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Home Farm Quarry, Laleham: Neolithic, earliest Iron Age and Anglo-Saxon occupation

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Summary

Excavations at Home Farm Quarry, Laleham, revealed occupation dating from the Neolithic, the earliest Iron Age and the early–middle Anglo-Saxon period.

The earliest feature on the site might have been a silted up palaeochannel, which, although it was cut by earliest Iron Age features and contained some earlier prehistoric flint, cannot be precisely dated. A ring ditch, almost entirely devoid of finds, might also date from the Neolithic but its date is, again, uncertain. A small pit which contained Grooved Ware can be more certainly dated to the late Neolithic, and two other features which contained fired clay, worked flint and a single sherd might have belonged to the same period.

The most extensive remains belong an earliest Iron Age field system which was associated with waterholes and a few pits and postholes. A complete decorated Sompting axehead was found in the base of one of the waterholes, below a large deposit of freshly broken pottery.

Activity in the early–middle Anglo-Saxon period is represented by only a few features – three pits and possibly a waterhole and a short stretch of ditch – but charred plant remains including free-threshing wheat which are likely to be Anglo-Saxon in date were widely distributed across the site.

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The project was managed for OA by Ken Welsh. The fieldwork supervisors for OA were Alexandra Latham and Matt Fenn. The Roman pottery was identified by Edward Biddulph and the post-Roman pottery by John Cotter. The site illustrations were drawn by Charles Rousseaux and the finds by Magdalena Wachnik. The environmental analysis was managed by Rebecca Nicholson, the finds by Leigh Allen, and the archive by Nicola Scott.

1 INTRODUCTION

1.1.1 Excavations at Home Farm Quarry, Laleham, prior to sand and gravel extraction, have been ongoing since 1991 (Figs 1 and 2). Archaeological work at the quarry has been undertaken in two main phases. The first was carried out by the Surrey County Archaeological Unit between 1991 and 1999 when, following an evaluation of an area of *c* 58ha, eleven areas were opened for excavation. Archaeological remains dating primarily to the middle and late Bronze Age were discovered, mainly comprising field system ditches and waterholes, cremation burials, pits, a post-built roundhouse, and other postholes (Hayman 2018). Discoveries from other periods included a small number of Neolithic pits (mostly middle Neolithic) and very limited areas of Iron Age and Roman activity.

1.1.2 The second phase of archaeological work was undertaken by Oxford Archaeology between 2013 and 2015 to the south-east of the first phase, on the other side of Laleham Nurseries, centred on TQ 065 683. This consisted of area excavation of *c* 3.8ha, the results of which are reported here. The work was commissioned by Andrew Josephs Associates on behalf of Shepperton Aggregates.

1.1.3 The site (Fig. 3) is flat, lying at 19m OD, and the superficial geology is mapped as clay and silt of the Langley Silt Member, adjacent to gravels and sands of a small band of the Kempton Park Gravel Member and more extensive areas of the Shepperton Gravel Member to the south (BGS 2020). Alluvial deposits related to the River Ash lie a short distance to the north. The natural substrate encountered on the site generally consisted of sand with patches of gravel. The underlying geology is mapped as Claygate Member clays, silts and sands with Bagshot Formation sands to the immediate south.

2 THE SITE

2.1 Introduction

2.1.1 The features revealed by the excavation are described by phase in the following description. Three main phases of activity on the site can be dated with some certainty. The first – the late Neolithic or late Neolithic/early Bronze Age – is represented by three pits, one containing Grooved Ware, perhaps from a single vessel, charred hazelnut shells but not worked flint, and two, less clearly dated, containing fired clay and worked flint but only a single small sherd. The second – the earliest Iron Age – is represented by a ditched field system, waterholes (one of which contained a Sompting axehead) and a few pits and postholes. And the last – the early–middle Anglo-Saxon period – is represented by both a small number of features – three pits and possibly a waterhole and a short stretch of ditch - and by intrusive charred plant remains in earlier features.

2.1.2 There are also two other significant features which cannot be dated so clearly. The first is a palaeochannel which is not well dated but which may have preceded any human activity on the site and is thus described at the beginning of the description. The second is a ring ditch which, although associated with very few finds and thus also poorly dated, is thought most likely to date from the middle Neolithic, and is described after the late Neolithic pits.

2.2 Palaeochannel

2.2.1 A silted up palaeochannel (481) was found running along the northern edge of the eastern part of the site (Figs 4–5). A 2m-wide section was cut across the channel near the eastern edge of the site, which showed that it had a diffuse southern edge and extended beyond the section for at least 10m towards the edge of the excavation where it was truncated by modern disturbance. It was just 0.3m deep and contained a sequence of two light grey-blue gleyed silty clay fills with iron panning below an upper fill of light grey-brown clayey silt.

2.2.2 The only finds recovered from it were eight pieces of worked flint – six flakes, one blade, and one retouched flake – which were recovered from the upper fill. The flint is not chronologically diagnostic but is consistent with a date in the Mesolithic or Neolithic. It was cut by all of archaeological features which lay in the same area but unfortunately they do no give a very clear indication of the date by which the channel had filled. The earliest features in this area may have been the possible late Neolithic/early Bronze Age pits (490 and 492) described below, but their date is uncertain. A number of tree-throw holes (461, 464 and 444) lay along the southern edge of the palaeochannel. Two of these (461 and 444) contained worked flint which could also be Neolithic: an end scraper and an end scraper-knife in tree-throw hole 444 and three flakes and a retouched bladelet in tree-throw hole 461. One of these features (461) also, however, contained six sherds (39g) of earliest Iron Age pottery, and another (464) contained a single earliest Iron Age sherd. It is possible, then, that the flint was residual. The only more certain indication of the date by which the channel had filled is provided by the earliest Iron Age ditches, all of which cut the channel's fills.

2.2.3 Evidence from elsewhere in the middle Thames (Lambrick and Robinson 2009, 30–4) indicates that channels developed in different ways in different areas (in contrast to the more chronologically coherent patterns in the Upper Thames) and thus provide no indication of the date at which the channel may have silted up. What evidence there is at Home Farm Quarry is compatible with the possibility that the channel was still open or only partially filled during the Neolithic at a time when the equally poorly dated ring ditch described below (167) could have been in use. The ring ditch lay just 17m to the south of the palaeochannel. It also, however, leaves open the possibility that the channel had filled much earlier in the Holocene.

2.3 Neolithic and early Bronze Age

2.3.1 The earliest evidence which could be dated with any certainty was a single small late Neolithic pit (834) containing Grooved Ware. Two other pits (492 and 490) which contained fired clay and just two small sherds might date from the late Neolithic or the late Neolithic/early Bronze Age, but the evidence for their date is less certain.

Pit 834

2.3.2 The single certain late Neolithic pit (834) lay in the north-western part of the site (Figs 4 and 6). It was circular with moderately sloping sides and a flat base, and measured 0.80m across and 0.18m deep. Its sole fill (833) contained seven sherds (56g), some refitting, probably from a single Clacton-style Grooved Ware vessel, a little burnt flint, hazelnut shell and charcoal (Table 1).

Pits 490 and 492

2.3.3 A further pit (492) which might also have dated from the late Neolithic was found near the north-eastern corner of the site. It was a long teardrop-shaped feature in plan, measuring 1.60m long and 0.60m wide, with a bowl-shaped profile 0.34m deep. It contained two small grog-tempered sherds (15g) which might be of late Neolithic or late Neolithic/early Bronze Age date and a small group of burnt and often broken worked flint, including a disc scraper and an end scraper-denticulate which are consistent with a late Neolithic or early Bronze Age date (Table 1). It also, however, contained a single probably earliest Iron Age sherd (5g) in a flint-tempered fabric, an untempered sherd (7g) and a single small piece of fired clay (6g) with a moulded surface. The fill was rich in charcoal, a sample of which was from oak and a range of shrubs.

2.3.4 A second pit (490) containing a larger group of similar fired clay (13 fragments/190g) was found around 9m to the south-east of pit 492. This pit was ovate in plan, measured 1.42m by 0.78m across, and had a bowl-shaped profile, 0.13m deep. The fired clay in pit 490 included further fragments with moulded surfaces and could have come from the same source as the fired clay in pit 492. Although the form of the structure or object from which the fired clay came is uncertain they probably derive from oven or hearth lining.

2.3.5 Neither the pottery nor the fired clay gives a clear indication of the date of these pits. Although the small assemblage of flint from pit 492 is consistent with the two grog-tempered sherds in suggesting a late Neolithic or late Neolithic/early Bronze Age date, the flint was all burnt and broken and could have been redeposited. More securely

dated fired clay was recovered from both earliest Iron Age and early–middle Anglo-Saxon contexts and is thus more consistent with a date in those periods. The earliest Iron Age fragments were, however, all recovered from a waterhole (697) some 200m away and none was recovered from the nearby earliest Iron Age ditches. The Anglo-Saxon fired clay was recovered from pits 80m to the south.

Table 1: Summary of finds from the late Neolithic and late Neolithic/early Bronze Age pits

Pit	*Pottery*	*Worked flint*	*Burnt unworked flint*	*Fired clay*	*Charred plant remains*
834	7 sherds (56g) Grooved Ware		+ (unquantified in sample residue)		Hazelnut shell
490				13 frags (192g)	
492	2 sherds (15g) grog-tempered LN or LN/EBA, 1 untempered sherd (7g)	1 disc scraper, 1 end scraper-denticulate, 2 flakes, 1 blade, 1 core fragment, 1 irregular wasted flake	152 frags	1 frag (6g)	1 grain barley; 2 unid. cereal grains

Ring ditch 167

2.3.6 The ring ditch (167) was found near the north-east corner of the site (Figs 4 and 7–9). A total of 13 sections, 1m wide, were excavated at *c* 1m intervals around the feature.

2.3.7 The ring ditch had an internal diameter (ie from the inner edge of the ditch) of 11.3m to 11.4m, and had openings to the south-south-west and the north-north-east. A modern feature, cut roughly through the centre of the ring ditch, had removed the eastern side of the southern opening and the western side of the northern. If there were two openings, they must have been of slightly different sizes, since the southern opening must have been at least 3.9m wide and the northern less than 3.4m. It is possible, however, that the openings were merely the product of truncation. The depth of the ditch varied considerably, from 0.05m to 0.52m, but in most sections was only around 0.1m deep, and it is quite possible that particularly shallow stretches had been truncated away entirely (Table 2).

2.3.8 The variation in depth is difficult to explain. The noticeably deeper sections (3, 45 and 22) were located with no apparent order. It is, however, possible that the ditch was initially cut as a series of separate pits or segments which were later joined together (rather than as a continuous ditch). This way of cutting ditches is characteristic of some small circular Neolithic monuments, including Staines Road Farm, Ashford Prison and Imperial College Sports Ground (G2008), where the segments were joined to form continuous ditches. There are others, such as that at Heathrow (Canham 1978), where the segments remained separate.

2.3.9 In the deeper sections, the ditch was generally U-shaped in section, although in some of the deepest (3 and 45) it had steeper, sometimes asymmetrical sides (Fig. 8). The sandy silt fills, with gravel inclusions, ranged in colour from mid brown to grey- or orange-brown, and were not clearly distinct from the fills of the nearby, probably later field system ditches.

2.3.10 The only finds recovered from the monument were a single pottery sherd, small quantities of burnt, unworked flint, fragments of charred (unidentifiable) grain and a

single charred vetch seed. The single sherd was highly abraded, had no visible temper, and weighed less than 1g. The burnt flint was concentrated on the north-west side of the monument (Table 2) but the quantities were small in all of the interventions, and burnt flint is quite widely distributed in the nearby earliest Iron Age ditches. It is also worth noting that the largest group of worked flint on the site – a group of 15 pieces consisting mostly of flakes but including also two blades, a bladelet and a core rejuvenation flake which could be Neolithic – was recovered from the end of ditch 543, just 2m from the ring ditch.

2.3.11 The charred grain from the ring ditch consisted of a few badly damaged, clinkered fragments which were found with a few *Vicia*/*Lathyrus* seeds. Similarly clinkered plant remains, mixed with what looked like coal, were recovered from other features, and burrowing snails (*Cecilioides acicula*) were found in both of the samples from the ring ditch. Given these facts, and the prevalence of clearly intrusive charred plant remains elsewhere on the site (cf. Pelling *et al*. 2015), it seemed unlikely that they would provide reliable samples for radiocarbon dating.

Table 2: Dimensions of ring ditch 167, with summary of finds

Intervention	*Width (m)*	*Depth (m)*	*Pottery*	*Burnt flint (no. pieces)*	*Burnt flint (weight g)*	*Charred plant remains*
239	0.8	0.08				grain
237	0.9	0.06		2	15	
235	1.0	0.05	1 sherd/1g	3	30	
233	0.7	0.07		3	30	
231	0.6	0.06		1	7	
229	0.7	0.22		7	86	
3	0.9	0.51		1	4	
277	0.6	0.11				vetch seed
275	0.8	0.08		1	4	
273	0.8	0.11				
45	0.7	0.44				
271	0.6	0.18				
22	0.9	0.52				

Features in and around ring ditch 167

2.3.12 Two small pits and postholes (10 and 47) were found within the ring ditch, and two groups of similar features were found just outside it, one (915) by the south-western entrance and the other (914) to the north-west (Fig. 7). A third group of similar features (393) lay around 10m to the west. None of these features contained any finds and their chronological relationship with the ring ditch is, therefore, uncertain. Their orangish brown sandy silt fills were similar to those filling the ring ditch. They were all shallow features, less than 0.40m deep, but their width varied from 0.30m to 1.24m (Table 3).

2.3.13 The southern edge of the ring ditch cut an irregular, probably natural feature (25) which did not contain any finds. A large number of other more or less irregular small features were found to the south and east of the ring ditch, but they were thought to be natural features and were not excavated.

Table 3: Summary of features in and around ring ditch 167

Feature/feature group	*No. features*	*Width (m)*	*Depth (m)*
10	1	0.87	0.40
47	1	0.81	0.40
Group 914	11	0.44-1.24	0.13-0.35
Group 915	4	0.45-1.00	0.17-0.32
Group 393	18	0.30-0.85	0.13-0.26

Other Neolithic or early Bronze Age finds

2.3.14 The only other indications of earlier prehistoric activity were provided by residual pieces of worked flint. These included a chisel arrowhead (in ditch 916), but overall the pieces were widely distributed with no clear concentrations, apart from the group of 15 pieces in ditch 543, close to the ring ditch, mentioned above.

2.4 Earliest Iron Age

2.4.1 Despite the evidence for activity in the middle and late Bronze Age from the SCAU excavations at Home Farm Quarry, the excavations described here revealed no trace of any activity in those periods. They did, however, indicate that activity resumed in the earliest Iron Age, probably in the 8th century BC, when a field system was laid out and a number of other features were cut, including six waterholes, a few pits and a group of postholes (Fig. 10).

2.4.2 Whilst evidence for the field system was confined to the eastern side of the site, all of the waterholes were found on the western side. It is likely that this distribution simply reflects the fact that the western side of the site had suffered more severely from truncation than the eastern. No pits or postholes were found in the western half of the site, and the few field system ditches which ran from the eastern side of the site towards the western were not found in the western part. It is important to stress, however, that even the eastern part of the site had suffered from truncation. Many of the field system ditches in this part of the site were shallow features which could be traced only over short distances, and it is likely that many of them were originally longer and had been only partially preserved.

2.4.3 The division between the western and eastern parts of the site corresponds roughly to the parish boundary between Littleton and Laleham (which was marked by a ditch and a line of postholes: see below and Fig. 10), and differences in land use on either side of that boundary could explain the different levels of truncation. The differences in the evidence from the two halves of the site need not, then, have corresponded to differences in land use in the earliest Iron Age.

Field system

2.4.4 The field system ditches have been dated on the basis of the pottery they contained which, whilst present in only 17 of the ditches (out of a total of 47), was widely distributed (Table 4). Ditches without pottery have been assigned to the field system based on their spatial relationships with the dated ditches. Some caution is, however, warranted since the parish boundary (which is marked on the OS map of 1888; Fig. 10) followed the same alignment as the field system. Whilst it is, therefore, impossible to be absolutely certain that some of the other ditches without finds were not also later in date, the field system has a roughly rectilinear layout, and its overall form is quite clearly defined.

2.4.5 A small number of finds were also recovered from the field system ditches which might post-date its original use. None of these, however, were very clearly dated and were found in contexts which contain earliest Iron Age pottery. A fragment of fired clay found in ditch 216 which might have been from a late Iron Age or Roman oven plate was found with three earliest Iron Age sherds. An iron nail or stud head was found in ditch 215 and a fragment of iron was also recovered from ditch 542. Iron is rare in earliest and early Iron Age contexts but can be paralleled at a number of sites both nearby and elsewhere in the Thames Valley (Davies 2018, 460–2). In both cases at Home Farm it was found with earliest Iron Age pottery. As is discussed further below, a large proportion of the charred plant remains from the earliest Iron Age features also appears to be intrusive.

2.4.6 On the basis of the stratigraphy, many of the field system ditches can be divided into two phases. It is, however, impossible to be certain that these two phases were strictly contemporary in different areas of the site, and stratigraphically unrelated features cannot be assigned to a phase. Whilst it is, therefore, impossible to give a clear overall narrative describing how the field system changed over time, many of the Phase 2 ditches followed the alignments of earlier ditches and there is little indication that the field system underwent any very significant modifications.

The central area

2.4.7 The most prominent features were a NE–SW aligned western trackway running through the centre of the site (defined by unphased ditch 907 and Phase 1 ditches 905=903), a northern trackway running parallel to the River Ash along the north-eastern edge of the site (defined by Phase 1 ditches 540/541 and 543 and perhaps 904), and a slightly kinked southern boundary (defined by Phase 1 ditches 916, 217, 215 and 909). The western trackway may have turned at roughly 90° to run for a short distance along the southern boundary (where its northern side was defined by ditches 919 and 199).

2.4.8 Many of these boundaries were redefined in the same, or roughly the same location in Phase 2: the western trackway by ditches 901, 902, 906 and perhaps also 908 (although this appears to continue further to the south than the Phase 1 ditches) and the southern boundary by ditches 216 and 917. There were more substantial changes to the northern trackway which are described further below.

2.4.9 Together these trackways and ditches defined a central enclosed area which measured around 95m N–S by over 150m E–W. Short stretches of ditch running roughly N–S within this large enclosure suggest that it was subdivided internally. One such internal

division, defined by ditch 206 which runs up to the kink in the southern boundary, would have defined a field around 60m wide, but other short stretches of similarly aligned ditches (153, 186 and 205) suggest that there may have been other subdivisions.

2.4.10 It is clear that this central enclosure continued to the east and that further enclosures, which lay only partially within the excavated area, extended to the north, south and west.

Enclosures to the north and changes to the northern trackway

2.4.11 To the north, a N–S aligned Phase 1 ditch (537=539) indicates that there were further enclosures running towards the River Ash (which may have formed the northern boundary of any such enclosures).

2.4.12 As is discussed further below, the E–W aligned Phase 1 ditches in this area (especially ditch 543 but also 540 and its recut 541) were notably larger than those elsewhere. The more substantial Phase 1 ditches (543 and 540/541) were, however, replaced by smaller features in the second phase of the field system. This was one area of the field system where significant changes were made. A new E–W boundary, defined by ditches 535 and 536, was cut around 10m to the north of the Phase 1 ditches, and a new set of ditches (537, 538 and 539) was created which cut across the trackway defined by ditches 543 and 540/541 and may have defined a further trackway which, however, could be traced running south for just 20m.

Enclosures to the south

2.4.13 Few features were found to the south of the central enclosure (ie to the south of ditches 909, 215, 216, 217, 917 and 916), but two stretches of ditch (174 and 185) did extend to the south roughly at right angles to this boundary and thus suggest that further enclosures existed to the south. The first of these ditches (174) was aligned with another stretch which lay to the north (186).

Enclosures to the west

2.4.14 A number of ditches also extended to the west from the western trackway defined by ditches 905=903 and 907. On the northern side of the site, ditches 912 and 913 may have formed a rectangular enclosure around 30m wide with two further ditches (also numbered 912 and 913) which ran parallel to the trackway. Both these and the trackway ditches extended only around 40m to the north, to the point where the trackway along the northern edge of the site might have been expected to run. Given the large size of some of the ditches defining this northern trackway, it seems unlikely that ditches in this area have been completely removed by truncation, and it is, instead, possible that rather than continuing in a straight line the trackway turned to the north, to follow the course of the river.

2.4.15 Around 60m south of ditches 912 and 913, the southern boundary (defined by ditch 909) also extended to the east of the western trackway, again indicating that further enclosures lay to the west. A Phase 2 ditch (908) was added in this area which ran parallel to the western trackway before it too turned to the west.

Ditch dimensions

2.4.16 The field system ditches varied considerably in size (Fig. 11). As has been noted above, the largest ditches were located along the Phase 1 northern trackway. There was a notable discrepancy in the size of these ditches, but ditch 543 – which formed the southern side of the trackway – stood out from all of the other ditches with a mean width of 1.66m and a mean depth of 0.66m. Similar discrepancies in the size of the ditches have been noted by Poulton *et al*. (2017, 266) at Hengrove Farm where they suggest that the larger ditch marked the edge of the field and the smaller just the edge of the trackway. The arrangement at Home Farm is peculiar, however, since the larger ditch (543) only overlaps with the smaller ditches (540 and 541) for a distance of around 16m, meaning that both ditches would have formed the edge of the central area in different places. The reason for the discrepancy in the size of the ditches is unclear.

2.4.17 It is possible that the generally greater size of the northern ditches partly reflects the fact that the north-eastern corner of the site was less severely truncated than other areas. Notably larger numbers of pits and postholes were preserved in this area than elsewhere in the site. It is, however, also possible that the larger size of ditches 543 and 540/541 reflects the fact that they marked a significant boundary separating the land adjacent to the river from the land to the south. The river itself might have marked a significant social boundary, and whilst the location of larger ditches close to the river might reflect the existence of such a boundary, there may also have been more practical reasons for placing larger ditches there. It would have been difficult to prevent the movement of livestock (especially cattle or horses) up and down the river, and a more substantial boundary at this location could have been intended to prevent them escaping.

2.4.18 Analysis of the dimensions of the ditches also suggests that some of the differences in size reflect the role of the ditches. It is noticeable that some of the ditches defining the western trackway were also quite large, and that the internal subdivisions in the central area and running to the south and west were amongst the smaller ditches. Whilst the trackway ditches tend to be amongst the largest ditches and the internal subdivisions amongst the smallest, there is, nonetheless, considerable overlap in the size of the ditches of different types. Most noticeable is the fact that the ditches which formed the northernmost boundary in Phase 2, in the area of the northern trackway (535 and 536), were amongst the smallest ditches.

Table 4: Summary of finds from the earliest Iron Age features

Area/feature type	*Group*	*Pot (no. sherds)*	*Pot (weight g)*	*Mean sherd weight (g)*	*Animal bone (no. frags)*	*Burnt unworked flint (weight g)*	*Worked flint (no. pieces)*	*Charred plant remains*	*Other finds*
North									
Ditches	535						2		
	536	2	11	6	1		2		
	537					103	1		
	538	5	16	3		80	2		
	539	1	6	6		51	2		
	540	2	19	10	1	48	1		
	541	11	50	5	18	16	3		
	542	5	21	4	4	30			
	543	17	95	6	4	110	18		
	544	2	6	3					
Central									
Ditches	153						2		
	205	2	8	4			1		
Postholes	305	4	6	2					
South									
Ditches	185	3	5	2		21			
	215	2	10	5	12	286	3		
	216	3	4	1		152	1		
	217					8	1		
	916	1	7	7			1	+++	
	917	9	28	3		15	1		
Pits	101	5	13	3			3	++	

Area/feature type	*Group*	*Pot (no. sherds)*	*Pot (weight g)*	*Mean sherd weight (g)*	*Animal bone (no. frags)*	*Burnt unworked flint (weight g)*	*Worked flint (no. pieces)*	*Charred plant remains*	*Other finds*
	123	2	7	4				+	
West									
Ditches	905				79			++	
	907	1	3	3					
	908	3	40	13					
Pits	707	2	5	3				++	
	778	2	72	36					
South-west									
Waterholes	622	32	521	16				+	
	863	24	1228	51					Sompting axehead
	677	4	44	11					
	679	398	4755	12	55 (mostly calcined)			++	Fired clay (1137 g) Lodsworth stone quern fragments
	836	6	77	13					
	841	93	1529	16				+	

Finds from the field system ditches

2.4.19 The quantities of finds from the field system ditches are small and they are quite highly fragmented. There is, nonetheless, some spatial patterning in their distribution.

2.4.20 Pottery was the most widely distributed material and was recovered from ditches in all areas of the field system. The largest assemblages were generally in the larger ditches (notably the large northern ditches: 543, 541 and 540), but very few contexts contained more than five sherds (Table 4; see Fig. 20), and the correlation is far from precise.

2.4.21 Other categories of finds had more limited distributions. Burnt, unworked flint, for example, was recovered only from the northern and southern ditches. It was spread quite widely in the northern ditches, but was focused predominantly at the western end of the southern boundary (in ditches 215 and 216). The rare pieces of worked flint had a similar distribution. Much of the worked flint may have been residual from earlier prehistoric activity (as some pieces, such as a chisel arrowhead, clearly were). Most noticeably, the largest group of worked flint, which amounted to no more than 15 pieces, was found in the western end of ditch 543, just 2m from the potentially Neolithic ring ditch (167).

2.4.22 It is possible that the distribution of burnt unworked flint also reflects the presence of earlier activity. Burnt unworked flint is, however, common on later prehistoric sites (eg Seager Thomas 2010; Cunliffe, chap. 16) and it is also quite possible that it was contemporary with the field system ditches.

2.4.23 The distribution of the limited quantities of animal bone was also limited. The largest deposit was recovered from one of the western ditches (905), amounting to 95 fragments; many of these were too small to be identified, but they included fragments of cattle skull, horncore, mandible, and pelvis. Apart from a small group of cattle tooth fragments in one of the southern ditches (215), the remaining animal bone was all recovered from the northern ditches (Table 4). Again, however, the quantities were very small.

2.4.24 The distribution of charred plant remains reflects the locations from which samples were taken, and the apparent focus on the southern ditches does not necessarily reflect the original distribution of charred plant remains.

Features within the field system

2.4.25 Only a small number of other features can be dated to the same period as the field system ditch, and they were distributed in four areas: a small group of postholes in the central area, a pair of pits near the southern edge of the site, two isolated pits near the western trackway, and a series of waterholes, spread over the western side of the site.

Posthole group 305

2.4.26 A small cluster of 14 postholes, spread over a small area of *c* 3.5m by 4.0m, was found in the central area, close to the eastern edge of the site. Three of the postholes in this group contained earliest Iron Age pottery, but this amounted to just four small

fragments with a combined weight of only 6g. A second group of postholes (369), consisting of 19 postholes in an area around 7m by 6m, lay 4m away (Fig. 14), but the only finds from this group were post-medieval or modern pottery and tile (which were recovered from four of the postholes). The date of individual postholes is, therefore, uncertain, but the distribution of the finds suggest that Group 305 may date predominantly from the earliest Iron Age whilst Group 369 was much more recent in date.

2.4.27 The postholes varied considerably in size. The largest in Group 305 was 0.65m across and the smallest just 0.15m. They were all shallow features, the deepest only 0.10m deep and the shallowest only 0.03m. The range for the features in Group 369 was similar. They varied from 0.13m to 0.45m wide, and from 0.04m to 0.22m deep. None of the postholes in either group defined any easily recognisable regular pattern which might suggest the kind of structure to which they were related, but given how shallow they were, it is possible that other postholes, which might have given a clearer picture of any related structures, have been completely truncated away.

Pits

2.4.28 Of the four pits which could be dated to the earliest Iron Age, two (101 and 123) formed a pair, just 1.6m apart, near the southern edge of the excavation. The other two were isolated features, one (778) near the northern end of the western trackway, the other (707) near its southern end.

2.4.29 They were all shallow features (Table 5), around 0.30m or less deep, and varied slightly in width, from 1.55 to 0.97m.

Table 5: Summary of the earliest Iron Age pits

Pit	*Length (m)*	*Width (m)*	*Depth (m)*	*Fills*
101	1.52	1.13	0.28	2
123	1.55	1.11	0.26	1
707	1.40	0.75	0.30	2
778	0.97	0.97	0.18	1
493	2.64	1.20	0.08	1

2.4.30 The only finds recovered from them were small numbers of earliest Iron Age sherds, small quantities of charred plant remains, and in one case, three flint flakes and a piece of burnt unworked flint. A further pit (493), which cut the fills of the palaeochannel (481) and contained only burnt unworked flint and charcoal, might also date from the earliest Iron Age, given the wide distribution of burnt flint in the nearby earliest Iron Age ditches.

2.4.31 One further pit (700) was cut by both Phase 1 and Phase 2 ditches (905 and 908) which defined the western trackway. The pit was a small, oval feature with a bowl-shaped profile, 0.95m wide and 0.23m deep. Whilst it must predate the laying out of the field system in this area, the only material recovered from it was oak charcoal and its date is otherwise unknown.

2.4.32 It is possible that some of the other 28 isolated pits which contained no finds also dated to the earliest Iron Age, but given the presence of Anglo-Saxon and modern features, it is equally possible that they date from other periods.

Waterholes

2.4.33 The most striking features were six larger pits which have been interpreted as waterholes. They were distributed widely across the western side of the site, at intervals of 40 to 70m (Fig. 10). All the waterholes were bottomed and half of the contents excavated, except for waterhole 863 which was fully excavated.

