

# MIDDLE IRON AGE MARGINAL SETTLEMENT AT NEWTON LEYS, NEWTON LONGVILLE, MILTON KEYNES

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with contributions by

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*Middle Iron Age settlement was identified by means of geophysical survey and trial excavation on farmland designated for development at Newton Leys, Newton Longville, Milton Keynes. A targeted area of 1.6ha was subsequently excavated.*

*A series of roundhouses, no more than 2-3 per phase, with associated enclosures were located adjacent to a stream. There was a substantial pottery assemblage, other material evidence was sparse but included two weaving comb fragments and sherds from bronze casting crucibles. Seeds and faunal remains were few, although charcoal was better represented. The settlement expanded alongside the watercourse over 3-6 generations and became more extensive with larger enclosure ditches as marshland dried out. Its apparent sudden demise may have followed extensive flooding, as it was clear that water management was becoming increasingly important over time. By the late Iron Age the land had reverted to marshland, the enclosures abandoned and the land marginalised.*

*Throughout the Roman and Saxon periods the land remained open marsh until the establishment of the medieval open field system, which left traces of ridge and furrow cultivation. A field boundary was established in the 18th-19th centuries.*

## INTRODUCTION

The middle Iron Age waterside settlement at Newton Leys, Milton Keynes, was identified by geophysical survey and trial excavation within an area of town expansion, south of Bletchley (Fig. 1: NGR SP 8663 3101; Holmes 2006). The site lay between Milton Keynes Council and Aylesbury Vale District Council who, in compliance with PPG16, required a programme of archaeological excavation. Northamptonshire Archaeology (NA) was commissioned by CgMs Consulting Ltd to undertake these works on behalf of George Wimpey (South Midlands). The work was conducted according to a Specification and a Written Scheme of Investigation, approved by the planning authorities (Bourn 2006; NA 2006a).

The principal excavations covered an area of 1.6ha, containing the middle Iron Age settlement. A further 0.25ha along the access road was also

recorded. The archive will be deposited with Buckinghamshire County Museum Service (Accession no: 2007.97).

## BACKGROUND

### **Topography and geology**

The development area covered c.40ha south of Bletchley and southeast of Newton Longville (Fig. 1). It was bounded by the Water Eaton to Drayton Parslow road to its southeast, by the London to Birmingham Railway to its east and by former brickworks to its north.

The main development is divided into blocks defined by future land use. The middle Iron Age settlement site was located within Block B, directly to the west of a 20th-century clay pit and south of Eaton Brook. Prior to development the site was arable farmland occupying gentle slopes over-

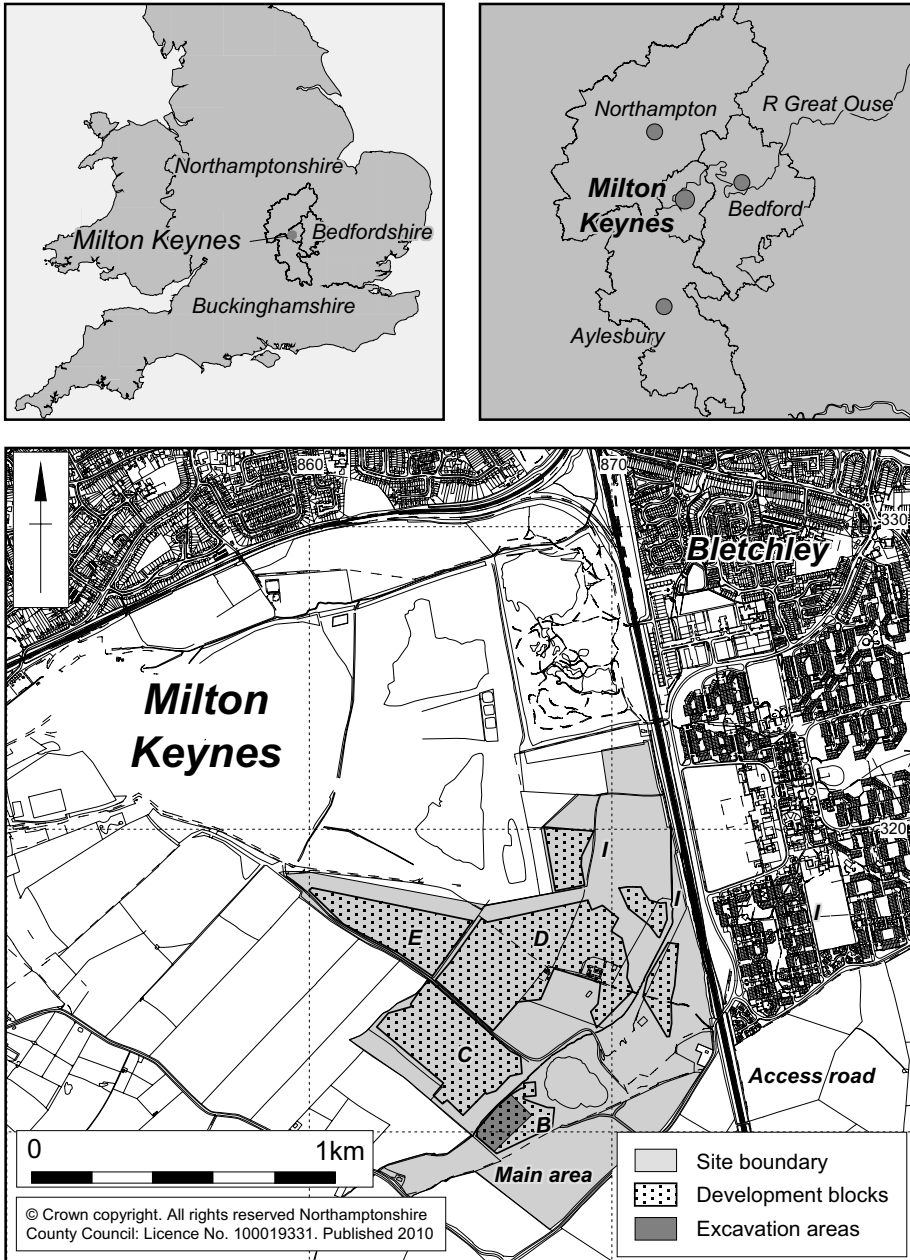


FIGURE 1 Site location

looking a broad shallow valley. The site occupied a narrow strip of ground adjacent to the canalised watercourse of Eaton Brook, situated at *c.*84m above Ordnance Datum. Eaton Brook flowed east to join the river Ouzel, which flowed north to meet with the Great Ouse near Newport Pagnell.

The underlying geology of the area comprised Chalky Boulder Clay with outcrops of Oxford Clay and Lacustrine deposits (Bourn 2006, 2). The localised drift geology of the middle Iron Age settlement comprised terrace gravels filling the base of the valley depression and clay further upslope. Settlement features were confined to the gravel and linear ditches that extended away from the habitation crossed onto the clay.

### Previous archaeological work

Background source material is summarised in previous publications from the area (Croft and Maynard 1993; Ivens *et al* 1995). Sites providing comparisons within the Milton Keynes area have been excavated at Hartigans, Caldecotte, Wavendon Gate, Pennyland, Bancroft, Westcroft, Stoke Hammond bypass and Fenny Lock. More recent work has been conducted by Northamptonshire Archaeology (NA) at Tattenhoe and reporting is in progress (Taylor 2006).

Prior to excavation, the development area was the subject of desk-based assessment that was incorporated into an environmental statement (OAA 2002). Little archaeological evidence was known from within the development area. Field-walking undertaken by Buckinghamshire County Museum Service in 1995 revealed two concentrations of worked flint, probably of Bronze Age date, as well as scatters of Iron Age, Romano-British and medieval pottery (*ibid.*). These concentrations were located on the valley slopes to the south of the excavation area and on land in the east of the development area, close to the railway line, bearing no relation to the middle Iron Age settlement site. The southeast part of the development area had previously been the site of the early 20th-century Jubilee Brickworks with attendant clay quarries, now disused and demolished.

In 2006 NA undertook a geophysical survey of the site (Holmes 2006). This identified a series of circular and linear anomalies in the south-western corner of the development area. Trial excavations by NA demonstrated that the geophysical anomalies were attributed to a concentration of Iron Age

roundhouses and associated enclosures (Burrow 2006, 12). A large alluvial spread associated with a water course and representing a previous alignment of Eaton Brook was noted at the base of the valley. Shallow hollows were distributed about the site containing material derived through Iron Age occupation, thought to have been eroded during flooding episodes and re-deposited in the silt.

## EXCAVATION STRATEGY

### Objectives

The general aim was to meet the remit of PPG16 and preserve by record the archaeological evidence within the site (Bourn 2006). This would provide evidence of the origins, development and decline of the Iron Age occupation by establishing the chronology of the site, with priority to an overall plan of its development. It aimed to determine the internal morphology and spatial dynamics of the site and its land use by identifying the nature, date and range of activities present. Excavation sought evidence for industrial and domestic activity and for potential continuity of occupation into the Roman period. It looked at the natural topographic configuration of the site in order to determine its environmental history and supported the study of artefacts and environmental material with radiocarbon samples. Overall it sought to enhance understanding of Iron Age occupation in the region by placing evidence from this development in its landscape context.

### Methodology

Detail retrieved from the geophysical survey and trial trench evaluation was used to guide and inform the investigation of the archaeological features. Excavation areas were set out using survey grade GPS (Leica System 1200). The topsoil, subsoil and medieval furrow fills were removed to reveal significant archaeological remains under archaeological supervision and using a tracked mechanical excavator fitted with a toothless ditching bucket.

The excavation area was cleaned sufficiently to enable the identification and definition of features. The site was planned to scale and related to the Ordnance Survey. All archaeological deposits and artefacts encountered were recorded. Recording methodology followed the standard NA context

recording system with context sheets, cross-referenced to scale plans, section drawings and photographs, both in 35mm monochrome film and on colour slides (NA 2003b). A representative sample of all exposed archaeological features was excavated, with basal deposits of all sectioned features investigated. The palaeo-environmental potential of the site was reviewed on site with the Regional Scientific Advisor for English Heritage. Samples were taken from secure and uncontaminated contexts with a potential for the recovery of charcoal, carbonised plant remains and other ecofacts.

Following the completion of the fieldwork a preliminary assessment of the archive and material finds was conducted (Brown 2008). Parts of the archive with the potential to contribute a greater level of information were identified and specific avenues of enquiry outlined as the basis for further progress.

#### THE EXCAVATED EVIDENCE

In this report, numbers in square brackets refer to cut features, e.g. [12345]. Numbers in parentheses, e.g. (12345) refer to deposits, layers and fills.

#### Summary of site development

The middle Iron Age settlement site comprised three key episodes of activity (Figs 2-9). The

phases are based upon the sequence of stratigraphic relationships and the overall pattern of features divided by episodes of change. Features in the road corridor were likely to have been of a similar period but they contained few finds and their relationship to the site is not known.

