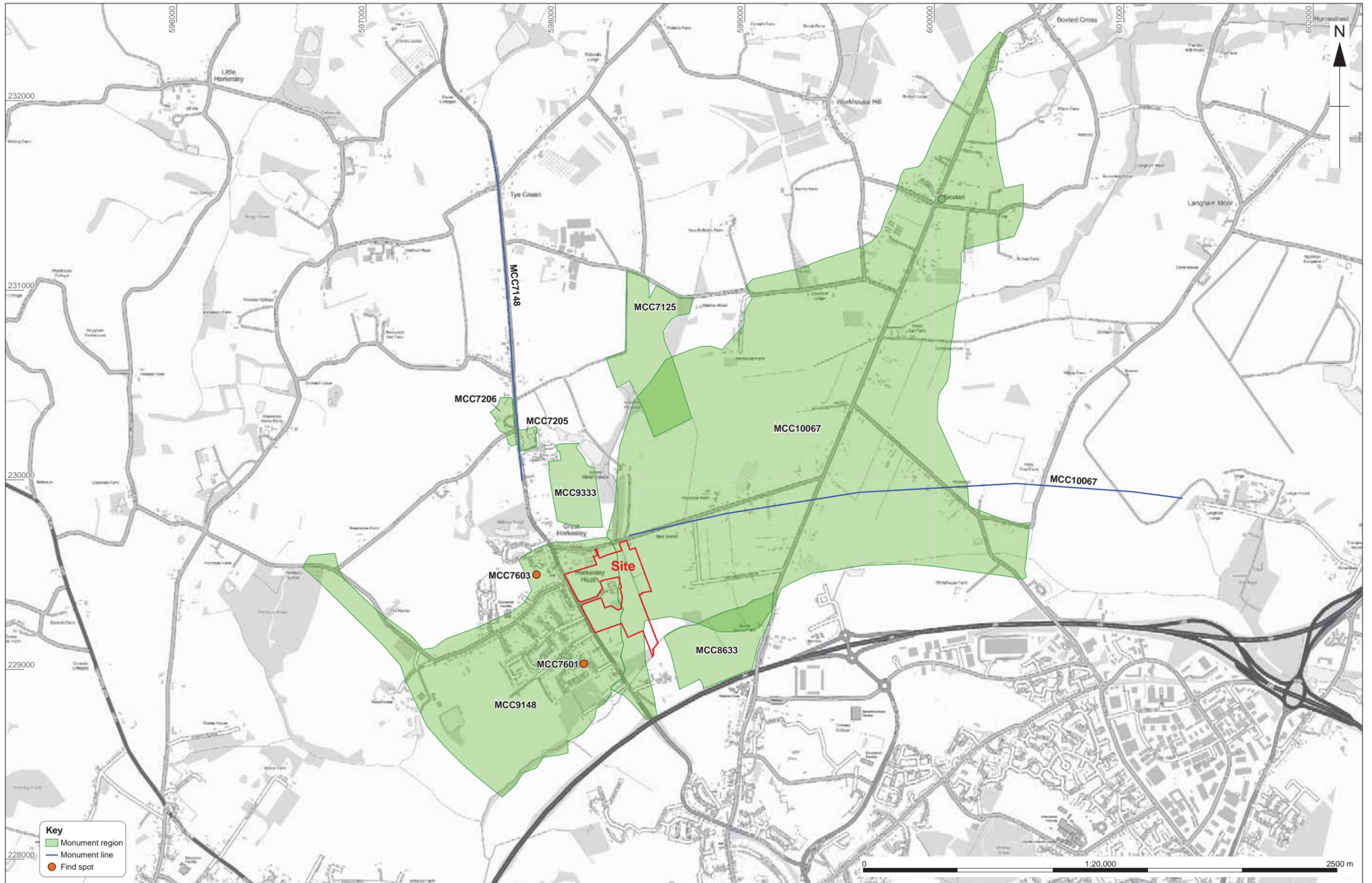


Figure 2: Selected EHER entries

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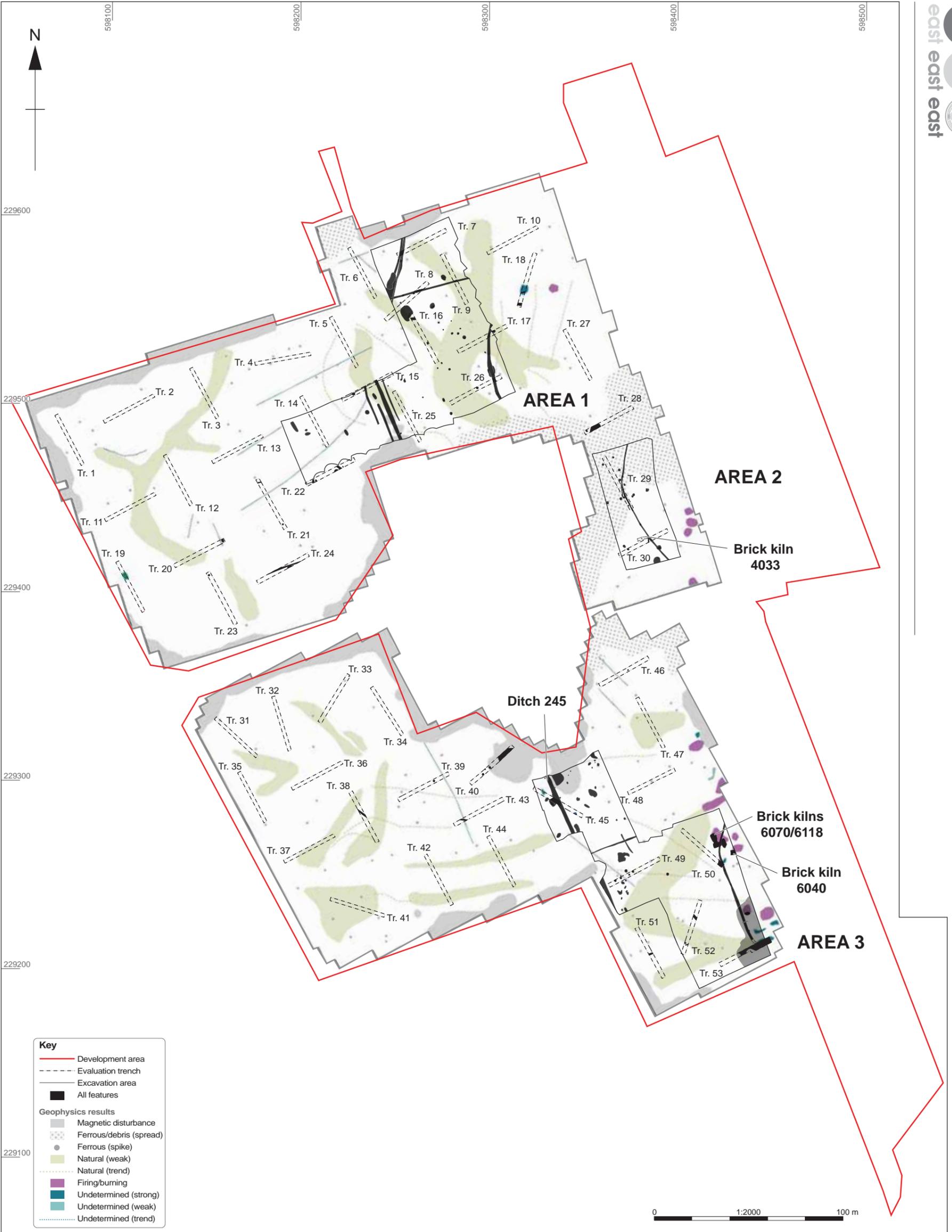