2.4.34 The interpretation of all of these features as waterholes is not entirely certain. All of them had grey, gleyed fills, and three (622, 836 and 863) were waterlogged, but none contained preserved organic material. They were much larger features than the pits described above, measuring from 2.2m to 6.2m across, but they were not particularly deep (Table 6). The deepest had a depth of 1.7m, but the shallowest was only 0.72m deep (Fig. 12).

Table 6: Summary of the waterholes

Waterhole	*Diameter (m)*	*Depth (m)*	*Profile*	*Fills*	*Comment*
Earliest Iron Age					
622	3.6 x 3.3	1.70	Stepped sides, flat base	3	Roundwood in primary fill.
863	2.9 x 2.6	1.30	Stepped sides, flat base with sump	7	Axehead on base (864); waterlogged; cut by pit 871
836	2.2 x 2.2	1.30	Steep sides, concave base with sump	4	Waterlogged
841	2.4 x 2.4	1.05	Steep sides, flat base	7	Charcoal-rich middle fill (847)
677	6.2 x 4.9	0.92	Bowl-shaped, flat base	2	Cut by waterhole 679
679	3.2 x 2.9	0.72	Bowl-shaped, concave base	5	Fired clay in lower fill (681), covered by charcoal-rich middle fill (682) which also contained quern fragments; cut waterhole 677
Anglo-Saxon					
760	4.0 x 3.6	0.70	Bowl-shaped, flat base	3	Roman tile fragment in upper fill; Anglo-Saxon charred plant remains in basal fill

2.4.35 The differences in depth corresponded in part to differences in profile and width (Fig. 12). The two shallowest features (677 and 679), with depths of 0.72 and 0.92m, had bowl-shaped profiles. In contrast, the deepest feature (622), with a depth of 1.7m, had a stepped profile, as did one of the other features (863) with a depth of 1.3m. The remaining two features (836 and 841), with depths of 1.3m and 1.05m, had steep, more or less vertical sides. These two features were narrower than the others, with widths of 2.2 to 2.4m. The remaining features had widths of between 2.9 and 3.6m, with the exception of one of the shallow features (677) which was much wider (6.2m by 4.9m). This latter feature (677) was also irregular in plan, in contrast to the other features which were all roughly circular in plan.

2.4.36 One of the stepped features (863) had a small sump, 0.2m wide and 0.2m deep, cut into its base, and one of the vertical-sided features (836) had a slight V-shaped depression in middle of its base.

Sompting axehead and other finds from the waterholes

2.4.37 The quantities of finds from the waterholes varied significantly. Two of them (677 and 836) contained no finds other than small groups of pottery, which were no larger or more fragmented than those from the ditches and pits. The remaining four waterholes (679, 841, 622 and 863), however, contained the largest assemblages of pottery from the site, which was also often less fragmented than the finds from other contexts on the site and appeared to have been freshly broken prior to deposition (Figs 13, 16 and 17). Much of this pottery was concentrated in particular contexts (Tables 4 and 6). In waterholes 841 and 863, for example, the pottery was all recovered from a single (middle) fill. Only in waterhole 679 did large groups of pottery occur in all of the fills.

2.4.38 The other finds from these waterholes also contrast markedly with the finds from other features. Burnt unworked and worked flint was absent, as was animal bone, with the notable exception of a group of mostly calcined fragments from waterhole 679. This was the only calcined or burnt animal bone recovered from the site.

2.4.39 Two of the waterholes did, however, contain a small range of other finds which were not recovered from the other features. The most striking of these was a complete socketed axehead of Sompting type, variant Cardiff II, in pristine condition, which was found in waterhole 863 (Figs 13 and 18). Its context, at the base of the waterhole (overlaid by fill 864), suggests that it was deposited soon after the waterhole was cut (or cleaned out), before any silt had accumulated.

2.4.40 Waterhole 679 contained a large deposit of fired clay. Although very fragmented, some of the fragments had moulded surfaces and may have come from the lining of an oven. Almost all of this (26 fragments/1126g) was concentrated in the lowermost fill (680) of the waterhole, although four fragments (11g) were recovered from the layer above (682) which also contained the calcined animal bone mentioned above. Layer 682 also contained three joining fragments from a quern made of Lodsworth stone.

2.4.41 Small quantities of charred plant remains were also recovered from three of the waterholes (622, 679 and 841). Analysis of two samples from waterhole 679 showed that this material included free-threshing wheat, which suggests that some of this may have been intrusive, as does the presence of uncharred seeds (cf. Pelling *et al.* 2015). It also, however, contained a few emmer or spelt glume bases and it is quite possible that some of the other unidentified charred grain and the rare weed seeds were contemporary with the filling of the waterhole.

2.5 Roman period

2.5.1 Following the earliest Iron Age use of the site, there is little evidence for activity until the Anglo-Saxon period. A fragment of tile, a single pottery sherd and a fired clay slab provide the only evidence for activity which might date to the Roman period. The single, small, highly abraded Roman sherd was recovered from one of the earliest Iron Age ditches (185) which extended south from the southern boundary. The ditch also contained two earliest Iron Age sherds. The fired clay slab may have been part of a

hearth or oven plate which was probably of Roman or late Iron Age date. It was recovered from ditch 216 which also contained three earliest Iron Age sherds. The fragment of tile was recovered from the uppermost fill of waterhole 760 which may be of early–middle Anglo-Saxon date, and, if the tile was not a Roman artefact re-used in the Anglo-Saxon period, is likely to have been residual.

2.6 Early–middle Anglo-Saxon period

2.6.1 Although there is clearer evidence for activity on the site in the early–middle Anglo-Saxon period, the only features that can be assigned to this phase are three pits (84, 112 and 113) and perhaps a short stretch of ditch (208) in the eastern half of the site and a waterhole (760) in the western half (Fig. 14). The free-threshing wheat and rye recovered from earlier features may, however, also derive from Anglo-Saxon activity, and could be taken to indicate, alongside the paucity of features, that the area was peripheral to the main foci settlement in this period (and perhaps that at Shepperton in particular) and was used primarily for agriculture.

2.6.2 The dating evidence for these features is very limited. The only Anglo-Saxon pottery consisted of a single organic-tempered body sherd from pit 84 and a second similar sherd recovered from a subsoil context. Pit 112 has been assigned to this period because it contained just under half of a subspherical (bun-shaped) loomweight (Fig. 19) as well as other fragments which could be from loomweights and a few fragments which could be from an oven or furnace. The date of pit 113 is less certain, but it contained a large assemblage of charred plant remains comparable to those from the other pits assigned to this phase and fragments of fired clay similar to those in pit 112, as well as fragments of Mayen lava, probably from a quern, which could be of Anglo-Saxon date. The pits were all notably deeper than the earliest Iron Age pits, with depths of between 0.58m and 0.90m, but were similar in width (Table 7).

Table 7: Summary of the Anglo-Saxon pits

Pit	*Width (m)*	*Depth (m)*	*Profile*	*Finds*
84	1.00	0.58	steep sides, flat base	1 sherd early-middle Anglo-Saxon pottery
112	1.85 x 1.58	0.90	steep sides, rounded base	loomweight frag; fired clay; 2 earliest Iron Age sherds
113	1.35 x 1.08	0.75	bowl-shaped	Mayen lava frags; fired clay

2.6.3 The ditch and the waterhole have been assigned to this period purely on the basis of the relatively large assemblages of charred plant remains they contain compared to the earliest Iron Age ditches and waterholes. In both cases the charred plant remains included significant proportions of free threshing wheat, oats, rye, hulled barley and weed seeds including *Anthemis cotula* which are consistent with an Anglo-Saxon date. Similar remains, regarded as intrusive, were also recovered from some of the earliest Iron Age features but the quantities recovered from these features were significantly lower than those from ditch 208 and waterhole 760. Clearly, however, the attribution of these features to the Anglo-Saxon period is uncertain.

2.6.4 The waterhole (760) was similar in both size and profile to the shallower, bowl-shaped earliest Iron Age waterholes (677 and 679; see Table 6) and like them it contained grey,

gleyed fills in which, in this case, black manganese staining was noted. There is, however, some further evidence which suggests that it post-dated the field system. It cut one of the earliest Iron Age field system ditches (913) which extended westwards from the western trackway and contained a single fragment of Roman tile in its uppermost fill. The absence of earliest Iron Age pottery from the waterhole is also notable, and the charred plant remains were recovered from the lowermost fill (761). Unlike the earliest Iron Age waterholes it also contained a small group of animal bone in its lowermost fill.

2.6.5 Ditch 208 lay close to the Anglo-Saxon pits. Other than the charred plant remains, the only finds recovered from it were two fragments of cattle humerus. The alignment of the ditch does not deviate significantly from that of the ditches assigned to the earliest Iron Age, but does differ slightly from that of the adjacent ditch (206) which follows the alignment of the earliest Iron Age ditches more closely (and which appears to be aligned on the slight bend in the southern boundary). Measuring 0.95m across and 0.26m deep, the ditch was also larger than any of the earliest Iron Age ditches which formed subdivisions, although its dimensions were well within the range of the earliest Iron Age boundary and trackway ditches.

2.7 Post-medieval period

2.7.1 As has been noted above, the parish boundary between Littleton and Laleham crosses through the central part of the site on a NNE–SSW alignment, and a track adjacent to this boundary is marked on the 1888 OS map. A ditch and row of postholes corresponded to this feature. Another ditch on the same alignment *c* 80m to the east corresponds to a field boundary on the same map.

2.7.2 Whilst the fact that these post-medieval features and the earliest Iron Age ditches share the same alignments raises the possibility that some of the ditches which lack finds but which have been attributed to the earliest Iron Age field system might, in fact, have been much later features, and, indeed, that the pottery in some of the other ditches might be residual, the absence of medieval and post-medieval material in any of the ditches suggests activity in this phase was limited.

2.7.3 As has been noted above (see Posthole Group 305), Posthole Group 369 may have been post-medieval or modern. A small rectangular cut, 2.7m by 1.4m across and 0.1m deep which was filled with modern building debris and animal bone was also found. A partially articulated cattle burial found in shallow oval pit is also likely to have been recent in date, although no direct dating evidence was found.

3 FINDS AND ENVIRONMENTAL EVIDENCE

3.1 Pottery, by Alex Davies

3.1.1 The excavations produced 7 sherds (56g) of late Neolithic Grooved Ware, 2 sherds (15g) of late Neolithic or early Bronze Age pottery, and 663 sherds (8688g) of earliest Iron Age pottery. A single sherd (2g) of Roman pottery, two sherds (34g) of early Anglo-Saxon pottery and two sherds from post-medieval flowerpots were also found.

Late Neolithic and early Bronze Age

3.1.2 Of the seven sherds of Grooved Ware from pit 834, four could be refitted, and it is likely that they all derive from a single vessel. The refitting sherds were decorated with a repeating vertical zig-zag chevron pattern set below a series of horizontal lines (Fig. 16.1). Another sherd, probably from just below the rim, was decorated with horizontal lines on the inner and outer surfaces. The decoration belongs most comfortably to the Clacton style. The fabric contained moderately frequent well-sorted, fine grog and quartz sand.

3.1.3 A pit containing possible Grooved Ware was found during the previous (SCAU) excavations at Home Farm (Cotton 2018, 50). Sites containing Grooved Ware in Surrey and West London have been discussed by Cotton *et al*. (in Williams 2017, 115) and Leivers (2010, 18–19). They tend to belong to the Durrington Walls style, but vessels of Clacton style have also been found. Material from Prospect Park, 10km to the north of Home Farm, in particular shows similarities to the vessel from pit 834 (Laidlaw 1996, fig. 22).

3.1.4 Pit 492 produced two plain sherds of coarse grog-tempered pottery, dated to the late Neolithic or early Bronze Age on the basis of the fabric. An earliest Iron Age sherd was found in the same fill.

Earliest Iron Age

3.1.5 The earliest Iron Age assemblage is an important addition to the regional late Bronze Age–early Iron Age sequence. It is thought that the assemblage as a whole dates to the early or middle part of the 8th century BC, probably after the bulk of the material from Runnymede (Longley 1991; Needham 1996), and before that from the ultimate fill of ditch F117 at Petters Sports Field (O'Connell 1986, 60–73).

Fabrics

3.1.6 Seven fabrics were defined (Table 8). Six contained calcined flint in varying abundancies and grades, and three of these also contained quartz sand. One fabric consisted of sand without flint (Qs), but this was present in only minor quantities. Just less than half of the pottery contained sand.

Forms

3.1.7 Sixteen vessels survived well enough to define their form, and the forms of 11 further vessels could be estimated. Eight different types were identified (Table 9). These can be placed into a more general typological scheme that includes late Bronze Age and Iron Age material, allowing for comparison between different sites (Davies in prep.). The identified forms at Home Farm include two vessels with incurving rims, at least

one shouldered jar with an upright neck, at least two straight-sided vessels with out-turned necks, at least four carinated jars, six biconical vessels (three jars and three bowls), and a closed globular jar. Shouldered jars with outcurving necks were not identified with certainty, but six possible examples were seen.

Table 8: Quantification of the pottery by fabric

Fabric	*Sherds*	*Weight (g)*	*Vessels*	*Description*
Fl1	21 3%	271 3%	11 8%	Coarse flint. Moderately common. 'Coarse'
Fl2	338 51%	4475 51%	41 30%	Medium-grade flint. Usually very common but can be sparse. 'Coarse'
Fl3	46 7%	494 6%	14 10%	Very fine flint. Rare to sparse frequency. 'Fine'
FlQs1	37 6%	521 6%	12 9%	Medium-grade flint (very common) and quartz sand (sparse). 'Coarse'
FlQs2	161 24%	2215 26%	39 29%	Fine flint (moderate frequency) and quartz sand (sparse) 'Fine'
QsFl	43 7%	548 6%	9 7%	Fine quartz sand (usually sparse) and flint (rare frequency) 'Fine'
Qs	16 2%	152 2%	10 7%	Quartz sand. Usually medium grade, moderate frequency 'Fine'
None	1 0.2%	12 0.1%	1 1%	No visible inclusions
Total containing sand	257 39%	3436 40%	70 51%	
TOTAL	663	8688	137	

3.1.8 In terms of Barrett's (1980) functional scheme, coarse jars (Class I) were the most common (44%), with fine jars (Class II) and fine bowls (Class IV) equally represented (25%), whereas coarse bowls (Class III) were rare (6%), and cups (Class V) absent.

3.1.9 The rim diameters of 11 vessels could be measured. The smallest were a carinated jar and a biconical jar, both with diameters of 180mm. Other carinated jars had diameters of 200mm and 300mm. The largest measurable vessel was a closed globular jar with a diameter of 320mm. Most of the vessels clustered in the smaller part of the range.

Decoration, surface treatment and use

3.1.10 Just three sherds were decorated, all from different vessels. The decoration on two of them comprised single horizontal lines, and the overall pattern could not be defined. The third had a circular impression. A fourth vessel had vertical scratched marks which is considered a surface treatment rather than formal decoration (Fig. 17.13). Surprisingly, there were no instances of fingertip or fingernail/slash impressions.

3.1.11 Two vessels were burnished: a possible shouldered jar with outcurving neck, and a possible carinated vessel. Five vessels were lightly burnished, including a vessel with an incurving rim and a possible shouldered jar with outcurving neck. Four bases (19% of the total number of bases) were covered in fine flint chips.

3.1.12 Carbonised residue was noted on seven vessels. Three were only on the external surface of the vessel, two were external and internal, and two were internal. The forms of four of these could be demonstrated or estimated (Table 9).

Table 9: Correlations between ceramic fabrics and forms

Form	*Fl2*	*Fl3*	*FlQs1*	*FlQs2*	*QsFl*	*Qs*	*Total*
Vessel with incurving rim (Figs 16.4 and 16.7, v.64 and v.98)		••					2
Shouldered jar with outcurving neck (v.65, eg Longley 1991, fig. 78.P35)	???+	?	?		?		(6?)
Shouldered jar with upright neck (Fig. 17.11, v.144)	•		?	?			1(2?)
Straight-sided vessel with out-turned neck (Fig. 16.5, v.79; eg Longley 1991, fig. 93.P304; 124)	••+			??+			2(2?)
Carinated jar (Figs 17.12-13, v147, v145 and v80)	••	?		••+			4(1?)
Biconical jar (Fig. 16.2, v77 and v136)	••			•			3
Closed globular jar (Fig. 16.3, v63)						•	1
Biconical bowl (Fig. 17.10, v142 and v97)	•	••					3

• = One vessel
? = Possible vessel
+ = Carbonised residue

Depositional patterns

3.1.13 The two main types of features producing pottery were waterholes and ditches, with pits, tree-throw holes and postholes yielding very small amounts (Table 10). The vast majority of the pottery was from waterholes (six in total), and three of these (679, 841 and 863) contained 87% of the total material by weight (Table 11).

Table 10: Pottery by feature type

	Sherds	*Weight (g)*	*Vessels*	*Features/ cuts*	*MSW (g)*	*Vessel:sherd ratio*	*Vessels freshly broken*	*Vessels highly abraded*
Waterhole	557 84%	8154 94%	80 58%	6 12%	14.6	1:7.0	58%	0%
Ditch	69 10%	331 4%	37 27%	29 59%	4.8	1:1.9	11%	32%
Pit	16 2%	106 1%	10 7%	7 14%	6.6	1:1.6	0%	60%
Tree-throw hole	19 3%	93 1%	8 6%	5 10%	4.9	1:2.4	0%	25%
Posthole	2 0.3%	4 0.1%	2 1%	2 4%	2.0	1:1.0	0%	0%

3.1.14 The pottery from the waterholes was in a much better condition than that from the other features. The mean sherd weight (MSW) for the waterholes was 14.6g, compared to 4.8g for the ditches and 6.6g from the pits. Some 58% of the vessels from waterholes was recorded as freshly broken and none was highly abraded, compared to the ditch and pit assemblages that were respectively 11% and 0% fresh, and 32% and 6% highly abraded. A three-tiered abrasion system was followed: vessels that were not freshly broken or highly abraded were recorded as moderately abraded. The vessel to sherd ratio was also higher in the waterhole assemblages, with each vessel represented by an average of seven sherds, compared to less than two sherds for the ditches and pits.

3.1.15 This suggests that the processes leading to the deposition of pottery in waterholes and other features were very different. It is likely that the majority, perhaps all, of the pottery from the ditches and pits found their way into these features sometime after it was initially discarded. Much of the material from the waterholes, in contrast, appears instead to have been deposited very shortly after breakage, although they also contained other 'background' material.

Table 11: Pottery from the waterholes

	Sherds	*Weight (g)*	*Vessels*
622	32	521	15
677	4	44	1
679	398	4755	42
836	6	77	3
841	93	1529	13
863	24	1228	6

Pottery from waterholes

Waterhole 679

3.1.16 Waterhole 679 had four fills. One of these was a deposit of fired clay; the other three all contained pottery (Fig. 16.6–16.8). No refits were found between fills, and none of the vessels appeared to be represented across multiple fills.

3.1.17 The basal fill, 680, produced 92 sherds (1899g) from nine vessels, seven in fabric FlQs2. All but one was freshly broken. Joins were only found between the sherds of one vessel. Vessel MSWs were between 0.9g and 56.4g.

3.1.18 Middle fill 682 produced 99 sherds (1238g) from 18 vessels. Fabric proportions were similar to the overall population. Half of the vessels were freshly broken, the others moderately abraded. Joins were only found between the sherds of one vessel. Vessel MSWs were between 3.4g and 67.3g.

3.1.19 Upper fill 683 produced 207 sherds (1618g) from 15 vessels. Eleven of the vessels were in fabric Fl2. Six were freshly broken, and nine moderately abraded. Joins were only found between the sherds of two vessels. Vessel MSWs were between 2.3g and 36.3g.

Waterhole 841

3.1.20 Waterhole 841 had seven fills. Middle fill 847 was the only one which contained pottery, comprising 93 sherds (1529g) from 13 vessels. Fabric proportions were similar to the overall population. Half of the vessels were freshly broken; the others moderately abraded. Joins were found between sherds of five vessels. Vessel MSWs were between 1.6g and 150g. (Fig. 17.9)

Waterhole 863

3.1.21 Waterhole 863 had seven fills. The Sompting axe was found on the bottom of the waterhole. Only one context, middle fill 867, produced pottery. This comprised 24 sherds (1228g) from six vessels. Fabric proportions were similar to the overall population. All of the vessels were freshly broken. Vessel MSWs were between 20.3g and 126g. Joins were only found between the sherds of one vessel. The shoulder of this vessel (Fig. 17.13) could be refitted completely and *c* 65% of the rim was present.

None of the lower–middle, lower part or base of the vessel was present, and all of the existing sherds could be refitted. (Fig. 17.10–17.13).

Waterhole 622

3.1.22 Waterhole 622 had three fills, all producing pottery (Figs 12 and 16.2–16.4). Basal fill 625 yielded two freshly broken sherds (22g) from a single biconical jar in Fl2. Middle fill 624 produced three sherds (74g) from two vessels, one freshly broken and the other moderately abraded. Upper fill 623 produced 27 sherds (425g) from 12 vessels. Eight were freshly broken, and four moderately abraded. No joins were found between the vessels. Vessel MSWs were between 5g and 103g.

Depositional practices

3.1.23 Something of the circumstances surrounding the deposition of pottery in the waterholes can be inferred from the above descriptions. There were 21 fills across these four waterholes, but only eight produced pottery, showing that material was not arbitrarily accumulating in the features as they were filling. Most of the vessels were freshly broken with quite high MSWs, although some were abraded with lower MSWs, suggesting the incorporation of 'background' material alongside the fresher material. Even the most complete vessel (Fig. 17.13) was less than half present, and this was from the waterhole that was excavated in its entirety. All of the sherds could be refitted and together they formed the upper third (approximately) of the pot, but none of the lower part was found. It is therefore likely that this vessel was smashed with the upper part quickly deposited in the waterhole, but the lower part kept back to be disposed of in a different manner.

3.1.24 Similar scenarios could apply to many of the other vessels represented by large, fresh sherds. Apart from the vessel described above, only two vessels were represented by more than above 10% of a rim circumference (and these amounted to 36% and 13% of the rim). Overall, then, only a small percentage of each vessel was represented, and there were surprisingly few joins. Although it is difficult to be certain as only waterhole 863 was fully excavated and more pottery was no doubt present in the unexcavated halves, it is likely that none of the vessels represented by large fresh sherds were deposited whole, and the other parts of the vessels must have been disposed of elsewhere, perhaps in a different fashion entirely.

3.1.25 None of the sherds from different fills of the same waterhole refitted, and none appeared to belong to the same vessels. This suggests that there was some delay between the deposition in the different fills, and that the material comprising the different fills did not derive from the same source such as a nearby midden. This again suggests the deliberate and structured nature of the deposition of a large proportion of the material in the waterholes. It was clearly deemed appropriate to deliberately deposit freshly broken pottery at various stages of the filling of the waterholes. Material in basal fills might represent rites marking the initiation of the use of the feature (seen also with the Sompting axe in the base of waterhole 863), or might be functionally related to its use (vessels breaking when being used to retrieve water). Pottery in the middle fills might represent rites when the waterhole was abandoned, and material in upper fills could have been deposited as the feature was being

backfilled also at abandonment, or might be sometime later and related to a memory of the feature as a waterhole.

Comparing waterholes and ditches

3.1.26 All of the identifiable forms and decorated sherds were from the waterholes, meaning that the ditches were dated solely on the basis of pottery fabrics and loose association with the waterhole assemblages. There are, however, noticeable differences in fabric proportions between the ditches and waterholes. Sand is present in 68% of the sherds from ditches, compared to 33% of those from waterholes (this is less pronounced when comparing vessels rather than sherds). Almost all of the sand-only sherds were from ditches (12% of the total from the ditches), and material from the ditches also tended to have coarser flint inclusions. The higher proportion of sand in the ditches, a feature often seen as being a later chronological development, certainly suggests that the ditches are not earlier than the waterholes (ie late Bronze Age), as might be more expected given the presence of late Bronze Age ditches belonging to field systems in the immediate vicinity (Hayman 2018). The differences between the ditches and waterholes might not be meaningful given the small amount of material from the ditches, and, as a whole, the pottery from all of the feature types formed a unified group and could have been broadly contemporary.

Dating

3.1.27 The three features used to date pottery – form, fabric and decoration – do not quite marry together with what would be expected on the basis of the current understanding of pottery in the late Bronze Age and earliest Iron Age. The forms suggest a date in the earliest Iron Age, probably the 8th century BC, and this is consistent with its association with a Llyn Fawr stage axehead. The fabrics are also broadly consistent with this date. However, the distinct lack of decoration suggests an earlier date, in the late Bronze Age. This suggests that it might be misleading to use decoration as the key chronological indicator (Barrett 1980).

3.1.28 There are numerous late Bronze Age and earliest Iron Age sites in the vicinity of Shepperton, around the confluences of the Rivers Colne and Crane with the Thames. Despite much recent work, the assemblages from Runnymede (Longley 1991; Needham 1996) and Petters Sports Field (O'Connell 1986) remain the most useful due to their size, stratigraphy, the good understanding of their longevities and date, and the chronological closeness of the assemblages to that from the present site. Runnymede and Petters Sports Field are *c* 6km to the north-west of Home Farm. The chronology of Runnymede has recently been reconsidered using Bayesian modelling (Waddington *et al.* 2019, 34–5), suggesting that early stratigraphic units C/D and E date respectively to *865–810 cal BC* and *845–800 cal BC (95% probability)*, probably *850–825 cal BC* and *830–805 cal BC (68% probability)*. Late units H–K are modelled to have begun between *880–805 cal BC* and ended *795–745 cal BC (95% probability)*, probably beginning between *850–820 cal BC* and ending *790–765 cal BC (68% probability)*. The large pottery assemblage from the ultimate fill of ditch F117 at Petters Sports Field is stratigraphically later than a Ewart Park hoard (dating *c* 920–800 cal BC), and has an associated radiocarbon date of 938–728 cal BC (79% confidence; Bowman *et al.* 1990, 65). These sites will be prioritised in the following discussion. The date *c* 800 cal BC is

taken as the transition between the late Bronze Age and earliest Iron Age (Needham 2007).

Forms

3.1.29 The Home Farm OA assemblage has been placed with a wider late Bronze Age and Iron Age typological scheme being developed by the author (Davies in prep.). The typology was tested and explored using seriation (using the CAPCA programme; Madsen 2016) and cluster analysis (using the PAST programme; Hammer 2019). The Home Farm OA assemblage was compared against 12 late Bronze Age or earliest Iron Age sites in the middle Thames Valley, as well as five well-dated sites outside the region. The scheme as a whole works well and the results of the seriation and cluster analysis correspond to each other and the expected sequence based on associated radiocarbon dates, where they are available. It is possible to estimate the date of the sites with the seriation more accurately than is possible using less formal comparisons of site assemblages. It should be noted that while they have been ordered using seriation, the assemblages that are being compared formed over time and may in part overlap. As such, they are not snap-shots of contemporary material (such as are used in the seriation of grave goods, for example). The method has, nonetheless, proved useful.

3.1.30 The seriation places Home Farm OA chronologically after Runnymede but before Stanwell (O'Connell 1990) and Petters Sports Field. The cluster analysis places Home Farm OA closer to Stanwell and Petters Sports Field than it does to Runnymede, and Stanwell and Petters Sports Field are closer to each other than they are to Home Farm OA. These results should be taken as broad chronological indicators rather than as a strict sequence and it is likely that occupation at Home Farm OA in part overlapped with activity at the sites that the seriation places nearby.

3.1.31 The latest forms in the late Bronze Age and earliest Iron Age sequence are biconical bowls (Figs 16.8 and 17.10), tripartite angular bowls (not present at Home Farm OA), and shouldered jars with upright necks (Fig. 17.11). These three forms effectively separate the late Bronze Age from the earliest Iron Age. Home Farm OA is placed before Petters Sports Field and Stanwell partly due to the presence of vessels with incurving rims at Home Farm OA. These are particularly characteristic of the earlier late Bronze Age, and become less popular through the period.

3.1.32 Deposition of the bulk of the pottery at Runnymede ended in the first half of the 8th century BC. A radiocarbon date of 770–400 cal BC (O'Connell 1990, 53) is loosely associated with the pottery at Stanwell, and a date in the early or middle 8th century BC is possible given the date from Petters Sports Field. This suggests that the Home Farm OA pottery also dates to the 8th century BC, perhaps around 775–750 cal BC.

3.1.33 Further comments based on the seriation are useful for the interpretation of the site. Previous excavation at Home Farm identified three main areas of late Bronze Age occupation: SE, NE1 and NE2 (Hayman 2018). The analyses separate these three groups, and each are again separated from the present assemblage. Area SE, just *c* 250m to the north-west of the present site, falls relatively early in the regional late Bronze Age sequence, clustering with Hartshill Copse (well-dated to the 10th century BC; Collard *et al.* 2006). The number of identifiable forms at Area SE is, however, limited to just six, and four are vessels with incurving rims (Jones 2018, fig. 21). Area

NE2 is the next to fall in the sequence, clustering with sites dating to *c* 950–850 cal BC. Area NE1 is in the next cluster with Runnymede, and the present site falls into the latest cluster with the 8th century BC sites discussed above. Area NE2 is *c* 850m to the north-west of the present site, and Area NE1 is *c* 1km to the north-west. Activity at Home Farm therefore appears to have shifted in pockets around the landscape between the 10th and 8th centuries BC, rather than being one large contemporary area of settlement and enclosure. This shifting does not appear to have formed a linear pattern, but is characterised by shifts in occupation over distinct areas. It is uncertain if the middle Bronze Age activity excavated during the previous phase of work at Home Farm immediately precedes the late Bronze Age occupation, or if there was a period of abandonment.