#### Middle Iron Age settlement

Fundamental to the understanding of the site and its subsequent occupation was the presence of a watercourse at the base of the valley (Fig. 3). This had meandered over time creating a ragged edge aligned roughly northeast to southwest and extending along the northwest edge of the excavated area, exhibiting spreads of clay silt indicative of marshy ground. At its widest point, the watercourse extended 23m from the edge of the excavation and the depth varied between 0.5-0.8m. Firm mid greyish-orange clay silt (10389) had accumulated gradually as sediment on the gravel bed of the channel, from which small amounts of horse bone were retrieved accompanied by two sherds of Iron Age pottery. Environmental residues were poorly preserved within the clay and little was found through bulk sampling.

Among the earliest features on the site was ditch [10212], which extended from its terminal northwest towards the watercourse (Fig. 4). It was 0.7m wide by 0.35m deep and filled with firm dark

TABLE 1 Chronology

<i>Period</i>	<i>Nature of activity</i>
Middle Iron Age settlement	Three roundhouses (R1-3) and two enclosures (E1-2) Non-structural pits and hollows indicated vegetation clearance
Middle Iron Age expansion	Roundhouses replaced by new structures (R4-5) Addition of two roundhouses (R6-7) Enclosures extended and modified (E3-6)
Middle Iron Age abandonment and marginalisation	Early abandonment of two roundhouses (R6-7) Attempts to improve the drainage Initial flood spread horizons were deposited By the end of this phase all of the roundhouses were abandoned
Casual losses in the Roman marsh	Silt deposits accumulated from flooding Two Roman brooches were lost
Post-Roman stagnation	There was no evidence of activity Flooding created a substantial alluvial mask
The medieval open fields	Ridge and furrow was present Earlier deposits were truncated
Parliamentary inclosure in the 18th century	A single ditch is mapped upon the 1885 Ordnance Survey

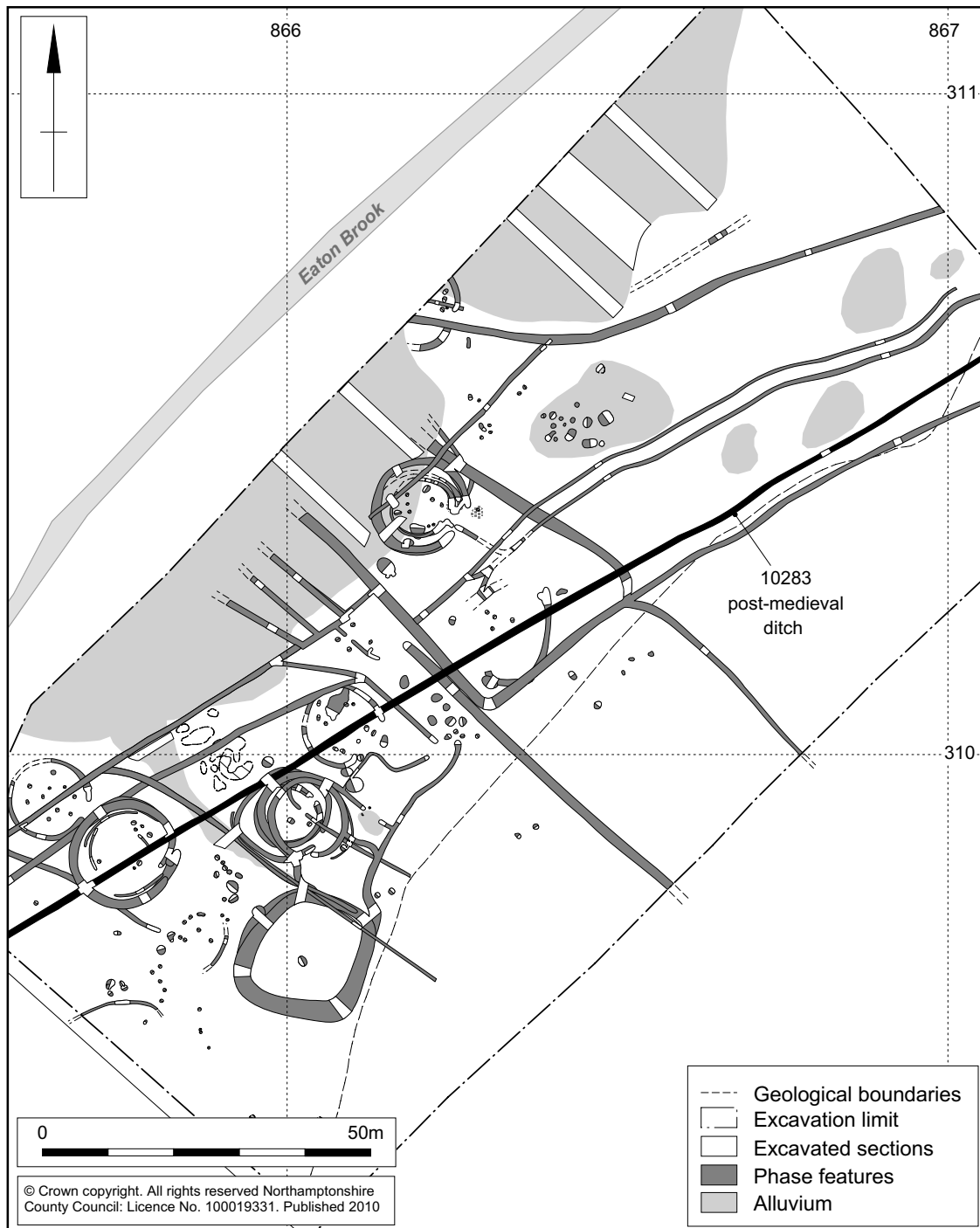


FIGURE 2 General plan

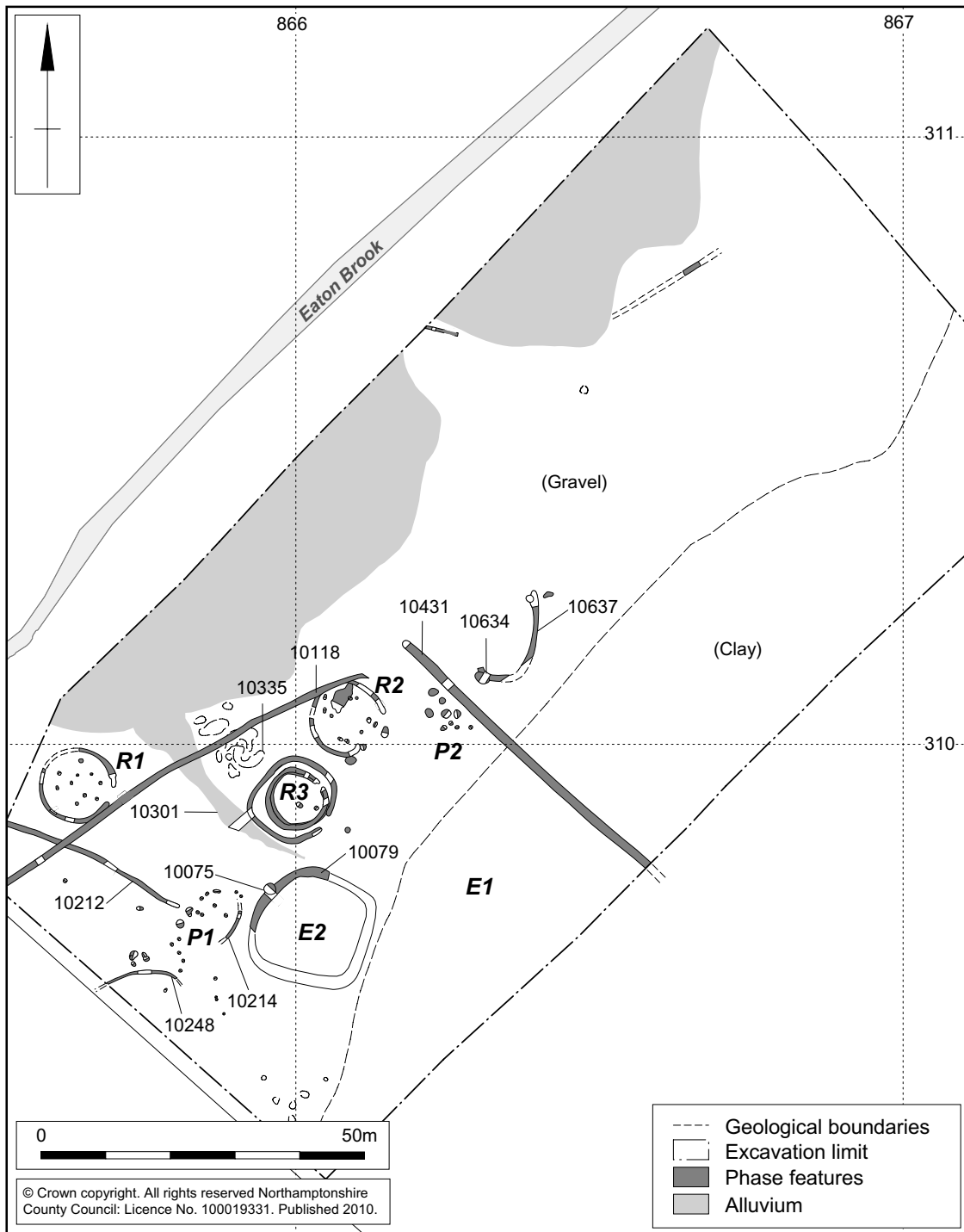


FIGURE 3 Middle Iron Age settlement



greyish-blue clay silt (10211) with frequent grit and pebble flint. Drainage was evidently a problem for the site in this early stage of occupation. A substantial fluvial spread (10301) lay a short distance away from the gully and was parallel to it, flowing into the watercourse. The spread comprised firm darkish grey-brown clay silt with orange mottling, rounded pebbles, pebble flint and occasional pieces of pottery. It was up to 7.5m wide and 0.22m deep, representing slope run-off prior to effective drainage being implemented.

## Enclosures

### Enclosure E1

Enclosure E1 formed the north corner of a much larger field or enclosure, with the boundaries extending beyond the excavated area to the south-west and south-east. Ditch [10118], the northern boundary, was located 9m from the edge of the watercourse and was parallel to it. It appeared to have a terminal at the north-eastern end, truncated by later ditch alignments. At the terminal it created an entrance with its counterpart, ditch [10431], aligned north-west to south-east. The entrance was 8m wide and provided access from the settlement to the watercourse.

### Enclosure E2

The source of the water flow creating spread (10301) was on the north side of Enclosure E2. It was roughly square, measuring 19m across with rounded corners, although its northern corner was slightly skewed. There were no early features within the enclosure. The initial cut of ditch [10079] was *c.*1.5m wide by *c.*0.9m deep. It had steep sloping sides (50-60°) rapidly curving to a narrow rounded base. The basal fills comprised clay silt deposits that had accumulated gradually. The upper fill contained dumps of domestic waste in the form of pottery, animal bone and burnt stone, although the pottery only accounts for 2.9% of the total assemblage. Dumps of waste included the fill of pit [10075], cut into the top of the ditch fill and truncated by subsequent recutting. It contained a bone weaving comb fragment showing the bases of three teeth and a vestige of the handle (Fig. 15, 4). During redefinition most of the initial ditch deposits were removed, leaving only the north-west side *in situ*.

