

CHAPTER 4

The Development of the Agricultural Landscape from the Middle Iron Age to the end of the Roman period (c 400 BC – 4th century AD)

by Lisa Brown and Alex Smith

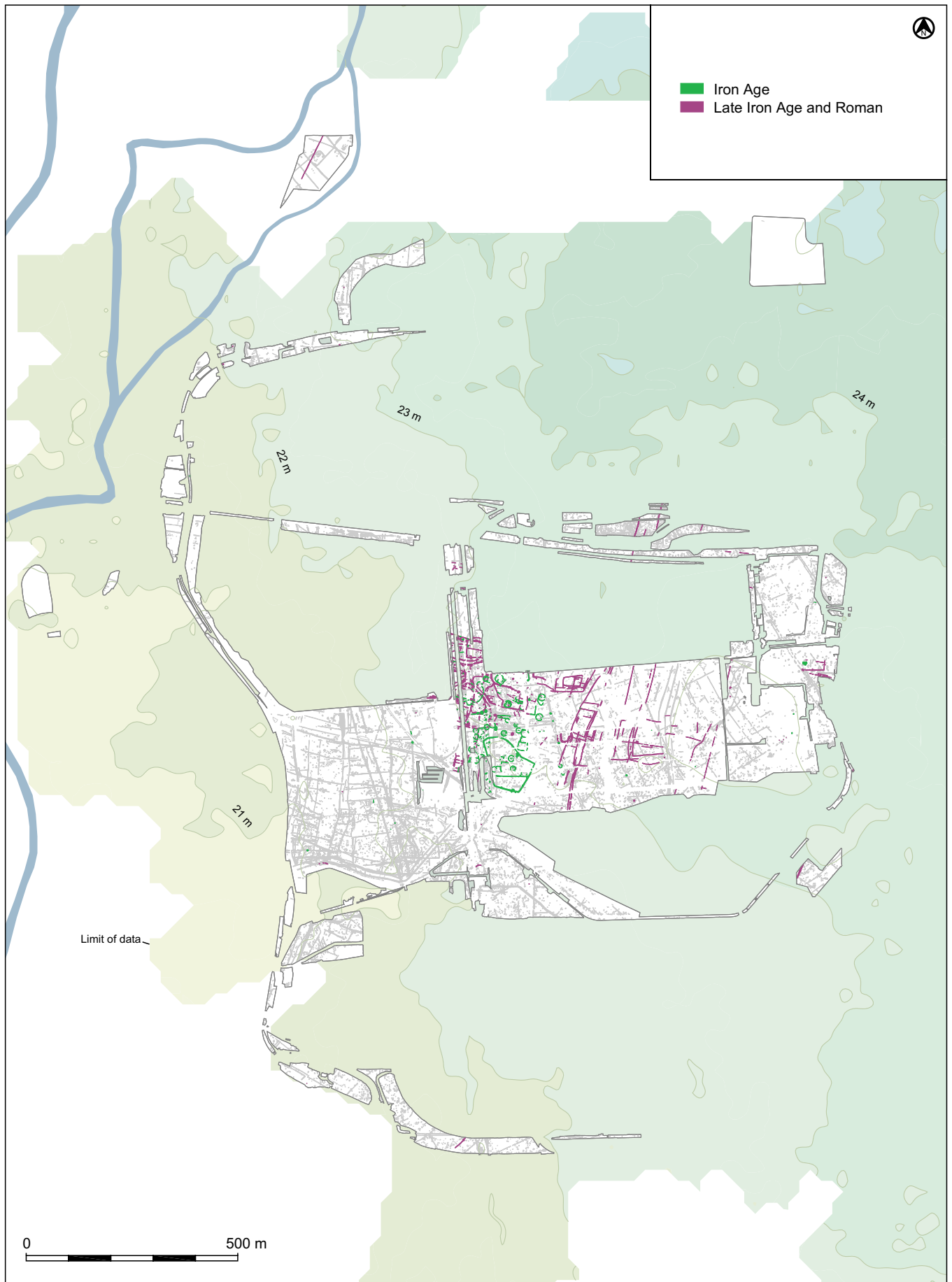


Figure 4.1: Extent of Middle-Late Iron Age and Roman occupation at Terminal 5

Introduction

This chapter takes forward the history of habitation and agricultural exploitation in the Heathrow landscape from the Middle Iron Age (c 400–100 BC) right through into the Late Iron Age and Roman periods (c 100 BC–AD 400) (Fig. 4.1). A brief summary of the evidence is presented first, before the chronological framework of the period is set out. There then follows detailed accounts of the settlement and landscape changes at Terminal 5, set within the wider context of the Middle Thames Valley.

Figure 4.2: The Middle Iron Age landscape

Summary of the evidence

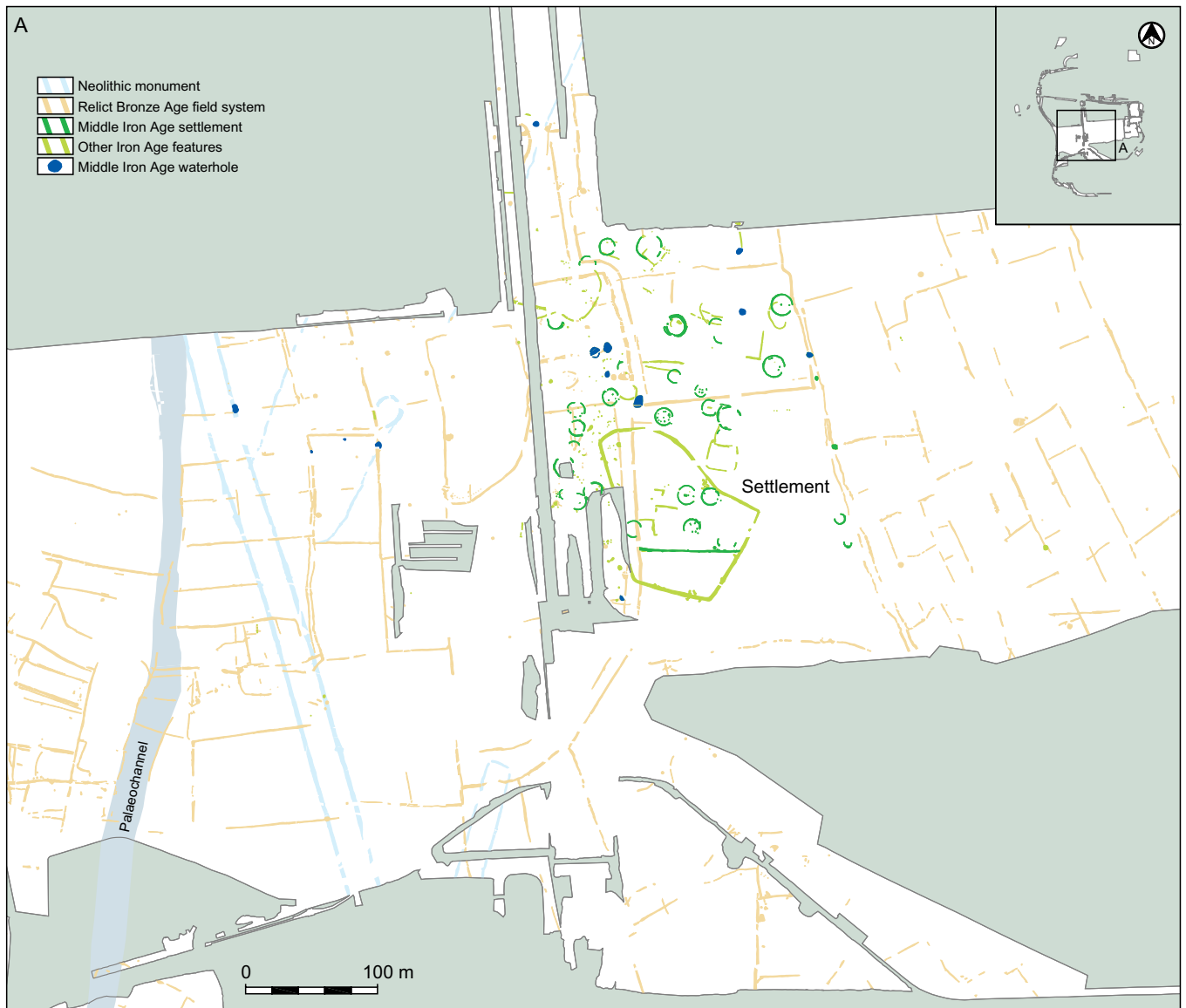
Middle Iron Age

After the abandonment of the small, dispersed settlements occupied by the Bronze Age inhabitants of the Heathrow area, and following what was an ill-defined period of occupation during the Early Iron Age, the landscape came under new social and economic influences that resulted in the emergence at around 400 BC of a nucleated open settlement of roundhouses, four-post structures and livestock enclosures defined by penannular gullies (Fig. 4.2). The settlement occupied what had been the location of two previous Bronze Age Farmsteads (3 and 4; see Chapter 3) and an open space adjacent to them,

possibly the site of a midden that accumulated during the first half of the 1st millennium BC.

The daily and seasonal routines of the Middle Iron Age inhabitants continued to be dictated by the requirements of a localised, probably entirely subsistence-based agricultural regime that was apparently biased towards a pastoral economy throughout the Middle Iron Age. Although the population was probably of only modest size, it is clear that several family groups occupied the settlement at any given time during this period, and that the households probably operated as a community rather than as separate entities.

In the absence of almost any associated artefacts, apart from utilitarian pottery,



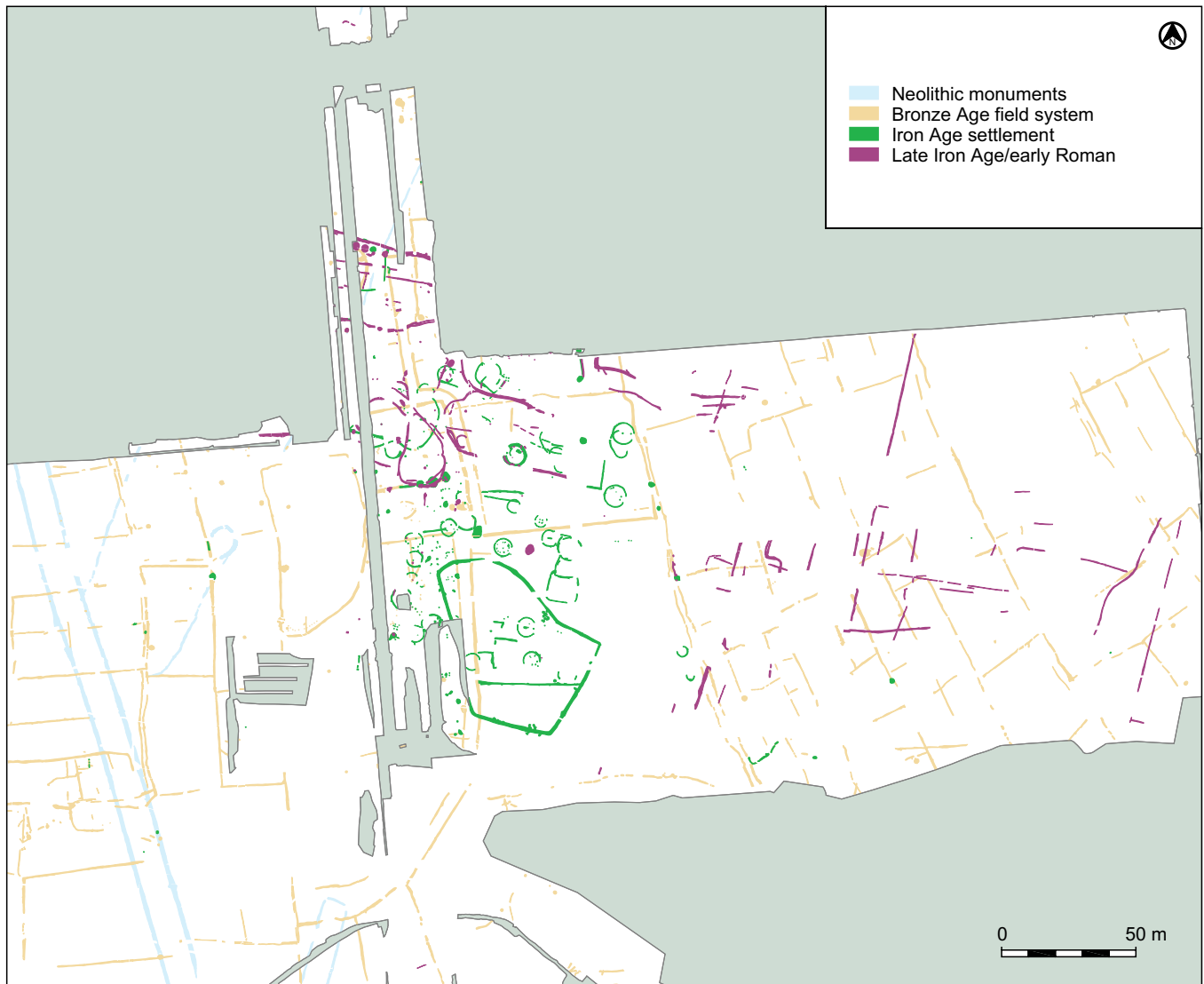


Figure 4.3: The Late Iron Age/early Roman landscape

the social context and status of the settlement can best be judged through a perspective of its agricultural output—its prosperity measured in animals and harvests rather than transferable surplus and exotic materials. The evidence for this was, however, also relatively poor. Size and exploitation of livestock herds could not be reliably assessed through the usual means of bone analysis as preservation was particularly poor at the site. A dearth of archaeobotanical evidence also proved problematic in determining levels of cultivation, especially as the Middle Iron Age inhabitants did not modify the Bronze Age field systems to any significant extent.

However, the reconfiguration of the Middle Iron Age settlement during several phases of development attests

to a strong reliance on livestock and, presumably, their by-products. Animal enclosures were built within the settlement and subsequently enlarged time and again, culminating in the construction of a massive enclosure (EC1) that must have represented a collective enterprise.

Late Iron Age and early Roman

The Late Iron Age saw the onset of many changes at the Terminal 5 settlement, with the dispersed round-houses and penannular stock enclosures of the Middle Iron Age largely giving way to a more nucleated settlement of enclosures and boundaries, and with a general lack of evidence for domestic structures, typical of this period (Fig. 4.3). Perhaps more significantly, the pattern of Bronze Age field

systems to the east of the settlement were drastically altered for the first time in almost two thousand years, with a complete change in shape and orientation. These changes probably occurred on a piecemeal basis over many years, yet still marked an important shift in landscape organisation (at least in this area) that continued right through into the Roman period.

While pastoralism remained a fundamental part of the agricultural economy, with the large central enclosures likely related to stock management, the evidence suggests an increasing emphasis on cereal crops from the Late Iron Age onwards. It may even have been that the expansion of arable production was in part responsible for the establishment of the new eastern field system at this time.

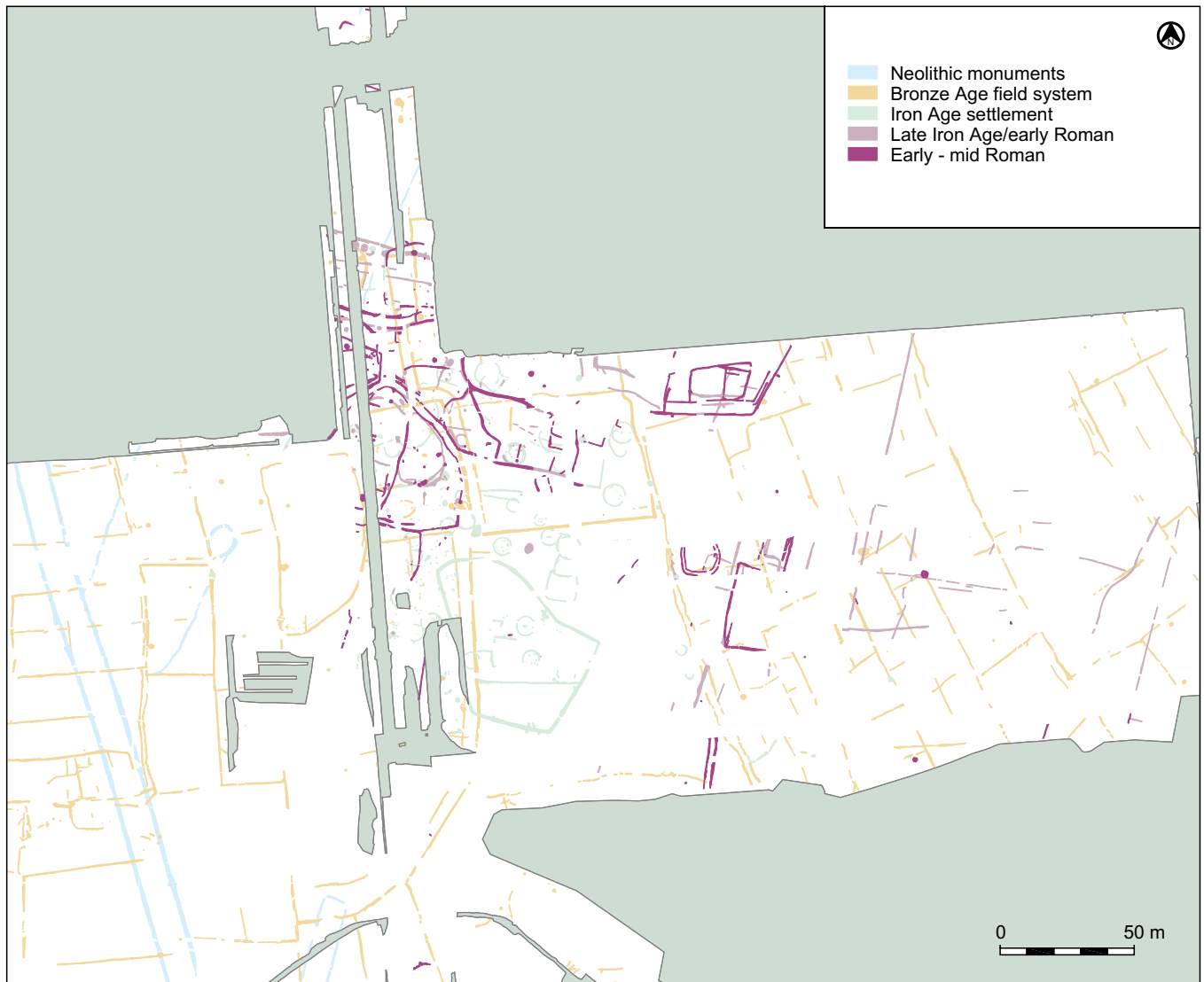


Figure 4.4: The early-mid Roman landscape

Early to mid Roman

The settlement and enclosure complex of the Late Iron Age appears to have been continually modified on a somewhat *ad hoc* basis into the early and middle Roman periods (Fig. 4.4), and whilst this was no radical reorganisation, the developments were almost certainly affected by increased influence from the developing Roman economic system, especially with the town at Staines less than 5 km to the south.

The enclosure system in the settlement was altered and expanded, which corresponded with the creation of a network of trackways and the appearance of four or possibly five potential rectangular buildings. There does not appear to have been any major change in economic practices, although there

are signs of increasing diversification and expansion. Likewise, there are no indications of any deep-seated lifestyle changes for the inhabitants at Terminal 5, with little evidence for any elevated status. There may have been a low-level shift to more Roman styles of dress, culinary methods and aesthetics, but this probably reflects little more than the ready availability of certain types of goods rather than a conscious desire to emulate a Roman way of life.

Late Roman

Late Roman developments at Terminal 5 are characterised on the one hand by apparent continuity in terms of the maintenance of some existing enclosures and buildings, and on the other hand by the imposition of radically new styles of structure and wholesale

changes to the eastern field systems (Fig. 4.5). It is quite possible that the potential buildings identified from the middle Roman phase continued in use into the 3rd and 4th centuries, when two more possible buildings were constructed, one (B6) comprising a substantial post-built structure, possibly of two storeys. Approximately contemporary with this was the re-development of the eastern field systems, which culminated in a substantial 'ladder' enclosure system, surrounding a major central droveway. This was on a scale not previously seen at the site, although it did in the most part maintain the approximate same orientation of the earlier fields, and so was not a complete break with the past.

The environmental evidence is insufficient to tell if there were any

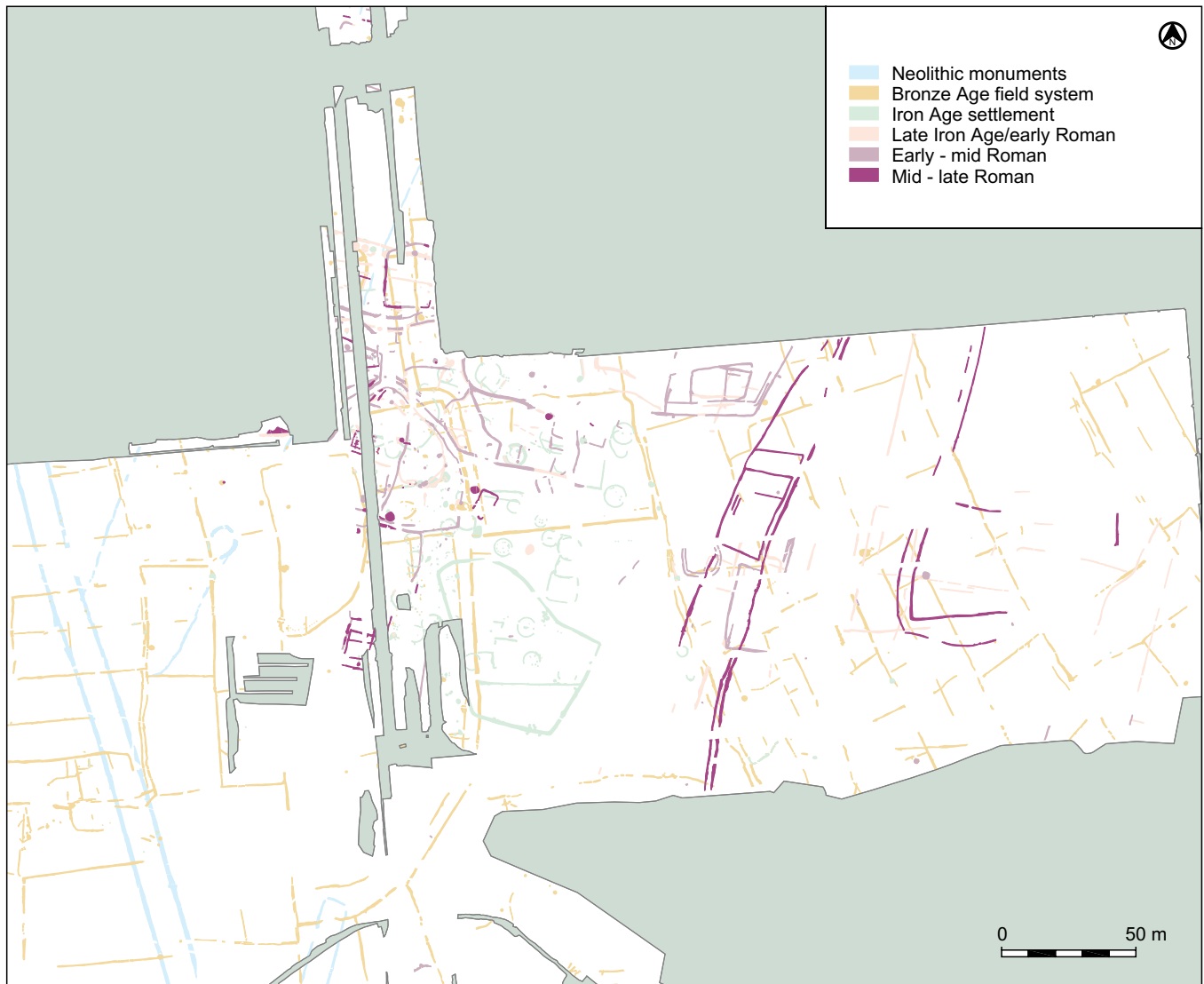


Figure 4.5: The late Roman landscape

major changes to the agricultural system, and it seems likely that the local community continued to farm the land, probably in much the same way as previously, with no obviously detectable increase in wealth or status. However, the substantial post-built structure and 'ladder' enclosure hint strongly at new external influences that may have been part of wider social, political and economic changes during the later Roman period.

The chronological framework

Our understanding of human habitation of the Heathrow landscape during the Middle to Late Iron Age and Roman periods, of its evolution and exploitation by the local inhabitants, and of the events and developments that instigated change

or encouraged stasis within and beyond the immediate area, relies on having a sound chronological framework in which to build a narrative. This period, albeit spanning less than a thousand years, was a time of considerable change and innovation in southern Britain.

For the Middle Iron Age, that framework lacks the primary tool of written sources, so we are reliant on a small number of absolute dates, a relatively small artefact resource and stratigraphic evidence to provide a relative chronological sequence of occupation, deposition and abandonment.

By the Late Iron Age-early Roman period we are able to set our evidence in a wider scheme of coinage, pottery from well-dated centralised production

centres in Gaul and Britain and written histories and observations. Although the written sources are inevitably biased, they provide an additional source of evidence to that offered by radiocarbon dates, stratigraphy and material culture.

Absolute dates

Although radiocarbon dating is the principal method of scientific dating for the later prehistoric period, much of the first millennium BC is affected by calibration problems so that the results often offer only very broad date ranges. Furthermore, in a landscape that has already seen intensive occupation by the Middle Iron Age, sample provenance and integrity can affect the outcomes of scientific dating.

Six samples taken from deposits at Terminal 5 returned results of Early Iron Age to Roman date (see *Healy, CD Section 20*; Fig. 4.6).

Early–Middle Iron Age

Radiocarbon determinations ranging from 400 cal BC to 360–50 cal BC were obtained for three samples, while one other was somewhat earlier at 780–387 cal BC (Fig. 4.6). Two unanticipated results came from deposits not originally interpreted as Middle Iron Age—one from a barley grain recovered from a pit originally phased as Bronze Age, the other from a waterlogged hazel fragment from an initially unphased pit in Area 16 (see Chapter 1, Fig. 1.2), c 850 m north of the main Middle Iron Age settlement. These dates allow us to place certain events within at least a broad Iron Age chronological framework.

The single Early Iron Age date (780–387 cal BC; WK11712) came from a fragment of a wattle hurdle structure in alder (*Alnus*) preserved in the palaeochannel (context 803009) in Bedfont Court to the west of the main excavation area, on the Colne floodplain.

The earliest Middle Iron Age date of 400–200 cal BC (WK 19341) was obtained from a fragment of hazel (*Corylus avellana*) (SF 8201) from an upper alluvial fill (552397) of tufaceous material and peat in pit 552395, reflecting the proximity of the feature to the River Colne. The pit lay within a natural palaeochannel in Area 19 (see Fig. 1.2), approximately 1 km north-west of the heart of the Middle Iron Age settlement. The radiocarbon date does not help us to date the digging of the pit, nor the earliest episodes of alluvial filling, nor does it provide proof of activity at the riverside during the Middle Iron Age, as the wood was a broken rather than a cut branch that found its way into the top of an otherwise undated feature. However, it does provide us with an important detail about the Middle Iron Age landscape—that hazel was growing along the riverbank during the period 400–200 cal BC.

A charred barley grain (sample <17519>) from the single fill (554144) of a pit (529306) cut into the backfilled eastern ditch of the C1 Stanwell Cursus in Area 49, some 255 m from the Middle Iron Age settlement, produced a date of 386–203 cal BC (WK 19335). Another charred barley grain (sample <17153>) recovered from the single fill (539451) of a shallow pit within a roundhouse (19) produced a date of 360–50 cal BC (WK19334).

Bayesian analysis of the Middle Iron Age radiocarbon results concluded that the barley grain from pit 529306 and the hazel roundwood from pit 552395 were very close in date (see *Healy, CD Section 20*). The date from the second barley grain from the roundhouse pit (539450) was too broad to indicate whether barley cultivation continued into the Late Iron Age, and there is no other dated cereal from that period (see below).

Late Iron Age/early Roman

A Late Iron Age/early Roman radiocarbon determination of cal 170 BC–AD 220 (<Wk-19367>) was obtained from a fragment of unidentified animal bone from a primary erosion deposit (129113) of waterhole 129112 near the main settlement enclosures (Fig. 4.6; see below).

Late Roman

A single radiocarbon date relating to the late Roman settlement was obtained on cremated human bone from a burial along the projected southern line of a ‘ladder’ enclosure driveway in Area 72 (Fig 4.6). The bone seems to have been placed in a wooden box in a small feature (591052) and was accompanied by cremated animal bone and a fragment of iron. The determination of cal AD 250–380 (OxA-16127) was within the anticipated range for the burial.

Relative Chronology

Ceramic evidence

Our dating evidence for the Iron Age and Roman periods at Terminal 5 is based largely on ceramics—a relatively large component of the finds assemblage for these periods in contrast to the very restricted collection of metalwork and other artefacts. The pottery was generally preserved in only moderate to poor condition, and we are faced with the additional problems of redeposition, residuality and, particularly problematic for the Late Iron Age and Roman periods, a considerable intrusive presence created by the complex of intercutting and recut features within the nucleated settlement area.

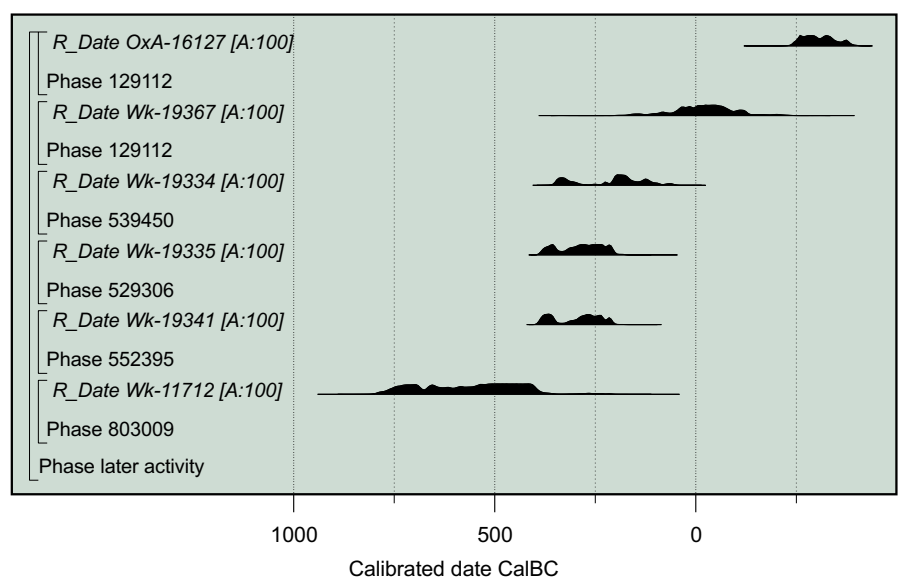


Figure 4.6: Iron Age and Roman radiocarbon dates



Figure 4.7: Middle Iron Age pottery distribution

No systematic analyses of later prehistoric pottery styles and fabrics have been carried out for the Middle Thames Valley region, so there is no established ceramic framework against which to test the Terminal 5 assemblages until the early to middle Roman period, when distinctive finewares, including continental imports, began to appear on the site.

Middle Iron Age pottery

Although pottery was by far the largest artefact category from Middle Iron Age deposits, the excavations produced a relatively small collection (4445 sherds /33,699 g), considering the total area excavated. The limitations of the ceramic evidence described above are compounded by the small number of diagnostic Middle Iron Age sherds recovered (profiles and distinctive or decorated body sherds; Fig. 4.7B). Most of the pottery of this date was highly fragmented, with an average sherd weight of only 7.6 g, and very few sherds were found in association with other datable artefacts, a problem common to many Iron Age sites in the region. Much of the material was only broadly dated on the basis of fabrics alone, but the fact that potting clays and tempers obtained from the sedimentary geology of the Middle Thames Valley are generally not very distinctive restricts the accuracy of this approach.

The range of fabrics and forms from T5 is closely paralleled by the assemblage from Caesar's Camp, which is dated c 400–100/50 BC on typological grounds (Grimes and Close Brooks 1993)... Both the Heathrow T5 and Caesar's Camp assemblages lack the distinctive features which might place them more closely within the regional ceramic sequence. There are none of the decorated wares typical of the ceramic styles of the Middle Thames or Wessex, nor the well finished saucepan pots of the Hampshire/Berkshire area, for which production and distribution on a regional scale has been suggested (eg Morris 1994)... The T5 examples are all in the sandy fabrics, presumably locally produced, which are also used for the more common jar forms. The presence of saucepan pots at Caesar's Camp is used to support a date for at least some of the

occupation later in the Middle Iron Age sequence, following the radiocarbon dated ceramic sequence from Danebury (ibid., 356-7). If the T5 saucepan pots can be similarly dated this could push the sequence as late as the turn of the 1st century BC, but the evidence is extremely slight, and there is still no certainty as to whether the Middle Iron Age sequence is continuous, intermittent or short-lived, or whether a continuation beyond c 100 BC can be demonstrated. The near absence of decorated wares...could also have some chronological significance. Decorated bowls in fine sandy fabrics were found at Holloway Lane, Harmondsworth and Wall Garden Farm, Sipson, where they seem to be slightly earlier in date than the grog-tempered wares of Late Iron Age character (Lewis and Mason n.d. subsection 4.3.2.3).

(Leivers et al. CD, Section 1)

The act of deliberate deposition of pottery in pits, wells, ditch terminals and structural features is now recognised to have been a fairly commonplace practice during the Middle Iron Age in southern Britain generally. The waterholes and pits associated with the Terminal 5 settlement, however, contained relatively little pottery compared to the more ostentatious deposits of pottery vessels in Bronze Age waterholes and some Neolithic Grooved Ware pits. In fact, most Middle Iron Age sherds were recovered as fortuitous occurrences in the general fills of ditches and penannular gullies, the ditches surrounding a west-facing roundhouse (8) and a large irregular enclosure (EC1) (see below). Very little Middle and Late Iron Age pottery came from the Bronze Age field system ditches, which had apparently largely or entirely filled by that time. As a result, the Iron Age ceramic signature beyond the immediate settlement confines was virtually insignificant. As pottery was the most abundant dating tool for the Iron Age period at Heathrow, we have only an incomplete impression of how and when the wider agricultural prehistoric landscape was exploited after the Bronze Age.

Late Iron Age /early Roman pottery

A total of 1542 sherds (18,095 g) was attributable to the Late Iron Age/early

Roman transitional period (100 BC to AD 100). This period overlaps to a considerable degree with early Roman ceramic phase (AD 43–120), with transitional grog-tempered and shell-tempered wares spanning both ceramic phases. This presents us with the well-recognised problem for this period in southern Britain of dealing with a lack of correlation between a protracted absence of change in material culture assemblages on some sites and that of historical events in the broader sphere.

In common with the Middle Iron Age pottery,

...few features produced large groups of Late Iron Age pottery, with only seven containing more than 25 sherds... Much of the assemblage therefore represents a background spread of material rather than any meaningful deposits. The preservation in the different feature types showed little variation, with the exception of two nearly complete vessels from well/waterhole 593207, generating a mean sherd weight of 55.4 g.

The number of key groups of Late Iron Age pottery is too small to make further comment on any phases within this period, however the 'Belgic' ceramic traditions of grog and shell-tempered fabrics, including bead-rimmed and necked, cordoned jars, continue throughout the 1st centuries BC and AD, and perhaps into the early 2nd century.

(Jones and Brown, CD Section 2)

Roman pottery

The Roman ceramics span the period from the mid 1st century AD through to the late 4th and possibly 5th centuries AD (Fig. 4.8). A total of 7497 sherds (95,962 g) of this period came from 689 deposits within a wide range of features—ditches, gullies, pits, postholes and the largest, better preserved sherds, from waterholes. Most context groups were again very small, containing five sherds or fewer. Only 58 context groups produced more than 30 sherds.

Following the Perry Oaks excavation it was thought that the much of the Roman pottery, particularly the late material, must have originated from

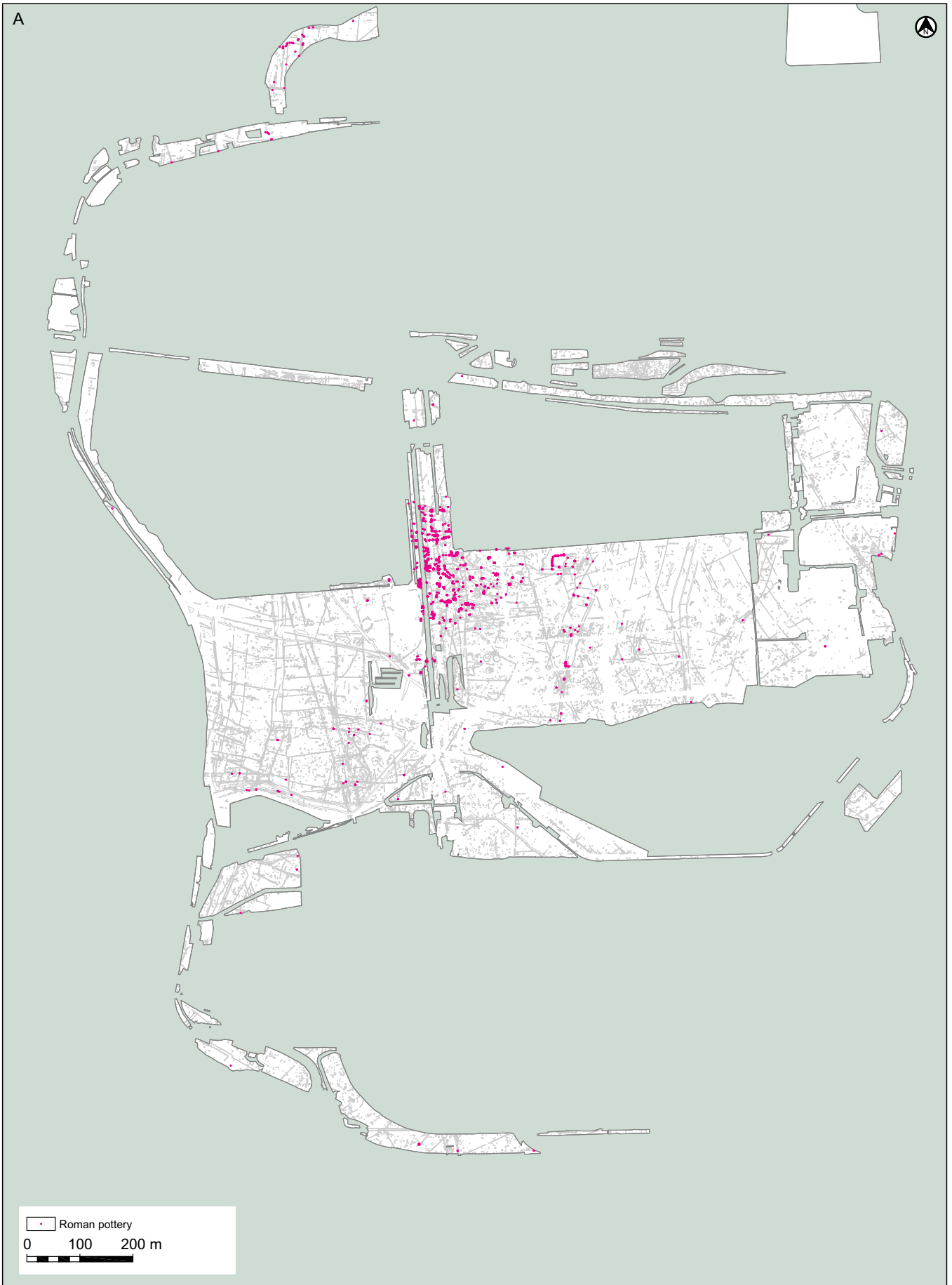


Figure 4.8: Roman pottery distribution

activity located beyond the excavated area as there was little structural evidence that corresponded to the date and character of the ceramics (Framework Archaeology 2007, CD section 2).

The results of the subsequent fieldwork at Terminal 5 provided a more convincing provenance for this material—more enclosure complexes and a large post-built structure in the north-west part of the Roman settlement. It is still feasible, however, that some elements of the mid and late Roman settlement lie beyond the limits of excavation. Along with the discovery of additional structural features at Terminal 5 came a larger suite of both early and late Roman ceramics. The early assemblage expanded to include more Romanised forms and imports, including Verulamium white ware products, south Gaulish samian and 1st–early 2nd century mica-dusted finewares.

During the early Roman period these ['Belgic'] fabrics and forms occur alongside more Romanised material such as grey-wares, whitewares from the Verulamium region, samian from southern Gaul and mica-dusted finewares. The samian is the only imported fineware, accounting for 1.3% of the Roman assemblage, comparable to other low-status rural assemblages such as Harlington (1%, Seager Smith forthcoming) and Horton (0.9%, Jones forthcoming)... 'Romanised' forms of the early Roman period include copies of –Gallic-Belgic forms such as the girth beaker and platter, indicating an appreciation of these forms and a desire to copy them. Flagons from the Verulamium region were also in use. The remainder of the early Roman assemblage comprised utilitarian jars and bowls, particularly bead-rimmed jars and necked jars with 'figure-7' rims... During the late Roman period flagons, mortaria and beakers continue to be seen alongside bowls and jars, with finewares supplied by the Oxfordshire and Nene Valley industries.

(Jones and Brown, CD Section 2)

Other artefacts

The period from the Middle Iron Age onwards in southern Britain is often described as a time of 'intensification', in material as well as economic and agricultural terms (Haselgrove *et al.* 2001). One of the most striking features of this period generally is the sheer quantity of evidence of different classes, with pottery, metalwork, worked bone and more durable materials such as worked stone increasing to abundant proportions relative to previous periods. The contrastingly small and undistinguished artefact assemblages from the Terminal 5 excavations, including the pottery (eg see Fig. 4.9), must lead us to question why evidence of the phenomenon of intensification in the production and utilisation of artefacts was not apparent at Terminal 5, despite an apparent increase in the density of livestock during the period, suggested by the creation of numerous animal

enclosures. The construction, renewal and proliferation of stockades from the Middle Iron Age to the Late Iron Age suggest an increase of pastoral productivity or at least of livestock management, even if it did not accelerate beyond subsistence level in the Middle Iron Age to the form of surplus economy required to support an exchange system or to acquire prestige goods.

The paucity of the Iron Age and Roman artefact assemblages was due to some extent on the loss of above-ground deposits through truncation, but this was clearly only one of a more complex set of factors, which probably included a genuine absence of material.

Metalwork

We will now consider the context of the dateable metal artefacts from the Terminal 5 excavations to see what they add to the chronological framework. Individual metal artefacts of a recognised typological category and

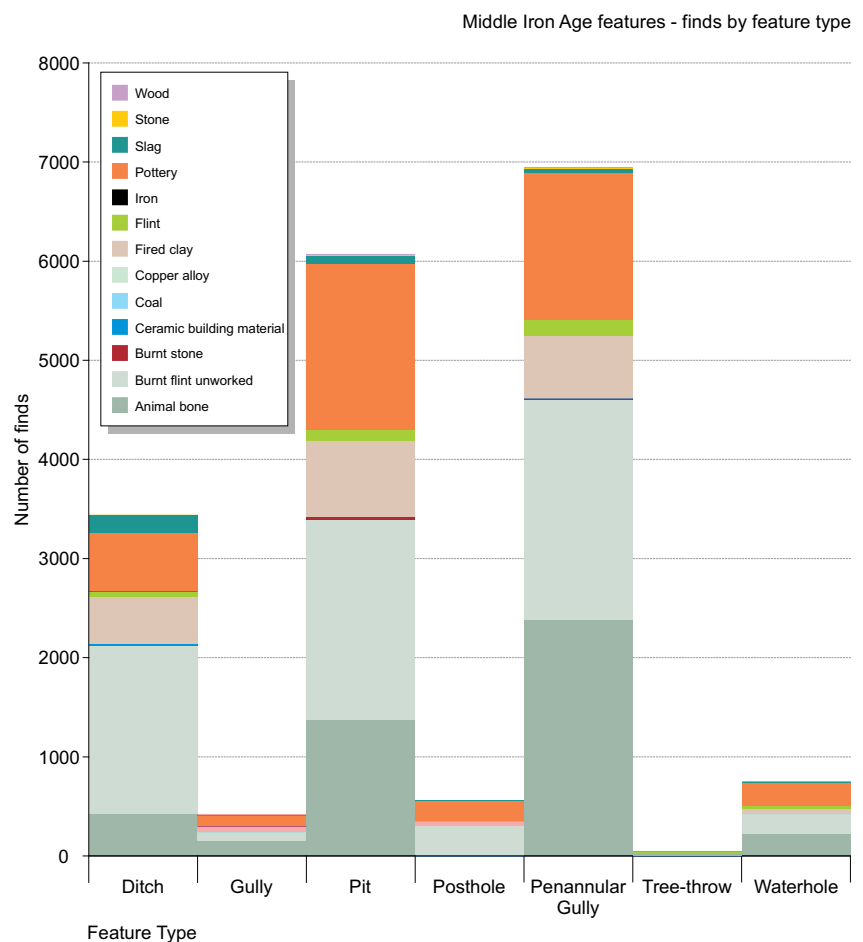


Figure 4.9: Middle Iron Age features – finds by feature type

ID No.	Fig No.	Feature	Context	Artefact type	Typological Date	Feature Date
SF26100	-	Boundary ditch 650008	650007	Spiral Cu alloy finger ring	IA	Late IA/early RB
SF27221	41	Pit 658188 in Roundhouse 21	658189	Cu alloy tweezers	Late IA/early RB	Late IA/early RB
SF26104	21	Enclosure ditch E7 636076	636076	"Nauheim derivative" brooch	Early-mid 1st century AD	Early RB
SF20064	22	Waterhole 523315	605217	? Colchester fibula	Early-mid 1st century AD	Late IA/early RB
SF13291	25	Trackway 4 ditch 614217	539387	2 piece Colchester fibula	Mid 1st century AD	Early/mid RB
SF13278	39	Enclosure ditch E4 593231	539424	? Cu alloy cast bead	Early RB	Early RB
SF29119	42	Gully 636149 Roundhouse 21	646083	Cu alloy military buckle	RB	Mid-late IA
SF29140	23	Enclosure ditch E8 636070	651090	? Colchester fibula	1st century AD	Early/mid RB
SF13271	24	Unstratified	Unstratified	2 piece Colchester fibula	Mid 1st century AD	-
SF12046	26	Pit 539392	539393	T-shaped bow brooch	Late 1st century AD	Early/mid RB
SF13186	27	Unstratified	Unstratified	Trumpet brooch	Late 1st-2nd century AD	-
SF27118	34	Waterhole 678025	678026	Cu alloy finger ring	Late RB	Mid/late RB
-	35	Building 6 posthole 659060	659061	Cu alloy finger ring	Late RB	Late RB

Table 4.1: Datable metal artefacts

period can provide a date for either a particular archaeological event or at least an indication of human presence within a broad time-span. However, very little dateable Iron Age and Roman metalwork was recovered from the site, partly due to the soil conditions, which are generally unfavourable to preservation of metalwork, and to the depth of truncation. However, the recovery of a few metal artefacts in reasonable or good condition from the site indicates that metalwork was genuinely scarce during the Iron Age and Roman periods. Even items commonly found on Middle and Late Iron Age sites, such as agricultural tools, knives and harness gear were totally absent, and structural fittings such the nails and clamps commonly used in the construction of Roman buildings were few. Material poverty and lack of contact with more prosperous communities must have been contributory factors.

Nonetheless, a small number of chronologically diagnostic Late Iron Age and Roman personal items found in a range of features, some securely stratified, were useful in narrowing down or confirming the date provided by pottery, coins and the few radiocarbon determinations.

Table 4.1 presents a list of the dateable metal artefacts and their provenance in order of typological date, and the period of the features determined by other evidence. Agreement is fairly good except in the case of SF 29119, a fragment of a Roman military type buckle,

recovered from the fill of the recut gully of Roundhouse 21. The buckle is likely to derive from the Roman activity associated with enclosure E6, which post-dated the roundhouse.

Coins

Although Roman coins provide very precise dates of manufacture, the 52 coins recovered from the excavations are arguably more useful as indicators of coin use at Terminal 5 than as chronological markers. Many were unstratified metal detector finds from the topsoil or subsoil and their condition is generally very poor, with several illegible examples. The coin evidence supports the view that the Roman settlement was occupied, apparently continuously, until at least the end of the 4th century AD.

In the light of this, the relative dearth of coins of the 1st and 2nd centuries AD is slightly surprising, even with a small assemblage, and may indicate that coinage was rarely used on the site early in the Roman period.

(Cooke, CD Section 5)

The earliest identifiable coin is an As of one of the Antonine Emperresses (AD 146–175) or Crispina (AD 177–before AD 192). The remainder, all *folles* or *antoniniani*, date to the late 3rd or 4th centuries with one unstratified piece dated to the 2nd century AD.

The (later) assemblage is dominated by radiate coins minted at the end of the 3rd century and coins minted between AD 330

and 348... with smaller peaks of coin loss in the second half of the 4th century. These coins indicate that the site remained in use well in to the late 4th century... and possibly into the 5th century...

Seventy percent of the coins came from the upper fills of three waterholes, and 22 of the site total came from the final silting of a single waterhole (527241).

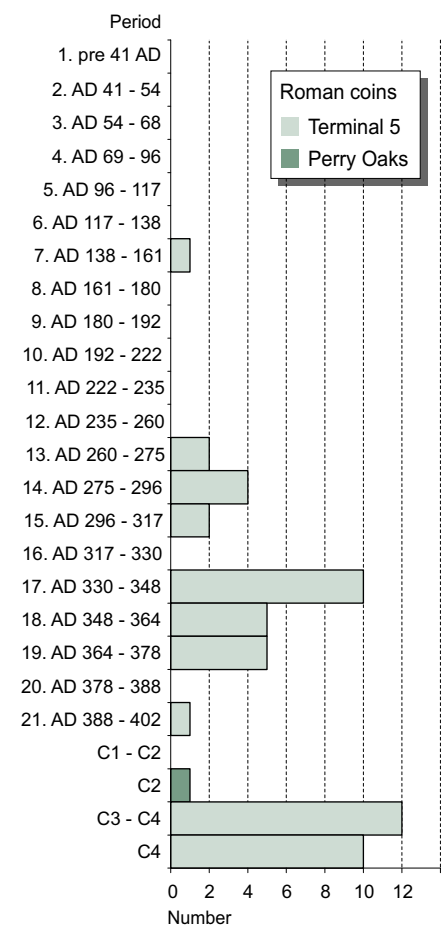


Figure 4.10: Chronological indicators: Roman coin chart

The presence of so many coins within a single feature is clearly unusual for the site, as is the presence (in this feature) of an early coin of Constantine I (SF 13240) in a deposit dating to the 350s AD. It may be that these coins actually represent a small dispersed hoard or that the feature was partially backfilled with rubbish from elsewhere on the site.

(Cooke, CD Section 5)

The topographic and cultural setting of the Middle Iron Age settlement

The topography of Middle Iron Age Heathrow

The Middle Iron Age nucleated settlement at Terminal 5 occupied a boundary zone between the western edge of the Taplow terrace and the eastern floodplain of the River Colne (Fig. 4.11). From this position the inhabitants of the settlement were ideally placed to exploit the possibilities afforded by the diverse landscape zones surrounding it. The wetter lower floodplain to the west would have been suited to livestock grazing, and the river would have been an important resource for water and riverine flora such as willow and rushes. As is usual for Iron Age sites, we have no evidence that the Middle Iron Age inhabitants exploited aquatic fauna such as fish and waterfowl for consumption, but a fragment of an alder wattle hurdle preserved in the palaeochannel (803009) in Trench 1017 (Bedfont Court), radiocarbon dated to 780–387 cal BC (WK11712) could have belonged to a fish trap.

The upper terrace to the east of the settlement would have provided drier ground for alternative pasture during seasonal flooding. This terrain would probably have retained sufficient levels of fertility for cultivation into the Middle Iron Age, despite more than two millennia of constant exploitation. However, the Bronze Age field ditches to the east of the settlement were neither obviously modified nor maintained during this time and the environmental samples produced evidence for only limited cereal production. This

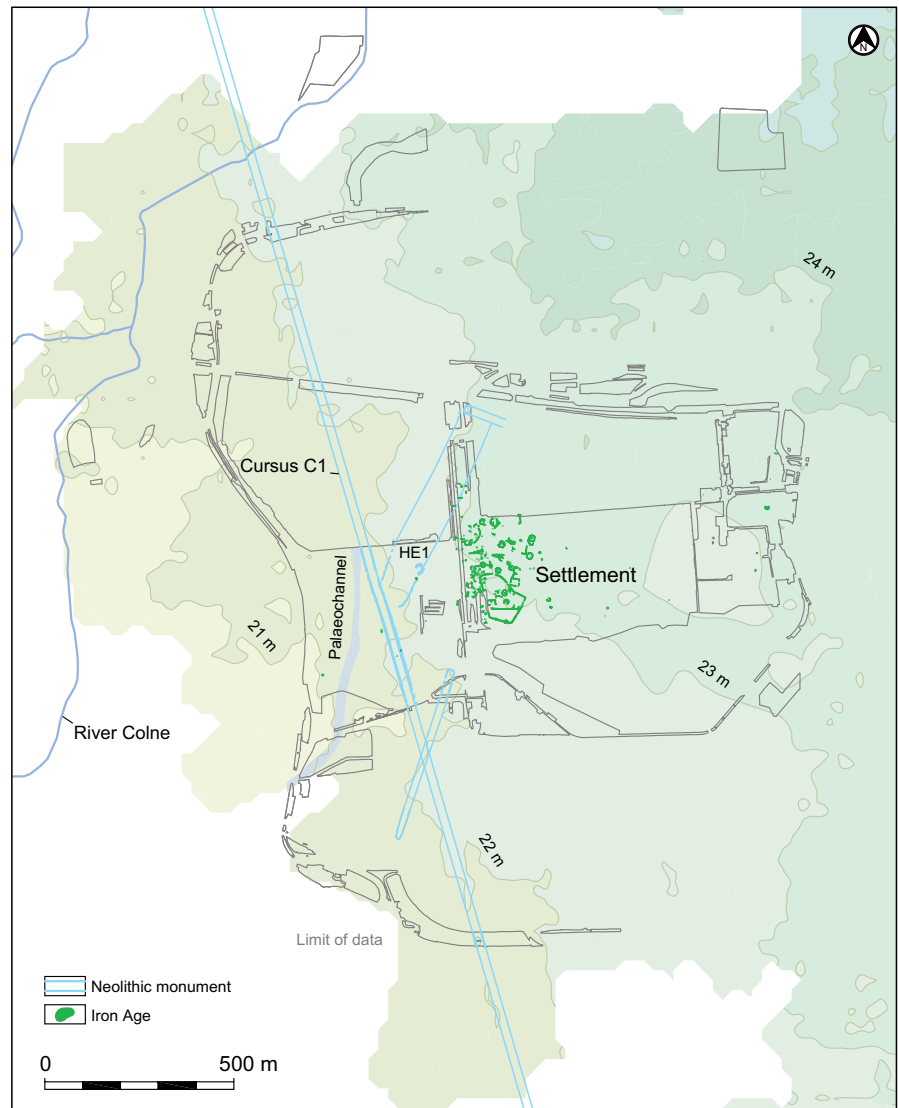


Figure 4.11: Topography of Middle Iron Age settlement

could point to, amongst other factors, a change in farming practices due to soil exhaustion, as was apparently the case at Horton, 5 km west of Heathrow on the Colne Brook (Wessex Archaeology 2009). There the Iron Age inhabitants were forced by the effects of over-farming of Bronze Age fields or by a rising water table to shift agricultural and settlement activity onto higher land.

Nonetheless, despite the lack of evidence for major modification or refurbishment of the Middle Bronze Age field systems at Terminal 5, their continued use can be supposed merely on the basis that the *raison d'être* of the nucleated settlement was subsistence farming based on a mixed pastoral and arable economy and that its continuing existence would have relied on the exploitation of the resources of the

immediate locality. If cereal production continued at some level during the Middle Iron Age, as it clearly did, presumably this would have been undertaken in the fields surrounding the settlement. The reuse and construction of some waterholes during the Iron Age in locations that respected the Bronze Age field system also testify to the survival of some of the pre-existing layout, despite the fact that the ditches were neither extended nor maintained. Elements of the field systems to the west of the Middle Iron Age settlement may have endured even as late as the Saxon and medieval periods, lending weight to the somewhat controversial claim that areas of pre-Roman co-axial field alignments can still be detected in the modern landscape in parts of eastern England (Rodwell 1978; Williamson 1987; Hinton 1997).