Fabrics

3.1.34 Flint is present, indeed dominant, in almost all of the pottery. Quartz sand is found in *c* 40–50% of the material, almost always as a minor component. Flint is found in almost all late Bronze Age pottery in the area and sand is also found in variable amounts. Sand became more common through the earliest and early Iron Age, and was dominant by the middle Iron Age, while flint declines.

3.1.35 This local sequence of sand being a more specific earliest Iron Age rather than late Bronze Age characteristic was established by the Runnymede sequence, as sand became steadily more common through the sequence. It was present in minor quantities in the 9th century BC, rising to being in 67% of the sherds at the end of the sequence in the 8th century BC (Longley 1991, 163; Needham 1996, 111). At nearby Petters Sports Field, sand was also prevalent, and this assemblage should also belong to the 8th century BC, but after Runnymede (O'Connell 1986, 61). The quantities of sand at Home Farm OA is consistent with the form seriation, suggesting that the assemblage is later than the bulk of the material at Runnymede but before Petters Sports Field. A date in the 8th century BC is again therefore suggested.

3.1.36 While the general trend of sand being increasingly common alongside flint and eventually replacing it altogether by the middle Iron Age is not in doubt, this was not necessarily a straightforward linear chronological development. The speed of change appears to be very localised. Late Bronze Age activity at Thorpe Lea Nurseries, *c* 4.8km to the north-west of the site, and at Home Farm SCAU areas NE2 and SE should date before Runnymede due to the dominance of vessels with incurving rims and straight-sided vessels, but sand is present in around half of the late Bronze Age material at Thorpe Lea Nurseries (Jones 2012, 120) and in most of the sherds at all of the Home Farm SCAU subsites (Jones 2018, 27). The amount of sand appears to in fact decrease between the late Bronze Age and earliest Iron Age at Home Farm.

Decoration

3.1.37 The frequency of decoration on pottery has long been used to distinguish material dating to the late Bronze Age ('Plain Ware', before *c* 800 BC) from that of the earliest Iron Age ('Decorated Ware', after *c* 800 BC; Barrett 1980). This was shown at Runnymede and Petters Sports Field as decoration increased through the Runnymede sequence and was most prevalent at Petters Sports Field (Longley 1991, 167; Needham 1996, 112; O'Connell 1986, 63). Some decoration is, however, a consistent if minor

feature of late Bronze Age assemblages throughout the region and beyond, usually limited to fingertip or fingernail/slashes on the shoulder and/or rim, and it has never been clear how much decoration is needed for an assemblage to be classed as 'decorated' and dating to the earliest Iron Age (eg Morris 2006, 60). While again this general development from plainer to more decorated vessels is not in doubt, the usefulness of decoration as an absolute marker distinguishing late Bronze Age from earliest Iron Age pottery needs to be reconsidered. For example, a group with enough decoration to be considered 'decorated' has recently been well-dated to the late Bronze Age (9th century BC) at Cliffs End Farm, Kent (Leivers 2014, 161).

3.1.38 Decoration was present on just 0.5% of the sherds, or 2% of the vessels at Home Farm OA. Surprisingly, there were no instances of fingertip, fingernail, or diagonal slashes that are usually common to both late Bronze Age and earliest Iron Age assemblages, with the decoration instead comprising two horizontal lines and a circular stamped impression. These motifs are more common in the earliest and even early Iron Age (eg Burchell and Frere 1947, fig. 16; Leivers 2010, fig. 75–6, 83–5; Leivers 2015, fig. 6.8.48), and much rarer in the late Bronze Age (eg Longley 1991, fig. 72). The type of decoration suggests the assemblage dates after *c* 800 cal BC, even if its frequency could indicate an earlier date. Overall, the frequency of decoration in this assemblage should not be used as a clear-cut chronological indicator.

Roman period

3.1.39 A single highly-abraded sherd of fine oxidised ware (O10) datable no closer than the Roman period was intrusive in sole fill 184 of earliest Iron Age ditch 183, group 185.

Anglo-Saxon period

3.1.40 Single undecorated body sherds of early Anglo-Saxon (*c* AD 400–800) organic tempered pottery were found in the subsoil and the upper fill of pit 84. One sherd had internal carbonised residue.

Post-medieval period

3.1.41 Single 19th–20th century flowerpot sherds were found in the fills of postholes 351 and 355, both of which belong to Posthole Group 369.

Catalogue of illustrated pottery

Fig. 16.1 v.125. Grooved ware, pit 834, sole fill 833

Fig. 16.2 v.77. Biconical jar. Waterhole 622, lower fill 625. Fl2

Fig. 16.3 v.63. Closed globular jar. Waterhole 622, upper fill 623. Qs

Fig. 16.4 v.64. Vessel with incurving rim. Waterhole 622, upper fill 623. Fl3

Fig. 16.5 v.79. Straight-sided vessel with out-turned neck. Waterhole 679, lower fill 680. Fl2

Fig. 16.6 v.80. Carinated jar. Waterhole 679, lower fill 680. FlQs2

Fig. 16.7 v. 98. Vessel with incurving rim. Waterhole 679, middle fill 682. Fl3

Fig. 16.8 v.97. Biconical bowl. Waterhole 679, middle fill 682. Fl3

Fig. 17.9 v.136. Biconical jar. Waterhole 841, middle fill 847. Fl2

Fig. 17.10 v.142. Biconical bowl. Waterhole 863, middle fill 867. Fl2

Fig. 17.11 v.144. Shouldered jar with upright neck. Waterhole 863, middle fill 867. Fl2

Fig. 17.12 v.145. Carinated jar. Waterhole 863, middle fill 867. FlQs2

Fig. 17.13 v.147. Carinated jar. Waterhole 863, middle fill 867. Fl2

3.2 Flint, by Michael Donnelly

3.2.1 The excavation yielded 80 pieces of struck flint and small amounts of burnt unworked flint (Table 12). The worked flint included several possibly late Neolithic pieces from a pit (492), and a small group from the uppermost fill of the paleochannel (481). The largest group, however, was an assemblage of 15 pieces from an earliest Iron Age ditch (543) which must have been residual.

3.2.2 The artefacts were catalogued according to OA South's standard system of broad artefact/debitage type (Anderson-Whymark 2013; Bradley 1999) and the condition (rolled, abraded, fresh and degree of cortication) and the state of the artefacts (burnt, broken, or visibly utilised) was also recorded. Retouched pieces were classified according to standard morphological descriptions (eg Bamford 1985, 72–7; Healy 1988, 48–9; Bradley 1999). Technological attribute analysis was initially undertaken and included the recording of butt and termination type (Inizan *et al.* 1999), flake type (Harding 1990), hammer mode (Ohnuma and Bergman 1982) and the presence of platform edge abrasion.

Raw material and condition

3.2.3 The assemblage contained flint displaying a range of cortical types including a large number with rolled surfaces indicative of gravel deposits (37%) and chalk (31%), much of it badly weathered (11 of 16 examples), as well as thin abraded cortex typical of some North Downs flint (18%). This variety suggests that a wide range of sources were exploited and probably indicates a multi-period assemblage.

3.2.4 Although some of the flint was fresh, it mostly displayed light edge damage, and some was rolled/plough damaged and had heavy edge damage (Table 13). This suggests that much of the material was no longer *in situ* but that only a limited component of the assemblage is heavily disturbed.

Distribution

3.2.5 The assemblage was widely dispersed and only a few contexts contained groups of any size. The larger groups consisted of 15 pieces from ditch 543, eight flints from the palaeochannel (482), seven flints from possibly late Neolithic/early Bronze Age pit 492, and four flints from tree-throw hole 461. Much of the remainder of the assemblage was found as single, often probably residual pieces in later features or in the subsoil.

Table 12: Summary of the flint assemblage

Type	*Number*
Flake	53
Blade	7
Bladelet	1
Blade index	13.11% (8/61)
Irregular waste	3
Core rejuvenation flake	1
Core fragment	1
Scraper end	1
Scraper disc	1
Arrowhead chisel/unclassified	1
Saw	1
Denticulate	1
Notch	1
Retouched flake	3
Retouched blade	2
Retouched other	3
Total	80
Burnt unworked (representative total)	5/34g
No. burnt (%)	8/80 (10%)
No. broken (%)	23/80 (28.75%)
No cores and core dressing (%)	2/80 (2.5%)
No. retouched (%)	14/80 (17.5%)

Table 13: Summary of the condition and cortication of the flint

Condition	*Total*	*%*	*Cortication*	*Total*	*%*
Fresh	20	27.78%	None	2	2.78%
Light	35	48.61%	Light	62	86.11%
Moderate	10	13.89%	Moderate	7	9.72%
Heavy	2	2.78%	Heavy	1	1.39%
Plough damaged	5	6.94%			
Total	72			72	

Key contexts

3.2.6 Late Neolithic/early Bronze Age pit 492 contained a mixed assemblage of seven pieces – two flakes, one blade, one core fragment, two tools and a piece of irregular waste – almost all of which was heavily burnt. Many of the pieces were also broken. The two tools comprise a quite fine probable disc scraper (the uncertainty being due to the fact that it lacks most of its left edge because of fire damage) and an end scraper-

denticulate combination tool on a regular flake that was also burnt and snapped. The dominance of burnt and broken pieces suggests that the group could consist of material gathered from a hearth.

3.2.7 The uppermost fill of the river channel (481) contained eight flints in mostly good condition which included a retouched flake alongside six more flakes and one blade form. The flints are largely undiagnostic but if all were related then an early prehistoric date from around the Mesolithic or Neolithic periods would be very likely.

3.2.8 Tree-throw hole 461 contained three flakes and a probably retouched blade but these pieces were in very poor condition and are likely to be material that was present in the soil when the tree fell rather than representing intentionally dumped or placed material. Another tree-throw hole nearby (444) contained just two flints but both were quite fine early tools in good condition which could have been contemporary with the tree-throw hole. They consisted of an end scraper on an inner blade and an end scraper-knife on a distal trimming blade.

3.2.9 The western end of earliest Iron Age ditch 543 contained the largest assemblage from a single context. It comprises 11 flakes, three blade forms and a core rejuvenation flake. The material is probably of Neolithic or less likely Mesolithic date. They are in a very good condition suggestive of contemporary material or lithics that had not been heavily disturbed, but were recovered from the upper fill of ditch where they must have been residual.

3.2.10 Other earliest Iron Age contexts also contained residual worked flint which is consistent with a Neolithic date. Ditch 255 contained a residual later Neolithic arrowhead, probably a chisel form but possibly an odd variant on a petit tranchet derivative. Ditch 73 contained just three flints but two are blade forms both of which display platform edge abrasion and punctiform platforms which are indicative of Mesolithic or early Neolithic activity. Earliest Iron Age pit 101, in contrast, contained three flakes which would all be at home in a later prehistoric context and all had similar surface conditions suggesting that they may have been contemporary with the pit, although the assemblage is too small to be certain.

3.2.11 The subsoil also yielded a group of six flints that are in very mixed condition and includes some badly damaged pieces. They consist of three tools alongside three flakes; all the tools were likely to be of early Bronze Age date or earlier and all could reasonably be expected in a Neolithic assemblage. A saw on a blade is most likely to be earlier prehistoric in date while the remaining two tools – a soft-hammer struck retouched flake and a notch-denticulate combination tool – could also be found in early Bronze Age material but could also easily be Neolithic.

3.3 Socketed axehead, by Alex Davies

3.3.1 A complete socketed axehead of Sompting type, variant Cardiff II (Boughton 2015, 113–14), was found on the base of waterhole 863, overlaid by fill 864 (Figs 13 and 18). The axe is decorated with five ribs with pellets identically on both faces. There is a double mouth moulding and the loop joins the lower moulding. The external socket ratio is 1:1; internally the socket is very slightly taller than it is wide. The sides of the

axe are almost straight with very little waisting or blade splaying. The axe was found exactly at TQ 06355 68347, 10.57m aOD.

- Length: 135mm
- Width (blade): 46mm
- Socket (external): 44x44mm
- Socket (internal): height: 30mm; width 27mm
- Weight: 415g

Use and wear

3.3.2 The axe was examined with a hand lens and a binocular microscope at 10x and 20x magnification. It has some signs of wear. The casting seams from the blade have been removed and there are minor striations both horizontally across the blade, presumably from sharpening (Moyler 2007, 72), and vertically down the face of the axe, probably from use (Moyler 2007, 69–70; Roberts and Ottaway 2003, 126). There is no indication of hammering on the blade, but there are a small number of minor nicks, probably from when the axe came in contact with a material harder than itself (such as knots in wood: Moyler 2007, 69). The casting seams down the sides of the axe have not been fully removed, although there has been some attempt at finishing as the seams have been hammered. Most axes of Sompting type show similar signs of light wear, and this is especially the case for single finds of Cardiff II variant (Boughton 2015, 106–19).

Dating

3.3.3 The axe belongs to the Llyn Fawr phase of the earliest Iron Age, conventionally dated *c* 800–600 cal BC. The beginning of the use of Llyn Fawr metalwork is reasonably well-established due to the relatively large number of radiocarbon dates associated with the preceding Ewart Park phase and the steep shape of the calibration curve around *c* 800 cal BC (Needham *et al.* 1997, 93–8). The few radiocarbon dates associated with Llyn Fawr metalwork tend to fall in the calibration plateau between *c* 800 and *c* 400 cal BC, but are occasionally in the early decades of the 8th century BC which just preceding the plateau (Knight 2019). Dating the end of the Llyn Fawr phase is difficult due to the radiocarbon plateau, but continental typological links suggest elements of the Llyn Fawr group date to the 7th century BC (O'Connor 2007, 71–3), and associations at Llanmaes, Vale of Glamorgan, suggests that Sompting axes there were deposited during the period *c* 675–550 cal BC (Gwilt *et al.* 2016, 309–12). Radiocarbon dating at the site is underway (Waddington *et al.* 2018, 35).

Discussion

3.3.4 Metalwork belonging to the Llyn Fawr phase is very rarely found during archaeological excavations, especially socketed axes, despite these objects dominating the group in both hoards and as single finds. The example from Home Farm Quarry is among just a very small handful of Llyn Fawr phase axes that have good contextual information. The blade and lower part of a probable Sompting axe was found in a layer preceding the main midden accumulation at East Chisenbury, Wiltshire, and has associated radiocarbon dates around *c* 800 cal BC (Barber 2010; Waddington *et al.* 2019, 103, 111–14). A complete Sompting axe, Armorican axes, and fragments probably from further Sompting axes have been found at the midden at Llanmaes, Vale of Glamorgan, alongside metalwork including cauldron and bowls, indicating a deposition date

between *c* 675–550 cal BC (Gwilt *et al.* 2016, 309–12). Llyn Fawr axes including Sompting and Armorican types have been found at the possible midden site at Mount Batten, Devon, although contextual information is lacking (Cunliffe 1988, 12–18, 53–5).

3.3.5 The findspot of the Tower Hill hoard, Oxfordshire, was excavated under archaeological conditions, and this was shown to have been deposited just inside the entrance of a roundhouse (Miles *et al.* 2003, 146). Multi-period hoards containing Llyn Fawr axes have been excavated under archaeological conditions at Danebury, Hampshire (Cunliffe and O'Connor 1979), and the Vale of Wardour, Wiltshire (Hinds 2011), although due to the mixed nature of these assemblages the items may have been deposited a significant period of time after the use of the axes (Davies 2019). Exact contextual information about the Danebury hoard was also lost due to tree rooting and animal burrowing (Cunliffe and O'Connor 1979, 235).

3.3.6 Secure contextual information about Llyn Fawr phase axes is, then, very rare, with single objects only being previously excavated on midden sites. Both East Chisenbury and Llanmaes have large associated pottery assemblages, and All Cannings Cross pottery was found in the settlement from which the Tower Hill hoard was recovered (Brown 2003). Some 33 axes were deposited in a ceramic pot as part of the Llyn Fawr hoard from Mylor, Cornwall, and the vessel appears to be very similar to a vessel discovered in waterhole 863 (Fig. 17.13; Boughton 2015, appendix A 37, pl 21). The pottery from waterhole 863, albeit in a different fill, is again a very rare association between a Llyn Fawr axe and ceramic material.

3.3.7 Despite the rarity of detailed contextual information, enough is usually known of the findspots of Llyn Fawr axes to show that most were in some way associated with water (Boughton 2015, 218–27). The Home Farm example, deposited at the base of a waterhole, therefore conforms to this pattern even though there are no other axes of this date known from exactly similar contexts. The axe was additionally just 300m to the south-west of the River Ash, and 1.3km to the east of the River Thames. The significance of this context, and its association with water, is taken up in the general discussion below.

3.3.8 The nearest Llyn Fawr axe find is *c* 2.2km to the SSE of Home Farm at Shepperton Ranges, *c* 350m to the north of the present course of the River Thames and adjacent to the confluences of the Rivers Thames, Wey and Bourne. The axe was hafted and found in an area of palaeochannels and alluvium (Poulton 2012, 44–5). Sompting axes and an Armorican axe have been found in the River Wey at Weybridge, *c* 3.5km to the south of the site (Davies 2018, 421), and another concentration of Llyn Fawr material including axes and swords found as single finds, in riverine contexts and in a hoard, is located around Kingston (Boughton 2015, 272–82; Davies 2018, 101, 412).

3.4 Fired clay and ceramic building material, by Cynthia Poole

3.4.1 A small assemblage of fired clay and ceramic building material amounting to 95 fragments weighing 1900g was recovered from pits, waterholes, a ditch and postholes. The material is fragmentary and moderately abraded. Fired clay is not intrinsically dateable, except in the case of certain diagnostic forms, which may provide a broad

indication of period, and in general fired clay is dependent on other dateable artefacts for its phasing. The assemblage was founded in features dating from the late Neolithic/early Bronze Age to the post-medieval period.

3.4.2 The assemblage has been fully recorded on an Excel spreadsheet in accordance with guidelines set out by the Archaeological Ceramic Building Materials Group (ACBMG 2007), which, whilst not specifically designed for fired clay, provide appropriate guidance. The record includes quantification, fabric type, form, surface finish, organic impressions, dimensions and general description. Fabrics were characterised on macroscopic features and with the aid of x20 hand lens for finer constituents.

Neolithic/early Bronze Age

3.4.3 Fired clay (14 fragments, 196g) was recovered from two pits (490 and 492) which possibly date to the late Neolithic or early Bronze Age. They were made in a yellowish or reddish brown fine sandy clay containing moderate–frequent medium quartz sand and occasional coarse quartz and flint grits 1–3mm and in one piece a few rounded chalk grits 2–5mm. A single small fragment with flat slightly rough moulded surface from pit 492 measured 14mm thick. The larger group from feature 490 included one large, hard, well-fired fragment measuring 40mm thick with a flattish fairly smooth undulating moulded surface, pitted with small irregularities. The remainder comprised a couple of pieces that have a more rounded surface, possibly curving to an edge and a lot of small shattered fragments, which were probably a single piece that has shattered. All these pieces are essentially of indeterminate function, but they probably derived from an oven or hearth structure. Those from pit 490 were found in a deposit containing frequent charcoal fragments which supports the identification of the fired clay as having derived from an oven or hearth lining.

Earliest Iron Age

3.4.4 Fired clay totalling 35 fragments (1173g) was recovered from two features dating to the earliest Iron Age. In both cases the fragments probably derived from oven or hearth structures.

3.4.5 The fired clay from waterhole 679 formed the largest single group of material (29 fragments, 1135g). Many of the lumps collected from fill 681 were in fact a mix of congealed soil and small eroded fragments of fired and heated clay. However, amongst this were seven pieces, made in a reddish brown fine sandy silty micaceous clay, which have a flat, even moulded surface, slightly convex on two, which had been fired to a yellowish brown colour at the surface grading to red/reddish brown below. The backs of the fragment are broken and irregular. They measure up to 26mm thick and the largest piece is 90mm in size. These pieces appear to have formed the lining and internal surface of an oven base. The fired clay was found in association with much charcoal, suggesting that the deposit represents a tip of demolished oven debris and cinders from firing the structure.

Roman period

3.4.6 A fragment of Roman tile (177g) made in an orange-red hard fine sandy fabric (MoL2452) was found in the top of waterhole 760. The tile was a plain flat form with smooth upper surface and rough base and measured 23mm thick. It probably comes

from the plain central body of a tegula. The date of the waterhole is uncertain, but it has been attributed to the Anglo-Saxon period.

3.4.7 A slab of fired clay (31g) was found in the fill of earliest Iron Age ditch 216. It is made in a red sandy clay fabric containing evenly distributed, frequent, well sorted fine–medium quartz sand <0.2mm and rare angular flint grit up to 10mmin size. The slab measures 24–29mm thick and had two smooth well finished surfaces. One side is flat and oxidised, and the other side is slightly curving and convex and fired or burnt grey. Although this is hard and well-fired like tile, the tapering thickness and character of the surfaces suggest it is a fragment of fired clay hearth or oven plate probably of Roman or possibly late Iron Age date. If so, it may have been intrusive in the ditch.

Anglo-Saxon period

3.4.8 Fired clay amounting to a total of 47 fragments weighing 313g was recovered from three pits (84, 112 and 113) attributed to the Anglo-Saxon periods.

3.4.9 One object (Fig. 19) recovered from pit 112 has been identified as an Anglo-Saxon loomweight. It is subspherical in form with slightly under half surviving. It has smooth, curving, convex surfaces and slightly flattened ends and measures 100mm in diameter and 59mm high. It weighs 216g suggesting a total weight when complete in the region of 500g. The ends are pierced by a cylindrical perforation with a diameter of 30mm at its wider end and has been moulded with the fingers pressing down the clay surface leaving vertical grooves and finger marks. This has been done from one end only resulting in a slightly narrower opening of the perforation at the opposite end. Over much of the exterior side surface there is a lot of superficial surface damage, possibly from constantly knocking against another surface or from heat damage. The object is very well fired with a differential firing/burning pattern. Most of the surface is fired brown and the core black, but across one end and extending slightly over the outer side and into the perforation is a bright pink-cerise patch. It is made in a fine sandy micaceous clay fabric containing a high density of medium–coarse quartz sand, plus red or black iron oxide or ferruginous grits 1–5mm. The size and character of the object is typical of Anglo-Saxon loomweights of intermediate type 2 (Hurst 1959, 24). The shape and manner in which the perforation has been formed is paralleled in the loomweights found at Cotswold Community (Poole 2010, 146 and fig. 10.5), most of which were found in a pit of early–middle Saxon date. On account of the earliest Iron Age dating prevalent on the site there was some initial doubt as to whether the object could be a late Bronze Age cylindrical perforated block. However, the size, shape and form is not compatible with such objects and identification as an Anglo-Saxon loomweight is considered to be secure.

3.4.10 From the same pit came three further fragments with a smooth, slightly convex surface and hint of an angle to a side surface. These may also be fragments of loomweights. They were made in a sandy clay containing a high density of medium coarse quartz sand and fired red, salmon-orange and reddish brown.

3.4.11 The remaining fired clay from the pits consisted of generally small indeterminate fragments either amorphous or with a flat smooth moulded surface, and measuring up to 23mm thick and 5–40mm in size. These are probably fragments of oven structure or possibly furnace structure in view of the occurrence of a lump of slag from pit 112

though no evidence of vitrification occurred on any fired clay to indicate high temperature activities.

Post-medieval period

3.4.12 Post-medieval roof tile (2 fragments, 10g) was recovered from postholes 347 and 365, in Group 369. They were both made in a hard orange sandy fabric containing a moderate density of medium quartz sand. One was a tiny thin flake off the sanded underside of a tile and the other, somewhat larger, had a smooth flat upper surface, but the underside was broken and no complete dimensions survived. The fragmentary character of the scraps means they cannot be dated more closely than to the post-medieval period (16th–19th century).

3.5 Querns, by Ruth Shaffrey

3.5.1 A total of 43 fragments of stone were recovered during excavations. These were scanned for signs of burning or use. No burnt stone was recorded. Worked stone was recorded with the aid of a x10 magnification hand lens and details on these pieces entered into an Excel spreadsheet. Unworked stone was not recorded.

3.5.2 Three adjoining fragments of a quern with a flat pecked and smoothed grinding surface were found in the middle fill (682) of earliest Iron Age waterhole 679. Unfortunately this is too small to be able to tell if it is a piece of a saddle or rotary quern. It is made from Lodsworth stone, which originates in the Petworth area of West Sussex. Although the querns from this area are typically rotary querns from contexts of late Iron Age or later date, Lodsworth stone was used to manufacture querns from the Neolithic period onwards and its presence is consistent with a date in the earliest Iron Age.

3.5.3 The upper fill of Anglo-Saxon pit 113 (116) contained 39 degraded fragments of Mayen lava, of which one is a sizeable piece but all are too worn for anything to be said about their form. They are likely, however, to represent a single quern that has degraded since it was placed in the ground.

3.6 Animal bone, by Martyn Allen

3.6.1 An assemblage of 856 refitted animal bone fragments were examined and recorded. Of these, 743 were recovered by hand and 113 derived from sieved samples. Material was recovered from features dating to the earliest Iron Age, early–middle Saxon and post-medieval periods. A sizable number were also recovered from undated features, though the vast majority of these derived from a cattle burial, which is likely to be recent in date. None of the periods represented stood out in terms of the quantities of animal bones recovered and, although generally well preserved, the assemblage had suffered from a relatively high degree of fragmentation. Identifiable specimens were largely restricted to cattle and sheep/goat bones, with small numbers of pig and horse, and one chicken bone being identified. Despite recovery via environmental sampling, no bones of rodents, amphibians, wild birds or fish were found.

Methods

3.6.2 The animal bones were recorded at OA South using the in-house reference collection to identify taxa and elements. Refitted animal bone fragments (those with modern

breaks) were counted as single specimens. Body side was recorded where possible and specimens were zoned according to the part of the bone present following the method of Serjeantson (1996). Evidence of epiphyseal fusion or non-fusion was recorded, and estimated ages used the data presented by Sisson and Grossman (Getty 1975). Dental wear was recorded using Grant's (1982) criteria and absolute ages were estimated according to Jones (2006) for sheep and Jones and Sadler (2012) for cattle. Evidence for butchery, burning, gnawing and pathology were recorded at a basic level. All associated data are held in the archive.

Table 14: NISP of hand-collected animal bone fragments by phase (*includes 163 specimens from a cattle burial)

Taxa	*Earliest Iron Age*	*Early-Middle Saxon*	*Post-medieval*	*Undated*	*Total*
cattle	29	19	1	172*	221
sheep/goat	2	22		3	27
pig		1		4	5
horse			5		5
chicken		1			1
large mammal	1	35		4	40
medium mammal	1	3		9	13
unidentified	49	104	18	260	431
Total	82	185	24	452	743

Overview of the assemblage

3.6.3 Only a very small proportion of the 291 hand-recovered animal bones from datable features could be identified to taxon (Table 14). The earliest Iron Age features were dominated by 29 cattle bones, while two specimens of sheep/goat provided the only other identifiable fragments from this phase. Early–middle Saxon features were slightly more productive with 19 specimens of cattle and 22 of sheep/goat respectively. A small number of fragments from post-medieval features consisted of a single cattle bone and five horse specimens. These represented the only horse bones from the site.

3.6.4 The largest quantity of animal bones derived from unphased features, most of which were from an articulated cattle skeleton which may be recent in date.

Table 15: NISP of animal bone fragments by phase from environmental samples

Taxa	*Earliest Iron Age*
sheep/goat	2
pig	1
large mammal	5
medium mammal	40
small mammal	1
unidentified	64
Total	113

3.6.5 The environmental samples were not overly productive, consisting mainly of small and mostly unidentifiable fragments from earliest Iron Age features (Table 15). Two sheep/goat specimens and one pig bone were identified from Roman features, and it

is perhaps surprising that no remains of small taxa such as rodents, amphibians and small birds were recovered from any of the datable features.

Taphonomy

3.6.6 Fragmentation of the material was high, suggesting that much of it may have been redeposited and some had possibly suffered from trampling. No signs of carnivore gnawing were found and only one specimen exhibited a knife-cut mark, perhaps owing to the high level of fragmentation rather than a genuine lack of scavenger and butchery activity.

3.6.7 A sizable number of bones were found with evidence of burning (Table 16). However, the large majority of these were very small and heavily fragmented specimens recovered from sieved samples. Most were fully calcined (white bones) recovered from fills of waterhole 679, which dated to the earliest Iron Age, and most of these were very small fragments from fill 682. None could be identified to taxon. A single, partially burnt long-bone fragment was recovered from waterhole 760 which may also have been earliest Iron Age (and has been included in that phase when calculating the quantities shown in the tables). The remaining burnt remains all derived from early–middle Saxon pit 112 (fills 110 and 111) and most were blackened rather than fully calcined. Four of the burnt Saxon fragments were identified as parts of a cattle scapula.

Table 16: No. animal bone fragments with evidence of burning

Burning type	*Earliest Iron Age*	*Early-Mid Saxon*	*post-medieval*	*Undated*	*Total*
black		6			6
partially white	1				1
white	54	1			55
unburnt	142	176	24	452	794
total	197	183	24	452	856

Earliest Iron Age

3.6.8 A total of 195 specimens were recovered from nine earliest Iron Age features, including ditches 215, 536, 540–543 and 905 and waterholes 679 and 760. Most of these only produced a handful of animal bones and some contained just single specimens. Cattle remains dominated this phase overall.

3.6.9 Ditch 905 was the most productive with all bar two unidentifiable specimens deriving from fill 747. These bones included fragments of cattle skull, horncore, teeth and pelvis. Two of the skull fragments were fairly large, consisting of frontal and occipital elements. Ditch 543 produced a cattle femur, a sheep/goat metatarsal and a rib from fill 315 and a cattle 1st phalanx from fill 6. Ditch 542 produced a cattle femur (fill 498), a cattle ulna (fill 441) and a sheep/goat femur (fill 318).