Figure 3: Excavation areas overlaid on geophysical survey results and evaluation trenches (Armstrong and Fortuny 2019, fig. 5 and Lucking 2019, fig. 12)

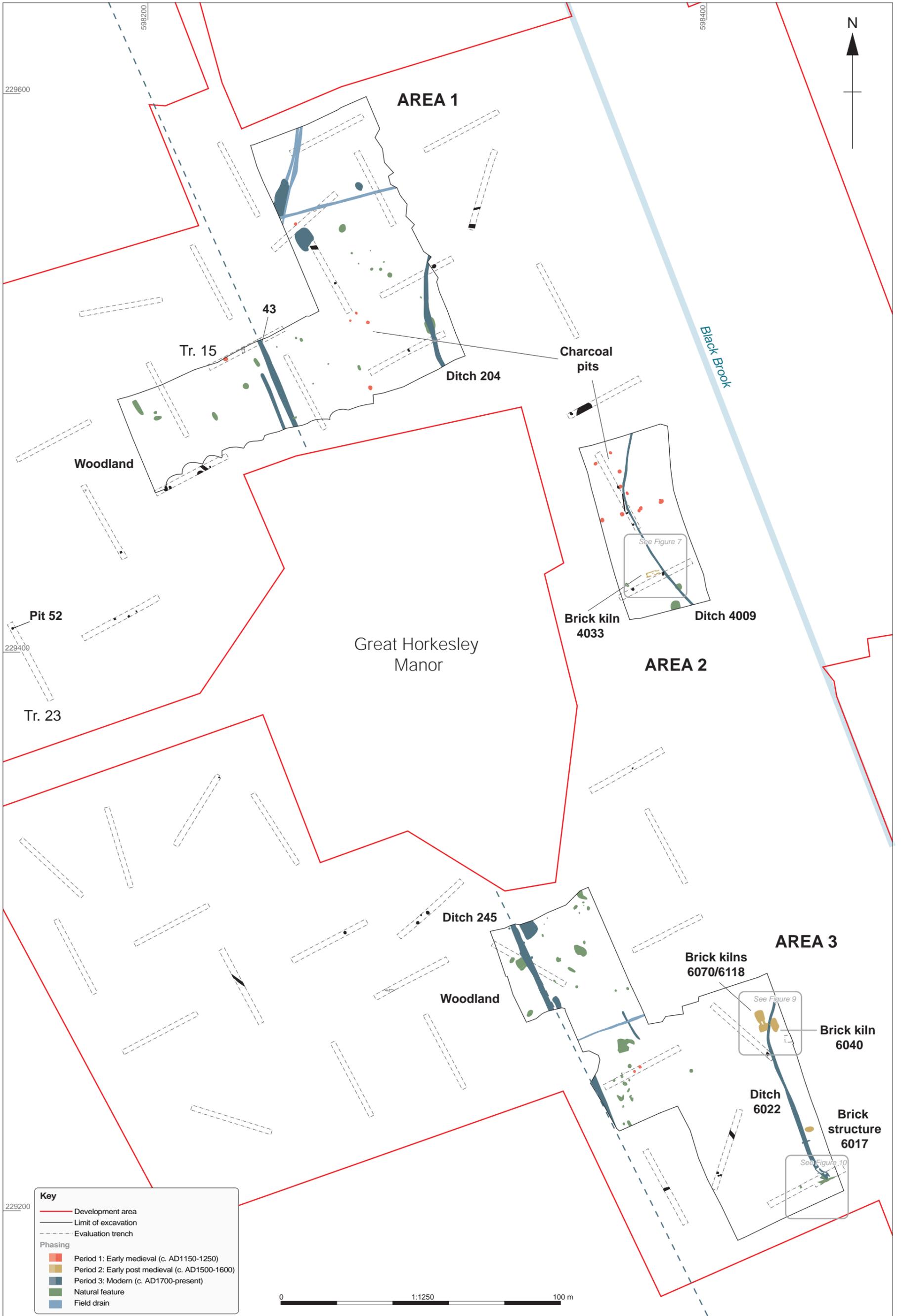


Figure 4: Overall phase plan with grouping and results of evaluation trenches

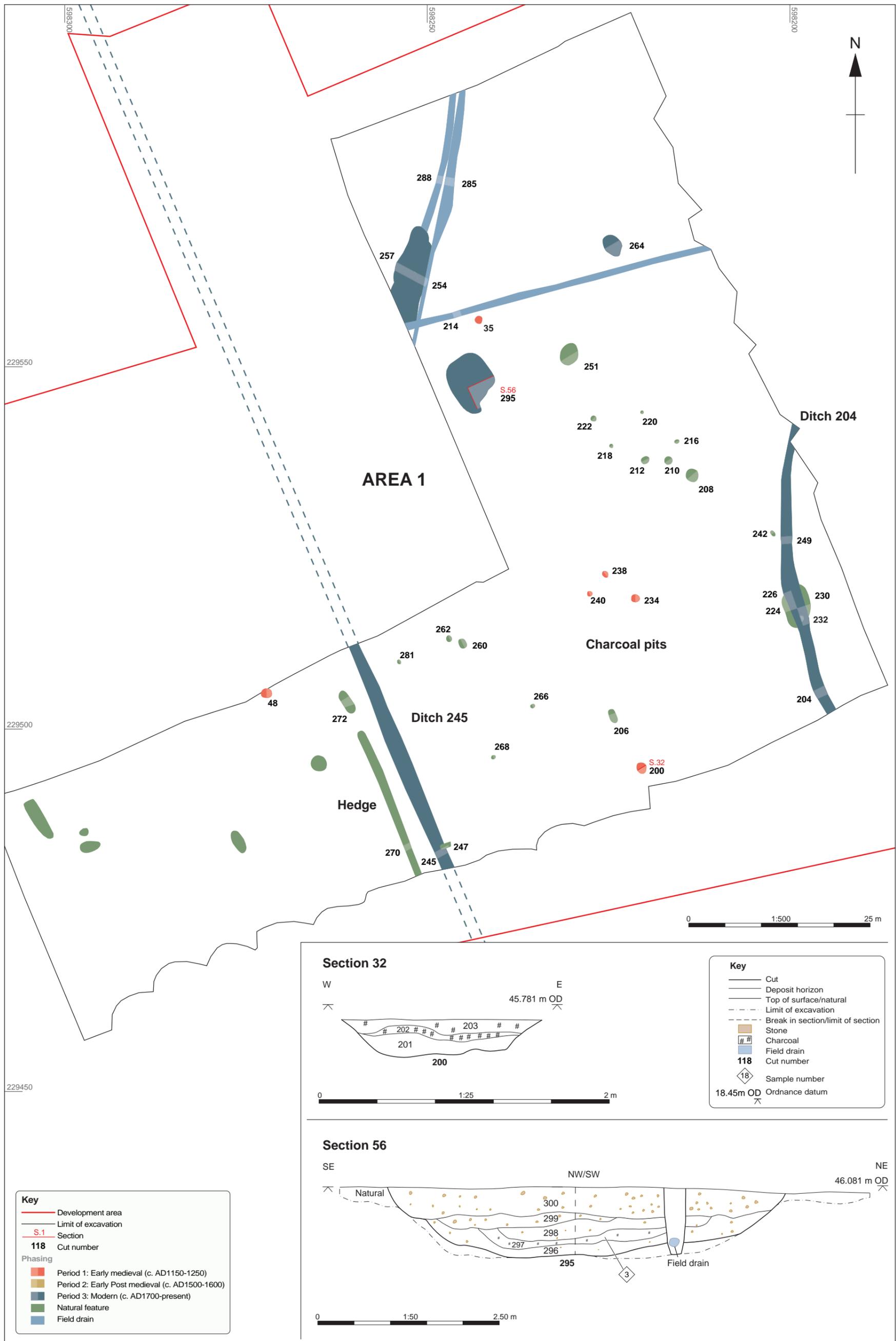