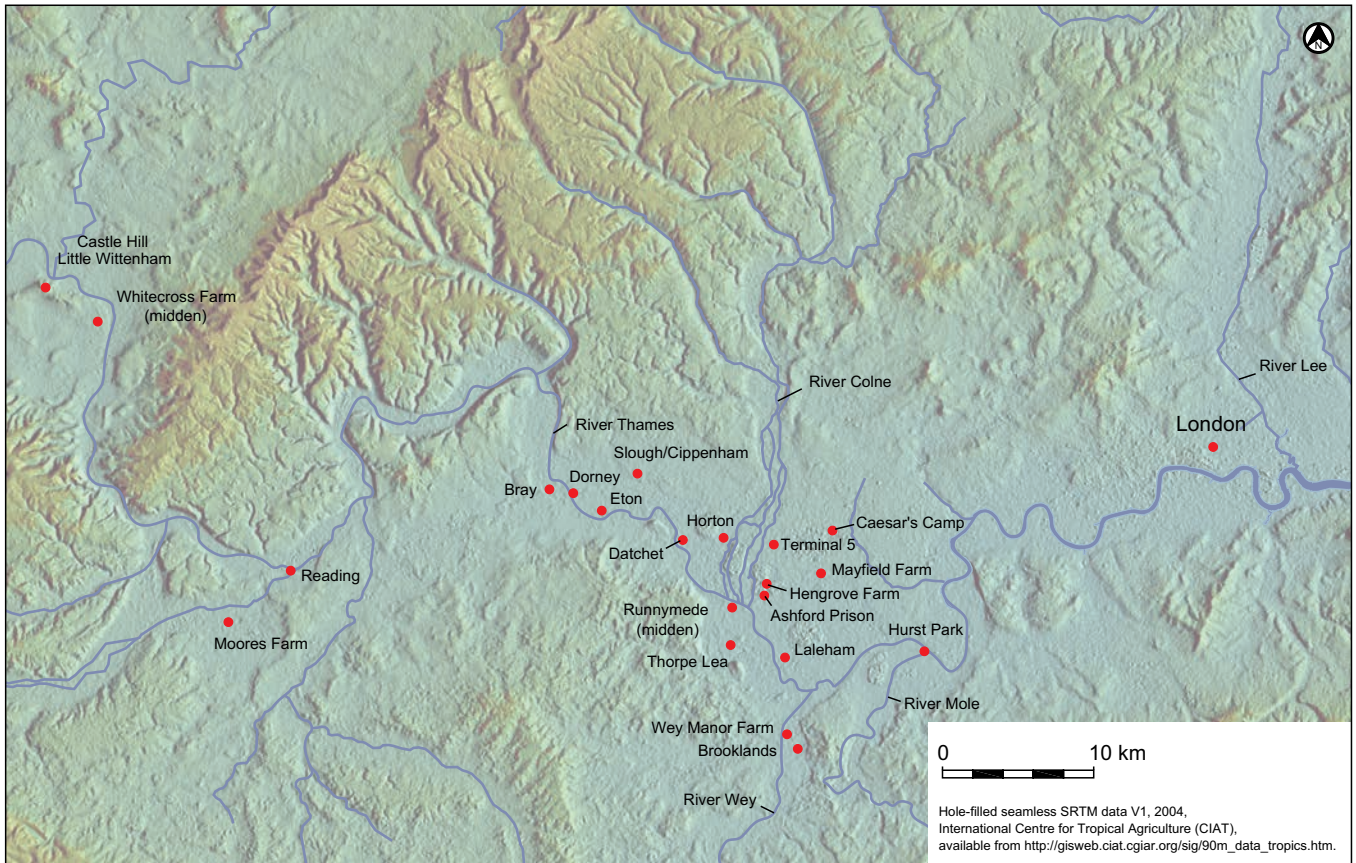


Figure 4.12: Middle Iron Age sites in the Middle Thames Valley

The local and regional context of the Middle Iron Age settlement

The siting of settlements along topographical boundaries was a common feature of settlement and exploitation patterns in the Middle Thames Valley during the Iron Age (Fig. 4.12). Evidence of Iron Age activity was found within an area of Bronze Age settlement at Mayfield Farm, East Bedfont, which lies on the boundary of two terraces to the south of Heathrow (Merriman 1990). At Thorpe Lea Nurseries near Staines, as at Terminal 5, traces of Iron Age occupation were found within a complex of Bronze Age fields (Hayman forthcoming a). The field system there was modified during the Iron Age with the addition of a long ditch and associated trackway, but gullies containing Iron Age and Roman pottery reflected the ancient boundaries. Survival of above-ground hedged boundaries (or banks) dating from the Bronze Age has also been noted on the West London and Surrey gravels at Hengrove Farm (Hayman forthcoming d) and Ashford Prison (Carew *et al.* 2006). At Eton Rowing Course, Dorney

an Iron Age boundary ditch was cut diagonally across a Middle Bronze Age field system, but avoided two double enclosures that it contained (Allen and Mitchell 2001).

Similar patterns of landuse have been recorded further afield, in the Upper Thames Valley. Dispersed Late Bronze Age and Early Iron Age occupation at Shorncote, part of the Cotswold Community complex of sites, was succeeded by a Middle Iron Age settlement on the line of a long-lived boundary marking the edge of a gravel terrace and floodplain (Powell *et al.* forthcoming). The junction between the first and second terrace gravels at Horcott Pit also provided the setting for an Iron Age settlement (Pine and Preston 2004; Lamdin-Whymark *et al.* forthcoming). An Early-Middle Iron Age settlement at Bicester Slade Farm associated with a linear boundary occupied a geological boundary between an area of clay and limestone (Ellis *et al.* 2000). Several small Middle Iron Age settlements occupying terrace edges were also recorded at Farmoor (Lambrick and Robinson 1979), Thrupp

(Everett and Eeles 1999) and Thornhill Farm (Jennings *et al.* 2004).

The cultural setting of the Middle Iron Age settlement

The Middle Iron Age settlement at Terminal 5 developed in the midst of a local landscape with a long history of habitation (see Fig 4.2 above). Due to later truncation of the site and limited stratigraphic evidence we cannot determine precisely how the settlement developed, but the Middle Iron Age layout clearly emerged within a pre-existing framework of recognised divisions in the landscape that reflected not only the natural topography but also a complex of ancient Neolithic and Bronze Age monuments, fields and habitual routeways. Traces of these earlier landscape features would have been extant well into the Iron Age as earthworks, hedges and fossilised trackways, which would have been of enormous significance in shaping and influencing the character of the Middle Iron Age settlement and the lives of the inhabitants.

The Middle Iron Age settlement within a relict landscape

As we have seen in Chapter 3, several of the Middle Bronze Age farmsteads at Terminal 5 appear to have survived well into the 1st millennium BC, and a number of new settlements were established within the pre-existing coaxial field systems. The foundations of the nucleated Middle Iron Age settlement emerged sometime around 400 BC within the Bronze Age aggregated landscape, occupying the south-eastern fringes of Farmstead 3, the southern fringe of Farmstead 4 and a block of open land ('Common land') immediately to the south (Fig. 4.13; and see Chapter 3), but avoided altogether the site of D-shaped Settlement 4, at least in structural terms. Whether settlement activity was entirely continuous at this location from the early part of the 1st millennium BC until the construction of the first of the Middle Iron Age roundhouses and stockades is uncertain, largely because it is difficult to date precisely Late Bronze Age and Early Iron Age pottery from the Middle Thames region. However, a particularly dense concentration of post-Deverel-Rimbury pottery redeposited in Middle Iron Age features in the eastern part of Farmstead 3 and along Bronze Age Trackway 2 suggests that in this particular location at least occupation could have been uninterrupted. Although no Late Bronze Age or Early Iron Age structures were identified here, occupation debris was abundant. A radiocarbon date of 1160–980 cal BC (Wk-18456) was obtained on material from a waterhole in the northern part of Farmstead 4 and a second of 840–410 cal BC (Wk-9373) came from charcoal in pit 125223 (see Chapter 3, Fig. 3.46), which cut the western ditch of Trackway 2.

An early 1st millennium midden?

It has been suggested in Chapter 3 that much of the Late Bronze Age/Early Iron Age pottery recovered from the site represented the remains of a dispersed structured midden of the type known from other late 2nd and early 1st millennium BC sites. Midden sites such as Potterne (Lawson 2000), East

Chisenbury (McOmish 1996), Llanmaes (Madgwick 2008) and Whitchurch in the West Midlands (Sharples *et al.* 2008) are characterised by large accumulations of detritus that may include pottery, flint, animal bone and metalwork in a single area. The large open space within the previous aggregate landscape to the south of Farmsteads 3 and 4 at Terminal 5 may have been the site of just such a midden, albeit lacking metalwork or notably exotic components (see Chapter 3). This interpretation could account for the density of post-Deverel-Rimbury pottery and fuel ash slag captured in the fills of Middle Iron Age settlement features, for which no other explanation seems apparent (see below). The relationship of the Terminal 5 inhabitants with this specific landscape location may have had more to do with the way they engaged with their landscape and natural resources than with economic changes or social hierarchies. If the Middle Iron Age settlement had been founded on the site of a large structured midden, this would be a demonstration of conceptual as well as physical continuity of place. Although midden sites of this type were apparently abandoned during the early Iron Age (and this seems to be true at Terminal 5), the fact that this location became the focus of middle Iron Age occupation could suggest some level of continuity of identity and relationship with this part of the local landscape.

If we consider one particular roundhouse (8) (Fig. 4.13) within the history of the settlement we may be able to detect something of this significance of place. Roundhouse 8 may have occupied a site immediately to the north of the postulated midden (south of Farmsteads 3 and 4) and was unique within its Middle Iron Age setting in several respects. It was the only building with a west-facing entrance, its encircling gully was recut as a sizeable ditch and it was associated with a much higher density of artefacts, particularly pottery and bone, than the other roundhouses. It endured as a structure throughout the Middle Iron Age and its location was respected into the Late Iron Age. Roundhouse 8 may have superseded or formalised the

midden site as a focus of communal ritual activity, involving the gathering of the families of the settlement (and perhaps visitors) to mark special occasions or negotiate disputes within a context of conspicuous consumption.

If the Middle Iron Age inhabitants acknowledged the importance of place represented by the site of the former midden they would also have been aware that earlier locations in the ancient landscape, surviving as earthworks of forgotten origin, could have had a special role in the lives of the communities that constructed them.

Middle Iron Age perceptions of the Bronze Age landscape

The ancient and highly organised landscape within which the Middle Iron Age settlement emerged was doubtless reflected during this period in surviving Bronze Age hedgerows, banks, trackways and waterholes (see Figs 4.2 and 4.13). We can be certain that the basic morphology of the coaxial fields at Heathrow was not deliberately modified during the life of the Middle Iron Age settlement in such a way as to leave archaeologically visible traces. This is in contrast to sites such as Eton (Allen and Mitchell 2001) and Thorpe Lea (Hayman forthcoming a), where new ditches and gullies were cut across and within the Bronze Age fields. However, to what extent the above-ground elements of the Bronze Age order survived into the Middle Iron Age at Terminal 5 is uncertain due to a paucity of sufficient evidence of any category—artefactual, stratigraphic or environmental—to fill in details of a broad landscape picture.

The Middle Iron Age inhabitants utilised the old Bronze Age Trackway 3 as the eastern boundary of their settlement (Fig. 4.13). This track had ceased to be a thoroughfare by the Iron Age, as several pits were dug along its length and filled during the Middle Iron Age. Nonetheless, it is clear that the line of the track retained some integrity as a boundary, as the settlement extended up to but not beyond it. The ditches had silted up and, although there was no convincing

environmental evidence that hedges grew along this particular boundary during the Middle Iron Age their eroded banks may have survived (Wiltshire in Framework Archaeology 2006, CD Section 11).

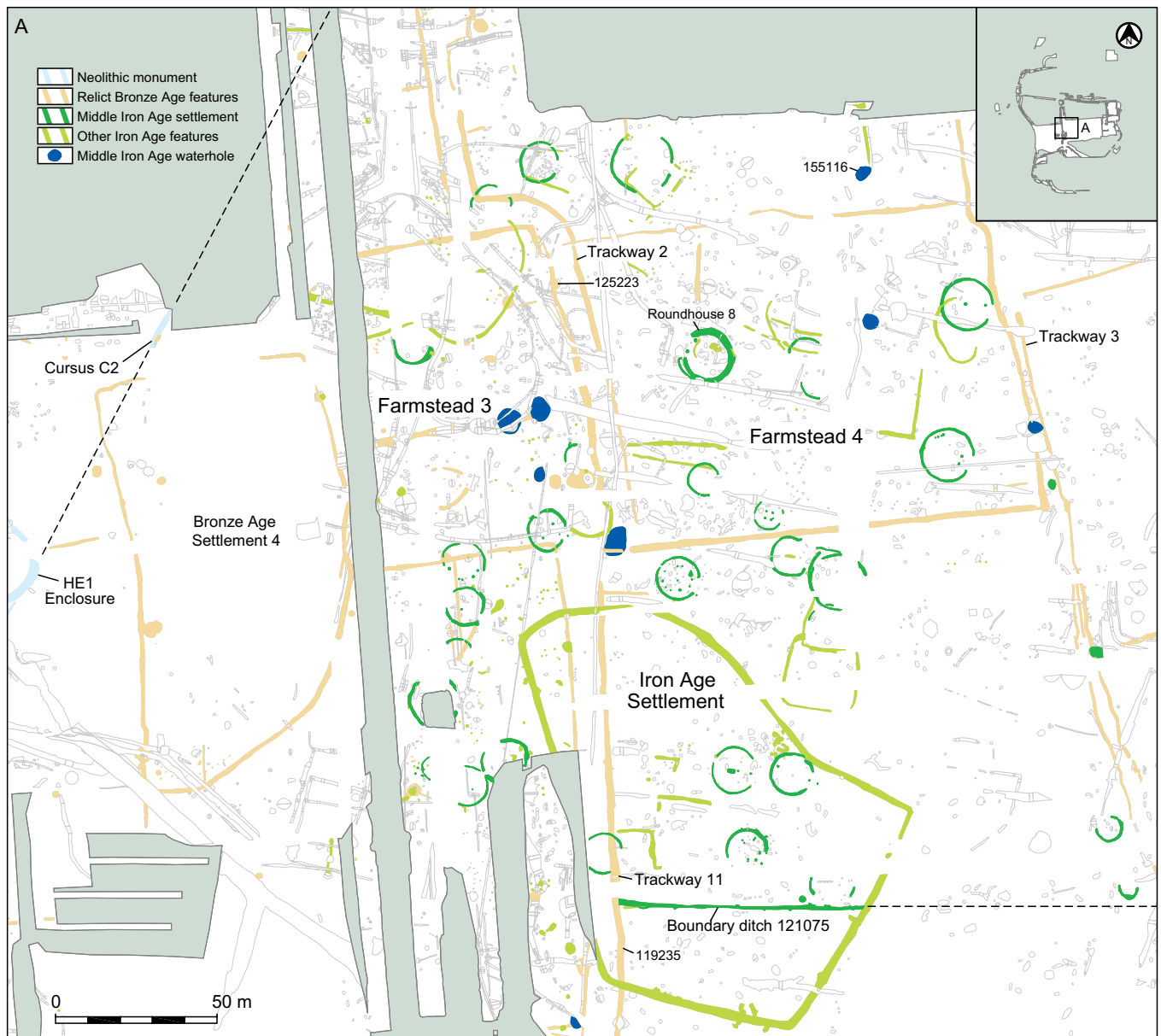
The pits were perhaps dug to reinforce the boundary in a symbolic sense, as they would have posed no physical barrier, whether or not the banks were still extant. Alternatively, they may have been associated with some mundane activity more appropriately undertaken outside the limits of the settlement than within. The pits are discussed in greater detail below.

Figure 4.13: The Middle Iron Age settlement within the relic landscape

An east-west aligned ditch (121075) which marked the southern boundary of the settlement, was also probably Middle or Late Bronze Age in origin (Fig. 4.13). It survived as a ragged-edged linear feature, averaging 0.8 m wide and only 0.20 m deep and contained no dating evidence. However, it corresponded to the general pattern of the Bronze Age field system, stretching eastwards from the line of Trackway 2 within the aggregate fields, and it is equally plausible that it was maintained (perhaps with an adjacent bank) into the Middle Iron Age as that it was constructed during this time.

A small number of waterholes dug during the 2nd and early 1st millennium BC were maintained or

renewed in the Middle Iron Age, all located within the site of the Middle Iron Age settlement or to the west of it. One of these (148303) was dug through the C2 Cursus (and a Bronze Age ditch) to the west of the Iron Age settlement and is alluded to below (see Fig. 4.15). The absence of new or reused waterholes in the fields to the east of the settlement indicates that there must have been some decline in pastoral activity in that area, but the low levels of arable agriculture reflected in the environmental evidence argue against an increase in cereal production as well. It may be that this period saw a coalescing of agricultural as well as settlement activity into a more restricted area of the landscape.



The farming practices of the Middle Iron Age inhabitants of Terminal 5 would have dictated that elements of the pre-existing landscape pattern not only be preserved but actively maintained by coppicing, pollarding and upkeep of at least some of the hedgerows. Certainly, the construction of timber-built roundhouses and fences and the procurement of firewood would have required such activity. At the opposite end of the spectrum, the pastoral regime may have allowed or encouraged the neglect or abandonment of some parts of the north-south aligned field system that would have hindered access of livestock herds to the river. So we cannot be sure whether the inhabitants looked out from their settlement over a broad expanse of hedged fields on all sides that closely resembled the pre-existing Bronze Age landscape or whether the prospect had been transformed to reflect the different social and economic order of the Middle Iron Age inhabitants.

Middle Iron Age perceptions of the Neolithic landscape

The earthworks of the Stanwell Cursus would have appeared as slight negative and positive features during the Middle Iron Age, the bank rising to perhaps no more than 0.2 m high above the surrounding floodplain. The views across to the monument from the nucleated settlement may have been largely obscured by ancient hedge and fence lines, others by the archaic banks of upcast produced when the ditches, now long since filled, first marked out the divisions of the Bronze Age landscape.

Sometime during the Middle Iron Age a group of farmers or herdsmen working on or crossing the floodplain dug a 2 m wide, shallow oval pit (529306) through the east ditch of the C1 Stanwell Cursus in Area 49 (Fig 4.14). The pit was backfilled with a gravelly soil (554144) incorporating the raked up remains of a bonfire incorporating a large quantity of flints. Within the charcoal-rich fill were fragments of animal bone in unusually good condition, including a cattle tibia, metatarsal and scapula and a horse femur and

metacarpal. The latter had scrape marks on the surface, suggesting butchery. Although there was no pottery in the fill, a radiocarbon date of 386–203 cal BC (WK 19335) was obtained on a charred barley grain. A seed of stinking mayweed (*Anthemis cotula*), a species rarely recovered from pre-Iron Age deposits (Jones 1981), confirmed an Iron Age date for the burning event. The site for the burial of this material may have been selected for no reason other than that the bank material was easier to dig through than the lower ground, but we cannot rule out the possibility that this location continued to serve as a venue for ceremonial activity several millennia after its construction.

The animal bone assemblage from this feature is summarised as follows:

In this very shallow feature, which contains only one (deliberate) fill, specific activity rather than gradual build up is inferred. Well-preserved large mammal limb bones (substantially complete cattle metatarsal and tibia and horse metacarpal and femur) and ribs, as well as sheep bone fragments, had been disarticulated and some smashed for marrow. Charcoal was present and one unidentified fragment had been burnt, although most did not provide any evidence of discard by fire or cooking (unlike Late Bronze Age Runnymede, where a lamb had been cremated and deposited in a pot in a midden; Needham and Sørensen 1988: 124). The large size of some of the fragments, which have clearly not been exploited for marrow, suggests that, for the bone in this feature, some of the nutritional value of the animal was not utilized. Whether this was due to an abundance of meat, a deliberate avoidance whether from taste or taboo, or a purposeful 'sacrifice' of food is uncertain. The presence of burnt material could indicate nearby cooking or disposal of animal products, but not whether this was undertaken nearby or close to the time of disposal.

(Knight and Grimm, CD Section 13)

Another feature (132266), a teardrop shaped waterhole, was dug through the fill of east ditch of the C1 Stanwell Cursus c 235 m further north (Fig. 4.14), probably in the Late Bronze Age,

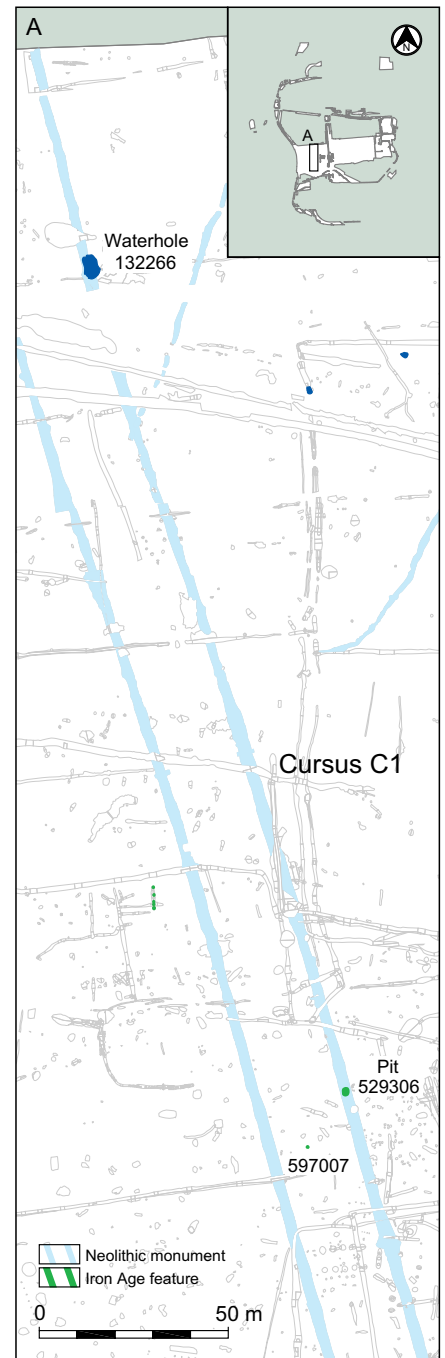


Figure 4.14: Middle Iron Age features in relation to the C1 Stanwell Cursus

judging by post-Deverel-Rimbury pottery in the surviving lower fill (132046). It was recut as a shallower feature during the Middle Iron Age and the fill (132256) contained a few sherds of pottery in sandy fabrics of Middle Iron Age type.

Earthworks of the Neolithic HE1 enclosure would also have survived to some extent into the Iron Age, and clearly attracted the attention of the Middle Iron Age inhabitants (Fig. 4.15; Plate 4.1). A linear ditch (136044) belonging



Above

Plate 4.1: Artist's reconstruction of the HE1 enclosure and waterhole 148303 in the Middle Iron Age

Right

Plate 4.2: Artist's reconstruction showing the HE1 enclosure used as an animal pen in the Middle Iron Age

to Late Bronze Age Farmstead 3 had been dug along the western side of the monument. Then, sometime during the Middle Iron Age a short linear ditch (136046), 6.5 m long and about 0.5 m deep, was cut through the fill of the Bronze Age ditch, directly across the original western entrance to the HE1 enclosure. We cannot determine to what extent the ancient monument continued to serve either some prosaic or ritual role during the Middle Iron Age, but when the short ditch was backfilled a complete 'saucepan' pot (Fig. 4.15) was deliberately placed within it. If the enclosure had been converted to a convenient livestock pen during the Iron Age, the ditch may have been used to control animal



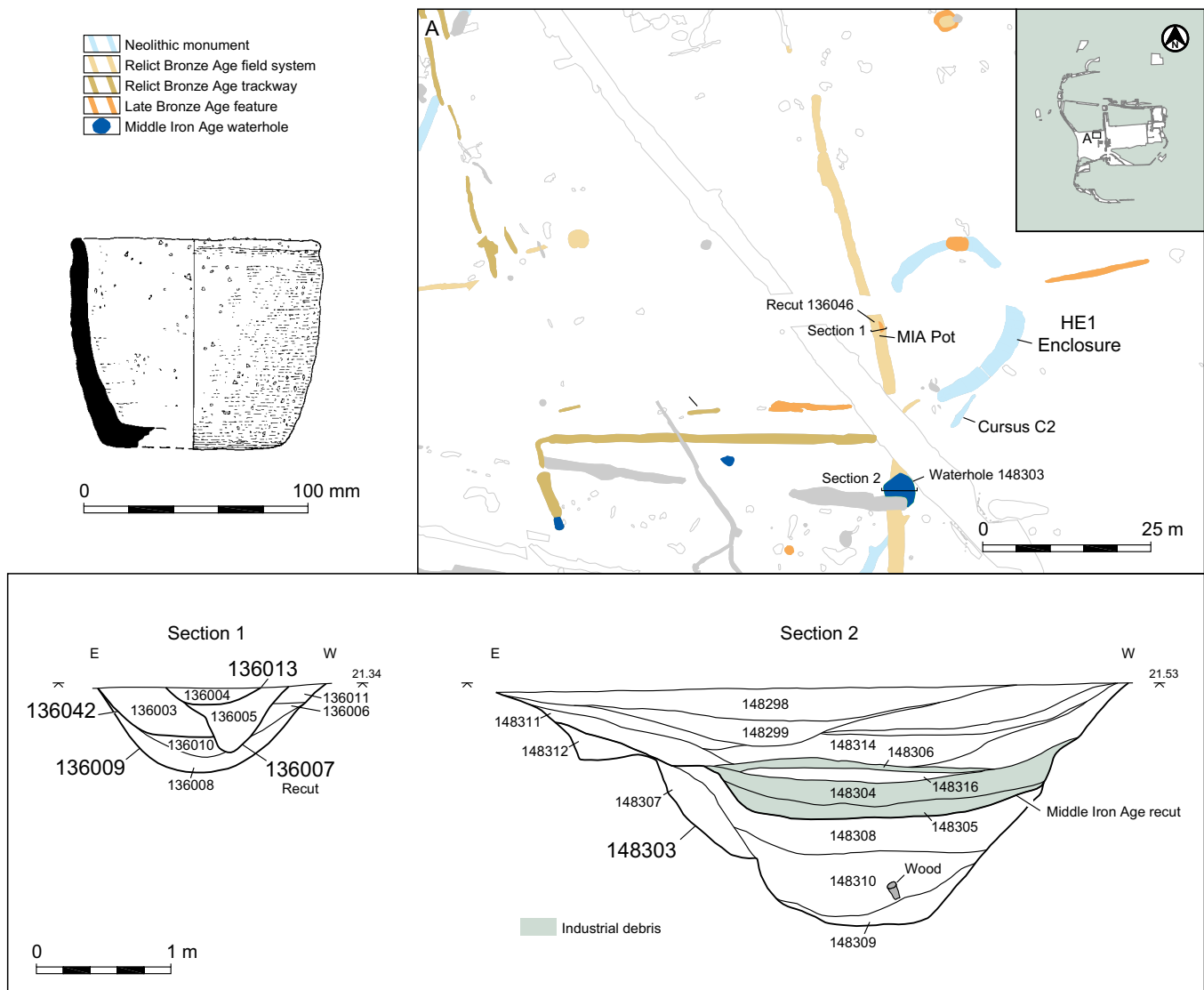


Figure 4.15: Iron Age activity close to the HE1 Enclosure

movement into and out of the monument, but this would presuppose the existence of a fenced or hedged barrier around its perimeter since the original earthworks would have been substantially eroded by this time (Plate 4.2). Conversely, the small ditch may have served as a notional barrier to access by people if the enclosure continued to fulfil some ritual role. In this case, the ancient bank need not necessarily have been enhanced as its mere presence, albeit eroded, could have served as a psychological barrier.

A large waterhole (148303) was dug or substantially recut during the Middle Iron Age close to the HE1 Enclosure (Fig. 4.15). It also cut Bronze Age ditch 136044 and would have been conveniently sited only 10 m away from the enclosure for watering

livestock. However, the steep shape, narrow-stepped rim and contents of this feature suggest that it functioned as a well rather than a watering hole. The contents of the lower fills suggest a Late Bronze Age origin but from fill 148305 upwards the sequence reflected intensive Middle Iron Age activity, containing iron slag, 1 kg of fired clay, including a loomweight or oven brick, and almost 2 kg of Iron Age pottery. Whether the modified HE1 enclosure and the well functioned in tandem during the Middle Iron Age is uncertain, but concurrent activity is clearly attested, whether relating to agricultural, industrial or some other use.

In the next section we will examine in more detail the evidence for the environment of the settlement and the surrounding agricultural landscape.

The environment of Heathrow in the Middle Iron Age

Very little palaeo-environmental evidence was recovered from Middle Iron Age deposits at Terminal 5. This was due in part to the fact that most features of this period that survived truncation were very shallow penannular gullies and postholes. Despite the increased area of Middle Iron Age settlement examined in the recent excavations at Terminal 5, there were no samples of molluscs or insect remains of a quantity or quality suitable for analysis. Nor were there any further suitable pollen samples obtained, so we are still reliant on the two analysed as part of the Perry Oaks publication (Framework Archaeology 2006, CD Section 11). Assessment and analysis of charred plant remains and charcoal

from the recent work enhanced only slightly the existing evidence, and no waterlogged plant remains were analysed.

Pollen

Samples from pits 137114 and 178015 in the eastern part of the Middle Iron Age settlement were assessed for pollen but only the sample from pit 178015 was analysed (Fig. 4.16). This feature, one of those cutting the eastern boundary of the Middle Iron Age settlement along the old Bronze Age Trackway 3, may not have been dug as a waterhole, but gleying indicates that some fills formed under wet conditions. An absence of eroded gravel at the base suggests it was continuously maintained until such time as it was allowed to collapse and silt up. Analysis of pollen samples taken through the fills provided good evidence for an evolving local environment at the eastern edge of the settlement.

The lowest deposit is characterised by very high levels of microscopic charcoal and an exceedingly open landscape. The feature itself was wet although there is no palynological evidence for standing water in this zone. Sedges, water mint, and meadow sweet were growing very close, probably at the wet edges of the pit. Fungal spores were also high in this zone and that might indicate that the pit dried out from time to time so that deposits became aerated enough to allow fungi to grow on organic debris falling into the feature. The area around the feature seems to have been very open, with woody taxa accounting for only about 5% of TLPS. Alder, pine, hazel, and oak were recorded but they were probably some distance away as single trees, or else all the trees and shrubs in the catchment were severely coppiced or pollarded.

(Wiltshire in Framework Archaeology 2006, CD Section 11)

These results suggest that grazing pressure was particularly high when this feature was open, and that the abundant weeds identified from their pollen were avoided by grazing animals, or may have been growing

on the edges of arable fields, on grassy banks between fields, or on open broken ground. Cereal pollen suggested that arable cultivation at some level was taking place during this time.

Higher up the sequence (178015/2 of the pollen column) there is evidence for a drop in the intensity of grazing, in the form of a slight increase in woody taxa with some scrub/hedge plants also present. Grasses increased but there was a slight decline in some weeds. The levels of microscopic charcoal were also lower, supporting the suggestion that there was a shift in activity, including a lowering of grazing pressure on the land surrounding the pit. Small amounts of cereal pollen pointed to continuation of arable farming in the vicinity, perhaps within the fossilised Bronze Age field immediately to the east of the pit.

In pollen zone 178015/3, there was further evidence for an even greater decline in grazing and management of woodland plants. Both grasses and woody taxa were more common, whilst the decline of ruderals (weeds) noted in Zone 2 continued. Again, the presence of cereal pollen pointed to continued arable cultivation. The presence of *typha* (reedmace) also indicated that the feature or its margins were very wet from time to time. This accorded with the recorded stratigraphy, which showed evidence of formation of some lower deposits in a watery environment.

The upper zone (178015/4) of the pollen diagram indicated continuation of an open landscape, with only a slight increase in tree and shrub growth, a significant increase in the representation of grass pollens, a smaller increase in cereal pollen, and a decline in ruderals. These indicated continued decline in grazing in the area, although it is possible that the evidence was distorted by hay-making or some similar practice:

If the cut were made after grass flowering but before the main flowering season of the grassland weeds, it is not difficult to see how this activity could affect the palynological record. Grass must be viewed

as a crop (Lockhart and Wiseman 1983) and there is no reason why these Iron Age peoples should not have been making hay for overwintering animals or for some other domestic purpose.

(Wiltshire in Framework Archaeology 2006, CD Section 11)

The pollen record from this pit indicated that a weedy grassland and ruderal weeds dominated the local landscape and that cereal cultivation took place in the near vicinity. Some trees grew in the pollen catchment but these were probably pollarded and/or coppiced, preventing flowering and causing them to be under-represented or absent in the pollen record. The pollen evidence also indicates that the importance of hedgerows in some parts of the settlement, a major feature of the Bronze Age landscape, may have been reduced by the Middle Iron Age, and Wiltshire (2006) suggests that grassy earth banks replaced hedgerows as field boundaries. Initially, although the values of pollen from grasses were low, the pollen record suggests a species-rich grassland with grassy banks between the fields, where some of the herbs may have grown. It is possible that grazing pressure was high in some areas and that the remaining herbs were unpalatable to the animals.

Subsequent changes in the pollen record, when the values of pollen from grasses and ribwort plantain increased, charcoal particles decreased and only low numbers of cereal pollen were identified, appear to represent a reduction in grazing pressure and a relaxation of land management. Towards the upper part of the sequence there were changes in the pollen record, which included a marked rise in pollen from grasses. These changes may also have been associated with a reduction in grazing pressure or are perhaps indicative of Iron Age hay-making (see Hodgson *et al.* 1999) when the crop was harvested after the grasses had flowered, but before the other herbs had flowered.

Unfortunately, the length of time during which this 0.85 m deep pit filled was impossible to determine, but

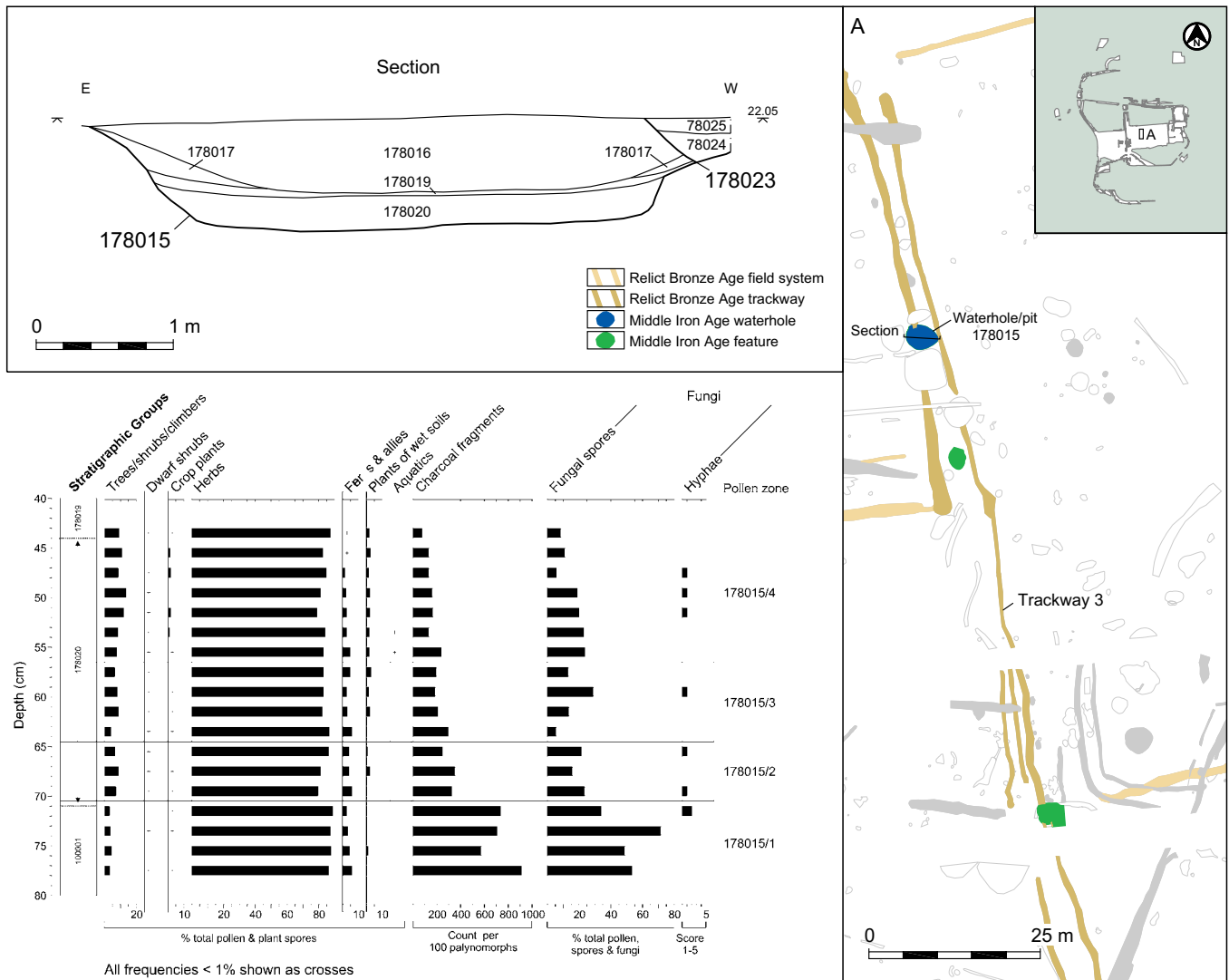


Figure 4.16: Pollen diagram for pit/waterhole 178015

the variations in flora and farming practices indicated by the analysis suggest a sequence of longer than a few seasons. The undiagnostic sandy sherds from the lower fills were dated only broadly to the Middle Iron Age, but a single grog-tempered sherd from upper fill 178016 is Late Iron Age. Nor do we have palynological evidence for environmental variation in other parts of the Middle Iron Age settlement and its contemporary landscape, so the evidence recovered from pit 178015 provides only a tantalising snapshot of a single location during an uncertain point in the lifetime of the settlement.

The general picture of this sector of the Middle Iron Age settlement environment is that it was,

...set in a very clear landscape with very few trees and shrubs. If they were present,

then they must have been pollarded and/or coppiced very regularly so that woody taxa were not able to flower. Cereal growing /processing was being carried out at the site but marked changes in the pollen spectra show that either grazing pressure was lower than before or that the timing of hay making influenced the sward. There was no convincing evidence for hedges in this part of the site in the middle Iron Age and boundaries might have consisted of earth/grassy banks. These banks would have provided havens for many of the herbaceous plants found in the sample.

(Wiltshire in Framework Archaeology 2006, CD Section 11)

A pollen monolith taken from the southern stretch (119240) of a large enclosure (EC1) in the southern part of the settlement, constructed during the later part of the Middle Iron Age,

produced a sample (<1062>) that provided evidence that the surrounding landscape was predominantly...

...herb-rich grassland. Bracken was relatively abundant and may have been encroaching on the pasture. The presence of reed-mace indicates that the water table was high within the ditch, although it may not have been waterlogged. The relatively high frequency of ferns might also represent plants growing in the moist and protected microenvironment offered by the ditch. No cereal pollen was found and there was no evidence that the feature represented a boundary between arable fields and other areas. The only woody taxa recorded were alder, pine, oak and hazel with the latter being the most abundant.

(Wiltshire in Framework Archaeology 2006, CD Section 11)

Pasture was clearly, then, an important element of the agricultural regime in this part of the settlement landscape, despite the decline in grazing indicated by the evidence from pit 178015 at the eastern edge of the settlement. The woody taxa, especially hazel and alder, suggest that the enclosure ditch may have been enhanced by a hedge.

Charred plant remains

The archaeobotanical evidence for Middle Iron Age Heathrow recovered during the earlier Perry Oaks excavations was fairly sparse. However, assessment of those samples recovered indicated that

...disturbed ground weeds (nettles and thistles etc.) were frequent at this time, suggesting that there may have been more emphasis on livestock rearing than arable cultivation.

(Carruthers in Framework Archaeology 2006, CD Section 9)

A single Middle Iron Age sample from the charred plants assemblage at Terminal 5 proved suitable for analysis. It was taken from pit 539450 in Roundhouse 19 in the southern part of the settlement and contained a single, deliberate backfill (539451) including daub, burnt flints, fuel ash slag, animal bone and pottery (see Fig. 4.22 below). The charred plants identified were poorly preserved emmer/spelt and barley grains, chaff fragments and weed seeds in roughly equal quantities, probably representing background waste material from hearths and floor surfaces swept into the feature along with other occupation debris. A barley grain from this deposit produced a radiocarbon date of 360–50 cal BC (WK19334).

*As far as could be identified from the poor remains, the cereals present were primarily emmer/spelt wheat (*Triticum dicoccum/spelta*) with a trace of barley (*Hordeum* sp.). Some of the wheat grains were rounded, vacuolated and distorted in a similar fashion to bread-type wheat, but these were probably an aestivoid form of spelt wheat (Jacomet 1987). The weeds indicated poor, damp soils, since weed vetches (including *Vicia* cf. *tetrasperma*) were relatively frequent, and blinks (*Montia fontana* ssp.*

chodrosperma) and spike-rush (*Eleocharis* subg. *Palustres*) were represented.

(Carruthers, CD Section 14)

The results of this single sample indicated that cereal cultivation and crop processing were probably being undertaken on a fairly small scale, unlike the periods either side of the Middle Iron Age.

Charcoal

No charcoal from Middle Iron Age deposits was fully analysed but a range of context groups was assessed. The charcoal identified,

*...consisted of a wide range of species, including *Pinus* (pine), *Fagus* (beech), *Quercus*, *Corylus* (hazel), *Prunus* (blackthorn), *Maloideae*, *Rhamnus* (buckthorn), *Acer* and *Fraxinus*. Most of the charcoal taxa ... are present in the pollen record, although the pollen for the Middle Iron Age suggests that the settlement was set in a very clear landscape with few trees and shrubs. The charcoal assemblages confirm that there were local woody resources, perhaps hedgerows and single trees bounding fields, which were being managed for fuelwood. The presence of *Acer* indicates relatively mature woodland or hedgerows, and the charcoal record in general does not suggest a shortage of resources, since oak is well represented. It seems likely that these resources were being pollarded or coppiced regularly, which would reduce the pollen production.*

(Challinor CD section 16)

Although the charcoal evidence was limited due to a paucity of Middle Iron Age samples, there seems to have been a significant change from the earlier periods in the wood species exploited for fuel during this time. The use of oak increased from about 50% of fragments in the Bronze Age to 70% by the Iron Age, while field maple increased from 1% to 6% and pine appeared at 2%. This may suggest an increasing reliance on woodland and less on scrub and hedges, but the picture may be somewhat biased if the material analysed derived largely from timber off-cuts from roundhouse construction.

What did the Middle Iron Age landscape look like and how was it farmed?

The combined palaeo-environmental evidence presents a picture of a settlement landscape that included much open grassland and areas of disturbed ground where thistles, nettles and bracken thrived. The edges of waterholes and pits were ringed with meadow sweet, water mint and sedge. Although perhaps dominated by open ground, the area around the settlement supported stands or borders of pollarded and coppiced woodland and shrubs, including oak, hazel, maple and pine, and we know from the radiocarbon record that hazel was growing along the river Colne between 400–200 BC.

In the Middle Thames generally environmental evidence and changes in the levels of water tables indicate that the process of clearance, already well advanced for many parts of the valley floor in earlier prehistory, was consolidated, extended and probably largely completed during the late prehistoric period (Lambrick 2009). However, areas of woodland must have existed at Terminal 5 and other Middle Iron Age settlements, albeit possibly scattered and managed. Reynolds (1995, 200–1) concluded through experimental building that about 12 coppiced trees would have been required to build a four-post structure and 100 were needed for a roundhouse of average dimensions, allowing for posts, stakes and wattles. Although earth-fast timber structures can have a life-span of 20–25 years at least, repairs, rebuilding, reorganisation and fencing would have presented a high demand for woodland products. It is impossible to be precise, but the Middle Iron Age settlement would have required several hectares of woodland for construction and repair, and these resources were probably managed on a rotational basis in order to allow the 30–40 years required for the growth of a substantial structural timber (Reynolds 1995).

Bronze Age field hedges may have been maintained across large areas to the east and west of the settlement, but specific evidence for this is scarce and

it seems clear that some hedge lines close to the settlement were reduced to grassy banks where herbaceous plants flourished. However, a hedge that included hazel was probably planted during the later part of the Middle Iron Age to enhance the ditched boundary of the large southern enclosure.

Arable cultivation was probably much reduced from the Bronze Age level during the Middle Iron Age. Emmer/spelt and barley grew in some of the ancient fields adjacent to the settlement on the higher terrace, but the soils were less fertile than they had been during the Bronze Age and grassland may have displaced cereals in some of the fields.

The settlement and surrounding landscape would have supported large numbers of domestic animals, including cattle, sheep, possibly goats and horses. Grazing pressure kept large areas of the landscape surrounding the settlement clear and, despite evidence that grazing pressure was relaxed at intervals in some areas of the site, this need reflect only seasonal variation rather than decreases in pastoral activity. Where land shortage was not a problem, as was the case in the Middle Iron Age at Terminal 5, foggage (dead or decaying grass remaining on land through the winter) would have supplied ample winter feed for livestock. The concentration of stock enclosures (see below) in the settlement area alone testifies to the significance of this element of the agricultural regime. We can imagine that the floodplain to the west of the settlement could have supported large herds of cattle and sheep and the animal bone assemblage shows that horses were not uncommon on the site from as early as the early Bronze Age (see *Knight and Grimm CD Section 13*).

The Terminal 5 Middle Iron Age landscape in perspective

There is generally very little useful environmental information for the Middle Iron Age from the Middle Thames Valley, but according to the evidence obtained to date, far fewer settlements are known from this period compared to the Middle and Late

Bronze Age. This may reflect a genuine decline in settlement activity in the region rather than failure to identify sites. Charred cereal processing remains are certainly less common at Iron Age settlements in the Middle Thames Valley than on Upper Thames Valley sites and the virtual absence of charred cereals at Moores Farm (Brossler *et al.* forthcoming) and a paucity of such material at Brooklands (Hayman 1991; forthcoming c) was notable (see Fig. 4.12 above). The trend towards a more intensively managed agricultural landscape observed for the Iron Age in the Upper Thames Valley seems to have been less pronounced in the Middle Thames region. To what extent this may have been a product of soil nutrient loss is uncertain, but the limestone geology underlying the Upper Thames sites would have reduced the fertility loss whilst the soils overlying the flint gravel on the gravel terraces of the Middle Thames Valley are more vulnerable to acidification and podsolisation. This process seems to have accelerated during the late prehistoric period.

The timescale of soil impoverishment at Terminal 5 is uncertain but heathland plants such as heather and bracken had proliferated even by the Late Bronze Age (Wiltshire in Framework Archaeology 2006), as had the occurrences of charred and waterlogged cereal remains. Equally few charred cereal remains were present in Iron Age samples at Thorpe Lea Nurseries, close to Terminal 5 (Robinson in Hayman forthcoming a).

The available evidence suggests that there were probably fewer Middle Iron Age settlements in the Middle Thames Valley than in the Upper Thames. The evidence from those that have been investigated suggests that such settlements that did emerge in the area during this time were not engaged in high levels of arable production. Even considering the dearth of storage pits on Middle Thames Valley sites, numbers of four-post structures and other possible grain storage facilities are no greater than in the Upper Thames and Hampshire, where these structures functioned alongside storage pits.

Although resembling Upper Thames Valley sites in being extensively cleared, with large tracts of grassland pasture, it is possible that by the Middle Iron Age rough grassland, heath and scrub, which had gradually developed during earlier periods, came to dominate extensive areas of land between settlements, with a contraction of organised, enclosed land and managed woodland surrounding the settlements. The scale of woodland management required to establish and maintain a settlement of timber structures and fences would have been significant.

The Middle Iron Age Settlement

The inception of the Middle Iron Age settlement

As we have seen, the Middle Iron Age settlement emerged within an agricultural landscape that had a long history of reconfiguration and management, dating from the Neolithic period. By about 1600 cal BC the Heathrow landscape had undergone a process of agricultural and domestic agglomeration through the imposition of a complex field system within which several farmsteads and settlements were established. The locations of some of the Late Bronze Age/Early Iron Age wells and waterholes indicated that elements of the Middle Bronze Age agricultural field system were extant during the Middle Iron Age, albeit perhaps only as banks or hedges rather than maintained ditches. This continuity of land-use shows us that an ancient system of land control endured in some form, without significant alteration to some of its constituent elements.

In stark contrast to the persistence of field boundaries and trackways, the Bronze Age farmsteads and settlements were abandoned, apparently during the currency of post-Deverel-Rimbury pottery (c 1150–750 BC). By about 400 BC domestic occupation had coalesced within the previous aggregated landscape, with the establishment of a nucleated settlement corresponding approximately to the site of Bronze

Age Farmsteads 3 and 4 (see Fig. 4.13 above) and an open space to the south. Attempts to trace the development of the Middle Age settlement were hampered, as we have seen, by a paucity of closely dateable artefacts and absolute dates from relevant deposits.

The Middle Iron Age pottery from Terminal 5 generally lacks sufficient distinguishing features to link it securely to a regional Middle Thames ceramic sequence. Most of the (mainly very fragmentary) pottery could be classified only broadly within a date range of *c* 400–100/50 BC. Four ‘saucepan’ pots, including a complete example from ditch 136046 (see above), recovered from the site may allow us to argue that, in common with Caesar’s Camp (Grimes and Close-Brooks 1993, 356), occupation of the settlement persisted into the later part of the Middle Iron Age. The recovery of pottery broadly dated to the late 1st century BC–early 1st century AD, on the basis of form and fabric typologies, secures a Middle Iron Age to Late Iron Age/early Roman sequence, but without complete confidence as to whether occupation was intermittent or continuous throughout this period, although the latter seems very likely.

Nonetheless, a conjectural sequence for Middle Iron Age habitation of the Terminal 5 site can be proposed. The image of the Middle Iron Age settlement captured within our surviving data hides a less visible history of inception and development, but several archaeological clues hinted at prior activity at this spot and at the nature of the genesis of the settlement.

Intercutting pit group

Immediately predating the floruit of the nucleated Middle Iron Age settlement a group of 32 shallow, intercutting pits were dug within what had been an open area to the south of Farmstead 4 in the Bronze Age (Fig. 4.17; Table 4.2). Twenty-eight of the pits were fully or partly excavated. The largest was 1.65 m across and the smallest only 0.21 m in diameter. None survived to a depth of greater than 0.5 m.

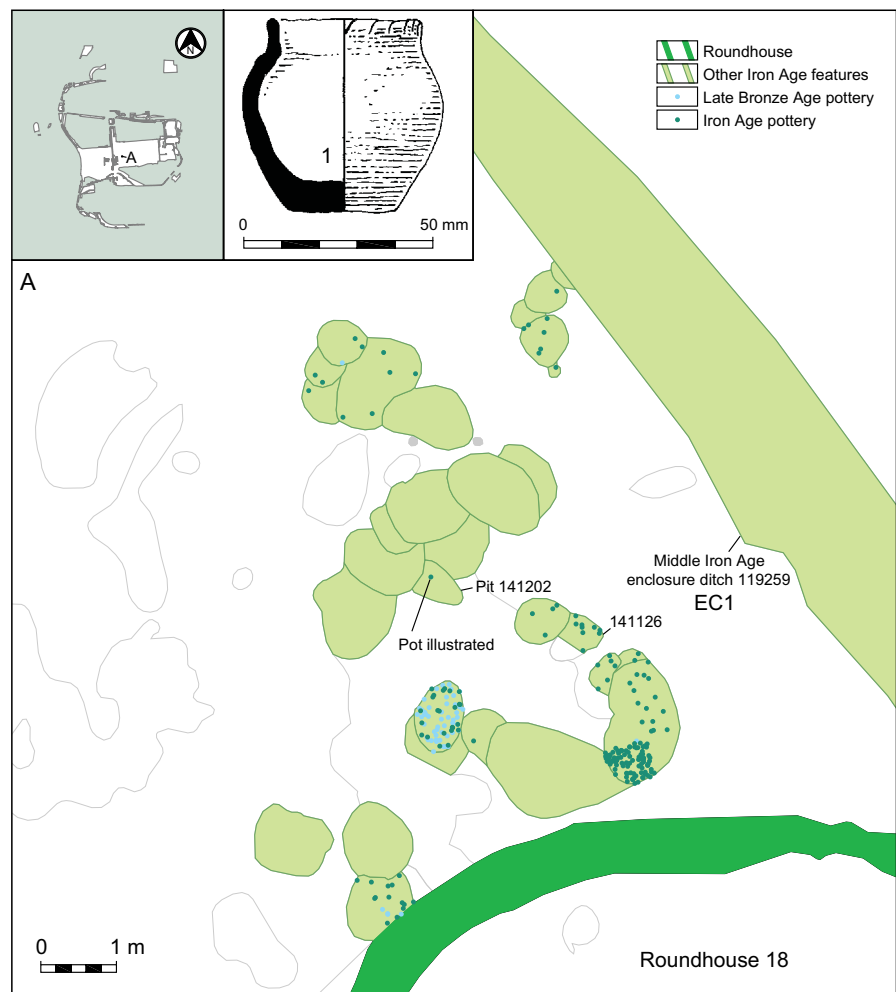


Figure 4.17: Middle Iron Age intercutting pit group

Several of the pits contained post-Deverel-Rimbury pottery and some also produced worked flint, burnt flint and stone, utilised stone (including quartzite hammerstones and a possible sandstone quern fragment), animal bone and fired clay. The nature of the fills and the domestic debris incorporated within them suggested that when the pits were levelled, they were backfilled with mixed material, some of which was shovelled out from old ground surfaces or middens that had accumulated during earlier phases of activity in this spot.

Shallow hollows of this type are typical of small scale quarrying activity, in this case probably for clay to create the daub needed in the construction of roundhouse walls, ovens and other structures. Bersu’s ground-breaking 1930s interpretation of a similar feature at Little Woodbury, Wiltshire, as a ‘working hollow’, and of the deeper pits as grain stores rather than

underground habitations, led to the recognition of posthole and beamslot evidence for roundhouse superstructures (Bersu 1940). Nonetheless, it is more plausible that ‘working hollows’ associated with Iron Age settlements (often referred to as threshing hollows) were either quarries for clay, soil or stone or holes for burying malodorous material. Threshing grain on a sunken rather than a raised platform would restrict the wind current necessary for the process, and undertaking activity of any type at Terminal 5 within a feature that would have trapped water, turning the space into a quagmire, would have been counterproductive. These daubing pits would have been one of the earliest elements of the nucleated settlement, but their contents provided evidence of even earlier activity at this location. The pit complex had been completely levelled by the time some of the roundhouses, including Roundhouse 18, were constructed adjacent to it, but it was likely

to have been exploited for clay during the early stages of the Middle Iron Age settlement construction. The complex was cut later in the Middle Iron Age by the northern ditch of a large irregular enclosure (EC1 see below).

Most of the considerable collection of pottery from the pit group (375 sherds / 3109 g) was Middle Iron Age in date, securely linking the quarrying events to this rather than to an earlier period. Pit 141202 was not fully excavated but the top fill contained a complete Middle Iron Age miniature vessel (Fig. 4.17). Pit 141126 also produced two fragments of a similar miniature vessel in the same sandy fabric. Although it is tempting to regard these as votive deposits, it is equally likely that they were drinking vessels lost or disposed of during the taxing work of extracting clay and/or levelling the quarries. Otherwise, the pottery is more typical of domestic detritus, with an average sherd weight of only 8 g.

Fuel ash slag and post-Deverel-Rimbury pottery

The distribution pattern of fuel ash slag (FAS) and post Deverel-Rimbury pottery (Fig. 4.18) may provide further evidence that the Middle Iron Age settlement evolved from an earlier occupation focus. Fuel ash slag is a grey, powdery, vesicular, sometimes vitreous material, the product of burning clay and/or sand at extremely high temperatures. Its occurrence is frequently associated with the burning down (sometimes clearly deliberately) of roundhouses, especially during the Early Iron Age (Brown 2000; Webley 2007; Coe and Newman 1993), although it does occur in most periods (Caroline Cartwright, British Museum, pers. comm.). The distribution of FAS at Terminal 5 was widespread across areas occupied by the Middle Iron Age settlement. Figure 4.18 shows the overall distribution of this material in Iron Age features across the entire site but quantities were particularly dense

within penannular gullies and associated features arranged in a ring in the southern part of the Middle Iron Age settlement. This annular arrangement represented the first phase of the Middle Iron Age settlement.

In the light of this, we could surmise that the initial settlement was constructed within an area where intensive burning, possibly even of earlier structures or hedgerows, had occurred, or at least where high temperature craft activity had taken place. No Late Bronze Age or Early Iron Age structures were specifically identified, but if they had existed, the evidence could have been obscured by later levelling and construction, or within the dense scatter of postholes and other small features, excavated and unexcavated, that crowded the Middle Iron Age settlement.

Table 4.2: Middle Iron Age intercutting pit group

Pit	Dimensions m	Pot No/g	*asw (g)	Pot date	Fired clay g	Burnt flint g	Flint No/g	Stone g =burnt	Bone g	Comments
141114	0.47	-	-	-	1	2	-	-	-	-
141112	0.55	1/6	6	E-MIA	-	-	-	-	-	-
141110	0.47	-	-	-	-	-	-	-	-	-
141108	0.64	6/35	6	MIA	3	2	-	2	-	-
141106	0.21	1/3	3	MIA	-	-	-	-	-	-
141118	0.61	3/35	12	LBA (1) & MIA	25	43	-	141	-	quartzite
141120	0.60	2/13	6.5	MIA	-	17	-	-	-	-
141210	0.65	1/8	8	MIA	-	-	-	42	-	quartzite pebble
141208	1.33	5/106	21	MIA	4	39	-	51	-	quartzite pebble
141204	1.20	17/150	9	LBA (1) & MIA	17	267	-	-	-	-
141216	1.40	61/282	4.6	LBA (4) & MIA	84	328	2/11	60	-	incl. 1 polished sandstone
141214	1.04	10/220	22	LBA (6) & MIA	-	84	1/121	-	-	-
141218	1.18	19/198	10.4	MIA	1	243	2/41	143	141	quartzite pebble
141186	0.68	-	-	-	-	-	-	-	-	-
141220	1.10	7/20	3	MIA	-	46	2/3	73	2	? Utilised sandstone quern?
141222	1.10	5/37	7	MIA	-	6	1/4	-	12	Horse bone
141224	1.00	-	-	-	-	-	-	-	-	-
141202	0.75	1/61	61	MIA	-	-	-	-	-	Complete pot SF175
141124	0.75	2/18	9	MIA	-	3	1/140	-	-	Burnt flint hammerstone
141126	0.70	9/60	7	MIA	4	17	-	-	1	Miniature pot
141147	0.95	74/377	-	LBA (50) & MIA	218	3044	2/4	66	7	-
141149	0.55	1/7	7	M-LIA	37	28	1/1	-	-	-
141226	1.90	-	-	-	-	0	-	-	-	-
141212	1.65	108/1146	10.6	LBA (1) & MIA	397	1009	4/252	1698	571	Horse, cattle, red deer bone
141128	0.50	3/4	1.3	MIA	-	72	-	-	-	-
141130	0.40	2/38	19	MIA	12	110	-	279	-	-
166061	1.02	9/52	6	MIA	-	2	2/8	-	-	-
141136	1.00	12/175	14.5	LBA (7) & MIA	3	275	1/1	-	76	Sheep, goat, red deer bone
141138	1.00	18/58	3.2	LBA (4) & MIA	-	53	2/12	-	-	-

* average sherd weight



Figure 4.18: Distribution of fuel ash slag and post-Deverel-Rimbury pottery in Iron Age features

Settlement activity dating to the Late Bronze Age/Early Iron Age was also evident in the relatively high density of post-Deverel-Rimbury pottery recovered from approximately the same area as the FAS (Fig. 4.18).