3.6.10 Ditch 215 (fill 70) produced fragments of cattle teeth, and ditch 540 (fill 459) produced a cattle mandible. The mandible derived from a fairly young individual that had retained its deciduous 4th premolar and had an erupted 1st molar that was in a very early stage of wear, suggesting that the calf was between 6 and 12 months old when it died. A cattle scapula fragment was recovered from the terminus of ditch 536 (fill 528).

3.6.11 Waterhole 679 produced 55 fragments of animal bone from three fills (680, 682 and 683), though as mentioned above these were almost exclusively very small, heavily burnt specimens recovered from environmental samples.

Early–middle Anglo-Saxon period

3.6.12 All the early–middle Anglo-Saxon material derived from pits 112 (122 fragments), 113 (56 fragments) and 84 (six fragments), apart from three fragments from waterhole 760 and two fragments of cattle humerus from the less certainly dated ditch 208.

3.6.13 Pit 112 (fills 110, 111 and 149) contained 16 cattle specimens, 19 of sheep/goat and one chicken bone. The cattle remains consisted of skull, mandible, scapula, humerus, tibia and 1st phalanx elements. Both left and right humeri were represented and the scapula had been burnt. One of the tibia specimens appeared to have been axially split down the shaft. The sheep/goat remains consisted of atlas and axis bones, fragments of a mandible, a humerus, left and right tibiae, left and right metacarpals, and a complete 1st phalanx. Most of these bones probably derive from one animal and the presence of an unfused distal metapodial condyle suggest that the individual was less than 20–24 months old when it died. A neonatal sheep/goat tibia also indicates the presence of a young lamb. The chicken bone was a complete right humerus from an adult bird of bantam size.

3.6.14 Pit 113 contained a fragment of cattle pelvis, a sheep/goat 3rd molar and the maxillary part of a pig skull that had retained the 3rd molar. Pit 84 contained a mandible specimen and a tibia shaft from a sheep/goat.

3.6.15 Waterhole 760 contained a sheep/goat metatarsal and molar and a fragment of pig skull from the frontal region, and ditch 208 (fill 218) produced fragments of a cattle humerus.

Post-medieval period

3.6.16 The post-medieval remains all derived from posthole 359. Most of the bone fragments were unidentifiable. However, five horse bones were present, including part of a mandible, a pelvis, a metatarsal and 1st and 3rd phalanges. All the specimens were from an adult animal. The assemblage included a cattle tibia from a foetal animal. This was differentiated from horse by the position of the foramen on the posterior side of the shaft.

Undated

3.6.17 The majority of the remains from undated features consisted of a cattle burial found in pit 791. Although many small fragments from this feature were not identifiable, it is likely that they were all from the same animal. The bones were fairly well preserved but fragmentary, though most parts of the body were represented. Surviving dentition and epiphyses provide a good estimation of the age of the animal. A lower deciduous 4th premolar was present and in a late stage of wear, while the corresponding 1st molar was unworn. This would suggest that the calf was around 5–6 months old when it died. However, the level of bone development observed suggests that the animal may have been a little older than this. The scapula and the distal humerus were both fused at the epiphysis, which often occurs around 7–10 months and 15–20 months respectively, while the 1st and 2nd phalanges remained unfused. In these bones,

fusion often occurs around 20–24 months and 15–18 months respectively. On balance, an age-at-death somewhere around 12 months seems likely. There were no signs of butchery, burning or gnawing on any of the calf bones, suggesting that the animal was not eaten and buried fairly rapidly. No pathologies were evident and the cause of death was not ascertained.

3.6.18 The remaining undated features containing animal bones included pits 474, 710, 819 and posthole 371. None of these produced significant quantities of bone. Pit 474 contained four specimens of pig and one of cattle, pit 710 contained three specimens of sheep/goat, pit 819 contained eight cattle specimens (mostly skull and tooth fragments), and posthole 371 contained only unidentifiable fragments.

Conclusions

3.6.19 The faunal assemblage provides evidence of livestock exploitation at the site from the earliest Iron Age to the post-medieval period. However, none of the phases were well represented by animal bones. Such small quantities provide too few data to infer much about the pastoral and dietary economy of the site in any period and the remains can only provide information at the context level.

3.6.20 The higher proportion of cattle in the earliest Iron Age may be significant and the presence of a young calf suggests that cattle were being raised on site. Again, however, further interpretation must remain speculative in the absence of a larger sample.

3.7 Charred plant remains, by Sharon Cook

3.7.1 Twenty-six bulk samples ranging in size (whole earth volume) from 20 to 40 litres, and representing the range of feature types and phases across the excavated area, were processed. After assessment (results of which are contained in the site archive), 12 flots were selected for analysis based on the quantity and quality of the remains, the dating of the context and the phases represented across the site. The recorded assemblages derive from features dating from the early Iron Age and the early–middle Saxon period.

Method

3.7.2 The bulk samples were processed in their entirety using a modified Siraf-type water flotation machine to 250µm (flot) and 500µm mesh (residue), and the flot material was sorted using a low power (x10) binocular microscope to extract cereal grains and chaff, smaller seeds and other quantifiable remains.

3.7.3 Identifications were carried out using standard morphological criteria for the cereals (Jacomet 2006) and with reference to the Digital Seed Atlas of the Netherlands (Cappers *et al*. 2006) for identification of wild plant remains, as well as comparisons with modern reference material. Classification and nomenclature follows Stace (2010).

3.7.4 The remains were quantified in the following ways: cereal grains and the seeds of wild plants were only quantified for items of which more than half was observed. This means that all cereal and seed counts may be used to reach a Minimum Number of Individuals (MNI). Seeds of vetches (*Vicia/Lathyrus*) have easily recognisable structures and in this case all fragments have been be quantified, as indicated in Tables 17 and 18, and all observed fragments of nutshell were also counted which means that

these figures are not suitable for use in calculating a MNI. Awns were semi-quantified by abundance only, as rare, occasional, common, and abundant. Cereal chaff has been divided into quantifiable remains (glume bases and spikelet forks) and non-quantifiable remains (fragments).

3.7.5 Several of the larger flots were riffled prior to analysis, following van der Veen and Fieller (1982), to produce a more manageable assemblage. Where riffling has occurred, this is stated in the relevant table. All values given are for the analysed portion of the flot only.

The assemblages

3.7.6 The condition of the charred material on the site proved to be variable with some fragments heavily encrusted with mineral precipitate, and a large amount of clinkering and fragmentation made identifying grain difficult. Slight waterlogging and mineralisation in a small number of features has resulted in delicate parts such as hairs surviving on some grains, and uncharred seeds are present in many of the samples, although many of these have a modern appearance and are likely to be intrusive.

3.7.7 Unfortunately, many of the cereal grains are incomplete and puffy or clinkered, and as a result many could not be further identified; those listed as indeterminate in Tables 17 and 18 are generally too badly damaged to identify accurately, although the majority are likely to be either wheat or barley. Where firmly identified, the wheat comprises both small rounded grains and larger, more oval-shaped grains with the blunt end and deep germ area typical of free-threshing varieties such as bread wheat (*Triticum aestivum;* Jacomet 2006, 22).

3.7.8 Barley (*Hordeum* sp.) is common and appears to be exclusively hulled, probably six-row barley (*Hordeum vulgare*), with the distinctive shape very evident in many grains although the slight twisting of the side grains is difficult to establish with certainty. Rye (*Secale cereale*) is also present in most of the analysed samples and is frequently in fairly good condition

3.7.9 Oats (*Avena* sp.) and oat/brome (*Avena/Bromus*) were difficult to differentiate as many of the grains are missing the testa. The lack of oat floret bases means that it is not possible to identify wild or cultivated varieties and although they lack some of the distinguishing characteristics, it is possible that some of the larger grass seeds in the table are also oat/brome.

3.7.10 Cereal chaff is relatively rare and the majority of what was recovered consists of rachis fragments; all those identified are barley. It is likely that the remaining fragments are a mixture of barley, wheat, and rye but they are generally either fragmented or heavily encrusted and lack any distinguishing characteristics. Upper rachis nodes (the part attaching to the grain) from free-threshing wheat are also commonly present across the site. Wheat glume base fragments are present in samples 7 and 21 but are small and too badly damaged to identify further. They indicate the presence of some glume wheat such as spelt (*Triticum spelta*) or emmer (*Triticum dicoccum*).

Table 17: Summary of charred plant remains from earliest Iron Age contexts

Sample No		*21*	*20*	*13*
Context No		*680*	*682*	*254*
Feature		*679*	*679*	*255*
Group				*916*
Description		*Basal Fill of Waterhole*	*Middle Fill of Waterhole*	*Single Fill of Ditch*
Date/Phase		*Earliest Iron Age*	*Earliest Iron Age*	*Earliest Iron Age*
Volume (L)		*40*	*40*	*40*
Flot Volume (ml)		*60*	*150*	*200*
Proportion of flot sorted		*100%*	*50%*	*50%*
Charcoal				
	>4mm	50	100	25
	4-2mm	50	200	50
Cereal grain				
Triticum sp.	wheat (oval cf. free threshing type)	5		5
Triticum sp.	wheat (rounded free threshing type)	3		3
cf *Triticum* sp.	probable wheat	2		1
Hordeum sp.	hulled barley	2		2
cf *Hordeum* sp.	probable barley	2	1	3
Avena/Bromus	oat/brome	1	2	1
Secale cereale	rye			1
Cerealia	indeterminate cereal	12	9	29
Chaff				
Triticum dicoccum/spelta	emmer/spelt glume base fragments	3		
Triticum cf *aestivum*	rachis node	1		5
Hordeum sp.	rachis node	1		
Triticum/Hordeum/Secale	rachis node	1#		3#
Avena sp.	oat awns			*
Hordeum sp.	barley in floret		1	
Nuts/Fruit etc.				
Corylus avellana	hazelnut shell	3f	11f	
Wild Species				
Vicia/Lathyrus sp. 4-2mm	vetch/vetchling/tare, etc.			1
Vicia/Lathyrus sp. <2 mm	vetch/vetchling/tare, etc.			2 + 2f
Rumex sp.	docks (3 sided)		1	
Carex sp.	sedges (3 sided)		1	
Poaceae	grass seeds (medium)		2	3
Indeterminate	seed/fruit	2#	1#	1#

Key: # item is very damaged f = fragment only * fragments rare ** fragments occasional *** fragments common (1/2) half only present s = silicified ? = unclear if charred

Table 18: Summary of charred plant remains in early-middle Anglo-Saxon contexts

Sample No		*25*	*6*	*5*	*7*	*8*	*9*	*10*	*11*	*12*
Context No		*761*	*110*	*111*	*116*	*115*	*82*	*83*	*87*	*218*
Feature		*760*	*112*	*112*	*113*	*113*	*84*	*84*	*84*	*219*
Group										*208*
Description		*Basal Fill of Waterhole*	*Middle Fill of Pit*	*Lower Fill of Pit*	*Upper Fill of Pit*	*Middle Fill of Pit*	*Upper Fill of Pit*	*Middle Fill of Pit*	*Basal Fill of Pit*	*Single Fill of Ditch*
Date/Phase		*Early-Middle Saxon?*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*
Volume (L)		*20*	*40*	*40*	*40*	*40*	*40*	*40*	*40*	*40*
Flot Volume (ml)		*60*	*250*	*200*	*100*	*150*	*200*	*150*	*200*	*100*
Proportion of flot sorted		*100%*	*25%*	*50%*	*100%*	*50%*	*50%*	*50%*	*50%*	*100%*
Charcoal										
	>4mm	50	50	100	50	50	50	25	25	19
	4-2mm	100	100	200	100	100	100	100	50	50
Cereal grain										
Triticum sp.	wheat (oval cf. free threshing type)	5	8	98	22	28	6	16	5	12
Triticum sp.	wheat (rounded free threshing type)	10	18	64	16	6	9	13	2	30
cf *Triticum* sp.	probable wheat	9	6	21	16	7	12	14		9
Hordeum sp.	hulled barley	12	4	13	13	5	197	40	10	2
cf *Hordeum* sp.	probable barley	4	4	10	1	2	38	6	5	1
Avena sp.	oat		6	12	2		21	7		10
Avena/Bromus	oat/brome	2	9	19	7	8	22	18		20
Secale cereale	rye		7	5	22	29	10	2		7
Cerealia	indeterminate cereal	100	179	267	115	125	213	80	25	90
Chaff										
Triticum dicoccum/spelta	emmer/spelt glume base fragments				2					
Triticum cf *aestivum*	rachis node	1	9	47	7	5	8	13		25
Hordeum sp.	rachis node		7	8	9	14	5	3		4
Hordeum sp.	rachis internode		7		15	5	3	2		
Triticum/Hordeum/Secale	rachis internode	1#	2#	15#	62#	12#	1#	2#		1#
Triticum/Hordeum/Secale	rachis node	1#	22#	61#		25#	9#	16#		15#
Avena sp.	oat awns	*	**	***						**

Sample No		*25*	*6*	*5*	*7*	*8*	*9*	*10*	*11*	*12*
Context No		*761*	*110*	*111*	*116*	*115*	*82*	*83*	*87*	*218*
Feature		*760*	*112*	*112*	*113*	*113*	*84*	*84*	*84*	*219*
Group										*208*
Description		*Basal Fill of Waterhole*	*Middle Fill of Pit*	*Lower Fill of Pit*	*Upper Fill of Pit*	*Middle Fill of Pit*	*Upper Fill of Pit*	*Middle Fill of Pit*	*Basal Fill of Pit*	*Single Fill of Ditch*
Date/Phase		*Early-Middle Saxon?*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*
Hordeum sp.	barley in floret			1						
Cerealia	grain in floret	1#								
Cerealia	floret			1						1
Cerealia	coleoptile				1f					2f
Cerealia	detached embryos		3	4		1	11	3		1
Nuts/Fruit etc.										
Corylus avellana	hazelnut shell		4f	2f	3f		6f	10f		1f
Fabaceae	pea/bean >5mm		2#	1#		1(1/2)	1f			
Wild Species										
Vicia/Lathyrus sp. >4mm	vetch/pea/bean		2(1/2) + 2f	2				1(1/2)		
Vicia/Lathyrus sp. 4-2mm	vetch/vetchling/tare, etc.	2 + 1f	7 + 5(1/2) + 7f	11 + 4(1/2) + 9f		3 + 2(1/2)	8 + 6(1/2) + 2f	8 + 1(1/2) + 1f		5 + 4 (1/2) + 2f
Vicia/Lathyrus sp. <2 mm	vetch/vetchling/tare, etc.	3 + 2f	8 + 2(1/2) + 2f	10 + 3(1/2) + 12f	1	1 + 1(1/2)	11 + 4(1/2) + 4f	9 + 5(1/2) + 7f		11 + 12(1/2) + 3f
Medicago/Trifolium	medick/clover					2#		1		
Medicago/Trifolium/Lotus	medick/clover/trefoils		4		6	6#	3		1	4
Urtica dioica L.	common nettle							1		
Persicaria sp.	knotweed		3	3	2					
Fallopia convolvulus (L.) A. Love	black bindweed			4			1			
Rumex sp.	docks (3 sided)	18	17	71	8		16	6	1	8
Rumex acetosella L.	sheep's sorrel	2	1	4		1	2			2
Stellaria media (L.) Vill.	common chickweed						1			
Agrostemma githago L.	corncockle		1	1	2		2			1
Chenopodium sp.	goosefoots	1?	4	3		3	3	3		1
Montia fontana L.	blinks						1			
Galium aparine L.	cleavers		1	4		1				3
Galium sp.	bedstraws		1							
Hyoscyamus niger L.	henbane						3			1
Plantago lanceolata L.	ribwort plantain		1				1			
Asteraceae	anthemis/leucanthemum size						3		1	

Sample No		*25*	*6*	*5*	*7*	*8*	*9*	*10*	*11*	*12*
Context No		*761*	*110*	*111*	*116*	*115*	*82*	*83*	*87*	*218*
Feature		*760*	*112*	*112*	*113*	*113*	*84*	*84*	*84*	*219*
Group										*208*
Description		*Basal Fill of Waterhole*	*Middle Fill of Pit*	*Lower Fill of Pit*	*Upper Fill of Pit*	*Middle Fill of Pit*	*Upper Fill of Pit*	*Middle Fill of Pit*	*Basal Fill of Pit*	*Single Fill of Ditch*
Date/Phase		*Early-Middle Saxon?*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*
Anthemis cotula L.	stinking chamomile	8	17	26			6	12	1	4
Leucanthemum sp.	oxeye daisy	2		3			1			
Tripleurospermum cf *inodorum* (L.) Sch. Bip	scentless mayweed	2	2	4					1	1
Valerianella dentata Mill	narrow-fruited cornsalad							1		
Juncus sp.	rushes	1		5						
Eleocharis sp.	spike-rushes		31	28	2	1	3	4	1	1
Carex sp.	sedges (3 sided)		1				1	1		
Poaceae	grass seeds (small)	2	2	4	3		10	5		2
Poaceae	grass seeds (medium)		3#	38#			6	2		
Poaceae	grass seeds (large)			6#	4#	6#			1#	
Festuca/Lolium	fescues/ryegrasses	2								1
Other										
Indeterminate	seed/fruit	4#	7#	15#	3#	4#	5#	5#	1#	5#
Raphanus raphanistrum L.	wild radish seed capsule	1								

Key: # item is very damaged f = fragment only * fragments rare ** fragments occasional *** fragments common (1/2) half only present s = silicified ? = unclear if charred

3.7.11 Occasional fragments of hazelnut shell (*Corylus avellana*) occur in samples from across the site. A few legumes, in very poor condition, include several probable large vetches (between 4mm and 5mm) and larger examples which are likely to be pea/bean (*Pisum/Vicia faba*). While hazelnut shell is distributed across the site and within features of all periods, legumes were only found in the Anglo-Saxon samples.

3.7.12 Uncultivated plants are present in samples from across the site although the earliest Iron Age features usually contain smaller quantities. Most seeds are types which are generally considered to be from plants of cultivated and disturbed ground such as vetches (*Vicia/Lathyrus*), docks (*Rumex* sp.) and stinking chamomile (*Anthemis cotula*). Goosefoots (*Chenopodium* sp.) are also common but the presence of clearly modern examples means that only those examples which are certainly charred have been included in Tables 17 and 18; all others are quantified in Tables 19 and 20.

3.7.13 Many of the samples include uncharred seeds but those from the waterholes are few and likely to be intrusive. While uncharred seeds are present within most flots, the majority of these are in extremely good condition, so good in fact that a number had begun to sprout, leading to the conclusion that some at least of these are modern intrusions. Uncharred seeds of similar type and condition were also present within other features and it was therefore decided to record all uncharred seeds together with their condition to identify the likelihood of any of them being ancient.

3.7.14 Tables 19 and 20 show details of all uncharred seeds. The taxa present are limited although some seeds, especially common nettle (*Urtica dioica*) and goosefoots (*Chenopodium* sp.) are very well represented. Those seeds which are clearly ancient, however, are few and largely limited to pits 84 and 112 from the Anglo-Saxon period which also contained some cess-like material with green staining and a small amount of mineralisation.

Earliest Iron Age
Waterhole 679 – Samples 20 and 21

3.7.15 Samples 20 and 21 represent the middle and basal fills of earliest Iron Age waterhole 679. The basal fill (sample 21) contained the largest quantity of charred crop-related material. While lacking rye, which is present in samples of later date, free-threshing wheat and barley are both present in small quantities although it is likely that these are intrusive. A very small quantity of glume bases is, however, also present. They are highly fragmented and could be residual, although as evidence of glume wheat they are consistent with the date of the feature. Sample 20 contains a smaller quantity of charred material.

3.7.16 Although the feature has been interpreted as a waterhole and had gleyed fills, there was no indication of anaerobic preservation within the samples. Charred seeds from wild plants are extremely scarce, and while uncharred seeds are present, they are in very good condition and likely to be intrusive. Taxa include stinging nettle (*Urtica dioica*), dock (*Rumex* sp.) and thistles (*Carduus/Cirsium*) indicative of disturbed waste ground.

Table 19: Summary of uncharred plant remains from earliest Iron Age contexts

Sample No		*PLANTATT habitat code*	*20*	*21*	*13*
Context No			*682*	*680*	*254*
Feature			*679*	*679*	*255*
Group					
Description			*Middle Fill of Waterhole*	*Basal Fill of Waterhole*	*Single Fill of Ditch*
Date/Phase			*Earliest Iron Age*	*Earliest Iron Age*	*Earliest Iron Age*
Volume (L)			*40*	*40*	*40*
Flot Volume (ml)			*150*	*60*	*200*
Proportion of flot sorted			*50%*	*100%*	*50%*
Wild Species					
Trifolium sp.	clover			1	
Rubus fruticosus L.	bramble	1, 3			2
Urtica dioica L.	common nettle	3, 5, 14, 17	12	33	7
Rumex sp.	docks (3 sided)		1	1	
Stellaria graminea L.	lesser stitchwort	6	2		
Chenopodium sp.	goosefoots	4			2
Leonurus cardiaca L.	motherwort	?			1
Carduus/Cirsium	thistles			1	3
Poaceae	grass seeds (small)				1

Ditch 916 – Sample 13

3.7.17 The flot from sample 13, from the single fill of earliest Iron Age ditch 916, is similar in composition to sample 21 but also contains small quantities of wild or cultivated oats (*Avena* sp.) and vetches.

Early–middle Anglo-Saxon period
Pit 113 – Samples 7 and 8

3.7.18 Samples 7 and 8 were taken from the upper and middle fills of early–middle Anglo-Saxon pit 113. The fills contained very similar assemblages of plant remains with large quantities of unidentifiable cereal grain together with free threshing wheat, hulled barley, oats and rye. Sample 7 also includes two small fragments of spelt or emmer glume base, and both samples contain common rachis fragments from barley and possibly free-threshing wheat (*Triticum* cf *aestivum*).

3.7.19 Wild plants are again largely those of cultivated and disturbed ground. Uncharred seeds are in very good condition with the assemblage dominated by common nettle (*Urtica dioica*) and goosefoots (*Chenopodium* sp.). A small number of the goosefoot seeds had, however, begun to sprout during processing so at least this material is likely to be modern.

Table 20: Summary of uncharred plant remains from early-middle Anglo-Saxon contexts

Sample No		*PLANTATT habitat code*	*25*	*7*	*8*	*6*	*5*	*9*	*10*	*11*	*12*
Context No			*761*	*116*	*115*	*110*	*111*	*82*	*83*	*87*	*218*
Feature			*760*	*113*	*113*	*112*	*112*	*84*	*84*	*84*	*219*
Group											*208*
Description			*Basal Fill of Pit*	*Upper Fill of Pit*	*Middle Fill of Pit*	*Middle Fill of Pit*	*Lower Fill of Pit*	*Upper Fill of Pit*	*Middle Fill of Pit*	*Basal Fill of Pit*	*Single Fill of Ditch*
Date/Phase			*Early-Middle Saxon?*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*
Volume (L)			*20*	*40*	*40*	*40*	*40*	*40*	*40*	*40*	*40*
Flot Volume (ml)			*60*	*100*	*150*	*250*	*200*	*200*	*150*	*200*	*100*
Proportion of flot sorted			*100%*	*100%*	*50%*	*25%*	*50%*	*50%*	*50%*	*50%*	*100%*
Wild Species											
Fumaria officinalis L.	common fumitory	3, 4									1
Vicia/Lathyrus sp. <2 mm	vetch/vetchling/tare, etc.										1
Trifolium sp.	clover						1		1		1
Rubus fruticosus L.	bramble	1, 3			1f			1	2	3	1
Urtica dioica L.	common nettle	3, 5, 14, 17		591	172			94	54	93	2
Urtica urens L.	small nettle	4, 17							4	5	
Malva neglecta Wallr.	dwarf mallow	3							1	1	
Thlaspi arvense L.	field penny-cress	3, 4					1				
Rumex sp.	docks (3 sided)			17	6	10*	1 + 4*	1	1	3*	1
Rumex/Carex	dock/sedge (3 sided)				4#						2#
Stellaria media (L.) Vill.	common chickweed	3, 4, 5		3				27	14	9	
Chenopodium sp.	goosefoots	4		211	60	4	14 + 3m	49	23	48	24
Atriplex sp.	orache					1m		2	1		
Galium aparine L.	cleavers	3, 4, 17								1	
Solanum nigrum L.	black nightshade	4				1					
Lamiaceae	dead-nettle family					1					
Leonurus cardiaca L.	motherwort	?		21	8						
Carduus/Cirsium	thistles			4#	2			1			4
Leontondon saxatilis Lam. (L. Taraxacoides (Vill.) Merat nom. Illeg.)	lesser hawkbit	7						1			
Sambucus nigra L.	elder	3, 17					1				2
Eleocharis sp.	spike-rushes					1	4			1	1
Carex sp.	sedges (3 sided)			22							2
Poaceae	grass seeds (small)			5	2		1	2	1		1

Sample No		*PLANTATT habitat code*	*25*	*7*	*8*	*6*	*5*	*9*	*10*	*11*	*12*
Context No			*761*	*116*	*115*	*110*	*111*	*82*	*83*	*87*	*218*
Feature			*760*	*113*	*113*	*112*	*112*	*84*	*84*	*84*	*219*
Group											*208*
Description			*Basal Fill of Pit*	*Upper Fill of Pit*	*Middle Fill of Pit*	*Middle Fill of Pit*	*Lower Fill of Pit*	*Upper Fill of Pit*	*Middle Fill of Pit*	*Basal Fill of Pit*	*Single Fill of Ditch*
Date/Phase			*Early-Middle Saxon?*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*	*Early-Middle Saxon*
Other											
Indeterminate	seed/fruit					2	2* + 3m	3			

Key: # item is very damaged f = fragment only *appears ancient m=mineralised (1/2) half only present s = silicified ? = unclear if charred

Table 21: PLANTATT habitat codes (Hill et al. 2004)

Broad Habitat codes
1 Broadleaved, mixed and yew woodland
2 Coniferous woodland
3 Boundary and linear features (eg hedges, roadsides, walls)
4 Arable and horticultural (includes orchards, excludes domestic gardens)
5 Improved grassland
6 Neutral grassland (includes coarse Arrhenatherum grassland)
7 Calcareous grassland (includes lowland and montane types)
8 Acid grassland (includes non-calcareous sandy grassland)
9 Bracken
10 Dwarf shrub heath (cover of dwarf shrubs at least 25%)
11 Fen, marsh and swamp (not wooded)
12 Bog
13 Standing water and canals
14 Rivers and streams
15 Montane habitats (acid grassland and heath with montane species)
16 Inland rock (quarries, cliffs, screes)
17 Built-up areas and gardens
18 Supralittoral rock (does not include maritime grassland)
19 Supralittoral sediment (strandlines, shingle, coastal dunes)
21 Littoral sediment (includes saltmarsh and saltmarsh pools)
23 Inshore sublittoral sediment (only Zostera marina)

Pit 112 – Samples 5 and 6

3.7.20 Samples 5 and 6 came from the middle and lower fills of early–middle Anglo-Saxon pit 112. As with pit 113, both fills produced very similar charred plant assemblages with large quantities of unidentifiable cereal grain together with grain of free threshing wheat, hulled barley, oats and rye. Sample 5 from the lower fill is particularly rich in cereal grain although the majority are indeterminate. Rachis fragments are well represented as are oat awns. Hazelnut shell fragments are present alongside a small number of larger legumes which may be either peas or beans.

3.7.21 Seeds from plants of cultivated and waste ground include docks and stinking chamomile as well as spike rushes (*Eleocharis* sp.) indicating the presence of damp ground nearby.

3.7.22 The flots show some evidence of a sewage component. Green staining was observed, and some agglomerations of material appear to be largely composed of compressed and concreted fine charcoal fragments. The uncharred seeds include a few which appear modern (mainly goosefoots) but also include a small number of docks which are likely to have been preserved by waterlogging. In addition, there are a small

number of mineralised seeds and occasional vivianite staining indicates that this feature was certainly waterlogged in the past.

Pit 84 – Samples 9, 10 and 11

3.7.23 Samples 9, 10 and 11 came from the upper, middle, and basal fills of early–middle Anglo-Saxon pit 84. As with pits 113 and 112, charred cereal grains are common. While the assemblage from the basal fill is not particularly rich, the samples from the middle and upper fills include abundant grain with sample 9 one of the richest on the site. Free threshing wheat, hulled barley, oats, and rye are all present and the barley in sample 9 is well preserved and abundant.

3.7.24 Rachis fragments are present in the upper and middle fills although not the basal fill which probably reflects the lower proportion of material in the base of the pit.

3.7.25 Wild taxa are dominated by plants of cultivated and waste ground, particularly docks and stinking chamomile and, as with the samples from pit 112, spike rushes indicate the presence of damp ground.

3.7.26 Faecal waste is also likely to have been a component of the lower fill (sample 11) as the deposit also showed some green staining and there are small encrusted agglomerations of material which are similar to those from pit 112 and include fragments of fish bone. As with pit 112, while most of the uncharred seeds have a modern appearance and are dominated by common nettle and goosefoots, in pit 84 there are also seeds of common chickweed (*Stellaria media*) and a few seeds appear to be waterlogged. No mineralised seeds were found but there is evidence of vivianite staining.

Ditch 208 – Sample 12

3.7.27 While the date of ditch 208 is uncertain, the charred assemblage is quite large and includes free-threshing wheat grains, oats, rye and hulled barley which is consistent with an Anglo-Saxon or later date. As is typical for samples from this site, however, most of the cereal grain is indeterminate and in poor condition.