## Domestic and ancillary settlement features

Three of the earliest roundhouses (R1-R3) lay close to the northern boundary of Enclosure E1 [10118] (Fig. 4). Roundhouses R1 and R2 were defined by penannular ditches with entrances to the south-east. A relatively short duration of occupation was supported by a meagre sherd count comprising 9.2% for the combined structures when compared with the site as a whole. It may also indicate that these roundhouses were not necessarily all domestic structures as two-thirds of that proportion came from Roundhouse R1, of which 70.3% comprised sandy wares while pottery from Roundhouse R2 was dominated by organic wares. The differentiation between the structures within Enclosure E1 and Roundhouse R1 seems important. It is suggested that this may represent a split between domestic occupation in Roundhouse R1 and ancillary functions for Roundhouses R2-3, Enclosure E2 and the possible fenced enclosure P1. Together the structures would form a small pastoral agricultural unit capable of supporting a single small family.

### Domestic roundhouse R1

Roundhouse R1 lay outside Enclosure E1, immediately adjacent to the watercourse. The penannular ditch was circular, 11.5m in diameter, with splayed entrance terminals set 4m apart. The ditch was 0.73m wide by 0.23m deep but narrower to the west. A slight variation of size and orientation on the northern entrance terminal indicated that the roundhouse contained two episodes of construction. Within its perimeter were ten postholes. Two postholes, 2.4m apart, faced directly onto the entrance to the ditch representing the doorway of the roundhouse, the remainder lying within the circumference of the outer wall which would have been *c.*8.5m in diameter. The postholes were generally rounded circular or sub-circular with steep to near vertical sides between 0.3-0.5m in diameter and up to 0.32m deep. Of the three roundhouses, this appeared to have the most structural elements and supports the notion that its sturdiness was of greater importance than that of contemporary structures.

### Ancillary roundhouse R2

Roundhouse R2 was located inside Enclosure E1, directly next to the entrance. The penannular ditch formed more of an oval than a circle, 11.6m across.

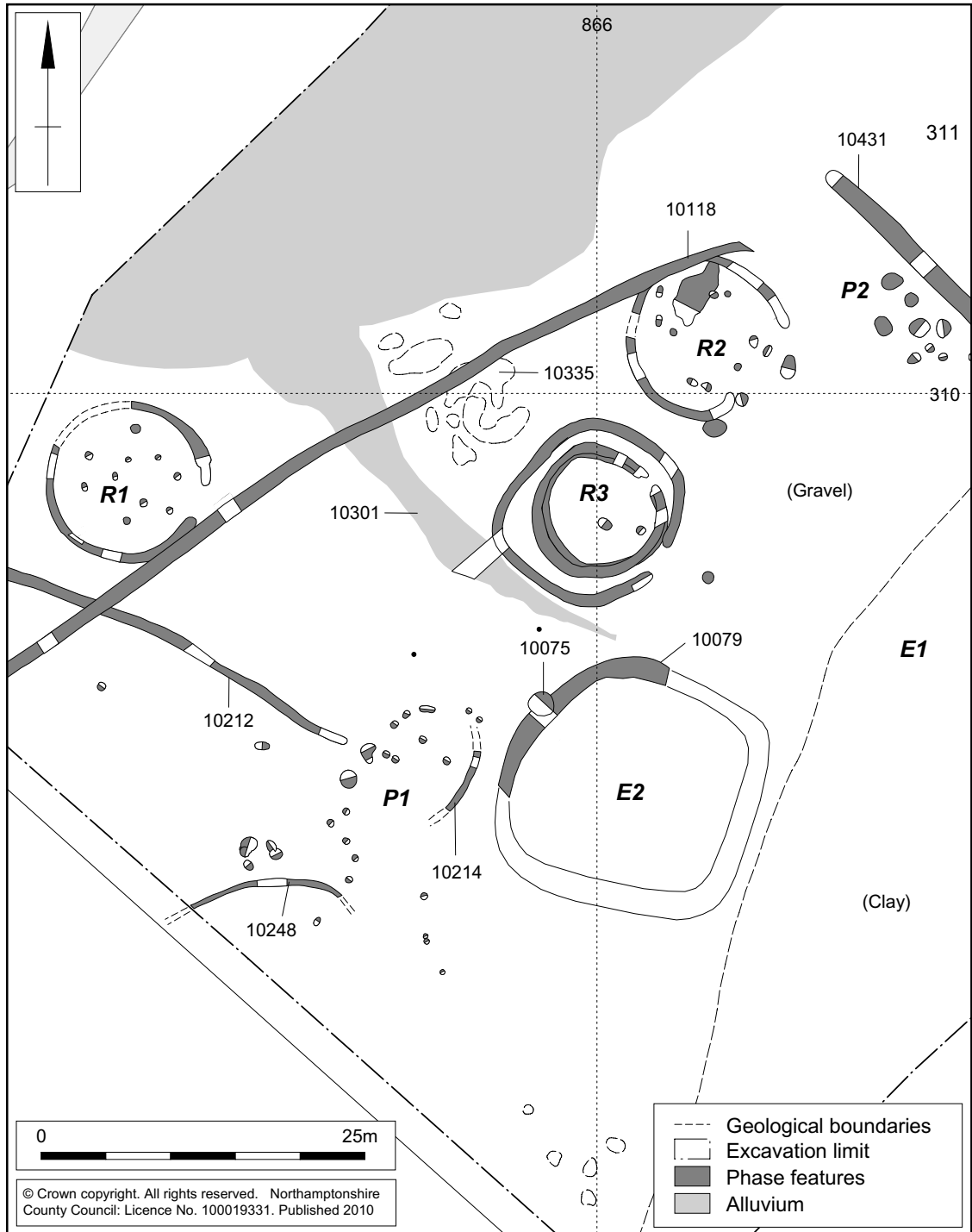


FIGURE 4 Roundhouses R1-R3 and associated features



The ditch was narrow and shallow throughout its course, c.0.4m wide by 0.1m deep. The entrance faced south-east and was 4.5m wide with narrow rounded terminals. Three postholes were set within the entrance, the rear pair of which formed a doorway to the roundhouse that was 2.0m wide. A total of ten shallow scoops lay dotted about the interior and indicate the roundhouse would have been c.8m in diameter. They were generally rounded to sub-circular and no more than 0.12m deep. Several were masked by firm dark brown silt loam containing frequent charcoal flecks that formed a spread, 90mm thick. Such features could perhaps have been created by continued movement within an enclosed space. Three pits had been excavated outside Roundhouse R2, one in front of the entrance and the other two towards the south side. They were sub-circular with gently sloping sides and had rounded bases. Each pit was 0.7-1.0m wide, up to 0.3m deep and produced relatively few pottery sherds.

#### *Ancillary roundhouse R3-3a*

Roundhouse R3 was located adjacent to Roundhouse R2 and north of Enclosure E2. It is difficult to make firm statements about its form and structural elements as most of it was disturbed by later modifications. The initial ring ditch was no more than 9m in diameter and had a narrow north-east facing entrance that was 0.85m wide, leaving room for a small structure of little more than 6.0-6.5m diameter. The undisturbed portion of the ring ditch contained two cuts that formed a sharp steep-sided profile with a rounded base that was 0.8m wide by 0.32m deep. Its first two cuts were circular but later modifications considerably altered the size, shape, orientation and arrangement of the roundhouse. Roundhouse R3a represented its initial expansion and realignment, centred on the same juxtaposition to Roundhouse R2 (Fig. 7, 2). The penannular ditch was rectangular with rounded corners, 13.9m by 12.8m across. The ditch was 0.82m wide by 0.22m deep, and had eroded upper sides that sloped unevenly to a rounded base. The entrance faced south-east and was 2.28m wide with rounded terminals. There were two pits inside, although these could also relate to any subsequent phase of activity. The pits were both gently sloped and rounded at the base, 0.5m and 1m wide respectively, both c.0.3m deep.

#### *A possible fenced enclosure P1*

Various small pits, possible postholes and shallow sterile disturbances were investigated. Many of the amorphous shallow disturbances were considered to be the remnants of early vegetation disturbance predating settlement. One particular group of pits and postholes (P1), despite their apparent shallow depth and poor definition, exhibited a distribution that may have been indicative of a post structure or wattle fences. Together the features formed a generally oval corral that was 12.2m long by 7.0m wide in the area between the terminal points of gully [10248] and ditch [10212]. Most of the smaller pits were in the range 0.4-0.7m wide by 0.2-0.3m deep with the larger pits measuring up to 1.5m wide, but of equivalent depth. The pit profiles were generally varied with no particular regular shape, pattern or profile between them, except that most had 50-60° sloping sides and a flattish base. There were two shallow gully fragments in this group, [10214] and [10248]. They were 0.6m wide by 0.25m deep and 0.4m wide by 0.2m deep respectively, both having sharp 50° sloping sides meeting at a narrow rounded base. The former bounded the south-east side of the corral, while the latter may have been the truncated remains of a ditch leading away to the west. The group produced a total of 35 pottery sherds, comprising 0.9% of the total sherd count from the site.

#### *Pit group P2*

This cluster of nine pits appeared to be associated with Roundhouse R2. They were generally sub-circular, and most had fairly steep rounded sides meeting a flat base. The smallest pit was 0.55m wide by 0.20m deep and the largest was 1.38m wide by 0.62m deep. The pits produced four sherds of pottery and a small assemblage of animal bone, of which 5% was burnt.

#### *Other features*

An early ditch fragment [10637] lay to the north of Enclosure E1 and predated the later settlement expansion (Fig. 3). It comprised an arc 16.7m long with shallow terminals at either end. The ditch was 0.86m wide by 0.45m deep with steep sloping sides and a broad rounded base. At the southern end it was cut by a pit [10634], 1.6m wide by 0.76m deep, containing pottery sherds and animal bone typical of general refuse. The features indicated the possibility of an early enclosure north-east of the settle-

ment having been eroded and masked by later features and flood deposits.

### **Middle Iron Age expansion**

This was the most intensive period of activity, exhibiting the largest number of features with the most evidence for maintenance and realignment of ditches and structures (Fig. 5). These features produced the most finds, among which Roundhouses R4-R6 account for 61.9% of the total number of pottery sherds found on the site.

### ***Extension of the drainage network and the area of agricultural land use***

The ditch systems and enclosures were extended, replacing the boundary ditches of Enclosure E1 with a network draining marshy ground at the edge of the watercourse (Fig. 5). In turn this created better conditions for a more substantial settlement that subsequently encroached upon the sediments of the former marsh.