Residual post-Deverel-Rimbury pottery was particularly abundant on the western side of the southern settlement area, notably in features associated with Roundhouses 5, 19, 21, 24 and Enclosures 26 and 30 (located on Fig.

4.19). What may have been the germ of an earlier nucleated settlement, or centre of some form of specialised activity, may have been subsequently masked within the heavily 'built up' Middle Iron Age agglomeration.

Why was the settlement established in this location?

Most of the artefact evidence dating to the first half of the 1st millennium BC, including pottery, FAS and perforated clay slabs, came from the rectangular open space to the south of Bronze Age Farmstead 3 and immediately outside the entrance to the D-shaped enclosure occupied by Settlement 4. Results of micromorphological analysis indicated mixed agricultural activity in the Late Bronze Age/Early Iron Age in this location, including livestock management, with evidence of trampling (*Macphail, CD section 19*). Ceramic evidence, mostly from the upper fills of waterholes and wells, indicates that occupation also continued into the Late Bronze Age/Early Iron Age in the location previously occupied by Farmstead 3. The motivation for the shallow recutting of these features during this period is debatable, and could equally have reflected the need to maintain a water source for livestock or the type of pit digging activity typically associated with other settlement activities.

In an earlier section we saw how activity began to coalesce within the Late Bronze Age aggregate agricultural landscape, leading finally to the establishment of a substantial nucleated settlement in the Middle Iron Age. It is conceivable that a structured midden, which included pottery and other artefacts as well as animal waste, developed in this location during the first half of the 1st millennium BC. A concomitant focus on collective behaviour and a pooling of resources may have either impelled or attracted settlement coalescence.

Although our evidence for this scenario is slender, several strands can be collated to inform such an hypothesis. A reduction in arable cultivation and a corresponding increase in pastoral activity has been observed for the period leading up to and spanning the Middle Iron Age (see above) at Terminal 5 and other sites. At Potterne the favoured interpretation for the 3.5 ha of dark, anthropogenic deposit was that it was a 'place where stock, predominantly cattle, were regularly

pounded, maintained by a relatively small resident population' (Lawson 2000). Other structured midden sites in the Middle and Upper Thames Valley, such as Runnymede (Needham and Sørensen 1988; Needham and Spence 1996), Whitecross Farm (Cromarty *et al.* 2006) and Woodeaton (Harding 1987), were characterised by superficial artefact-rich deposits, which Needham and Spence (1996, 248) regard as specialist sites that served some function beyond that of 'undirected refuse aggregation.' Components of such middens vary. The Whitecross Farm deposit, for example, incorporated a substantial amount of charred crop processing waste, and several of these sites, including Runnymede, contained high status finds, including metalwork, within a matrix of foul organic matter. However, despite their individual differences, all of these midden sites shared the common features of substantial aggregation of cultural material and animal waste within a context of human interaction.

Structural evidence for the settlement

Our understanding of the layout of the settlement relies on a range of structural features—penannular gullies, postholes and trenches relating to buildings, pits and waterholes—as well as the topographic and constructed boundaries that defined the inhabited space. Roundhouses, stockades and four-post structures, amongst other less clearly defined settlement components, were newly constructed during the Middle Iron Age, but it is clear that Neolithic and Bronze Age earthworks and features, such as enclosures, trackways and waterholes, were reconfigured, recut or otherwise modified to suit the requirements of the Iron Age inhabitants (see above).

The basic plan of surviving Middle Iron Age features (Fig. 4.19) cannot be viewed as a static entity, rather as the incomplete picture of evolving and shifting habitation over a period of several centuries. The level of evidence lost due to truncation and other disturbance, the paucity of stratigraphic relationships and dating evidence for the

period and the poor survival of organic materials like bone, wood, textile and leather, which would have formed the fabric of everyday life in the Middle Iron Age, make it impossible to understand precisely how the settlement would have looked and functioned at any given point. However, we can use the not inconsiderable combined evidence to depict the changing Iron Age landscape at Heathrow.

Boundary features

The Middle Iron Age settlement was essentially an open settlement, in that there was no substantial or continuous enclosure bank and/or ditch or other uniform feature bounding the habitation area. However, the scatter of roundhouses and enclosures ended abruptly on the line of liminal features on the eastern and southern sides, which can be taken to have represented at least symbolic, if not restrictive physical barriers (Fig. 4.19). It is not clear how far the settlement extended to the north and west as no such boundary features were identified on those sides of the settlement—merely an absence of settlement evidence beyond a certain point. Taken together, however, the evidence indicates that the settlement would have covered an area at least some *c* 225 m east to west and *c* 300 m north to south, although not all of that space need have been occupied throughout the Middle Iron Age.

The eastern side of the settlement was marked by a linear boundary, the relict Bronze Age Trackway 3, which by this time probably survived only as grass covered banks. No roundhouses or other significant features, apart from two or three small pits, were constructed to the east of the old trackway during the Middle Iron Age, and only a very sparse scatter of pottery of this date littered the eastern fields, captured in the subsidence hollows of earlier features. Trackway 3 had gone out of use as an access route before the settlement was fully developed because a series of pits was cut along its path (Fig. 4.19).

The northernmost pit was a wide shallow hollow (178015) described

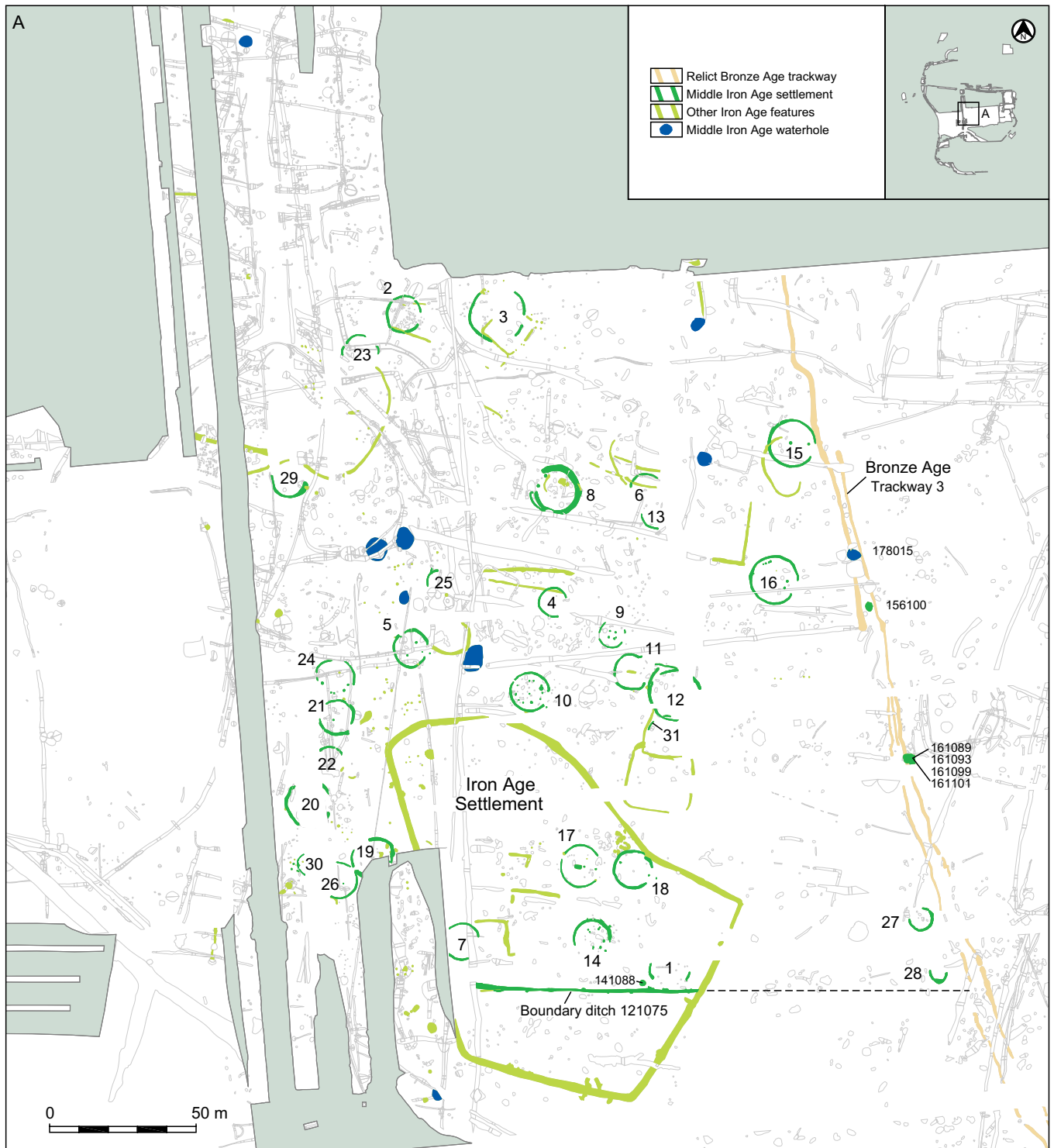


Figure 4.19: Middle Iron Age settlement (all phases)

above, which may have served as a shallow waterhole dug in an area with a high water table (see Fig. 4.16). The relatively large collection of 46 pottery sherds from the feature, including rims of globular jars, had, nonetheless, a very low average sherd weight of under 3 g. This and the presence of very small fragments of unidentifiable animal bone suggest that it was used

for casual disposal of domestic waste at the edge of the settlement.

The date and function of a smaller pit 15 m to the south along the trackway was less secure. Pit 156100 was 2.8 m wide and 0.63 deep. It produced a few scraps of fired clay and a single Middle Iron Age sherd but its position along the boundary and absence of earlier

or later ceramics suggest it was contemporary with pit 178015.

The fills of a group of four wide, shallow intercutting pits (161101/ 161099/161089/ 161093) (Fig. 4.19) produced one of the largest collections of Middle Iron Age pottery from the site, 483 sherds weighing 1770 g, and included fragments of at least five

round-bodied jars. The fragmentary condition of the pottery, with an average sherd weight of only 4 g, and the large quantity of animal bone (mostly teeth)—of cattle, horse and red deer—suggests that this feature was also a rubbish pit.

Pit alignments were a distinctive form of boundary in prehistoric Britain, more common in some parts of England than others (Kidd 1999, 5–6), but nonetheless recognised in the Thames Valley (Bradley and Yates 2007). Some have been recorded in the Middle Thames Valley, for example at Datchett (Gates 1975) and Staines Road Farm (Jones and Poulton forthcoming). However, the pits in a given boundary alignment generally resembled each other and their fills were typically clean, so we can discard any proposition

that the pits cut along Trackway 3 represented a pit alignment *per se*.

Ditch 121075, a narrow, shallow and irregular feature at the southern extreme of the settlement may have been the remnant of a Bronze Age field ditch or hedge (Fig. 4.19; see above).

It was initially regarded as an internal division of the large southern enclosure (Framework Archaeology 2006, 190–1). However, it lies on the Bronze Age field system alignment and, although it produced no dateable finds and the eastern end of the feature was not traced beyond the limit of the southern enclosure, this could be simply a product of poor preservation and observation. There were no roundhouses or Iron Age waterholes south of the ditch, suggesting it was a recognised boundary

during this period. A small shallow pit (141088) dug just beside the ditch produced four Middle Iron Age sherds and a few scraps of fired clay.

Penannular gullies and associated structures

Forming the basis of the Middle Iron Age settlement were over 30 penannular gullies, representing at least two phases, and perhaps more, of occupation (Figs. 4.19–20 and 4.26). The southernmost group of gullies was constructed in an annular arrangement approximately 180 m across around an open space, probably communal, roughly 65 m by 80 m across. The penannular gullies in the northern part of the settlement were, by contrast, more sparsely sited in a disparate scatter with no obvious focus.

Gully	Type	Truncation	Internal dia	Pot no.	Pot wt.	Pot avg.	Bone	Burnt flint	CBM	Fired clay	Burnt stone	FAS
1	Roundhouse	0.75-0.99	14 m	0	0	0	0	0	0	0	0	0
2	Roundhouse	1-1.24	12 m	9	23	2.56	2	239	0	1	0	0
3	Enclosure	1-1.24	19 m	127	1613	12.7	479	2429	0	702	0	0
4	Enclosure	0.75-0.99	9 m	2	17	8.5	0	49	0	2	0	0
5	Roundhouse	0.75-0.99	12.4 m	22	123	5.59	4	934	0	178	0	0
6	Enclosure	0.5-0.9	11 m	2	3	1.5	94	222	0	51	0	0
7	Enclosure	0-0.99	11.8 m	18	50	2.78	0	533	0	148	0	0
8	Roundhouse	0.75-0.99	15 m	350	3088	8.82	3482	6386	0	1802	0	483
9	Four-poster	0.75-0.99	9 m	1	4	4	0	0	0	0	0	0
10	Roundhouse	0.75-0.99	12.4 m	10	24	2.4	17	924	0	41	0	233
11	Enclosure	0.75-0.99	11.25 m	49	241	4.92	17	433	0	15	0	324
12	Enclosure	0.75-0.99	16 m	150	607	5.78	116	1705	22	348	60	40
13	Enclosure	0.5-0.99	13.5 m	13	3.25	18	0	0	0	69	0	0
14	Roundhouse	0.5-0.99	11.5 m	36	164	4.56	2	300	0	4	0	156
15	Roundhouse	0.5-0.99	15.4 m	95	269	5.83	237	2707	108	261	41	0
16	Roundhouse	0.5-0.99	15.4 m	38	195	5.13	13	286	6	232	0	1
17	Roundhouse	0.5-0.99	13.5 m	2	10	5	0	51	0	4	0	16
18	Roundhouse	0.5-0.99	12 m	0	0	0	2	0	0	0	0	0
19	Roundhouse	0-0.75	13.75 m	45	287	6.4	34	553	0	133	0	87
20	Roundhouse	0-0.75	14.25 m	3	20	6.7	0	125	0	59	0	0
21	Roundhouse	0-0.75	11 m	21	97	4.6	0	333	0	162	0	113
22	Enclosure	0-0.75	9 m	1	7	7	11	17	0	0	0	52
23	Enclosure	1-1.24	12 m	15	77	5	133	213	0	119	0	0
24	Roundhouse	0-0.75	12 m	6	39	6.5	17	214	0	129	0	0
25	Enclosure	1-1.24	8 m	0	0	0	0	2889	0	52	0	0
26	Enclosure	0-0.75	11.5 m	18	150	8.3	0	883	0	39	0	0
27	Enclosure	0.75-0.99	7.2 m	0	0	0	0	27	0	9	0	0
28	Enclosure	1-1.24	6 m	0	0	0	0	0	0	0	0	0
29	Enclosure	1-1.24	11.75 m	10	79	7.9	0	394	0	275	0	0
30	Enclosure	0-0.75	7.5 m	0	0	0	0	0	0	0	0	0
31	Enclosure	0.75-0.99	13 m?	0	0	0	0	34	0	0	0	0

Table 4.3: Middle Iron Age penannular gullies

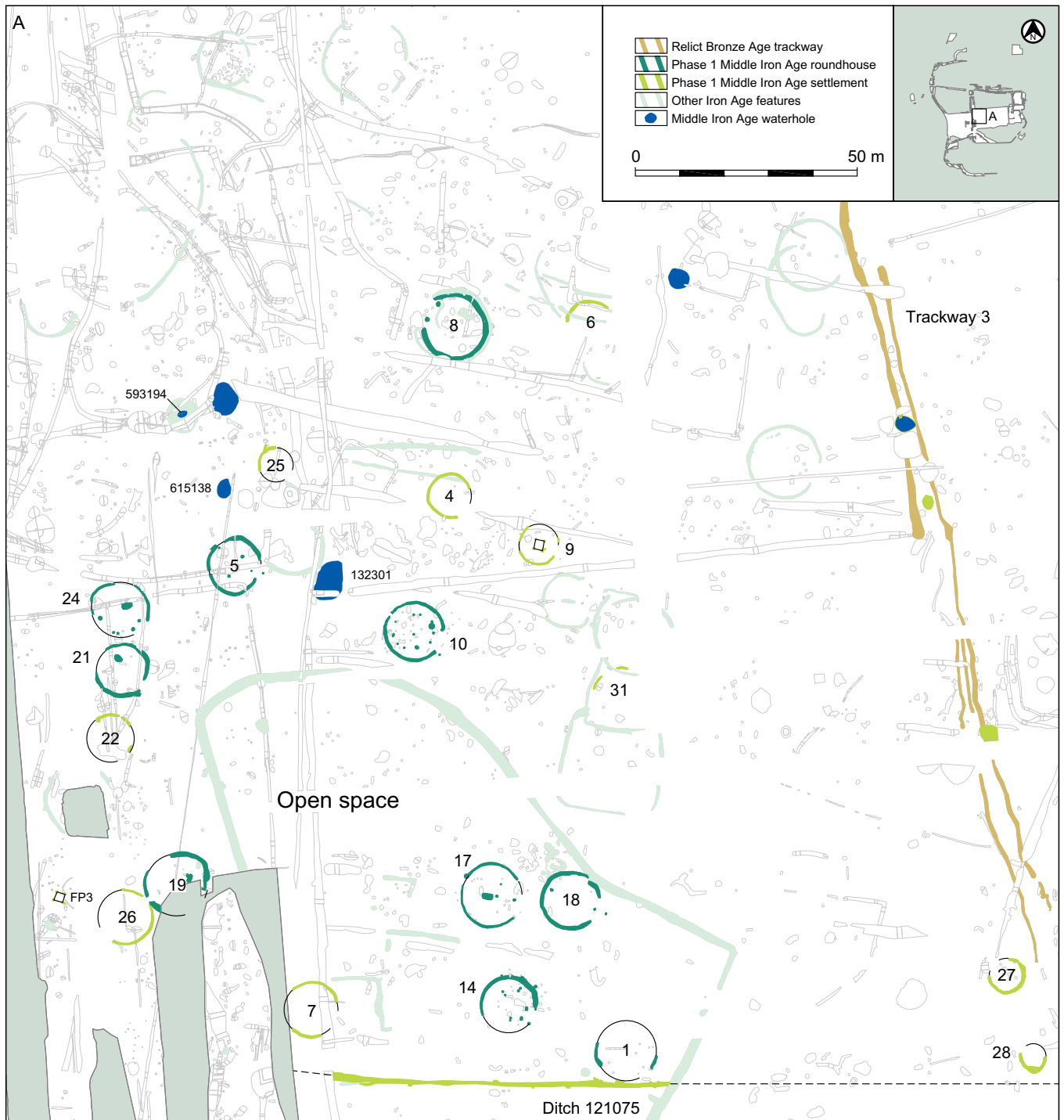


Figure 4.20: Middle Iron Age settlement (Phase 1)

Many of these gullies were highly truncated and discontinuous, but internal diameters were projected at between 5 m and 18.4 m, typically 9–12 m. Some certainly surrounded roundhouses. Based on the position of surviving structural features such as postholes representing door posts, post rings and central support posts, as well as hearths, all or most of the gullies enclosing roundhouses were probably eaves drip gullies rather than wall

trenches or enclosure ditches. At Ashville, Abingdon, for example, similar gullies were believed to have been designed to carry away water shed from roofs and the general absence of evidence for internal structural features was attributed to truncation (Parrington 1978). Unlike earthfast features such as postholes, sill beam or mass wall construction need have left no archaeological trace.

Other penannular gullies marked the position of ancillary structures, such as working or storage areas or livestock enclosures. In at least one case a four-post structure was enclosed by a gully, while some well-preserved gullies located in areas of relatively low truncation had no associated structural features, suggesting that they were simply enclosed open spaces, probably livestock pens. Although similar gullies on some Iron Age sites seem to

have originated as palisade fences (eg Lambrick and Robinson 1979), evidence for this was not recorded at Terminal 5 and, in general, they probably provided localised drainage to keep buildings and stores dry. Most of the gullies only just penetrated the underlying gravel, dug just deep enough to allow drainage without expending unnecessary effort.

Some examples of paired buildings and pens or annexes were evident within the Terminal 5 settlement (see below). Such pairings have been observed elsewhere in the Middle Thames Valley. There was no evidence for this arrangement at nearby Caesar's Camp (Grimes and Close-Brooks 1993) but at Ashford Prison, Middlesex (Carew *et al.* 2006) the arrangement of a group of nine Middle to Late Iron Age penannular gullies containing occupation debris suggests that these were houses sited to respect each other. In the Upper Thames Valley at Salmonsbury, two post-built houses dated by artefacts to the Middle-Late Iron Age were enclosed by a single ditch (Dunning 1976). Evidence for Middle Iron Age craft activity was almost entirely lacking at Terminal 5, but better preserved sites show a distinct pairing of domestic structures with workshops. At Hartshill Copse, West Berkshire a domestic roundhouse was linked to black-smithing annexe (Collard *et al.* 2006).

Details of the structures and enclosures represented by penannular gullies, their proposed functions and associated finds are presented in Table 4.3. Truncation levels for each are shown to indicate attrition and likely scale of loss of associated internal features and artefacts.

The brief summaries below classify Roundhouses, Enclosures and other associated structures according to their proposed phase and location within the settlement. There then follows a discussion of the changing character of the overall settlement within the different phases. For the purposes of this narrative, in order to qualify as a Roundhouse the associated elements must include evidence of a penannular

gully and a number of structural features, which can include door and/or porch postholes, roof support postholes, hearths and wear hollows. Enclosures are defined by a penannular or annular gully but lack evidence for structural features, when truncation levels would have favoured their preservation. It can be assumed that enclosures used as livestock pens would have incorporated aboveground barriers such as palisades or hedged banks, which would not have survived truncation.

Phase 1

Enclosures 27 and 28

Located well removed from other parts of the Middle Iron Age settlement, Enclosures 27 and 28 were located in the far south-east, adjacent to Bronze Age Trackway 3 (Fig. 4.20 & Plate 4.3). Gully 128119 of Enclosure 27 was interpreted in the *Volume 1: Perry Oaks* as a possible 4th / 3rd millennium ring gully or an eaves-drip gully for a 2nd or 1st millennium BC house belonging to Bronze Age Settlement 6 (Framework Archaeology 2006, 131 and fig. 3.24). Although this interpretation has been discounted in the current volume, the gully sits uneasily in the context of a Middle Iron Age settlement, partly due to its small diameter of only 7 m and its north-west facing entrance. Bearing in mind the size, the orientation, the proximity to Bronze Age Trackway 3 (albeit reused as an Iron Age boundary) and the absence of dating evidence, the date and function of Enclosure 27 are best left open.

Enclosure 28, lying *c* 12 m to the south-east, was also small (5.6 m across), and quite badly preserved. Due to its proximity to Enclosure 27, along the eastern settlement boundary, it has been highlighted as a possible ancillary structure but a Bronze Age date is equally plausible. However, it is possible that both enclosures could have been small Iron Age stock pens or non-domestic structures sited on the edge of the settlement.

Roundhouse 1

The southernmost of the roundhouses was built close up against the southern boundary ditch (121075). Only a discontinuous, shallow arc survived, including a terminal forming one side of a south-east facing entrance. These formed an enclosure *c* 14 m in diameter. A set of double postholes possibly supported part of a 2 m wide gated entrance into the enclosure. Several internal postholes included a likely door post, indicating a roundhouse diameter of 9–10 m.

Roundhouse 14

Roundhouse 14 lay just 16 m north-west of Roundhouse 1 (Fig 4.21). Just over half of gully 128352 was preserved. It would have formed an enclosure with an estimated diameter of 11.5 m. The gully was recut, or reworked by roof alteration affecting water run-off, along its northern stretch by a narrower version, 128354. The northern terminal of a 3.85 m wide entrance was well-preserved (including a recut) but all that remained of the southern terminal was



Plate 4.3: Enclosure 27

a shallow hollow (134180). The gully complex enclosed a roundhouse 8–9 m in diameter, represented by oval (probably double) door postholes 134182 and 134184. The other surviving internal features presented an unusual pattern. Although some of the postholes could have been remnants of a post ring, several paired postholes were excavated (eg 134186/134188 134191/134193 and 128344/128346) and at least two other pairs unexcavated. These could have marked a double wall line off-centre from the enclosure or, alternatively, internal divisions of earth-fast structures such as partition walls, furniture or upright looms. A shallow hollow (128348) close to the centre of the enclosed space represented the footings of a hearth or simply wear impact in the main part of the building. Several postholes on the external northern side of the enclosure could have supported fences or racks.

Enclosure 7

Located *c* 30 m west of Roundhouse 14, was a discontinuous curvilinear gully forming an enclosure (7) 11.8 m in diameter (Fig. 4.20). A possibly genuine gully terminus marks the position of a south-east facing entrance gap, whereas a gap on the western side is probably a product of truncation. Although truncation was relatively low in this area, no internal structural features were present.

Roundhouses 17 and 18

Two further potential roundhouses to the north of Roundhouse 14 lay just 4 m apart (Fig. 4.22). Roundhouse 17 comprised two lengths of gully (158160 and 158163) enclosing an area 13.5 m in diameter. The west facing gap may have been wholly or partly a product of truncation and the more convincing east-facing entrance was widened to an unlikely 8 m by the same effect. The gully probably enclosed a roundhouse *c* 9–10 m in diameter. Posthole 183038, 1.5 m inside the entrance gap, would have supported a single central post or was one of a pair of door posts. The southern terminus was cut at some point by posthole 158156, which may indicate gating of the enclosure. A small oven or smithing hearth (183034), 0.5 m long and containing fragments of

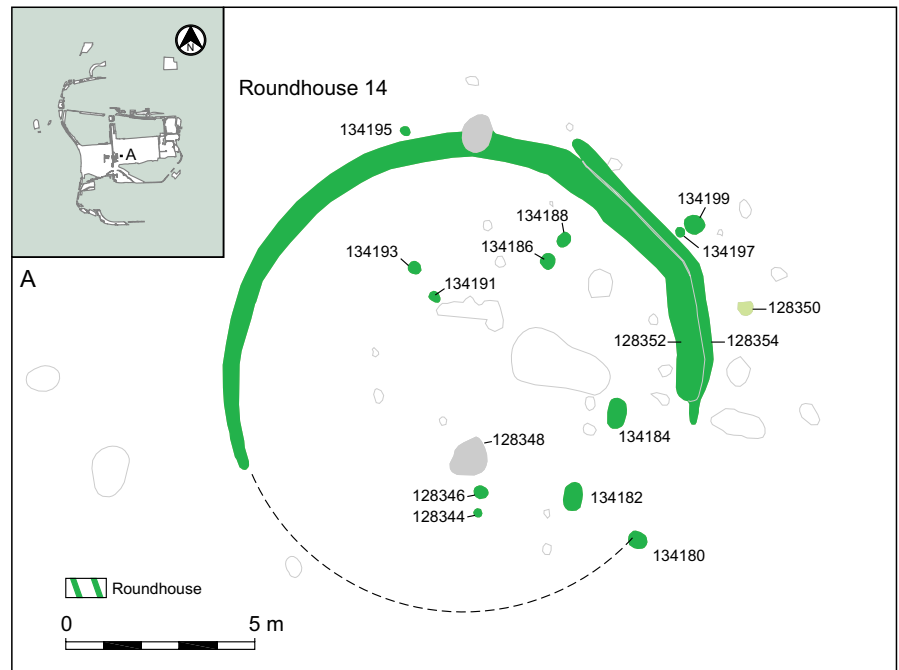


Figure 4.21: Roundhouse 14

charcoal, fired clay and burnt animal bone, lay within the centre of the enclosure next to a 2.4 m long sub-rectangular pit (183030). The pit contents included burnt clay, fuel ash slag and Middle Iron Age pottery. These two features resembled one in Roundhouse 19 and probably served a similar function (see below).

Possible Roundhouse 18 comprised a penannular gully (166101) defining an enclosure 12 m in diameter, recut along all or most of its inner circuit by gully 166112. A posthole (166096) centrally placed within a 5.6 m wide south-east facing entrance, may have supported an entrance structure associated with posthole (166098), which lay just outside the enclosure. Although the pattern may be entirely fortuitous, a third posthole (166094), 1 m from the western side of the enclosure, appeared to be aligned with the other two in an arrangement seen in roundhouses on other Iron Age sites in the region (Lambrick 2009).

In Volume 1 ?Roundhouse 18 was interpreted as a securely dated Late Iron Age roundhouse constructed within the confines of the southern enclosure (Framework Archaeology 2006, 203). On closer inspection, neither did the gully incontrovertibly enclose a roundhouse (although it may have) nor



Plate 4.4: Gully of Roundhouse 19

was it constructed within the southern enclosure (EC1—see below), over its putative internal bank. The balance of the, albeit inconclusive, stratigraphic evidence suggests that the ditch of Enclosure EC1 impinged on the gully surrounding ?Roundhouse 18. Nor is there clear evidence for an internal bank, which, if it were to have existed, would have probably been dumped over the remains of the earlier penannular gully. ?Roundhouse 18 was, in fact, almost certainly one of

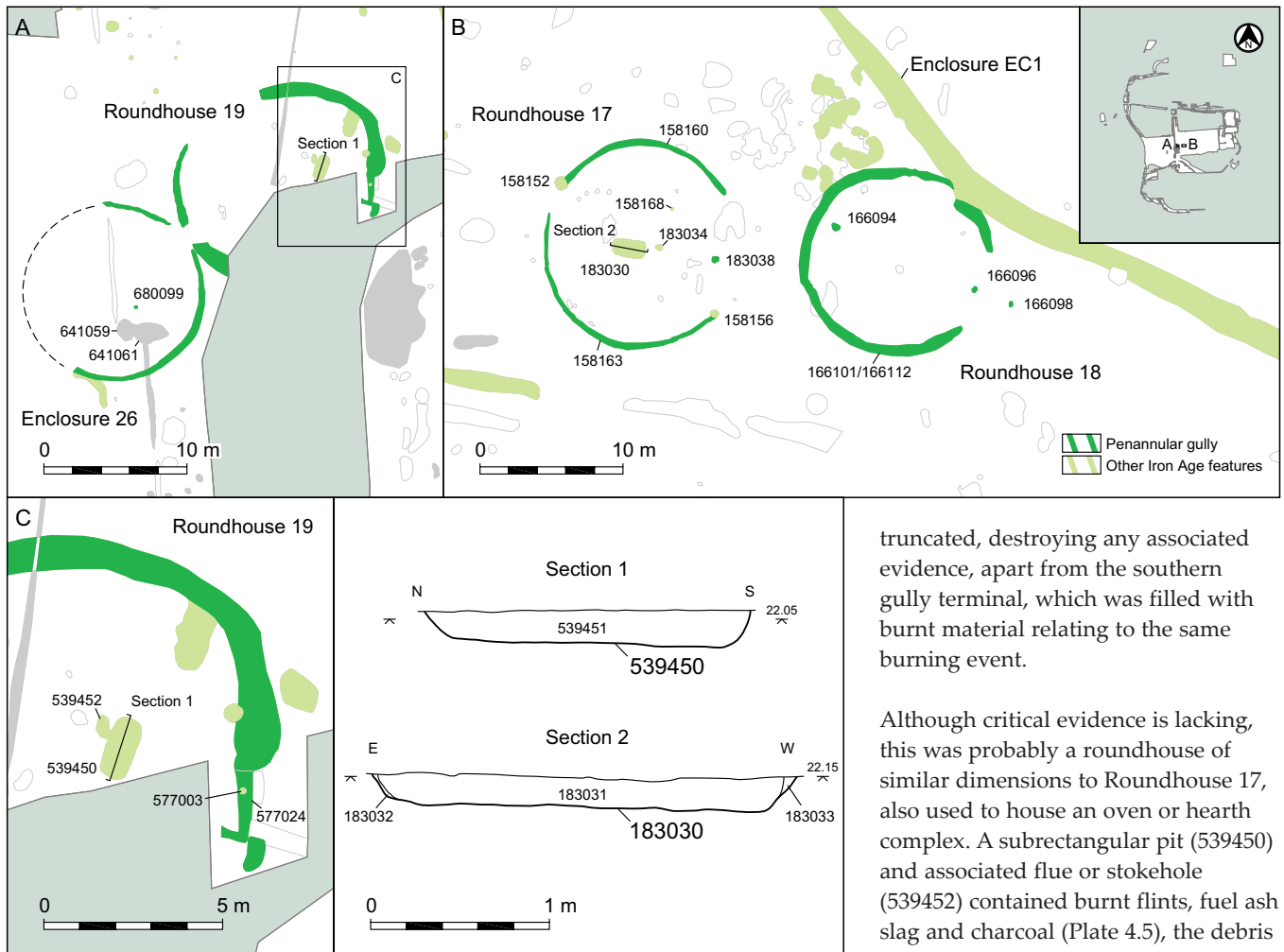


Figure 4.22: Roundhouses 17, 18 and 19 and Enclosure 26

the group of penannular enclosures constructed around the central space in the southern part of the settlement during the Middle Iron Age.

Roundhouse 19 and Enclosure 26

Another pair of penannular gullies lay *c* 55 m further west (Fig. 4.22). Roundhouse 19 comprised gully segments forming an enclosure *c* 13 m in diameter with a south-east facing entrance 1.9 m wide. Although the extant wide gap on the south-west side of Roundhouse 19 was the product of truncation, it may have masked a genuine gap that linked to the north-east entrance of Enclosure 26, producing a double compound for living and/or working. The gully surrounding Roundhouse 19 was unusually wide at up to 1 m (Plate 4.4), in contrast to the more generally preserved width of about half that figure, perhaps reflecting an uncommon function or simply better preservation. The enclosure also had an unusual entrance feature

(577024). A beam slot 2 m long containing the poorly preserved charred remains of a beam with a right-angle inner return was found *in situ*. A similar beam slot was found associated with a Middle Iron Age enclosure at Oxley Park in Milton Keynes (Brown *et al.* 2009). The south-east sector of the gully was severely

truncated, destroying any associated evidence, apart from the southern gully terminal, which was filled with burnt material relating to the same burning event.

Although critical evidence is lacking, this was probably a roundhouse of similar dimensions to Roundhouse 17, also used to house an oven or hearth complex. A subrectangular pit (539450) and associated flue or stokehole (539452) contained burnt flints, fuel ash slag and charcoal (Plate 4.5), the debris of light industrial or domestic activity taking place in the area and subsequently discarded. A charred grain from the fill was radiocarbon dated to 360–50 cal BC (WK19334). The pit resembled that in Roundhouse 17 and probably served the same function. At around 2 m long and under 0.85 m wide, these features are similar to bread ovens of the Roman period commonly found on villa and



Plate 4.5: Pit 539450 in Roundhouse 19

farmstead sites, but the presence of fuel ash slag indicates activity that requires a higher temperature than baking—perhaps metalworking.

Immediately to the south-west was Enclosure 26, which was 12 m in diameter. It clearly did not have a south-east facing entrance and an apparent north-east facing gap corresponded with a south-west facing gap in the gully surrounding Roundhouse 19. The two enclosures may have been linked, designed for different and/or complementary functions. There was no firm evidence of a structure within the enclosure, but a small feature (680099) containing charcoal, burnt flint and fired clay may have been the remains of a hearth, oven or an outdoor bonfire. A wide, shallow hollowed area (641059/641061) could be attributed to intensive human or livestock movement within the enclosed area.

Roundhouses 21 and 24 and Enclosure 22

Two roundhouses and a circular enclosure lay together on the western periphery of the settlement (Fig. 4.20). Roundhouse 21 was one of few that showed evidence of modification—a recut along its north-east side. The diameter of the original enclosure was 11 m and the recut version 11.6 m. The southern terminal of the 2–2.5 m wide south-east facing entrance gap may also have been modified. A posthole and a nearby unexcavated feature in the enclosed space may have supported the upright posts of a roundhouse. A wide shallow hollow formed as a result of activity within the building. Based on its fill, which contained charcoal and fired clay, this feature was probably the remains of a hearth contemporary with the structure, but a set of Roman copper alloy tweezers (SF 27121) was found in the upper fill.

Immediately north was Roundhouse 24, which comprised gullies enclosing an area 13 m in diameter. Although the north terminal of a south-east facing entrance was preserved, the south terminal was not, so the width of the entrance could not be determined. The gully enclosed a post ring built roundhouse of *c* 10 m diameter.

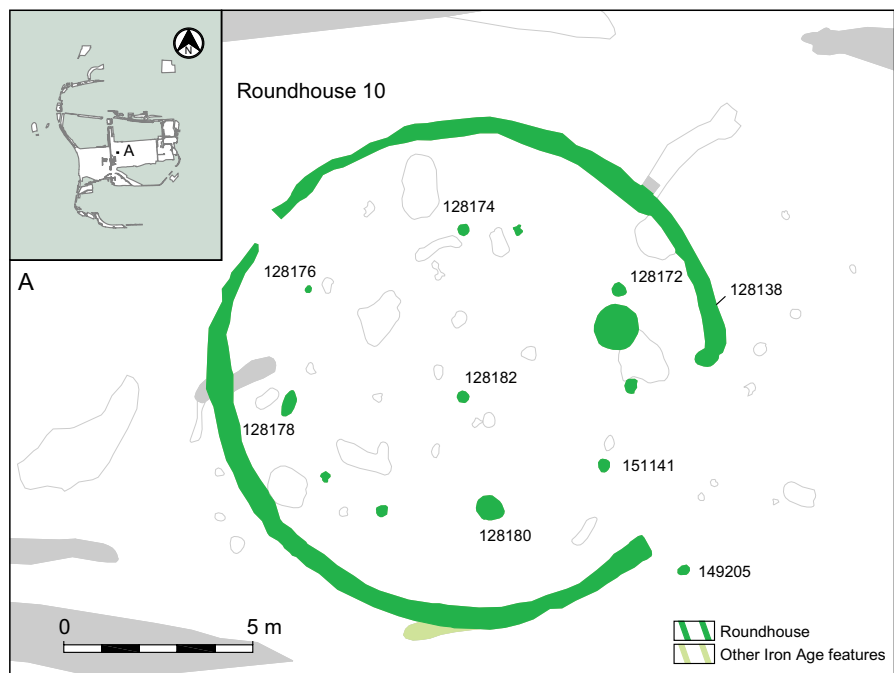


Figure 4.23: Roundhouse 10

To the south of both roundhouses was Enclosure 22, of which only the northern stretch of gully and a southern entrance terminal survived truncation. However, a diameter of *c* 9.5 m for this enclosure could be inferred. A shallow posthole which lay just inside the western side of the gully may have been related but no other structural evidence was found.

Roundhouse 5

Roundhouse 5 lay around the northern perimeter of the 'open space' and was 12 m in diameter with a south-east facing entrance (Fig 4.20). The western stretch of the gully had been recut. One posthole may have supported a gateway into the enclosure, and a second was probably a door post for a *c* 9 m diameter roundhouse. Two internal postholes may have held roof support timbers.

Roundhouse 10

Roundhouse 10 lay on the north-east periphery of the 'open space' with the Iron Age settlement (Fig. 4.23 & Plate 4.6). It lay in an area of relatively low truncation and was well-preserved, but a 1 m wide gap on the western side of the enclosure can be attributed to later disturbance. The gully (128138) had a diameter of 12.4 m and a south-east facing entrance *c* 4 m wide. A concentration of small features, including

posthole 149205, outside the enclosure entrance, may represent a gateway. The gully enclosed a roundhouse *c* 9 m in diameter, based on a post-ring construction. A set of postholes formed a 2 m wide entrance to the structure, set 2 m inside the gully. Posthole 151141 represents the southern door post and an unexcavated feature the northern post. A nearby unexcavated posthole was probably also part of the door structure. The postholes of the post ring were 0.30–0.40 m in diameter and the oval shape of 128178 suggests that this post was replaced. Although the post ring would have provided the main support for the roof, the walls could have been constructed of cob or daubed wattle panels supported by stakes that left no subsoil trace. A central feature (128182) could have held a roof support post but equally may have been the remains of a hearth bed.

Enclosure 31

The fragmentary remains of an enclosure (31) were located on the eastern periphery of the 'open space'. It comprised a curvilinear gully forming a 13 m enclosure, which was severely truncated and the fills produced only a small quantity of burnt flint. Its function, whether as a roundhouse gully or stock enclosure, remains uncertain. At some stage, still within the Middle Iron Age, it was cut by Enclosure 12 and by



Plate 4.6: Roundhouse 10

subrectangular enclosure EC5, both of which are likely to be non-domestic.

Enclosures 6, 4 and 25 and four-post structure 9

To the north of the main concentration of Phase 1 roundhouses lay a number of likely non-domestic features—three enclosures and a four-post structure. The furthest north, Enclosure 6, was a poorly preserved gully bounding an enclosure with a projected diameter of *c* 11 m. An unexcavated internal feature 1 m across may have been the remains of a central post or hearth but was insufficient evidence to classify this as the site of a roundhouse. Enclosures 6 and 13 (see below) would have overlapped, allowing us rare stratigraphic evidence of one penannular gully superseding another. They are presented on the Phase 1 (Fig. 4.20) and Phase 2 (Fig. 4.26) plans respectively, but the sequence is uncertain.

Further south-west, Enclosure 4 was 9 m in diameter with a south-east facing entrance gap. The small size and absence of internal features in an area of relatively low truncation suggest that it was a stock pen or activity arena that required no earth-fast superstructure. Enclosure 25, represented by two short lengths of gully, was even smaller, with a projected diameter of 7.5 m. No internal features were identified and

no function could be confidently assigned to the enclosure, but the dimensions would rule it out as a typical roundhouse. The gully fills produced a remarkable 3 kg of burnt flint, perhaps derived from Bronze Age activity in the area.

To the east of both of these enclosures was a discontinuous gully (172032) forming a 9 m diameter enclosure surrounding a four-post structure (9), represented by postholes 151145,

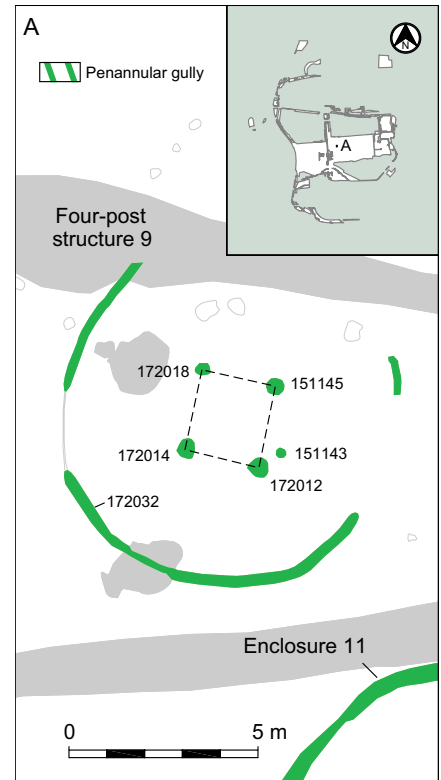


Figure 4.24: Four-post structure 9

172012, 172014 and 172018 (Fig. 4.24). A much smaller posthole (151143), sited adjacent to the south-eastern of the four postholes, may have supported one side of a ladder (the main post forming the other side) or held a hoist mechanism for raising materials on to the raised floor of the structure, either to the side or through a hole in the floor. This posthole arrangement has



Plate 4.7: Artist's reconstruction of possible superstructure of Four-post structure 9

been recorded at other Iron Age sites (Powell *et. al.* 2009). The structure would probably have been multi-functional, used, for example, to store foodstuffs or other material above and shelter for livestock, wagons and tools below.

Because the gullies surrounding the roundhouses can be interpreted as eaves drip gullies, it seems worth considering whether the very similar gully around Four-post structure 9 might have served the same function. If so, the roof would have had to resemble the conical arrangement seen on roundhouses (see possible reconstruction on Plate 4.7). The structural support for such a roof would have had to be tied in to the simple four-square pattern of the building, resulting, no doubt, in a very unstable

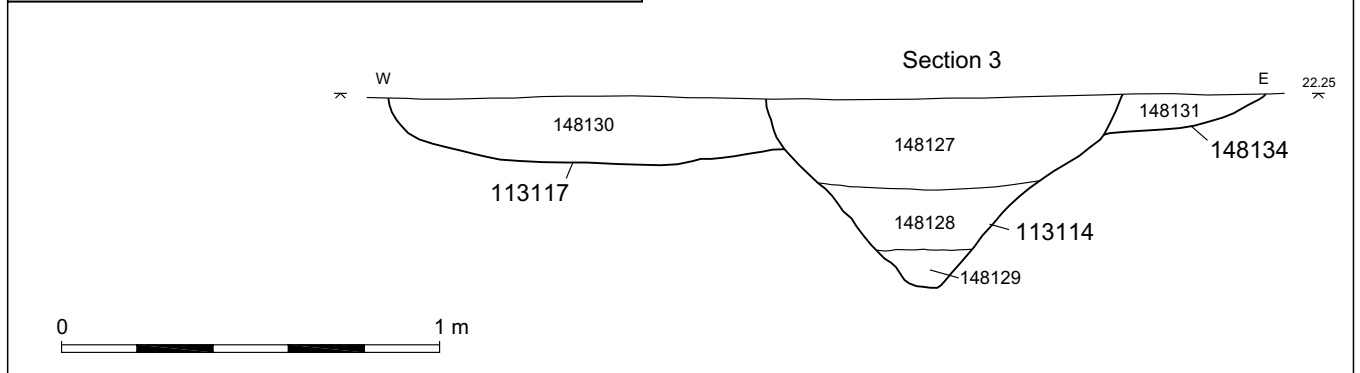
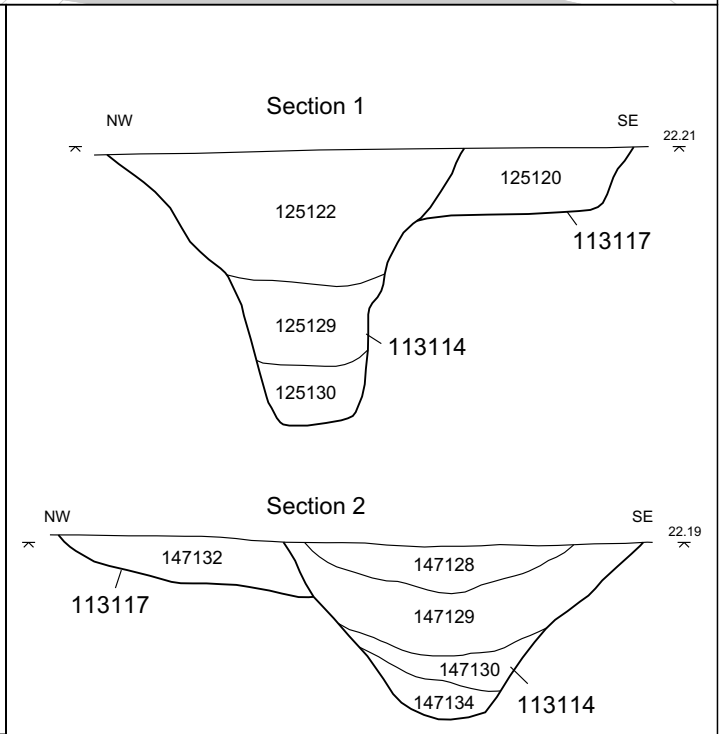
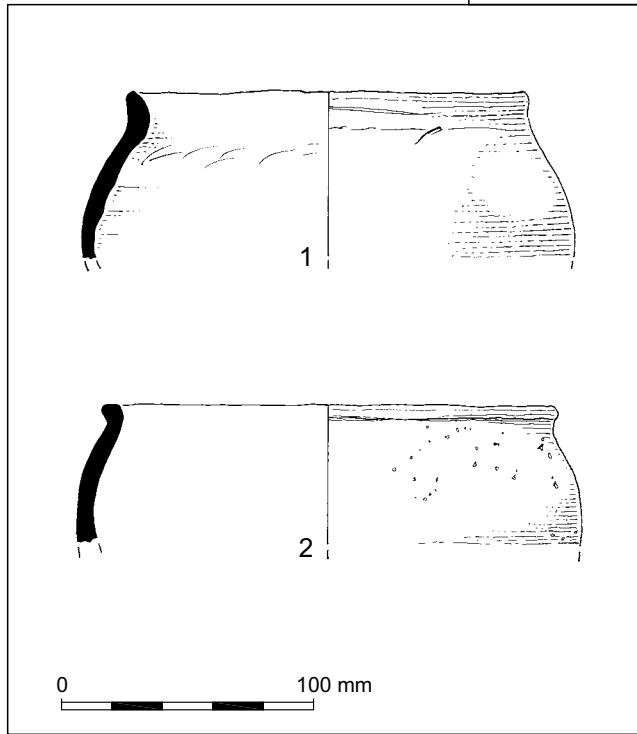
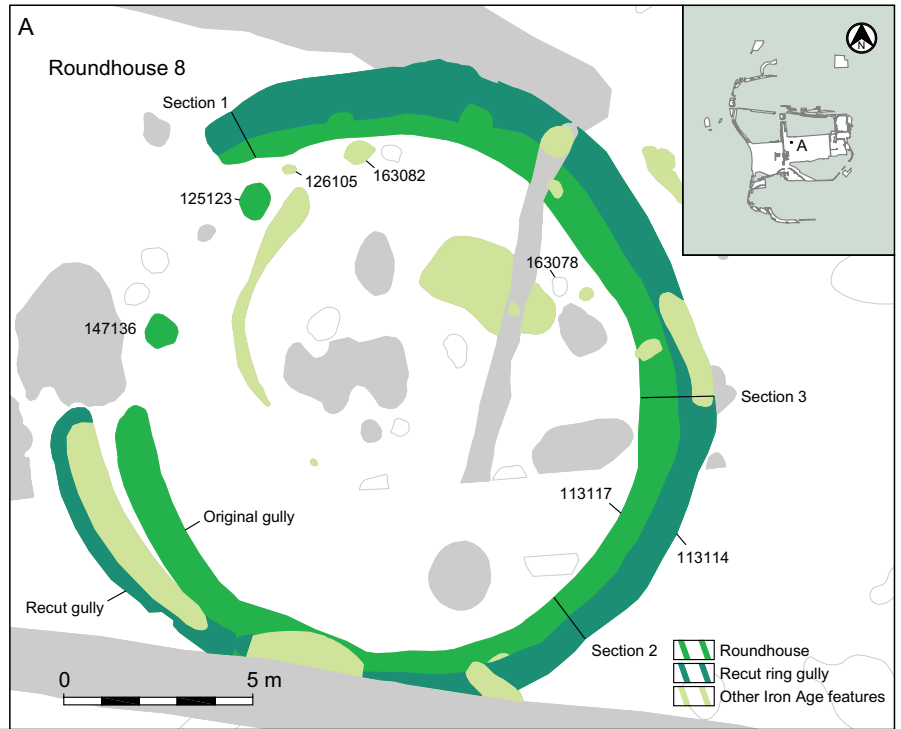


Figure 4.25: Roundhouse 8



Plate 4.8: Roundhouse 8

structure. More likely the gully was dug to drain the enclosed area.

Roundhouse 8

Roundhouse 8 was the northernmost structure assigned to Phase 1 and is represented by two phases. An original shallow gully (113117) was recut as ditch 113114. The original gully enclosed an area *c* 13 m in diameter and the recut extended this to 15 m, allowing for a structure of 10–12 m diameter. The profile of the deep (at least 1 m) recut ditch varied from V-shaped to U-shaped and the depth was also variable (Fig. 4.25 & Plate 4.8). A terminal examined in one of the deep sections on the western side of the ditch indicated that it was dug in segments. The sequence of fills was similar throughout the ditch, suggesting that the segments filled contemporaneously. Two typically Middle Iron Age jars (Fig. 4.25, nos. 1 and 2) were amongst a substantial collection of sherds recovered from the fill of the northern terminus of the ditch in association with large quantities of animal bone and burnt flint. In fact, the number and variety of finds recovered from the recut ditch fills were on a different scale to those associated with the other penannular gullies, only in part because the ditch was deeper.

The collection appeared to indicate specialised activity within or around the structure.

The large collection of animal bone recovered from the recut ditch included cattle, along with smaller quantities of dog, young pig and sheep (*Knight and Grimm CD Section 13*). The distribution of the animal bone from the ditch, however, showed no significant pattern and there was no evidence of deliberate burial, articulation, or of the association of animal bones with other artefacts.

The entrance to one or both phases of the roundhouse was represented by postholes (some unexcavated) clustered within the north-west facing gap in the gully and later ditch. Two wide, shallow features (147136 and 125123) were the bases of large postholes designed to hold porch or door posts. They produced no datable finds but their position and size are comparable to large roundhouses excavated elsewhere such as Pimperne (Harding *et. al.* 1993), Longbridge Deverill (Hawkes 1994) and Flint Farm (Cunliffe and Poole 2008). Various internal features which produced Middle Iron Age pottery represented internal divisions and worn hollows in the floor area. Three

postholes (126105, 163082 and 163078) excavated along the north side of the enclosed space would have been located too close to the first phase gully (113117) to have been contemporary, but may have represented a wall line for the second phase building. They were, however, undated and could equally well have been associated with another set of postholes and/or small pits that later cut the backfilled ditch enclosing the roundhouse.

Although we cannot be certain of the precise role of the roundhouse in either phase, it may have influenced the development of the settlement. The north-west facing entrance sets it apart from the other roundhouses, although this orientation is not uncommon in Iron Age settlements generally. It endured during two or more phases of settlement, forming either a focus or a deliberately remote setting, depending on how the sequence of settlement construction is construed. The fact that the nearest other roundhouses from both Phase 1 and Phase 2 (2, 5, 10, 15, 16) lay a considerable and roughly consistent distance away (70–80 m, measured from centre to centre of the houses) adds some weight to the argument that Roundhouse 8 was an important place in the Middle Iron Age landscape.

Phase 2

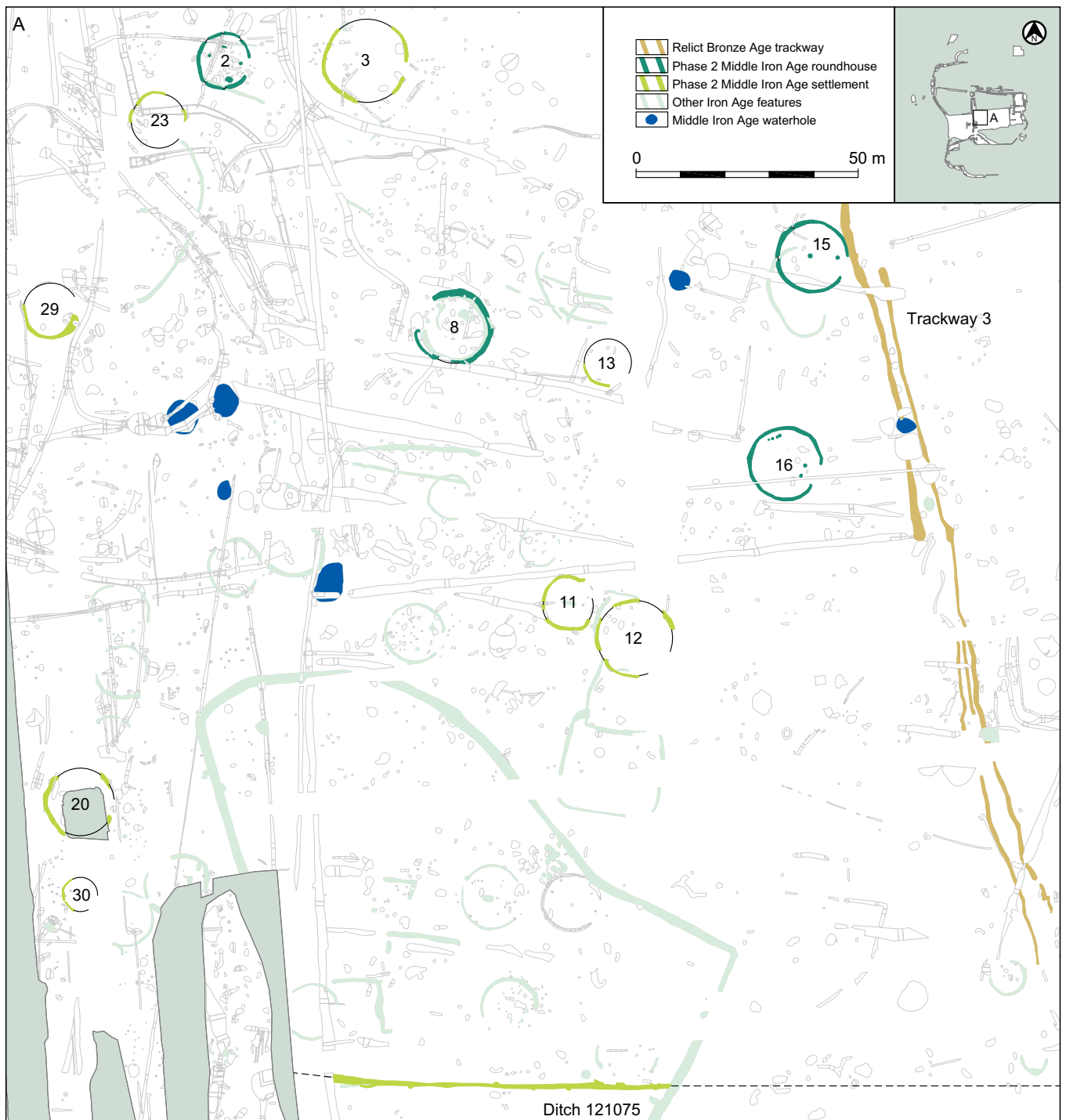
The parts of the settlement assigned to Phase 2 lie mostly to the north of those in Phase 1 (Fig. 4.26), though some, such as Roundhouse 8, are likely to span both phases. The individual enclosures and roundhouses are summarised below, from north to south.