3.7.28 The absence of glume wheat chaff as well as the morphology of the wheat grains and rachis fragments indicates a free-threshing variety of wheat rather than a cleaned crop of glume wheat. Additionally, the similarity in assemblage composition in both this sample and those from pits 112, 113 and 84 suggests that this feature is likely to either date to a similar period or to contain intrusive material. The presence of both corncockle (*Agrostemma githago*) and stinking chamomile (*Anthemis cotula*) is inconsistent with an earliest Iron Age date: both species are archaeophytes and considered to have been introduced during the Iron Age (Online Atlas of the British and Irish Flora; Pelling *et al.* 2015, 90).

3.7.29 Uncharred seeds are common but appear to be modern and intrusive, demonstrating that the fill has been subject to some level of bioturbation.

Waterhole 760 – Sample 25

3.7.30 Sample 25 from the basal fill of early–middle Anglo-Saxon waterhole 760 contains a large grain assemblage but, as with many of the samples, much of the grain is in poor, damaged condition and not identifiable to genus. Free-threshing wheat and hulled

barley form the majority of the grain assemblage. Only small quantities of chaff are present, which is typical for free-threshing cereals which leave fewer processing remains than the glume wheats. Wild plants are generally of the types seen within the other features on site (ie those of cultivated and disturbed ground). No obviously uncharred seeds are present; a single goosefoot may be intrusive.

Discussion

Grain assemblages in the south-east

3.7.31 In the south-east of England emmer wheat (*Triticum dicoccum*) was gradually replaced by spelt wheat (*Triticum spelta*) as early as the Bronze Age in parts of Kent and generally before the middle of the Iron Age (Champion 2019, 21–3). Barley, mainly the hulled six-row variety, was cultivated throughout the Bronze and Iron Ages, and oat is frequently present as a minor component (which was not necessarily cultivated; *ibid.*). The Roman period is largely characterised by the cultivation of spelt wheat and hulled barley (Campbell 2017, 137; Lodwick 2017; Allen *et al.* 2019, 19) with spelt wheat dominating most assemblages in this region.

3.7.32 The transition to the Anglo-Saxon period in the south-east is accompanied by the adoption of free-threshing wheats as the main crop together with the introduction of rye (Thomas 2019, 35). While some continuity of the use of glume wheats has been demonstrated, they are not as common (*ibid.*). Hulled barley continued as a significant crop during the Anglo-Saxon and medieval periods and oats appear to have formed a major proportion of the cultivated species for the first time.

The prehistoric samples

3.7.33 It is generally accepted that in the Iron Age glume wheats were customarily stored in the glume and processed as and when needed, resulting in a generalised but reasonably low-level distribution of crop-related charred material across areas of occupation, accompanied by seeds from wild plants growing alongside and within the crop (Hillman 1981; Jones 1985; Stevens 2003, 62–3; van der Veen 2019, 809).

3.7.34 The earliest Iron Age samples from this site are atypical, showing little sign of the characteristic glume wheat chaff signature. A total of three small glume base fragments are present across all the analysed samples for this period, and no complete spikelet forks or glume bases are present even within those samples which were assessed but not fully recorded. This is particularly interesting as the chaff elements most likely to survive from glume wheats are the glume bases (Van der Veen and Jones 2006, 218).

3.7.35 Barley is usually considered to be a secondary crop in south-east England largely because it is less commonly found within prehistoric assemblages (Lodwick 2017, 18–19). It is unclear how prevalent barley is within the Iron Age samples when compared with the volume of wheat. The large numbers of grains too badly damaged to assign to either category mean that it is impossible to gain a clear picture of the grain ratios. While the quantities of identifiable barley within the Anglo-Saxon pits are larger than those in earlier features, these features also contain richer assemblages of charred plant remains overall and the partial waterlogging may have aided preservation.

3.7.36 The chaff of free-threshing cereals is largely represented by rachis remains, which are removed early in the processing sequence and are consequently relatively infrequent in archaeobotanical assemblages (Van der Veen and Jones 2006, 219). Although not common within the Iron Age samples their presence does confirm the identification of some of the wheat as a free-threshing variety.

3.7.37 Iron Age archaeobotanical assemblages are typically charred and are often dominated by the by-products of grain de-husking and cleaning which are deliberately burnt as either fuel or waste (van der Veen 2019). This generally results in assemblages of chaff and weed seeds, with only little grain. The analysed assemblages from this site by contrast contain only small quantities of chaff, almost exclusively of free-threshing cereals. The few glume wheat fragments present were small and very badly damaged.

3.7.38 The archaeobotanical evidence for the cultivation of free-threshing wheat during the Iron Age in southern Britain is problematic (Campbell 2017) and may derive from intrusive medieval material (Campbell 2017; Lodwick 2017). The percentage of free-threshing wheat grains is generally low. Excavations at nearby Laleham showed no evidence of unusual assemblages, and glume wheat chaff, while not abundant, was present within the assemblages from the Iron Age features (Hayman 2018).

3.7.39 Excavations at Terminal 5, Heathrow also showed the presence of emmer and spelt wheat chaff in larger quantities, with emmer being the dominant wheat during the Bronze Age, a more even split between emmer and spelt in the Iron Age and spelt becoming the dominant wheat by the early to middle Roman period (Carruthers 2010). Barley is present throughout this period but is generally less common by the Iron Age than wheat. Barley becomes the most common grain type in the Anglo-Saxon period with bread wheat the main cereal by the medieval period.

3.7.40 Emmer and spelt again dominate the pre-Anglo-Saxon assemblages in the HS1 excavations at Ebbsfleet in Kent (Stevens 2011a, 96; Smith 2011a, 113) being largely supplanted by small quantities of free-threshing wheat and larger quantities of hulled barley with some rye in the Anglo-Saxon period, although some use of emmer and spelt into the Anglo-Saxon period was observed within samples from Northfleet (Stevens 2011b, 97–8; Smith 2011b).

3.7.41 It seems likely, therefore, that this charred material at Home Farm was intrusive and probably derives from later Anglo-Saxon activity. The presence of intrusive medieval charred plant remains, especially free-threshing wheat, in even apparently well-sealed prehistoric contexts is well documented (Pelling *et al.* 2015; Stevens and Fuller 2012), and it seems that the generally shallow, truncated features at Home Farm Quarry were especially susceptible.

3.7.42 Small numbers of wild plant seeds from a relatively limited suite of taxa are present within these features, with waterhole 679 containing almost no uncultivated material. The majority of the wild plant species noted within the Iron Age samples are plants typically found in arable fields or other disturbed ground and are therefore are likely to have been collected accidentally along with the cereals and to have been removed during stages of crop processing such as threshing and sieving.

3.7.43 Plants with a preference for damp conditions are present in only very small numbers in the Iron Age samples and could just represent small groupings in the bases of ditches.

The Anglo-Saxon samples

3.7.44 After the 4th century AD, cultivation of bread wheat dominates the archaeobotanical record on many sites, accompanied by rye, barley and oats, and by the 8th century these crops together with peas and beans form what is considered to be a distinctive Anglo-Saxon pattern (Fowler 2002, 213; McKerracher 2018, 96), although the proportions of the crops appear to have varied regionally.

3.7.45 This pattern of free-threshing grains accompanied by legumes is exactly what is represented by samples taken from the Anglo-Saxon pits (112, 113 and 84) at Home Farm Quarry. Barley is also well preserved within these features which may be a result of the partial waterlogging of the bottoms of the pits, but where grains are poorly preserved, the damage is likely to be pre-depositional. Barley, while usually considered a relatively minor crop in earlier periods, appears to increase in its importance from the Anglo-Saxon period onwards and is certainly well represented within the early–middle Saxon assemblage at Home Farm Quarry.

3.7.46 Occasional fragments from >4mm legumes may be from peas (*Pisum sativum*) or Celtic beans (*Vicia faba*), but they are in very poor condition and may in fact be larger vetches. Those >5mm are, however, unlikely to be vetches. Unfortunately, peas and beans are rarely processed in a manner that would make them likely to be carbonised and so there is a bias in their preservation which means it is difficult to determine if they were a part of a crop grown locally or were imported from elsewhere (Treasure and Church 2016).

3.7.47 Wild plants are well represented in the Anglo-Saxon features and as with those attributed to the earlier periods the vast majority are those of arable and disturbed ground with the most common of these being docks (*Rumex* sp.), stinking chamomile (*Anthemis cotula*), and grasses (Poaceae). The presence of stinking chamomile is often considered to be an indicator of the cultivation of damper, heavier clay loam soil and is considered to be an indicator of agricultural intensification in the Roman period. Its presence within the Anglo-Saxon samples may indicate cultivation of the damper ground close to the river. Free-threshing wheats are also thought to thrive on rich clay soils (McKerracher 2018, 98). It must always be remembered, however, that many wild species considered to be weeds have a wide range of tolerance and may be found in areas which would not be considered optimum.

3.7.48 Plants with a preference for damp conditions are also present in the Anglo-Saxon pits. There are a few sedge (*Carex* sp.) and rush (*Juncus* sp.) seeds but spike rush (*Eleocharis* sp.) is extremely well represented, being the dominant wild species within pit 112. Bearing in mind the partial waterlogging of these two features, it is likely, however, that this is more a reflection of local geography rather than of changes within the landscape or in agricultural practices.

3.7.49 The Anglo-Saxon samples contain the only uncharred seeds which can be definitively identified as of ancient rather than modern origin. Of the waterlogged seeds, all

identifiable individuals are docks. The mineralised seeds, which include orache (*Atriplex* sp.) and goosefoots as well as a small number of badly damaged unidentified seeds, are generally small and are from species which are also common within the charred assemblage.

3.7.50 The remaining seeds (ie those with a modern appearance) are largely those which fall within the PLANTATT broad habitat codes 3, 4 and 17 (Hill *et al*. 2004), being generally species which are common within boundary and linear features (eg hedges, roadsides and walls), arable and horticultural (including orchards but excluding domestic gardens) and built-up areas and gardens (see Tables 19–21 for details).

3.8 Wood charcoal, by Julia Meen

3.8.1 Charcoal was preserved in all 26 of the bulk samples. An initial scan of each sample to establish the quantity of potentially identifiable charcoal fragments (greater than 2mm diameter) indicated that 19 samples might contain sufficient charcoal to warrant analysis. A further assessment of these 19 samples, with identification of up to 20 charcoal fragments per sample, was undertaken to refine the selection of assemblages for full analysis. Selection also aimed to include coverage of all the main phases of activity at the site, in order to explore changes in fuel selection and woodland composition over time.

3.8.2 On the basis of these considerations and the results of the initial identifications, nine samples have been selected for further work to characterise the range and proportions of constituent wood taxa. These are from late Neolithic/early Bronze Age pit 492, Iron Age ditch 255, and early to middle Anglo-Saxon pits 84, 112 and 113 and ditch 208.

3.8.3 Wood taxa identifications were made on the basis of diagnostic anatomical characteristics, as described in Schweingruber (1990), Hather (2016) and Gale and Cutler (2000). A selection of charcoal pieces from each sample were fractured and examined on the transverse, radial and tangential sections, as required, at up to x400 magnification using a Brunel SPBD400 Metallurgical microscope. Plant nomenclature follows Stace (2010). Presence of heartwood, indicated by the development of tyloses in xylem vessels, and of roundwood, signified by strong curvature of the growth rings, was also noted. Table 22 shows the wood taxa identified from each of the samples.

Late Neolithic/early Bronze Age pit 492

3.8.4 The charcoal from late Neolithic/early Bronze Age pit 492 is dominated by diffuse porous taxa, particularly those commonly found in secondary woodland or hedgerows. Charcoal of blackthorn/cherry (*Prunus* sp.) and hawthorn type (Maloideae; a group that also includes apple and whitebeam) form the greater part of the assemblage, while oak (*Quercus* sp.) and hazel (*Corylus avellana*) charcoal make up much of the remainder.

Earliest Iron Age ditch 255

3.8.5 The sample from Iron Age ditch 255 is strongly dominated by oak (*Quercus* sp.), with small quantities from smaller trees: hazel, hawthorn type and field maple (*Acer campestre*). The presence of tyloses in the xylem vessels of the oak fragments indicates it is from heartwood, which forms only in mature trees. This mix of larger,

mature oak and smaller, scrubby trees perhaps reflects a distinction between oak as the main heat-generating fuelwood and faster burning brushwood, chosen less discriminately to be used for kindling. The similarity of this samples to those from Anglo-Saxon contexts suggests that, like the charred plant remains, the charcoal may include a significant proportion of intrusive material.

Table 22: Wood charcoal from Shepperton

	Date	*LNEO/EBA*	*IA*					*E/M Saxon*		
	Sample No	*16*	*13*	*12*	*8*	*5*	*6*	*9*	*10*	*11*
	Context No	*491*	*254*	*218*	*115*	*111*	*110*	*82*	*83*	*87*
	Cut No	*492*	*255*	*219*	*113*		*112*			*84*
	Feature Type	*Pit*	*Ditch*	*Ditch 208*	*Pit*		*Pit*			*Pit*
	Fill				*Middle*	*Lower*	*Middle*	*Upper*	*Middle*	*Basal*
	Sample Vol	*40L*	*40L*	*40L*	*40L*	*40L*	*40L*	*40L*	*40L*	*40L*
	Flot Vol	*100ml*	*200ml*	*100ml*	*150ml*	*200ml*	*250ml*	*200ml*	*150ml*	*200ml*
	Charcoal >4mm	*61*	*43*		*100*	*133*	*200*	*100*	*51*	*50*
	Charcoal 4-2mm	*100*	*200*	*105*	*300*	*200*	*300*	*300*	*200*	*20*
cf *Cytisus scoparius* (L.) Link	broom					1 r	1 r			
Prunus sp.	blackthorn/cherry	20		2	2					
cf *Prunus* sp.	cf blackthorn/cherry				1	1				
Prunus/Maloideae	blackthorn/cherry/hawthorn type					1 r				
Maloideae	hawthorn/apple/whitebeam	4		1	4	2 r	4 (r)		1	
cf Maloideae	cf hawthorn/apple/whitebeam	1	1		1					
Fagus sylvatica L.	beech			2		1				
Quercus sp.	oak	8	10 h	36 (h)	33 (h)	72 (h, r)	70 (h)	10	30 (h)	2
cf *Quercus* sp.	cf oak				1	1		1		
Betulaceae	birch family						1			
Betula sp.	birch			2	1		6 (r)		2	
cf *Betula* sp.	cf birch						1		2	
Alnus glutinosa (L.) Gaertn.	alder				1		1			
Corylus avellana L.	hazel	1		1	3	7 (r)	8 (r)		2	
cf *Corylus avellana* L.	cf hazel		3	1	1			2		
Corylus/Alnus	hazel/alder	5					2			
cf *Corylus/Alnus*	cf hazel/alder	2					1			
Salix/Populus	willow/poplar			3		1			3	
Acer campestre L.	field maple				7	1	1		1 r	
cf *Acer campestre* L.	cf field maple	1	1		1				1	
Fraxinus excelsior L.	ash					1	1	1	2	
Ilex aquifolium L.	holly					7				
cf *Ilex aquifolium* L.	cf holly			1						
Ring porous								1		1
Diffuse porous		6		1	8	4	3	5	1	7
Indet		2			1				5	
		50	15	50	65	100	100	20	50	40

Anglo-Saxon features

3.8.6 All seven of the analysed Anglo-Saxon charcoal assemblages are similar in character to each other – and to that from the Iron Age ditch – being dominated by oak with a

diverse range of other, mostly diffuse porous species present, albeit as only a few examples each. These include hazel, beech (*Fagus sylvatica*), willow/poplar (*Salix/Populus*), hawthorn type, birch (*Betula* sp.), blackthorn/cherry, alder (*Alnus glutinosa*), ash (*Fraxinus excelsior*) and holly (*Ilex aquifolium*). This suggests a similar pattern of use as seen in the Iron Age sample, with oak seemingly being used as the main fuel, with indiscriminate collection of shrubby taxa perhaps for kindling.

3.8.7 Both samples from Anglo-Saxon pit 112 contain a single fragment of leguminous roundwood, which compares favourably to broom (*Cytisus scoparius*). Broom is a shrub that grows on acid soils on heaths and open woodlands; it gets its name from the use of its branches for sweeping (Edlin 1973, 116).

Conclusions

3.8.8 Overall, the charcoal from the site does not suggest that there were significant differences in the wood resources available, nor in their selection, in the different periods during which the site was occupied. While there is an apparent preference for diffuse porous taxa in the sample from the late Neolithic/early Bronze Age pit, in contrast to the dominance of oak in all samples from later periods, it is not possible, from a single sample, to say if this is representative of wood use during the earliest occupation of the site or reflects the presence of intrusive material.

4 DISCUSSION

4.1 Earlier prehistoric activity and the palaeochannel

4.1.1 With the exception of the Grooved Ware pit, none of the potential evidence for Neolithic activity at Home Farm Quarry can be well dated, or, indeed, attributed to that period with any confidence. This is most conspicuously the case for the ring ditch (which is discussed in more detail below) but also applies to the sparse scatter of worked flint which was found across the eastern half of the site. It also includes the palaeochannel. The available evidence clearly indicates that the palaeochannel had silted up by the earliest Iron Age, but the small group of eight pieces of worked flint recovered from its upper fill suggests that it may have begun to silt up much earlier, perhaps prior to the Neolithic. This conclusion is at least consistent with the results from Staines Road Farm (Jones 2008, 4) where a palaeochannel of the Ash was found which also contained earlier prehistoric worked flint (although peat had formed in the channel there at an earlier date). The palaeochannel at Ashford Prison, again probably related to the Ash, is also thought to have silted up at an earlier date (Carew *et al*. 2006). More detailed analysis of the development of palaeochannels at Runnymede Bridge and the Eton-Dorney Rowing Lake have revealed complex sequences of change (Allen *et al.* chap. 3; Needham 1991; 1992; Lambrick and Robinson 2009, 30–1) to which it is impossible to relate the evidence at Home Farm Quarry.

4.2 Late Neolithic

4.2.1 The earliest more securely dated feature is the late Neolithic pit (834) which contained a small group of Grooved Ware. It is possible that two further pits (490 and 492) might also date to the same period, although the evidence for their date is more equivocal.

4.2.2 The evidence at Home Farm Quarry joins a corpus of late Neolithic pits in Surrey and West London which has expanded greatly in the last few decades (Williams 2017, table 18; Framework Archaeology 2010, CD section 1, 18–19; Poulton *et al.* 2017, 255–6). The contents of such pits vary enormously (Framework Archaeology 2010, 122). Within Surrey and West London they include groups rich in pottery at Betchworth (Williams 2017), rich in flint at Hengrove Farm (Poulton *et al.* 2017), and an example with a scoop made from an aurochs bone at Lower Mill Farm, Stanwell (Jones and Ayres 2004).

4.2.3 Compared to the striking and large assemblages of finds from the pits at some of these sites, the pits at Home Farm Quarry contained very modest group of finds: one (834) contained just seven sherds of Grooved Ware with a little burnt flint, some charred hazelnut shell and charcoal, and the other two (490 and 492) just two small sherds, a little worked flint, fired clay and charcoal. Such small groups of finds are, in fact, typical of many Grooved Ware pits, including some of the examples at Hengrove Farm (Poulton *et al*. 2017, 249–58) and Heathrow (Framework Archaeology 2010, 113–16; 2006, 36), and they can easily be dismissed as nothing more than small quantities of domestic debris, secondarily disposed of in pits.

4.2.4 There is, indeed, nothing to suggest that the deposits were of special significance, but there are two features of the pits which are worth noting. The first is the significance

of the kinds of material which are not represented in the pits, and the second is the significance of the fired clay they contain.

The limited range of finds

4.2.5 Interpretations of the processes involved in the deposition of artefacts in Neolithic pits often contrast two possibilities: the deliberate selection of material for deposition and the deposition of mixed, fragmentary and partial material which has been randomly selected from a 'pre-pit context', usually thought to be a surface midden (eg Pollard 1993, 195–202; Thomas 2002, chap. 4; Garrow *et al*. 2005, 149; Garrow 2012). The finds from the pits at Home Farm Quarry do not, at first glance, fall entirely clearly on either side of this opposition. Although the finds are mixed, fragmentary and partial and thus seem to derive from secondary deposition from a pre-pit context, there are some features which suggest that they might contain selected items. The sherds in pit 834 could all come from a single vessel (which may not be wholly represented because of the truncation of the site), and the larger group of fired clay from pit 490 could be taken to imply a more direct relationship with the source of the fired clay than secondary deposition would suggest. In the case of pit 490 this argument is strengthened by the absence of other finds: this pit was used only for the deposition of fired clay, probably from a single structure.

4.2.6 A similar argument could also be used to suggest that the finds from pit 834 had been selected for deposition. Most noticeable is the absence of any worked flint. On other sites, worked flint is almost ubiquitous in Grooved Ware pits, and it is, therefore, difficult to believe that a random selection of finds from a late Neolithic midden would lack it entirely. (The absence of animal bone might also be significant but could simply reflect the fact that animal bone has not survived in the Neolithic pits.)

4.2.7 At the same time, it is difficult to imagine a scenario in which the contents of this pit (843) – a broken pot, burnt unworked flint, charred hazelnut shells and charcoal – would be singled out from a wider assemblage of finds for special deposition in a pit.

4.2.8 Non-random selection is not, however, the only process which could explain the limited range of finds in pit 843. The absence of flint in pit 843 could simply reflect the fact that only a small sample of finds was taken from a primary midden elsewhere. It is perhaps more likely, however, that the limited range of finds reflects the fact that the source from which they were drawn – the primary context in which they were deposited – was equally limited. And the limited range of finds there might reflect either a limited range of associated activities or a brief period of activity.

4.2.9 The finds from pit 843 do not provide any very clear clues as to the character of that activity. A single pot, burnt flint, charcoal and charred hazelnut shells need not derive from anything more than the cooking and consumption associated with a brief period of occupation, although it is possible that they were related to hazelnut roasting (cf. Score and Mithen 2000).

Fired clay in Grooved Ware pits

4.2.10 Although its date is uncertain, it is also worth highlighting the potential significance of the fired clay from the other two potentially late Neolithic pits (490 and 492). Although it rarely attracts much attention, fired clay has been recovered from a small but

significant proportion of Grooved Ware pits. It was, for example, represented in a number of the late Neolithic pits at Hengrove Farm (pits 114 and 6087 and tree-throw hole 6154; Poulton *et al.* 2017, 250), Betchworth (pit 220: Williams 2017, 113) and RMC Land (pit 5732: Powell *et al.* 2015, chap. 2). More widely, examples have been found, for example, at Barrow Hills, Radley in Oxfordshire (Barclay and Halpin 1999,74, 82), Popley, Basingstoke in Hampshire (Wright *et al.* 2009, 3), Black Patch in the Vale of Pewsey, Wiltshire (Pollard 1993, 184) and Clifton Quarry, Worcestershire (Mann and Jackson 2018, 25).

4.2.11 One of the most interesting examples was found at White Horse Stone, Kent, where fired clay was concentrated in pits close to two small, round, stake-built structures (Hayden and Stafford 2006, 76–80, table 15), and the finds in these pits contrasted with those elsewhere on the site which generally contained richer groups of animal bone and no fired clay. This association is interesting because it suggests a connection between the pits and structures.

4.2.12 The form of the structure from which the fired clay in pits 490 and 492 derived is uncertain, but some fragments had moulded surfaces and they may well derive from a hearth or oven. Although late Neolithic structures are not very well known, strikingly, where they have been found, they are often associated with central hearths. The stone-built structures in Orkney show such features particularly clearly (Edmonds 2019, chap. 4), but the structures at Durrington Walls, Wiltshire, also had central hearths, in these cases, made of chalk (Parker Pearson 2012, chap. 6), and the light stake-built structures at Upper Ninepence, Powys (Gibson 1999, 36–46) were also associated with central hearths. In areas without stone or chalk, it is quite possible that hearths might have been fashioned out of clay.

4.2.13 Not all of the fired clay from Grooved Ware pits can necessarily be interpreted as the remains of hearths. The late Neolithic pits at Eyhorne Street in Kent, for example, contained a decorated fired clay object (Hayden 2006, 11). Nonetheless, the fact that Neolithic pits, including pit 492 at Home Farm Quarry, often contain, dark, charcoal-rich fills, suggests that their contents often includes ash from hearths, and the inclusion of fragments of the hearths themselves would not be surprising. Even in temporary hunter-gatherer camps, clearing ash from hearths may be a daily task (Yellen 1977, 143).

4.2.14 One implication of this is obvious: that pits containing fired clay may have been associated with houses. Similar conclusions might still apply if the pits date from the Beaker period or early Bronze Age. Much less is known about houses in these periods (eg Gibson 2019; Parker Pearson 2019, 92–6) and the connection between hearths and houses is not as clearly evidenced as it is in the late Neolithic, even if, given the British climate, it is plausible.

4.2.15 A consideration of what the presence of fired clay from a hearth or oven implies about the longevity of occupation at such sites would take us well beyond the evidence from Home Farm Quarry and is beyond the scope of this discussion. It has, however, been plausibly argued that the houses at Durrington Walls were not permanently occupied (Parker Pearson 2012, chap. 6), and given the limited range of finds at many other

Grooved Ware pit sites, including Home Farm Quarry, it is quite possible that any such structures there might also have been occupied only seasonally.

Late Neolithic: conclusions

4.2.16 Overall, then, the three potentially late Neolithic features provide very different kinds of evidence for activity at Home Farm. The small mixed group of finds from pit 492 may derive from everyday activities which were perhaps associated with a structure. The fired clay deposit in nearby pit 490 may derive from the renovation or destruction for other reasons of a hearth associated with such a structure. The contents of pit 834, in contrast, suggest a more specialised set of activities or a briefer period of occupation.

4.3 Ring ditch

4.3.1 Unfortunately the potential significance of the ring ditch is vitiated by the lack of clear dating evidence. The only finds recovered from it were a single untempered sherd (1g), small quantities of burnt, unworked flint, a few fragments of charred (unidentifiable) grain and a single charred vetch seed. As a result, rather than adding new, independent evidence to our knowledge of such monuments, we are dependent upon comparisons with other sites to assess its likely date and hence its wider significance. That exercise is complicated both by the fact that ring ditches from different periods have few distinctive features, and by the fact that the possibly severe degree of truncation of the ring ditch at Home Farm Quarry means that we cannot be entirely certain that some of its more distinctive features – notably the two possible entrances – were not just the product of truncation.

An Iron Age ring gully?

4.3.2 One possibility, that the ring ditch was related to a later prehistoric roundhouse, seems unlikely due to the absence of finds from the ring ditch, and the lack of evidence for activity after the earliest Iron Age. Such ring gullies are often penannular but they vary considerably in form and include examples with two entrances. They also vary in size, but the mean diameter of 12.2m in the Middle and Upper Thames calculated by Davies (2018, table 6.1) is close to the 11.4m diameter of the ring ditch at Home Farm Quarry. The gullies themselves also vary considerably in depth and width, but many, including examples at Hengrove Farm (eg gullies 2361, 1322, 1323: Poulton *et al.* 2017, 43–7), were quite shallow and narrow. Overall, in terms of their dimensions there is nothing to distinguish them from the ring gully at Home Farm Quarry.

4.3.3 They usually, however, date from the middle or late Iron Age, and although there are earlier examples, dating from the middle and late Bronze Age (Thacker *et al.* in prep. table 2), they are not common.

4.3.4 The strongest argument against attributing the ring gully to any of these periods is the absence of finds. Although being quite slight features, they often do not contain large groups of finds, a complete absence would be unusual. Given the location of the ring gully at Home Farm Quarry, close to the northern trackways, the absence of pottery, in particular, suggests that it was not contemporary with the field system. Although it did contain small quantities of burnt unworked flint, like the charred plant remains,

these might have been intrusive and reflect later disturbance, and could, in any case, derive from earlier phases of activity.

Neolithic ring ditches

4.3.5 More plausible possibilities are offered by the suggestion that the feature was a Neolithic or Bronze Age ring ditch related either to a barrow or another form or monument. A significant number of Neolithic ring ditches and horseshoe-shaped monuments have been found in the West London/Surrey area as have a number of ring ditches which were probably associated with early or middle Bronze Age barrows.

4.3.6 The Neolithic monuments have been discussed a number of times in recent years (Framework Archaeology 2010, 65–7; Powell *et al.* 2015, chap. 2; Morigi *et al.* 2011, 280–1; Hayman *et al.* 2012, 50–7; Lamdin-Whymark 2008, 166–70) and need not be reviewed again here. The examples closest to Home Farm Quarry are at Staines Road Farm, Shepperton (Jones 2008) and Ashford Prison (Carew *et al.* 2006), both of which lie close to the river Ash. In terms of the size and form of their ditches, both of these sites provide reasonable, but far from identical, parallels for the Home Farm Quarry ring ditch. Both were, however, associated with much larger assemblages of finds.

4.3.7 Both sites had larger diameters than the Home Farm Quarry ring ditch: 21.5m to 23m at Staines Road Farm and 17.5m at Ashford Prison compared to 11.4m at Home Farm Quarry. The ditch of the Staines Road Farm ring ditch, measuring up to 2.7m across and up to 0.75m deep was also rather larger than the ditch at Home Farm Quarry which measured up to 1.0m across and 0.52m deep but was usually only 0.1m deep (although more severe truncation at Home Farm Quarry could account for some of the difference), but the Ashford Prison ring ditch – up to 1.25m wide and 0.60m deep – was much closer in size.