#### *Enclosure E3*

One of the main ditches within this network, [10433] formed an L-shaped boundary separating Roundhouse R6 in the north from the roundhouses to the south. It was 1.5m wide by 0.68m deep and was cut with a sharp 60-70° angled side that sloped into a narrow rounded base. It extended from the edge of the watercourse on a north-west to south-east alignment for 49.5m, where it then turned through 90° to follow a south-west to north-east alignment. It then became shallower and terminated after 92.5m. This prominent ditch formed the south-west and south-east sides of Enclosure E3. It had two main intersections with ditches [10395] and [10569] that formed the other boundaries of Enclosures E4-E6. Together these ditches formed a pattern that was both a retention and extension of the areas of land use established by Enclosure E1 and enforced by the topographical relationship with the nearby stream.

The intersection of ditches [10503] and [10569] with ditch [10433] had noticeably curved forms, perhaps channelling water into ditch [10433] to the south-west. Ditch [10503] was 2.1m wide by 0.72m deep and formed the north-east side of Enclosure E3, increasing the drainage capacity for settlement close to the marsh. Ditch [10569] was noticeably smaller, probably due to greater agricultural truncation and erosion on the valley slope to

the south. It was 0.6m wide by 0.28m deep. The apparent truncation indicates that the geologically defined concentration of surviving archaeology may be a false impression created by the effects of modern agriculture. The narrow channel of gully [10424] connected ditch [10433] to additional drainage along the waterside margin, ditch [10395] (Fig. 6). The gully was fairly small, measuring 0.7m wide by 0.1m deep, and seems to have been a shallow channel to distribute overflow between the two principal ditches. It could have been easily bridged for transit and crossed a probable trackway between ditches [10429] and [10433] leading down to the watercourse, an essential feature for watering livestock. The point of access lay in the same area as the entrance to the earlier Enclosure E1 and represented the continued use of that arrangement for Enclosure E4.

Three distinctly straight drainage channels, [10392], [10429] and [10437], each set approximately 4.5m apart, formed a major element of the additional drainage along the waterside margin. They increased the drainage capacity of ditch [10395] along the waterside margin where the sediments of the watercourse were most likely to create an area of marshy ground. These ditches were of equivalent dimensions, being c1.2m wide by up to 0.6m deep in each case. The main length of ditch [10395] was 0.8m wide by 0.4m deep where it cut Roundhouse R1. This indicates that the ditch along the waterside margin would have been at least as substantial as the main ditch for Enclosure E3 during its original period of use.

A further two ditches met with ditch [10395] following the slope of the valley from south-east to north-west, presumably collecting surface run-off from the vicinity of habitation. Ditch [10294], cut the line of the earlier fluvial spread (10301) and appeared to have been an attempt to channel water overflow from Enclosure E2. It formed a minor channel 0.4m wide by 0.3m deep and would have quickly become clogged. It is likely to have been a short-term measure to relieve drainage problems. Ditch [10385] was also a minor channel, 0.34m wide by 0.14m deep. Even accounting for site truncation by ploughing it could not have been more than a short-term solution at best.

### ***Two roundhouses and a small stock enclosure***

Roundhouses R4-R5 were the successors of Roundhouses R1-R3 (Figs 5-7). Given that they

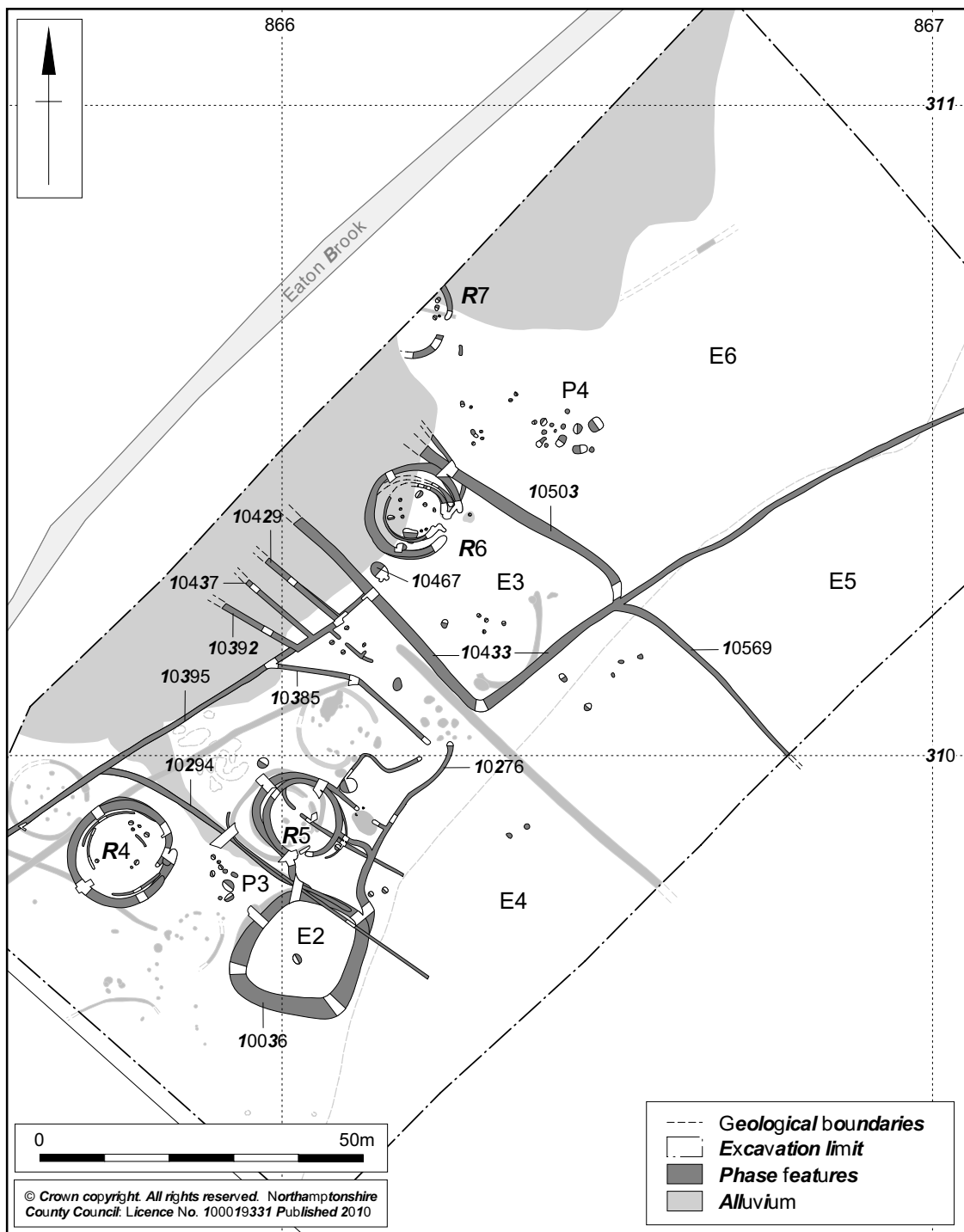


FIGURE 5 Middle Iron Age expansion

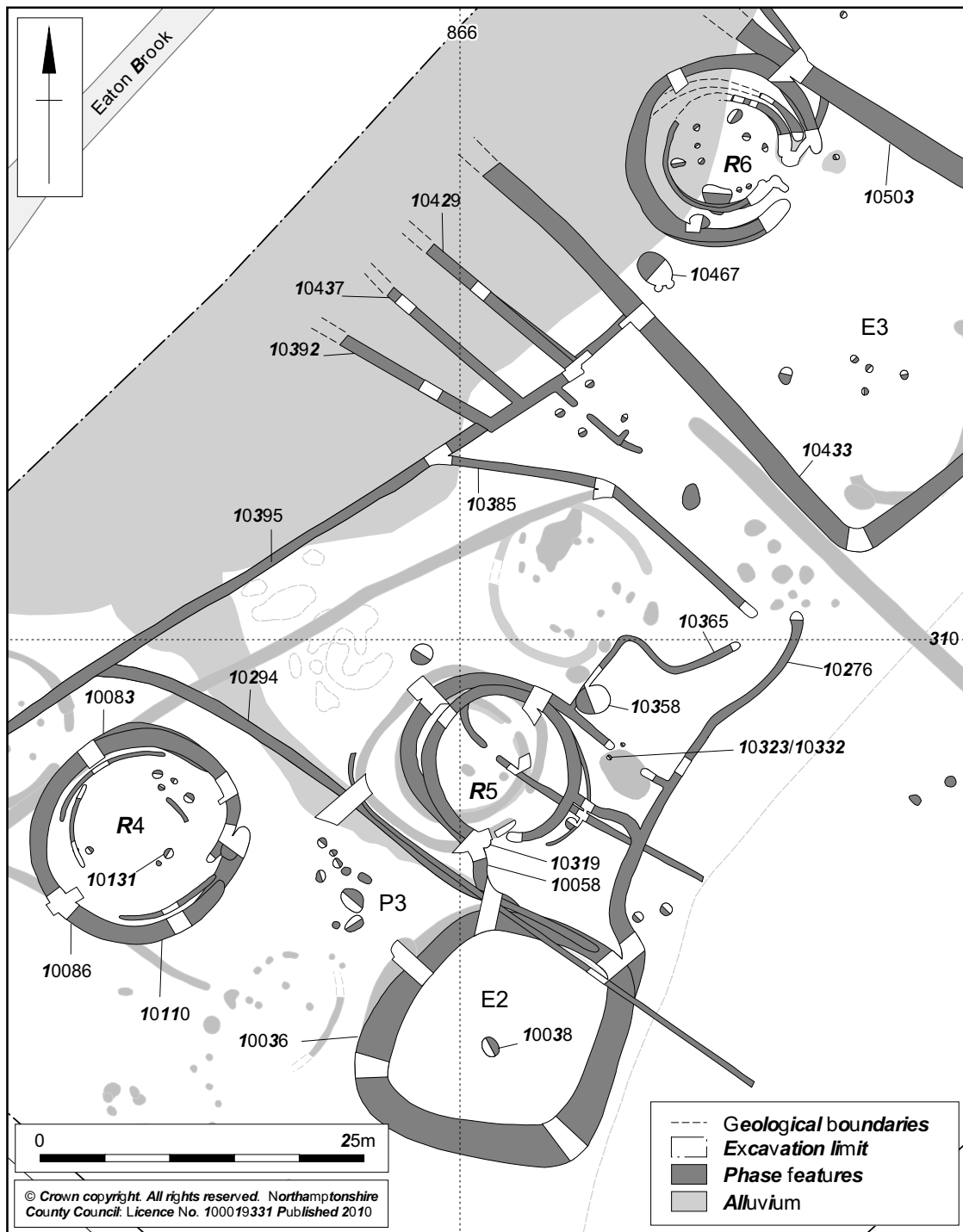


FIGURE 6 Roundhouses R4-R6 and associated features

were constructed directly adjacent to the former structures, rather than on top of them, periods of construction may have overlapped, as one remained in use while its replacement was built, indicating a very close sequence of occupation. It was also noticeable that the distribution of pottery between Roundhouses R1 and R2 was similar to that between Roundhouses R4 and R5. Better-quality sandy wares were dominant in Roundhouses R1 and R4, while rougher organic wares were dominant in Roundhouses R2 and R5. Elements of both fabric groups were present in each roundhouse alongside grog tempered wares and other fabrics, but these dominant groups share an explicit trend with the features.