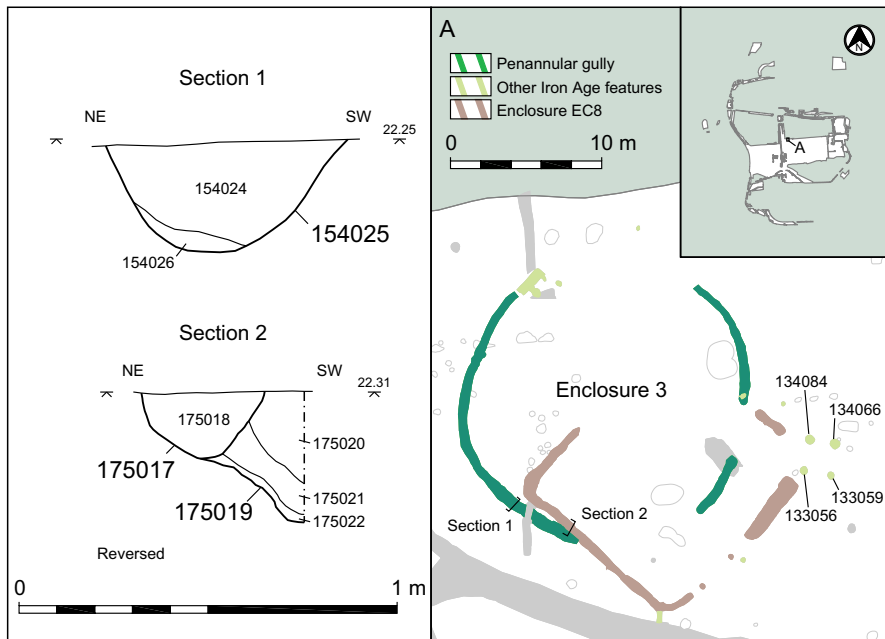
Figure 4.26:
Middle Iron Age settlement (Phase 2)

Roundhouse 2 and Enclosures 23 and 3
Roundhouse 2 represents the most northerly domestic building within the excavated area. The gully surrounding Roundhouse 2 marked an enclosed space 12 m in diameter with a south-east facing entrance gap 4 m wide. Small features (most unexcavated) pitting the internal area included a door post and a back wall post, suggesting an estimated diameter of 8 m for the roundhouse. A shallow hollow containing fired clay and burnt flint was the site of a hearth. Although

scraps of Late Iron Age or early Roman pottery were present in the secondary fills of the gully, they no doubt derived from the intensive activity of that date in the area after the roundhouse was abandoned.

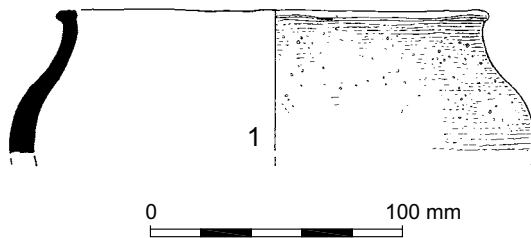
Two enclosures lay either side of Roundhouse 2, the closest (23) c 8 m to the south-west. This was severely truncated but appeared to be c 12 m in diameter with some evidence of recutting. Gaps in both the south-east and north-west sides could not be





confirmed as definite entrances due to the levels of disturbance. No contemporary internal features were recorded and the function of the enclosure was not clear.

Located 16 m east of Roundhouse 2 was the unusually large Enclosure 3, which was 16 m diameter (Fig. 4.27 and Plate 4.9). It may have had a double entrance, with both gaps on the south-east side. No internal structural features were identified, possibly due to truncation, and the enclosure is likely to have been a stockade. The fact that the penannular enclosure was superseded by a rectilinear one, as was the case with other possible stockades (see Enclosure 31), and its relatively large diameter, also suggest a non-domestic function.



Roundhouses 15 and 16

Roundhouses 15 and 16 were located in the eastern part of the settlement, the former lying immediately adjacent to Bronze Age Trackway 3. The roundhouse was surrounded by a well-preserved penannular gully which enclosed an area 15.4 m in diameter with a 4.75 m wide south-east facing entrance. The roundhouse would have

Figure 4.27: Enclosure 3

Plate 4.9: Enclosure 3, looking south-east



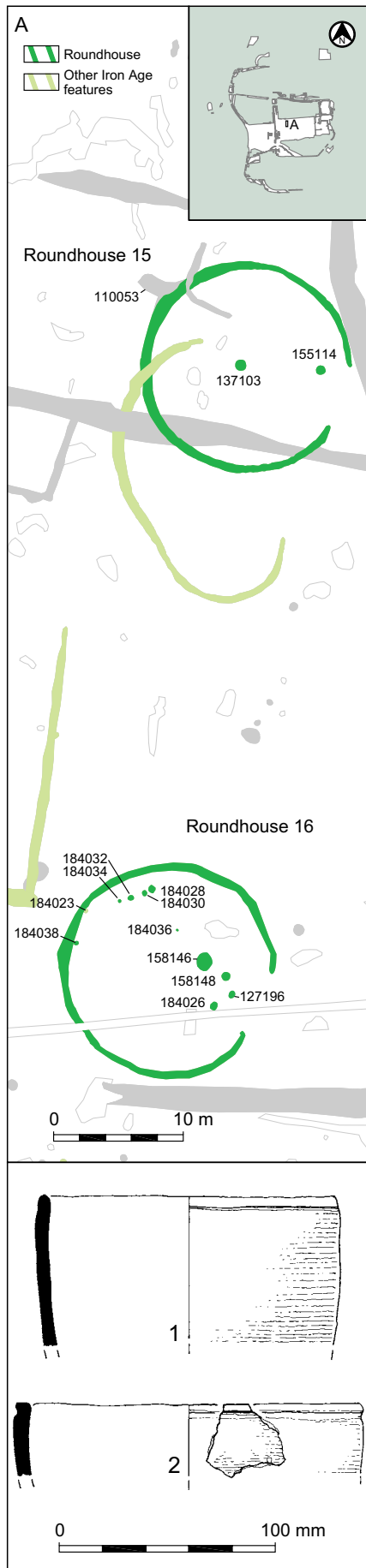


Figure 4.28: Roundhouses 15 and 16

been *c* 10–11 m in diameter, but the only internal features were a northern door posthole (155114) set *c* 2 m back from the enclosure terminal, and a central hearth (137103), represented by a shallow circular hollow containing a charcoal rich fill incorporating burnt flint and fragments of fired clay. The clay may have been the remains of a flat clay hearth base. The upper parts of two saucepan pots in sandy fabrics (Fig. 4.28, nos 1 and 2) came from the secondary fill of the penannular gully. These vessels probably fall into the later part of the Middle Iron Age at Heathrow, and suggest the roundhouse was erected late in the settlement sequence.

Lying 31 m further south was Roundhouse 16, which was of almost identical proportions (15.4 m in diameter with a 5 m wide south-east facing entrance). Two postholes (158148 and 184026) would have supported the 2 m wide door to a roundhouse of *c* 10–11m. A smaller feature (127196) marked an area of wear outside the door and a wide, shallow hollow (158146) was probably a product of constant footfall inside the doorway. Otherwise, only a string of postholes clustered inside the western (inner) side of the enclosure attest to an internal structure, along with the truncated remnant of a possible hearth base (184036), filled with a charcoal rich soil flecked with fired clay.

Enclosures 13 and 29

Two widely spaced penannular gullies in the central part of the settlement probably represent non-domestic enclosures, though there is no certainty of this. Enclosure 13 had a projected diameter of 11 m, and would have intersected Enclosure 6 (see above). A shallow irregular hollow and a small posthole that lay along or just within the projected curve of the gully may have been related features or truncated remnants of the gully itself. There was no evidence that the gully enclosed a structure.

Enclosure 29 lay at the western limits of the settlement. It was 12 m in diameter with a south-east facing entrance, of which only the southern

terminal was preserved. The northern curve of the gully may have extended eastwards and westwards, linking it into the EC3 enclosure complex (see below), perhaps at a late stage in the settlement development. There were no internal features to suggest the presence of a structure.

Enclosures 11 and 12

Two enclosures (11 and 12) in the south-east of the settlement were probably linked and associated with livestock (Fig. 4.29). Enclosure 11 was 11.25 m in diameter, and if it had been enhanced by an inner or outer bank there was no trace of this in the gully fill. The east-facing entrance terminals kinked northwards to form an ingress/egress point connecting to the entrance complex of Enclosure 12 (see below). No contemporary features were identified within the enclosed space but a relatively large collection of Middle Iron Age pottery and burnt flint from the top fills of the gully indicates that some activity had taken place in the near vicinity, even if only disposal of domestic debris.

Enclosure 12 was 16 m in diameter with a north-west facing gap 4 m wide that fed into an entrance/exit complex represented by gullies 107106 and 107107. The latter was a very narrow, shallow feature that may have been the footing for a fence or palisade. This arrangement may have been used to channel livestock into Enclosure 11 or out into the settlement and open fields. A series of shallow irregular features near the entrance recorded as 'tree throws' are likely to represent the sort of hollowing and muddying of the ground caused by clustering of animals in constricted spaces, such as gateways and troughs, as is commonly observed in modern livestock pens. No other internal features were exposed. Enclosure 12 cut gully 107098, which formed Enclosure 31 (see above).

Enclosures 20 and 30

In the far south-west of the settlement were two ephemeral enclosures that could easily have belonged to either Phase 1 or 2. Although badly disturbed, sufficient survived of Enclosure 20 to indicate that it enclosed a space

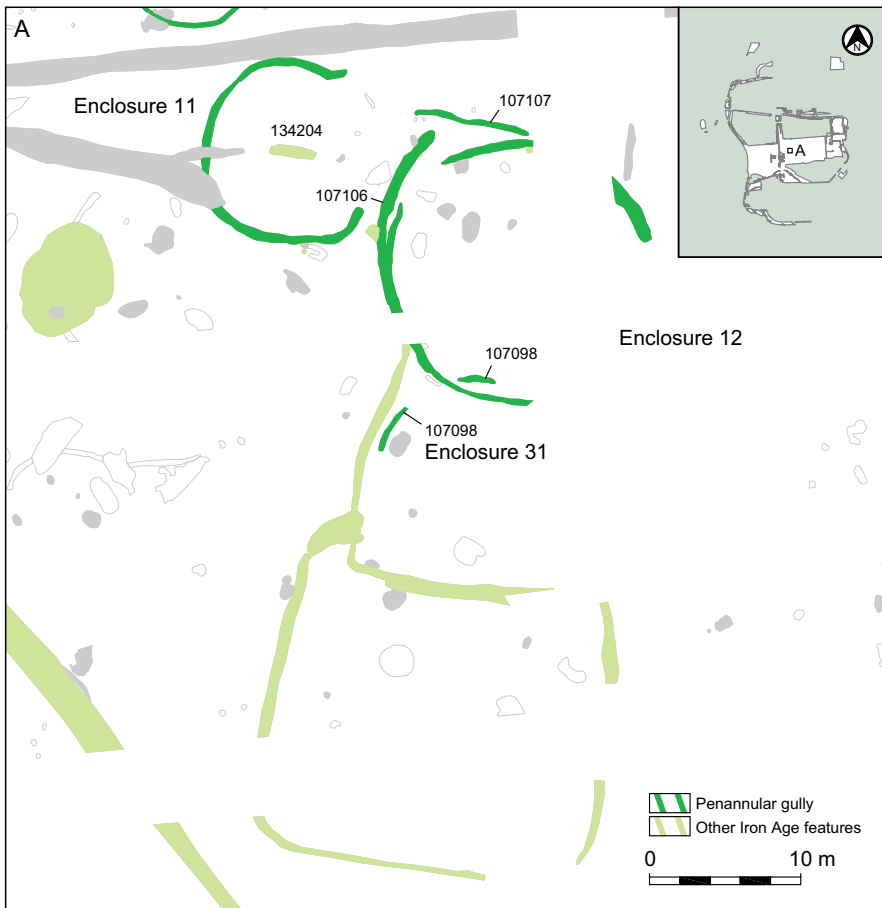


Figure 4.29: Enclosures 11 and 12

13 m in diameter with a south-east facing entrance. The northern stretch of the gully was recut at some stage. The western side of the enclosure cut a Late Bronze Age pit (663118), accounting for the presence of post-Deverel-Rimbury pottery in the fill. The pottery from the gully terminal, in contrast, was Middle Iron Age. The function of the enclosure was obscured by later disturbance and the lack of excavated structural features.

Enclosure 30 was defined by the western side of a poorly preserved 7 m diameter gully, at the extreme western side of the settlement (Fig. 4.30). It impinged on four-post structure FP3, but the sequence of the two was not clear. This small enclosure produced no finds and could belong to an earlier phase, but could not be discounted as part of the Middle Iron Age settlement.

The changing settlement

The roundhouses, enclosures and ancillary buildings described above were clearly not all strictly contemporary. In the absence of an extensive suite of absolute dates and of closely dateable artefacts from relevant deposits we are largely reliant on the stratigraphic evidence to demonstrate a chronological sequence for the settlement.

We know from the recutting of gullies and replacement of structural posts that maintenance and renovation of enclosures and buildings took place. In at least one case it is clear that two stock pens, Enclosures 6 and 13, could not have been contemporary. If the diameters of the poorly preserved gullies surrounding them were projected, they would have intersected, showing that in this case at least there was a phase of abandonment or relocation. The recutting of the gully of Roundhouse 8 from a feature only 0.2 m deep to a ditch of a respectable 0.7 m depth is another case in point. Furthermore, although there is at least one example of a possible linked Roundhouse 19 and Enclosure 26, some of the others, for example Enclosures 20 and 22, might have been sited inconveniently close to one another had they been contemporary.

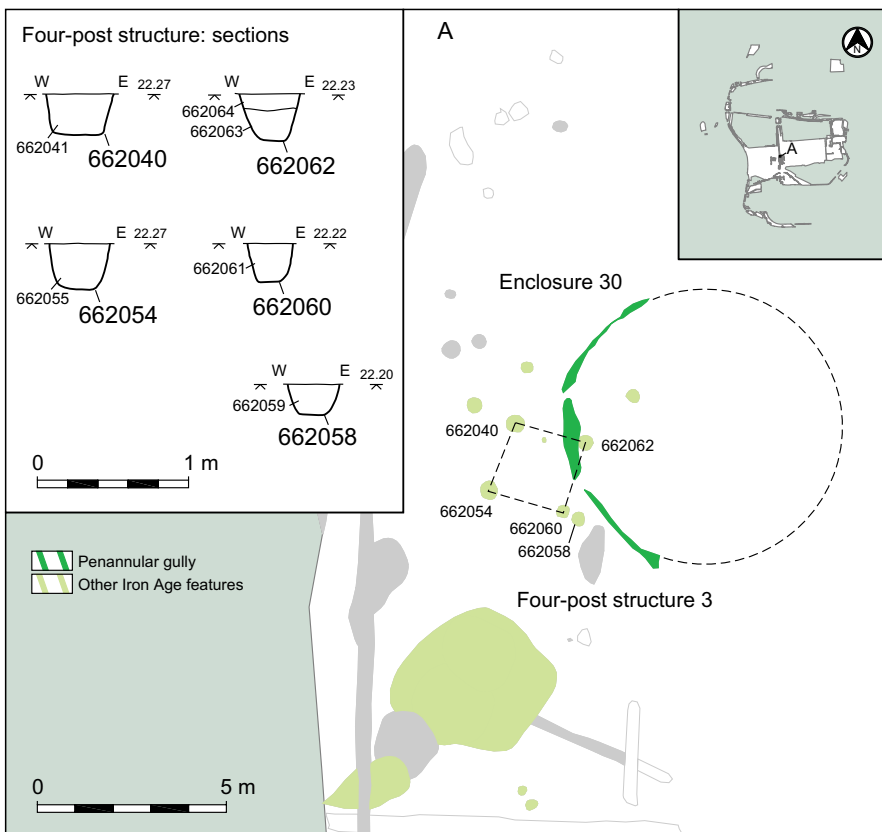


Figure 4.30: Enclosure 30 and four-post structure



Plate 4.10: Artist's reconstruction of Phase 1 Middle Iron Age settlement

Although we cannot be absolutely certain that occupation was continuous rather than intermittent throughout the Middle Iron Age and into the Late Iron Age, the evidence indicates that the settlement was not particularly short lived. In the next section we will explore in more detail the evidence for the chronological and structural sequence of the settlement and its evolving configuration within the Heathrow landscape.

Evolution of the settlement

The Phase 1 Settlement

During the first phase of Middle Iron Age settlement, roundhouses and other buildings, including at least one four-post structure, were clustered in a circular arrangement around an open space approximately 65 m by 85 m, referred to during excavation of the site as the 'village green' (see Fig. 4.20 and Plate 4.10). This would have served as a common, a place where people moved between the houses, yards and livestock pens, grazing their animals in small groups and carrying out daily domestic routines best suited to full daylight and open air when the weather was clement, such as leather-

working and food preparation. There was a very low density of contemporary features within this common space. A concentration of postholes clustering along its western side may have marked the position of ancillary structures such as drying racks and tethers, or may even have been the remains of earlier buildings (see Fig. 4.32 below).

Roundhouses 1, 5, 10, 14, 17, 18, 19, 21, 24, and the first version of 8 were probably constructed during Phase 1, and Enclosures 4, 6, 7, 22, 25, 26 and 31 may have been contemporary livestock pens (Plate 4.10). Two small penannular enclosures or ring ditches (27 and 28), in the south-east corner of the settlement, may have been small ancillary structures aligned with the eastern boundary, although their date is in doubt. An unenclosed four-post structure (FP3) in the south-west part of the settlement, together with the four-poster in Enclosure 9 provided the settlement with elevated storage facilities as well as protection from the weather for animals or equipment below. Roundhouses 17 and 19 housed distinctive ovens and/or hearths, backfilled with burnt debris, the residue of cooking or perhaps potting or metalworking.

The roundhouses, ancillary buildings and livestock pens served a community involved in a communal subsistence lifestyle, combining some level of arable and pastoral farming, with the emphasis increasingly on raising cattle and sheep. The community apparently did little in the way of modifying or enhancing the complex of Bronze Age field systems they inhabited, allowing ditches to remain silted up and possibly ceasing to maintain many of the hedges, relying on the ancient field banks to frame their agrarian regime. Water was acquired by digging waterholes close to the setting of houses and pens and by walking westwards (*c* 1 km) to the river with buckets or leather carriers (see below for discussion of water sources).

If the lives of the inhabitants of the Middle Iron Age settlement had a ritual focus, as doubtless they had, there is little incontrovertible evidence for any belief systems or ceremonies (see below). However, the original version of Roundhouse 8 sat in apparent isolation some distance to the north of the other Phase 1 roundhouses. This west-facing structure, within the only penannular enclosure to have been substantially enhanced over a long



Plate 4.11: Artist's reconstruction of Phase 2 Middle Iron Age settlement

period, was clearly of some importance to the inhabitants, perhaps as an arena for communal gatherings such as seasonal feasting.

The Phase 2 Settlement

In the second phase, the settlement dispersed and occupation expanded northwards (Fig. 4.26 & Plate 4.11). Roundhouse 8 became central to the settlement rather than the remote, albeit perhaps important, structure that it had been during Phase 1. There were clearly major modifications to the roundhouse at this point, included the digging of a very substantial surrounding ditch (see above), although evidence for modification of the structure itself was poor. The surviving depth of the ditch was no doubt the prime factor in the abundance of material (especially pottery and animal bone) recovered from it. Had the other roundhouse gullies been recut in the same way they may have produced similar quantities. But despite the prosaic finds signature of the ditch assemblage, the fact remains that only Roundhouse 8 was altered in this way, and this, more than the quantity and nature of the finds, sets it apart from contemporary structures of the

settlement. The evidence of a small number of Late Iron Age sherds allows us to date the filling of this final recutting activity to the Late Iron Age, when the roundhouse location was incorporated within a large enclosure (E3). The persistence of place demonstrated by this sequence must signify that Roundhouse 8 represented an exceptional place to the inhabitants of the Middle and Late Iron Age settlements, whatever its function.

Roundhouses 15, 16 and possibly 2 were constructed during this second phase, situated northwards and eastwards at a uniform distance of approximately 80 m from the focal point of Roundhouse 8. Other roundhouses that may have occupied the space between 2 and 15 would have lain outside of the excavated area. A number of the earlier buildings may also have remained in use during this period. Roundhouses 5, 14, 18 and 21 all showed signs of modification, albeit only recutting of the surrounding gullies, making them possible candidates for continuity of use.

Roundhouses 15 and 16 were constructed in the eastern part of the settlement, close to the old Trackway 3.

The northern part of this boundary at least, must have been physically breached by this time, as the entrance to Roundhouse 15 impinged on it. However, the persistent absence of any significant evidence for Middle Iron Age activity beyond this point suggests that it continued to represent at least a notional divide between the settlement and the landscape beyond.

Enclosures 3, 11, 12, 13, 20, 23, 29 and 30 may have been contemporary with the second phase of roundhouse occupation. Enclosures 12 and 20 in the southern area and 3 to the north were distinctly larger than the Phase 1 stockades, perhaps indicating that the livestock population had expanded. Enclosure 12 linked to a smaller Enclosure 11 as a corral complex with a distinctive herd control arrangement on the north side. Enclosure 3 lay in an area of high truncation, but nonetheless enclosed no structural features suggestive of an above-ground structure, as was the case with Enclosure 20 in the south-west part of the settlement.

Two smaller enclosures were constructed on the north-west side of the settlement. Enclosure 23 may have



Plate 4.12: Ditch of Enclosure EC1

been a stock compound belonging to the residents of the putative Roundhouse 2. Enclosure 29 to the south-west may have been contemporary with the Phase 2 settlement.

In summary, the Phase 2 settlement was characterised by an expansion northwards and a dispersal of what had been a tight cluster of buildings and enclosures. There was a trend towards slightly larger roundhouses and stock enclosures, although some of the original ones may have continued in use. This could be indicative of a small increase in population of both the human and animal inhabitants or of a change in domestic arrangements and stock management practices. However, the likelihood that the entire settlement was not exposed in excavation makes attempt at calculating the local demographics entirely speculative.

The apparent shift to Roundhouse 8 as the focus of another roughly annular arrangement of houses and pens, more widely spaced than those of Phase 1 suggested that there was a requirement for greater space for family groups and their animals and/or the community in general. Changes in the social structure of the settlement, with a somewhat greater degree of atomisation, may have had some part to play, but such a tendency has been impossible to detect within the available evidence.

It seems reasonably clear, however, that there may have been a change in

the pastoral regime as a consequence of the acquisition of greater numbers of stock, requiring more grazing space. An increase in the livestock population would have created a corresponding requirement for access to an enhanced water supply. This is somewhat problematic, as the number of water-holes within the settlement area were few from the outset, and did not appear to increase during this phase of occupation. We will examine this in a later section (see below - Water for the settlement).

Phase 3—The landscape of the southern enclosure

During the later part of the Middle Iron Age the settlement was reordered again (Fig. 4.31). There is insufficient ceramic or other evidence to define this date with any precision, but the inter-cutting of several Iron Age features and the reconfiguring of Roundhouse 8 in particular testifies to Middle Iron Age occupation of sufficient duration to accommodate at least one phase of reorganisation. This reshaping involved the abandonment of some of the small penannular animal pounds for larger enclosures, some built on the site of or incorporating earlier ones. Some of the roundhouses, including Roundhouse 8, no doubt continued to be occupied or rebuilt but the evidence for this is inconclusive. Construction techniques may have changed during this period, as Late Iron Age domestic structures are notoriously elusive, with roundhouse design based on

substantial earth-fast doorposts but with stake built or mass walls, meaning that they are virtually invisible archaeologically. Numerous double postholes set at an appropriate distance apart (c 2 m) for roundhouse door posts were found scattered within the settlement area (Fig. 4.32 below).

Enclosure EC1

The most imposing new settlement feature of this period was a large ditched enclosure of irregular shape, EC1, constructed during the later part of the Middle Iron Age and certainly after the abandonment of Roundhouse 18, the enclosure gully of which was cut by the EC1 ditch (Fig. 4.31). A number of smaller curvilinear and subrectangular enclosures were also built at this time (see below), roughly encircling the possibly still extant Roundhouse 8.

The ditch of EC1 enclosed a massive space 135 m long and 120 m wide. The unusual shape of the enclosure was obviously influenced by the earlier settlement layout. Its north-western end bulged northwards to fill the space that was once the common area of the Phase 1 settlement, not over-writing it but, in fact, securing the integrity of that space through an impressive effort of construction. The north-eastern ditch of the EC1 enclosure turned inwards to respect the position of a set of nested subrectangular livestock pens (EC4 and EC5) that were either associated with or superseded Enclosure 12. These small enclosures were probably constructed before EC1 but it is equally possible that the whole complex was laid out at the same time. The southern part of the EC1 enclosure breached the southern boundary of the earlier settlement, encroaching some 40 m onto land previously not built on (and possibly even unused) by the Middle Iron Age settlers.

A gap in the ditch of the EC1 enclosure suggests that there was an entrance on the eastern side (Fig. 4.31). This may have been purely a product of later disturbance, although the possibility of an entrance in this position cannot be discounted. Truncation has removed much of the western side of the enclosure but a curving linear arrangement

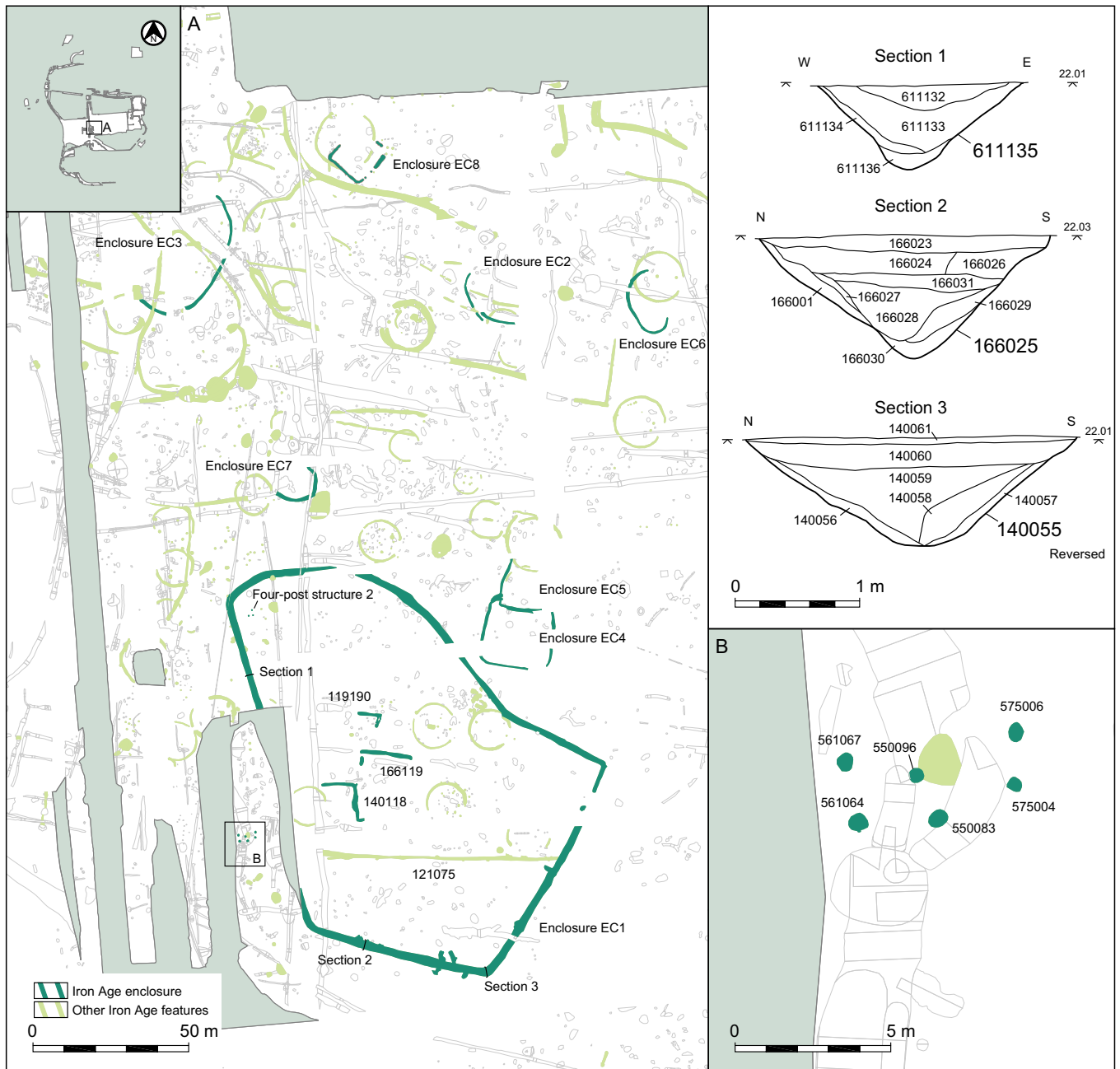


Figure 4.31: Landscape of the southern enclosure

of six postholes (561067; 561064; 550096; 550083; 575006; 575004) may have supported a fenced funnel arrangement designed to control movement of livestock or people into and out of the enclosure (Fig. 4.31).

The enclosure ditch, which may have had an external bank, is unlikely to have been defensive, although the depth of the ditch, which survived to *c* 1 m, in conjunction with a bank, would have formed a sufficiently formidable barrier to keep animals in or out or to clearly designate a site of special purpose (see Plate 4.12 for

section). The obstacle would have been even greater if enhanced with a palisade or hedge, the latter suggested by woody taxa found in the environmental samples.

It would be surprising if an enclosure of this scale had had no internal divisions. It is possible that a number of linear features (140118, 166119, 119190 and some unexcavated features) formed a way through from the western entrance into either the northern or southern part of the enclosure, which may have been designed for different animals or different activities.

As we have seen, the environmental evidence shows that the immediate landscape of the EC1 Enclosure was predominantly pasture with encroaching bracken in places. The ditches held standing water and provided a protected habitat for plants such as ferns (Wiltshire in Framework Archaeology 2006). The position of the EC1 enclosure in the Middle Iron Age settlement sequence is uncertain, but it superseded the roundhouse settlement that had developed in this area and so it must have been constructed during a late phase of Middle Iron Age occupation. Finds from the northern

and western stretches of the ditch were relatively prolific, and included Middle Iron Age sandy ware pottery, amongst them a number of proto-bead rim jars, which suggest that the ditch was filling before the Late Iron Age. Burnt flint, daub, fuel ash slag and a triangular clay loom weight or oven-brick were amongst the finds. One of the most prolific animal bone assemblages came from the fills of the north-west corner of the ditch. This included cattle, sheep/goat and horse.

...Bone was recovered from several deposits within this feature, and was thought to have originated from both erosion and waste dumping. The first of the secondary deposits in one intersection contained just three unidentified large mammal fragments, but the second in the sequence contained poorly preserved cattle metatarsal and four burnt bones in one intervention, and other large and medium-mammal bones were seen in another three interventions. The third fill contained sheep/goat teeth..., burnt large mammal long bone and calcined medium mammal fragments...In the fourth were cattle tooth and sheep/goat bones, and cattle and other tooth fragments. Most of the bones... were probably accidental inclusions from erosion and not directly reflecting activity in this period, although hearth/floor sweepings may be present in the second and third fills.

(Knight and Grimm, CD Section 13)

Much of the material in the fill of the EC1 enclosure ditch would certainly have derived from domestic debris relating to the previous roundhouse settlement and any earlier occupation phases, as we cannot assume that these areas were swept clean and levelled prior to building the enclosure. A settlement of even relatively small size would have generated a mass of detritus, much of which, on this heavily truncated site, was preserved in this ditch—a relatively substantial and undisturbed catchment feature.

That the density of surviving features was low within the space enclosed by the EC1 ditch indicated that it was used for activities that left no below-ground trace, but also reinforced the

lack of construction within that area during earlier phases of the settlement. It is reasonable to assume then that this space was traditionally reserved over several centuries for the same function, whether this was grazing and stock-rearing or some form of human assembly. Whatever its role the size, scale and setting of the enclosure suggests communal activity, as it was too large to have served a single household. Whether it was a protected pasture for collective herds of cattle, sheep or horses or—less credibly—a ceremonial venue, there is insufficient evidence to be certain. It was not possible to correlate the detritus captured within the EC1 ditch to any obvious activity that might have taken place within the enclosure, despite the size and nature of the assemblages.

It is difficult to find parallels for the EC1 Enclosure. A large oval palisaded enclosure found at Horcott Pit (Lamdin-Whymark *et al.* forthcoming), probably of Early Iron Age date, may have been connected with stock rearing. In common with EC1, it had two narrow opposing entrances but, in apparent contrast, was surrounded by a palisade, whilst EC1 was ditched and possibly hedged. Both contained virtually no evidence of internal domestic activity and the entrances of both enclosures were arguably too narrow to accommodate large herds. The western entrance of EC1 was a funnel shape that would have allowed livestock to be moved in single file and the entrances to the Horcott Pit enclosure may have had moveable hurdles for a similar purpose. If the EC1 enclosure were used for stock rearing, only a few animals at a time need have been led into and out of the space. The training of horses or draught oxen within the enclosure has been proposed for the Horcott site (Lambrick 2009). However, the scales of the two enclosures are very different, EC1 nearly triple the size, so it may be injudicious to compare the two.

Other enclosures

Across the remaining settlement area were at least seven other enclosures (EC2–8; Fig. 4.31). A poorly preserved curvilinear ditch (EC2) sited just to

the east of the site of Roundhouse 8 enclosed an area at least 21 m long. It cut the gully of Enclosure 6, possibly replacing it as a larger stockade. A small collection of Middle Iron Age pottery, burnt flint, FAS and animal bone from the ditch fills may have derived from activity relating to Roundhouse 8.

The eastern side of another oval ditch (EC3) enclosed an area 40 m long. It seems to have been linked to Enclosure 29, on the north-west side of the settlement, and the two may have been contemporary. The ditch fills contained a little Middle Iron Age pottery but also numerous sherds of Late Bronze Age pottery, doubtless derived from the Bronze Age waterhole that was bisected by the ditch. There were no obvious contemporary internal features.

One of a pair of nested, possibly contemporary, subrectangular enclosures was represented by a truncated shallow ditch (EC4). It enclosed an area *c* 440 m square and may have had an entrance on the eastern side. There were no internal features apart from some shallow hollows, probably produced by livestock trampling. The ditch fills contained Middle Iron Age pottery, fired clay and a few burnt flints.

EC5 was nested within the northern side of EC4 and superseded the earlier circular Enclosure 31. It was smaller than EC4 and less well-preserved, the eastern and northern sides lost to truncation. It would have enclosed an area of at least 170 m square and probably slightly more. The ditch fills produced a relatively large number of Middle Iron Age sherds and fired clay fragments, probably mostly residual material from Enclosure 31. This enclosure may have co-existed with Enclosure 12, at least for a time.

Another oval enclosure (EC6) was about 18 m long and open on the east side, not necessarily as a result of truncation as the terminals appeared genuine. The stratigraphic relationship with Roundhouse 15 was clear—the enclosure was later. Substantial groups of Middle Iron Age (and residual

Bronze Age) pottery and unusually large quantities of fired clay in the *c* 1 m deep ditch fill derived largely from the former roundhouse. No internal features were excavated.

A small oval enclosure (EC7) 13 m across may have been an animal pen linked to Roundhouse 5. The northern side of the enclosure was destroyed by truncation and there was no apparent entrance surviving on the eastern or southern side. The feature may have been contemporary with the Phase 1 or 2 settlements but may also have continued in use later. Two large waterholes, 132310 and 615138 (see below) were located, perhaps significantly, adjacent to the enclosure.

When Enclosure 3 (see above) fell into disuse, rectilinear feature, EC8, was built on the same site. It was represented by a shallow gully, which may have incorporated a timber slot, defining an enclosure measuring *c* 14 m by 13 m. The rectilinear feature coincidentally lay within the entrance gaps of the earlier penannular gully, the north-eastern and south-western sides corresponding with the terminals of the entrances. The north-eastern side had been recut on at least one occasion.

The enclosure appears to have had two entrances, one opening out at the east corner, the other facing south-east. The latter entrance was marked by two postholes and their position suggests that the slot probably marked the line of the wall, possibly a sill beam. Alternatively, they may have represented the gateposts to an enclosure. The eastern entrance opened onto a four-post structure, conceivably a porch, although the two may have been unrelated. Pottery from three of the postholes indicated a date of Middle to Late Iron Age, but the slot produced only prehistoric sherds of indeterminate date.

Similar rectangular structures of Iron Age date have been recorded across southern Britain, notably at Caesar's Camp at the eastern end of Heathrow Airport (Grimes and Close-Brooks 1993), Little Waltham (Drury 1978), Danebury (Cunliffe 1995), and Stansted

(Havis and Brooks 2004). They are sometimes interpreted as shrines, although in most cases the evidence is inconclusive and the evidence for specialised religious structures in Iron Age Britain remains slight overall (Smith 2001, 67). EC8 shares some common features with a number of the structures mentioned above, including its wall trench construction and the easterly or south-easterly orientation of the entrance. It may have been a direct replacement for Enclosure 3 and possibly served a similar function as a stockade. Nonetheless, the possibility that this location, close to Roundhouse 8 was part of a focal point for the spiritual life of the Iron Age community cannot be entirely dismissed.

Drivers and inhibitors of settlement modification

Population dynamics

Analysis of populations living in the Middle Iron Age is hampered by a dearth of the dead. No Iron Age burials were found at Terminal 5, and this is common to most excavated sites of the period. Although the number of excavated inhumation cemeteries is increasing (Hey forthcoming; Cunliffe and Poole 2000, 152–7; Sharples pers. comm.) burials are rare. Fragments of human bone and body parts, however, are not uncommon on settlement sites, leading to speculation about alternative methods of disposing of the dead, such as excarnation (Carr 2007, 444–53).

Furthermore, the absence of above-ground preservation of domestic structures in a region where wooden timbers, stakes or cob mass-wall construction, rather than stone, formed the basis of domestic architecture, leaves us uncertain as to the potential living space in a typical roundhouse of 7–10 m diameter. Post-ring construction, for which there is reasonable evidence at the Terminal 5 settlement, allows for the construction of an upper floor for sleeping and storage, leaving only a small roof space, which could be used for additional hanging storage (Pope 2007, 220). In a double level roundhouse, livestock would probably have

been brought in overnight, occupying partitioned spaces on the ground level—a dual function of protection of the animal resource and heating for the occupants of the house.

On the assumption that 10 roundhouses, including the anomalous Roundhouse 8, were extant during Phase 1, and that most accommodated no more than one or two families—up to eight or ten people—a maximum population for the settlement of just under 100 may be realistic. However, taking into account that one or two houses would have been under construction, in disrepair or occupied by a smaller group at any given point, a population of 70–80 is probably a more accurate estimate. Whether the population of the Phase 2 settlement was similar is uncertain, as we have mentioned above.

Recent demographic analysis of prehistoric populations in the Upper and Middle Thames Valley (Lambrick 2009) indicated a significant slowing to a modest rate of population growth in the Middle Thames Valley after the Late Bronze Age, compared with rapid growth during the Bronze Age. If population was falling in the Iron Age in this region, it could help to explain the differences in settlement patterns seen here in contrast to the Upper Thames. Even a slowed rate of population growth, without a decline, would have had a significant effect on settlement and agricultural practices. The slowing in population growth could have been due to any number of factors, including soil exhaustion, disease, famine, migration or hostilities. Needham's (2007) proposed 'Great Divide' at around 800 BC, which involved a collapse of an over-inflated economic standard of prestige goods, with a concomitant change in social behaviour, could also have played a part in population decline after this time.

Agricultural practices

The basis of the late prehistoric economy in the Middle Thames Valley, in common with most of southern Britain, was mixed farming. Domestic animals were a significant component

of the system as—even within a mainly arable regime—they were required for traction (Reynolds 1995) and secondary products such as milk, cheese, leather and wool. Within this very general system the balance between pastoralism and mixed farming showed a great deal of chronological and geographical variation, but pastoralism may have been a key factor in how agricultural systems developed during the Iron Age at Terminal 5 (see Plate 4.13). The very small quantities of carbonised grain from the site indicates perhaps only insignificant growth in arable production during the Middle Iron Age, with no apparent upsurge until the Late Iron Age and Roman period (Wiltshire in Framework Archaeology 2006; see below). In tandem with a corresponding slowing of population growth, a reduction in arable cultivation (due to soil nutrient depletion or other factors), stagnation, and even decline, may have been typical for the immediate and wider Middle Thames Valley region in general and the Terminal 5 site in particular. In short, the region may have ceased to be economically important and the apparent low status of the Heathrow settlement reflects this.

The coalescing of settlement during the 1st millennium BC, culminating in the nucleated arrangement of the Middle Iron Age may have reflected the need for larger scale and perhaps more communally based management of land and herds. A pooling of resources would have required communal management and a system for negotiating this, perhaps here reflected in the unique setting of Roundhouse 8 and the enigmatic southern EC1 enclosure. Smaller stockades and enclosures created amongst and around the Middle Iron Age settlement were used to separate groups of domestic animals where necessary and perhaps also to grow non-cereal crops, although we have no environmental evidence to support the latter. Larger areas of pasture would have occupied larger blocks of land on the gravel terraces and, during some seasons, on the floodplain, by this time divided by unditched banks, fences and hedges.

Local and regional setting of the Middle Iron Age settlement

Despite the relatively poor evidence for settlement and agricultural patterns in the Middle Thames Valley, in contrast to the Upper Thames and the Hampshire downlands, some patterns of settlement development from the earlier prehistoric period have been observed (see Fig. 4.12 above for distribution of sites). Substantial Late Bronze Age settlements have been investigated at Runnymede Bridge (Longley 1980; Needham 1991; Needham and Spence 1996) and Petters Sports Field (O'Connell 1986) along with a multi-period settlement at Brentford (Bell 1996) and Mayfield Farm south-east of Heathrow (Merriman 1990). Late Bronze Age occupation sites were relatively common in the greater London area, including Hillingdon, and in Surrey (Cotton 1991; 2000; Cotton *et al.* 1986; Needham 1987). Many of these were associated with field systems, as at Stanwell (O'Connell 1990) and Imperial Sports Ground (Crockett 2001; Framework Archaeology 2006).

At Terminal 5—as for several of the sites cited above—these settlements continued, many of them with little alteration, into the Early or later Iron Age. As at Terminal 5, ancient field boundaries and enclosures were not renewed and in some cases, for example at Horton (Wessex Archaeology 2009), sites were largely or wholly abandoned as settlements were forced by climatic change or other factors to shift location. In the Middle Iron Age small open settlements set amongst Bronze Age field systems both respected and superseded the earlier patterns. At Thorpe Lea Nurseries (Hayman forthcoming a) and at Brooklands (Hanworth and Tomalin 1977; Hayman 1991 and forthcoming c), long sequences of Iron Age occupation were recorded.

South of the river, away from the gravel terraces, there is less evidence for open Iron Age settlements set amongst pre-existing field systems. Rather, a number of enclosed Middle and Late Iron Age settlements with few

traces of earlier activity have been recorded recently. These include Pirbright on the Surrey heath (Poulton 2004, 58–60) and the enclosed settlements at Runfold Farm and Tongham Nurseries near Farnham in Surrey. Limited evidence of Iron Age activity on the London Clay has also been recorded (Poulton 2004).

Middle Iron Age settlements characterised by penannular gullies have been investigated at Caesar's Camp, where a complex of penannular gullies and enclosures may have been constructed adjacent to a 'shrine' within a sub-rectangular banked enclosure (Grimes and Close-Brooks 1993). However, the enclosures may have originally been part of an unenclosed settlement similar to that at Terminal 5, and only later enclosed by the bank. The relationship of the settlement to the so-called shrine is still uncertain.

At Hengrove Farm Iron Age penannular gullies—along with pits, postholes and a large waterhole—occupied an unenclosed area *c.* 200 m long and 30 m wide, built within a pre-existing Middle Bronze Age coaxial field system (Hayman forthcoming d). Some of the gullies probably enclosed roundhouses and other smaller ones may have been livestock pens. As at Terminal 5, one at least enclosed a four-poster. Here occupation continued into the Roman period without a break, and a complex of Late Iron Age and Roman ditched enclosures emerged from the Middle Iron Age settlement. At nearby Ashford Prison (Carew *et al.* 2006) a group of penannular enclosures, pits groups and four-posters lay on a raised area between the River Ash and a palaeochannel. The gullies apparently respected a Bronze Age ring ditch, which could have survived as a low earthwork during this period. There is less evidence at Ashford than at Terminal 5 for continuity from the beginning of the 1st millennium BC into the Late Iron Age.

At Thorpe Lea Nurseries near Staines a Middle to Late Iron Age settlement succeeded a Middle Bronze Age field system, but with only limited evidence of Early Iron Age activity, as at

Terminal 5 (Hayman forthcoming a). But here there were no penannular gullies found, rather clusters of pits, postholes, four-posters, irregular gullies and two waterholes, and finds were very few. Only a part of this area survived in use through the Late Iron Age and Roman period. Like some other Middle Iron Age settlements that evolved within the relict Bronze Age field systems on the West London and Surrey gravels, the Thorpe Lea Nurseries site produced no carbonised crop remains, querns or other evidence for cultivation from Middle Iron Age deposits. In contrast to Terminal 5, however, the site produced significant evidence for iron-working and also for spinning and weaving, including 156 loomweight fragments.

In the next section we will consider how the Middle Iron Age inhabitants of the Heathrow area carried out their daily lives.

Farming and living in the Middle Iron Age at Heathrow

Farming in the Middle Iron Age at Heathrow: the economic basis

The economy of the Middle Iron Age settlement at Terminal 5 was based on mixed farming, as was the case for most later prehistoric sites in the Thames Valley (see above). The evidence for these practices takes the form of animal bones (where preservation is good), structural evidence for grain/fodder storage facilities and livestock enclosures, but also environmental evidence for cultivation, manuring and water resources. The broad scheme of a mixed arable economy, however, allowed for significant variation from region to region and site to site. At Terminal 5 the Middle Iron Age balance between pastoralism and cultivation appeared to be biased towards the former. The period spanning the Middle Bronze Age to the Late Iron Age saw an evolution on the Thames gravels from a landscape of perhaps lightly grazed rough pasture with some thorn scrub to a fully organised agricultural landscape. However, by the end of the Iron Age in the Middle

Thames Valley the total area under cultivation was much less than in the Upper Thames region, partly because of poorer soils for arable, but perhaps also for more complex social and economic reasons.

Investigation of the Middle Iron Age settlement and surrounding landscape produced a remarkable dearth of the material evidence typically used to characterise prehistoric economies. These can include artefacts linked to husbandry (ploughshares, reaping hooks, harness fittings), to craft and industry (metalworking debris, weaving combs, loomweights), potting (wasters, tempering material, burnishers) and food processing (quernstones, threshing floors), to transport, import and exchange (horsegear, exotic ornaments and jewellery, non-local stone), and so on. At Terminal 5 the Middle Iron Age artefact repertoire, apart from pottery, consisted of a single quern fragment, a single spindlewhorl, and a few loomweight or oven brick fragments.

The combined evidence for Middle Iron Age economic activity and status can be summarised as follows:

- Few artefacts other than pottery and structural clay were recovered.
- No exotic ceramics or other artefacts were present in the assemblage.
- There was evidence for cereal production and processing on a small scale—a few charred grains, a single quern and five or six four-post structures.
- No obvious modification or maintenance of the Middle-Late Bronze Age field system was identified.
- There was more substantial evidence for pastoral agriculture—waterholes, a small animal bone assemblage and numerous livestock enclosures.
- Evidence for craft activity comprised the following: weaving (loomweight fragments and a spindle whorl); metalworking (slag from waterhole 148303 and by-products

of high temperature activity in pits 183030 and 539450); construction (postholes and beam slots).

Specialisation and Intensification?

We have seen that the Middle Iron Age artefact assemblage from Terminal 5 provided no evidence for intensification of manufacturing, trade, exchange or social or political connections seen at some other sites of this period. Jones' (1985) interpretation of later prehistoric settlements as either predominantly producers or consumers of arable produce has been much debated (Hambledon 1999) and the development of farming in later prehistory may be best seen as a social rather than purely economic phenomenon. This would have been based mainly on subsistence living, with production occasionally increasing in response to population pressures or economic/political developments. If the population increased, a higher crop yield would have been needed, but contingency supplies would always have been required at a subsistence settlement to avert famine in times of failing harvests or low births in livestock resulting from disease or bad weather. Intensification in terms of higher arable or animal yields would have been required to sustain communal activities or construction work or to provide the mainstay for trade and exchange. However, the Terminal 5 Middle Iron Age settlement produced no evidence whatsoever for the latter.

Arable agriculture

Our evidence for the Middle Iron Age economy suggests that arable cultivation was practised on a very small scale at Terminal 5 as at many other sites in the Middle Thames Valley. Truncation levels at Terminal 5 would, in any case, have removed any surviving arid marks. Remains representing cereal cultivation were few, only partly due to truncation and poor preservation conditions. A small group of charred grains of emmer/spelt and barley was recovered from a feature relating to an oven or hearth in Roundhouse 19. The weeds from this charred assemblage indicate that the soils of the cultivated

fields surrounding the settlement were poor and damp. A single charred barley grain recovered from pit 529306 in the western fields, radiocarbon dated to between the late 4th and early 3rd centuries BC, provided a small but significant indicator that a specific crop was being grown at a certain time during the Middle Iron Age.

The paucity of charred grain from Terminal 5 Middle Iron Age deposits corresponds to a total lack of such material at Thorpe Lea Nurseries near Staines and a dearth at other Middle Iron Age sites that evolved within relict Bronze Age field systems of the West London and Surrey gravels (Hayman forthcoming a). By contrast, environmental and structural evidence from sites in the Upper Thames Valley suggest that Iron Age settlements sited on high terraces and associated with storage pits, such as Ashville (Parrington 1978) and Gravelly Guy (Lambrick and Allen 2004), were undertaking cereal production on a much larger scale. The Hampshire chalklands seem to have been even more prolific cereal producers. Lower lying Middle Iron Age settlements in the Upper Thames produced more evidence for pastoral than arable activity, but may have produced just sufficient grain to provide for their own community. This may also have been the case at Terminal 5 and in the Middle Thames Valley generally during this period.

Attempting to present a picture of the development of arable agriculture in the Middle Thames Valley is difficult due to such low levels of evidence. However, emmer, spelt, rye and six-row hulled barley were present in Late Bronze Age/Early Iron Age deposits at Thorpe Lea Nurseries, Egham (Robinson in Hayman forthcoming a) and a barley rachis and an unidentified cereal grain were recovered from the 7th century BC settlement at Dunston Park in the Kennet Valley (Clapham in Barnes *et al.* 1995, 84–5). Much larger quantities of spelt glumes, and some emmer glumes and six-row hulled barley and wheat came from Early Iron Age features at Wickhams Field, Reading (Scaife in Crockett 1996). The available evidence indicates that in the

Middle Iron Age spelt and six-row hulled barley continued to dominate the arable economy in both the Upper and Middle Thames Valley. Emmer wheat still appeared in Middle Iron Age samples but as only minor components of assemblages dominated by spelt. Some rye was found at Mingies Ditch (Jones in Allen and Robinson 1993) and oats sometimes occur in small quantities during this period, but perhaps as a wild weed species rather than a deliberately cultivated crop.

Regional variations in cereal crops were typical in Middle Iron Age Britain (van der Veen 1992). Spelt and six-row hulled barley predominated throughout most of southern England and the Midlands, but in the south-west wheat seems to have been less important. In East Surrey and Kent emmer continued as an important crop from the Bronze Age onward. Concentrations of cereal remains found on settlement sites also vary greatly. More cereals occur on Upper Thames Valley sites, excluding the floodplain, than on sites in the Middle Thames Valley but not as high as on settlements on the Hampshire Chalk.

Evidence for storage of crops

The topographic conditions of the Terminal 5 Middle Iron Age site would have been generally unsuitable for the storage of grain in pits cut through the subsoil, as even the shallowest of hollows would have filled with water during some seasons, in contrast to the chalk downlands where pits of up to three metres deep provided storage facilities for tons of grain. Few above-ground four-post structures of the type generally interpreted as granaries were found at Terminal 5, but we cannot rule out the possibility of storage of foodstuffs and other perishable materials on the upper floors of roundhouses (Pope 2007). In fact there is little indisputable evidence from Thames Valley sites of four-posters associated with grain or other stored produce, and they may have been mainly connected with pastoral farming. They are common features of Bronze Age and Iron Age pastoral settlements in both the Upper and Middle Thames Valley, recorded

at the Middle Iron Age sites at Eton Rowing Lake, Dorney and Ashford Prison. They were also present at somewhat earlier low-lying Middle Iron Age grazing settlements at in the Upper Thames at Claydon Pike (Miles *et al.* 2007), Mingies Ditch (Allen and Robinson 1993) and Port Meadow (Lambrick and McDonald 1985).

Within the Middle Iron Age settlement at Terminal 5, a four-post structure (9), surrounded by a drainage gully (172032), was constructed close to the roundhouses and animal pens of the Phase 1 Middle Iron Age settlement (Figs. 4.20 and 4.24). Another four-poster (FP3), measuring 1.9 m x 1.9 m, lay equally close to this agglomeration in the south-west part of the settlement, either pre-dating or superseding Enclosure 30 (Fig. 4.30). Another group of three postholes immediately adjacent to FP3 may also have been a four-poster. Within the area encompassed by the large EC1 enclosure three posts of another four-poster (FP2) would have formed a structure of 1.8 x 1.4 m, but it was probably not contemporary with the enclosure (Fig. 4.31).

At Green Park near Reading there was a similar pattern of some four-post structures closely associated with roundhouses and others concentrated some distance from the domestic site in work or storage areas (Brossler 2004), whilst at Horton in Berkshire two four-posters lay close together immediately adjacent to a roundhouse gully (Wessex Archaeology 2009).

Although the plethora of other postholes, excavated and unexcavated, in the settlement area at Terminal 5 may have also supported four-post or other storage structures (Fig. 4.32), there were no extensive rows or stands of such structures as are seen on some Middle Iron Age settlement sites. If the population of the settlement was relatively small and arable cultivation was on a small scale, as suggested by the, albeit limited, environmental evidence, there would have been little need of extensive storage facilities—two or three four-post structures could have sufficed to store a small seasonal harvest over a winter.

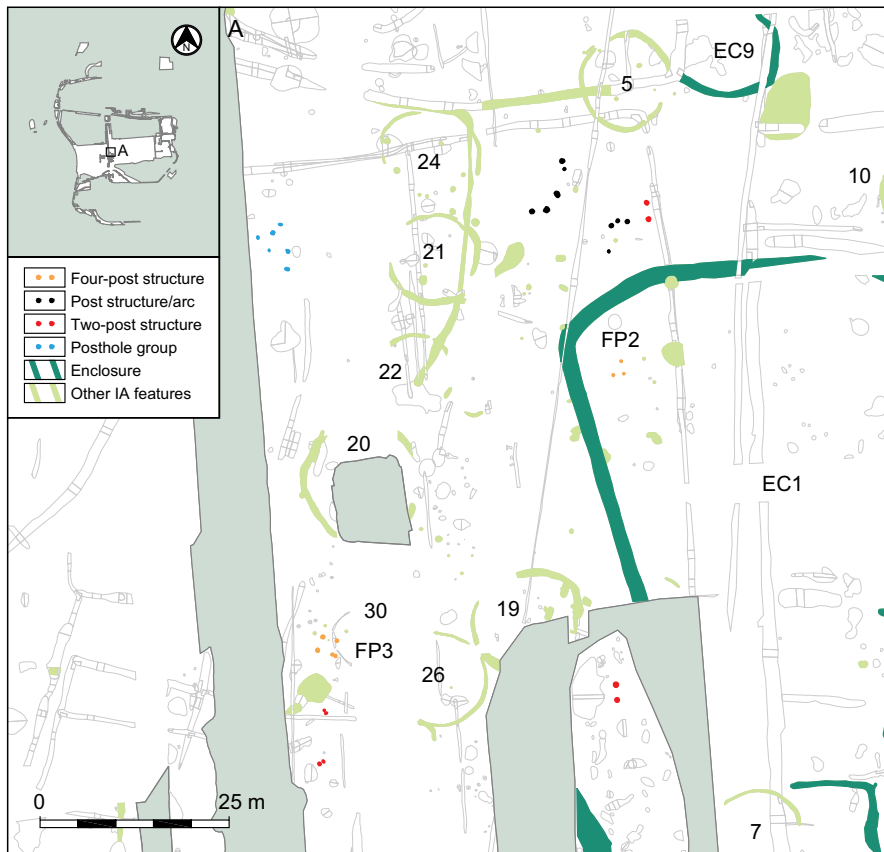


Figure 4.32: Posthole structures in the Middle Iron Age settlement

Crop processing and preparation

Few querns were recovered from the Terminal 5 excavations, and only one from a secure Middle Iron Age context. This nonetheless corroborated the more general evidence for the region that sarsen was a stone of choice for saddle querns during the Iron Age.

... the indications are that by the Early to Middle Iron Age traditions were unchanged. Sarsen was still in use as a saddle quern material, as evidenced by a piece with a pecked, concave grinding surface (688003)..., while further large pieces of burnt sarsen, perhaps also quern fragments, came from the same pit. Sarsen was used elsewhere in the area for Iron Age saddle querns, as for instance at Lower Mill Farm, Stanwell (Jones & Poulton 1987, 7).

(Roe, CD Section 7)

The presence of this single saddle quern fragment from a poorly dated pit (688003) almost half a kilometre to the east of the settlement in Area 91 compares to a complete absence of

querns at the Thorpe Lea Nurseries site (Hayman forthcoming a).