4.3.8 There are a number of other more specific features which suggest that they might have been related. The first is the evidence for construction in segments. This form of construction is, however, more clearly evidenced at Staines Road Farm and Ashford Prison than it was at Home Farm Quarry where the curve of the ditch was rather more regular than it was at the other sites, and the only indications of a segmented form of construction were the differences in the depth of the ditch. If it was not simply a product of truncation, the north-east–south-west orientation of the entrances at Home Farm Quarry provides a second feature which relates it more broadly to the wider group of sites in west London and Surrey rather than specifically to Staines Road Farm and Ashford Prison. The Staines Road Farm ring ditch had a narrow entrance to the north-east and a constriction to the west, whilst the Ashford Prison ring ditch had no entrances but an indentation on the north-east side might have corresponded to the location of an entrance associated with an early phase of the monument. This broad orientation is, however, matched at horseshoe-shaped enclosures at Heathrow (HE1 and perhaps HE2; Framework Archaeology 2010, 65), Manor Farm, Horton (Ford and Pine 2003), and Imperial College Sports Ground (G3002; G2008 was, however, open to the east; Powell *et al.* 2015, chap. 2) and is shared by some comparable monuments in the Upper Thames (Morigi *et al.* 2011, 277–81) and elsewhere.

A Bronze Age ring ditch?

4.3.9 It is, however, important to stress that these last features – segmented construction and a north-east–south-west orientation – were not entirely clearly represented at Home Farm Quarry: the entrances could have been artefacts of truncation and the segmentation was less clearly indicated than it was at the other sites. It is, therefore, impossible to rule out the possibility that the ring ditch was associated with an early or middle Bronze Age barrow. A number of ring ditches of this date have been excavated at sites nearby, some of which, like the Home Farm Quarry ring ditch, had quite shallow ditches (eg Kingsmead Quarry, Horton: Wessex Archaeology 2009, 16–17; Hurst Park, East Molesey: Andrews and Crockett 1996, 61–4; Prospect Park, Harmondsworth: Andrews and Crockett 1996, 14–15). Although early Bronze Age ring ditches, including the examples at Kingsmead Quarry and Hurst Park, are often larger in diameter than the Home Farm Quarry ring ditch, the middle Bronze Age examples (including the example at Hurst Park) are sometimes smaller.

A middle Neolithic ring ditch?

4.3.10 If, however, the opposed entrances and segmented construction were real, it would be more likely that the Home Farm Quarry ring ditch was Neolithic. Both the Staines Road and the Ashford Prison ring ditches were associated primarily with Mortlake Ware, but Ebbsfleet Ware was also found at both and Plain Bowl pottery at Staines Road Farm as well. There are radiocarbon dates from Staines Road Farm which suggest that it could have been constructed in the 37th or 36th centuries cal BC (Whittle *et al.* 2011, 396) as some of the comparable sites in the Upper Thames probably were. Slightly later, but still middle Neolithic dates have been obtained from some of the other possibly comparable sites (eg ring ditch G2007 and horseshoe-shaped monument G2008 at Imperial College Sports Ground), and a broadly middle Neolithic date, in the period from 3600 to 2900 cal BC might be suggested for the ring ditch at Home Farm Quarry.

Rich and poor monuments

4.3.11 It is also important to stress that alongside the similarities with Staines Road and Ashford Prison, there are differences. the most notable of these is marked by the very different quantities of finds associated with the Home Farm Quarry ring ditch and those at Staines Road Farm and Ashford Prison. Staines Road Farm contained the most striking group, including a crouched burial and part of another skeleton, antler picks, fragments of red ochre, wolf and fox skulls and other animal bone, fired clay, burnt unworked flint and large assemblages of pottery and worked flint. The finds from Ashford Prison were less striking but still included significant assemblages of pottery, worked flint and burnt unworked flint. The presence of human remains, including cremations, at other sites (eg Manor Farm, Horton and Imperial College Sports Ground G2007 and G2008) could also be seen as marking a significant difference from the Home Farm Quarry ring ditch.

4.3.12 At both Staines Road Farm and Ashford Prison there is, however, evidence that the monuments were modified over time. Like later barrows they are, therefore, best seen as projects which developed over time rather than monuments built with a clear final form and function in mind (Bradley 2007). The evidence from them is a palimpsest accumulated through their development, as the differing layers from which the finds

at Ashford Prison and Staines Road Farm show. It is possible that the scarcity of finds at Home Farm Quarry simply reflects the fact that it had a short history and had fallen out of use before any of the kinds of activities evidenced by the finds from Staines Road Farm and Ashford Prison took place.

4.3.13 There are also, however, other possibilities which would suggest that the paucity of finds at Home Farm Quarry was more significant. It has been noted before that there is a more general contrast between the ring ditches in West London and Surrey which were associated with rich finds assemblages and those with few finds (eg Hayman *et al.* 2012, 5). Similar contrasts exist between other forms of monument. Causewayed enclosures, including the example at Staines (Robertson Mackay 1987), are often associated with large assemblages of finds whilst cursus monuments, including the examples at Heathrow (Framework Archaeology 2010, 67–109), in contrast, are often associated with few. It has been suggested that this difference might be related to differences in the form of ritual associated with the sites. Feasting and other forms of indulgence were associated with the causewayed enclosures and fasting and other forms of abstinence with the cursus monuments (Ellis *et al.* in prep.). It is possible that a similar difference was related to the finds-rich and the finds-poor ring ditches. This would imply the existence of a significant ritual contrast between the poor ring ditch at Home Farm Quarry and the rich sites at Staines Road Farm and Ashford Prison.

4.4 Earliest Iron Age

Form and formation of the field system

4.4.1 Perhaps the most interesting feature of the field system at Home Farm Quarry is its relatively late date which, when combined with the results from the excavations carried out at Home Farm Quarry by SCAU to the north-west, shows the development of field systems in this area over a period extending from the middle Bronze Age to the earliest Iron Age. Despite this long period of development, there are indications that in both areas the field systems from different periods were organised in similar ways in relation to the River Ash. The contrast which is often made between co-axial and aggregate field systems (Bradley 1978, 268–9; Framework Archaeology 2010, 138) may conflate two features of field systems which the evidence from Home Farm Quarry suggests can be separated: a spatially regular pattern of fields and development over time. The common structure of trackways running down to the river also provides some hints as to how the field system might have been used.

4.4.2 Although badly truncated, especially in the western part of the site, enough survives of the field system in the eastern part of the site to show that its layout was broadly rectilinear. The presence of waterholes to the west suggests that it extended in that direction, probably throughout the excavated area, and the surviving ditches in the east suggest that it extended beyond the limits of the excavation in that direction too.

Spatial organisation of the field system

4.4.3 It seems likely that the orientation of the field system was related to the River Ash. The course of the Ash has no doubt changed slightly, but the northern trackways probably ran roughly parallel to the river and the western trackway at right angles to it. In this respect it is similar to the field system revealed by the SCAU excavations to the north-

west which also revealed a trackway running orthogonally towards the river (in Area SE; Hayman *et al*. 2018, fig. 2; see Fig. 2).

4.4.4 There is thus some indication that the field systems revealed in both areas of excavation were laid out in a similar way in relation to the river, rather than forming a strictly rectilinear pattern. The slight bend in the southern boundary within the OA excavations may also reflect the realignment of the field system as it followed the bend in the river where it turns to the north (Fig. 10). Although the trackways at Heathrow are conspicuously not aligned on the river (Framework Archaeology 2010, fig. 3.1), this form of organisation is paralleled in field systems in other areas. The field system at Fengate, for example, has a similar form of organisation structured around trackways running at right angles to the fen edge, forming a pattern which Pryor describes as axial rather than coaxial (Pryor 2001, 408, fig. 1.1).

Use of the field system

4.4.5 Although, given the contrasts between the fens and the river, they are unlikely to have been identical, the similarities in the organisation of the field systems at Home Farm Quarry and Fengate in relation to the river and the fens suggests that there might have been some similarities in the way in which they were used. In the case of Fengate, Pryor (1978, 161–3; 2001, 408) argued that the trackways were used to drive animals seasonally between the rich pasture of the fens and the higher, drier ground where settlements were located. There would have been a much smaller area of pasture available along the Ash than there was in the Fens, but it nonetheless seems plausible that pasture beside the river would have been exploited, probably in the summer. Rocque's 1757 map of Middlesex shows a narrow strip of land running along the river Ash which is differentiated from the fields on either side and which presumably represents meadow (although it is unlikely that the area was used to produce hay in prehistory: Rackham 2020, chap. 15; cf. Lambrick and Robinson 2009, 41 and 49). Curiously, this strip does not extend through the area adjacent to the Home Farm Quarry site, but the situation in the 18th century need not have been identical to that in prehistory. If the land next to the river was used as summer pasture, then the area covered by the field system may have been used for both arable and pasture, to manage animals, and, as is discussed further below, may have been the focus of settlement.

4.4.6 The samples of plant remains from earliest Iron Age contexts evidently contain a high proportion of intrusive material and it is, therefore, difficult to be certain that the few weeds seeds which they contained do, in fact, date from the earliest Iron Age (or, indeed, given that the finds may have been only secondarily deposited in the waterholes, that they were related to the immediately surrounding environment). The charred weed seeds which were recovered, however, are weeds of disturbed ground and, in contrast to the Anglo-Saxon samples, do not indicate that the area was damp or that it was grazed. The contrast with the Anglo-Saxon samples may reflect a rise in the water table over the intervening period which is also reflected in the fact that the shallow Anglo-Saxon pits show signs of waterlogging which are absent from the shallow earliest Iron Age features. The scant remains which were recovered from the earliest Iron Age features at Home Farm Quarry thus hint that, as at Fengate, the area

occupied by the field system lay above, and may have been drier than, any riverside pasture which did exist.

4.4.7 Not surprisingly, the scant plant remains and animal bone from the field system ditches and waterholes suggest that mixed farming was practiced. Although the animal bone hints that cattle may have been raised nearby, the evidence is too limited to provide a detailed picture of the agricultural regime. Interpretations of later Bronze Age field systems have tended to stress their relationship with pastoralism (eg Pryor 1996; 1998, 89; Yates 1999). Recent sampling of middle and late Bronze Age field systems in the Upper Thames and the Thames Estuary, however, has found that charred grain was widely distributed, albeit in small quantities, and has thus underlined the importance of arable agriculture. Whilst it remains difficult to judge the relative importance of the two, it seems likely that field systems were related to mixed agricultural regimes. It is possible that one of the reasons why they were so widely adopted was because they allowed the relationship between herds and crops to be managed, keeping animals away from crops as they grew but concentrating their manure within specific fields at other times (Framework Archaeology 2010, CD section 14, 41).

Dating and development of the field system

4.4.8 One of the most striking features of the field system at Home Farm Quarry is that although there were similarities in the arrangement of trackways in the SCAU and OA excavations in relation to the river, they were very different in date, and the field system as a whole appears to have developed over a long period. The trackway in the SCAU excavations appears to date from the middle Bronze Age (Hayman *et al.* 2018, 70). The evidence from other areas of the SCAU excavations suggests that other parts of the field system, further to the north (in Area NE1), date from the Plain Ware phase of the late Bronze Age. Only a small amount of pottery attributed to the earliest Iron Age was recovered from the SCAU excavations, whereas the whole of the field system in the OA excavations has been attributed to that period. Overall, then, the current dating of the sites suggests that the field system in this area developed over a period stretching from the middle Bronze Age into the earliest Iron Age. No radiocarbon dates are available from either site so it is impossible to give a precise estimate of the length of the period involved, but it must have been in the order of half a millennium or more.

4.4.9 It is possible that the different ways in which the pottery from the SCAU and OA excavations has been dated – and the significance of low proportions of decorated pottery in particular – might account for some of the apparent differences in chronology between the two sites, but even taking account of such differences would not shorten the chronology overall. There are other reasons for being cautious about the dates attributed to the field systems. Given that they were primarily agricultural in use, unless the finds recovered from them were distributed by manuring, the finds are unlikely to be directly related to the use of the field system but rather, as is discussed in more detail below, may well consist of debris generated elsewhere which was only secondarily deposited in the ditches and associated waterholes. The chronology of the finds does not, therefore, necessarily reflect the chronology of the use of the field system, but rather that of activity elsewhere. The possibility that the ditches were cleaned out adds further complications, although there was no clear evidence that the ditches at Home Farm Quarry were recut.

4.4.10 There are other reasons to be cautious in the case of Home Farm Quarry. Anglo-Saxon and possibly more recent charred plant remains were recovered from the field system ditches and waterholes. The presence of such finds in apparently well sealed prehistoric contexts has been well documented by Pelling *et al*. (2015) and Stevens and Fuller (2012), but the presence of such material does indicate the potential for later material, especially small fragments, to become incorporated into earlier features, as the small number of later finds, regarded as intrusive, recovered from the field system ditches at Home Farm Quarry demonstrate. At Imperial College Sports Ground, it was noted that that many of the middle Bronze Age ditches contained earliest Iron Age pottery (Powell *et al.* 2015, chap. 3). At Home Farm Quarry, however, neither the pottery nor any of the other finds provides a clear indication of activity in the middle or late Bronze Age, and there is thus no evidence to support the idea that the field system was laid out prior to the earliest Iron Age.

4.4.11 It is also worth stressing that the pottery from the field system ditches has been dated largely on the basis of its fabrics, and that the proportions of fabrics in the ditches differ slightly from those in the waterholes. Whist this could be taken to suggest that the field system ditches differed in date to the waterholes, the higher proportion of sand in the pottery from the ditches would suggest that they were later than the more certainly dated waterholes, and would only extend the chronology of the field system further. The quantities of pottery from the field system ditches are, however, small – rarely more than five sherds (see Table 4) – and the differences in the proportions of fabrics may not be significant.

Other earliest Iron Age field systems

4.4.12 The late date for the field system in the OA excavations is unusual but a small number of other sites provide potential parallels, although the dating evidence is often poor and the excavations limited in extent. An apparently coaxial system with two trackways that might be of earliest Iron Age date was found at Stanwell, 6.3km to the north of the site (O'Connell 1990). The ditches there were poorly dated, but, as at Home Farm Quarry, they did contain small quantities of pottery that were comparable to much larger earliest Iron Age assemblages recovered from nearby waterholes. The excavator suggested that the field system preceded the activity represented by the waterholes and one or two roundhouses (O'Connell 1990, 54), but it is possible that all the features were contemporary (Framework Archaeology 2010, 204–5). Another possible earliest Iron Age coaxial system was found at Great Fosters Hotel, Egham, 5km to the west of the site (Leary *et al.* 2010). None of the field system ditches contained any dating evidence, and whilst a single ditch on the same alignment but cutting two field system ditches did contain earliest Iron Age pottery, it may relate to the end of the use of the field system (*ibid*., 40–1).

4.4.13 A relevant but more distant earliest Iron Age site was found at Wickhams Field, Reading, 39km to the west of Home Farm (Crockett 1996, 117–24; Davies 2018, 94). There, parallel ditches possibly representing a trackway were found adjacent to the corner of an enclosure. Other possible trackways dating to the earliest Iron Age have been found at 120–124 King Street, Hammersmith (Humphrey 2001) and Jewsons Yard in Uxbridge (Barclay *et al.* 1995), respectively 18km to the east and 16km to the north of the site. Possible field enclosures probably dating to the earliest Iron Age have also

been found at St Ann's Heath School Playing Field, Virginia Water (Lambert *et al.* 2013) and Eton Road, Datchet (Grassam 2004–8), respectively 6km to the west and 12.5km to the north-west of the site. Excavation at these sites was not, however, extensive enough to clearly show that the ditches belonged to wider coaxial systems.

Wider chronological comparisons: regional variation in the late Bronze Age?

4.4.14 On a broader scale, the occurrence of such late field systems may be more unusual. The construction of field systems in the south of England was generally most widespread in the middle Bronze Age, and the extent to which they were also created in the late Bronze Age examples appears to vary regionally. In Wessex, for example, coaxial field systems probably gave way to a different system of linear boundaries in the late Bronze Age (Bradley *et al.* 1994, 58; Bradley and Fowler 2008; Cunliffe 2000, 155–60). In the Upper Thames Valley, recent radiocarbon dates suggest that the construction of field systems may have had a floruit centred in the 14th century cal BC, although the number of dates is still very limited (Thacker *et al.* in prep.; Davies *et al.* in prep.; Davies and Thacker in prep.). Late Bronze Age field systems in this area are rare, and where they do occur, one example, at least, dates from an early phase of the late Bronze Age (Hayden *et al.* in prep.; see also Mudd 1995; Yates 2007, chap. 5; Davies 2018, appendix 4). Similarly, in the Kennet Valley, field systems appear to have often been abandoned in the late Bronze Age (Brossler *et al.* 2013, 128), although the later example at Wickhams Field has been noted above. Late Bronze Age field systems may, however, have been more common in the lower reaches of the middle Thames and in the Estuary (in and around Mucking and at North Shoebury: Evans *et al.* 2015; Biddulph *et al.* forthcoming; Wymer and Brown 1995, and perhaps in Kent: Booth *et al.* 2011, 179), although this impression may be due to the fact that the evidence is more extensive in the Middle Thames and the estuary than in the Upper Thames.

4.4.15 Even in these regions, field systems appear to have been laid out most extensively in the middle Bronze Age. In the west of London and Surrey, however, late Bronze Age examples have been found at Prospect Park, Harmondsworth (Andrews and Crockett 1996), Hurst Park, East Molesey (ibid.), Matthew Arnold School, Laleham (Hayman and Jones 2008, 11–14) and perhaps also at Spelthorne Fire Station, Ashford (Hayman *et al.* 2018). At other sites, such as Thorpe Lea Nurseries (Hayman *et al.* 2012), there is evidence, often consisting of late Bronze Age waterholes and other features set within earlier field systems, which indicates that field systems probably laid out in the middle Bronze Age were still in use in the late Bronze Age. Hengrove Farm provides another example where late Bronze Age waterholes were found within a middle Bronze Age field system which may have developed over some time (Poulton *et al.* 2017). At Heathrow it has been possible to trace the development of the field system and associated features across a long period spanning the middle and late Bronze Age (Framework Archaeology 2010, chap. 3).

4.4.16 Without a more systematic survey than can be attempted here, it is impossible to clearly assess the level of regional variation in the late Bronze Age, but the hypothesis that there were distinct regional variations along the Thames Valley (as well as more widely) in the later development of field systems is perhaps worth further investigation, with Home Farm Quarry and a number of other sites in West London

and Surrey providing evidence for the construction and use of field systems at a particularly late date.

Axial elements in an aggregate system

4.4.17 The combined evidence from the SCAU and OA excavations at Home Farm Quarry is also significant because it suggests that an apparently spatially coherent field system – at least axial if not coaxial – could have developed over a long period. Although the distinction has been widely applied, the distinction between coaxial and aggregate field systems is not always clear. Perhaps because the first term – coaxial – refers most directly to spatial structure whilst the second – aggregate – can be taken to refer to a process of formation, this classification tends to conflate two aspects of field systems: a coherent spatial structure and development over time. In the case of coaxial systems, these two elements are often linked through the suggestion that their spatial coherence is a reflection of the fact that they were the product of an overarching plan. There are certainly cases, such as the Dartmoor reaves, where the large scale of the systems and the way in which they ignore local topography are at least consistent with this idea (Fleming 2008, although see also Johnston 2005). It is, of course, possible that such grand plans could take some time to realise (as may, for example, be the case for the coaxial elements of the field system at Terminal 5, Heathrow; Framework Archaeology 2010, chap. 3), but the long period over which the field system at Home Farm Quarry developed suggests that other explanations are required.

4.4.18 The simplest explanation is perhaps that having established a field system with a certain orientation, it was easiest to expand it by adding new fields on the same orientation. At Home Farm Quarry, however, the common alignment of the trackways on the river could also be explained by the persistence of agricultural practices and of a common understanding of the landscape, in terms of both agricultural potential and tenure.

4.4.19 It is also worth adding that field boundaries are inevitably social, in the sense that, if two fields adjoin, the boundary of my field is inevitably also a boundary of yours. Trackways, if they ran between fields used by different groups, must also have linked wider populations. Even if they lived as more or less discrete households, perhaps occupied by groups no bigger than extended families, it is unlikely that such groups were unrelated, or that they were entirely self-sufficient. A more plausible scenario is that they were linked by blood and marriage and that frequent exchanges took place between households – not just of food and other goods but also of labour, both for annual agricultural tasks such as ploughing and harvesting and for the construction of field systems and trackways.

4.4.20 Such social relationships provide one explanation for why field systems spread so widely, and, in the middle Bronze Age, quite rapidly. As adjacent, but connected groups began to enclose land, the process would have spread, like dominos falling, across the landscape (perhaps incentivised by claims to land, the fact that opting into the system allowed access to land, helped raise production, or allowed more limited labour to maintain production; Poulton *et al.* 2017, 276). It could, therefore, be seen as surprising that they developed over such a long period at Home Farm Quarry.

4.4.21 An argument can also be made, however, that it is surprising there are not more examples of the growth of field systems similar to that at Home Farm Quarry. In this respect it is worth highlighting another consequence of the establishment of field systems. Fixing the structure of the landscape raises the question of how demographic fluctuations – and especially population growth – were fitted to the fixed landscape. Current interpretations based on evidence primarily in Wessex, Sussex and the Upper Thames (eg Brück 1999; Sharples 2010, 224–35; Hayden *et al*. 2016, 393–7), suggest that in the middle Bronze Age at least, the solution was to move population around the landscape. It has been suggested that a neo-local pattern of settlement existed in which new houses were constructed in new areas for each generation.

4.4.22 The obvious alternative to this strategy would be to alter and expand the field systems, as seems to have happened at Home Farm Quarry. It is thus striking that at least in the Upper Thames and Wessex, the longevity of settlement begins to change in the late Bronze Age at or just before the time at which field systems were going out of use. In this period, houses were sometimes rebuilt in the same location as preceding structures, and settlements may have had greater longevity (Sharples 2010, 224–35; Davies 2018; Hayden *et al.* 2016, 393–7). Settlement features such as pits and posthole groups do perhaps become more conspicuous in the late Bronze Age archaeological record in the lower reaches of the middle Thames, but it is striking that in this area, where field systems may more often have remained in use and were expanded at sites such as Home Farm Quarry, there is very little evidence for the kinds of settlements defined by post-built roundhouses which appear further up the Thames.

Evidence for occupation: finds distributions

4.4.23 The finds recovered from the field system ditches and associated features are perhaps more directly relevant to the question of the character of any settlement associated with the field system than they are to the agricultural use of the field system, although in the context of a society whose primary activities were agricultural it is likely that these questions are closely related.

4.4.24 The question of the character of settlement is particularly pertinent in the middle Thames since although evidence for field systems in this region is now very extensive, little obvious evidence for settlement in the forms which might be expected (such as post-built roundhouses) has been found (although possible examples of post-built roundhouses were found in the SCAU excavations at Home Farm Quarry (Hayman *et al.* 2018, 11), possibly at Hengrove Farm (Poulton *et al.* 2017, 271–2) and Petters Sports Field (Needham 1990). In the case of the excavations at Heathrow 'settlements' were identified in various ways: by the presence of pits and postholes (few of which formed clearly defined structures), of what were taken to be assemblages of domestic waste, and, in one case, of woodworm beetles which suggest the existence of wooden buildings (Framework Archaeology 2006, 126; 2010, 162). Poulton *et al.* (2017) refer to zones defined in similar ways as 'activity areas' rather than as settlements. The woodworm remains at Heathrow suggest that there could have been wooden structures which are not clearly evidenced in other ways (perhaps lost there, as at Home Farm, by truncation), but the varied ways in which areas of occupation or activity have been defined underline the difficulty of recognising settlement within the later Bronze and earliest Iron Age field systems in the middle Thames.

4.4.25 The finds from Home Farm Quarry exemplify some of these difficulties. Combined, the finds include a good range of the types which might be expected on a settlement – pottery, animal bone, charred plant remains, charcoal, burnt and worked flint, fired clay probably from an oven, and fragments of a quern. Different types of finds were, however, deposited in different ways in different areas of the site, and any attempt at interpretation must take these differences into account.

4.4.26 To some extent, the distribution of finds at Home Farm Quarry can be explained by the size of the features. The largest and most diverse assemblages of finds tended to come from the largest features: the waterholes contain the largest groups of finds, followed by the ditches (which contain a good range of finds in generally small quantities), and then the pits (which are all quite small and which contain little but pottery) and the postholes (which contain no finds other than a few small sherds).

4.4.27 Overall, then, there is a reduction in both the quantities of finds and the diversity of finds in the smaller features. The reduction in quantities is shown most clearly in the case of the pottery, the analysis of which also reveals differences in the degree to which the pottery in different contexts was fragmented (Fig. 20). The reduction in diversity is rather less clear, largely because of the marked differences in the spatial distribution of particular kinds of finds (see Table 4). Both of these differences – in the condition of the pottery and in the distribution of different kinds of finds – indicate that the size of the features alone cannot explain all of the patterning.

4.4.28 Before turning to the other factors which may have influenced the distribution of finds, it is, nonetheless, important to note one consequence of the relationship between the quantity of finds and the size of the features. It implies that the overall distribution of finds is, in part at least, simply a reflection of the distribution of features rather than a straightforward indication of where the activities which generated the artefacts took place. The relationship between where artefacts were recovered and the location of the activities which generated them is also likely to be complicated by the possibility (which is considered further below) that the finds were secondarily deposited some distance from the locations where the related activity occurred (Hayden and Cannon 1983).

4.4.29 The most significant differences in the kinds of material deposited and in the degree of fragmentation of the pottery occur between the ditches and the waterholes. The finds from the ditches generally consist of small quantities of mixed finds consisting of pottery, burnt unworked flint, worked flint and occasionally animal bone and charred plant remains (see Table 4). Such finds could well be seen as domestic debris, and the fact that they are fragmentary, partial (ie do not contain complete or refitting vessels) and mixed suggests that they might have been secondarily deposited in the ditches, either as ‘clutter refuse’ from a primary midden elsewhere (cf. Hayden and Cannon 1983, 131–3) or perhaps, given the quite small quantities of finds, as the result of the spreading of manure from a midden.

4.4.30 Such a process might also account for the small quantities of finds recovered from the postholes. If waste was deposited in a midden which was periodically cleared away, then the only finds which are likely to have been deposited in the postholes are what

Hayden and Cannon (1983, 156) refer to as microrefuse – the small fragments which had evaded attempts to keep any associated structures clean.

4.4.31 There is, however, some spatial patterning within the finds from the ditches which suggests that there may have been a more direct relationship between the location of some of the finds and the area where they were used than the idea that they were secondarily deposited might suggest. The burnt flint, for example, was concentrated in two areas – the ditches defining the Northern Trackways and the Southern Boundary – but was scarce elsewhere (see Table 4). Similarly, animal bone was most widely distributed in the Northern Trackway ditches but was rare elsewhere. The quantities of animal bone are, however, perhaps too small to attach much significance to – and it does occur in more isolated deposits elsewhere (including a notable deposit in one of the Western trackway ditches). The way in which the burnt flint was used is uncertain. The idea that flints were used as pot boilers has been questioned (Seager Thomas 2010). One possible alternative, that they were used to dry crops (Cunliffe 2005, chap. 16), might explain their distribution around the edge of a field. Unfortunately, the quantities of potentially intrusive material in the charred plant assemblages were too great to allow any useful inferences about the significance of their distribution.

4.4.32 Overall then, the finds from the ditches could be seen as having derived from a range of possibly domestic and agricultural activities, and as having been only secondarily deposited in the ditches, either as clutter refuse or as a result of manuring. Both processes would imply that the location of the activity from which the finds derived could have lain some distance away from the ditches, although the concentration of burnt flint in certain areas suggests a possibly closer spatial relationship between the activity and the finds than is the case for the more widely distributed categories of finds.

4.4.33 Many of the finds from the waterholes, in contrast, appear to derive much more directly from specific episodes of activity. This is perhaps most obviously the case for the large deposit of fired clay in waterhole 679. The form of the structure from which this fired clay derived is uncertain, but it appears to come from the lining of the base of an oven or hearth. The concentration of the fired clay in a single deposit suggests that it was deposited quite directly from the site of the structure when it was broken up rather than having been secondarily deposited elsewhere first. (It is tempting to connect this fired clay to the small deposit of calcined animal bone in the layer above (682) but it is, of course, impossible to know if there was any connection between the two. The layer above also contained three fragments of a quern stone which were not burnt and cannot be easily related to the other finds in the waterhole.)

4.4.34 Four of the waterholes (863, 679, 841 and 622) also stand out from the other features because of the very large deposits of pottery they contained. The mean sherd weight of a few of these deposits is also notably high compared to other contexts. There is, however, a quite strong general linear relationship between the weight of the ceramic assemblages from features of all kinds and their mean sherd weights (Fig. 20). This relationship is perhaps simply due to the fact that the larger assemblages (which tend to be in large features) are more likely to contain large sherds than the small assemblages (which tend to be in small features). One of the deposits from waterhole

863, however, has an exceptionally high mean sherd weight and stands out as a clear outlier from the others. It was this waterhole which contained the axehead. (Another deposit (624), from waterhole 622, also deviates significantly from the overall trend, as does one of the pits (778) but these two features contained only three and two sherds respectively.) The significance of this in relation to the deposition of the axehead is discussed in more detail below. There are, however, other aspects of the context of the axehead which also deserve attention.

Deposition of the axehead: the waterholes as a watery context

4.4.35 There is little doubt that the deposition of the axe was, in some sense, a special act, distinct from the more general processes of deposition. Finds of metalwork of any kind in waterholes or settlements are rare in the later Bronze Age and earliest Iron Age, and it is reasonable to suppose that, if was not deposited in a hoard or in some other special way, most metalwork was recycled rather than being discarded. The axehead at Home Farm Quarry shows some signs of having been used and sharpened and does not appear to have been a purely symbolic object, but it was certainly not a worn out or broken object at the end of its life, and its deposition in the waterhole thus appears to reflect a deliberate decision to deposit a still potentially useful artefact in a specific way.