Figure 5: Area 1 plan, with selected sections

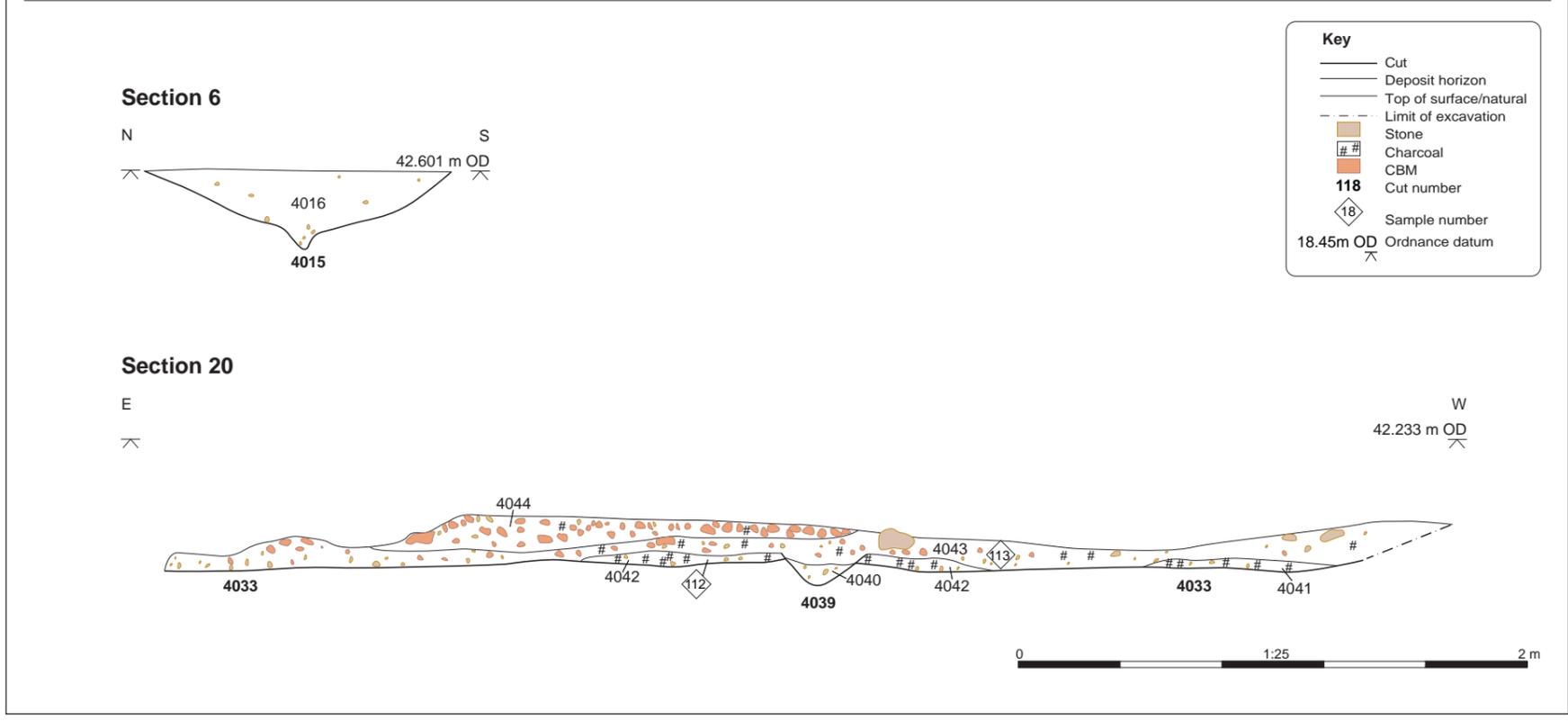
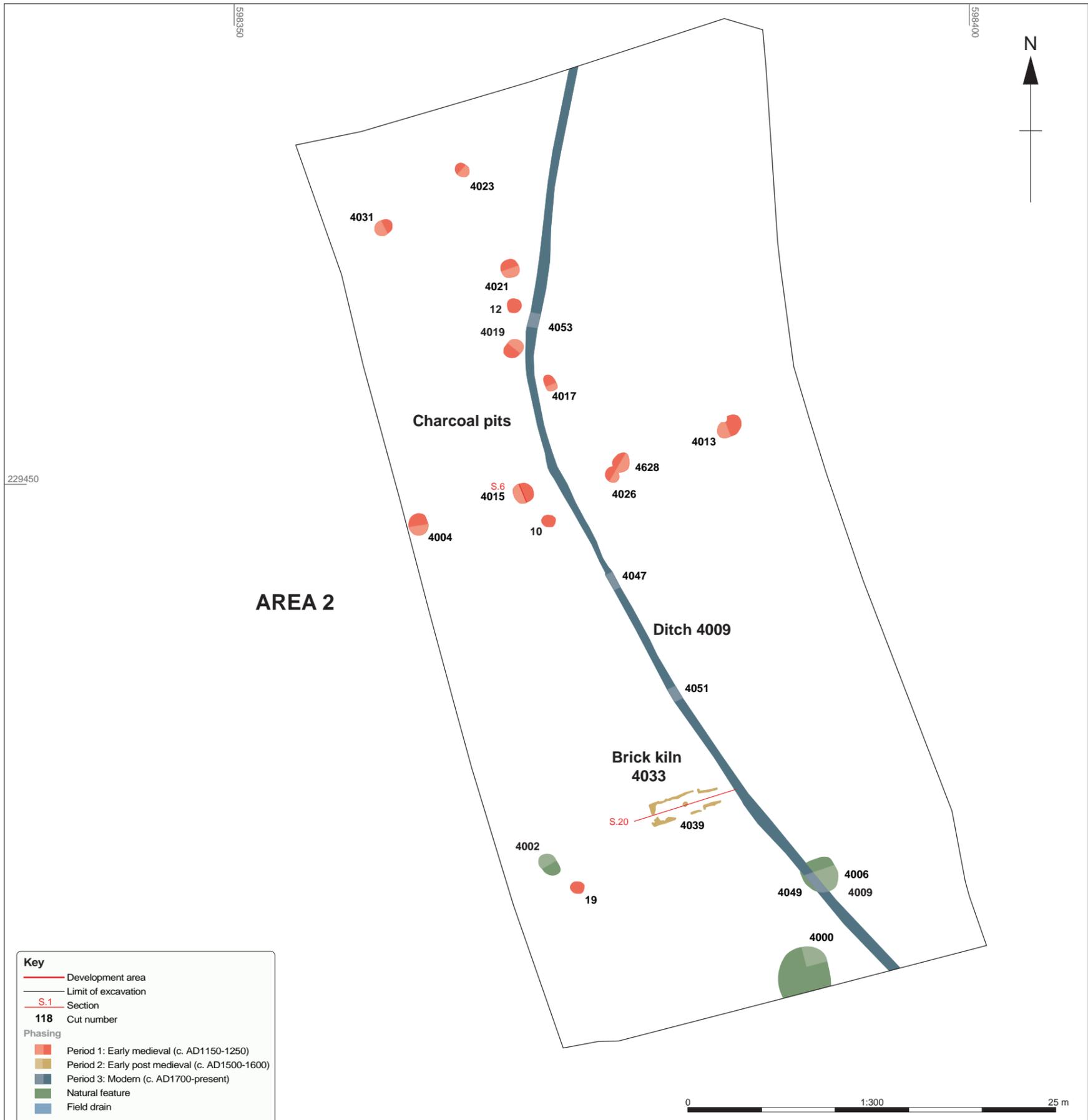