Livestock production

The poor condition and small size of the Middle Iron Age animal bone assemblage is due largely to poor preservation conditions, but a few well-preserved assemblages recovered from three or four waterholes are an indication of what has been lost to us through truncation of deposits and deterioration. Poor preservation of bone precluded a sound reconstruction of the local pastoral economy, but there is little doubt that a number of the truncated penannular enclosures that shared the settlement area with round-houses and waterholes were stock pens. Some of the unmodified embanked or hedged Bronze Age fields to the east of the settlement also no doubt provided pasture for sheep, cattle and horses.

This dearth of reasonable sized animal bone assemblages is reflected more widely in the Middle Thames Valley, with few assemblages of any size,

virtually none large enough for detailed analysis beyond species representation (Hayman 1991 and forthcoming c). What evidence we have, from, for example Cippenham (Ford *et al.* 2003) and Fairylands, Laleham (Taylor Wilson 1996) displays a similar variation in species proportions to Middle Iron Age settlements in the Upper Thames Valley.

The collective evidence that the inhabitants of the settlement were engaging in pastoral agriculture, perhaps to a greater degree than arable, is substantial, particularly towards the end of the Middle Iron Age. The original small penannular stock pens attached to Middle Iron Age domestic dwellings were replaced at this time by larger (but still curvilinear) and more remotely sited enclosures that would accommodate much larger numbers of beasts. If the EC1 southern enclosure were a stockade it would have held huge numbers of animals (but perhaps too many to justify such an interpretation). We know from the surviving animal bone that the Heathrow inhabitants were keeping cattle, sheep and horses; pigs were rare and need woodland, by this time apparently in relatively short supply, to forage. Horses were not uncommon within the Terminal 5 Middle Iron Age assemblage. The inhabitants of the settlement may well have engaged in horse rearing—a major economic activity in some Middle Iron Age communities. There was no evidence to suggest that the horses were butchered for consumption, as was found for the Late Bronze Age at Runnymede (Done 1991).

There is little evidence that the Bronze Age fields were much used for arable during the Middle Iron Age. A thin scatter of pottery was detected, but no signs of boundary maintenance and barely a visible imprint on the vast stretches of land to east, west and north of the settlement. Whilst this may merely reflect the lack of any need to do anything other than utilise the ancient trackways and tracts as they stood, the Iron Age community may have been maximising the pastoral elements of their landscape, using the old Bronze Age arable fields to



Plate 4.13: Artist's reconstruction of Middle Iron Age pastoral landscape

produce foggage instead of cereals on a large scale. We have seen how the Bronze Age inhabitants maintained their field ditches, redigging and cleaning them on a regular basis, as is the tradition of arable farmers, their fields advancing forward across the landscape over the generations. By contrast, the Middle Iron Age inhabitants put their energy into building, rebuilding, and rebuilding again complexes of stock pens, first small and penannular, then larger and curvilinear, and finally during the early Roman period as rectilinear compounds—and all in the same spot for centuries (see Plate 4.13).

Water for the Middle Iron Age settlement

In comparison with the Middle and Late Bronze Age, relatively few Iron Age waterholes, wells and ponds have been found anywhere in the Thames Valley (Lambrick 2009). Where they do occur they seemed to be typically associated with pre-existing field systems, apparently continuing previous practices, as was the case at Terminal 5. This does suggest some continued use of the field system into the Iron Age, but most of the waterholes that were extant during the Middle Iron Age at Terminal 5 lay within the settlement

area rather than the surrounding fields. It is possible that changes in social behaviour and economic circumstances meant that artificial water supplies were less a mainstay of the economy than previously. Interestingly, ramped waterholes, wells and ponds became more common again in the Roman period.

Although far fewer such features were newly created by the Middle Iron Age inhabitants of Terminal 5 than by their Bronze Age predecessors, immediate access to water would have been essential in the agricultural landscape of this period, and pits dug to no great depth in this relatively low-lying environment would have readily secured this resource. The Middle Iron Age inhabitants would have relied on waterholes for a range of needs, including watering their livestock and various domestic activities. Middle and Late Bronze Age wells and waterholes that had been left open continued to fill and to be used during the Middle Iron Age, at least for rubbish disposal, and some of these ancient features were recut on several occasions to reclaim access to groundwater, although many would have been unsuitable as sources of clean drinking water.

In contrast to the Bronze Age inhabitants of Terminal 5, the Middle Iron Age farmers did not dig new wells, within the definition of a pit that was compact in plan with a vertical shaft, sometimes lined with timber or wattle, and designed for drawing water in a container or for access via a log ladder. The pits designed for access to water that were newly constructed during the Middle Iron Age fall more properly within the category of 'waterhole' or even pond. Some, in fact, may have been dug as simple pits designed for a multitude of functions but, fortuitously sometimes penetrated ground water or collected rainfall at intervals.

How did the Middle Iron Age farmers acquire fresh water?

The economic or social reasons for the cessation during the Iron Age of well construction, especially of the timber and wattle-revetted variety, are not entirely clear. These people would have seen the evidence of preserved wooden linings and log ladders during their recutting operations and would have been entirely capable of the technical requirements, as their timber framed roundhouses testify.

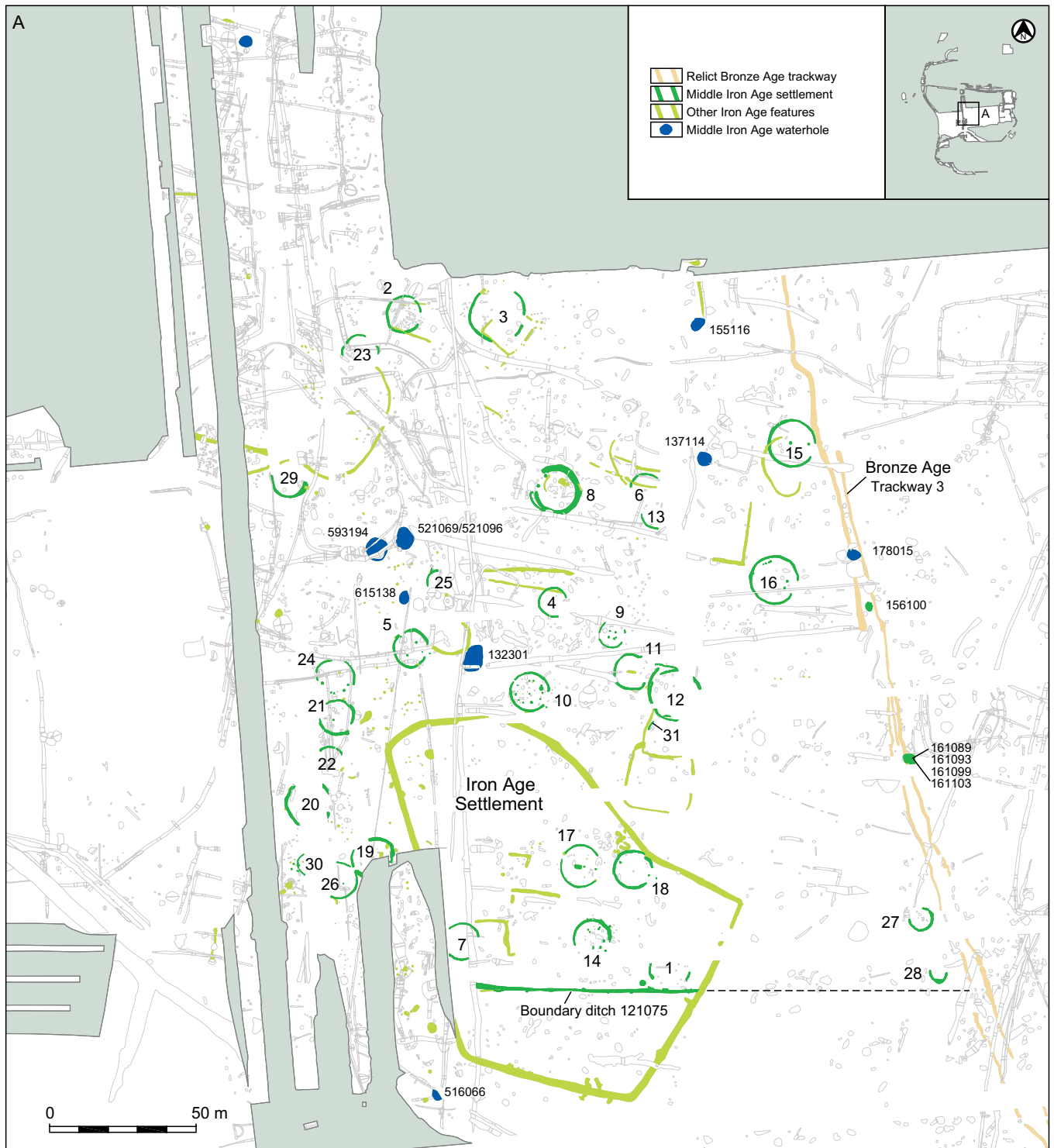


Figure 4.33: Distribution of waterholes within the Middle Iron Age settlement

We must assume that, in the absence of wells *per se* the inhabitants of the Middle Iron Age community collected much of their drinking water from roof run-off into eaves-drip gullies and sumps, wooden drums, leather sacks and ceramic vessels. It is also very likely that they made the relatively short journey of just over a kilometre to the river Colne—the nearest natural source of water—on a frequent,

probably daily, basis to fetch clean water and perhaps even to take their herds to drink. The relict Bronze Age field boundaries clearly would have continued to present a hindrance both to humans and animals crossing the western fields. But in picturing the Bronze Age landscape, constrained as it was by the obstacles of open ditches, consolidated banks and maintained hedges, it is also worth considering

just how much that same landscape would have altered given a few generations of neglect. We have very little evidence that the inhabitants of the Middle Iron Age settlement actively maintained or enhanced the western field system. How onerous would the short journey to the river across a landscape of infilled ditches, abandoned trackways, eroding banks and breached hedgerows have been to

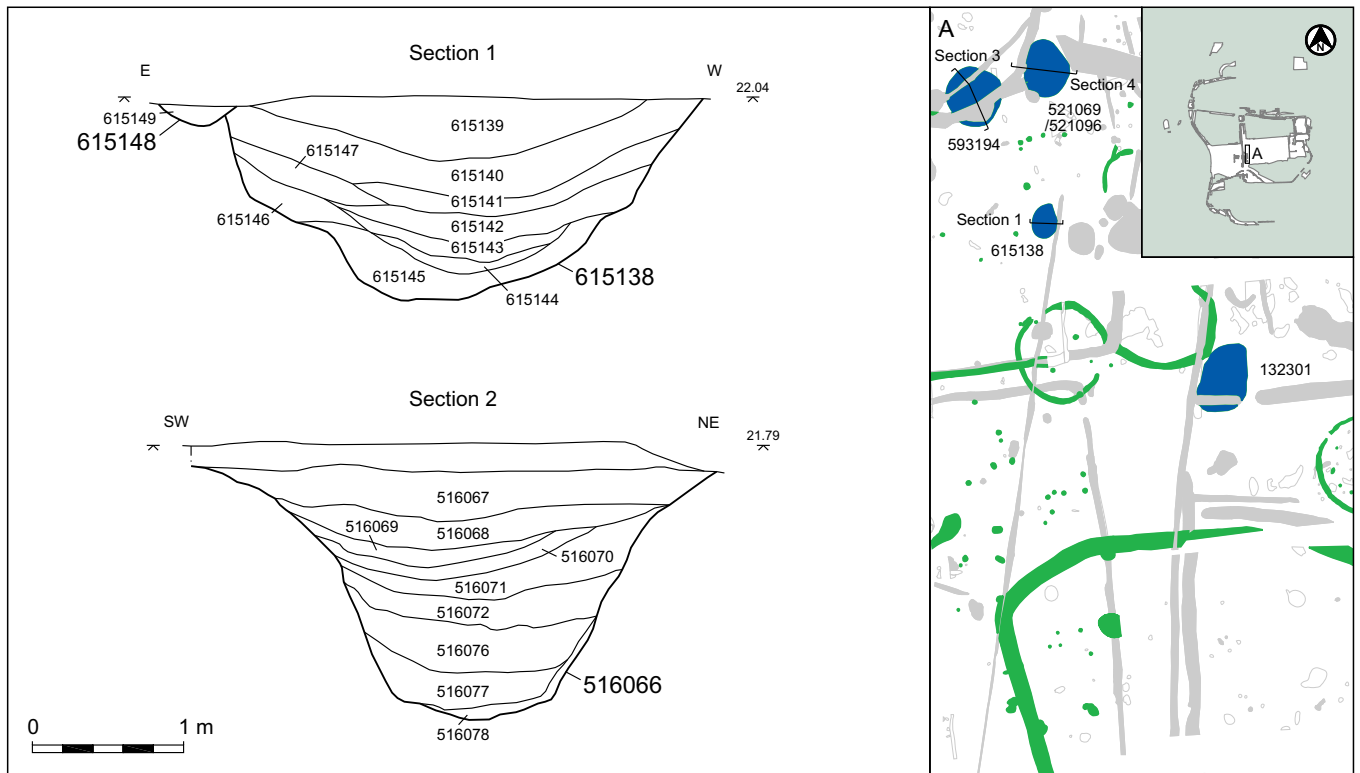


Figure 4.34: Plan and sections of waterholes 615138 and 516066

farmers accustomed to the hardship of a basic subsistence lifestyle?

For the sake of convenience, and because the morphological boundaries are blurred, we will refer to all non-well type pits dug for access to water as 'waterholes'. We will consider first the distribution of waterholes and ponds within the Middle Iron Age settlement and its immediate surrounding landscape and then describe some of these features and their associated artefactual and palaeoenvironmental evidence.

Distribution of Middle Iron Age waterholes

Waterholes were newly cut or reused both within the confines of the settlement and in the Bronze Age field systems to the east and west of the settlement. Six waterholes were constructed in the heart of the Middle Iron Age settlement, amongst the roundhouses and animal pens (see Fig. 4.33). Another (155116) was dug in the north-east part of the known settlement area, just within the excavated area. Only a single Middle Iron Age waterhole was cut in the fields to the east of the settlement, and the three waterholes in the western fields that contained Middle

Iron Age material were all probably reused Bronze Age features (see above). This western sector of the Bronze Age field system seemed to attract far more activity during the Middle Iron Age than the eastern fields, including reuse of the HE1 monument, as we have discussed earlier. This is hardly surprising since the route to the river led across these floodplain tracts. The recut Bronze Age waterholes would have provided convenient watering places for herds put out to pasture in this area.

We will deal first with the waterholes excavated in the settlement area and then discuss those within the eastern and western Bronze Age fields.

Waterhole 132301

A large tear-shaped waterhole (132301) constructed within the annular Phase 1 Middle Iron Age settlement group, between Roundhouse 5 and Roundhouse 10, may have been the earliest of the newly constructed waterholes of this period (Fig. 4.33). It clearly had no Bronze Age precursor as it cut across the line of Bronze Age Trackway 2 and the southern boundary of Farmstead 4. There was only a single post-Deverel-Rimbury sherd in a

The size and condition of the animal bone assemblage from waterhole 593190 may reflect its proximity and contemporaneity to Roundhouse 8 which, during its second phase of use, saw the disposal of large quantities of animal bone in its surrounding ditch (see above).

During the Late Iron Age/early Roman period the waterhole was recut as a well (593207) with a ramped side for livestock access. Two complete bead rim jars were either placed, or as likely, dropped into the void during this latest stage of use (see below).

Waterhole 521069/521098

Waterhole 521069 lay immediately adjacent to 593190 (Figs 4.34 and 4.35). It also had a history of modification, recut sometime during the Iron Age as 521098 and in the Late Iron Age/early Roman period as a narrower, shallow, shaft-like feature, 521096 (see below). The waterhole was not well-dated, but an Early Iron Age bowl fragment was found in a lower fill (617166) of 521069 and a few sherds of Middle Iron Age sandy ware slightly higher up in the sequence. In contrast to waterhole 593190, there were only a few small scraps of cattle and horse bone.

Waterhole 137114

This wide basin shaped feature is possibly better described as a deep pit on the basis of its shape and size (Fig. 4.33). It was 4.6 m in diameter but, at just over 1 m deep, it may have barely impinged on the groundwater level, although the lowest of the fills collected in at least partially waterlogged conditions. The pit lay 20 m to the west of Roundhouse 15. The lower fills contained Middle Iron Age pottery, along with a clay loomweight or oven brick fragment and a few cattle, sheep and horse bones, but the fills appeared to have accumulated slowly through erosion and silting, with no great amount of discarded material thrown in. A subsidence hollow in the top of the pit, however, was clearly used as a rubbish tip, collecting large quantities of fragmented Late Iron Age/early Roman pottery and a sizeable animal bone assemblage that included possible red and roe deer.



Plate 4.14: Waterhole 516066

Waterhole 155116

An oval shaped ramped waterhole (155116) (Fig. 4.33) lay on the eastern edge of the settlement, to the north of the main distribution of roundhouses, in what had been the south-east corner of Farmstead 4. Its location, some distance from the main settlement nucleus, may explain the absence of finds, apart from burnt flint and a few scraps of fuel ash slag. Although undated it would have been conveniently sited for use by the occupants of the Middle Iron Age settlement. The south side of the feature was steep but a shallow slope down to the northern side could have provided access to livestock.

Waterhole 516066

The position of this waterhole, just beside the south-east corner of the large southern enclosure (EC1), suggests that it was constructed for the purpose of watering animals being herded into and out of the enclosure, using the western entrance (Fig. 4.34). This is entirely speculative, but no other Iron Age waterholes were found in this vicinity. The feature was 2 m deep and c 3 m wide, and slightly ramped on the southern side. It was securely dated by ceramics to the Middle Iron Age, but a single shell-tempered sherd, dated to the Late Iron Age, from half way down in the fill may indicate that it was still filling during this time. A small waterlogged fragment of oak with a saw mark was recovered from a basal fill, 516079 (Plate 4.14).

Waterhole/pit 105027

A shallow feature (105027) possibly a waterhole, lay within the eastern field system, some c 200 m from the settlement (Fig. 4.36). It was dug directly across a ditch associated with Bronze Age Farmstead 6. The pit was roughly circular in plan, 3.6 m in diameter and 0.8 m deep. The southern edge formed a shallow slope, suitable for access by livestock, whilst the northern edge was steeper. The feature contained a classic silting sequence, with gravel-rich

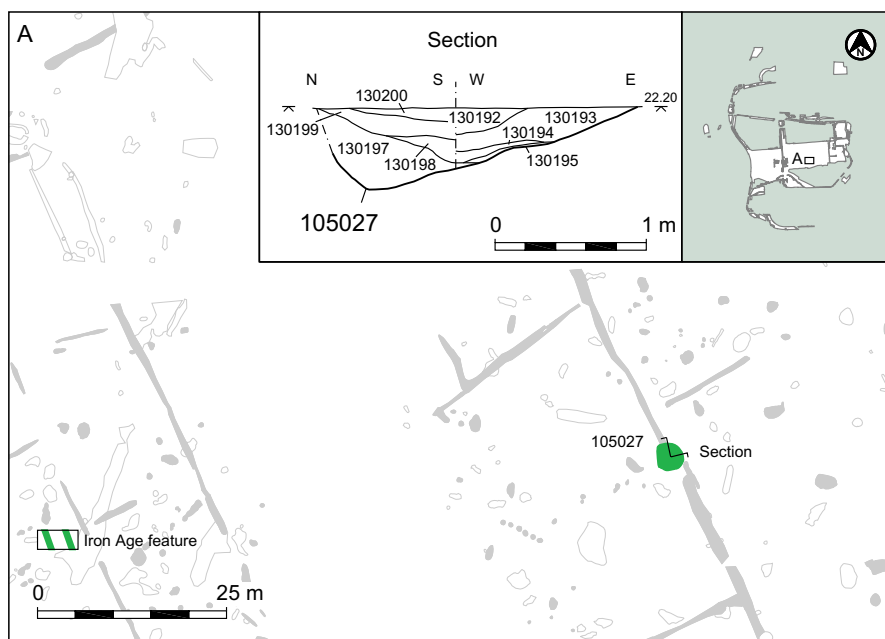


Figure 4.36: Section of waterhole/pit 105027

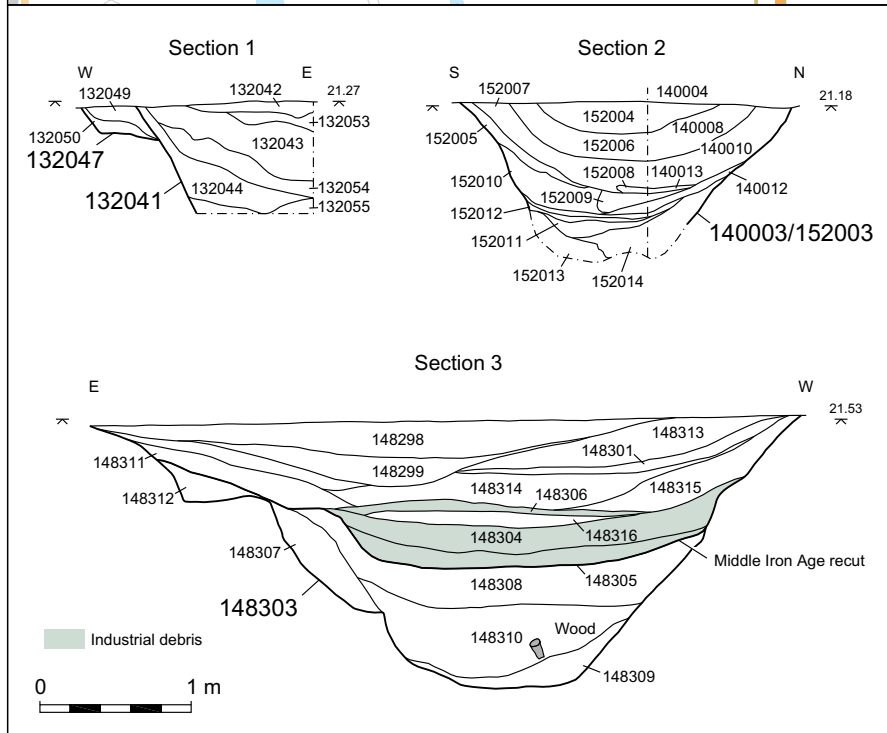
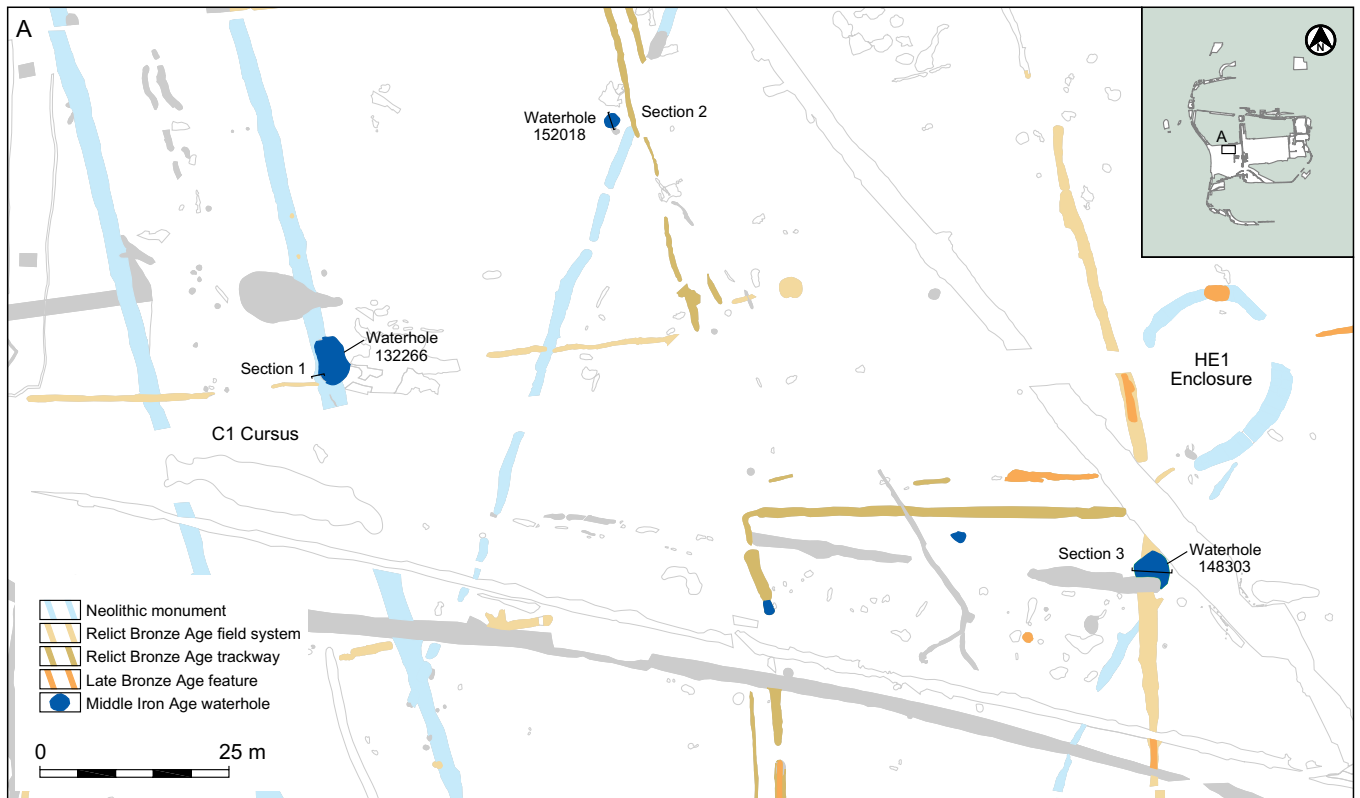


Figure 4.37: Waterholes 132266, 148303 and 152018

feature was recut at some stage. A small collection of Middle Iron Age body sherds was found in the fill of the recut (132256). The use of this waterhole in the Middle Iron Age may have been contemporary with that of waterhole 148303 (below).

Waterhole 148303

Waterhole 148303, located at the edge of a Bronze Age field to the west of the Middle Iron Age settlement, may also have been Bronze Age in origin, recut during the Middle Iron Age (Fig. 4.37). In its final form it was some 1.77 m deep, the earliest fill (148309) representing the rapid collapse of the gravelly sides shortly after it was dug. This deposit contained only a few fragments of animal bone. From fill 148305 upwards a significant quantity of Iron Age pottery, metalworking material and fired clay had accumulated in the waterhole. These deposits were sealed by a sequence of gravel-rich secondary fills and tertiary fills.

The 348 sherds (over 2 kg) of pottery along with over 1 kg of fired clay, 1.3 kg of animal bone, over 1.5 kg of slag and 5 kg of burnt flint are distinctively large

primary fills (130195) sealed by two successive layers which formed in standing water. The upper fill formed gradually over a long period. Half a dozen small sandy ware sherds of probable Middle Iron Age date, were recovered from the lower fill but otherwise only a few residual struck flints and some fired clay fragments were present.

Waterhole 132266

A teardrop-shaped waterhole (132266), 6.3 m long and 1.3 m deep, was cut into the fill of the eastern ditch of Stanwell Cursus C1, probably during the Late Bronze Age (see above; Fig. 4.37). The lower fill (132271) contained only post-Deverel-Rimbury pottery and, although no recuts were recorded, the section drawing suggests that the

Middle Iron Age material assemblages for the site. Most of the slag was recovered from deposits 148305, 148304 and 148306, along with over 850 g of the fired clay and 2.8 kg of the burnt flint. Amongst the fired clay were fragments of two loomweights (or oven bricks), and a partially vitrified fragment of a tuyere of typical Middle Iron Age design. The slag was identified as waste from iron smithing with some possible smelting waste. The tertiary fills of the waterhole also produced large quantities of burnt flint and fired clay, and a single piece of slag, debris perhaps derived from middens associated with this industrial activity. The artefacts in these upper fills may represent material deposited by a re-introduction of ploughing. If this were the case, it highlights a (localised?) shift from pasture to increased cereal cultivation.

Waterhole 152018

This feature was apparently sited with reference to the Bronze Age field system, close up against Trackway 1, which defined the eastern side of Bronze Age Farmstead 3 (Fig. 4.37). It was poorly dated by four Middle Iron Age body sherds in one of the upper fills (140008). A possible pre-Middle Iron Age origin was suggested by the fill profile, which showed evidence of either an episode of recutting or collapse of a shaft, but this was uncertain and only insubstantial fragments of wood were present.

What can the waterholes tell us about the Terminal 5 Middle Iron Age settlement and landscape?

Altogether 11 waterholes either constructed or recut during the Middle Iron Age were excavated and environmental samples taken from most of them. Unfortunately, several waterholes attributed to this date, and which contained the most suitable material for environmental analysis, were subsequently rephased through radiocarbon dating or other means. A pit or waterhole, 178015 (see Fig. 4.16 above) excavated as part of the Perry Oaks project and reported on in Volume 1 (Framework 2006) still, therefore, provides us with the best evidence for what the Middle Iron Age landscape

looked like and how the land was managed. The feature is described above in the discussion of the settlement lay-out and the environmental results.

It is possible to say more about construction techniques and social and economic practices from the artefact and animal bone evidence recovered from the waterholes. The Middle Iron Age inhabitants did not cut new wells either inside or outside the settlement area, although they reused Bronze Age ones. Despite possessing the sophisticated carpentry skills required for building roundhouses and four-post buildings, there is no evidence that they devised retaining structures to support their waterholes or filter the water, as the Bronze Age inhabitants had.

Cattle, sheep/goat and horses were the most common animals represented in the waterhole assemblages, cattle dominating the group. Cattle at least were being butchered and horn cores removed in the vicinity of waterhole 593194/593190, an activity perhaps associated with the use of Roundhouse 8. Pottery seems never to have been placed as an offering or closing deposit in these features during the Middle Iron Age, nor was any other class of artefact, but this practice was in any case not so common in the Middle Thames as the Upper Thames region. Little evidence of industrial or craft activity was reflected in the material assemblages. Slag (as opposed to FAS) was recovered from only one waterhole (148303), testifying to ironworking on a small scale. This waterhole also produced one of the few indicators of Middle Iron Age weaving activity from the site, a single fragment of a possible clay loomweight. Despite the evidence for removal of horn cores no examples of worked horn artefacts were recovered from the site.

Waterholes were used as receptacles for domestic and agricultural detritus, particularly pottery and animal bone, although in many cases this material seems to have entered the waterholes as a result of fortuitous rather than deliberate events. Much of this 'rubbish' derived from earlier Late Bronze Age/early Iron Age activity

and became mixed with Middle Iron Age detritus before deposition.

Living in the Middle Iron Age at Heathrow: the social basis

Few Middle Iron Age artefacts that could reflect even a simple subsistence lifestyle and routine, such as iron tools, whetstones, knives and weaving equipment, were recovered at Terminal 5 so we must rely on structural and environmental evidence to fill in the picture. The lack of items of personal or household embellishment, such as jewellery and fineware pottery, much less more exotic items, suggested that communication of any sort beyond the immediate locality was very limited. Although we must bear in mind that the soil conditions of the Terminal 5 site are not particularly favourable (except in waterlogged deposits) for the preservation of materials such as bone and metal, the lack of Middle Iron Age metalwork on a site where Bronze Age, Roman and Saxon metalwork has survived, can be assumed to represent a true absence.

Most domestic and craft or light industrial work would have taken place in the roundhouses or out in the open air close by, and would not necessarily have required the construction of specialised workshops, although some of the penannular enclosures may have accommodated certain activities. Nor need they have left any archaeological trace, especially in the areas of highest truncation. Although most of the Terminal 5 circular structures were probably houses, they would also have been used for sewing, weaving, leatherworking and mending. Some of the linked or proximate penannular gullies, however, may have represented a house with an ancillary workshop, storage building or outdoor activity area, as well as the obvious function as livestock pounds. But, in most cases it was not possible to prove what specific function the buildings and enclosures served.

Evidence for metalworking on a small scale came from the iron slag in waterhole 148303, to the west of the settlement. This type of activity may

have been deliberately sited beyond the limits of the domestic space as it produces noise, smoke and strong smells, although possible smithing hearths were located within Roundhouses 17 and 19, their by-products swept into pits 183030 and 539450. Weaving was attested to by a single spindle whorl and some fragments of clay loomweights, although the latter are sometimes interpreted as oven bricks (Poole 1991). There was no evidence at all for bone working, apart from the removal of horncores described above, or potting, although these cannot be ruled out.

The diet of the Middle Iron Age inhabitants would have been based on a restricted variety of cereals, mainly emmer/spelt, which seem to have been in limited supply during this period. The surviving hedgerows would have provided berries and fruits, but evidence for their consumption has not survived well in the environmental record. Meat from cattle and sheep and dairy products would have formed a key element of the Middle Iron Age diet. The animal bone data was insufficient to provide much information about the seasonality of slaughter, but there is evidence of butchery of cattle. The problem of winter food for a community largely dependent on animal products is an obvious one. Meat must be eaten within days if it is not preserved, as must milk, soft cheeses and yoghurt. Salt provides the capability to produce long-lasting hard cheese and cured meat but no briquetage at all was recovered from the site. In fact very few finds of briquetage have been recorded in the Middle Thames Valley altogether, but salt could have been brought from the south coast over the Chalk and Weald, or up the Thames estuary from the Essex and Kent coasts. Supplies of salt, transported in rucksacks and baskets, would leave no trace in the archaeological record (Kinory pers. comm.).

Bracken, which increasingly colonised the pastures during the Middle Iron Age (Wiltshire in Framework Archaeology 2006), may have been used for bedding and insulation in houses. We have discussed the levels

of woodland and/or hedges required to provide sufficient timber to construct houses, stake- or wattle-built palisades and fences. There would also have been a constant demand for firewood. Challinor (in Framework Archaeology 2006) found that by the Iron Age at Heathrow the use of oak for firewood had increased from 50% of fragments in the Bronze Age to 70%, while field maple increased from 1% to 6% and pine appeared at 2%. This suggested an increasing reliance on woodland rather than hedges or scrub, but must take into account the probability that some of the wood preserved in charred form was off-cuts from structural timbers.

Pits: rubbish, recycling and propitiation

A number of pit-like features were found within the Middle Iron Age settlement and in the surrounding fields. These were unlikely to have been constructed as waterholes as they would have been too shallow, too narrow or too undercut to have served this role. However, some of them may have been used incidentally to accumulate water at times when the water levels were particularly high. What is certain is that pits dug into even the higher parts of the Heathrow terrace, prone as it would have been to at least minor or seasonal flooding, would not have been suitable for dry storage for cereals or other perishable materials.

Pits were generally a less common feature of Middle Thames Valley and Surrey settlements than in the Upper Thames. Most pits in this region were either small or very large and broad like waterholes, unsuitable for grain storage. Generally high water tables would have been one factor in preventing pit storage. This provides further evidence that arable cultivation and grain storage formed a smaller component of mixed farming regimes during the Middle Iron Age in the Middle Thames than in some other parts of Britain. However, the shallower smaller pits seen on sites in the Middle Thames could have been used for short term damp, cool storage of meat, cheese and other foodstuffs. Some

deposits of articulated meat-bearing animal joints might reflect such storage rather than being votive deposits. Fenton (1983) suggests that shallow pits could have been used to store hay or fodder for short periods, the damp environment appropriate for these materials. They could also have been used for storing clay, which is best left to 'mature' before it is used for daubing or potting.

Underground storage in this sense could have represented a form of safe-keeping in suitable conditions of valuable commodities, in the same sense that burying of more obvious hoards of metalwork may be. This would have been a different activity from votive deposition but not necessarily less symbolic in that the intent was to recover the material.

Archaeologists employing a typological approach to social archaeology have traditionally been tempted to interpret the function of features based on their contents. Some of the Middle Iron Age pits at Terminal 5 contained material that could be interpreted as 'rubbish'—animal bone fragments, broken pots and sherds of abraded pottery, bunt flint and hearth contents, fuel ash slag or organic matter—and some may indeed have been designed for the disposal of material that was foul-smelling, surplus to requirement or with no apparent recycling value.

There need have been no clear distinction at the time between what is actually useful and what is utterly discarded as 'rubbish.' There are several stages between use, reuse, recycling, modification and final abandonment, whether in a corner of a cupboard, in a rubbish pit or on a bonfire. And, even when it is finally disposed of, waste material is not static, as seen in the redeposition of early 1st millennium BC pottery and slag found in Middle Iron Age features. Needham has discussed this issue in relation to the formation of the Bronze Age midden at Runnymede (Needham and Spence 1996) and it is no less apt for Middle Iron Age societies.

However, identifying material remains as rubbish in the context of a prehistoric or even contemporary subsistence economy is problematic, and it could be argued that the concept of 'rubbish' did not exist as such in Middle Iron Age Britain. Some Iron Age communities were clearly inclined to store the detritus and by-products of their daily life above-ground, sometimes as conspicuous middens, which represented—depending on their size—lesser or greater wealth or status. Midden contents subsequently used to backfill inconvenient holes in the ground, including decommissioned storage pits (McOmish 1996; Needham and Spence 1996; Brown 2000, 83–4), can easily be misconstrued as the product of primary rather than secondary or tertiary deposition—ie as 'rubbish' deliberately discarded within a purpose-made or conveniently placed deposit.

A clear understanding of the processes of erosion, silting and structural collapse within the context of small scale features such as pits, along with meticulous recording of their fill sequences, can help us understand how and why they came to be filled but not necessarily why they were dug in the first place. This is especially true of some of the ambiguous or amorphous Iron Age features discovered at Terminal 5 which had none of the distinguishing structural features of the more obvious Bronze Age and Iron Age waterholes and wells, such as deliberately constructed ramps, timber or wattle revetments and log ladders.

Disposal or deliberate deposition of the apparently mundane detritus of everyday domestic and agricultural activity in pits and other features may appear to have no significant motivation beyond the obvious removal of rubbish from living and working areas. However, such acts can be interpreted as having a wider significance in the lives of Iron Age people, for whom every aspect of their daily routines may have been imbued with a sense of ritual and profound purpose (Hill 1995). However contentious this perspective, it remains a possibility that the apparently prosaic contents of

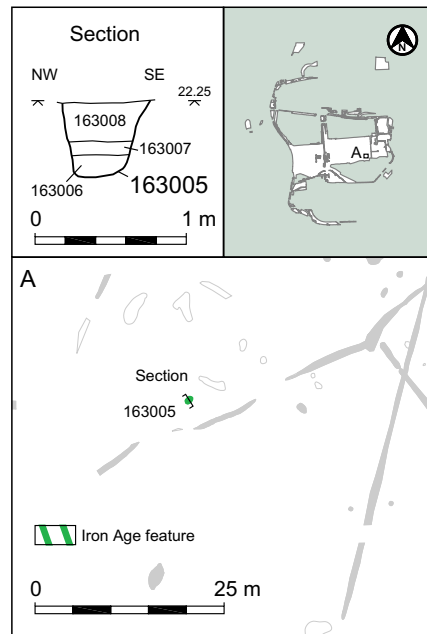


Figure 4.38: Pit 163005

the Middle Iron Age pits at Heathrow reflected some element of a belief system. In the absence of more obvious Middle Iron Age special deposits from the site, such as complete pottery vessels, metalwork or other notable artefacts, organic and inorganic, the fragments of pottery and animal bone, hearth scrapings and daub, require such consideration, not least because deposition of artefacts in pits, ditches and even postholes was a typical practice in so many parts of Middle Iron Age Britain.

A number of the Middle Iron Age pits excavated at Terminal 5 are described below.

Pit 529306 was dug into the backfill of the east ditch of the C1 Cursus, some 250 m to the west of the settlement and a radiocarbon date of 386–203 BC (WK 19335) was obtained on charred grain from its contents. This pit has been described in some detail above (Fig. 4.14). A similar feature, a small, steep-sided oval pit (163005), measuring 1 m by 0.7 m across and 0.8 m deep, was one of a very small number of features dug in the eastern fields, in a position quite remote from the settlement (300 m) and apparently isolated from other Middle Iron Age activity (Fig. 4.38). The primary fill contained only a single Early Iron Age sherd, but this was sealed by a charcoal rich

dump including animal bone, burnt flint and a sufficiently sizeable collection of Middle Iron Age pottery (19 sherds) to provide a date for its main filling event. It may have been dug simply to dispose of the remains of food preparation or some other short-term activity that took place in the middle of a field, but a more complex scenario cannot be ruled out.

Pit 156215 (Fig. 4.39) was insecurely dated but it was cut through the fill of Middle Bronze Age waterhole 103040 close to Middle Iron Age waterhole 615138. It was a small feature, measuring 0.9 m in diameter and *c* 0.3 m deep, and contained a Middle Iron Age sherd, fired clay and a few pieces of burnt flint from a secondary fill (156216). There is no clear indication of function.

A group of equally insecurely dated pit-like features were concentrated at the south-west corner of the southern enclosure (EC1), close to waterhole 516066, just outside the main Middle Iron Age settlement area (Fig. 4.39). Although they did not form a coherent group morphologically they may have been associated in some way with the enclosure or the waterhole or both.

Pit 543051, located *c* 7 m from the south-west corner of the EC1 enclosure, was a shallow hollow, over 3 m wide and about 1 m deep (Fig. 4.39). It may have served as a waterhole, at least at some stage, as some of the fills had accumulated in a watery environment. Finds amounted only to a few burnt flints and fragments of fired clay, along with a small group of Middle Iron Age sherds from fill 543056, about halfway up the sequence. Pit 525043 lay 22 m further south, close to waterhole 516066 on the west side of the EC1 enclosure. At 1.5 m across and just over 1 m deep, it was a different shape and probably served a different function. The lower fill contained Neolithic or Early Bronze Age worked flints and debitage and was sealed by a deliberate dump of gravelly soil which contained no artefacts, so it is entirely possible this was a Bronze Age or earlier feature, perhaps levelled within this period or somewhat later.

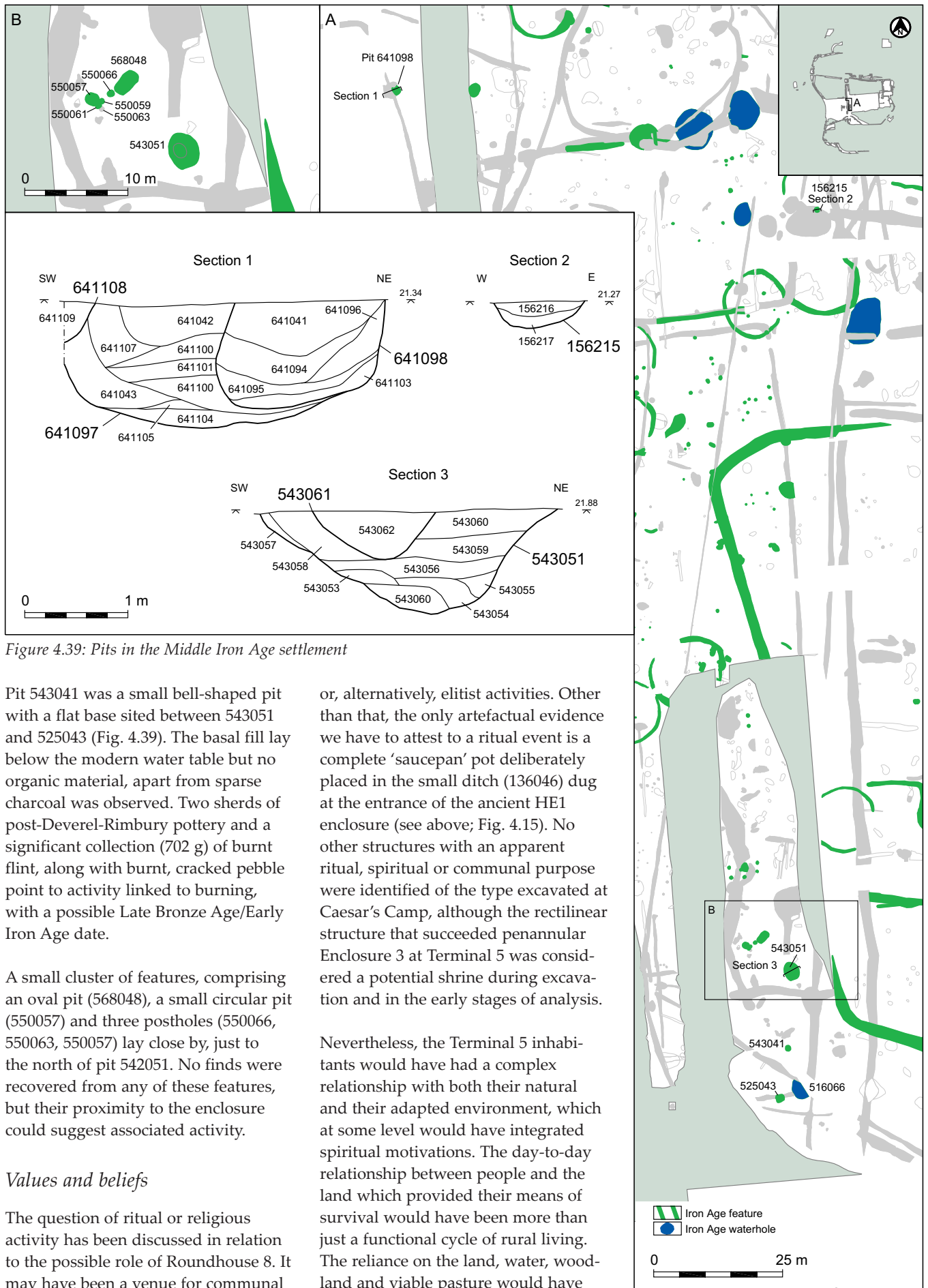


Figure 4.39: Pits in the Middle Iron Age settlement

Pit 543041 was a small bell-shaped pit with a flat base sited between 543051 and 525043 (Fig. 4.39). The basal fill lay below the modern water table but no organic material, apart from sparse charcoal was observed. Two sherds of post-Deverel-Rimbury pottery and a significant collection (702 g) of burnt flint, along with burnt, cracked pebble point to activity linked to burning, with a possible Late Bronze Age/Early Iron Age date.

A small cluster of features, comprising an oval pit (568048), a small circular pit (550057) and three postholes (550066, 550063, 550057) lay close by, just to the north of pit 542051. No finds were recovered from any of these features, but their proximity to the enclosure could suggest associated activity.

Values and beliefs

The question of ritual or religious activity has been discussed in relation to the possible role of Roundhouse 8. It may have been a venue for communal

or, alternatively, elitist activities. Other than that, the only artefactual evidence we have to attest to a ritual event is a complete 'saucepan' pot deliberately placed in the small ditch (136046) dug at the entrance of the ancient HE1 enclosure (see above; Fig. 4.15). No other structures with an apparent ritual, spiritual or communal purpose were identified of the type excavated at Caesar's Camp, although the rectilinear structure that succeeded penannular Enclosure 3 at Terminal 5 was considered a potential shrine during excavation and in the early stages of analysis.

Nevertheless, the Terminal 5 inhabitants would have had a complex relationship with both their natural and their adapted environment, which at some level would have integrated spiritual motivations. The day-to-day relationship between people and the land which provided their means of survival would have been more than just a functional cycle of rural living. The reliance on the land, water, woodland and viable pasture would have

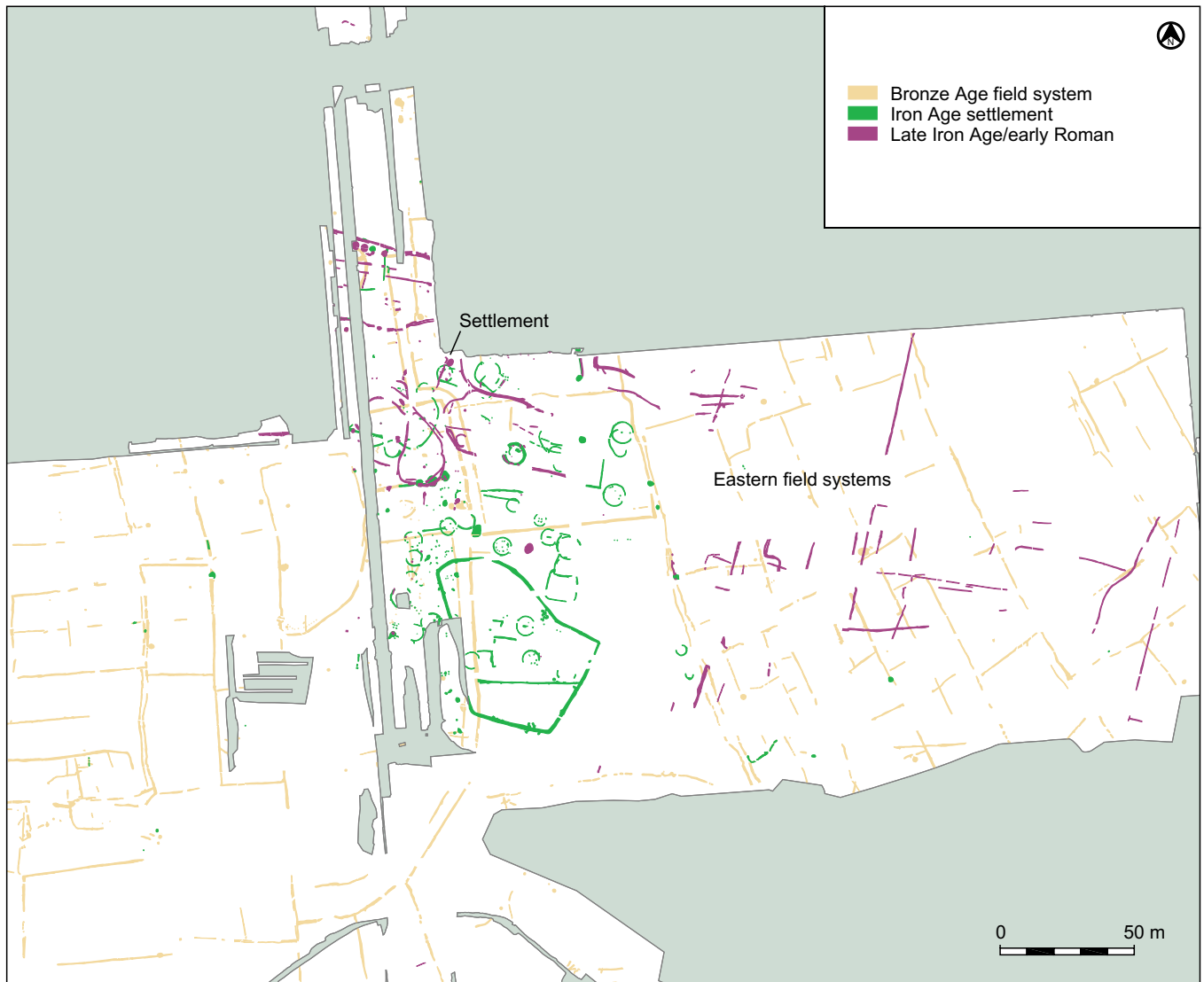


Figure 4.40: Late Iron Age/early Roman landscape

meant that the basic elements of earth, water, animals and fire would have been highly valuable assets, the safe-keeping of which would have been paramount. Just how this notion was translated into process during the Middle Iron Age at Terminal 5 is all but invisible to us. For the pre-Iron Age periods we saw that the placing of closing deposits in waterholes and wells may have served such a role, and the placing of the pot in ditch 136046 made have been a faint reflection of this behaviour. The resources themselves may have been seen as spiritual repositories and their routine use and maintenance as acts of affirmation and veneration, a taking from the land with a concomitant renewal and restoration. The deposition of objects within watery environments is seen to have resumed during the Late Iron Age.

Transforming the landscape— Late Iron Age / early Roman re-organisation

By the Late Iron Age (1st century BC) the intricate pattern of the Bronze Age co-axial fields had characterised the Terminal 5 landscape for almost two thousand years. The dispersed pattern of Bronze Age settlement may have been replaced by a single larger settlement during the Middle Iron Age, but the basic organisation of field systems remained a visible landscape feature, albeit probably denuded of hedgerows and largely reduced to grassy lumps and hollows.

The later Iron Age was a time of widespread settlement and landscape reorganisation across the Thames Valley and further afield, no doubt

associated to some degree with the wider socio-political upheavals of the south-east (eg see Creighton 2000; Booth *et al.* 2007, 365). The incorporation of Britain into the Roman Empire in AD 43 must also have provided a tremendous stimulus upon all aspects of society and economy, though interestingly many settlements in and around the Thames Valley show little signs of significant change until at least the end of the 1st century AD (Booth *et al.* 2007, 36).

The Late Iron Age saw the onset of many changes at the Terminal 5 settlement, albeit probably occurring on a piecemeal basis over many years (Fig. 4.40). These developments continued into the early Roman period, though the effects of the Roman conquest, and in particular the emergence

of the nearby towns at Staines and especially London are difficult to determine (see below). The focus of the community remained in the area of Middle Iron Age occupation, but the extent, nature and form of the settlement altered significantly from the Late Iron Age onwards. The eastern and southern fields also began to be reorganised at this time, though the exact chronology of this is less certain (see below). They constructed in place of the ancient and now somewhat ephemeral Bronze Age fields new boundaries on a NNE-SSW alignment (Fig. 4.40), and a number of distinct zones have been identified.

Although the evidence for alteration in the shape and orientation of the fields was restricted to a few shallow ditches, it still marked an important shift in the landscape organisation, which was further developed right through into the 3rd and 4th centuries AD. This was no wholesale cut with the past, however, as there was no evidence for any change to the Bronze Age fields located on the lower floodplain to the west, where most elements of the system were probably left unchanged into the late Roman period. Nevertheless, this is not to say that these field boundaries were all actively used and maintained at this time, as environmental indicators (see below) suggest wetter, open conditions, with the lower lying areas nearer the river probably left as pastureland, much the same as in the Middle Iron Age.

Environmental conditions

The environmental evidence from the Late Iron Age and early Roman period is quite different to that of the Middle Iron Age, but the charred and waterlogged plant samples were remarkably similar to each other in terms of the range of taxa they contained. The data came from samples within nine features located in the general area of the main settlement (Fig. 4.41). The features had a wide range of functions, including pits, waterholes and ditches and span the Middle-Late Iron Age and the Late Iron Age/early Roman periods, so reflecting a relatively lengthy chronological span.

The results indicated that the landscape and economy were comprehensively transformed during this time from the last period for which there was good environmental evidence—the Late Bronze Age. In addition, because of the range of features sampled, they are unlikely to be minor, localised variations.

*As with the MIA samples, woodland taxa were scarce... Seeds from woody taxa only came from elderberry (*Sambucus nigra*) and blackberry/raspberry (*Rubus* sect. *Glandulosus* and *R. cf. idaeus*), two ruderal invasive species typical of wastegrounds. In previous periods these particular taxa had often been so abundant that the numbers had to be estimated. It is obvious that the landscape was very much more open from the Middle Iron Age onwards, due to the clearance of remaining areas of woodland and scrub, and possibly also some grubbing out of hedgerows. Since no alder remains were present in the features, alder carr that had survived up to the LBA along the palaeochannel must also have been cleared by the LIA.*

*Widespread woodland clearances, particularly the clearance of alder carr on the floodplain, would have affected the soil hydrology, causing the leaching of nutrients from these already poor soils and leading to the establishment of heaths and bogs. Flooding episodes are likely to have become more frequent and severe. Charred and waterlogged *Ericaceous* plant remains were recovered from eight of the ten LIA/ERB features... it appears that heather was being gathered to be used as fuel, and perhaps for fodder and building materials... Since the samples that contained the most charred *ericaceous* remains also produced the largest quantities of charred cereal processing waste, it would appear that, either heathland vegetation was being used for fuel in the parching of cereals during processing, or that arable crops were growing close enough to heathland for *ericaceous* remains to become mixed with the crop. An alternative explanation could be that part processed spikelets were being stored in a structure that was thatched using heather...*

Climatic changes may also have played a part in some of the changes seen in the vegetation, since increased wetness on some LIA sites in southern England such as Mingies

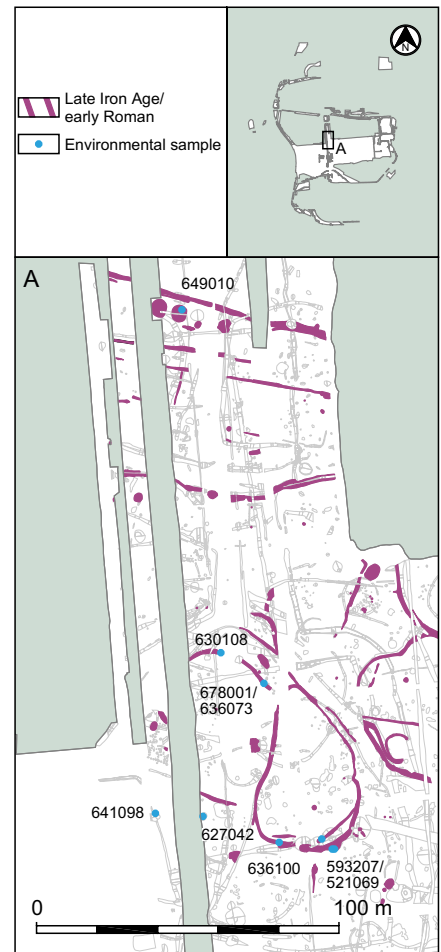


Figure 4.41: Environmental samples from late Iron Age/early Roman features

Ditch (Robinson 1993) lead to periods of abandonment... This change to wetter conditions appears to have occurred between the LIA and MRB periods at Heathrow.

(Carruthers, CD Section 14)

The only pollen evidence for this period also came from the settlement area, from two waterholes (593207 and 649010) located less than 200 m from each other, the former dating from the Mid to Late Iron Age (Fig. 4.42) The samples from these features were quite consistent, and

...provided evidence of grasslands, pastures and meadows predominating during this period. There appears to have been a little cereal production, and the hedgerows, which seem to have been so characteristic of the Bronze Age had more or less disappeared. The landscape was very open with very little evidence of trees and shrubs.