4.4.36 Boughton's (2015, 277–82, 219–29) analyses of the contexts in which Sompting axeheads were deposited has shown that most were deposited in watery contexts, and more specifically, in the Thames Valley, either in the river or near to it. The axehead from Home Farm Quarry could be seen as fitting this pattern: the waterhole itself was both a watery place itself and was situated quite close to two rivers: the Ash, just 300m or so to the north-east, and the Thames, 1.3km to the west.

4.4.37 None of the other axeheads reviewed by Boughton, however, are known to have come from waterholes or wells. Numerous waterholes have been excavated in the Lower Thames Valley (eg Framework Archaeology 2006, 133–51; Powell *et al.* 2015, chap. 3; Poulton *et al*. 2017) but none contained comparable metalwork. The closest connection is perhaps with two waterholes at Terminal 5, Heathrow, which contained axe or adze hafts (Framework Archaeology 2006, 140–4) which might have been related to a similar practice. Evans-Pritchard (1956, 141–2) noted that amongst the Nuer in the 1940s, if no animal was available, a wild cucumber could be sacrificed in place of a cow or goat, and although the Heathrow hafts both lack axeheads, it is possible that a haft could, in a similar way, have taken the place of a complete axe (and one of them did also contain a Neolithic polished stone axehead). The waterholes were, however, both middle Bronze Age, and probably predated the Home Farm waterhole by 500 years or more. There is thus little evidence that waterholes provided a context which was commonly used in the same way as other watery contexts.

4.4.38 Boughton (2015, 229) also suggests that contexts such as the River Thames were used to deposit axeheads because 'it was perhaps important to deposit the axe in a context from which it would be difficult – or impossible – to retrieve. It may also have been significant that the water was fast moving or deep, suggesting that the socketed axe was deposited in or very close to a medium of constant change or flow'. The waterhole would clearly have lacked the latter of these attributes and being only 1.3m deep,

possibly also the former. Given the proximity of the Rivers Ash and Thames, it could be argued that rather than being a suitable substitute watery context, the use of the waterhole marked a perhaps pointed avoidance of the river.

4.4.39 Bradley (2016, chap. 9) has drawn attention to the potential significance of subtle variations in the natural contexts in which hoards were deposited. Applying the same approach to the waterholes would again suggest that whilst still watery in a general sense, the waterhole would have had a significance which contrasted with that of the rivers.

Deposition in the waterholes and the context of the axehead

4.4.40 The analysis of the other finds in the waterholes adds a further dimension to our understanding of the context in which the axehead was deposited. It is obviously tempting to connect the axehead to the exceptional deposit of pottery which was found above it. Both could, for example, be seen as supporting the idea that waterholes were more than just sources of water and that they perhaps had a wider symbolic significance (eg Framework Archaeology 2006, 136, 142). It is, however, worth stressing that the axehead was recovered from the base of the waterhole and the pottery from a middle fill (867) which only accumulated some time later, after the waterhole had begun to silt up. It is quite possible that the initial significance of the waterhole when it was in use was lost when it was abandoned.

4.4.41 There are also other reasons for thinking that there might not have been any special connection between the axehead and the pottery deposited above. All of the pottery from waterhole 863 appeared to have been freshly broken when it was deposited, but the sherds from only one vessel (of a minimum of six) refitted. Despite the exceptionally high mean sherd weight, the pottery thus consists of a sample of material which had been broken elsewhere. Freshly broken sherds were found in all of the other waterholes (622, 679 and 841) with large groups of pottery, but again the numbers of refits were limited, and they also seem to consist of a selection of material broken elsewhere, and in these cases, the mean sherd weight is consistent with the overall pattern across the site (or, indeed, is lower than might be expected). In almost all cases, these large deposits came from the middle or upper fills (as did the fired clay in waterhole 679) indicating that the pottery had been deposited after the waterholes had started to silt up. It has often been observed on other sites that similar large assemblages of finds are concentrated in the upper fills of waterholes, and the pattern can be most simply explained by the idea that the hollows left by partially filled waterholes which had gone out of use were expediently used to dispose of clutter refuse. Although it stands out because of its exceptionally high mean sherd weight, the deposit of freshly broken pottery in waterhole 863 is part of a wider pattern in which deposits of recently broken pottery were deposited in abandoned waterholes.

4.4.42 It seems likely then, that once they had begun to silt up, the waterholes were regarded as a suitable place to deposit discarded material. This material includes specific groups, such as the fired clay and the large groups of pottery, which appear to derive from specific activities, and which might indicate that the waterholes had a distinct status as a context of deposition, although it is possible that rather than indicating a

significant positive status, being relatively deep, they were regarded as an appropriate place to deposit particularly noxious or polluting material.

4.4.43 It is also striking that not all of the finds from the waterholes appear so exceptional. Two of the waterholes (836 and 677) contained only small quantities of pottery which were nearly as fragmented as the pottery in other features, and which could have derived from similar depositional processes.

4.4.44 Overall, then, the use of waterholes to deposit discarded material fits closely with Hayden and Cannon's (1983, 144) observation in the Mayan Highlands that 'pits were most often used for refuse disposal where pits constructed for other purposes happened to be in disuse, needed filling, and provided a convenient receptacle for refuse'.

Settlement and patterns of deposition: conclusions

4.4.45 Analysis of the finds suggests that distinct processes were involved in the deposition of material into different contexts. The ditches contain a range of mixed finds which could be seen as consistent with a focus of domestic activity having existed somewhere in the vicinity. The processes of deposition suggest that, with the possible exception of the burnt flint, the locations from which the finds were recovered is not necessarily a good indication of where that activity took place, and it is impossible to rule out the possibility that some of them, such as the burnt flint, derive from activities which were carried out in the fields away from a focus of settlement. The single group of possibly contemporary postholes (305) provides the only potentially direct evidence which might indicate the location of related structures, but, perhaps in keeping with the idea that refuse was secondarily deposited elsewhere, the quantities of associated finds from the postholes are striking small. It thus seems appropriate to indicate only broadly the areas in which settlement might have been located (as the reports for Hengrove Farm, Heathrow, and Imperial College Sports Ground do). Although the excavations at Home Farm were not extensive enough to show whether the quantities of finds there mark out the central area as having been related to a concentration of finds, the range and quantities of material suggests that it might have been.

4.4.46 The analysis also suggests that the waterholes contain quite large groups of finds which were derived more directly from more specific episodes of activity. The significance of the finds deposited in the waterholes is, however, unclear. Rather than pointing to any clear answer, the other finds from the waterholes at Home Farm Quarry highlight two issues as potentially significant. The first is whether the fact that the axehead was deposited in the base of the waterhole and the other finds only later, made a significant difference to their meaning. And the second involves the question of whether the differences in the pottery deposits in the ditches and the waterholes indicate that the pottery from the waterholes had a special significance or simply reflects the fact that the waterholes were a convenient location to dump clutter refuse.

4.4.47 If, as the deposit of fired clay in waterhole 679 might indicate, the large pottery deposits in the waterholes are taken to be nothing more than ordinary waste, perhaps more directly deposited into the waterholes when they had gone out of use than the finds from the ditches, then it would appear that whatever special symbolic

significance might have been attached to waterholes whilst they were in use did not affect their later use as a convenient location to dump waste.

4.4.48 If on the other hand, the pottery derived from a special activity which required it to be deposited in a specific way, then it would appear more likely that it was connected to the deposition of the axehead. Both might, for example, have been deposited in the waterhole because they were involved in activity which left them in a polluting state. Resolution of this question would require a wider comparative analysis than is possible here, but it is perhaps worth noting that large deposits of pottery and other mixed finds are commonly recovered from waterholes, and they only rarely contain exceptional objects (and where they do it is often due to waterlogging). The first, more mundane interpretation therefore seems most plausible.

4.5 Anglo-Saxon period

4.5.1 The evidence for Anglo-Saxon activity on the site is limited, both in terms of the number of features – just three pits, one ditch and a waterhole – and in terms of the numbers of finds they contain. A single sherd of Anglo-Saxon pottery from pit 84, another from the topsoil, and a few fragments of loomweights from pit 112 were the only finds which can be dated to the period, although the fragments of Mayen lava, probably from a quern, from pit 113 are also consistent with an Anglo-Saxon date. The remaining features have been dated on the basis of the relatively large assemblages of charred plant remains they contain which include free-threshing wheat, rye, and the archaeophyte stinking chamomile (Pelling *et al.* 2015, 90; Preston *et al.* 2004).

4.5.2 Although limited in quantity, there are several aspects of the evidence which are of interest. The first is the widespread presence of probably Anglo-Saxon charred plant remains across the site, and the second involves the significance of the features themselves.

Intrusive Anglo-Saxon charred plant remains

4.5.3 One surprising result of the excavations was the similarity of the charred plant remains and charcoal from features of different dates, and in particular the occurrence of free-threshing wheat and rye in earliest Iron Age features. The presence of this material is, however, consistent with the results obtained by Pelling *et al.* (2015) who demonstrated, by directly dating them, that such intrusive finds are common even in well-sealed prehistoric contexts.

4.5.4 A more interesting question then arises, concerning why such intrusive remains are so prevalent on the site. Part of the answer probably lies in the extent to which the site has suffered from truncation as a result of which the features were not as well sealed by later deposits as they might have been. It is also possible that part of the answer involves the adoption of heavy ploughs in the Anglo-Saxon period (although they may only have been in use in Kent in the period to which the Anglo-Saxon activity at Home Farm Quarry probably dates: Thomas *et al.* 2016). It is possible that the practice of burning stubble might also have played a role in distributing charred grain so widely across the site, although stubble might have been used for grazing rather than being burnt (Thirsk 1964, 15–16).

4.5.5 Whilst both of these answers might explain how the charred remains came to be incorporated into earlier contexts, they do not explain the presence of the material on the site in the first place. The easiest explanation would perhaps be that they were spread as a result of manuring (Banham and Faith 2014, 42–4). Whilst that might explain the small quantities recovered from the earliest Iron Age features, the groups of charred grain from the Anglo-Saxon features are probably too large to be explained in this way, and their presence on the site may be better explained by the suggestion that crops were being processed on the site (McKerracher 2018, chap. 4; Van der Veen and Jones 2006, 221–2). This suggestion raises the question of whether the features on the site can be interpreted as having been related to a focus of settlement or lay outside of such a focus.

Pits and settlement: the significance of the Anglo-Saxon features

4.5.6 Dispersed scatters of pits and waterholes are a characteristic feature of a number of early–middle Anglo-Saxon sites in west London and Surrey. Such features have, for example, been found in varying numbers at Coldharbour Lane, Thorpe (Lambert *et al.* 2013), Hengrove Farm (Poulton *et al.* 2017), Terminal 5, Heathrow (Framework Archaeology 2010), RMC Land and Imperial College Sports Ground (Powell *et al.* 2015), Prospect Park and Hurst Park (Andrews and Crockett 1996).

4.5.7 At sites where extensive early–middle Anglo-Saxon settlements have been excavated along the Thames the occurrence of such features is variable, but they are never common. In the Upper Thames, at Barrow Hills, Radley, Oxfordshire, just seven pits were found in an extensive excavation that revealed 45 sunken-featured buildings as well as 22 post-built structures (Chambers and McAdam 2007, chap. 3), and at Horcott Quarry, Gloucestershire, just three Anglo-Saxon pits were identified in another extensively excavated sites with 34 sunken-featured buildings and at least one post-built hall (Hayden *et al.* 2016). A rather higher number of pits were, however, found at Mucking, Essex, where 27 pits were dated with some certainty to the Anglo-Saxon period and another 25 were regarded as possibly Anglo-Saxon in extensive excavations which revealed 203 sunken-featured buildings and as many as 53 post-built buildings (Hamerow 1993, 20).

4.5.8 The relationship also appears variable in the West London/Surrey area. At Hurst Park, East Molesey, just three pits were found with six or seven sunken-featured buildings, but at Prospect Park, Harmondsworth, nine pits were found with just four sunken-featured buildings, although one or two halls were also identified (Andrews and Crockett 1996, 21–6). Elsewhere, clear structural evidence is even less well represented, although the number of pits is also often small. At Terminal 5, Heathrow two clusters of pits, as well as other isolated pits and waterholes were found with two sunken-featured buildings (Framework Archaeology 2010, 320–33). Neither the four or five waterholes and intercutting and isolated pits at Hengrove Farm (Poulton *et al.* 2017, 72–4), nor the group of intercutting pits at Coldharbour Lane, Thorpe (Lambert *et al.* 2013, 185) were associated with any structural evidence.

4.5.9 Truncation might, to a limited extent, explain the scarcity of structural evidence at some of the latter sites. And in the case of sites such as Hengrove Farm, where the features contained much larger quantities of finds than were found at Home Farm

Quarry, an argument can be made that structures were built in a way which has not left any clear archaeological trace (Poulton *et al.* 2017, 296–9). The small quantities of finds at Home Farm Quarry, however, are more consistent with the idea that the features were cut in locations which were not associated with a focus of settlement.

4.5.10 In the case of the Home Farm Quarry features, it seems likely that the features were situated in fields which were associated with a focus of settlement which lay elsewhere, perhaps at Shepperton Green or near to the Upper West Field cemetery (Canham 1979; Longley and Poulton 1982). Such a location could account for the small quantities of finds, the presence of appreciable groups of charred plant remains (suggesting that some crop processing was carried out in the fields rather than the associated settlement) and the presence of the waterhole.

5 PUBLICATION AND DISSEMINATION OF RESULTS

5.1.1 It is proposed that an edited version of this report, of appropriate length for publication, should be submitted to the Surrey Archaeological Collections for publication. This report will be made available through OA Library (https://library.thehumanjourney.net/).

6 ARCHIVING

6.1 Retention and disposal of finds and environmental evidence

6.1.1 The worked flint, the Sompting axehead, and prehistoric, Roman and Anglo-Saxon pottery, all have potential for future research and should be retained.

6.1.2 The fired clay has potential for further analysis and diagnostic items should be retained. Non-diagnostic and amorphous fragments have been recorded and need not be retained.

6.1.3 The post-medieval pottery and ceramic building material has little potential for any further analysis and need not be retained.

6.1.4 The metalwork assemblage other than the axehead has very little potential for any further analysis and need not be retained.

6.1.5 The stone from querns has been recorded and should be retained. All of the remaining stone, not listed as worked, can be discarded.

6.1.6 The faunal assemblage should be retained in the archive including the material from undated features since it has the potential for radiocarbon dating which could be used improve our understanding of the site.

6.1.7 It is recommended that all environmental samples apart from those assessed to have no potential (ie containing no identifiable charred plant remains or no charcoal of identifiable size) be retained within the archive. This should include all extracted and identified remains from the samples selected for analysis. Retention of this material will allow for any further work that researchers may wish to undertake on it in the future, such as radiocarbon dating.

6.2 Museum deposition

6.2.1 The finds and documentary archive will be deposited with Spelthorne Museum, accession code SMXSP:2015.001. The finds and documentary archive will be prepared for deposition in accordance with current professional standards (eg Brown 2011; CIfA 2014).

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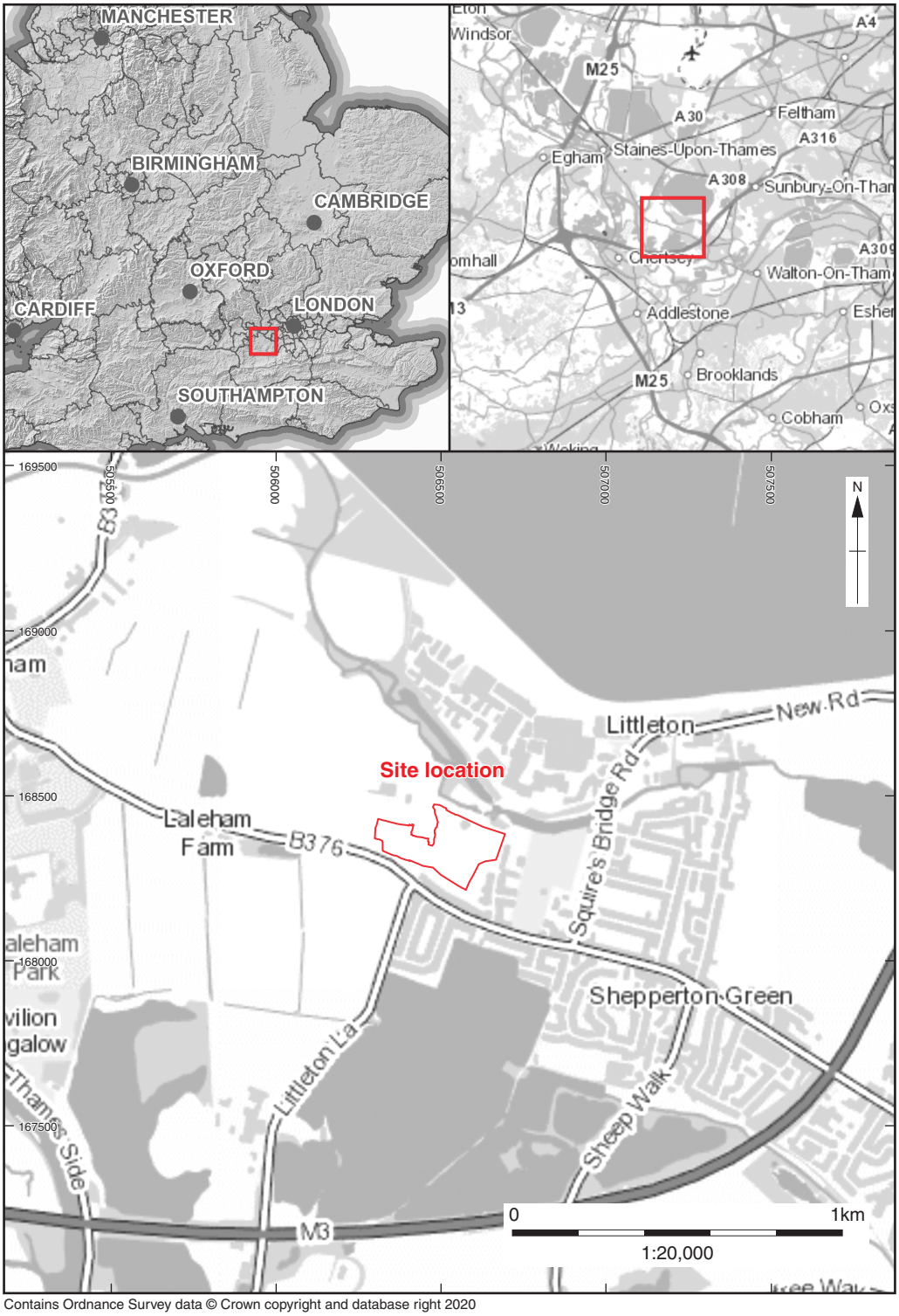

Figure 1: Site location

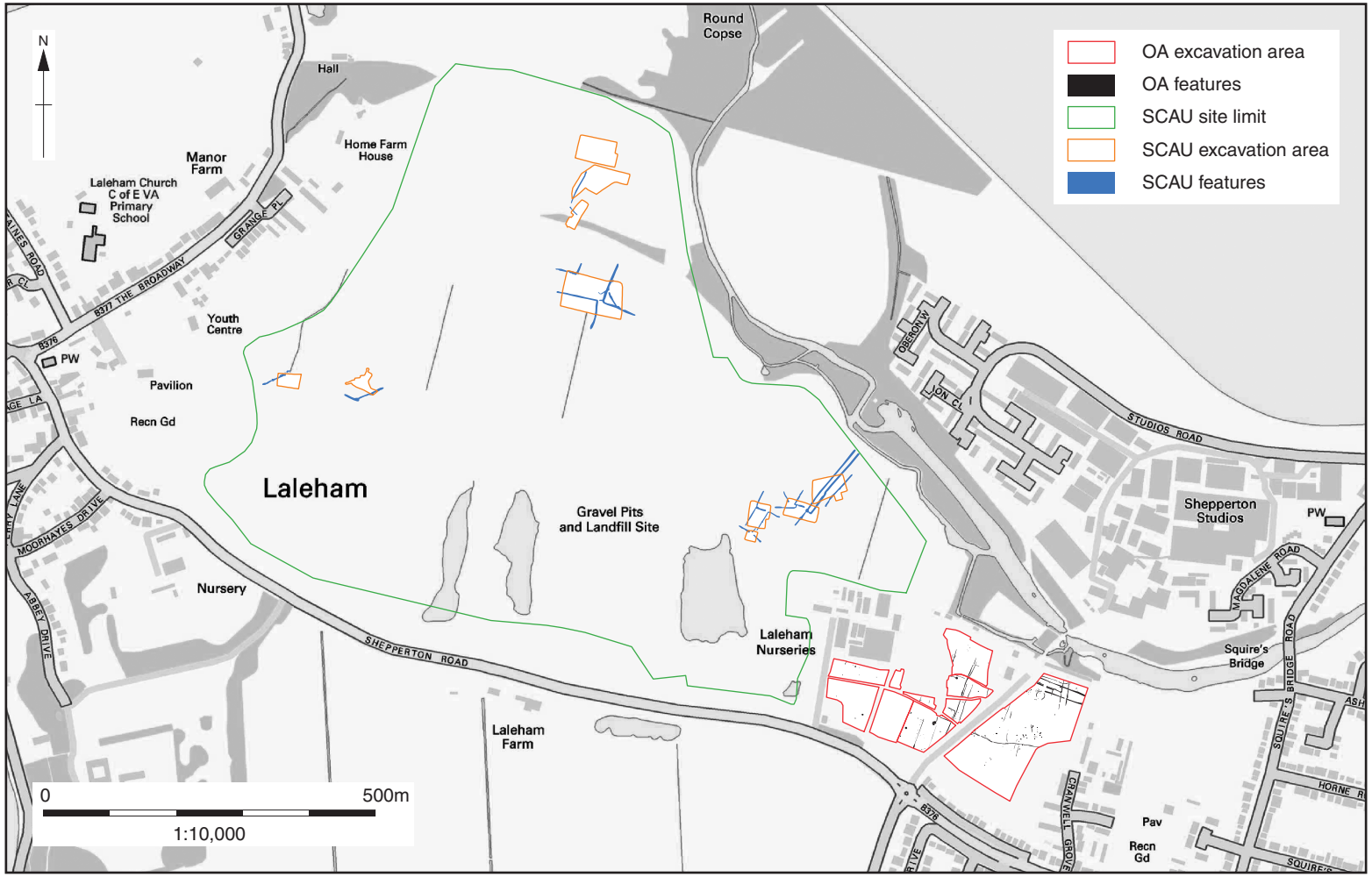

Figure 2: Location of excavations at Home Farm by SCAU and OA

Figure 3: The northern edge of the eastern part of the site during the excavation, looking east, showing pit/posthole group 393, in the foreground, ring ditch 167, both cut through by modern disturbance, and ditch 543

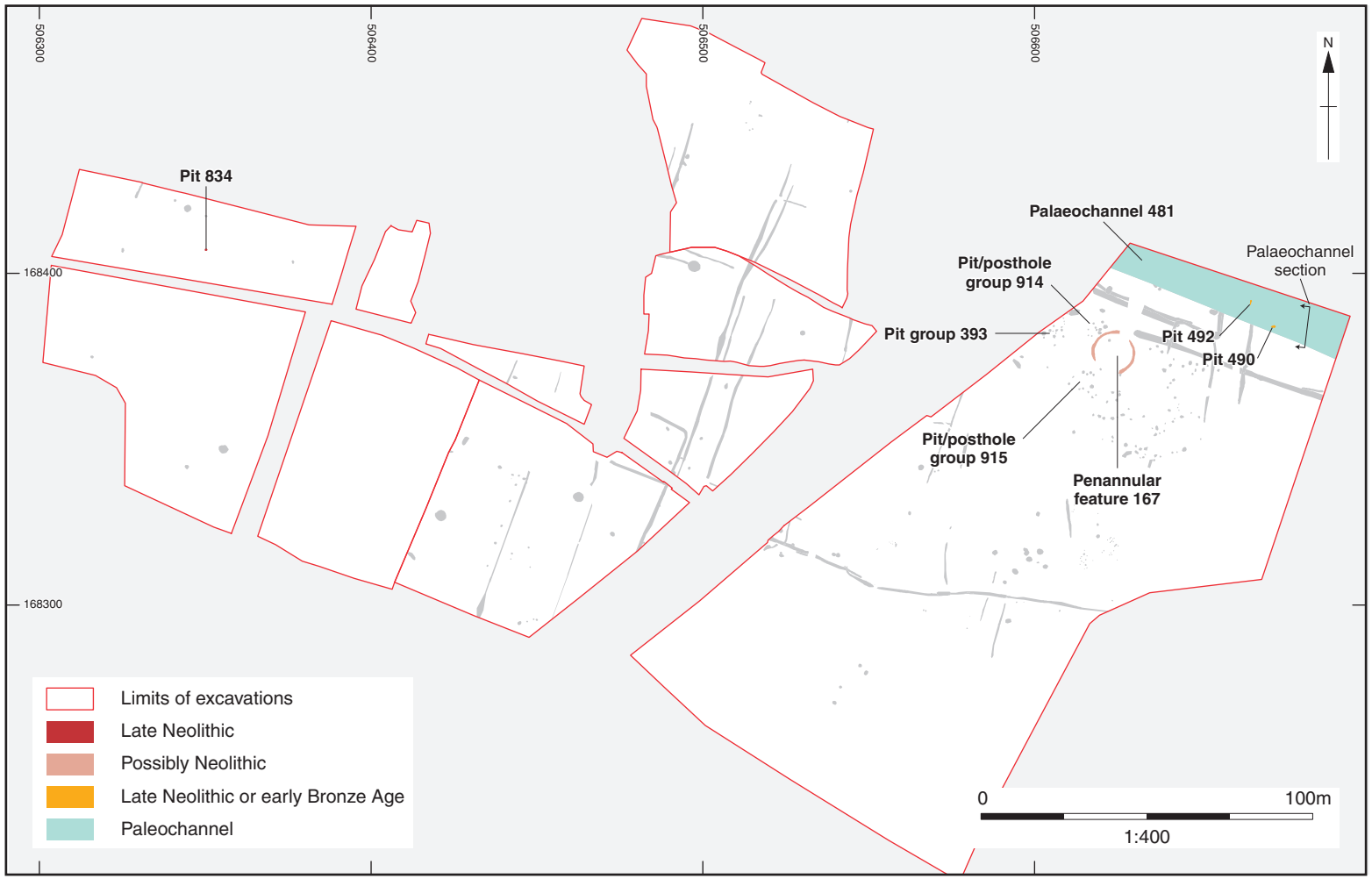

Figure 4: Location of the palaeochannel and Neolithic features

Figure 5: The section across the palaeochannel, from the northern edge of the excavation, looking south-west

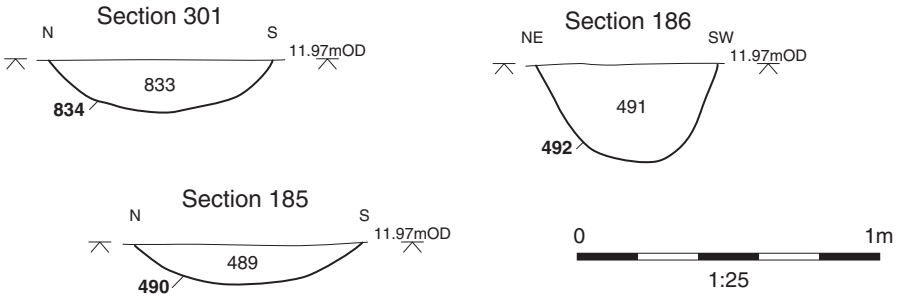

Figure 6: Sections of the late Neolithic pits

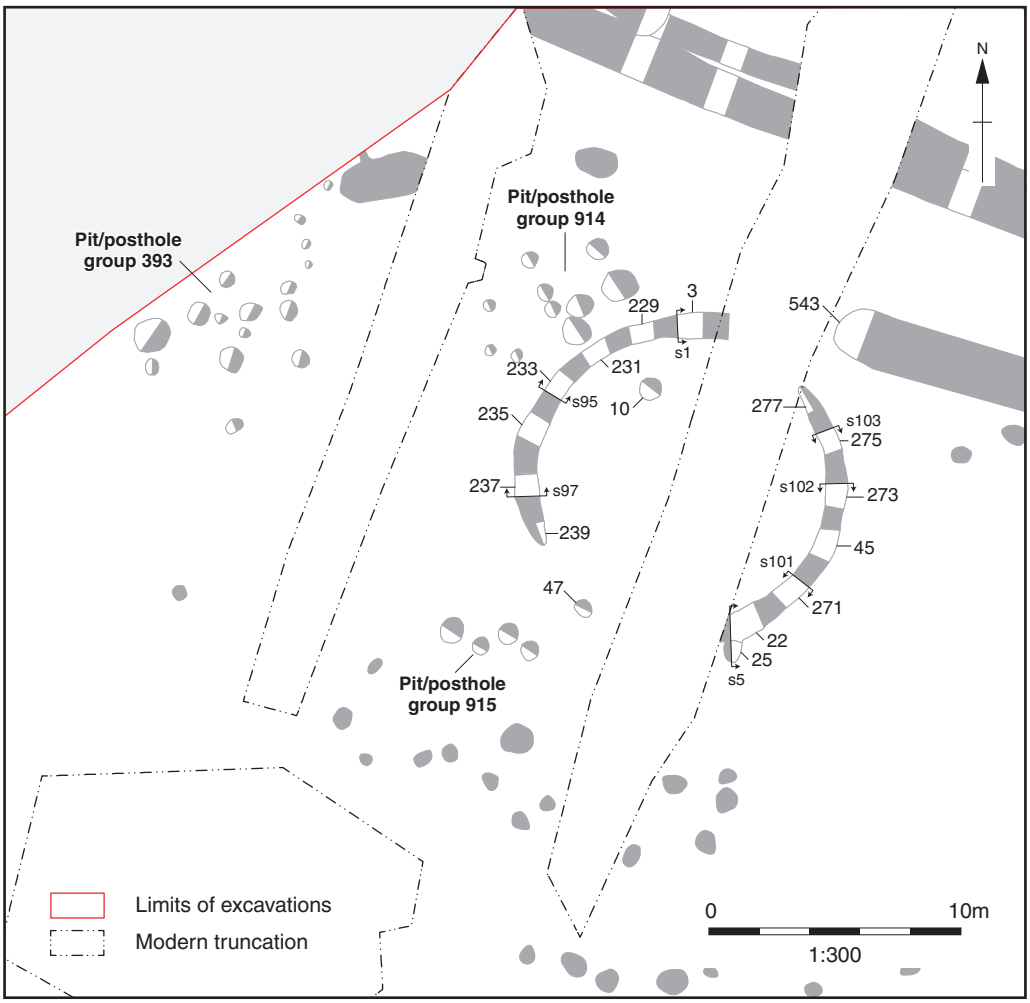

Figure 7: Plan of the ring ditch (167) and nearby groups of features (pit/postholes groups 393, 914 and 915)