Figure 6: Area 2 plan, with selected sections

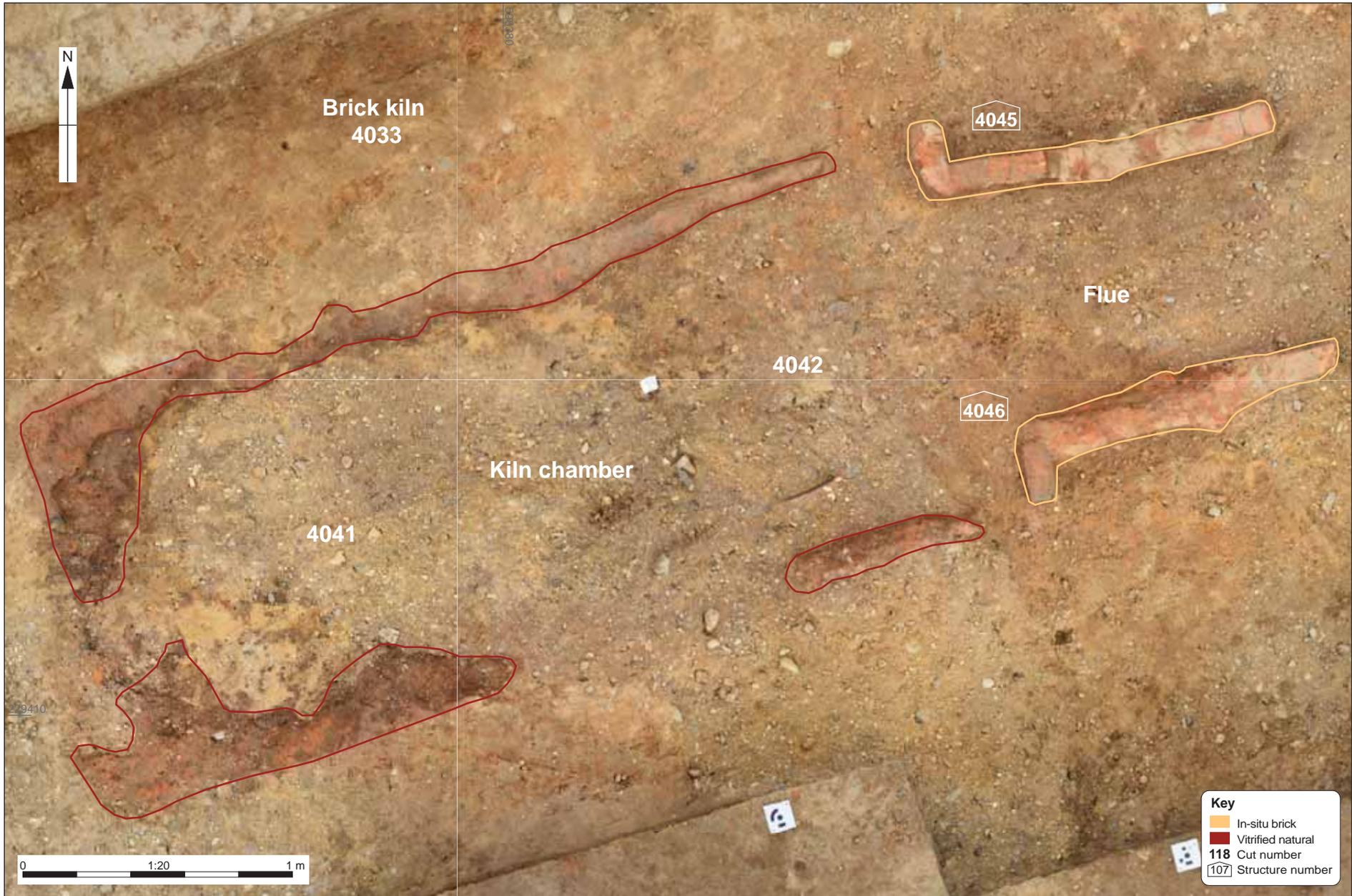


Figure 7: Area 2: Detail of Period 2 brick kiln 4033

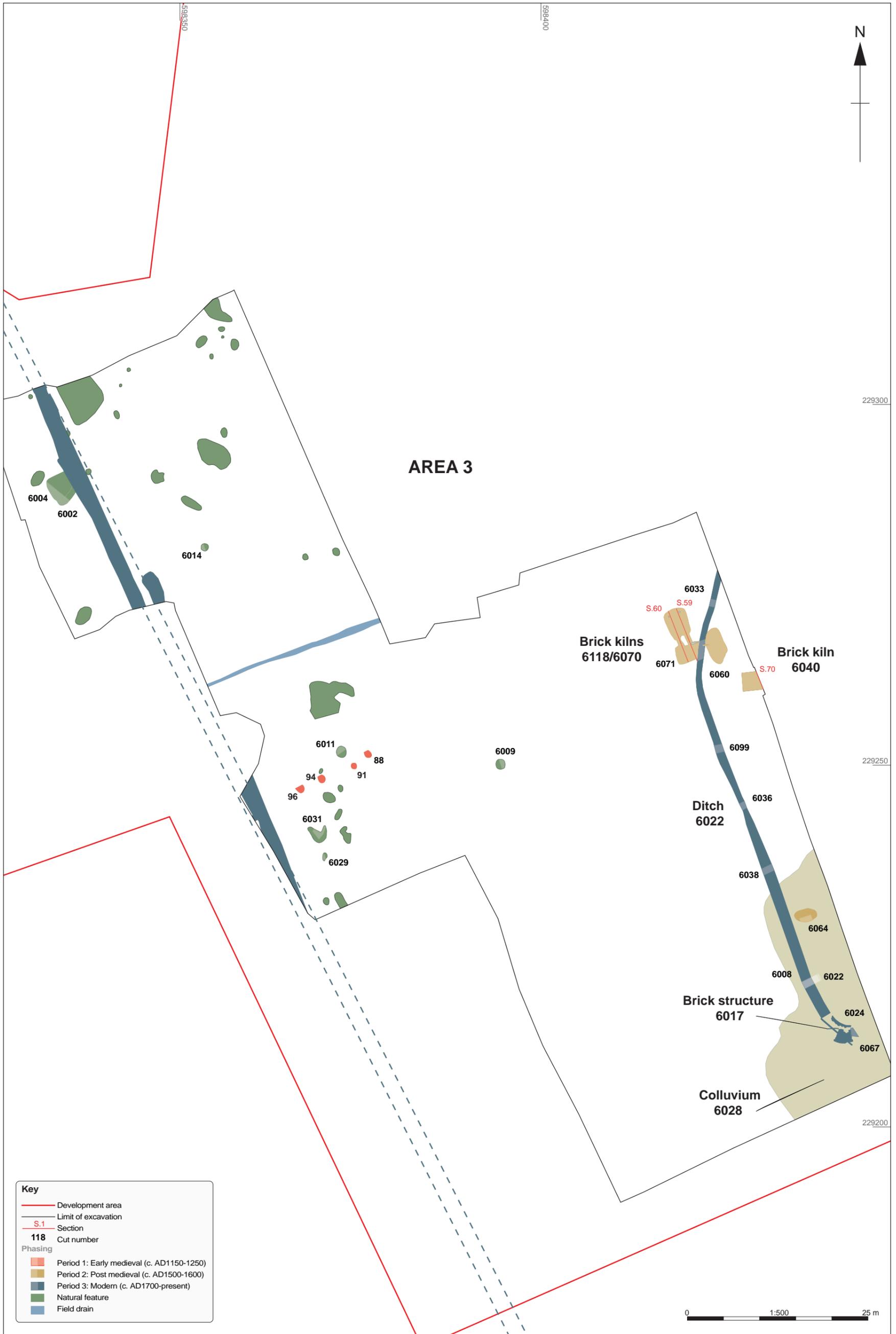


Figure 8: Area 3 plan

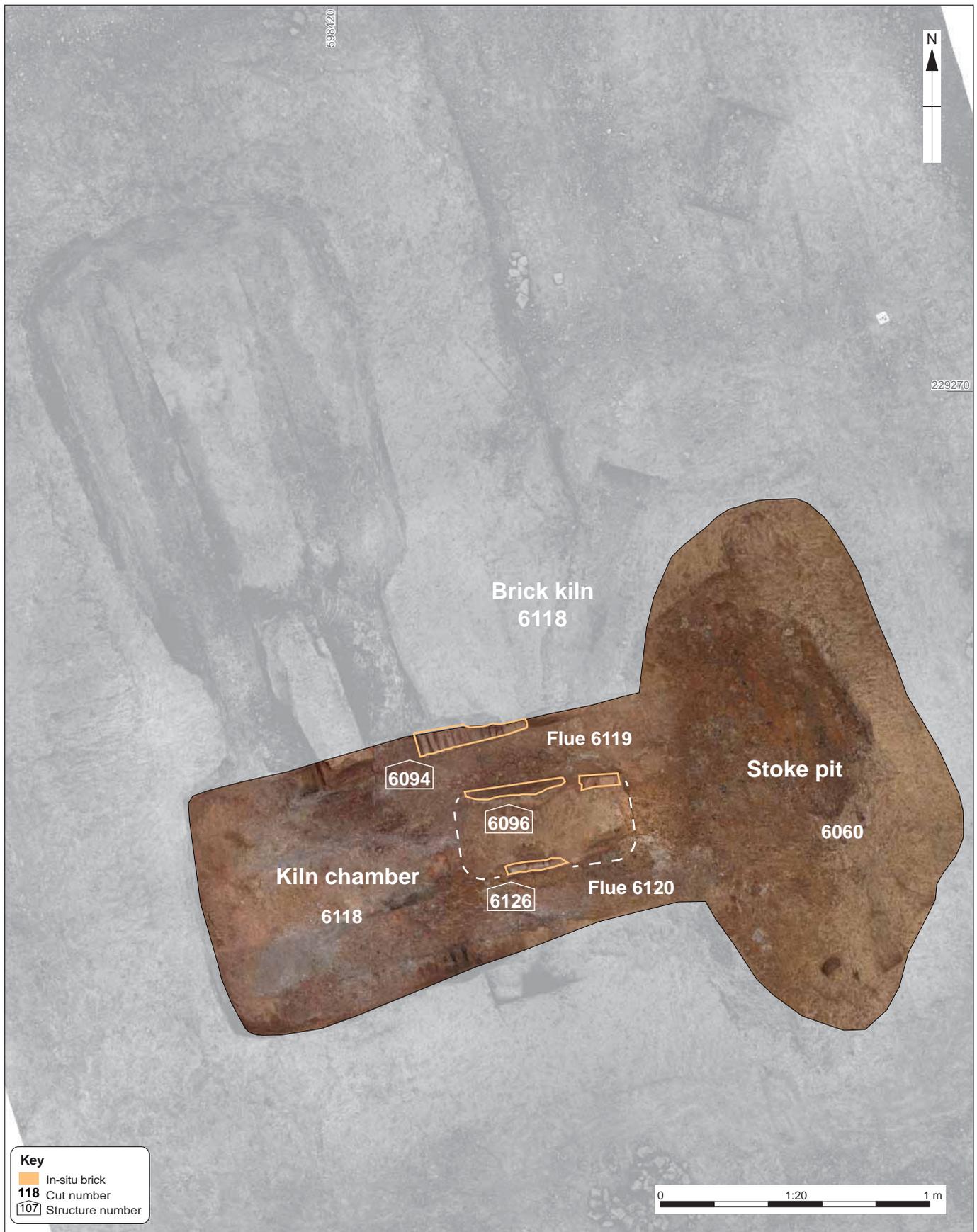


Figure 9a: Area 3: Detail of Period 2 brick kiln 6118

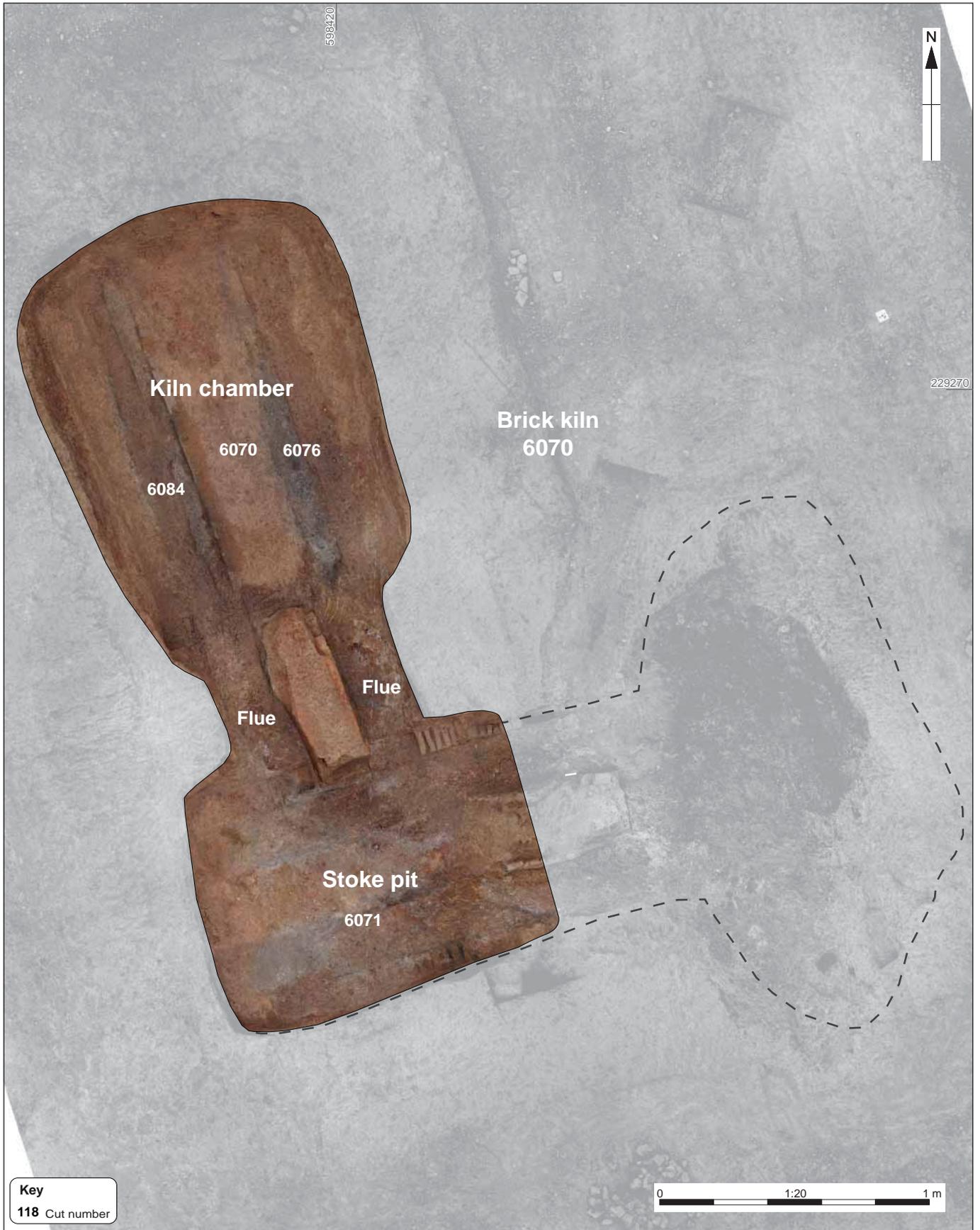


Figure 9b: Area 3: Detail of Period 2 brick kiln 6070

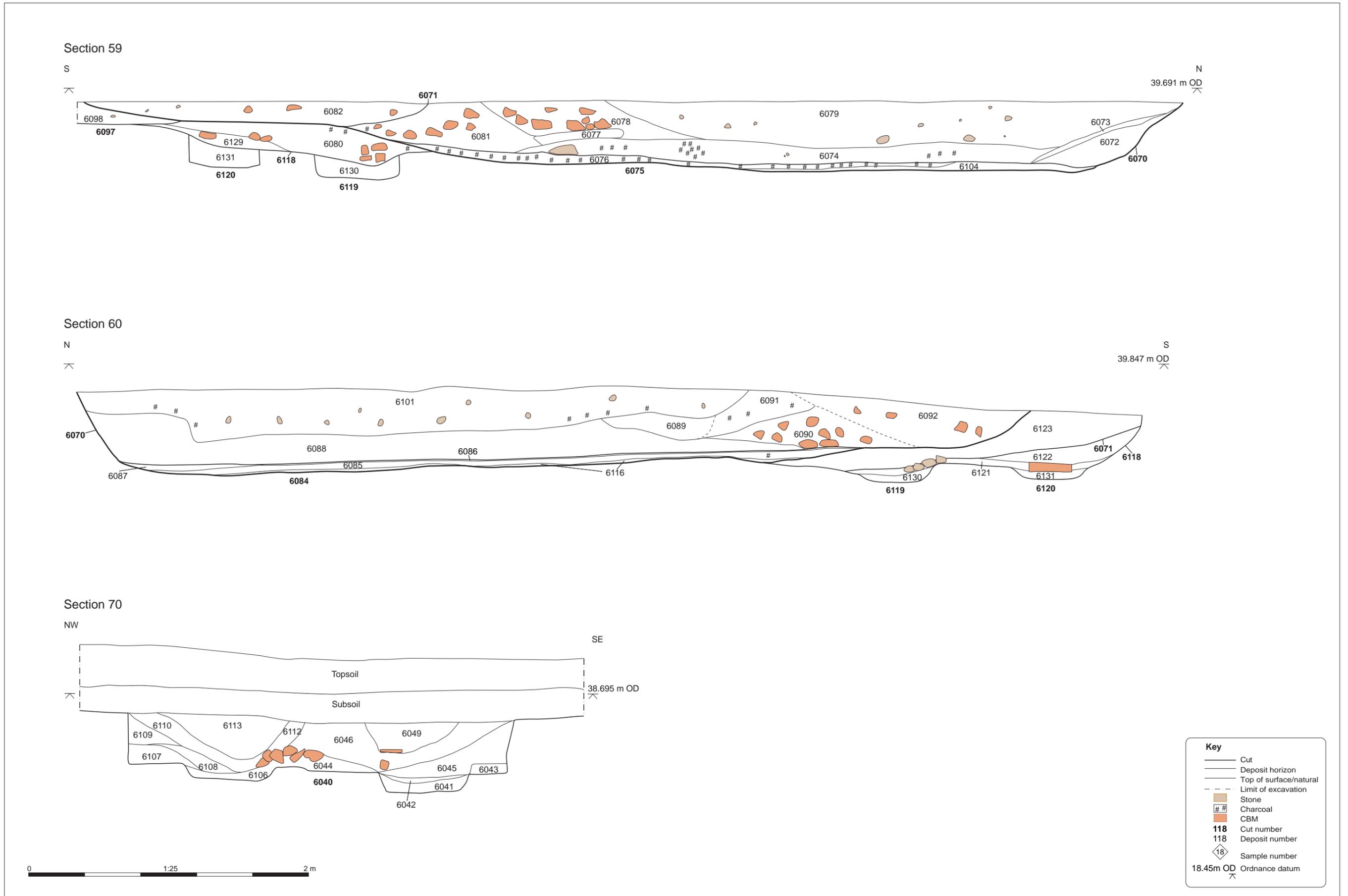


Figure 11: Area 3 selected sections