#### *Domestic roundhouse R4*

The ring ditch for Roundhouse R4 was cut on at least three occasions. It encircled an area slightly larger than its predecessor, R1, and was 14.5m in diameter but remained roughly circular. The ditch was up to 1.8m wide and was 0.43m deep. The entrance was oriented south-eastwards, but was realigned slightly during its maintenance, obscuring the original terminals. A number of gullies may have been slots for wattle and daub walls or perhaps drip gullies beyond the walls, built close to the edge of the ring ditch and indicating a fairly large roundhouse up to c.12m in diameter. There was a pit containing hearth debris, six post-holes and four gully fragments in total. The most substantial gully was 0.40m wide by 0.08m deep and its general curvature was proportional to that of the ring ditch, while the least substantial was little more than a faint soil mark 10-30mm deep. The postholes varied in size within a range of 0.20-0.45m wide by 0.15-0.20m deep. They were scattered within the interior and no easily interpretable pattern was evident, although two to the north set 2.5m apart could have held portal posts for a house c.10m in diameter. Pit [10131] was 0.9m long by 0.32m wide by 0.44m deep. The sides were steep, varying between a 60-70° slope and a near vertical side with a flat base. It had a noticeably high charcoal content, identified as Willow/Poplar (*Salix/Populus*) and Elm (*Ulmus* sp.), probably a mixture of kindling and heavy logs. The sample also contained the scant remains of cereals, predominantly emmer/spelt wheat (*Triticum dicoccum/spelta*). Radiocarbon dating of the Willow/Poplar charcoal provided date ranges in the

middle Iron Age 400–350 cal BC or 300–210 cal BC (95% confidence, 2280±40BP, Beta 251218). Roundhouse R4 produced 12.2% of the pottery sherds recovered from the site, of which sandy wares were the most common. Among the other finds was a terminal fragment from the butt end of a bone weaving comb, decorated with a double ring and dot motif (Fig. 14, 3). This roundhouse was probably one of two principal dwellings following settlement expansion.

#### *Ancillary roundhouse R5 and animal folds*

The penannular ditch defining Roundhouse R5 was built upon the site of Roundhouse R3 (Fig. 7). It was smaller than its contemporaries with an internal diameter c.10m. Different cuts varied in depth, the latest of these was 1.05m wide by 0.54m deep and it was clear that the ditch was enlarged over time, possibly a response to increasingly wet conditions.

During the process of redefinition, the alignment of the penannular gully entrance migrated in a clockwise direction from the original eastward orientation of Roundhouse R3-3a, initially to a south-east orientation and finally to face south, onto Enclosure E2 (Fig. 7, 1-4). As it was redefined the penannular gully lost its uniform circular arc, expanding and contracting by small amounts. In its third arrangement the penannular gully lost its full circumference suggesting that there was a period where no roundhouse was present and it had been replaced by a series of small folds, perhaps for stock (Fig. 7, 3). The penannular gully reappeared in the final arrangement, indicating that a structure once again formed part of the group (Fig. 7, 4). The changes did not significantly alter the total area occupied. There was a lack of easily defined smaller features, such as pits and postholes, and the rearrangement suggests that structures were regularly pulled down and rebuilt. Maintenance seems to have been important and its regular modification suggests a continued function at the heart of the settlement economy. The pottery comprised 7.7% of the total sherds or 9.5% of the total weight indicating slightly larger sherds, perhaps more suited to storage than for domestic use. The frequency was also significantly less than that for Roundhouse R4 with the fabrics comprising a majority of organic wares. The complexity of features made secure context sampling problematic, and samples from the base

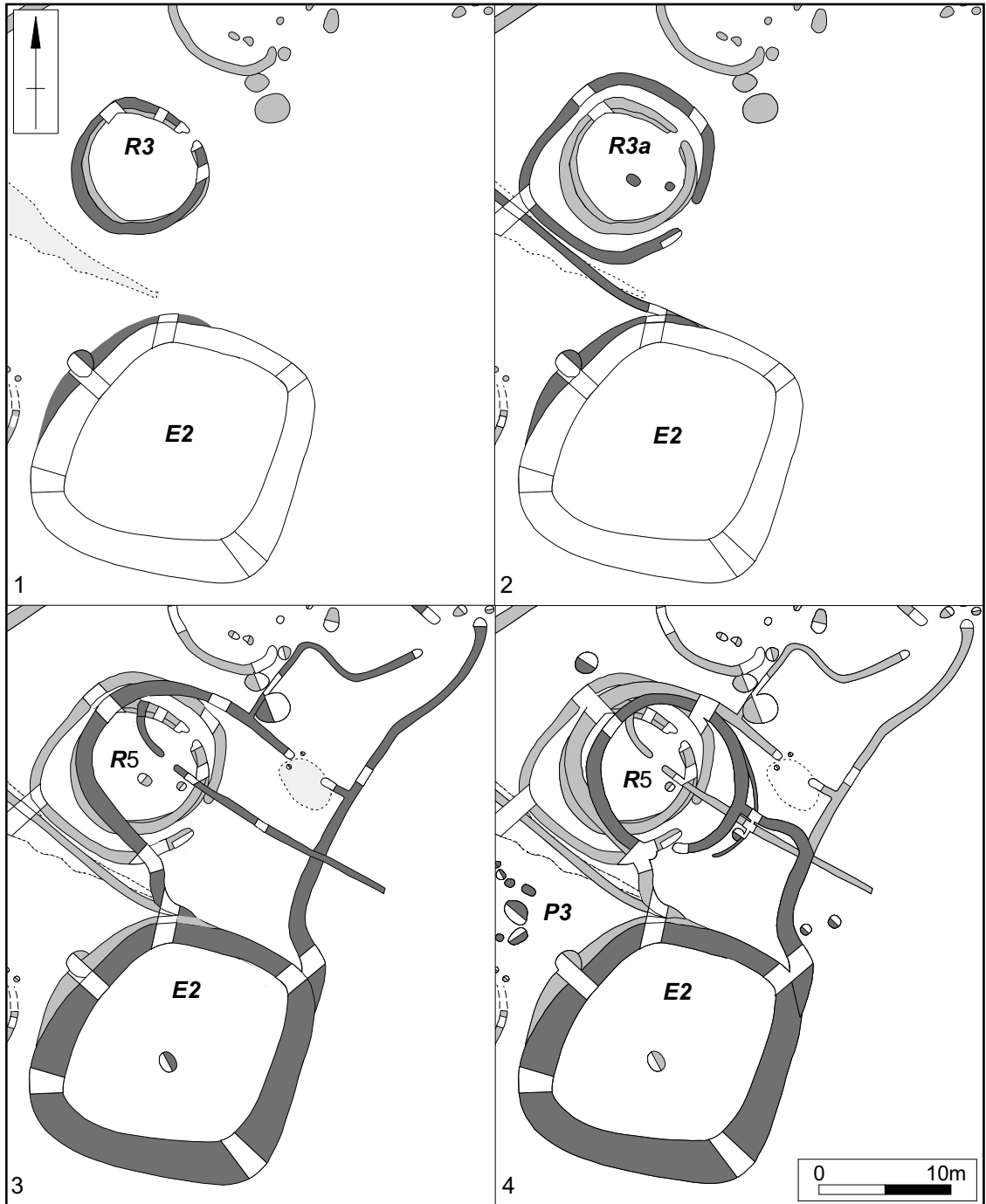


FIGURE 7 Development of Enclosure E2 and Roundhouses R3/R5



of the nearby Enclosure E2 ditch indicated scant evidence of cereal processing.

The overall effect was to expand, modify and subsequently to link features to the adjacent Enclosure E2. In the third arrangement Roundhouse R3 was removed altogether with a dividing ditch that created two small folds or working areas (Fig. 7, 3). The west fold was subsequently subdivided by a small gully carrying run-off from the south-east. It is possible that these gullies could have formed areas enclosed by wattle fencing. The gullies, [10276] and [10365], were 0.32-0.45m wide by 0.1-0.3m deep with sharp V-shaped profiles (Fig. 6). An entrance opened north-east onto the trackway connecting to the watercourse. The corner of the east fold contained a large sub-circular pit [10368] 1.5m wide by 0.5m deep. It had fairly uniform curving sides at 45-50°, which met in a broad rounded base. The pit contained 21 sherds of pottery, a substantial quantity from the vicinity, and is likely to have been contemporary with the fold's use. It was a rare instance of a pit that may have contained midden waste.

A small gateway lay between the east and west folds (Fig. 7, 3). It was located at a 2.7m wide break between two shallow gullies, which were 0.45-0.5m wide by 0.15-0.2m deep with shallow curved sides, rounded at the base. Within the north-west side of the gateway were two postholes, [10323] and [10332], both 0.15m in diameter and 0.1m deep with vertical sides and flat bases (Fig. 6). The ground at this point was significantly trampled and a 120mm thick spread of dirty grey silty clay stained with charcoal lay within the thoroughfare.

In the final arrangement the gateway had been blocked off and a 4.7m wide entrance into a much smaller west fold was provided between Roundhouse R5 and Enclosure E2, which were connected on the east side (Fig. 7, 4). Two fragments of a D-section copper-alloy penannular armlet were recovered from the ditch close to this entrance (Fig. 14, 1). This arrangement created a close unit with Roundhouse R4, with both entrances facing one another and an area of pits (P3 below), perhaps shallow surface fires, in the area between. It seems likely that Roundhouse R5 was an ancillary structure, and that the development of the folds and the connection with Enclosure E2 represent modifications to the manner in which that space was used.

### *Enclosure E2*

Enclosure E2 was redefined in its original position at least twice, removing most of the earlier fill deposits in the process. The ditch [10036] was more substantial than earlier cuts and was 2.5m wide by 0.9m deep. The base channel was widened so that the profile cut away much of the former ditch. This produced a wide shallow funnel at the upper edge flowing into a sharp 60-70° drop-off that met sharply with a 0.5m wide flat-based channel. The ditch was continuous and it seems likely that access to Enclosure E2 would have required a platform or walkway, perhaps on the north-east side facing onto Roundhouse R5. The interior contained a single pit [10038] with no finds.

### *Surface fires P3*

A small cluster of nine individual pits was located central to the space between the entrance of Roundhouse R4 and the entrance to Roundhouse R5 in its final stages of development (Figs 6-7). The pits were generally sub-circular and varied between 0.5-1.9m long by 0.5-1.5m wide, and in most cases were little more than 0.1m deep. Their location and shallow depth may be consistent with small surface fires or the dumping of hearth debris. The result was that the larger part of the feature deposit had been mixed into the topsoil during antiquity, leaving little more than charcoal smears and black stained silty clay patches to indicate their presence.