(Peglar et al., CD Section 16)

Insect evidence from waterhole 593207 provided a similar picture.

[The waterhole] lies in the very heart of later Iron Age activity...The land around this feature is clearly being used for the grazing of large herbivores... Aquatic insects are limited to those of muddy, ephemeral pools and water bodies, no aquatic taxa associated with deeper, more permanent pools were recovered...The insect assemblage associated with domestic waste and human activity is absent which suggests material was not being dumped in the waterhole... The volume of dung beetles in this assemblage and certainly those associated with accumulated rotting organic matter and dung would infer that animals also used this waterhole...after the feature fell into disuse.

(Tetlow, CD Section 17)

The overall environmental evidence from this period then indicates a very open landscape with large tracts of damp ground used for grazing along with increasing cereal cultivation nearby. This probably reflects the settlement's position on the edge of the Taplow terrace, with lower lying wetter ground lying to the west towards the river and slightly drier higher ground continuing to the east in the area of the re-aligned field system. As with the Middle Iron Age, the settlement was probably well positioned to exploit the agricultural potential of these two zones.

Extent and nature of the Late Iron Age –early Roman settlement

It was apparent that intensive occupation continued during the Late Iron Age and early Roman period on the site previously occupied by the Middle Iron Age settlement, despite the paucity of evidence for structures. The difficulty in identifying structures of this date is well recognised and may be due to a change in architectural design, with the possible use of mass-walling construction techniques (Lambrick 2009). At a nearby settlement at Cippenham in Slough, two ephemeral structures of early Roman date were recognised, with slightly

sunken-floors, the better defined being a rectangular building measuring 15 x 8 m (Ford *et al.* 2003, 53). The levels of truncation at Terminal 5 would probably ensure that any structures of a similar nature would be unlikely to survive in the archaeological record here. The only possible evidence we have for a domestic structure from this phase is shallow penannular gully 126155 within Enclosure 3 (Fig. 4.43), c 7.5 x 8 m across and open to the east (see Framework Archaeology 2006, 203). Middle and Late Iron Age pottery was recovered from its fill, along with quantities of fired clay and a small amount of animal bone. A roundhouse gully remains the most likely explanation, and although generally unusual for this date, other contemporary examples certainly exist, such as Ashton Keynes and Cotswold Community in the Upper Thames Valley (Powell *et al.* 2008; Powell *et al.* forthcoming). Much closer to Terminal 5, at least three roundhouses of possible Middle to Late Iron Age date were revealed during excavations at Imperial College Sports Ground (Crockett 2002, 341), while four further roundhouses of this date were excavated at Ashford Prison near Staines (Carew *et al.* 2006). Furthermore, two small roundhouses (4.46–5.2 m diameter) were excavated at Horton on the Colne floodplain to the west and dated to the early Roman period (WA 2009). Perhaps the largest number of circular gullies comes from Hengrove Farm, just 1.5 km east of Staines, where seventeen complete and partial ring gullies were revealed, associated mainly with Late Iron Age pottery (Hayman forthcoming d). It is thought that at least some of these defined roundhouses, while others may have been smaller storage structures (*ibid.*). The persistence of traditional architectural style at these sites, even to a small extent, may hint at the inherent conservatism in the local agricultural communities.

Although for the most part we have not recognised their domestic structures, we can see that the inhabitants of the Late Iron Age/early Roman landscape made major changes to the northern sector of the old settlement.

Here the small enclosures and penannular gullies of the Middle Iron Age settlement were subsumed within a complex of larger enclosures concentrated in an area approximately 200 m square (Fig. 4.43). Although there are clearly major parts of the settlement that were not revealed by the current excavations (notably to the north-east and north-west), the approximate overall limits have probably been demonstrated. To the north was a succession of east-west boundaries, with the most northerly defined by ditch 636041, while to the west it was probably the break of slope down to the floodplain that marked the settlement's limits, as observed on another Late Iron Age-early Roman settlement at Mayfield Farm, c 2 km to the south-east (Jefferson 2003, 17). To the south and east the limits are more obscure, with no obvious boundaries, and it was in these directions that the settlement appeared to expand over time. Further north and east were elements of substantial enclosures that may have represented other settlement foci (E13 and E14), lying largely beyond the excavated area (see Figs 4.51 and 4.58 below), though too little was revealed to be sure of this, and E14 at least probably belongs to a later Roman phase of activity.

In describing the enclosure complexes that transformed the former Middle Iron Age settlement it is important to bear in mind that continual reshaping of boundaries in an area with an already extensive history of Neolithic tree clearance and agricultural and domestic activity from the Middle Bronze Age presents us with difficulties in determining the precise developmental history and chronological sequence. The potential was high for admixture of materials, including pottery, in the fills of the enclosure ditches, due to contemporary and later Roman activity here, and modern truncation confused the picture further. Nevertheless, an approximate sequence can be discerned which helps to provide an overall picture of the development of the settlement, which continued into the middle and later Roman period (see below).

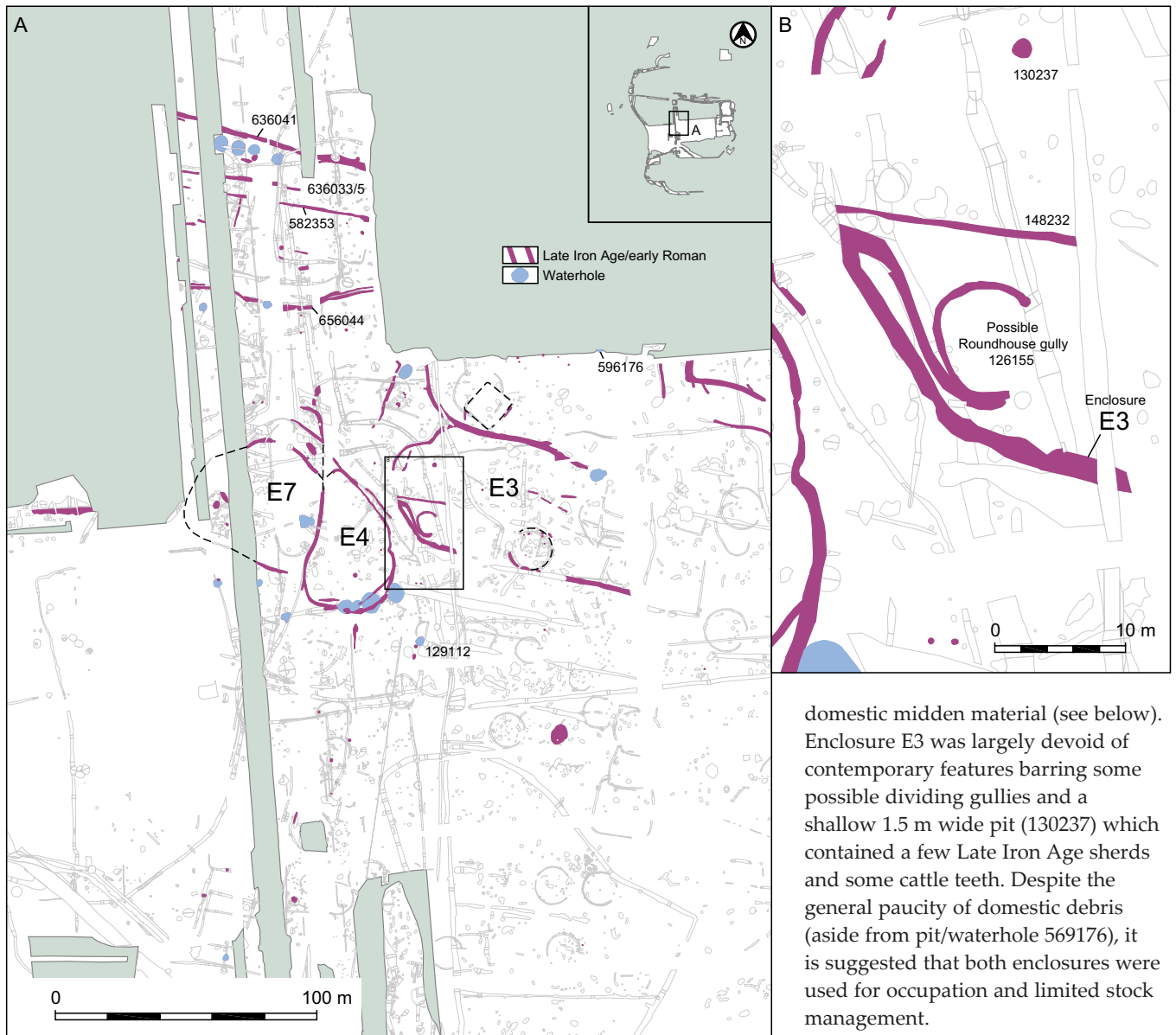


Figure 4.43: Late Iron Age/early Roman settlement

Late Iron Age-early Roman enclosures

The earliest elements of the transformation within the settlement can be dated fairly confidently to the Late Iron Age, continuing through into the early Roman period (Fig. 4.43). They comprise a number of irregular enclosures (E3, E4, E7), defined to the north by a succession of ditched boundaries (656044, 582353, 636033/5, 636041).

The largest enclosure, E3, was at least 95 m long and 50 m wide and incorporated the potentially contemporary roundhouse described above, which was bounded to the north by narrow

ditch 148232, traced for c 18 m. Former Roundhouse 8 within Enclosure 3 was recut again at this stage, possibly as a stockade, as the superstructure was probably by now no longer standing, although a continued 'ritual' association cannot be ruled out (see above and Framework Archaeology 2006, 203). The northern ditch of this enclosure respected the position of Middle Iron Age Enclosure 3 and may, in fact, have formed the southern line of a similar enclosure that lay largely outside of the excavated area. A deep (1.18 m) vertical sided pit (569176) that may have functioned as a waterhole was located in the far north-east of this enclosure, just within the excavation area, and contained large dumps of

domestic midden material (see below). Enclosure E3 was largely devoid of contemporary features barring some possible dividing gullies and a shallow 1.5 m wide pit (130237) which contained a few Late Iron Age sherds and some cattle teeth. Despite the general paucity of domestic debris (aside from pit/waterhole 569176), it is suggested that both enclosures were used for occupation and limited stock management.

Just 7.5 m to the south-west of Enclosure 3 was a smaller teardrop-shaped ditched enclosure (E4) that is likely to have been approximately contemporary (Fig. 4.44). In its earliest phase E4 was 55 m long and 35 m across at its widest point. The southern, wide end of this stockade was defined by the position of three back-filled waterholes (see below), a location which had served as a significant water source from at least the Middle Iron Age and possibly earlier (see above). Recutting of the southern end of the enclosure at this point produced a complex stratigraphic sequence.

The first phase southern ditch (593234) cut through three large waterholes (521069, 593207/593190, 312048), all of which are likely to have originated in



Figure 4.44: Enclosures E4 and E7

the Middle Iron Age (see below). The second phase ditch (593231) cut these same waterholes, terminating in the top of 312048. The expanded terminal (312047) may have acted as a sump or small waterhole, representing the eastern side of a 2.5 m entrance, with the terminal of ditch 636100 forming the other side. Charred plant remains (cereal chaff and grain) from ditch 636100 (sample 27039) represented burnt domestic waste that had become redeposited amongst other types of waste including animal bone and over 3 kg of pottery. The pottery was primarily Late Iron Age and un-diagnostic Roman in date, but included 19 sherds

of 2nd century AD mortaria, probably dumped in the ditch when the enclosure system was modified.

The interior of E4 was void of contemporary features apart from a scatter of shallow hollows, probably created by livestock. A small pit (615130) in the southern part of the enclosure which contained 1st century AD pottery may have been contemporary with the latest phase of the enclosure, when the south-eastern stretch of the ditch was recut 2–3 m inside the original boundary as 617182. This recut ditch also terminated in a large oval waterhole or sump (593129/593173), c 1.5 m

deep, maintaining a similar but wider entrance arrangement as in the first phase.

As with Enclosure E3, it appears that the western ditch of E4 was utilised to form a double enclosure arrangement, adjoining with E7 (Fig. 4.44). This was approximately 44 m by 47 m across, though the western side had been largely truncated, and had a c 6.5 m entrance to the north. A mid to late Roman waterhole (644006) truncated the eastern terminal of the entrance, while just inside the western terminal was a small (0.54 m across) pit (630108) which may have originally been part of

an entrance structure. Late Iron Age/early Roman pottery and charred plant remains were recovered from the fill.

The small flot from this single pit fill produced a few cereal remains (barley, oat and emmer/spelt chaff), ericaceous fruits, disturbed ground weed seeds and relatively frequent spike-rush nutlets. Apart from the frequency of this latter taxon, the other remains were similar to (though more sparse than) most of the other charred assemblages from this period. From the evidence of the spike-rush nutlets, the burnt waste deposited in the pit had probably contained marsh hay used for bedding, thatch or fodder.

(Carruthers, CD Section 14)

Another small (0.69 m dia, 0.27 m deep) Late Iron Age pit (678001) lay immediately north of Enclosure E7, possibly within an annexe formed by curving ditch 636156, which dated to this phase on stratigraphic and ceramic grounds. The pit contained further quantities of charred grain that probably derived from domestic waste.

The charred assemblage primarily contained well preserved emmer/spelt wheat grains with a few possible bread-type wheat grains... Oats were relatively frequent (c. 8% of identifiable grain), although it was not possible to determine whether these were a cultivated crop or weed contaminants. This was the only grain-rich assemblage recovered from the LIA/ERB samples.... Most of the other charred assemblages (in particular the waterhole samples) consisted of cereal processing waste, but this pit sample had the character of burnt domestic waste, i.e. accidental charring of processed grain during the preparation of food.

(Carruthers, CD Section 14)

Very few features within the enclosure were demonstrably contemporary, but these did include a substantial waterhole (658134), which seems to have been kept relatively clear, having minimal finds from its lower fills. Significant quantities of refuse came from upper fills, probably not long before it was cut by mid/late Roman

waterhole 678025 (see below). A short (4.5 m) shallow length of ditch (659085) dating to this period hints at subdivisions within the enclosure, but it was badly truncated. The only other internal feature likely to belong to this phase was small pit/posthole 677010, located 17 m directly south of the northern entrance. A single sherd of Late Iron Age pottery and fragments of fired clay provide no clues as to its function, though if it was a posthole, then perhaps it was a tethering post in the middle of the enclosure.

The enclosure may have encompassed a variety of functions, including limited domestic activity and stock control. Charred plant remains from a northern section of the enclosure ditch (636073) also suggest crop processing in the vicinity.

*The silty, charred flot produced an assemblage characteristic of redeposited cereal processing waste, i.e. rich in poorly preserved emmer/spelt (with only the spelt identification confirmed) glume bases and spikelet forks with occasional wheat grains and weeds of cultivated soils.... As with all of the LIA and later samples a few charred ericaceous fruits were present in the sample, perhaps indicating the type of vegetation bordering the fields, or maybe fuel used to parch the crop during processing. The presence of sheep's sorrel seeds (*Rumex acetosella*) and seeds from damp ground plants such as blinks (*Montia fontana* ssp. *chondrosperma*) and spike-rush (*Eleocharis* subg. *Palustres*) in almost all of the features demonstrates that poor, acidic and damp soils were widespread during this period. Good cereal yields are unlikely to have been obtained from such poor land. An alternative explanation is that these remains might not have been directly associated with the crop, but may have become mixed with the chaff because heather and marsh hay was being used for tinder and/or fuel to parch the cereals... Widespread use of this type of fuel suggests that wood was probably scarce locally by the LIA/ERB.*

(Carruthers, CD Section 14)

Water for the Late Iron Age-early Roman settlement

Significant numbers of waterholes within and around the area of settlement were undoubtedly used both for domestic use and in the management of livestock. Certain areas of the settlement were clearly favoured locations for access to water, as there were a number of concentrations or successive recuttings of waterholes, often extending their use for some considerable time. As discussed above, a line of waterholes lay along the southern boundary of Enclosure 4, most clearly in use before the cutting of the enclosure ditches. The largest waterhole, 521069 (c 7.5 x 6 m across, 1.55 m deep) was dug in the Middle Iron Age (see Fig. 4.35 above), but was recut twice on a much smaller scale in both the Middle Iron Age (521098) and the Late Iron Age/early Roman period (521096). The latest cut (521096) lay just outside Enclosure 4 and was probably open for some time, as it contained a mixed assemblage including late Roman ceramics and a coin of Gratian (AD 367–75).

Just 5 m to the south-west was another larger Middle Iron Age waterhole (593190), which was recut in the later Iron Age by 593207, a waterhole that sloped down gradually from the south before dropping almost vertically to a depth of 1.15 m (Fig. 4.46). Two complete Late Iron Age bead rim jars were deposited in the lower fill of the waterhole (Fig. 4.46, 1–2). The environmental material from this feature (discussed above), indicated that the land around it was used for grazing, with little evidence for immediate human activity, and also suggested that the waterhole was actually drying up. In fact, Tetlow has even argued that this may be connected with the pottery deposits.

A proposed hypothesis is that the intact (jars) placed within the feature are due to the water source drying up and the lack of aquatic taxa would certainly support this hypothesis. It is also suggested that the waterhole may have either been used specifically for ritual purposes or possible human water consumption.

(Tetlow, CD Section 17)

In addition to the deposition of two jars, a ritual aspect is also suggested by the large number of cotton thistle seeds (*Onopordum acanthium*; 116 achenes) found in samples within waterhole 593207.

This tall, fiercely spiny and densely-haired biennial thistle (also known as Scottish thistle and adopted as the emblem of Scotland) is thought to have been introduced from Europe but is possibly native in East Anglia (Stace 1997). The complete covering of woolly hairs gives it

a silver appearance which would have been very usual to Iron Age people, since this type of adaptation to hot, dry European summers is not often found in the British native flora. It is understandable how the silvery appearance may have given it some association with water in the minds of Iron Age people. In addition, it has great economic value since different parts of the plant can be used in a variety of ways; the stems can be boiled, peeled and eaten, the large seeds provide oil that can be used for cooking and lighting (roughly 1.5 litres of oil from 10 plants); downy fibres from the plant have been used to stuff pillows and mattresses in the past; Pliny (AD 23-79), Dioscorides (c.40-c.90 BC) and Theophrastus (372 BCE – 286 BCE) mention cures ranging from baldness and a crick in the neck to curing ulcers and cancer. Some of these qualities and its impressive two metre plus height may well have given cotton thistle a special status.

(Carruthers, CD Section 14)

It is probable that waterhole 593207 was not in use for any great period of time before it was backfilled and cut by the ditches of Enclosure E4. The final large waterhole in this alignment, also cut by E4, was 312048, though no pottery was recovered to provide any secure dating.

Aside from the latest recut of waterhole 521069 (521096), none of the water sources described above were contemporary with use of Enclosure 4. However, a consistent arrangement of both phases of enclosure entrance comprised substantial sumps (312047, 593129/593173) over 1 m deep, which probably served as waterholes.

An additional waterhole (129112) located 19 m to the south-east (Fig. 4.45) also contained two near complete Late Iron Age bead-rim jars, along with other pottery fragments, oak chippings, a willow withy tie and a deposit of animal bone, one fragment of which produced a radiocarbon date of cal 170 BC–AD 220 (Wk-19367) (Plate 4.15).



Plate 4.15: Deposits at the base of waterhole 129112

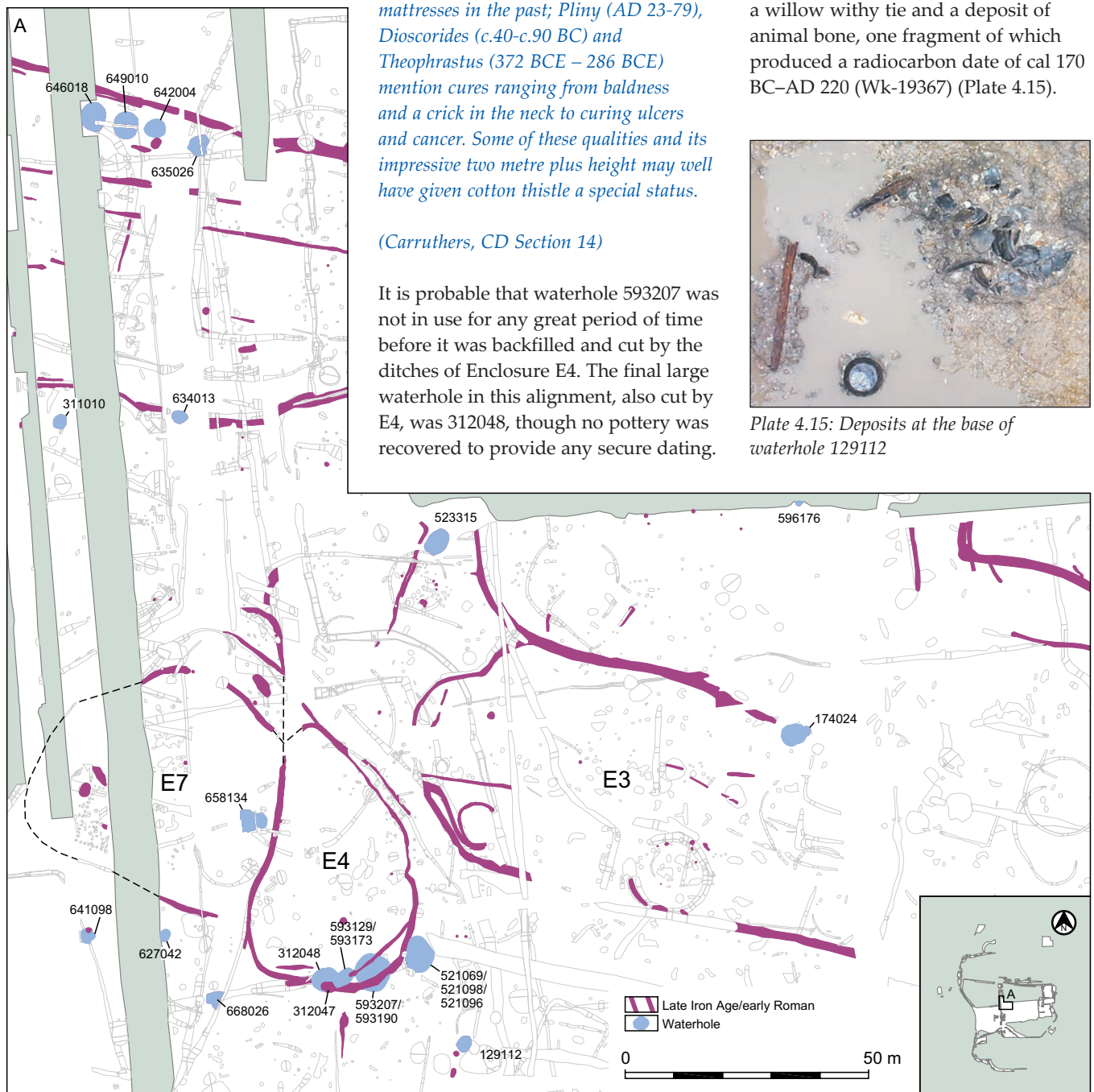


Figure 4.45: Late Iron Age/early Roman waterholes

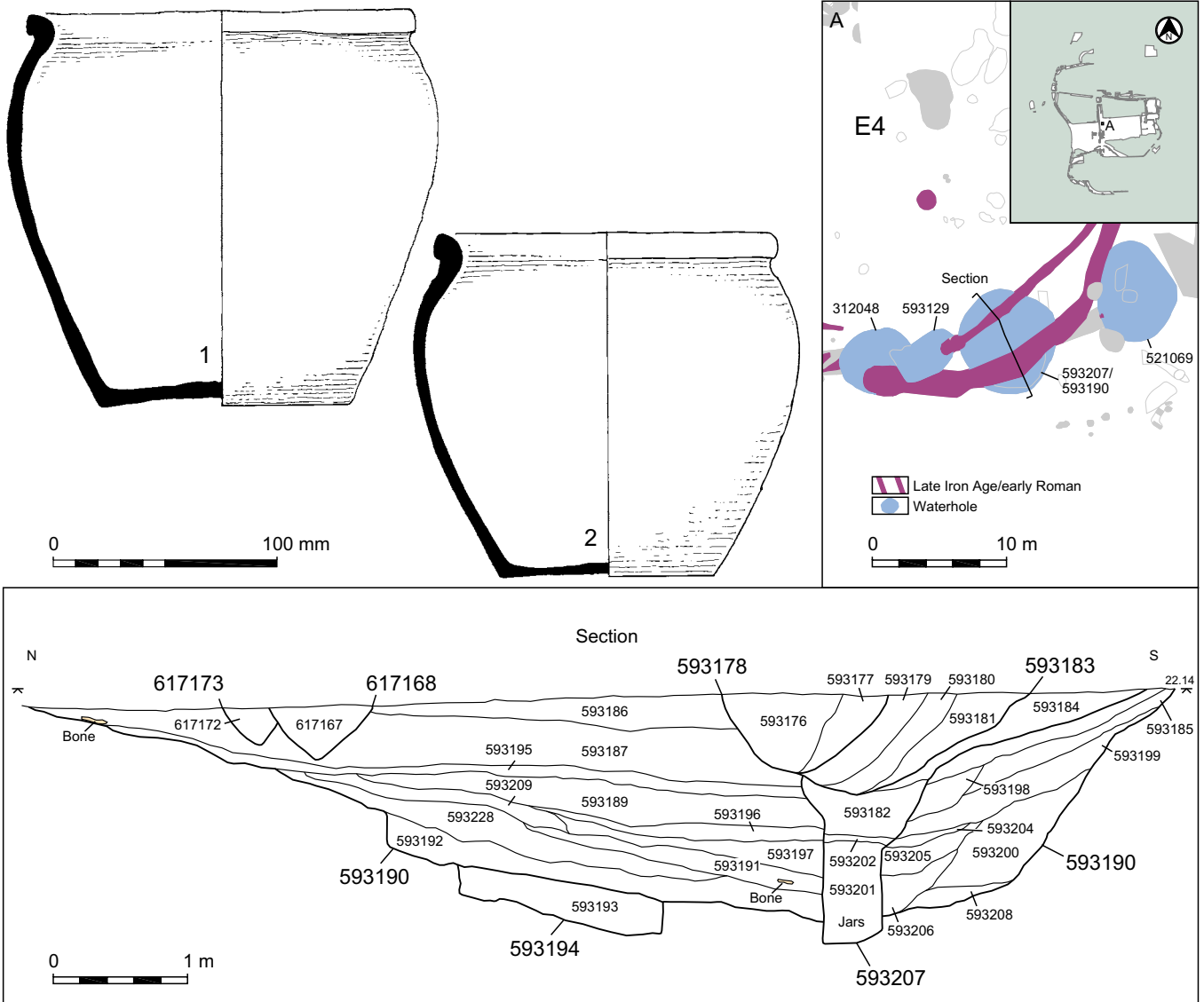


Figure 4.46: Section of waterhole 593207 with deposits of Late Iron Age bead rim jars

... Although the sample [for radiocarbon] may have been bulked, disarticulated, or both, the fact that it was one of 7 fragments/169 g of animal bone in a layer where there were two at least semi-complete pots and a wooden object suggests that the bone may have formed part of a deliberate deposit.

(Healy, CD Section 20)

Another grouping of four aligned waterholes from this period lay c 180 m further north, just inside the boundary of the settlement. The earliest and smallest (4.36 x 3.68 m across, 0.9 m deep) was 642004 (Fig. 4.47; Plate 4.16), which may have been dug in the Middle to Late Iron Age, while 649010 and 646018 to the west were dug in the Late Iron Age/early Roman period. Compared to features further south,



Plate 4.16: Waterhole 642004

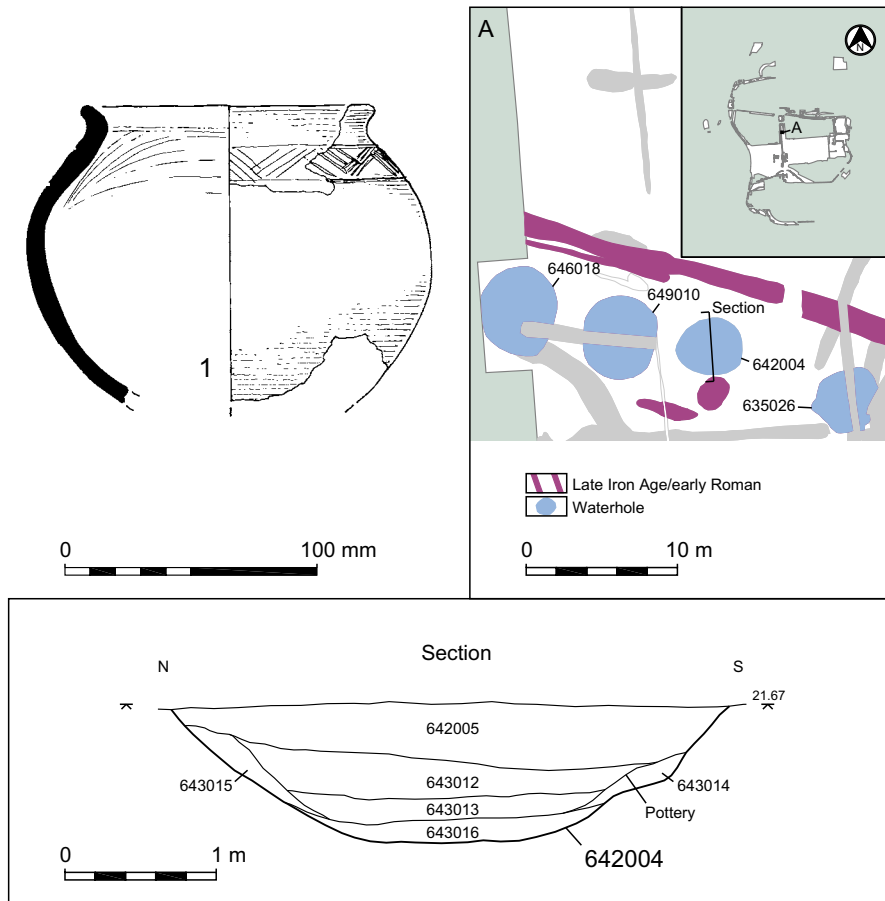


Figure 4.47: Waterhole 642004 and decorated Late Iron Age jar

relatively few objects were found within these waterholes, reflecting their location further away from the heart of the settlement, though a possible leather shoe was recovered from a lower fill of 646018 and most of a decorated Late Iron Age bowl was recovered from a lower fill of 642004 (Fig. 4.47). Pollen samples from the lower fill of 649010 indicate that,

...the environment surrounding the feature during the Late Iron Age/early Roman period consisted of very open grassland, possibly pasture, with very little evidence for trees or shrubs. Limited cereal cultivation was also taking place in the area, especially during the earlier phase of infilling.

(Peglar et al., CD Section 16)

As the waterhole was positioned so close to the northern boundary ditch, it suggests that this was not accompanied by a hedgerow. The final waterhole (653026) lay 5.5 m to the east of the other three and contained a greater number of finds, though mostly consisting of small abraded pottery sherds,

fired clay and animal bone. It was cut by mid Roman enclosure E9. None of these waterholes showed any sign of timber revetting and it remains uncertain whether any or all were directly contemporary. Most were quite irregular in profile and perhaps used as animal watering holes, though 646018 was much steeper in places and may have been unsuitable for such a purpose, possibly instead being for domestic use. Unworked timber from this waterhole may have been used to create some form of platform.

Up to a possible seven further waterholes of this date were revealed distributed around the settlement



Plate 4.17: Pit/waterhole 569176

(Fig. 4.45), though none were located within the main enclosure (E3). As noted above, however, a pit (569176) within the possible enclosure north of E3 was relatively deep (1.18 m) and vertically sided, and could possibly have been used as a water source for the settlement (Fig. 4.48; Plate 4.17). This may have been only for a brief period as it was soon filled in with a series of dumped deposits including fired clay, an iron nail and large amounts of Late Iron Age-early Roman pottery and animal bone.

The main bone-containing deposits were the middle and upper layers, especially the fourth fill in the sequence, presumably after the waterhole had fallen into disuse. Pottery was common in those contexts with the most bone, as well as some burnt flint and fired clay, indicating general domestic waste. All bones were of medium or small mammal, despite bone preservation being worse than for example waterhole 521096. This suggests that spatial variation may have determined what was deposited in a feature... The fact that much

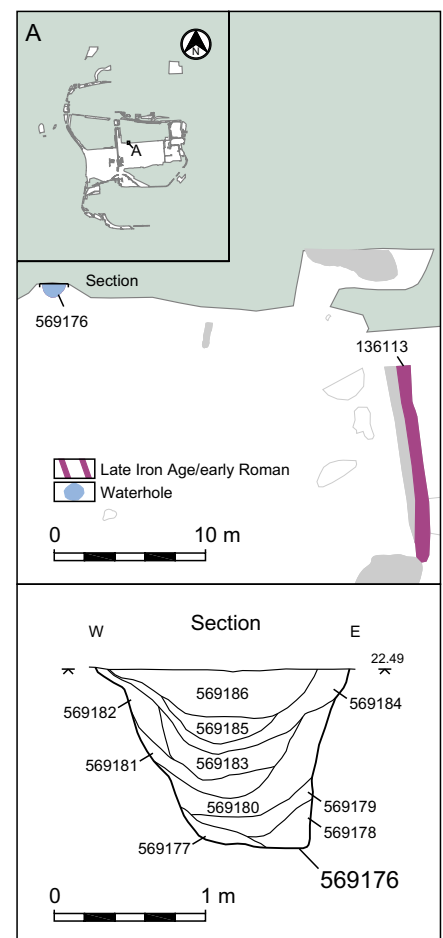


Figure 4.48: Pit/waterhole 569176

of this is burnt (and the presence of charcoal) suggests hearth debris, and this could indicate a proximity to the centre of occupation, which together with the bias towards certain size categories, concurs with Wilson's (1985) theory. His premise was that smaller animals could be butchered and deposited in the centre of settlements with less difficulty than that of larger animals, which would have been cumbersome and deposited at the outskirts. Standing water at the base probably dates to the use of this feature as a waterhole, but subsequent deposits may indicate the abandonment of this feature and its re-use for waste, perhaps when settlement or activity in the area became more intense.

(Knight and Grimm, CD Section 13)

The only other waterhole in the general vicinity of the E3 enclosure was a substantial feature (523315) located c 20 m to the north-west (Fig. 4.45), which seems to have been in use for quite some time, perhaps only finally silting up in the mid to late Roman period. It contained substantial quantities of pottery (7.8 kg), along with animal bone, a 1st century AD Colchester brooch, a glass bead, ceramic tile and fired clay. Two other waterholes (634013, 311010) lay 60 and 78 m further to the north-west, both containing far fewer finds.

Aside from 569176, the only other waterhole within an enclosure was 658134, a large and quite steep feature within E7 (Fig. 4.45). It contained very few finds in the lower fills though was later used to dump midden material including much animal bone and a fired clay loom weight, probably in the middle Roman period. Further south of this beyond the enclosure boundary were three further waterholes, one of which (627042) was quite deep (1.7 m) and vertically sided, so presumably not used for animals (Fig. 4.49). A complete Iron Age bead rim jar came from the lowest fill, while most other finds (animal bone, pottery fragments and a fired clay loom weight) came from the upper fills. The deposit of the bead rimmed jar is reminiscent of the two complete jars found at the base of waterhole 593207 (see above), and presumably represents an established ritual act (see below). Charred and

waterlogged plant remains from this waterhole were most likely derived from a mixture of cereal processing waste (mainly emmer and spelt wheat) and normal domestic waste.

A similar steep sided, though much shallower (1.04 m) feature lay 13 m to the west (Fig. 4.49), beyond the main area of settlement (641098). It is presumed to have been used as a water supply as it was located on lower lying ground and may even have replaced late Bronze Age waterhole 641097, which could still have been visible as a hollow. Many domestic objects were recovered from this feature including animal bone, slag, Late Iron Age pottery and a spindle whorl (see Fig. 4.52 below). Charred and waterlogged plant remains were also recovered:

The pit contained large amounts of pottery but a fairly low concentration of charred plant remains. An oat grain, a few emmer/spelt chaff fragments, barley rachis fragments and a few weed seeds (chess and scentless mayweed) all indicate the presence of burnt domestic waste from small-scale grain cleaning prior to cooking.

(Carruthers, CD Section 14)

The lack of any Roman pottery suggests that it had entirely filled up by the end of the Iron Age, and was probably first dug during the Middle Iron Age. The finds almost certainly represent parts of a midden, perhaps removed from the main area of settlement to the east. The presence of oat, which tolerates poorer soils

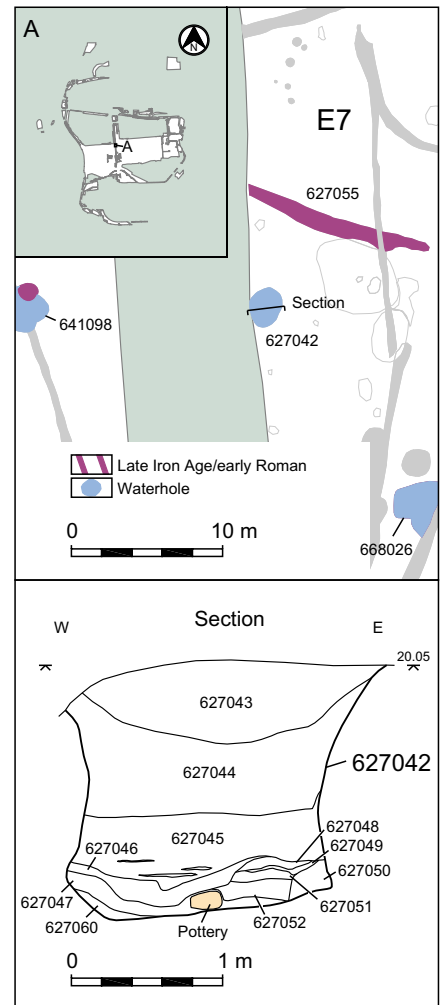


Figure 4.49: Section of waterhole 627042

than wheat, could indicate that by this period the soils were becoming too poorly drained and impoverished for large scale wheat cultivation (see below). The only other waterhole in this area (668026) was fairly shallow (1.2 m deep) and broad (3.6 m across), and presumably used for livestock.



Plate 4.18: Waterhole 583118

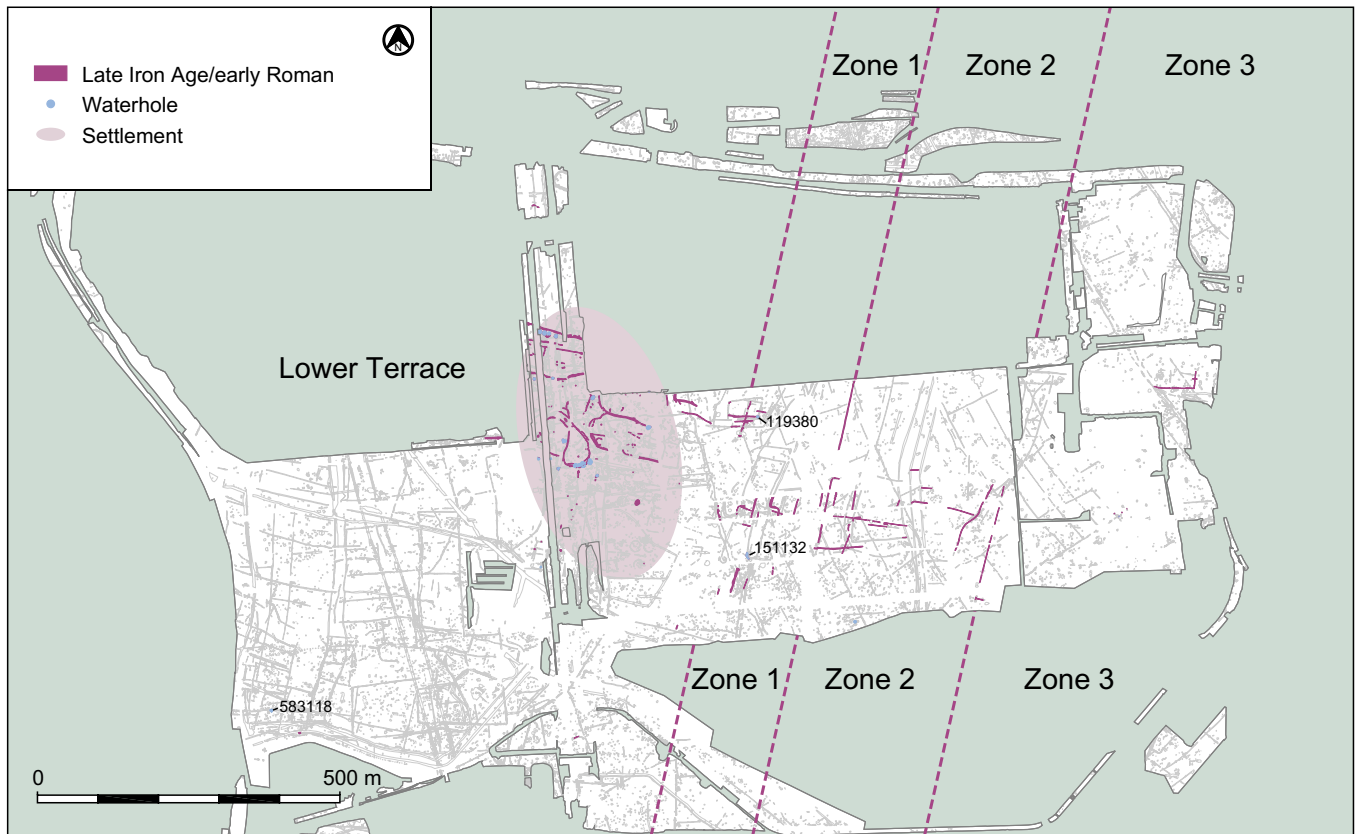


Figure 4.50: Late Iron Age/early Roman landscape zones

The remaining waterholes that date to this period lie far from the main settlement zone. Two (119380, 151132) were located in the eastern field system (Fig. 4.50), cut by the ditches of early-mid Roman Enclosures 1 and 12 (see Framework Archaeology 2006, 206). The other (583118) lay on the floodplain *c* 500 m to the south-west, approximately half way between the settlement and the river Colne (Fig. 4.50; Plate 4.18). It was a substantial feature (*c* 3 m across and 1.28 m deep), and contained only small amounts of Late Iron Age/early Roman pottery from the middle fills. The exact purpose of a waterhole in this location, within the area of the Bronze Age field systems, is uncertain, but its position cut into the top of a Bronze Age ditch is probably not fortuitous. It suggests that the field system was not only still visible, but parts may even have been actively utilised to segregate different areas of pastureland.

The shape of the wider Late Iron Age/early Roman landscape

In addition to developments observed within the settlement itself, we can see quite fundamental changes in certain parts of the wider landscape, particularly to the eastern field systems, which were completely realigned (Fig. 4.50). It was not possible to identify a coherent single system of fields within the pattern of the new boundaries and there was insufficient stratigraphic and dating evidence to establish a strict chronological sequence, but they clearly post-dated the Bronze Age field system and were cut by a late Roman 'ladder' enclosure. The changes have been placed in the Late Iron Age-early Roman period from limited ceramic evidence, and follow similar large-scale realignments seen at Imperial College Sports Ground *c* 3 km to the north-east, although the Late Iron Age date originally assigned there has recently been called into question (Crockett 2002, 343; A Powell pers comm.; see below). In the case of Terminal 5, it must be stated that the onset of changes cannot

definitely be assigned to either pre- or post-conquest, and certainly cannot be ascribed to Roman landscape reform.

The realignment basically involved the digging of a number of linear ditches that divided the land up into long tracts to the east of the main settlement. In Volume 1 these tracts were defined as Zones 1–3, each of which encompassed a complex of subsidiary divisions (Framework Archaeology 2006, 207–8). Although it has been possible to maintain this basic model for interpretation, we must bear in mind that large stretches of shallow boundary ditches and gullies have been lost to truncation and the actual picture could have been quite different and far more complex. Furthermore, it is perhaps unlikely that all of the subdivisions belonged to a single phase of activity. Nonetheless, the evidence recovered from the recent stages of excavation appear to verify the broad picture (Fig. 4.50).

Zone 1 lay *c* 100 m east of the settlement, defined on the west only by a small (*c* 40 m) section of ditches in the

area of a later enclosure (E1). Just three sherds of Late Iron Age pottery provide the only dating for this section, though Late Iron Age-early Roman pottery was recovered from the overlying ditches of E1. The ditches marking the main divisions between the remaining zones contained a similar paucity of artefacts, with just a few fragments of Roman pottery and ceramic building material. This probably reflects their location well away from the settlement, and strictly agricultural function (see below)

It does not seem that any particular zone was uniform in size, ranging from c 130 m (zone 1) to 322 m (zone 3) wide. At least some of them were subdivided into much narrower zones, as seen by the regular system of boundaries which lay in the central strip across the site, especially clear in Zone 1 (Fig. 4.50). During the modern operation of the site as a sewage treatment plant, this central spine was not subject to the same level of disturbance as the drying beds to the north and south. The ditches and gullies that survived in this narrow strip shared an alignment and, if they belonged to a single phase of activity, may have been a series of enclosures of different sizes, with trackways providing access between them. However, the greatest likelihood is that they developed piecemeal over time.

Each of the zones may have been subdivided in a different way, as was the case with the Bronze Age field system. The surviving internal subdivisions of Zone 2, for example, were irregular and lacked coherence, perhaps indicating rapid modification in that area or subdivision into a number of small landholdings belonging to particular individuals or kin-groups. In the eastern part of zone 3 was a rectangular enclosure (E 13), ostensibly dating to the Late Iron Age, though the amount of pottery (part of a Late Iron Age necked bowl) was minimal (Fig. 4.51). It may have been associated with another settlement that lay beyond the excavated site to the east. Only the southern and eastern lengths of the enclosure ditch (813035) survived later truncation but it was at least 55 m long.

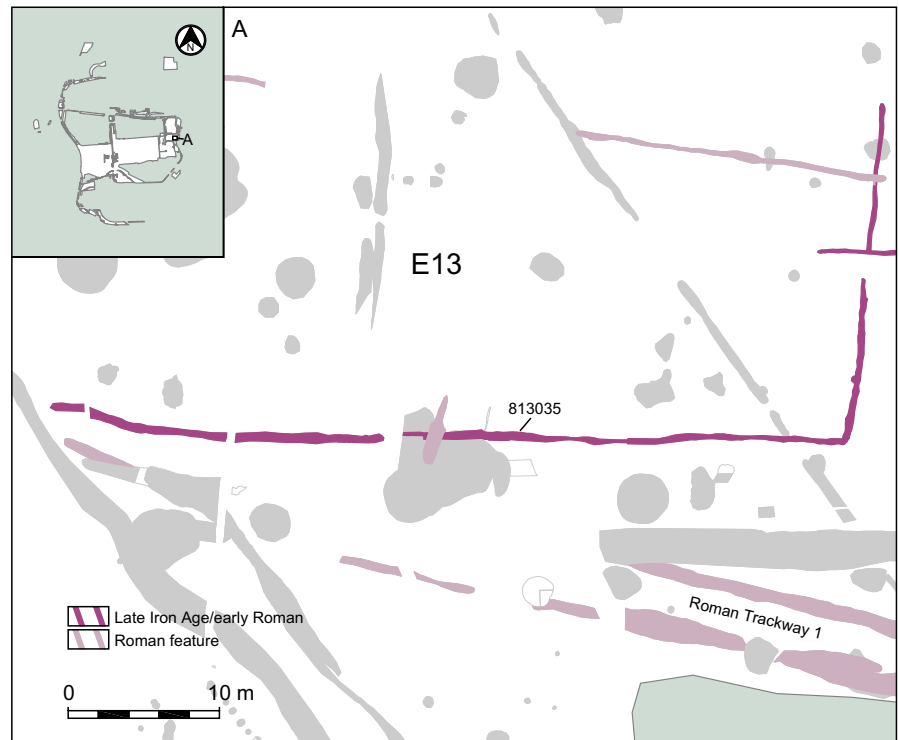


Figure 4.51: Enclosure E13

A Roman trackway (Trackway 1) lay just to the south, though a relationship to the enclosure was not established.

As noted in Volume 1, the exact organisation and function of these field systems remains uncertain, although an agricultural purpose is surely most likely (see below). Perhaps more significant is why these changes occurred at this time, and how widespread were they? On the Terminal 5 site, it has been shown that the western Bronze Age field systems were not altered in any significant way, though how far they were actively utilised is uncertain. Aside from a single waterhole cutting through one of the Bronze Age ditches (see above), there are few indications of use, although some remnant boundaries may have served to define different areas of pastureland.

The piecemeal changes to the landscape at Terminal 5 indicate that reorganisation was not wholesale, but probably tailored towards specific requirements—there was no complete replacement for the earlier Bronze Age field systems, which have been shown in areas to have persisted in some form.

Further, afield, this situation is equally varied, although there is no doubt that the Late Iron Age-early Roman period was one of significant development in terms of land use and reorganisation. There have been an increasing number of excavated sites in the local area containing features of this date; both on the gravels and the wide Colne Valley floodplain to the west (see Fig. 4.63 below). At Hengrove Farm and Ashford Prison just east of Staines and to the south of Heathrow, Middle and Late Iron Age settlements were established in parts of the Bronze Age field system, with the Bronze Age alignments continuing to be respected right through into the Roman period (Hayman forthcoming d; Carew *et al.* 2006). At Thorpe Lea Nurseries south-west of Staines there is also evidence for some survival and maintenance of Bronze Age ditches into the Iron Age and Roman periods, although as with Terminal 5, the situation is mixed with some more radical changes also occurring (Hayman forthcoming a).

At Imperial College Sports Ground, c 3 km to the north-west, an Iron Age settlement was established in an area of previous Bronze Age activity, and,

like Terminal 5, developed continuously into the late Roman period (Crockett 2002). Quite significantly, this settlement lay on a completely different alignment to the earlier prehistoric landscape, instead being focused upon a route through the area, which was fossilised in the Roman period by the digging of trackway ditches (ibid., 343). Unfortunately, the exact chronology of the earliest phase of settlement remains uncertain, and so the landscape realignment cannot be assigned specifically to the later Iron Age (A Powell pers. comm.). However, the intensity of activity does appear to increase at this time, continuing into the early Roman period.

Only very limited elements of any wider field system were encountered at Imperial College, comprising a ditch to the south of the settlement aligned at right angles to it, but this was also only loosely dated and probably belongs to the more extensive Roman occupation. Nevertheless, the general orientation of the field ditch, settlement and routeway does correspond with the Terminal 5 field ditches, and thus hints at quite widespread integration of the landscape in the Late Iron Age/early Roman period.

Further south-east of Terminal 5 at Mayfield Farm, on the edge of Taplow and Kempton Park terraces, was a 1st–2nd century AD settlement with ditches which appeared to follow the alignment of Middle Iron Age boundaries, but again were at some divergence with the Bronze Age field system (Jefferson 2003, 18; MoLAS forthcoming).

To the west of Terminal 5 on the Colne floodplain, excavations at Horton have revealed a similar situation (WA 2009). Here, there are vague traces of Early/Middle Iron Age ditched boundaries, which are aligned differently from the Bronze Age field systems, but which formed the basis of subsequent Late Iron Age/early Roman systems of land division. However, it must be emphasised that these later field systems did mark a clear change of landscape use at this time, cutting through a number of Iron Age

roundhouses, and continually developing into the Roman period.

Overall, the impression is of quite a varied local landscape, generally developing in a piecemeal fashion throughout the Iron Age and into the Roman period. There were elements of the older Bronze Age field systems that no doubt continued in use (or were still at least visible parts of the landscape), while some new alignments of settlements and field boundaries were clearly laid out in the Early and Middle Iron Age. The later Iron Age and early Roman period saw renewed vigour in the creation and elaboration of field systems, perhaps responding to new economic or social stimuli. While some of these were expansions from earlier Iron Age landscape divisions, others, like the eastern field system at Terminal 5, appear to have been newly created at this time. The impetus may have come from a local shift in power relations during the Late Iron Age, when the substantial enclosed settlement at Caesar's Camp in the north-eastern side of Heathrow airport appears to have been abandoned (Grimes and Close-Brooks 1993, 334). In all cases, the agrarian landscapes then appeared to develop quite intensively until at least the 2nd century AD, and must have provided significant agricultural resources for the newly emerging towns at Staines and London (see below).

Lifestyle and economy in the Late Iron Age/early Roman period

Although determination of status and wealth based purely on visible material culture can be somewhat misleading, the Late Iron Age and early Roman inhabitants of the Terminal 5 landscape do not show any signs that they belonged to a particularly high station in local society. Objects of any type other than local coarseware pottery were rare, and these (quernstones, spindlewhorls, loomweights and small number of brooches) indicate nothing other than a relatively small low status agricultural farmstead. Nevertheless, they do reveal something of the range of activities that could be expected

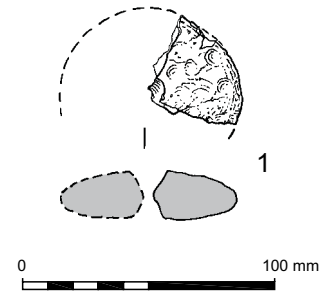


Figure 4.52: Fired clay spindlewhorl from pit/waterhole 641098

within the settlement. Evidence of weaving during this period, for example, came from loomweight fragments and a fired clay spindle whorl found in pit/waterhole 641098 on the western edge of the settlement.

Other on-site activities include crop processing, as fragments of quernstone were recovered from two Late Iron Age and early Roman deposits. This may indicate some increase in the production of cereal crops during this period.

... two querns from Late Iron Age/early Roman contexts were quite different in character from the earlier ones... One of them (521086), a rotary quern fragment, was made of Lodsworth stone, a variety of Lower Greensand from Sussex (Peacock 1987) and there is another, burnt fragment of this stone (676003). The other rotary quern (623046) consists of Upper Old Red Sandstone from the Forest of Dean/Wye Valley area (Welch & Trotter 1961, 49). During the later part of the Iron Age... there had been a change from saddle to rotary querns, and for making these, the local quern materials, that had been in use for thousands of years, were abandoned in favour of imported varieties of stone. All finds...are fragmentary, but traces of worn concentric rings on the grinding surface indicate that they come from rotary querns. The choice of these two quern materials is in no way unusual, as they had begun to appear in the area during later prehistoric times (Roe in prep(b)). Finds of Lodsworth stone in particular are typical of Late Iron Age/early Roman sites along the Thames, as for instance at Thames Valley Park, Berkshire (Barnes et al 1997, 46).

(Roe, CD Section 7)

The environmental evidence also indicates that cereal crops were growing in the vicinity, seemingly much more so than in the Middle Iron Age, although the quantity and extent is still hard to gauge.

Of the arable crops being grown during the LIA/ERB period, spelt wheat was the most frequently represented in the charred assemblages... However, in contrast to chalkland sites in Wessex such as Danebury (Campbell 2000) where emmer had almost disappeared, emmer was still an important crop in the LIA at Heathrow. The presence of bread-type wheat was unconfirmed by the recovery of any rachis fragments, although 'swollen' aestivoid wheat grains were found in seven samples and one well-preserved possible bread-type wheat grain was identified...

The constant but fairly low occurrence of barley through the periods suggests that it was probably mainly used for fodder... Oats were only occasionally recovered as charred grain, though they may have been used as an early bite crop or used as fodder and not come into contact with fire. It is interesting to see how little change there appears to have been through the RB period, perhaps suggesting controls were in operation over which crops were being grown.

(Carruthers, CD Section 14)

Overall the evidence is sufficient to suggest that cereal crops were an increasingly important part of the site's economy from the Late Iron Age onwards, and it may have been that the expansion of arable production was in part responsible for the establishment of the new eastern field system at this time. However, pastoral agriculture also undoubtedly continued to have a big role to play, with environmental indicators suggesting extensive open grazing land (see above). Furthermore, the creation of the enclosures themselves is likely related to animal management. The inhabitants probably designed these enclosure complexes to control larger herds of livestock than their Middle Iron Age ancestors, or, at least, to manage them in a way that replaced the need for the small penannular pens of the past. Just as the growing of arable crops was

expanding, so the pastoral regime was changing, probably in order to maximise the available economic output. The reasons for this are less clear, as the trend probably started before the conquest and therefore before the establishment of the towns at Staines and London, but may have been connected with general population increase.

The actual nature of Late Iron Age/early Roman pastoralism at Terminal 5 remains uncertain, as the faunal remains were generally in a very poor condition, a common occurrence on the acidic middle Thames gravels.

Species encountered in the Iron Age assemblages from Terminal 5 include horse, cattle, sheep/goat, pig, dog and red deer... The fragmentary nature of the material and the probable bias towards larger and older animals prevents the investigation of husbandry practices. However, it is interesting to note that one (waterhole) contained a predominance of large mammal and another medium and small mammal bone, with a high proportion of burnt fragments, suggestive of butchery and domestic processing/ consumption respectively. This could be related to the activity areas in which they were located (or the activities which took place around them after their original purpose had been discontinued). The partial remains of two sheep/goat in one context is typical of other Iron Age settlements such as Danebury (Knight 2002), where bones from different individuals appear to have been mingled but remained in pristine condition prior to deposition.. Carcass parts on the bone may have been distributed into family or other groups and therefore waste built up in individual areas (either above ground or within features), or communal waste been temporarily stored before deposition into open features...

(Knight and Grimm, CD Section 13)

On the basis of the evidence presented above, the economy of the Late Iron Age/early Roman settlement at Terminal 5 was based on mixed agricultural production, with the likelihood that animal manure was used to increase the yield of the cereal crops.

...some of the insects indicated accumulations of dung rather than dung in open fields (Tatlow, this volume, WH593207). If soil impoverishment was widespread, manuring may have become increasingly important in ensuring reasonable yields of cereals were obtained. When spread on the fields, seeds shed by the vegetation growing on and around the midden may have found a suitably disturbed habitat to become established for a while, and so become harvested and charred as arable weeds.