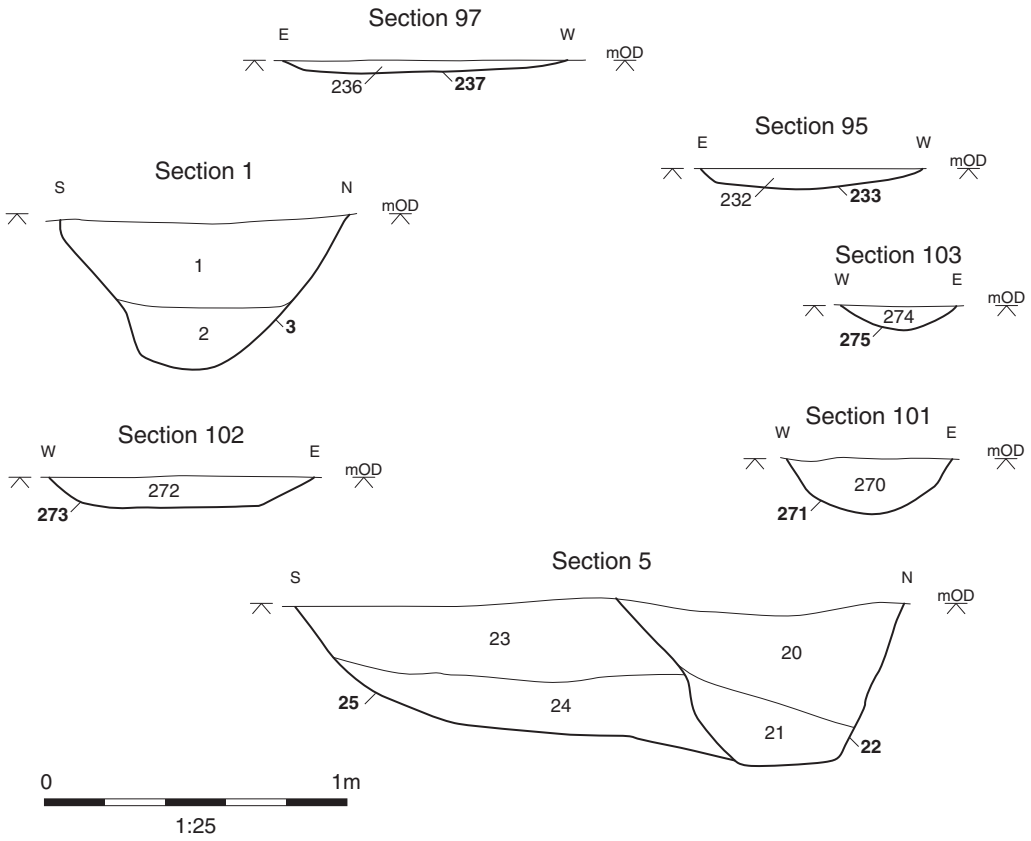

Figure 8: Sections of the ring ditch

Figure 9: Photographs of the ring ditch (167) from the north (above) and the west (below)

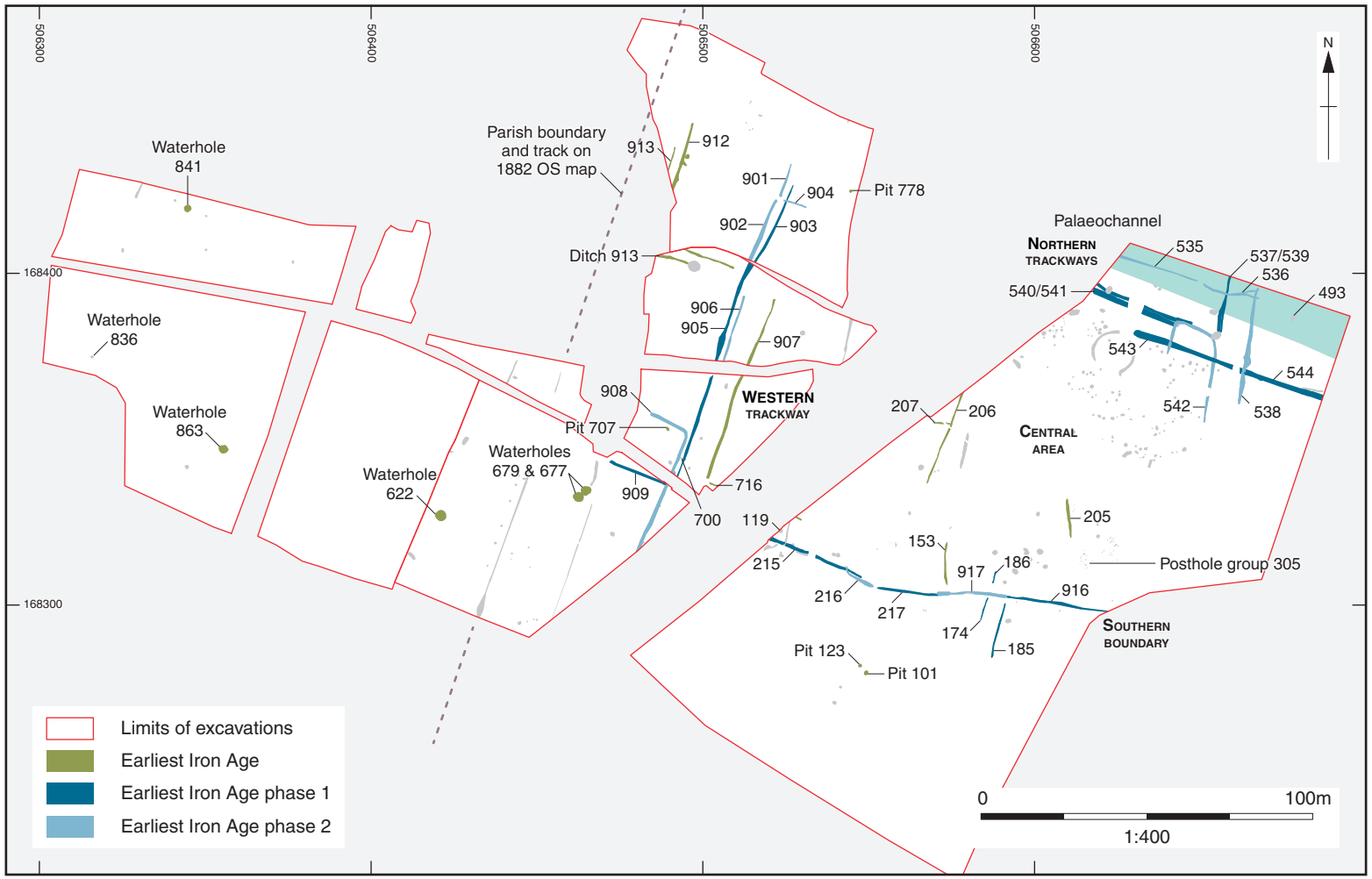

Figure 10: Plan of the earliest Iron Age features

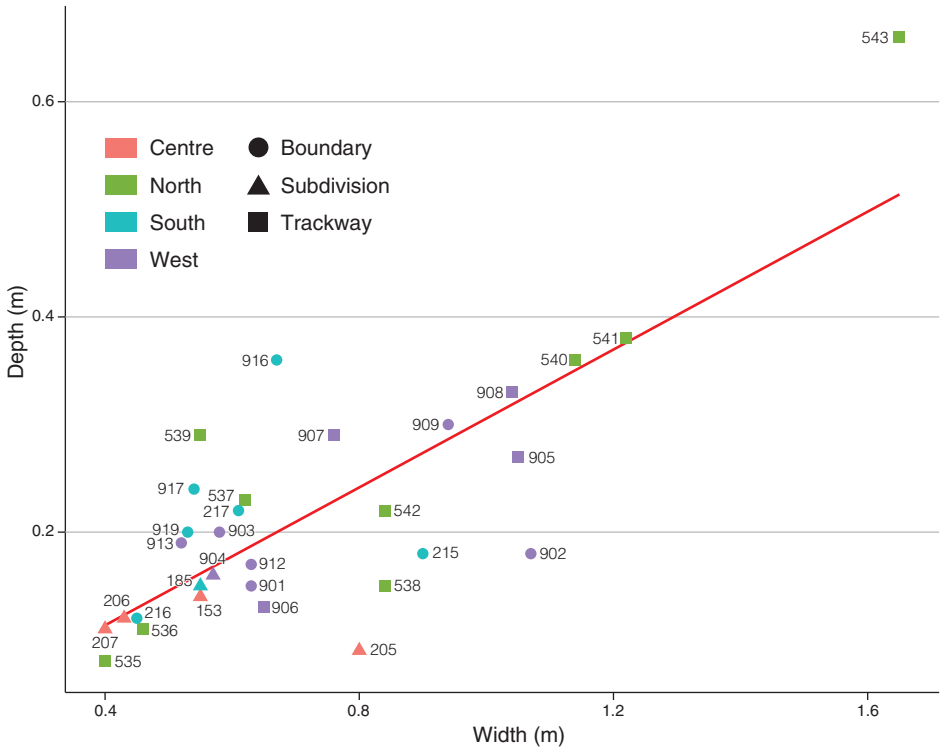

Figure 11: The dimensions of the earliest Iron Age ditches. Although there is much overlap, trackway ditches tend to be the largest and internal subdivisions the smallest ditches. Ditch 543, however, is exceptionally large

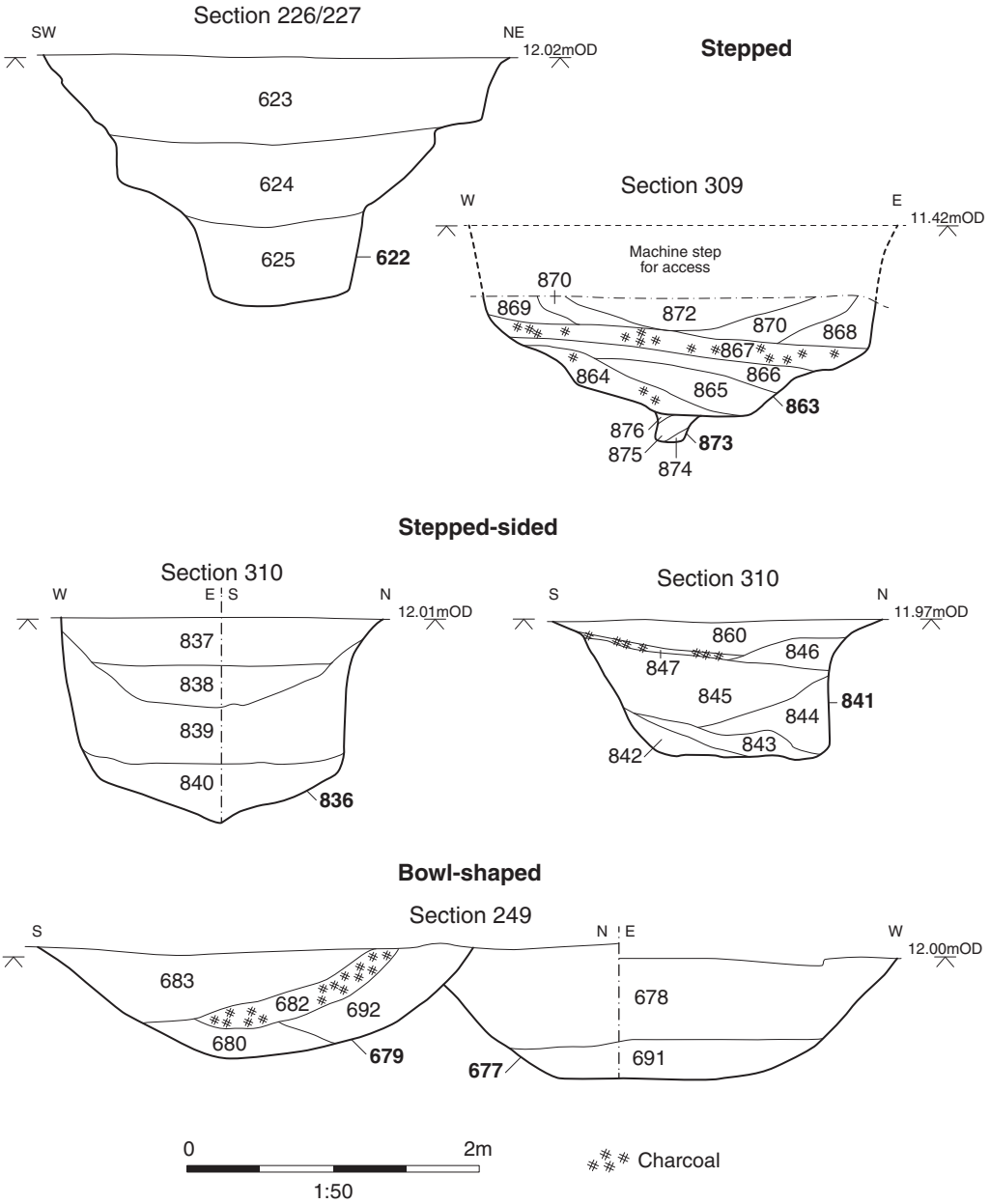

Figure 12: Sections of the earliest Iron Age waterholes

Figure 13: Photograph of the Sompting axehead and earliest Iron Age pottery from waterhole 863

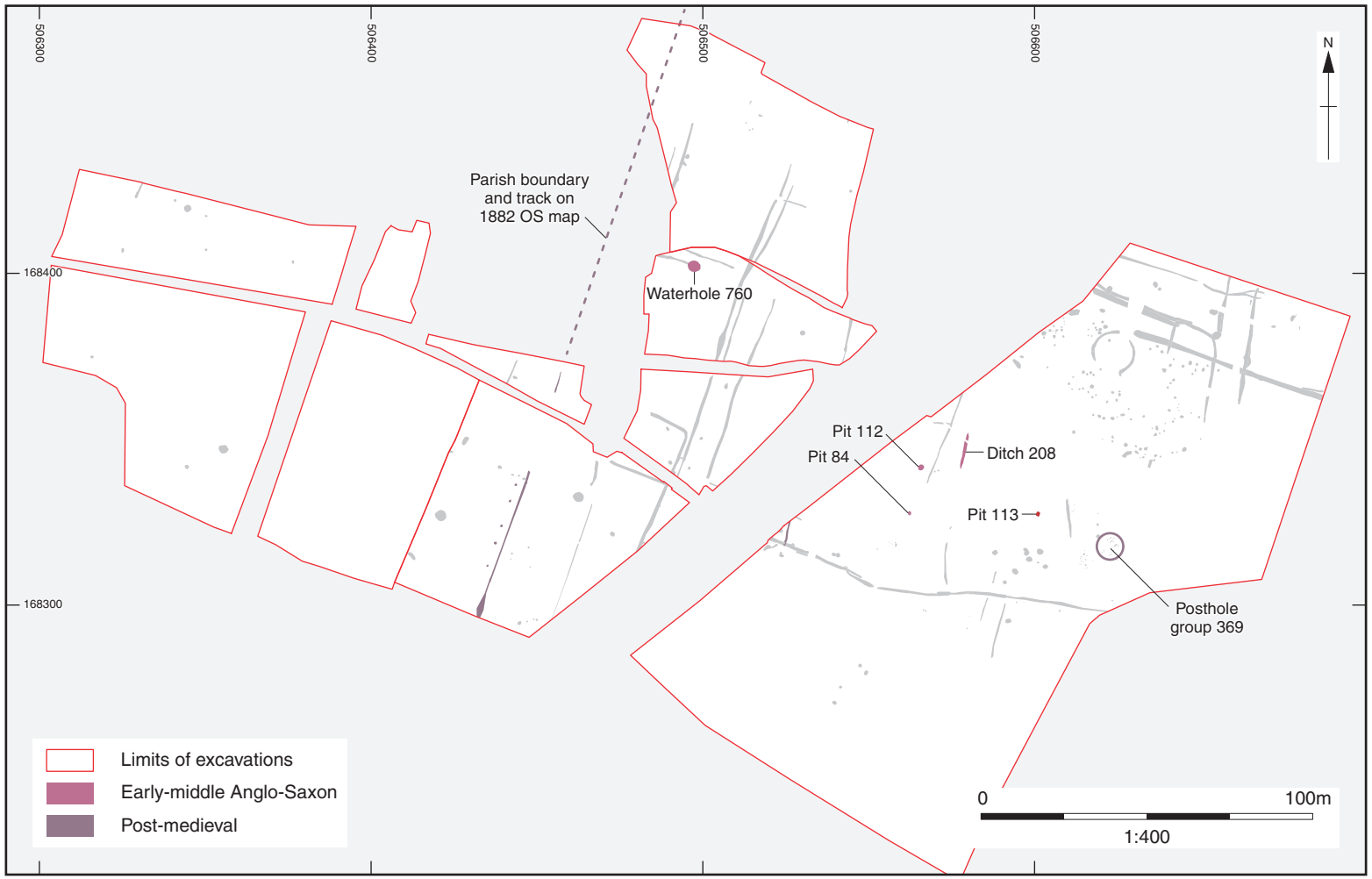

Figure 14: Plan of Anglo-Saxon features

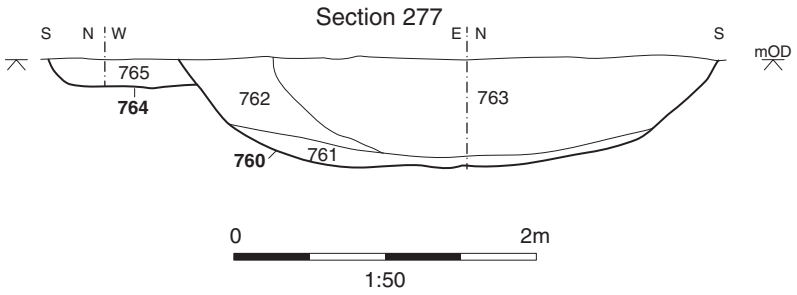

Figure 15: Sections of Anglo-Saxon waterhole 760

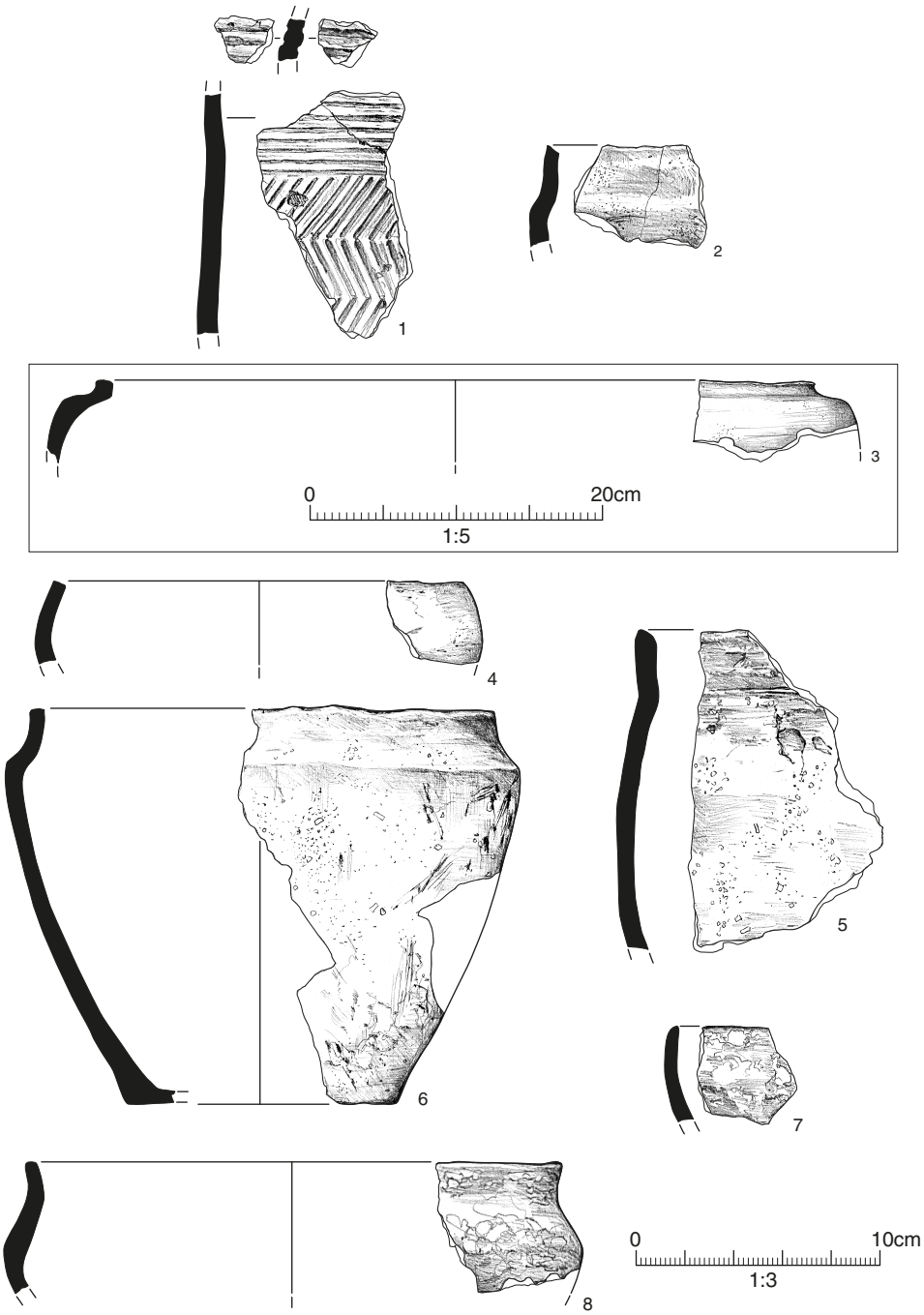

Figure 16: Grooved Ware from pit 843 and selected earliest Iron Age pottery (1-8)

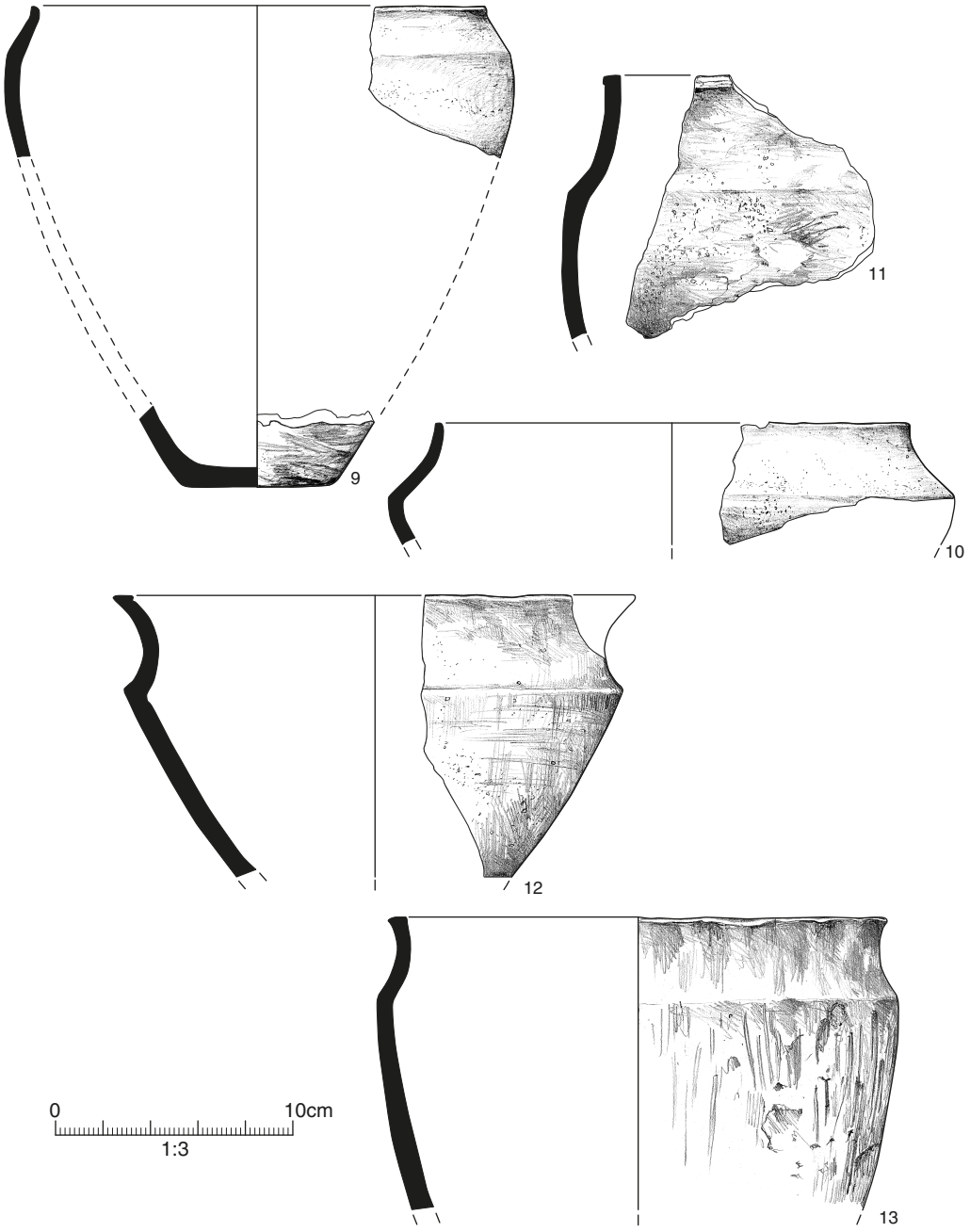

Figure 17: Earliest Iron Age pottery (9–13)

Figure 18: Sompting axehead

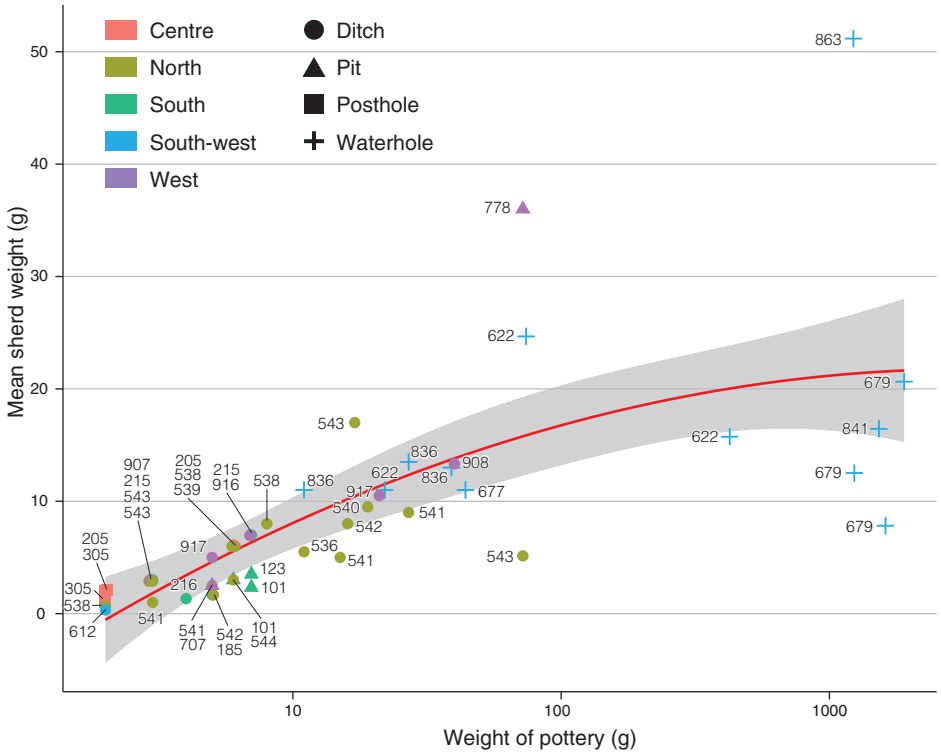

Figure 20: Plot of the weight of pottery from earliest Iron Age contexts against its mean sherd weight (with a polynomial regression line and 95% confidence interval). The largest assemblages, often with the least fragmented pottery, occur in waterholes. The assemblage from waterhole 863 is clearly an outlier

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