### ***An enclosure containing a domestic roundhouse and charcoal burning pit***

#### *Enclosure E3*

The area bounded by ditches [10433] and [10503] was roughly rectangular, c.43m long by c.25m wide, with the watercourse at its north-west end and contained Roundhouse R6. The larger portion of the enclosure lay in front of the roundhouse, to the south, with few elements of occupational activity associated with the dwelling.

#### *Domestic roundhouse R6*

Of all the roundhouses, R6 appeared to have been most intensively occupied. This habitation exhibited a concentrated group of features that accounted for 42% of the total sherds recovered (Fig. 8). While the fabrics were dominated by organic wares – as in Roundhouses R2 and R5 – there was no immediate



ancillary structure with which it was related. Given that sandy wares made up a substantial secondary proportion of the group it seems fair to suggest that the dwelling combined domestic and storage functions. The penannular gully was initially oval in plan, measuring 13m north-west to south-east by 11m north-east to south-west. The northern arm [10507/10559] was later abandoned and replaced to give a more circular plan 12m in diameter. The entrance lay to the south-east and was 4.20m wide. The recut outer ring ditch was up to 1.2m wide by 0.5m deep and comprised two principal cuts. Samples from the base of the ring ditch terminals, [10452] and [10474], contained small amounts of charcoal, cereal grains and the seeds of cultivation weeds (Samples 7 and 9).

Within this perimeter there was a circular gully with a recut that was probably the wall slot for a roundhouse *c.* 8.5m in diameter. The gullies varied between 0.25-0.30m wide by 0.12-0.15m deep. The entrance was aligned towards the south-east and was 2.5m wide. In places individual gullies cut through thin spreads of material derived from trampling and pre-dating the roundhouse (Fig. 8, grey tone).

At the terminals of the wall slot were two large post-pits, [10525] and [10537], to either side of the portal. Pit [10525] was an irregular sub-circular pit, 2.0m long, 0.8m wide and 0.6m deep, with a bulbous end. Pit [10537] was circular, 1.1m in diameter and 0.6m deep. It is likely that these pits held substantial timber uprights that formed the doorway. The fills of both pits produced large quantities of pottery. The form of pit [10525] suggested the presence of at least two timbers; a substantial door post and a lesser timber supporting a porch. The presence of a similar arrangement on the opposite side of the entrance may have been obscured by digging out the posts. In the later phase there was a simple circular posthole at the end of the wall slot.

Seven postholes were present within the interior. These were set towards the outer edge of the central area to either side of the entrance and towards the back of the roundhouse. The postholes were all generally sub-circular and their sizes varied between 0.2-0.4m wide by 0.07-0.12m deep. There were two sub-circular pits on the interior towards the rear of the roundhouse, [10491] and [10543], which were 1.0m and 1.3m long respectively, and 0.6m and 1.0m wide. Both were shallow at 0.15m

and 0.3m deep. The fills contained a mixture of dirty grey silty clay, charcoal flecks, ash and burnt stone. It is possible they represent the burial of warm coals.

#### *Charcoal-filled pit [10467]*

Pit [10467] lay to the south-west of Roundhouse R6 (Fig. 9). The pit was 2.9m long, 2.0m wide and 0.50m deep with steep, almost vertical, sides and a broad flat base. The base was lined with yellowish-blue clay 45mm thick, eroded upon the sides. The pit contained two distinctly separate fills. The base was filled by a thick charcoal-rich layer of burnt material. On top of the charcoal deposit was mid greyish-brown silty clay containing moderate small mixed gravel. The natural ground into which this pit was cut had been lightly scorched indicating that the fill had been dumped into the pit while hot rather than being burned *in situ*. Its large flat base served to spread out the coals, allowing them to be raked over and cooled. A total of 2.6 litres of charcoal was recovered from a 40 litre bulk sample during sieving. The charcoal was mainly oak, although other species were present, no charred seeds were present. Fragments of hazel (*Corylus Avellana* L.) were radiocarbon dated to 340-320 cal BC or 210-40 cal BC (95% confidence, 2110±40BP, Beta 251219). The pit contained no animal bone, and as such its use as a roasting pit for cooking something as large as a carcass was unlikely; similarly it lacked burnt stones for heating water for cooking. The lack of charred seeds precluded its use for malting barley. It was almost twice the size of pit [1000] excavated at Pennyland, an interpretation for which has been use in tanning or dyeing (Williams 1993a, 29-31, 38-39). Pottery was confined to the upper layer of backfill material and comprised ten sherds (36g). The two small pits that cut the south side did not form part of a structure associated with the pit.

#### *A roundhouse on the banks of the watercourse*

Roundhouse R7 was the northernmost of all the settlement features, and extended beyond the limit of excavation. It was situated at the edge of the marsh sediments upon a spur beside the watercourse (Fig. 5). Given its location it is likely to have been occupied as part of the expanded settlement quite late on. Excavation revealed a penannular ditch with two cuts that was 13.5m across, 0.4m wide and 0.3m deep, with rounded terminals set

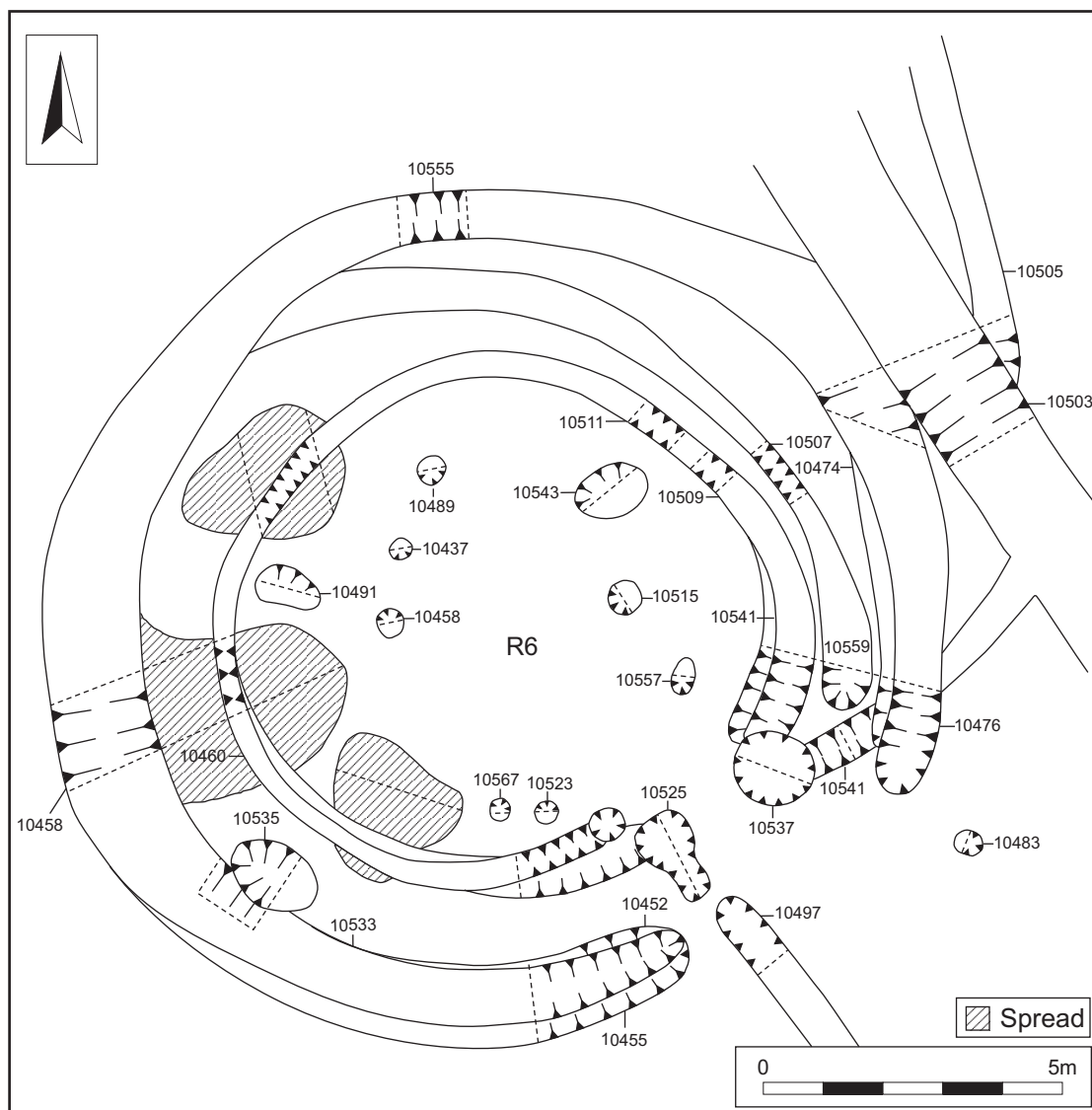


FIGURE 8 Roundhouse R6 and associated features

2.0m apart, opening to the south-east. Three pits lay within the interior of the north-east terminal arc. The pits, which appeared to follow the internal arc of the penannular gully, were 0.8-1.0m long, 0.4-0.8m wide and 0.2-0.3m deep. The partial exposure of the roundhouse limited the level of investigation, and the 5.7% of pottery sherds recovered is consequently only about half of what might have been expected, had the same proportion of the round-

house been excavated as others upon the site. Allowing for this it would still have produced significantly less pottery than Roundhouse R6, and probably a similar amount to that recovered from Roundhouse R4. A roughly equal split of organic and sandy ware fabrics and the lack of a second structure suggest a similar degree of domestic and storage functions, as for Roundhouse R6. This may have included use as a shed for metalworking, as



FIGURE 9 Charcoal-filled pit [10467], view of section

indicated by the crucible fragment, and in a similar fashion to roundhouses excavated at Coton Park, Rugby, Warwickshire – where large quantities of copper-alloy casting debris and boneworking debris were associated with a roundhouse set to one side of the settlement focus (Chapman forthcoming).

#### ***Shallow spreads at the edge of the settlement***

Pit group P4 was a collection of shallow pits masked by later flood deposits. The largest were 1.5-3.5m long by 1.0-2.0m wide and none deeper than 0.1m. The fills were all very similar, generally comprising mixed bluish-grey silty clay with dark black stains. The group was located in close proximity to Roundhouses R6 and R7. Their function is uncertain but their location would have suited a temporary activity peripheral to the core of the settlement.

#### ***Land boundaries within the access road***

The ditches that were identified crossing the road corridor were probably of similar date to the main period of occupation. Since no physical relationship could be demonstrated between these and the main site, the five datable sherds of pottery retrieved provide the basis for a broadly Iron Age period of use. Given the general expansion of ditches on the main occupation site, it is likely that

these ditches would have been an extension of the drainage pattern on the upper slopes and indicate that the valley side was largely cleared during the middle Iron Age.