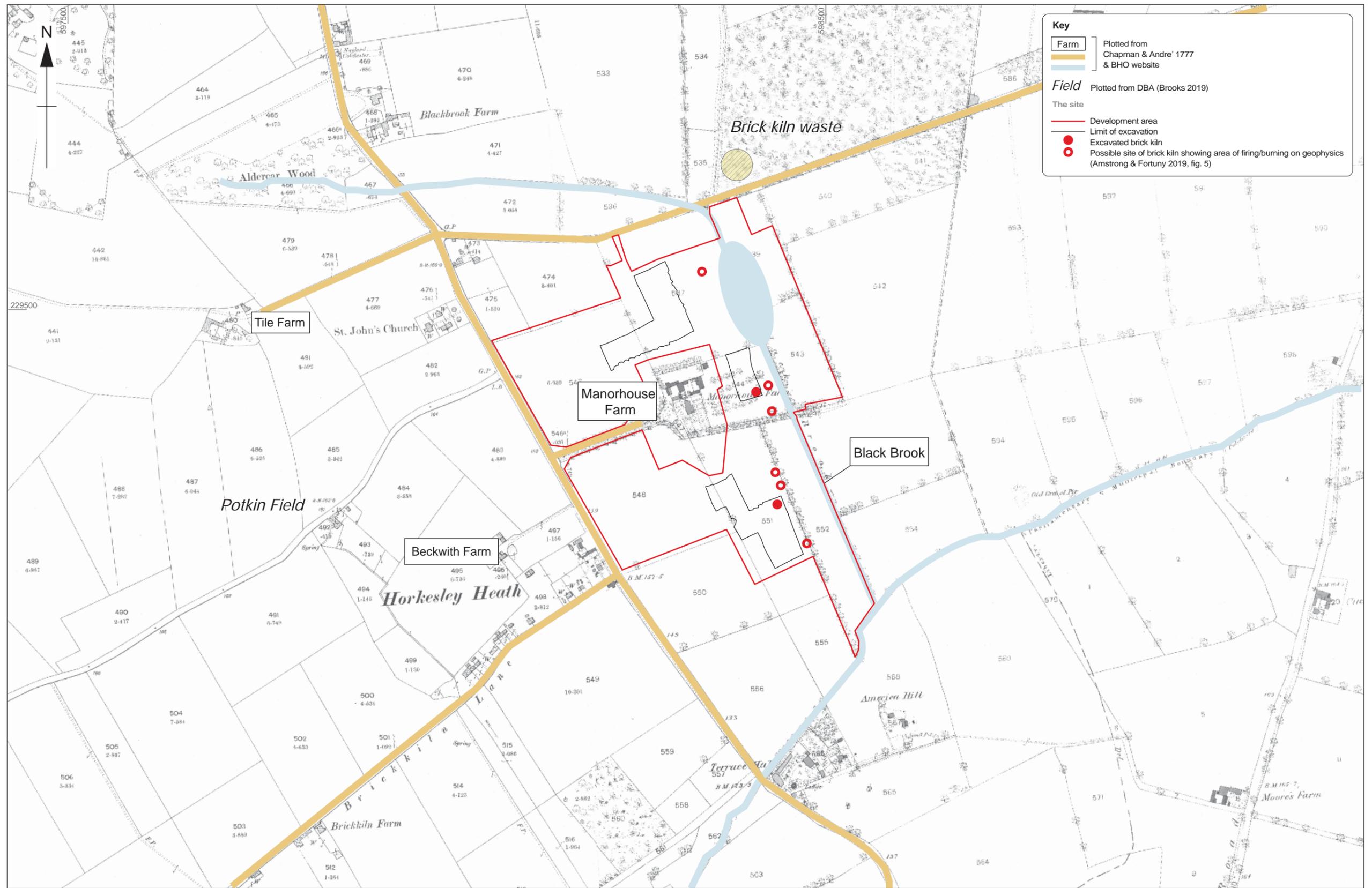


Figure 12: Excavation results and historical map data overlain on 1876 Ordnance Survey map

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Figure 13: Excavations overlain on 1813 map of Great Horkesley

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Plate 1: Period 1 charcoal-rich pit (200), looking north



Plate 2: Period 1 charcoal-rich pit 4023, looking north-west



Plate 3: Period 1 charcoal-rich pit **4004**, looking north



Plate 4: Period 1 charcoal-rich pits **4026** and **4028**, looking north-west



Plate 5: Period 2 partially excavated possible brick kiln **4033**, looking south



Plate 6: Period 2 possible brick kiln **4033**, looking east



Plate 7: Period 2 brick kilns **6118** and **6070**, looking west



Plate 8: Period 2 brick kilns **6118** and **6070**, looking north



Plate 9: Period 2 firing chamber of brick kiln **6040**, looking east



Plate 10: Period 2 partially excavated brick kiln **6040**, looking north



Plate 11: Period 3 ditch 245, looking north



Plate 12: Period 3 Ditch 6022 (6024), looking north



Plate 13: Period 3 ditch 6022 (6038), looking north



Plate 14: Period 3 brick structure 6017, 6018 and 6019, looking north-west



Plate 15: Period 3 brick structure **6017**, looking west



Plate 16: Period 3 brick wall **6008**, looking north



Plate 17: Period 3 pits 254 and 257, looking south



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