(Carruthers, CD Section 14)

The agrarian arrangement at Terminal 5 was probably similar to most other small scale farmsteads in the region (see Fig. 4.63 below). At Imperial College Sportsground to the north-east, the finds and environmental evidence indicate another small Iron Age/Roman farmstead operating a mixed economy based on the cultivation of emmer and spelt wheat, barley and the management of livestock (mainly cattle), mostly in an open environment (A Powell forthcoming). A similar picture emerges from the Late Iron Age/early Roman phase at Horton on the Colne floodplain, with quite limited quantities of charred cereal remains (spelt, emmer and barley) and animal bone dominated by cattle and with smaller proportions of sheep/goat and pig (WA 2009). At Cippenham, Slough, a likely pastoral emphasis was noted in the Middle/Late Iron Age settlement, but it was still a mixed economy with no real evidence of specialism (Ford *et al.* 2003, 159).

The general lack of economic specialism in this region was unlike the situation further west in the Upper Thames Valley at this time, where many gravel terrace settlements like Claydon Pike and Thornhill Farm were characterised by clusters of intensely recut enclosures associated with stock management, but with little evidence for any nearby arable production (Miles *et al.* 2007; Jennings *et al.* 2004). This variation in agricultural practices may have been environmentally determined, although could also have resulted from social and economic factors. Agricultural specialisation implies integration into an economic system

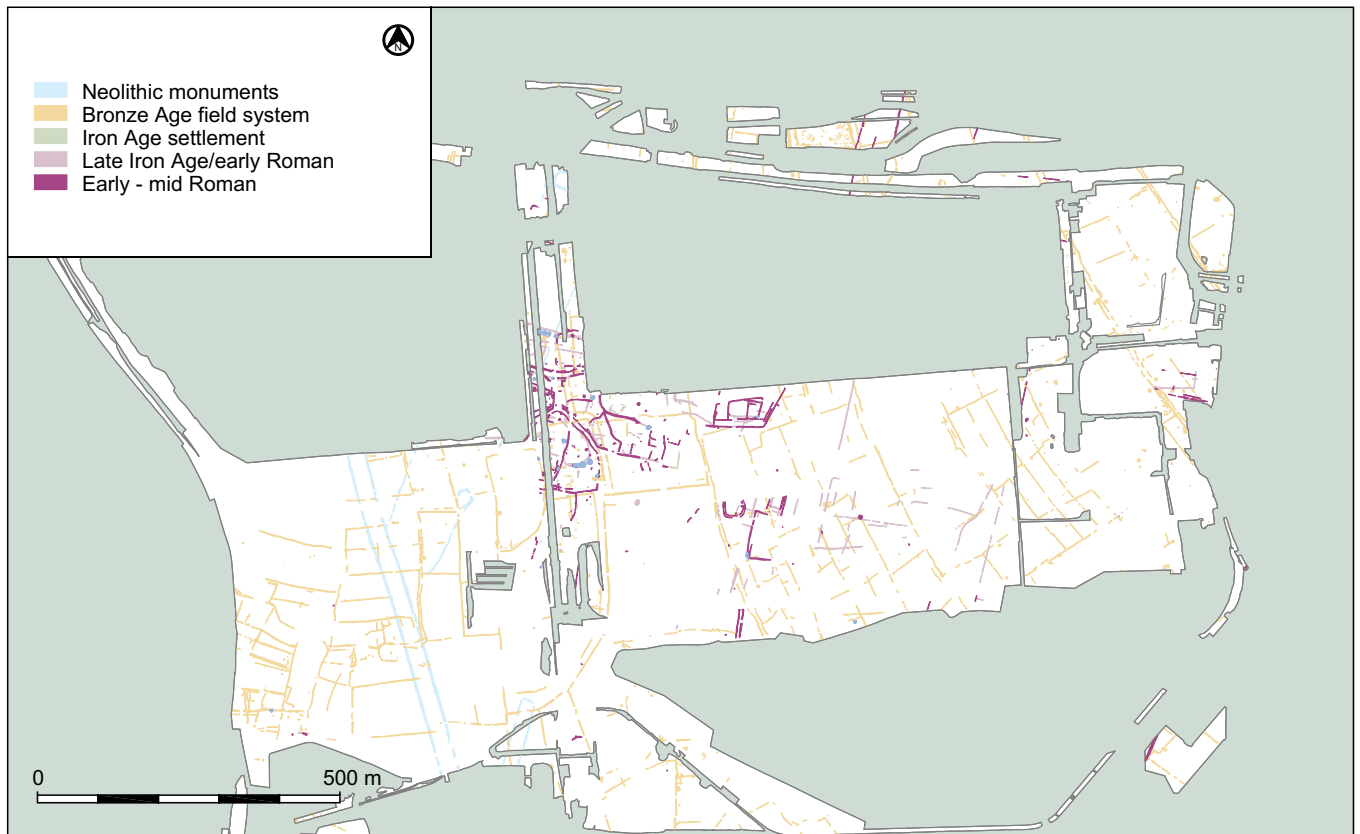


Figure 4.53: Early-mid Roman landscape

operating beyond the level of simple subsistence, although of course it is quite possible that other farmers not obviously engaged in specialisation were also operating at this level (Booth *et al.* 2007, 278).

There is little doubt that agricultural practices in the region continued to develop through the later Iron Age, and there is as yet little evidence that the Roman conquest of AD 43 marked any particular disruption. In fact it was not until the later 1st century AD at the earliest (and often much later) that any significant changes in settlement and landscape were noted, most likely influenced by proximity to the rapidly growing towns at Staines and especially London.

Development of the early-mid Roman settlement and landscape

The settlement and enclosure complex of the Late Iron Age appears to have been continually modified on a somewhat *ad hoc* basis right through into the early and middle Roman periods, although there are some elements

which would appear to belong late in the stratigraphic sequence, and/or had ceramic dating placing them from the later 1st or 2nd century AD (Fig. 4.53). This was not a radical reorganisation of the settlement or landscape, but the outcome of continual redevelopment, albeit one which was probably affected by increased influence from the developing Roman economic system.

The early-mid Roman landscape

One of the few environmental indicators for the wider landscape came from pollen samples within successive waterholes in the northern part of the site (527374, 527388; see below), dating from the early to mid Roman period. The earliest sample (18236; Fig. 4.54), probably dating to the later 1st century AD, was

...dominated by grass pollen, clumps of which were found at most levels, together with many taxa indicative of grasslands, including tall herb-rich meadows with grasses, sedges, knapweed (Centaurea nigra-type), thistles (Cirsium/Carduus), vetches/peas (Vicia/Lathyrus), meadowsweet

(Filipendula), buttercups, yellow rattle/eyebrights (Rhinanthus-type) and devil's-bit scabious (Succisa), much open disturbed and waste ground, and some cereal growth (emmer/spelt, barley, wheat and/or oats)... There is little evidence of woodland, tree and shrub pollen values being less than 8% throughout.

The landscape appears to have been very open and pastoral in character while this waterhole was in use, with very little extant woodland, some cereal growth, much grassland and meadows, and a lot of open, disturbed ground, trackways and habitation sites.

*(Peglar *et al.*, CD Section 16)*

The general environmental picture does not appear to have changed when the latest waterhole in this sequence was open (c 2nd–3rd century AD), as pollen assemblages from sample (18269) in the lower fills of 527388 were,

...indicative of a pastoral landscape with meadows, pastures, and some arable fields with cereal crops. One grain of hemp/hops (Cannabis/Humulus) was found, but whether this is from a crop of hemp or

...continued

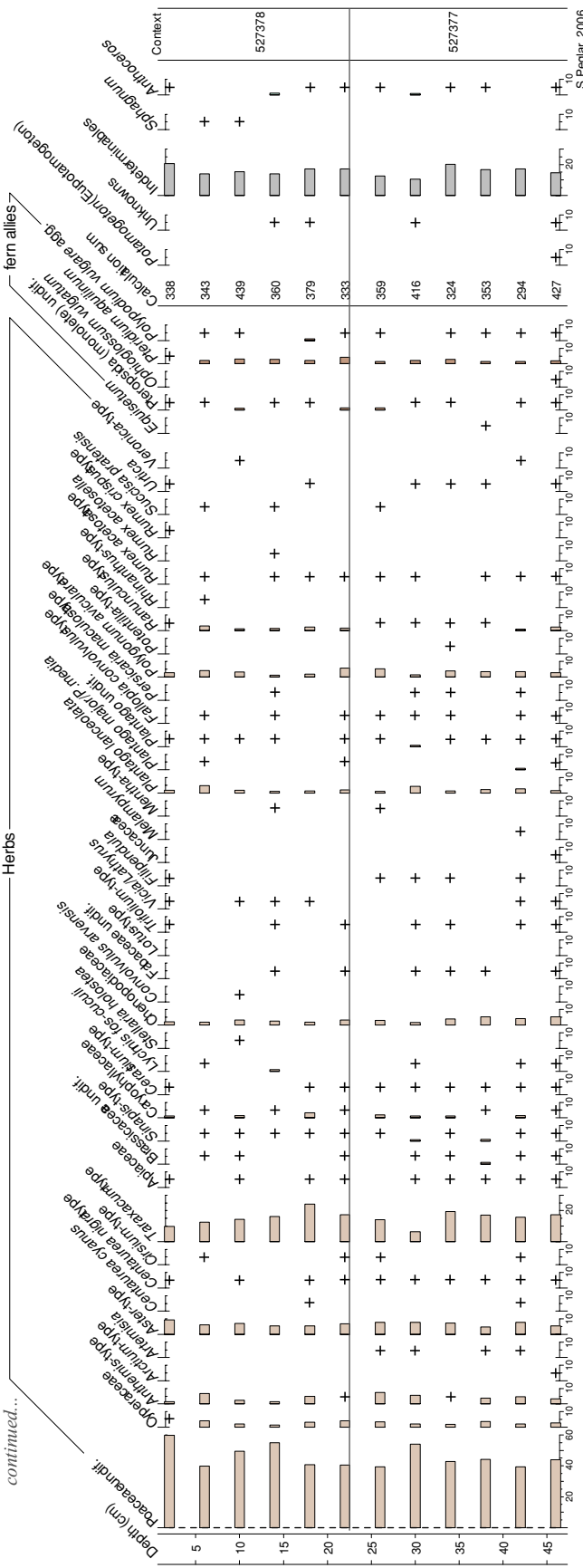
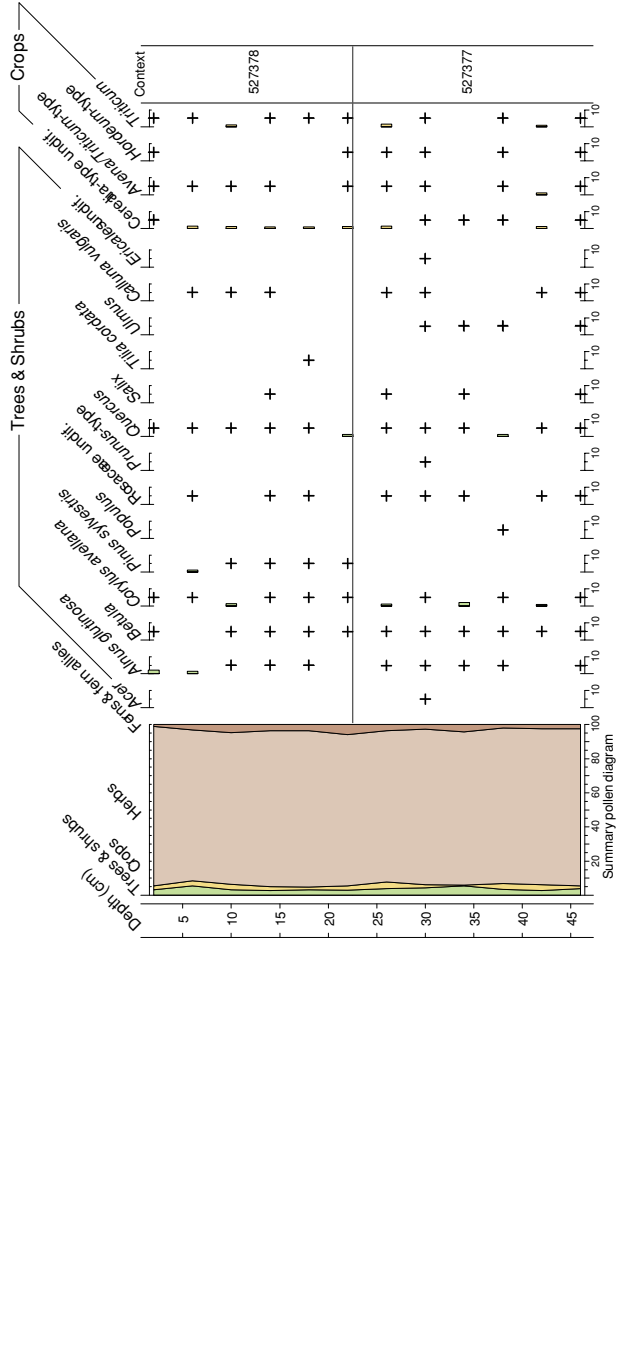


Figure 4.54: Pollen percentage diagram (Sample 18236, the fill of early Roman waterhole 627374)

from wild hops cannot be determined. However, tree and shrub pollen values were somewhat higher than in sample <18236>, especially from the lower context (527380) with particularly hazel and elm.

(Peglar *et al.*, CD section 16)

This suggests some increase in woodland cover at this time, but probably only on a localised basis, maybe within the actual enclosure (E9) containing the waterhole. Overall, the evidence suggests a landscape very similar to that of the Late Iron Age, although there may have been rising water levels from the start of the Roman period, probably causing increased seasonal flooding and waterlogging in some areas of the site (see Carruthers CD, Section 14). There were also indications that heathland was more scarce than in the previous phase.

This could indicate improvements to the land, or changes in the selection of materials for fuel. The latter explanation is perhaps more likely, since heather and bracken pollen were recovered from LRB deposits... Heathland remains in post-Roman features also demonstrated that, once degraded to heathland, areas of heath persisted in the area for many centuries.

(Carruthers, CD Section 14)

Settlement modification: the enclosures

The core of the Late Iron Age-early Roman settlement remained intact, but a number of enclosures were modified, while others were newly created, which served to expand activity to the south and east (Fig. 4.55). Some ditches of the main 'domestic' enclosure (E3) were recut and one (147237) appeared to divide it in two, though seemingly in quite an irregular manner. One possible clue to this is a large tree-throw (148335) that the ditch appears to respect and which could possibly have represented a significant visual landmark in the settlement. The ditch appears to have continued north of E3, before turning west (ditch 542387) and potentially creating another 'annexe' enclosure with trackway 4 ditch (see below). Ditch 542387 contained

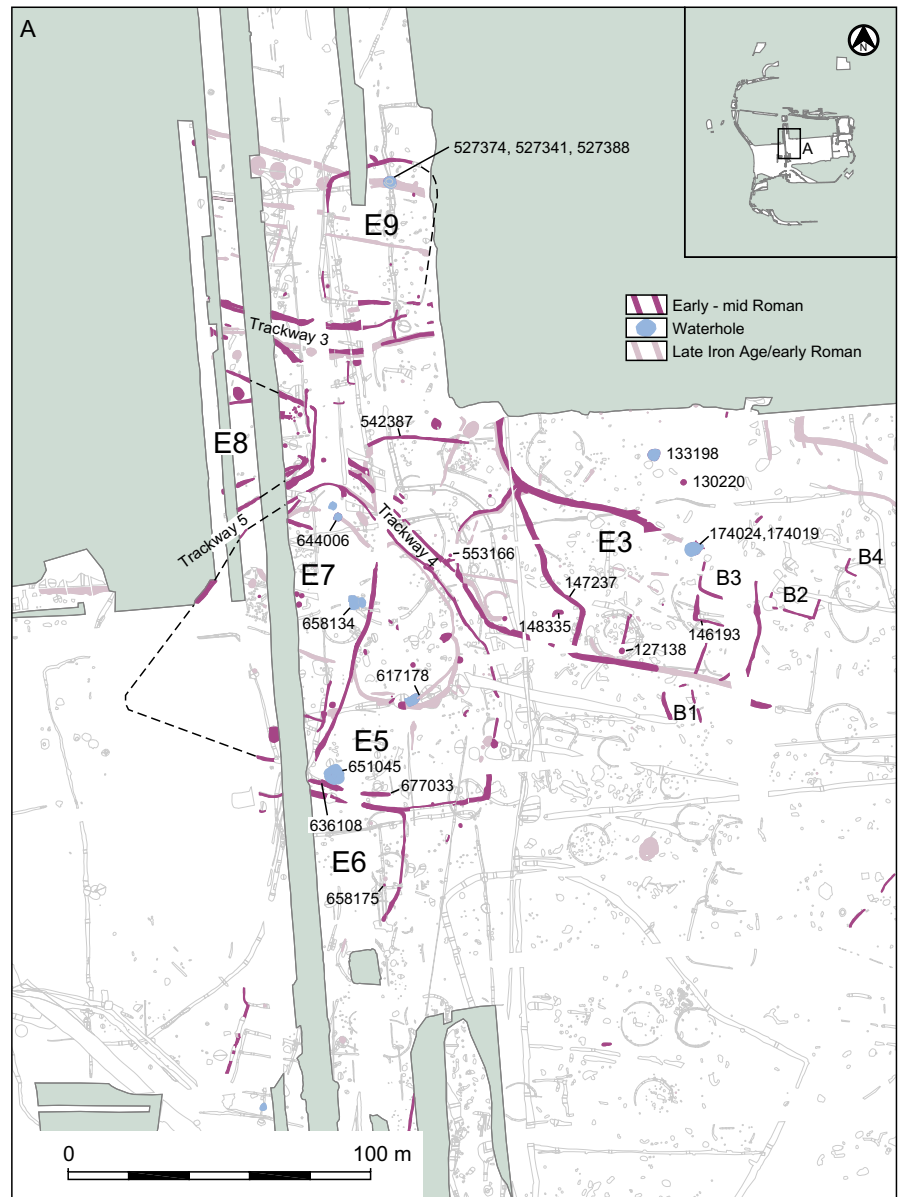


Figure 4.55: Early-mid Roman settlement

significant quantities of pottery (see Fig. 4.64), two loomweight fragments and well-preserved charred and waterlogged plant remains, indicative of nearby domestic activity.

*The waterlogged assemblage was restricted to a few tough-coated taxa, most of which were common weeds of disturbed or cultivated places (e.g. orache (*Atriplex patula* prostrata), fumitory (*Fumaria* sp.)). The only taxon of note was possible raspberry (*Rubus* cf. *idaeus*). The 8 seeds could represent sewage spreading into the top of the ditch. If so, raspberry may have been newly introduced into the area as a garden plant, although it is native to the British Isles.*

The charred assemblage was different to most of the other samples as cereal grains

were more numerous than chaff fragments, in contrast with the chaff-rich cereal processing waste recovered from most of the LIA/ERB waterholes... Since hulled barley grains were almost as frequent as emmer/spelt grains (unlike the other samples where barley grains were scarce or absent), burnt waste fodder may also have been deposited. The few weed seeds were all common weeds of cultivated land.

(Carruthers, CD Section 14)

Further evidence for domestic debris came from pit 553166 in the south of this 'annexe' enclosure, which contained charred plant material (sample 19155) that...



Plate 4.19: Withy rope from waterhole 644006

...had the character of domestic waste, comprising mainly the chaff from dehusking emmer/spelt wheat, with a few wheat grains and small weed seeds. Spelt (*Triticum spelta*) was positively identified from four glume bases. A possible bread-type wheat grain, some oat awn fragments and a barley rachis fragment were the only remains from other crops being grown.

(Carruthers, CD Section 14)

There is little to suggest that round-house 126155, in the western part of E3 (see Fig. 4.43 above), continued much beyond the start of the Roman period, and it may be that the transition to rectangular buildings, which were revealed within and around the eastern part of the enclosure, occurred at this time (see below). That this enclosure, and the one adjoining to the north, continued to be the focus of domestic activity is not only indicated by the rectangular buildings, but also by wattle-lined waterholes (133198, 174024/174019; see below) and a couple of pits (127138, 130220) containing domestic refuse including animal bone, pottery (mostly general Roman, but including two sherds of central Gaulish samian), fired clay and parts of two rotary querns.

The double enclosure arrangement to the west (E4 and E7) appears to have been completely remodelled in the early to mid Roman period, becoming greatly enlarged to well over double their previous sizes. This is clearest with Enclosure 4, which expanded to form a D-shape, up to c 90 by 56 m at



Figure 4.56: Enclosure 8

its greatest extent (now termed Enclosure 5). A possible 6 m wide entrance on the southern side may have been elaborated by short lengths of parallel ditch (677033, 636108) just 3 m apart. The entrance led into what may have been another enclosure (E6) to the south, though this was very poorly understood, with just the eastern ditch remaining. The only notable feature was a rectangular shallow pit (658175) containing charred plant material (sample 26050) which included a single grape pip (see below).

As with E4, very few contemporary features were found within Enclosure 5, although a wattle-lined waterhole (651045) lay in its south-west corner (see below). Further north, a deep narrow pit/waterhole (617178) which cut through part of the E4 southern

boundary ditch contained a reasonable assemblage of pottery (early and mid Roman; see Fig. 4.64 below) along with roundwood fragments and part of a rotary quern. The insect evidence from this pit indicated,

...open pasture; taxa found with dung and accumulations of foul, rotting material or domestic waste are sometimes lower than in the earlier features.... A range of 'dung beetles' ... suggest that grazing land surrounded the feature [together with] rough grassland.

Species associated with human habitation, domestic or stable wastes are restricted. Woody remains were also found in these samples, which appear to have been infested by *Anobium punctatum*, the common woodworm. This taxon is associated with dry, seasoned and worked wood (Koch

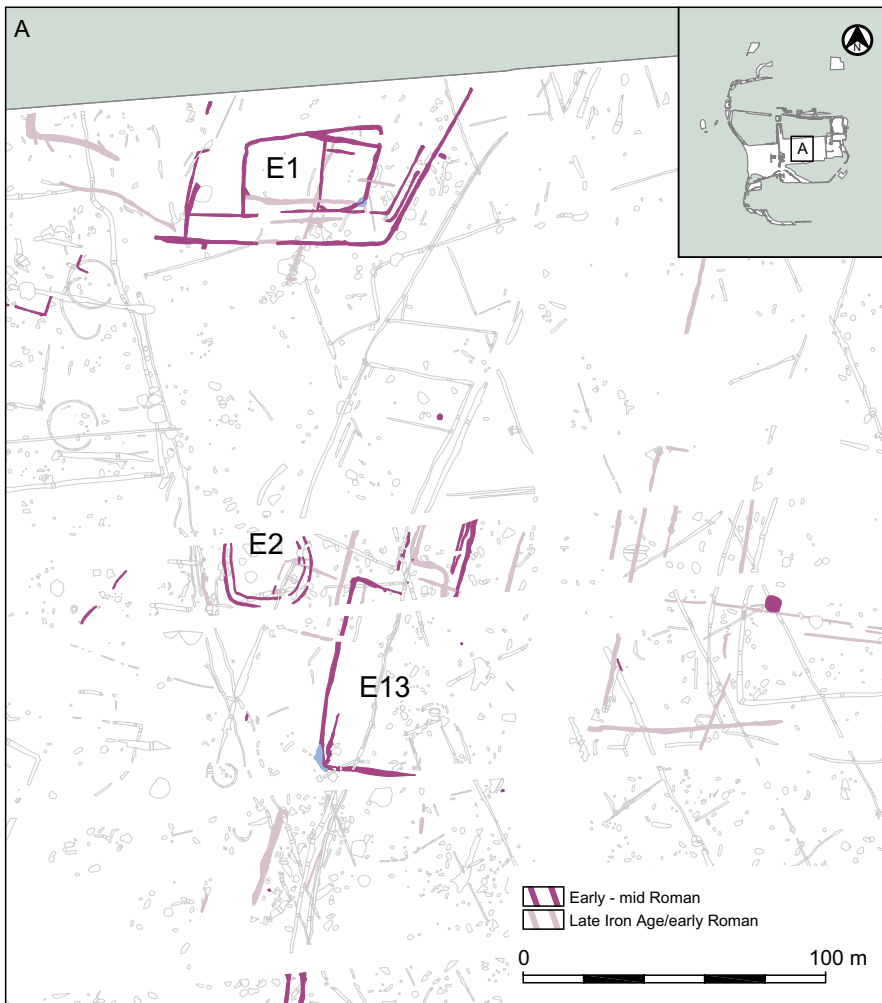


Figure 4.57: Enclosures to the east of the settlement

1989a) though it can occur in the countryside where it can infest dry deadwood on standing trees or in hedgerows.

(Tetlow, CD Section 17)

The evidence overall suggests that this enclosure was fairly open and not used for domestic activity, though domestic waste was clearly being dumped here at some point. Well preserved waterlogged and charred plant remains indicated the usual range of grassland, disturbed ground and damp ground taxa, along with emmer and spelt processing waste. Stock management remains the most likely function.

Adjoining E4 to the west was Enclosure 7, which also expanded, probably at the same time, although only traces of ditches could be discerned, to the north and south (Fig. 4.55). It was c 94 m north-south, with the western extent not realised, and no obvious entrance. As with E4, very few internal features

were demonstrably contemporary, though waterhole 658134 may still have been in use and timber-lined waterhole 644006 was cut through the earlier enclosure ditch. The latter contained large amounts of pottery including central Gaulish samian and mortaria, along with two quernstone fragments and fragment of withy rope (Plate 4.19). A total of seven pits of variable form with mixed Roman pottery were found within the enclosed area, but these could relate to the late Roman posthole building B6 (see below).

Located just to the north-west was another enclosure (E8), which was probably constructed around the same time as developments elsewhere, in the early to mid Roman period (Fig. 4.56). Only the eastern part of this enclosure lay within the excavated area, but this appeared quite regular, aligned against one side of the newly modified E7. A cluster of postholes and pits in the north-east corner of this enclosure may

represent at structure of some kind, though no discernable pattern could be observed, and no obvious function is indicated.

In the northern part of the settlement, and cutting the earlier boundary ditch 636041, were three sides of another enclosure (E9), c 46 m north-south by at least 36 m east-west (Fig. 4.55). Significant amounts of pottery, along with fired clay, animal bone, iron nails, CBM, and a copper alloy object (SF 26103) were recovered from the enclosure ditches. The only internal features of note were three intercutting waterholes 527374, 527341 and 527388, the last of which continued in use into the late Roman period, contemporary with the final use of the enclosure. Environmental samples from these features (see below) suggest they were used for livestock, although with the quantity of domestic debris in the immediate area, periods of occupation are also quite likely.

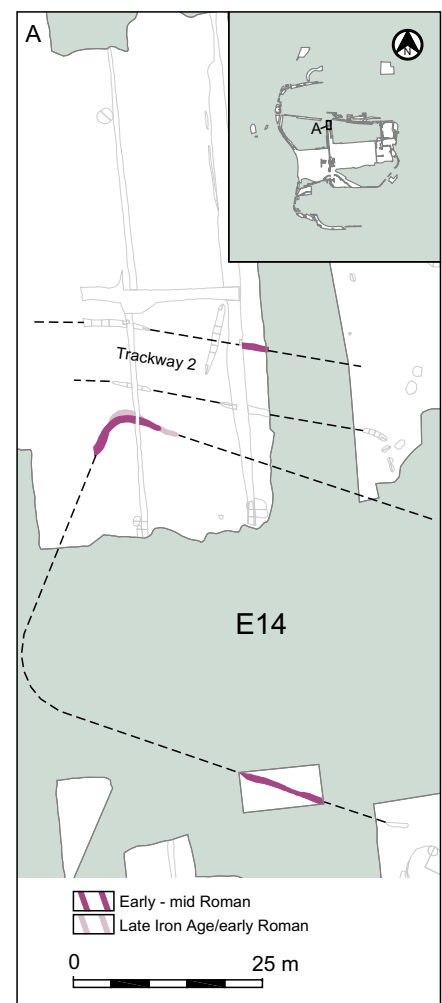


Figure 4.58: Northern Enclosure E 14



Plate 4.20: Artist's reconstruction of Roman settlement

A number of other enclosures of approximate early to middle Roman date were located outside of this core settlement zone. Enclosures 1 and 2 to the east (Fig. 4.57) have been described in volume 1, with E1 suggested as being an animal stockade along with enclosing agricultural outbuildings (Framework Archaeology 2006, 210). One notable find from the enclosure ditch was an iron reaping hook, which lends credence to an agricultural function. The enclosure was eventually integrated with the late Roman ladder enclosure. The double enclosure further south (E2) deviated in alignment from both early and late Roman field systems and was probably only in use for a limited period during later 2nd to early 3rd century AD. Just 15 m further east was another probable rectangular enclosure (E13) which did appear to be an integral part of the earlier Roman field system. It was 60 m by at least 30 m and open on the east side. Very

few finds were recovered but these did include fragments of Oxfordshire mortarium and Nene Valley beaker suggesting that this was a mid to late Roman enclosure—probably one of the many developments to have taken place within the eastern field prior to the construction of the ladder enclosure (see below).

A final rectangular enclosure (E 14) was located *c* 120 m north of the settlement, on the same alignment as the eastern Roman field system (Fig. 4.58). No diagnostic finds were recovered, which suggests a purely agricultural function, and it is assumed to be Roman on the basis of its alignment. This enclosure may have been a northern outlier of the main complex but presented the possibility that there was a focus of similar activity within the unexcavated area to the north. A Roman trackway (2) ran just to the north (see below).

Trackways

The redevelopment of the enclosure system in the settlement corresponded with the creation of a network of trackways at the site. In the centre of the settlement Trackways 4 and 5 ran between a number of enclosures, converging into an area of open space north of E3 (Fig. 4.55; see reconstruction in Plate 4.20). Another trackway (3) ran east-west to the north of this open area, immediately south of Enclosure 9. Traces of further Roman trackways were found to the north by Enclosure 14 (Trackway 2; Fig. 4.58) and to the west by Enclosure 13 (Trackway 1; Fig. 4.51), and may have linked the settlement to others in the vicinity.

The dating of the trackways is problematic, with the usual mixed and undiagnostic Roman pottery, and it is uncertain if all were created at the

same time. Defined trackways are certainly found in other sites in the vicinity such as Imperial College Sports Ground, and are generally dated from the early to mid Roman period, part of the wider scale changes seen as a result of economic integration with the Roman state (see below).

Roman buildings

A total of four or possibly five potential rectangular buildings belonging to the mid-late Roman period were revealed during the previous excavations and are described fully in volume 1 (Framework Archaeology 2006, 211–4). They were located in the eastern part of the main settlement, one of them (B3) lying within Enclosure 3, and the others just to the east and south (Fig. 4.59). An L-shaped gully (146193) 1.5 m south of B3 and of similar dimensions could have been the site of another potential building, or perhaps even part of B3 itself. Building 1 to the south was on a different alignment to the others and the finds and charred plant evidence suggest an agricultural function, possibly associated with crop processing. Its structure was difficult to determine, with the gullies originally interpreted as foundation trenches for a building. However, the size (8 x 17 m) and irregularity of the structure would argue against this, and instead is more likely to either represent a small enclosure, or perhaps a drip gully surrounding a rectangular building which has left no trace (quite typical for lower status Roman rural buildings) (see reconstruction in Plate 4.20). Substantial amounts (c 1.7 kg) of fired clay from the gullies may have derived from such a building.

The remaining structures (B2–4 and potentially 146193) were all far more fragmentary, though probably again formed either enclosures were or drip gullies surrounding buildings. The environmental evidence from nearby waterhole 174024/174019 does indicate that wooden buildings existed in the vicinity and these gullies perhaps represent the most likely candidates for the location of such structures. There is no specific indication as to whether they had a domestic or agricultural

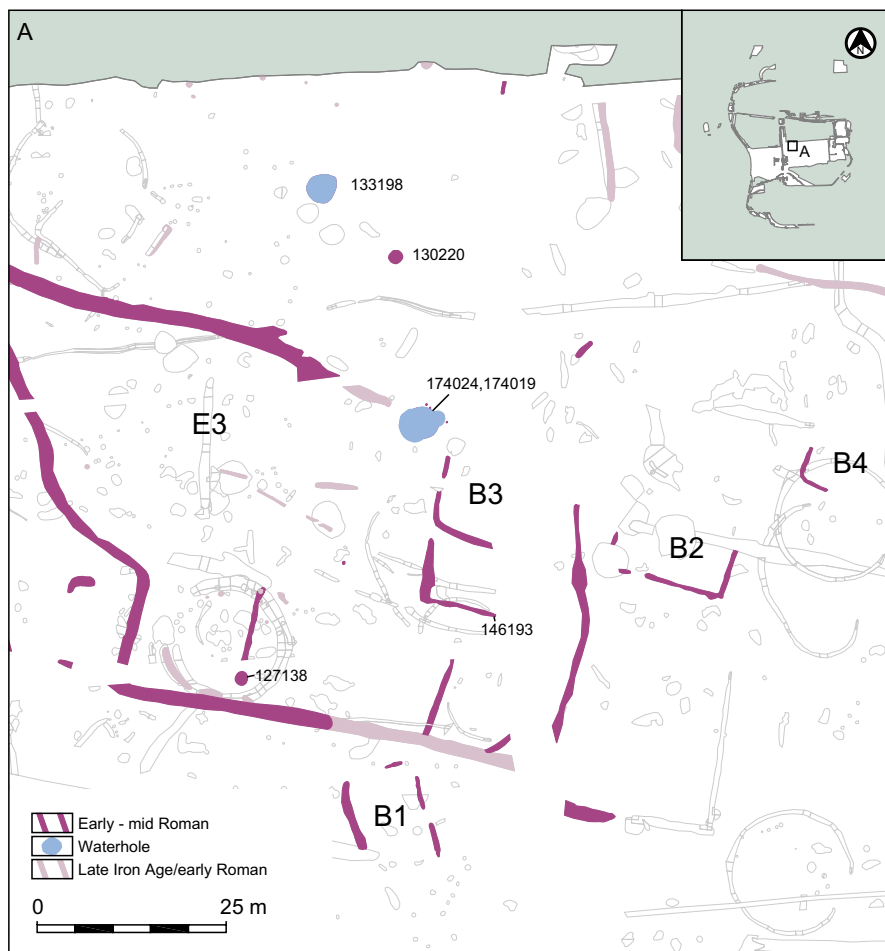


Figure 4.59: Potential Roman buildings 1–4

function, but judging from the nearby lined waterholes and domestic debris from pits (127138, 130220) in the vicinity, it is likely that at least some represented occupied buildings. There does not appear to have been any architectural pretension to any structures, probably constructed with timber and daub walls with thatched roofs. The minimal amount of ceramic roofing material from the site does not suggest use in these structures.

Waterholes

With the expansion of the settlement came the digging of further waterholes, while it is likely that many of those dug in the previous phase continued in use (see above; Fig. 4.55). In the area of the buildings were a number of waterholes (174024, 174019 and 133198) dated to the early–mid Roman (c 1st–3rd century) period, two of which had evidence for a wattle lining



Plate 4.21: Waterhole sequence 174024, 174019 and 174069



Plate 4.22: Close up of wattle inside well 133198

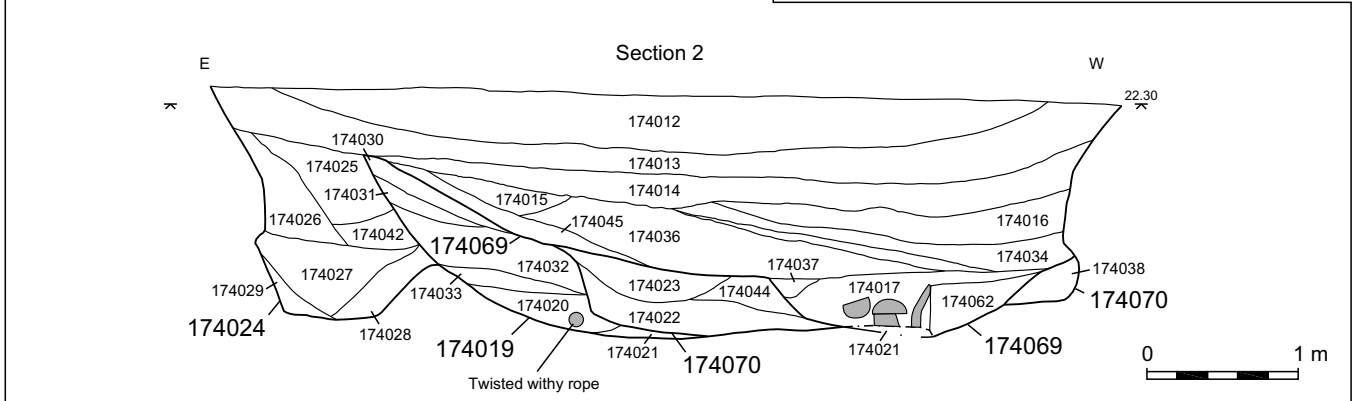
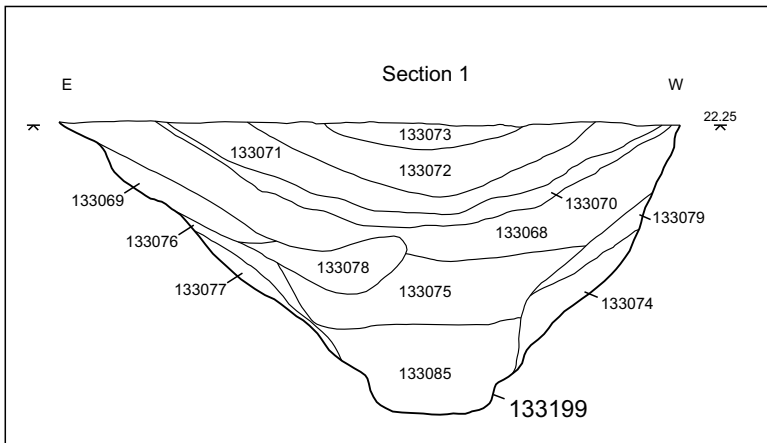
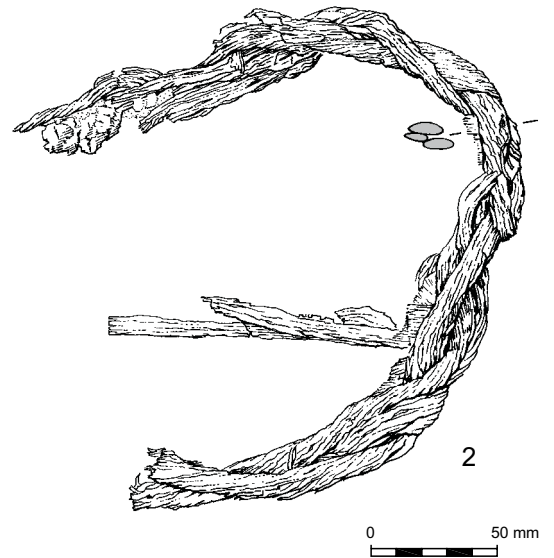
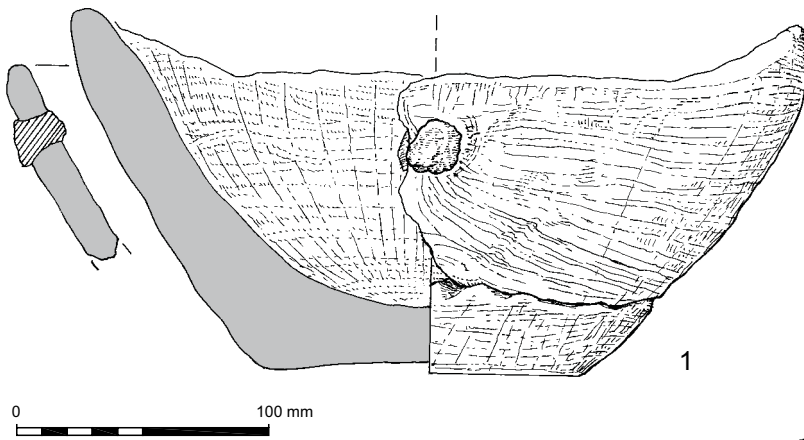
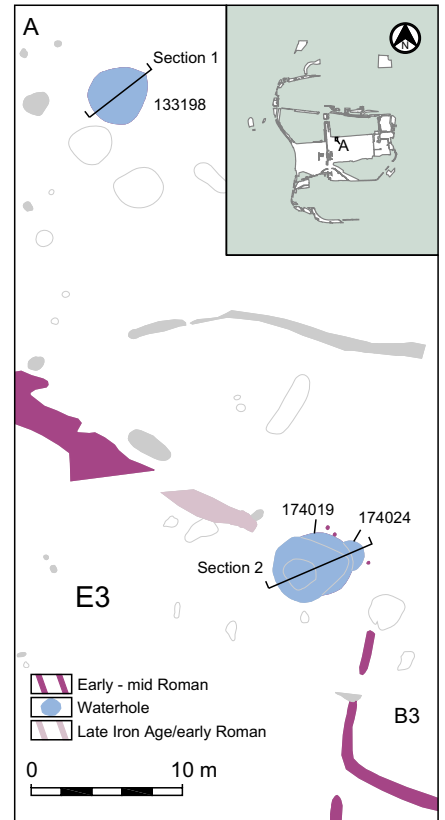


Figure 4.60: Waterholes 133198, 174024 and 174019 with withy tie and wooden bowl



Plate 4.23: Tweezers from waterhole 133198

(Framework Archaeology 2006, 215–7; Plates 4.21–2). Finds from these features included withy rope (wooden rope made from plaiting twisted strands of young roundwood), a possible leather shoe, tweezers (Plate 4.23), a 1st–2nd century coin and a wooden bowl, along with other more typical domestic debris (Fig. 4.60).

Further away from the main domestic zone, Enclosure 5 contained at least one waterhole (651045), which was largely truncated by late Roman waterhole 651136 (Fig. 4.55). No finds other than the possible remnants of wooden wattle revetments were recovered. A smaller (1 m diameter) but still quite deep (1.55 m) circular pit in the centre of this enclosure (617178) probably also functioned as a waterhole (see above).

In the adjacent enclosure (E7), a large circular waterhole (644006) contained evidence for a wooden revetment, with stakes and woven wattle rods (Fig. 4.61; Plate 4.24). The feature was also rich with finds including animal bone, CBM, fired clay, pottery (including central Gaulish Samian and Verulamium region mortaria), a withy rope (SF 28242) and two quern fragments, along with rich organic material.

Straw/hay and wood fragments were abundant in the flot, although waterlogged cereal chaff was quite scarce. Stinging nettle seeds were also abundant, making the assemblage similar to that recovered from E/MRB waterhole 527374 [see below]. The finds from the base of this feature included a large quernstone, so perhaps straw and/or hay had also been deposited for ritual purposes.

(Carruthers, CD Section 14)

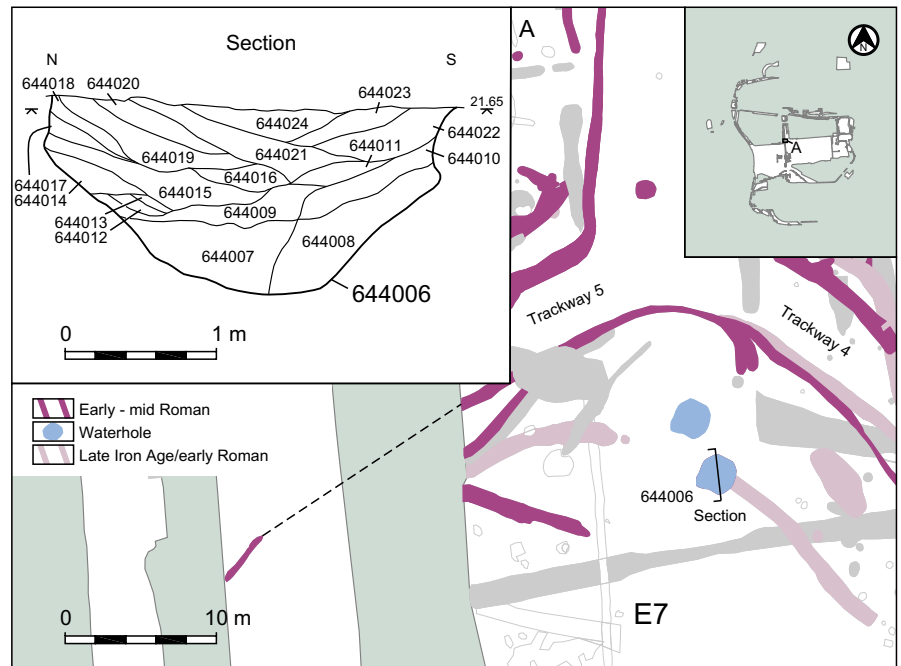


Figure 4.61: Mid Roman waterhole 644006



Plate 4.24: Waterhole 644006

The final three intercutting waterholes belonging to this phase lay in the northern part of Enclosure 9, cutting through Late Iron Age/early Roman boundary ditch 363041 (Fig. 4.62). The earliest cut (527374) was largely truncated by the later features and contained a limited quantity of animal bone (mainly cattle and horse), fired clay and Roman pottery. Subsequent waterhole 527341 was almost completely truncated by the final feature in the sequence, 527388, which was c 3.8 m diameter and 1.8 m deep. This waterhole was shored by the use of wooden timbers (Plate 4.25), with an oak beam wedged against a series of six stakes driven into the natural then been

braced by a yew beam (c 2.5 m long). Many finds were recovered from the feature, including part of a possible leather shoe, hobnail (presumably from the shoe) and a withy rope cut from young roundwood shoots of *Fraxinus excelsior* L (ash) (SF 20052) from one of the lower fills (527347). The waterhole was open through into the later Roman period, with a sizable deposit of 23 4th century coins deposited in the upper fills (see below).

Environmental samples (charred and waterlogged plant remains and pollen) from the first two waterholes indicated that their likely use was for livestock.

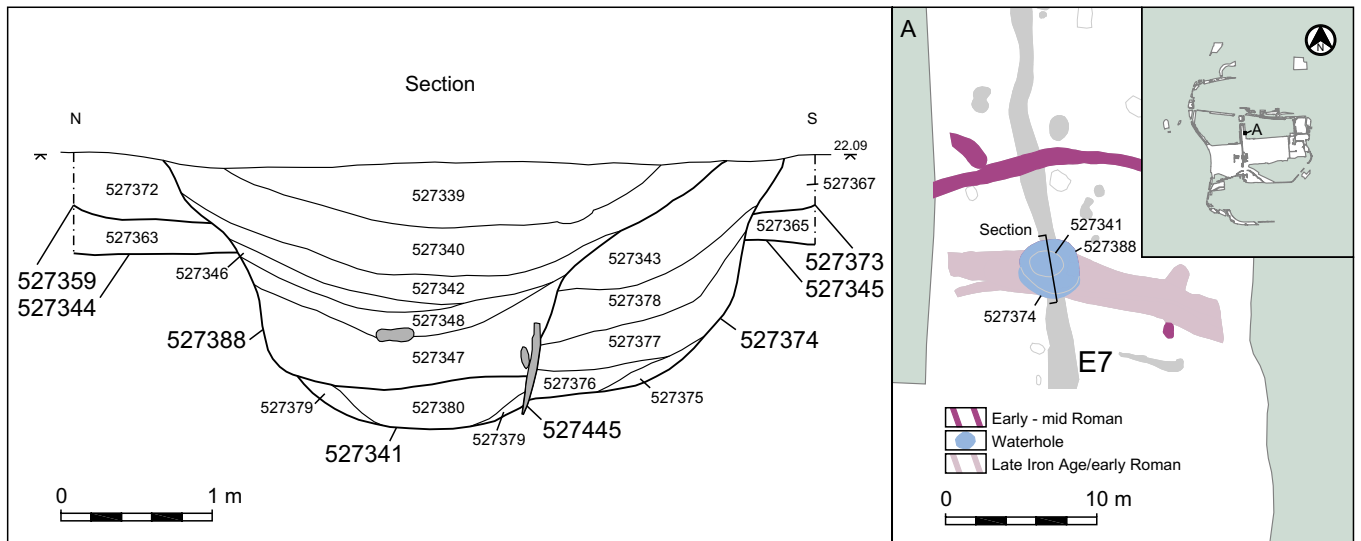


Figure 4.62: Waterhole sequence 527374, 527341 and 527388



Plate 4.25: Wood timbers from waterhole 527388

...in all cases weed species indicative of nutrient-rich soils were the main components of the assemblages, in particular the nettles, chenopods, docks and farmyard/midden type plants like henbane and woody nightshade. The waterhole, therefore, is likely to have been used for livestock, or for depositing organic, midden-type waste. Identifiable charred and waterlogged cereal remains were present (both emmer and

spelt wheat chaff) but not frequent in all three deposits. However, the secondary fill 527376 (sample 19192) contained frequent small fragments of waterlogged straw and chaff, so animal dung or stable waste may have been deposited in this layer.

Notable taxa in this deposit [fill 527379 of waterhole 547341] were stinking chamomile (*Anthemis cotula*), hemlock

(*Conium maculatum*) and mallow (*Malva* sp.). Apart from the single charred stinking chamomile seed in M/LIA pit 678001, this is the earliest record of this useful indicator of damp, clay soils.... Hemlock would have been well-suited to these damp conditions. It should be noted that this highly poisonous but medicinally useful plant was probably a Late Iron Age or Roman introduction, since it is not found in Britain

prior to this period... *The few mallow seed and capsule fragments are a further possible indication of Roman influence, since even if it is a native species, this taxon becomes much more frequently associated with domestic waste deposits around the Roman period. Classical writers mention mallow as being an effective cure for a range of intestinal and respiratory complaints, and Pliny recommends the taking of a spoonful of juice from any of the mallows each day to guard against diseases in general (Culpepper 1826). The poet Martial used it as a cure for hangovers, but Cicero found that eating it as a vegetable gave him indigestion (Readers Digest 1981). A few mallow seeds were recovered from MBA T5 and Perry Oaks samples, suggesting that their properties were appreciated prior to the Roman invasion.*

(Carruthers, CD Section 14)

There is very little evidence of standing water in the hole [527374], but all levels contained high amounts of parasitic eggs indicative of the incorporation of faecal material, and fungi spores, suggesting that this was a waterhole for animals rather than for collecting water.

(Peglar et al., CD section 16)

Evidence from insect remains indicate that the latest waterhole (527388) continued to be used for grazing animals, also suggesting that the feature probably dried out periodically.

The limited nature of the aquatic assemblage suggests a seasonal or ephemeral water-body, subject to episodes of drying out. The land around the waterhole was clearly being used for grazing and it seems likely that the local animal population used the waterhole during the period of deposit formation.

(Tetlow, CD Section 17)

The economy and wider region in the early-mid Roman period

There are few specific indicators that the inhabitants of the settlement made any major changes in their economic practices during the early to mid Roman period, although there are signs of increasing diversification and

expansion. It remained essentially a mixed agrarian regime, with herds of grazing animals and crops of mainly emmer and spelt wheat grown in the vicinity, possibly in the area of the eastern field systems, which were maintained throughout this period. Spelt is still likely to have been the main cereal grown, with emmer being a minor crop. Other minor crops under cultivation include small amounts of bread-type wheat, as well as barley, oats and rye, the latter three all probably used as fodder. Most of these fodder crops had a long history of cultivation in the area, but rye (recovered from the gullies of structure B1) appears to have been introduced during this period. There are indications that more marginal land was being cultivated, with an increasing use of damp clay soils, perhaps because of the increased use of manuring and the fact that spelt and bread-type wheat grow better on this terrain. However, the overall scale of cereal cultivation appears to have remained fairly minor, with no large concentrations of cereal processing waste. In fact it has been suggested that,

The small assemblages of primarily domestic, day-to-day spikelet processing waste were more characteristic of a small farmstead, or a small settlement with an economy more heavily based on livestock rearing than arable cultivation.

(Carruthers, CD Section 14)

Other plant crops were also fairly limited in range, with very little evidence for horticulture.

*...no large legumes (peas, beans) or flax remains were recovered. Mallow may have been grown as a garden vegetable, and grapes or raisins may have been an occasional luxury food that was brought onto the site. Native fruits and nuts such as blackberry (*Rubus sect. Glandulosus*), possible raspberry (*R. cf. idaeus*), elderberry (*Sambucus nigra*) and hazelnut (*Corylus avellana*) were probably gathered from woodland margins and hedgerows. There has, as yet, been no evidence for the importation of other fruits, spices or other flavourings such as opium poppy seeds, as have been found on some other RB sites. No cess pits have yet been found, so direct*

evidence of this type has not been available. However, if luxury goods were being consumed, it must have been on a very small scale for no evidence to be found in the large number of charred and water-logged samples taken from the T5 and Perryoaks excavations.

(Carruthers, CD Section 14)

The inhabitants of the settlement then appear not to have engaged with many of the new food types (eg coriander, celery, dill etc) emerging during the Roman period, despite the town at Staines being less than 5 km to the south. The availability of such foods is shown by the presence of a coriander seed at an otherwise low status farmstead at Thorpe Lea, just south-west of Staines (Hayman forthcoming a).

However, there is environmental evidence at Terminal 5 for new or at least intensifying agricultural ventures, shown by the presence of hay from both dry (fairy flax (*Linum catharticum*); dry, calcareous soils) and damp (yellow rattle (*Rhinanthus* sp.; moist meadows and pastures) ground (Carruthers, CD Section 14). This could suggest that the management of hay meadows on the floodplain and elsewhere became a significant economic activity at this time, as has been suggested for certain sites in the Upper Thames Valley such as Farmoor (Lambrick and Robinson 1979, 135) and Claydon Pike (Mile et al. 2007, 158). Haymaking only appears to have been undertaken on a widespread scale from the Roman period in Britain (although there is increasing evidence for haymaking in the Iron Age; see Hodgson et al. 1999), often appearing on early military sites (eg Greig 1988), and would have provided for the increasing demand for winter animal fodder, especially within larger population centres such as at Staines and especially London (see below). The management of such meadows at Terminal 5 may have become an important part of the agrarian economy, with the livestock from the farm being used to graze the meadows following their cutting.

Despite the cultivation of cereal crops and management of hay meadows,

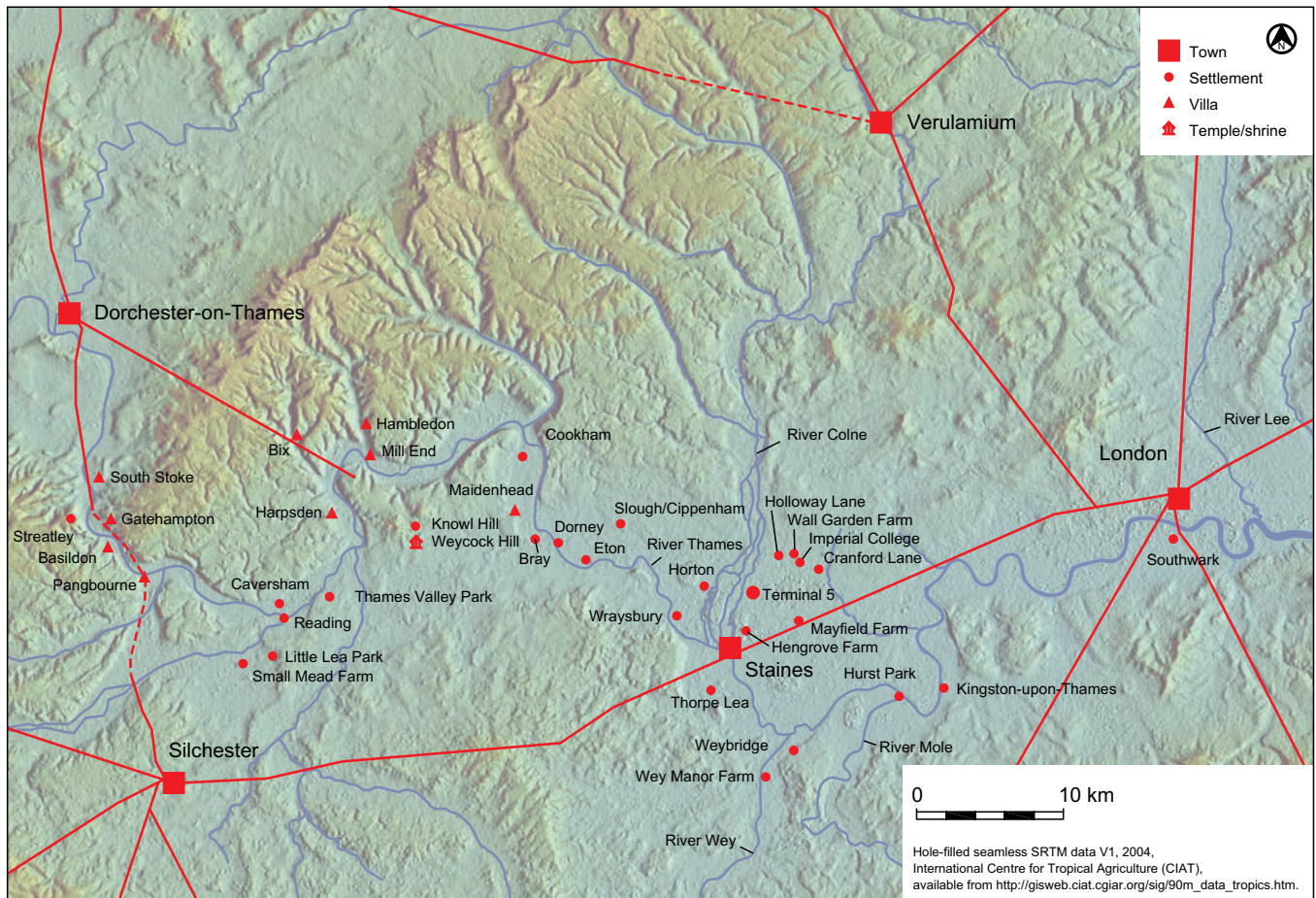


Figure 4.63: Roman settlement in the Middle Thames Valley

pastoral agriculture remained fundamental to the economy of the farmstead at Terminal 5. As previously, however, poor bone preservation means little can be said about animal husbandry practices.