Two main alignments were visible (Fig. 10). Ditch [10004] was at the northern end of the road corridor and crossed the point of the road junction aligned east-north-east to west-south-west. It was 0.47m wide by 0.26m deep and formed a steep-sided channel with a narrow pointed base. Four other ditches were identified roughly parallel to each other. They were aligned north-west to south-east but were not equally spaced, varying between 6-12m. These latter ditches were not quite at right angles, but respected the line of ditch [10004], either connecting with it or terminating at its boundary. All of the ditches were shallow, and generally badly truncated by ploughing. The best preserved were at the lower, northern, end of the natural slope. The ditches varied between 0.4-0.9m wide by 0.13-0.3m deep. Fills were generally consistent, comprising hard dry light to mid-orange or greyish-orange clay with none of the dark grey staining or charcoal content indicative of nearby settlement. Most contained small amounts of pebble flint or chalky flecks from the surrounding boulder clay, a sediment accumulated through slope run-off.

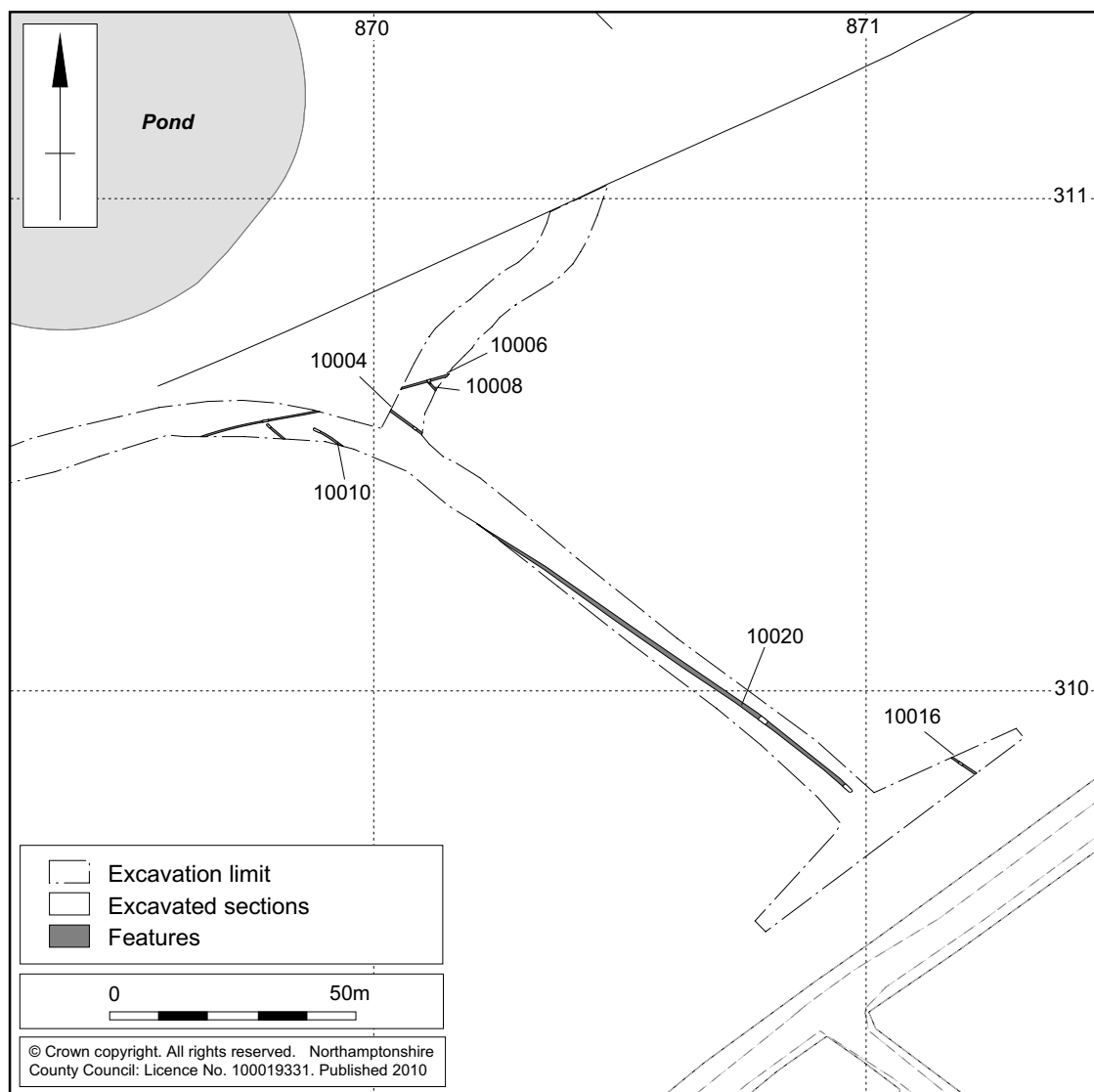


FIGURE 10 Ditches in the access road

### Middle Iron Age abandonment and marginalisation

The abandonment of Roundhouses R6-R7 was not immediate and there was some evidence to suggest that their occupants struggled on for a while under increasingly wet conditions. This was indicated by the alignment of ditch [10497] from its terminal at the entrance to Roundhouse R6, flowing towards ditches and added in an attempt to increase the

effectiveness of drainage where the principal ditches of earlier phases had already silted up (Fig. 11). The attempt was short lived, however, since other ditches, [10601] and [10627], cut across the former footprints of Roundhouses R6-R7. Ditch [10601] was 0.85m wide by 0.26m deep, and ditch [10627] was 1.55m wide by 0.24m deep, both comprising fairly minor channels. All of these later additions attempted to channel water from the

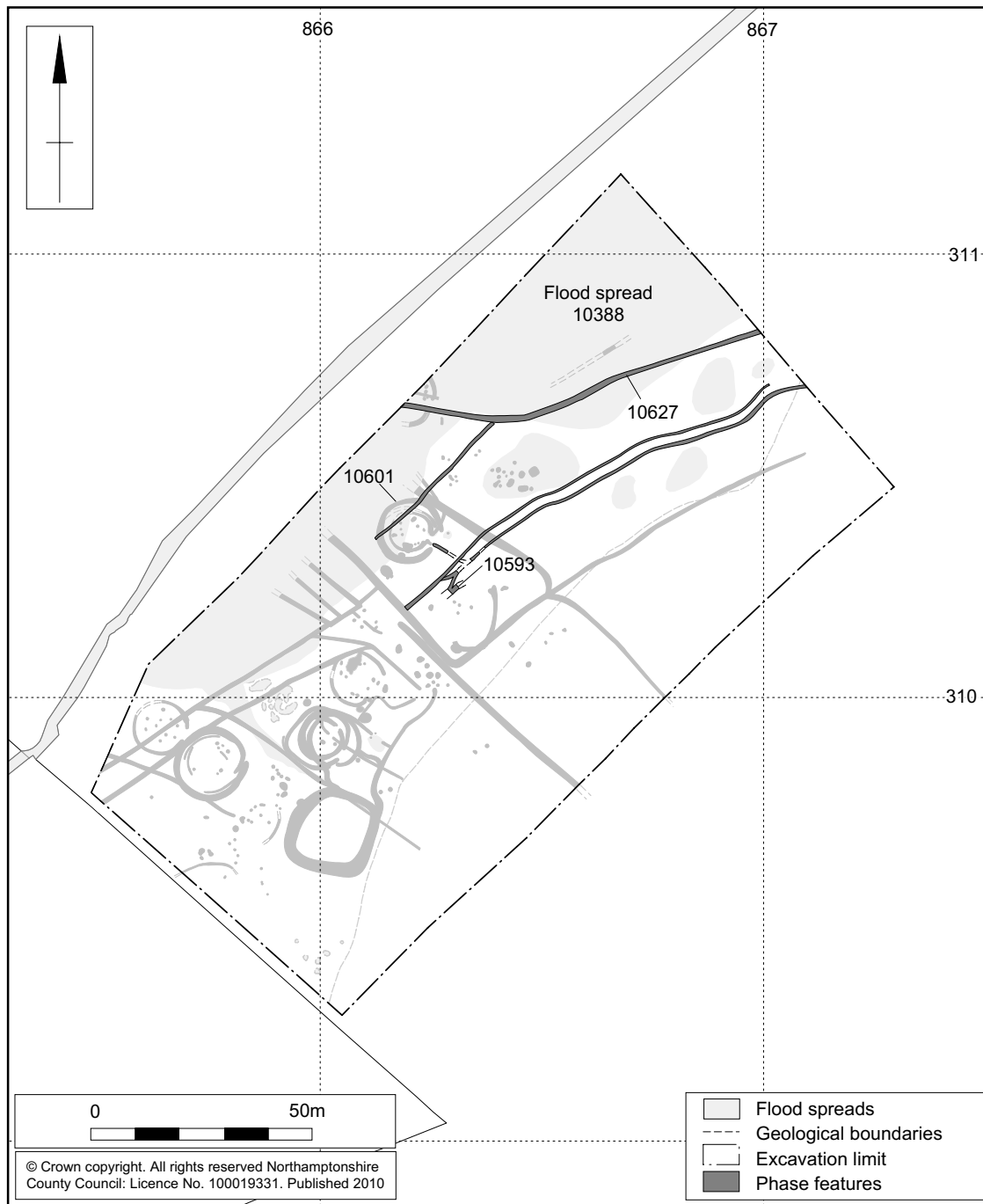


FIGURE 11 Middle Iron Age abandonment and marginalisation



north-east either directly towards the watercourse or into the remnant ditch network.

Subsequent to the abandonment of Roundhouses R6-R7, widespread flood deposits were laid beside the watercourse that extended almost halfway across the gravel geology and covered occupation features relating to the roundhouses (R6-R7). On this basis the settlement had receded from the margins of the watercourse and occupation of Roundhouses R4-R5 would, if not already abandoned, have been in the final stage with the creation of these minor ditches and gullies representing the last attempt to save the remainder of the settlement area from regular encroachment by flood water. Environmental samples from the upper flood deposits (10388) produced only small quantities of charcoal. The material could easily have been residual from the occupation, mixed with the sediment of flood water.

There was a rise in water levels causing suffi-

ciently regular flooding for it to become a hindrance to permanent occupation. Land that may have formerly been claimed through drainage once again reverted to marsh. The attempt to mitigate this by extending the ditch network was an indication that occupation lingered for a short period before total abandonment. The occurrence of flooding in excess of what the drainage system could handle heralded the end to the middle Iron Age settlement. Alluvium accumulated over a considerable time in the following period.