Domestic animals were represented, with cattle, sheep/goat, equid and a lower than expected incidence of pig. However this is a small sample and because pigs are often killed young their bones are more fragile and less likely to be well represented. Mature and immature cattle (one of each) and one sheep between 18 and 42 months and another around 10 months of age were present. Cattle withers heights were calculated for animals of 1131 to 1320 mm, including one large male, and an equid at 1172 mm. Equid bones were substantially complete and the marrow and perhaps meat was probably not eaten; the same follows for some of the cattle bones too. A range of elements was identified, as would be expected from bones from a wide area and date range.

(Knight and Grimm, CD Section 13)

The increase in the size and quantity of enclosures within and around the main settlement suggests an intensification of stock management during the Roman period, which is also indicated at Imperial College Sports ground to the north-east (A Powell, forthcoming; Fig. 4.63). This site, which originated in the Iron Age, saw a system of enclosures develop around a trackway, possibly being used as animal holding pens. The enclosure system seems to have expanded throughout the Roman period, but only reached its fullest extent in the late Roman period, when it resembled the 3rd–4th century ladder enclosure seen at Terminal 5 (see below).

At Horton on the Colne floodplain to the west, the Late Iron Age field systems developed into an increasingly complex system of enclosures and waterholes during the Roman period, eventually forming a large agricultural estate over an area of c 1.9 ha (WA 2009). The function of the enclosures remains uncertain, though were presumably a mix of smaller stock

pens and larger arable fields. As with Terminal 5, evidence for non-cereal crops is rare, with just a single indeterminate pulse recovered, though fruit trees may have been grown, including possibly plum (*Prunus domestica*).

At other sites in the vicinity, the environmental evidence is generally quite poor, but the overall impression is of an intensification of agricultural production during the 1st and 2nd centuries AD. At Hengrove Farm just north of Staines, a large number of ditches and waterholes were in use by the later 1st century (some of which had Late Iron Age origins), belonging to enclosures and field systems that spread across a large area during the Roman period (Hayman forthcoming d). A substantial posthole building similar to the late Roman building at Terminal 5 (B6) was also recovered here, dated to the 2nd century (see below).

At Holloway Lane and Wall Garden Farm, c 2 km north of Terminal 5, there

is evidence for an organised and structured landscape from the mid 1st century AD, in the form of enclosures and field systems, with a corn drier at the latter site attesting to arable agriculture in the vicinity (MoLAS forthcoming). However, by the middle of the 2nd century, the field system ditches at these sites had started to silt up, perhaps hinting at a slight reduction in the agricultural capacity of the region from this period. To the south of Terminal 5 at Mayfield Farm was a similar situation, with ceramic evidence indicating that the settlement reached its peak during the late 1st to mid 2nd century, with subsequent decline (Jefferson 2003, 18). Further to the west at Cippenham, Slough, the landscape underwent considerable reorganisation in the early Roman period, with ditched enclosures, field systems and trackways, though these had largely been abandoned by the 3rd century (Ford *et al.* 2003, 162). At Wey Manor Farm, on the junction of the gravel terrace and River Wey floodplain to the south of Staines, a number of substantial enclosures were re-established and modified during the 1st and 2nd centuries, though also apparently abandoned by the 3rd century (Hayman forthcoming b). Nevertheless a nearby settlement at Brooklands, Weybridge did appear to continue right through into the late Roman period (Hayman 1991; forthcoming c).

The overall impression is one of great variability in the intensity of land use throughout the region during the Roman period, with some areas seemingly abandoned and other, like Terminal 5, continuing largely uninterrupted into late Roman times. At Thorpe Lea, located on the gravels 1 km south-west of Staines, there is evidence for a small farming community engaged in a mixed agricultural regime, including the possible management of hay meadows, right through the Roman period, although with an increased emphasis on pastoralism during the 3rd and 4th centuries (see below).

The economic fortunes of many of these settlements, which can mostly be described as simple farmsteads, may

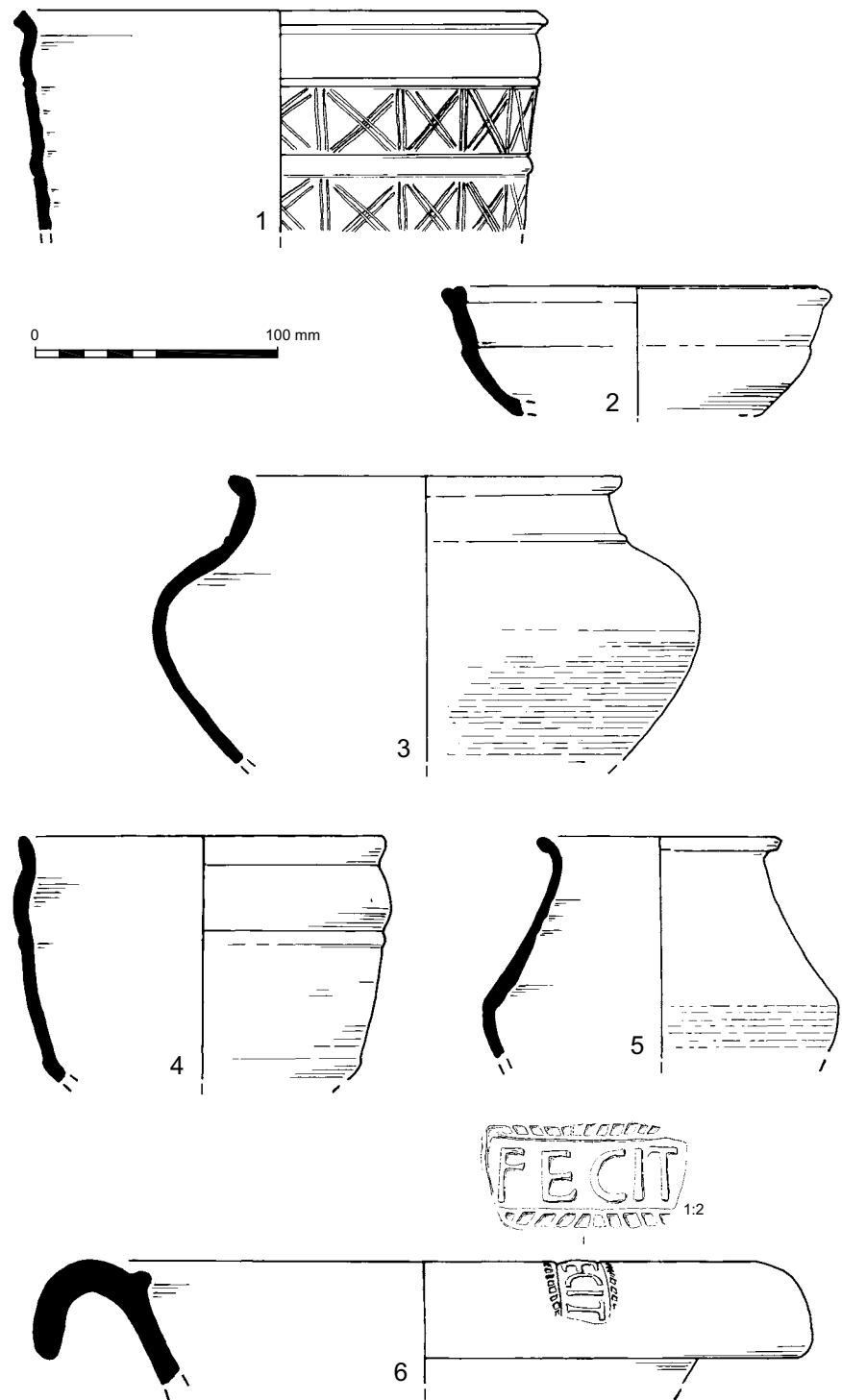


Figure 4.64: Early to middle Roman pottery from waterhole 617178, ditch 542387 and ditches 593231 and 614225 (E4)

have depended to some degree on the emergence and development of the small town at Staines and major trading centre at London. Roman occupation at Staines (named in the Antonine Itinerary as *Pontibus*) began not long after the conquest and had developed distinctive urban characteristics by the 70s AD (Jones and Poulton

forthcoming). The main town was located on a major crossing of the Thames for the London to Silchester road (Fig. 4.63) and occupied a gravel island raised above the floodplain, though it was still prone to flooding. It rapidly became a flourishing market centre during the later 1st and especially the 2nd century, with evidence for



Figure 4.65: Late Roman landscape

buildings of some architectural pretension (painted plaster, mosaics, window glass etc) and a range of industrial and craftworking activities (ibid.).

For farmsteads in the local vicinity of the town, like Terminal 5, its emergence must have provided a stimulus for economic development, with potentially rapid integration into the newly emerging market economy. This would certainly account for the expansion of agricultural production witnessed at many sites during this time, as shown above. Excavations within Staines have provided evidence for large quantities of animal bone, with a predominance of cattle, along with charred grains of bread and emmer wheat, barley, rye and oats (Jones and Poulton forthcoming). Environmental analyses have also suggested that hay was being stored in one part of the island (McKinley 2004, 16), providing winter fodder for animals. Although it possible that some of these products may have derived from pastures and arable fields cultivated by inhabitants of the town itself, it is likely that the vast majority came from

local farmsteads such as Terminal 5. The exact nature of economic interaction between such settlements is, however, uncertain. The occurrence of just a single coin spanning the 1st to 2nd centuries (2nd century As) at Terminal 5 indicates that here at least, a monetary system was not in full operation, and so transactions probably took the form of both bartering and taxation in kind.

If the town at Staines provided a stimulus to the local economy, then the emergence of London, 30 km east of Terminal 5, may have had an even greater affect, although distribution of goods is still likely to have been through local market centres. London was established as a trading centre very soon after the conquest (c AD 50) and very quickly expanded (Perring and Brigham 2000, 128). As with Staines, the greatest period of prosperity appears to have been the 2nd century, and a wall built around the landward approaches to the city in c AD 200 encompassed an area of 125 ha. A city of this size would have been by far the largest market for

agricultural produce in the region and the demand must have been met by surplus coming from the rural hinterland areas of north Kent, Essex and Hertfordshire (ibid. 153), along with the Middle Thames Valley around Staines.

By the end of the 2nd century, there is evidence for significant contraction in the built up areas of London and many surrounding small towns such as Staines, although they undoubtedly remained as key market centres into the 3rd century. This decline could well have affected some settlements in the Middle Thames region (eg Wall Garden Farm, Mayfield Farm and Holloway noted above), though as discussed above the situation is variable, with others such as Terminal 5 appearing to continue with little apparent disruption. However, significant developments did occur at many settlements at some stage in the 3rd and 4th centuries, undoubtedly as a consequence of widespread economic and social changes in this period (see below).



Figure 4.66: Distribution of late Roman pottery

The character of the settlement during early-mid Roman period

Despite the expansion of the settlement, development of rectangular buildings and diversification of economic practices, there is little of the material culture that points to any deep-seated lifestyle changes for the inhabitants at Terminal 5. Evidence for personal fashion and dress styles remained minimal, with just a small number of earlier brooch types probably continuing in use and a few finger rings now appearing. A very small number of hobnails from mid Roman contexts points to new styles of footwear, while tweezers from a waterhole

near the buildings hints at greater occupation with personal hygiene and/or beautification. However, aside from the presence of loomweights and pottery there was

...little or no Romano-British evidence of a domestic or craft nature, which suggests that range of activities carried out within the areas excavated was very limited.

(Scott, CD Section 6)

The pottery assemblage from this period was moderate and typically dominated by local coarsewares, although imported Roman style wares (including samian and three sherds of

amphora) had increased from earlier periods, as would be expected given the site's location so close to Staines (Fig. 4.64). Overall, the evidence from the objects found at the site would suggest nothing more than relatively subtle changes in lifestyle, with little indication of any elevated status. There may have been a low-level shift to more Roman styles of dress (hobnailed shoes), culinary methods (use of mortaria) and aesthetics (use of Romanised pottery forms), but this probably reflects little more than the ready availability of certain types of goods rather than a conscious desire to emulate a Roman way of life.

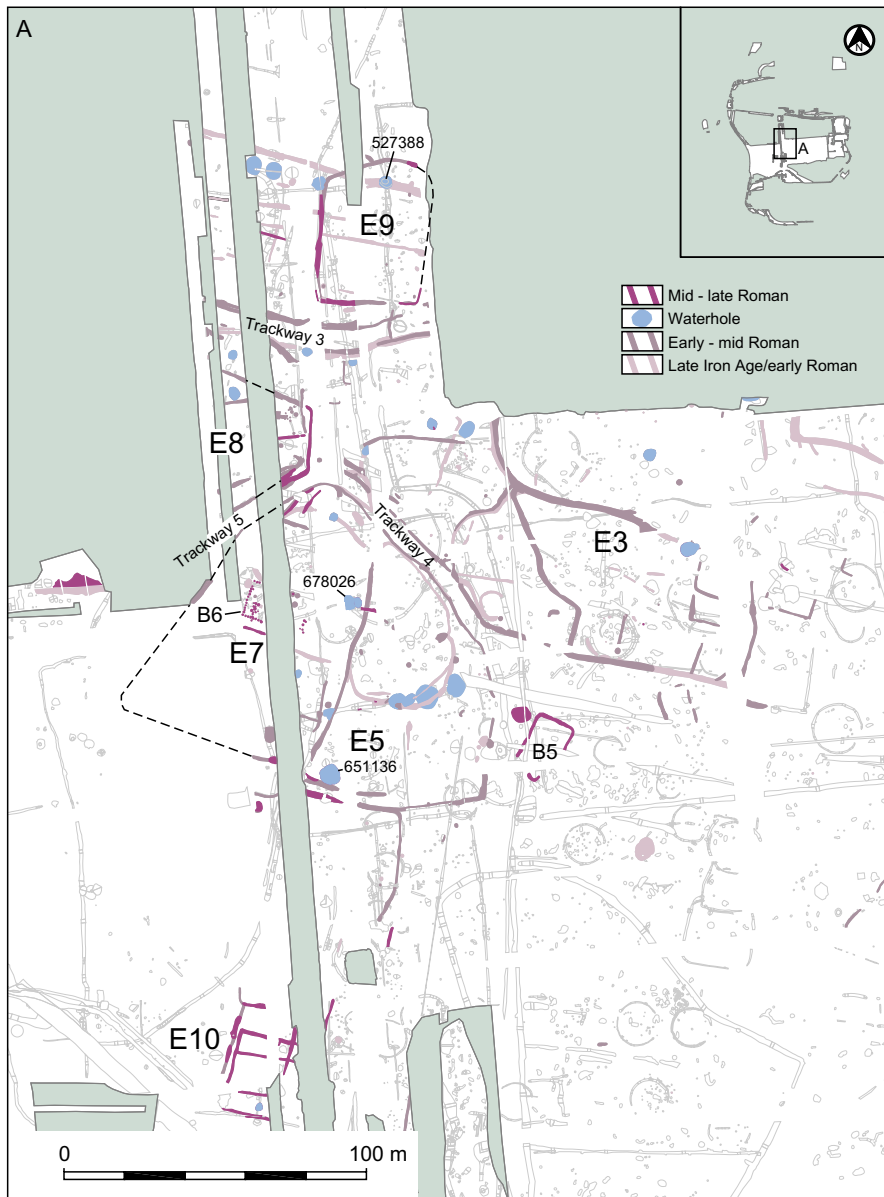


Figure 4.67: Late Roman settlement

The late Roman settlement and landscape

The level of activity during the later Roman period at Terminal 5 is difficult to discern as in general finds from this period are present in reduced quantities. However, there is no doubt that occupation continued, with many of the buildings and enclosures from earlier Roman periods remaining in use (Fig. 4.65). Furthermore, at least two new substantial structures were built in the main settlement area, another enclosure constructed to the south, and a major reorganisation of the eastern field system occurred, culminating in the creation of a 'ladder' enclosure system around a broad central droveway. Unfortunately very little environmental

material was available for this phase and so we are unable to discern any changes to the wider environment.

Developments in the settlement

A strong element of continuity from the mid Roman period remained, with the settlement focus remaining in the same place as it had been since the middle Iron Age. The general distribution of late Roman pottery (Fig. 4.66) indicates that much of the settlement area remained in use, though with concentrations suggesting more sustained activity in certain locations.

Enclosure E9 to the north had particularly high levels of late Roman ceramics, and may have reverted to a

domestic function at this time (Fig. 4.67). Charred plant remains (sample 27028) from a secondary fill of the enclosure ditch (which also contained late Roman Oxfordshire mortaria) certainly indicated domestic waste.

*The flot produced a moderate assemblage (67 fragments) of typical burnt domestic waste arising from the de-husking of emmer/spelt spikelets prior to cooking. Emmer/spelt chaff, a few grains and a few weed seeds were the principal components. Spelt (*Triticum spelta*) was positively identified from a single glume base. An oat grain, oat awn fragments and a barley rachis fragment provided evidence of other crops or possibly weeds (oats) that were present. The range of weeds was similar to the other samples from this period, including stinking chamomile, scentless mayweed (*Tripleurospermum inodorum*) and wet/damp ground taxa such as spike-rush. The presence of charred spike-rush seeds could be due to crops growing close to drainage ditches or patches of poorly drained land.*

(Carruthers CD Section 14)

In the northern part of this enclosure, waterhole 527388, which had been dug in the mid Roman period, had largely silted up (see Fig. 4.62 above). However, it was obviously still a feature of note, as in the upper fills were a total of 23 coins, almost half of all coins from the site. They all dated to the 4th century with the latest being an issue of the house of Valentinian (AD 364-378). They could well have represented a dispersed hoard (see *Cooke, CD Section 5*), though as they were distributed throughout the upper four fills, it is tempting to conclude that they were votive offerings made over a period of time into a feature which may still have at least periodically retained water.

The remaining enclosures within the settlement are likely to have still been visible features, though many ditches are likely to have silted up, with the boundaries perhaps now being defined by banks and maybe hedgerows (Fig. 4.67). Mid to late Roman waterholes were found in Enclosures 5 and 7 (678026, 651136), suggesting that both

were still in use, with E7 also encompassing a potential posthole building (B6) (see below). Waterhole 678026 in E7 was probably cut in the early 3rd century AD (replacing an earlier waterhole), but went out of use about a century later, after which it slowly filled up with domestic rubbish, perhaps derived from the posthole building, c 30 m to the west. A total of nine coins came from this waterhole.

The nine coins all date to the last third of the 3rd century AD and first third of the 4th century AD. This narrow date range provides a fairly accurate date for this deposit. The absence of any coins of the House of Constantine dated to between AD 330 and 348 suggests that these coins were deposited sometime between AD 308 (the earliest possible minting date of the latest coin) and the 330s. This group is dominated by base silver radiate antoniniani of the late 3rd century, and includes at least two 'Barbarous Radiates' (poor contemporary copies of official coinage). They may have been deposited as a small hoard or placed deposit.

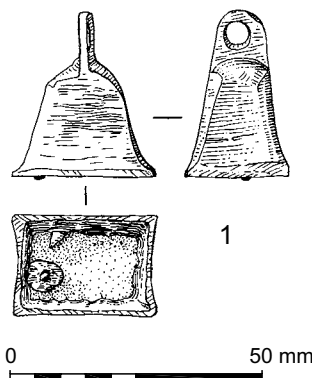
(Cooke, CD Section 5)

Waterhole 651136 lay in the south-western corner of E5, replacing middle Roman waterhole 651045 (Fig. 4.68). It contained a stake built wattle revetment on its northern side (Plate 4.26), probably used to prevent collapse and aid water collection, and was later used for deposition of domestic material including large amounts of pottery, ceramic building material, hobnails, a quernstone, five coins and a small copper alloy bell (SF 29102), used in horse harness (Fig. 4.68). The closely dated coins from two upper layers suggests



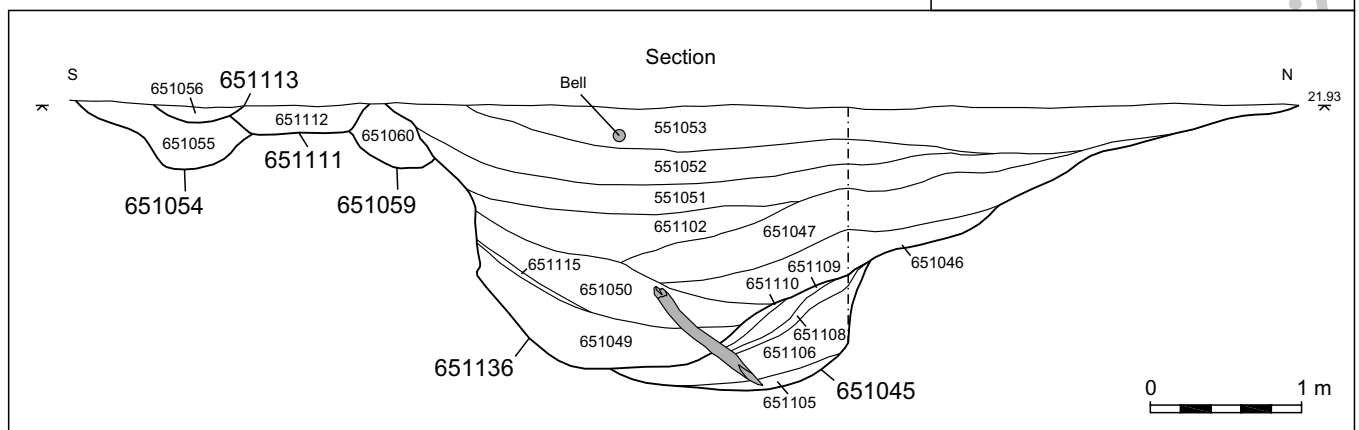
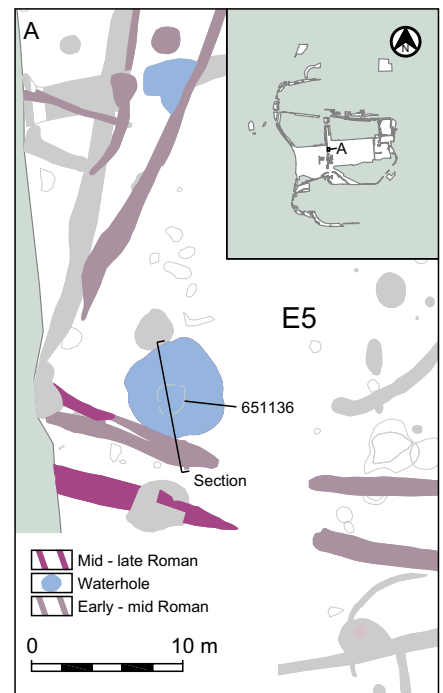
Above:
Plate 4.26: Wattle revetment from waterhole 651136

Below
Figure 4.68: Late Roman waterhole 651136



these formed between the 330s and the 350s AD, and as with the other coin deposits in the upper fills of waterholes, may represent specific ritual deposition of material, perhaps as an 'act of closure' (Cooke, CD Section 5).

Aside from the ladder enclosure system to the east, the only 'new' enclosure to be confidently dated to the late Roman period was rectangular Enclosure 10, c 60 m the south of the main settlement complex (Fig. 4.69). It was aligned upon the main eastern field system axis and was clearly a multi-phase construction, at its maximum reaching a possible size of c 18 x 36 m, with a number of sub-divisions. A possible waterhole (960578) was located in the southern half, but was not fully excavated. The function of this enclosure is unclear, with few finds except pottery (3.2 kg; see Fig. 4.75



below) and small quantities of ceramic building material and slag. The pottery was a typical late Roman assemblage belonging the 3rd and 4th centuries and including Oxfordshire mortaria as well as the usual bowls dishes, flagons and beakers. Despite the pottery the finds do not appear to be typical domestic rubbish, with for example very little faunal remains present, and perhaps a stock enclosure and/or small scale industrial facility is more likely. Metalworking often took place on the periphery of settlements (eg Cotswold Community; Powell *et al.* 2010), and so the enclosure's location would be quite suitable. The morphology of the enclosure was similar to Enclosure 1 to the north-east (see above) which developed from the mid Roman period and eventually became an integral part of the late Roman 'ladder enclosure' (see below).

Late Roman structures

It is quite possible that any or all of the potential buildings identified from the middle Roman phase continued in use into the 3rd and 4th centuries. A sequence of intercutting waterholes in this area (174070, 174069) clearly continued throughout the late Roman period, with the latest cut containing a virtually complete Alice Holt flagon dated between *c* AD 330 and 410 (Framework Archaeology 2006, 221, fig. 4.31; Fig. 4.70; Plate 4.27).

During the late Roman period two more possible buildings were constructed, one (B5) just west of B1–4 and the other (B6) lying *c* 95 m further to the west, within Enclosure 7. B5 was similar in form to the earlier possible buildings, in being defined by a rectangular gully, although it was larger at *c* 18 x 11 m (Fig. 4.71). At this width, it is likely to have been an enclosure rather than the drip gully of a building, unless it was quite an architecturally sophisticated structure, which is doubtful. The finds from the gully (pottery, small quantities of fired clay, burnt flint, animal bone and a fragment of roof tile) do not readily provide evidence either way, but the most feasible scenario is that this was an enclosure which surrounded a



Figure 4.69: Enclosure E10



Plate 4.27: Excavation of wooden revetment in the base of Roman waterhole 174069

smaller rectangular building, possibly of mass walled or shallow beam slot construction. A large (*c* 6 m across) pit (171116) just to the west was obviously used to dispose of a variety of ostensibly domestic rubbish, including animal bone, ceramic tile, iron nails (including hobnails), a copper alloy finger ring and 2nd to 4th century pottery. The feature was 1.24 m deep and may have functioned initially as a waterhole.

Structure B6 to the west was of a completely different construction, comprising closely set substantial post-holes (Fig. 4.72; Plate 4.28). Only the western end of the building was well preserved with the eastern side appearing to be entirely truncated. The post-holes ranged from between 0.3–0.6 m wide and 0.08–0.26 m deep, most of them only surviving to a depth of 0.13 m. The south range postholes

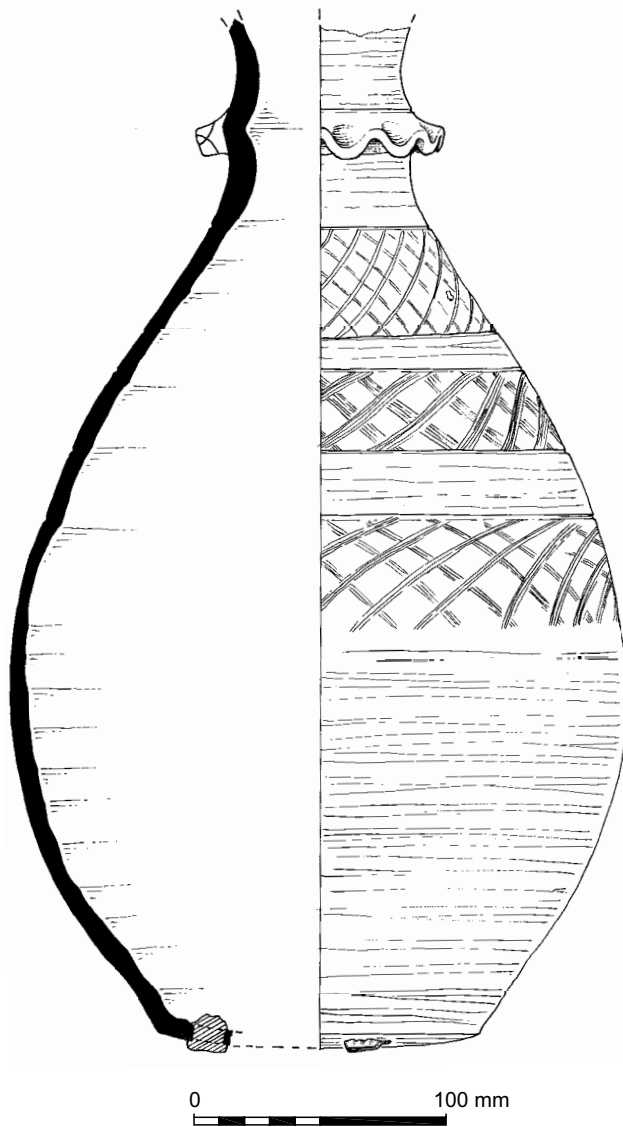


Figure 4.70: Alice Holt Flagon from waterhole 174069

were slightly deeper and preserved packing stones 0.02–0.1 m in size, in contrast to the west wall postholes, which contained only soil and gravel. Despite the absence of post-pipes in the profiles, a general post size of *c* 0.25–0.35 m can be assumed based on the diameters of the best preserved postholes. An internal partition or supporting wall was indicated by a line of postholes, 5 m in length, *c* 3.4 m from the western wall.

Assuming that the maximum width of the structure was revealed by the southern line of postholes (Fig. 4.72A), then it would be a total of 12 x 7 m in size, which is certainly feasible for a roofed post-built building, especially with the centrally placed internal supports that this structure appears to have. Furthermore, as the posts were

set relatively close together, *c* 1 m from the centre point of one to the centre of the next, the structure would probably have been sufficiently strong to have supported an upper floor.

Post-built buildings of similar size were found at Thames Valley Park near Reading (12 x 5 m; Butterworth and Hawkes 1997, 85–88), Eton (*c* 9 x 7 m; Allen and Mitchell 2001, 27) and much closer to Terminal 5 at Hengrove Farm (12 x 6 m; Hayman forthcoming d) and Ashford Prison (13 x 6–6.5 m; Carew *et al.* 2006) near Staines. All these buildings except Ashford Prison date to the early–mid Roman period and the substantial postholes at Hengrove led the excavators to also suggest a multi-story structure. The Ashford Prison structure remains undated, but could potentially be of Roman date.

There are some reasons, however, to be cautious about the above interpretation. A single posthole (673073) to the east was on the same alignment with the northern side of the building, and if this was part of the structure, then its dimensions could change to at least *c* 12 x 13 m (Fig. 4.72b), which is then highly unlikely to be roofed timber building. In this instance, the structure could be viewed as a substantial stockade, though for what purpose is unknown. Parts of a similar mid Roman closely-set posthole structure, with minimum dimensions of 21 x 8 m was excavated at Kempford Quarry in the Upper Thames Valley, but here also nothing was revealed of its function (Booth and Stansbie 2008, 22).

Finds directly associated with the structure comprised small amounts of Roman pottery, fired clay, two

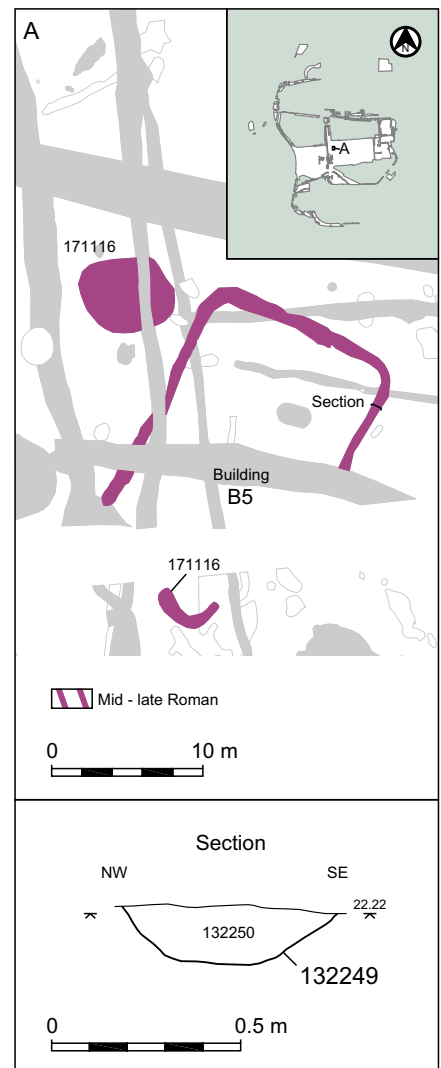


Figure 4.71: Late Roman building B5

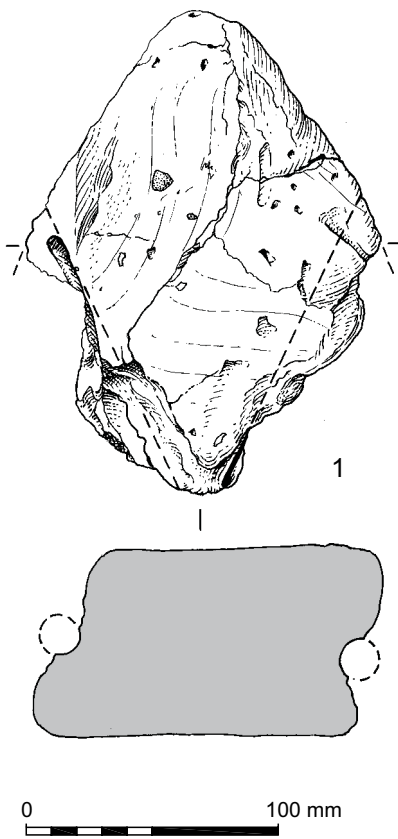
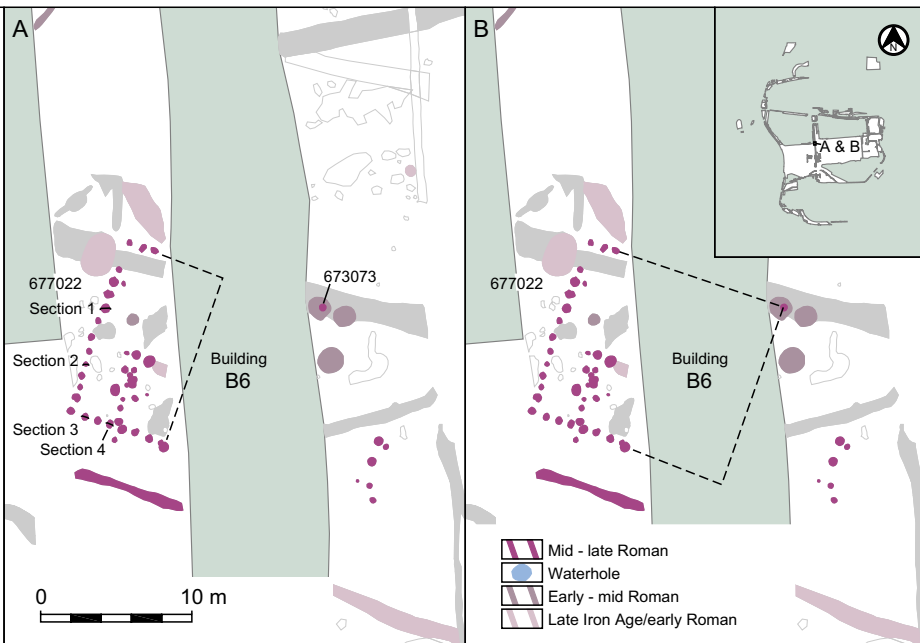
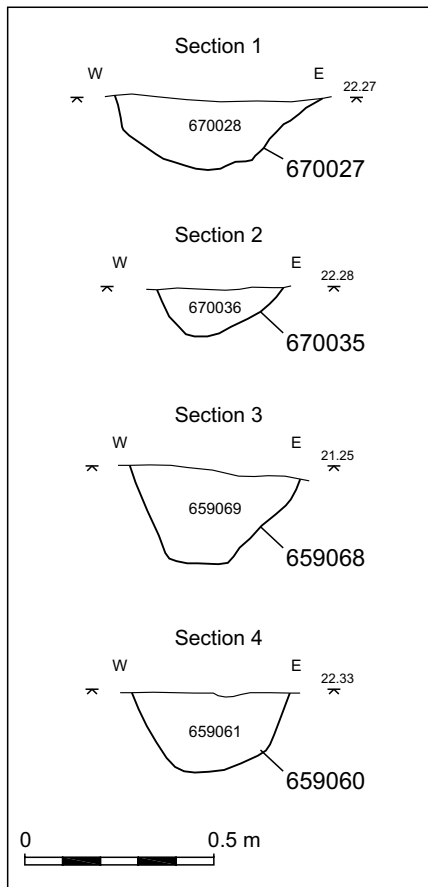


Figure 4.72: Late Roman structure B6

Plate 4.28: Artist's reconstruction showing the two interpretations for building B6



Plate 4.29: Artist's reconstruction of late Roman ladder enclosure

fragments of ceramic tile (including an imbrex) and a glass bead, while a substantial pit (677022) immediately to the north-west contained a reasonable amount of animal bone, a loomweight (Fig. 4.72, 1) and undiagnostic Roman pottery. Its contemporaneity with the structure is uncertain. Internally, a pit (662080) contained small amounts of slag and a coin of Valentinian (AD 364–94), one of the latest coins on site, possibly attesting to the longevity of the structure.

The function of the building, if such is what it was, remains uncertain, but whether for domestic, storage or agricultural use, its scale and appearance would probably have been quite striking and very different to any other structure on site. It could well have been related to the same phase of re-development as the ladder enclosure to the east, which also marked itself out as quite anomalous within the previous traditions of landscape organisation.

The 'ladder' enclosure system

At some point during in the 3rd century AD the pattern of field boundaries to the east of the main settlement area was altered by the development of a new enclosure system, probably occurring over several decades (Fig. 4.73; see Framework Archaeology 2006, 224). Its final form, visible in modern times as cropmarks spread across a large area of the Heathrow landscape, was in an arrangement resembling a runged ladder, hence the term 'ladder enclosure' (see reconstruction in Plate 4.29). This system was on a scale not previously seen at the site, although it did in the most part maintain the approximate same orientation of the earlier fields, and so was not a complete break with the past. The reasons for this development were no doubt complex, and may have been influenced as much—if not more—by external socio-economic and political factors as by the necessary and normal evolution of local agricultural practices (see below).

The scale of the 'ladder enclosure' complex system was impressive.

A linear series of linked enclosures extending for at least *c* 350 m either side of a wide central corridor was exposed in the excavations, but it was presumably even more extensive, perhaps continuing in a south-west direction on to the Roman town of Staines. The main axis lay on a roughly NNE-SSW alignment, but an east-west corridor at approximately right angles to the main droveway allowed access further to the east (Fig. 4.73).

The central corridor served as a droveway up to 90 m wide, which was probably designed to accommodate high levels of livestock traffic, but perhaps only seasonally. Gangs of drovers may have moved these animals, probably mostly cattle, but perhaps also sheep, across the landscape, to markets for sale or slaughter, or between summer pasture and over-wintering. The central droveway was flanked by narrow trackways, probably bounded by hedges and/or banks, which provided access into the enclosures.

Although the 'ladder' enclosure system was the latest obvious alteration in a

series of changes to the landscape during the Roman period it was not well dated. It clearly cut the eastern field system ditches which had developed from the Late Iron Age to middle Roman period, providing a stratigraphic *TPQ* for the fills. The earliest ditch fills had been scoured out by successive episodes of cleaning, which may account for the lack of significant distribution patterns in the pottery. However, the stratigraphic relationships and minimal pottery evidence does suggest that the system had its inception at some point in the 3rd century AD, probably at a similar time to the construction of the post-built structure (B6) and Enclosure E10 further west. Furthermore, it seems to have remained in use for some time, seemingly still a major feature of the post-Roman landscape.

The ditch fills of the enclosures that flanked the droveway were generally sterile secondary and tertiary deposits derived from the surrounding topsoils and brickearth subsoils, which provided no useful environmental information as to their specific function. However, they could well have been used for short term, perhaps even overnight, management, penning and sorting of livestock in advance of or during movement further afield.

A glimpse of the dead

Throughout the entire area of excavations, just two indications of Roman burial were encountered; both seemingly quite isolated and far removed from the main area of settlement (Fig. 4.74).

A cremation burial, 591052, probably placed in a wooden box, was interred almost half a kilometre south of the settlement, on the projected line of the late Roman 'ladder' enclosure system. The bone belonged to a mature adult of 35 years or more who was accompanied on the pyre by grave goods of sheep/goat and (?) red deer, along with an iron object too damaged to identify. A radiocarbon date of AD 250–380 (OxA-16127) was obtained from the cremated bone.



Figure 4.73: Late Roman Ladder enclosure system

The position of the isolated burial, so distant from the settlement, but not in a formal cemetery, could suggest that this person was not necessarily a local inhabitant. The Roman dead, both civilians and soldiers, were frequently buried along the route of tracks and roads and this may have been no exception. The 'ladder' droveway was an important thoroughfare which, although probably controlled and maintained along the excavated length by the local community, is likely to have been frequented by drovers from other settlements in the area.

The remaining possible inhumation grave (644031) did not contain the remains of any individual, although the size and shape of the elongated east-west pit, together with the concentration of 63 hobnails at the east end, indicates that this was probably a burial, with the skeletal remains not surviving in the acidic soils. It was located *c* 133 m SSE of Enclosure 10, seemingly aligned upon a Bronze Age field ditch, which suggests that elements of this earlier field system were still quite visible in this part of the landscape, as they probably also

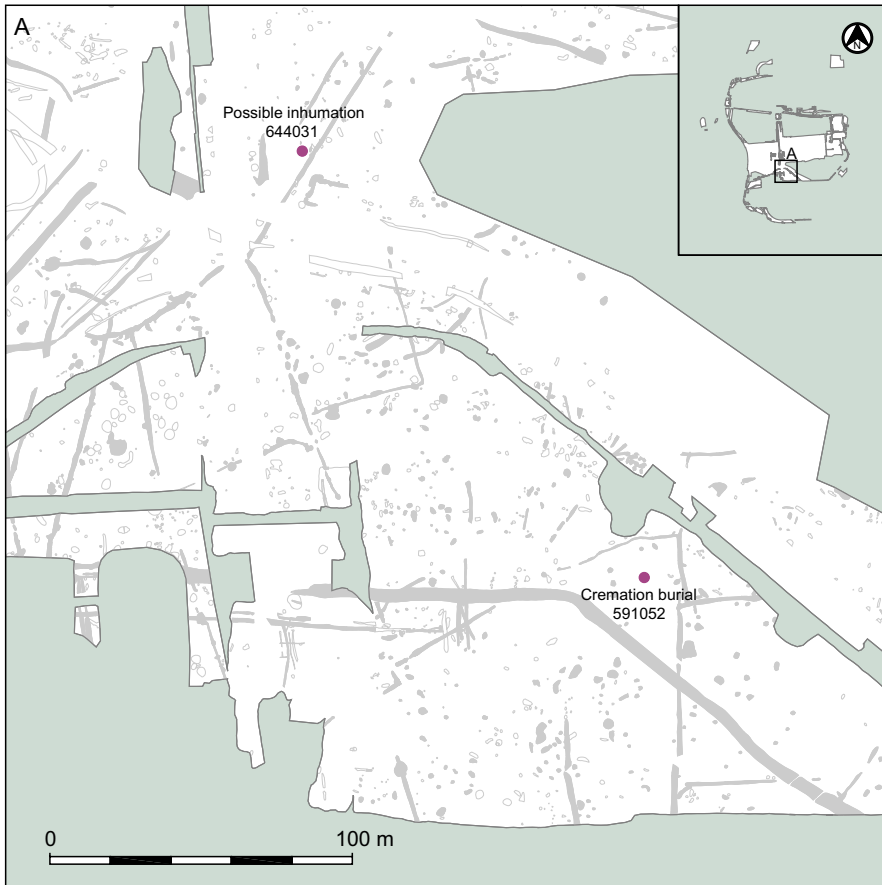


Figure 4.74: Location of Roman burials

were further west. A late Roman date is postulated on the basis that this was the most common period for such burial types, but an earlier mid Roman date is not out of the question.

The recovery of isolated burials in and around small rural settlements is quite typical of the Roman period, with other local examples including a single crouched inhumation at Horton (WA 2009) and two mid Roman cremations (one urned) at Imperial College Sports Ground (A Powell, forthcoming).

Nature of change in the late Roman period

The 3rd and 4th century developments at Terminal 5 are characterised on the one hand by apparent continuity in terms of the maintenance of some existing enclosures and buildings, and on the other hand by the imposition of radically new styles of structure (B6) and wholesale changes to the eastern field systems. The artefacts of this phase were few, aside from pottery and hobnails, the latter of which mostly

derived from two burials (see above), with the only items of note comprising a copper alloy finger ring and a neatly cast harness bell. The late Roman pottery produced a typical range from this period (Fig. 4.75), displaying a number of imported wares, but with little to suggest anything other than a lower status rural farmstead (see Jones and Brown, CD Section 2).

The environmental evidence is insufficient to tell if there were any major changes to the landscape or agricultural system, although it is likely that a similar range of crops was grown. Overall, the evidence suggests that the local community continued to farm the land, probably in much the same way as previously, with no obviously detectable increase in wealth or status. However, the substantial post-built structure and 'ladder' enclosure hint strongly at new external influences that may have been part of wider changes to the landscape and economy during the later Roman period.

The variety in local settlement and land use patterns noted above for the 1st to 3rd centuries continued into the later Roman period, although there are signs that the overall character of the landscape was changing. At Imperial College Sports Ground, the enclosure system on either side of the c 35 m wide droveway only really developed fully during this period (A Powell, forthcoming; Fig. 4.76). It was suggested (ibid.) that the enclosures may have been used for sorting, processing and handling the flow of livestock, perhaps reflecting the increase of animal-based food production during the later

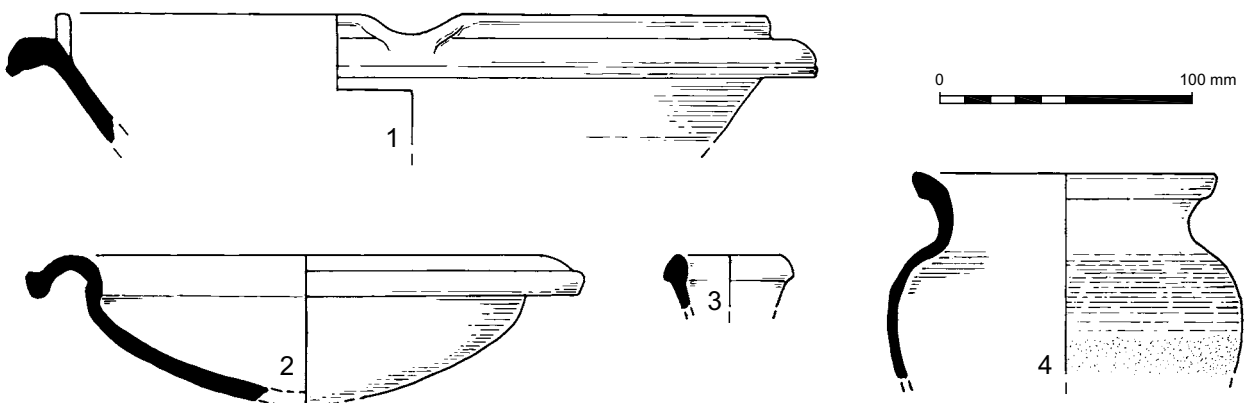


Figure 4.75: Late Roman pottery from E10 (ditch 636025)

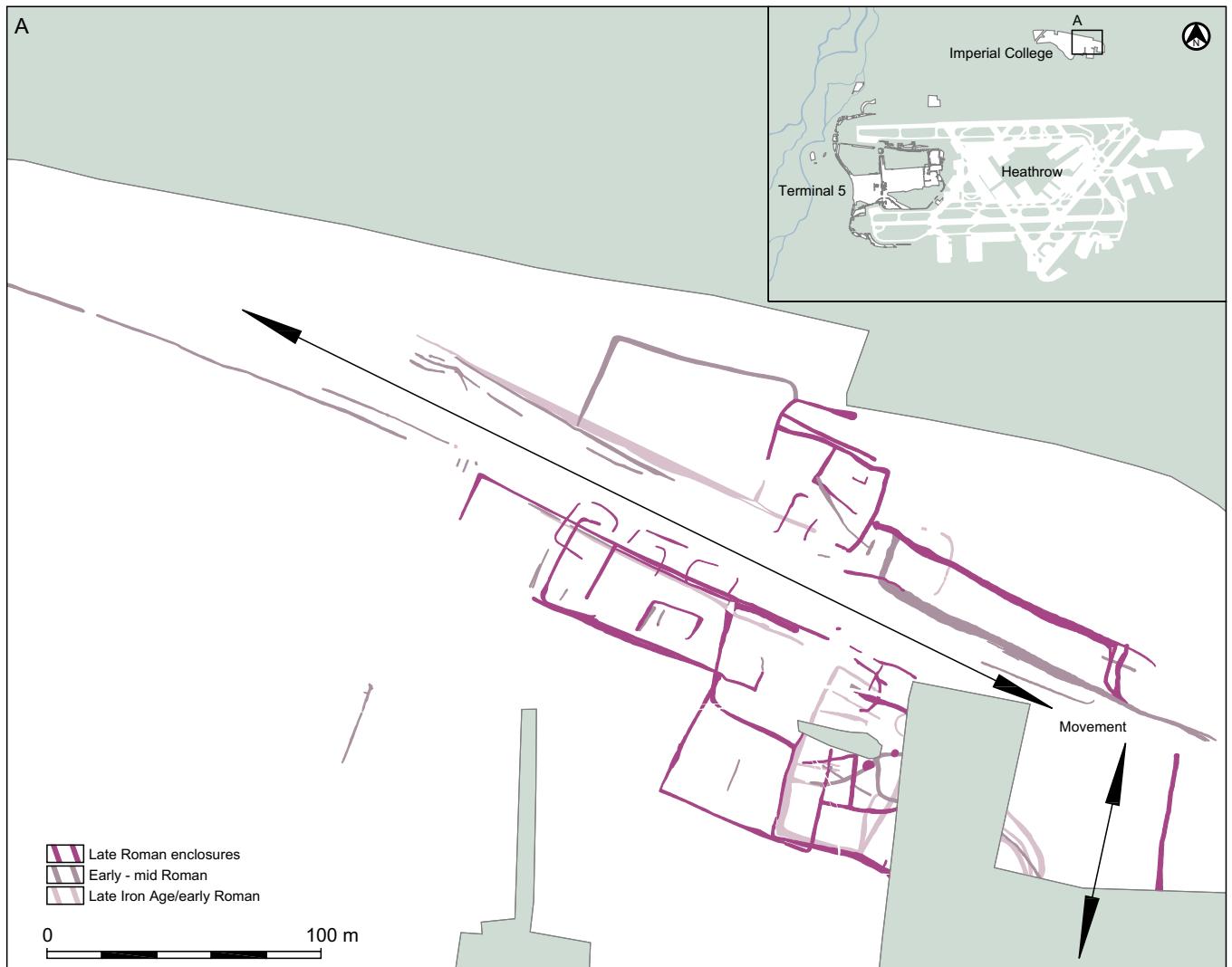


Figure 4.76: Full extent of late Roman enclosures at Imperial College Sports Ground

Roman period for the markets at towns like Staines and especially London. Such expansion of pastoral production is also seen at Thorpe Lea Nurseries, where the settlements developed from a mixed farming economy ‘...to something resembling a ranch by the end of the Roman period’ (Hayman forthcoming a).

Assuming the Terminal 5 ‘ladder’ enclosure was associated with livestock, as seems most likely, then this too contributes to the idea of a widespread increase in animal farming at this time. The axis of this enclosure is at roughly right angles to that of Imperial College, and it is quite likely that they formed part of a network of droveways that served a wide region during the late Roman period, linking a number of rural farmsteads to the major towns and communication routes. The impetus for such

developments may have been purely commercial, perhaps driven by wealthy villa and townhouse owners to maximise profits in a steadily changing economic environment. The lack of villas in the immediate area around Terminal 5 (Bird 2004, 69) need not preclude at least parts of the land from being apportioned by their owners for further economic gain, possibly as part of managed agricultural estates. This potential land acquisition may well have been at the expense of poorer rural landowners like the occupants of the Terminal 5 farmstead, who would nevertheless continue to farm their remaining land as they had always done. The late Roman posthole structure at Terminal 5, which was strikingly different to other structures on site, may also have been built under external influence, either as a strong stockade for agricultural produce or even as a house for locals or newcomers.

A renewed interest in the expansion of agricultural wealth at this time coincided with both increased evidence for centralisation of rural settlements, and with signs of new field systems being laid out. While some settlements that had declined from the mid to later 2nd century remained largely abandoned (or at least reverted to peripheral agricultural land; eg Wey Manor Farm, Mayfield Farm, Eton and Cippenham), others such as Wall Garden Farm and Holloway Lane displayed a resurgence of agricultural activity (field boundaries, enclosure and a corn drier) in the late Roman period (see Fig. 4.63 above). New settlements were also established, as seen at Cranford Lane to the south-east of Imperial College Sports Ground, where excavations revealed a mass of enclosures, field boundaries and trackways dated no earlier than the 4th century (MoLAS forthcoming). Further west at Horton

there is evidence for new late Roman field systems (Ford and Pine 2003, 84), while at Wraysbury, just 800 m east of the river Thames a triple ditched enclosure was excavated, dating to the 3rd–4th centuries AD (Pine 2003, 133).

The changes in the landscape witnessed during the late Roman period demonstrate that agricultural productivity remained, perhaps even being revitalised following a period of decline during the 3rd century. New agricultural estates may have been formed at this time, perhaps belonging to the owners of more remote villas and/or wealthy townhouses in London, which despite the dilapidation of public buildings by the early 4th century, was clearly still a centre of power and wealth (Perring and Brigham 2000, 160). Rural farmers on these estates may have become *coloni*, essentially subsistence workers who were tied to the land in service of the estate, though also able to produce a meagre surplus.

The final act?

It cannot be demonstrated that occupation continued at Terminal 5 beyond the later 4th century AD, although the latest coin, an issue of Theodosius I, does indicate activity of some kind until at least the end of this century. Such chronology is fairly typical of rural settlement in the local area,



Above
Plate 4.30: Withy ropes and straps within late Roman waterhole 135087

Right
Plate 4.31: Excavation of lead tank from late Roman waterhole 135087



although Wraysbury has been argued to have continued without any break into the Saxon period (Pine 2003, 137). At Staines there is evidence for limited survival of occupation through into the post-Roman period, but probably more in the form of a small rural village than the functioning town of the earlier

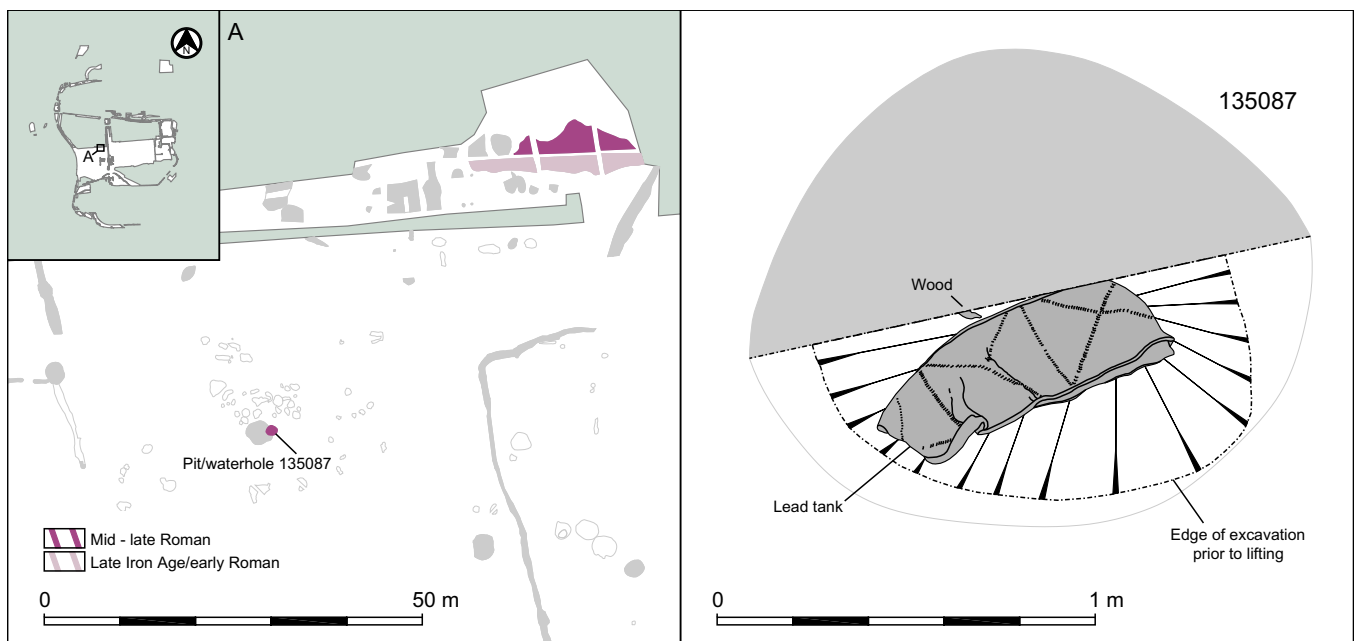


Figure 4.77: The late Roman lead tank



Plate 4.32: Artist's impression of the ceremony leading to the deposition of the lead tank into waterhole 135087

Roman period (Jones and Poulton forthcoming). The often meagre evidence from other rural sites precludes any wider discussion on the transition from Roman to Saxon (Bird 2004, 73; see Chapter 5)

It was probably at this time (*c* AD 400), towards the end of occupation at Terminal 5, that the inhabitants of the farmstead deposited the remains of a damaged lead tank into a waterhole (135087) on the floodplain to the west

of the main settlement (Framework Archaeology 2006, 227–30; Fig. 4.77; Plates 4.30–2). The tank is one of a small group of Roman Christian lead tanks found only in Britain, possibly used for baptism or washing of the feet (see Petts, *CD Section 6*). It provides important evidence for the presence of a rural Christian community at this time, which with a few exceptions (eg the tank deposited in a late Roman well at Caversham), is rare in within the Thames Valley (Booth *et al.* 2007,

223). The placing of this object within a waterhole, perhaps especially dug for the occasion, is, nevertheless, part of a long-standing tradition of ritual deposition within watery contexts seen both at Terminal 5 and further afield (*ibid.* 217). It suggests that Christianity had absorbed aspects of earlier spiritual traditions, possibly helping the occupants to deal with the tumultuous shifts in the religious, political and social circumstances of the final days of the Roman Empire in Britain.