#### **Casual losses in the Roman marsh**

The site was unoccupied and features relating to field enclosure or habitation were absent. Accumulated silt deposits from flooding of the marsh were still in evidence and it is from these and the overlying subsoil that Roman pottery sherds were recovered. The flood deposits also produced a Nauheim derivative brooch of a type in use *c.*AD



FIGURE 12 Alluvial deposits sealed by dark abandonment flood spreads

25–75, and a circular plate brooch of 2<sup>nd</sup>-century AD date was found in the overlying subsoil (Fig. 15). Both objects were found by metal detector and their casual loss in the Roman marsh confirmed the period of abandonment.

### **Post-Roman stagnation**

There was no evidence of activity on the site between the period of Roman rule and the establishment of the medieval open field system. Signs of flooding created a substantial alluvial mask subsequently mixed with subsoil and medieval cultivation soils by modern ploughing.

### **The medieval open fields**

Ridge and furrow was present on the site in Water Eaton (Bletchley) parish and in the vicinity of the access road in Newton Longville parish. In both cases the furrows were aligned from south-east to north-west down the natural slope of the land. They were spaced at roughly 8-9m intervals and were generally between 120-250mm deep, truncating earlier deposits. Most metal finds from the site were located at the interface of these deposits, including a medieval copper-alloy end-cap from a knife decorated with an incised linear motif.

### **Parliamentary inclosure in the 18th century**

The final feature to be established on the site was ditch [10283] which appears on the 1885 Ordnance Survey map (Fig. 2). Its alignment, although similar to that of the Iron Age drainage ditches, follows the lower edge of the valley slope. The ditch was fairly straight and substantial, measuring 1.3m wide and 0.5m deep even on a site that had been damaged by the plough. A copper-alloy strip of post-medieval date was found in the ditch. It continued to mark the limit to which the flood spread horizon extended. Its function, even as recently as the 18th-19th centuries, was to distinguish between marginal land next to the stream and well drained arable land elevated by the valley slope.

## **THE FINDS**

### **Worked flint** by Yvonne Wolfram-Murray

Nine pieces of residual worked flint were recovered from middle Iron Age contexts. The raw material is mostly vitreous flint, medium brownish-grey in

colour with a light brownish-white worn cortex. There are also a few of the opaque granular flints of dark to light brownish grey or grey colour.

There are four flakes and one fragment, of which one flake shows possible signs of utilisation. One flake and two blades have miscellaneous retouch down one lateral edge. The two blades were possibly utilised and originate from the same core, notable due to the unusual raw material.

There is one thumbnail scraper of which the dorsal surface may have been polished. This piece of flint is possibly a flake from a Neolithic ground axe, reused in the late Neolithic or early Bronze Age. The only diagnostic evidence comes from the thumbnail scraper, suggesting both a Neolithic and a late Neolithic or early Bronze Age component in the assemblage.

### **Iron Age pottery** by Jane Timby

A substantial assemblage of 3690 sherds, weighing 22.7kg, and dating to the later prehistoric period was recovered from the site. Most of the assemblage appears to date to the middle Iron Age period. The sherds were in a fragmentary state; the average size being 6g. This is largely the result of soft friable fabrics, which have been fired at moderately low temperatures. Most of the pottery was recovered from ditches and gullies with lesser amounts from pits and postholes; a total of 118 separate features.

### **Methodology**

The collection was fully recorded following the recommendations laid out by the Prehistoric Ceramic Research Group (1997). The sherds were sorted into fabrics based on the type, size and frequency of inclusions present and quantified by sherd count, weight, and for rims, estimated vessel equivalence (EVE), for each recorded context. Crumbs were not classified but were counted and weighed. The data was entered onto an MS Excel spreadsheet, a copy of which is deposited with the site archive. The presence of decoration, burnishing or surface finish was noted, along with evidence of use, such as sooting or traces of adhering residues. Cross-fits were observed between layers but were not pursued in detail.

### **Fabrics**

Fabrics were divided into six separate groups based on the dominant inclusion type and total 22 fabrics.



Full descriptions are presented in the client report for those wishing to pursue trends in middle Iron Age pottery (Timby 2009). The report is available from the Historic Environment Record and Milton Keynes Local Studies Library. This article is site specific and focuses upon the distribution of the assemblage and its contribution to understanding the nature of the occupation.

### Discussion

The assemblage belongs to the middle Iron Age period. The fabrics although quite diverse are largely dominated by two main groups: the organic-tempered and the sandy wares. The large

urn-like shelly vessel from ditch terminal [10319] is unique in the assemblage and, although it appears to be deposited alongside typical middle Iron Age sherds, could be earlier in date. It is not dissimilar, for example, to a Bronze Age barrel or bucket urn from Pennyland, near Milton Keynes, which was also in a shelly fabric (Williams 1993, fig 86).

Sandy fabrics dominate the assemblage at 43% by count, followed by organic-tempered wares at 33.5% with the shelly, calcareous, ferruginous and grog categories all forming minor amounts. The range of fabrics appears to be restricted at Pennyland with just fine and coarse shelly ware, and

TABLE 2 Distribution of pottery sherds by feature group

<i>Group</i>	<i>No</i>	<i>%</i>	<i>Wt (g)</i>	<i>%</i>
Expansion ditches	6	0.2	12	0.1
Abandonment ditches	16	0.5	36	0.2
Pit group P1	35	0.9	96	0.4
Pit group P3	1	0.0	6	0.0
Enclosure E2	107	2.9	524	2.3
Enclosure E3	19	0.5	39	0.2
Roundhouse R1	221	6.0	993	4.4
Roundhouse R2	119	3.2	609	2.7
Roundhouse R4	449	12.2	3051	13.4
Roundhouse R5	287	7.8	2157	9.5
Roundhouse R6	1548	42.0	8939	39.3
Roundhouse R7	209	5.7	2703	11.9
other	673	18.2	3571	15.7
<b>Totals</b>	<b>3690</b>	<b>100</b>	<b>22736</b>	<b>100</b>

TABLE 3 Distribution of fabrics by feature group (percentage of sherd count and weight in g)

<i>Wares</i>	<i>Group</i>													
	<i>E2</i>		<i>R1</i>		<i>R2</i>		<i>R4</i>		<i>R5</i>		<i>R6</i>		<i>R7</i>	
<i>%</i>	<i>No</i>	<i>Wt</i>	<i>No</i>	<i>Wt</i>	<i>No</i>	<i>Wt</i>	<i>No</i>	<i>Wt</i>	<i>No</i>	<i>Wt</i>	<i>No</i>	<i>Wt</i>	<i>No</i>	<i>Wt</i>
Calcareous	5.6	13.6	0	0	0	0	5.8	4.9	0.6	0.5	0.2	0.2	0	0
Shelly	2.8	5.9	0	0	0	0	0.2	0.8	4.6	15.3	0.8	1.6	0	0
Sandy	83.2	73.5	70.3	77.8	22.9	16.5	87.1	78.4	21.6	36.9	27.8	47.2	33	54.7
Ferruginous	0	0	0	0	0	0	0	0	0	0	0.3	0.9	0	0
Organic	8.4	7	15	17	61.9	80.2	5.4	13.9	41.3	33	43.3	43.7	47.6	44
Grog	0	0	1	1.5	0	0	1	1.5	23.4	13	0.3	0.6	0	0
Misc	0	0	0	0	0.8	1	0.5	0.5	0	0	0	0	0	0
crumbs	0	0	13.7	3.7	14.4	2.3	0	0	8.5	1.3	27.3	5.8	19.4	1.3

sandy ware, which could suggest that initial occupation of the site was earlier, supported by the radiocarbon dating (Knight 1993, 224). Hartigans had a slightly more diverse range of fabrics, including one with flint that was not present here. The commonest fabric at Hartigans is sandy with organic matter which broadly links in with Newton Leys (*ibid*, fabric 1). The range of fabrics found to the east in Bedfordshire is again slightly different, which may reflect minor chronological differences or the diverse range of raw materials locally available. At Salford, sandy wares formed the dominant component of the middle Iron Age assemblage accompanied by shelly, grog, organic and calcareous wares (Slowikowski 2005, 106).

The fragmentary state of the pottery precluded meaningful typological classification. In broad terms the assemblage reflects other contemporary groups from the region. This includes mainly ovoid or barrel-shaped vessels, which can be either neckless or have upright or slightly everted rims. There is a single example of a jar with a carinated shoulder and one with a bevelled inner rim face. Also present is quite a variety of small bowl forms including necked and globular examples. There appear to be no sharply carinated vessels or vessels with complex expanded rims, which tend to be characteristic of earlier first millennium ceramics. One possible handled jar was observed but no lugged vessels.

Few vessels show signs of a burnished finish although several have wipe marks, perhaps made with straw or grass, and perhaps where coarser, twigs. A few rims have fingernail decoration on the upper surface. Apart from several sherds of scored ware, less than 0.2% of the assemblage, there are no decorated wares. Deeply scored pottery, often with finger decorated rims has been recognised as an East Midlands phenomenon named after the types sites as Ancaster-Bredon ware which has a generally accepted date of 4th to 2nd/1st century BC (Cunliffe 1991). The centre of the distribution of the style appears to lie to the immediate north of Milton Keynes in the Nene Valley region (Elsdon 1992). In Northamptonshire examples have been documented at Twywell (Harding 1975) and many more recently excavated sites including Swan Valley, Rothersthorpe (Jackson 2005). Three variants were observed, one where the lines intersect at random; one where the lines go in one direction and the third where the scoring is arranged more

formally at approximate right angles. All three versions can be observed in the assemblage here.

Table 2 shows the distribution of sherds across the site is quite uneven, possibly a reflection of the zones of habitation against enclosures used for stock or other purposes. The largest groups come from the penannular gully (R1-R7), which account for 76.8% of the total recovered assemblage. Of these R6 has the highest density of material, 42% of the total site assemblage. The enclosures E2 and E3 produced very modest groups, particularly the latter with just three sherds, as did the posthole/pit cluster P1 and the network of drainage ditches. The latter have very low densities of material and the sherds are quite fragmented, suggesting they are probably redeposited. Approximately 18% of the assemblage came from other features on the site. Table 3 summarises the fabric groups from each of the feature groups with in excess of 100 sherds. Interestingly there are some significant differences in the proportions of fabrics from the different zones, which may reflect some subtle chronological differences and functions. Enclosure E2 has a relatively higher proportion of calcareous, shelly and sandy ware. The assemblages from R1 and R4 are dominated by sandy ware (70.3% and 87.1% respectively). By contrast organic wares followed by the grog and sandy groups dominate the assemblage from R5. Roundhouses R2 and R6 are dominated by organic wares with sandy wares as the second commonest component and R7 more equally split with organic and sandy ware. Ferruginous wares are rare and only occur in R6. Fired clay, although not prolific shows its highest concentration in groups R5 and R6. Two crucible fragments came from R7. Roundhouse R6 with the largest assemblage was also the only one of these groups to have examples of scored ware, the only other examples coming from hollow [10335] and gully [10294]. R6 also had the highest incidence of finger-tipped rims, with just two examples from R4 and one from E2.

### Conclusions

The site broadly belongs to the middle Iron Age period but within this there are subtle differences in the fabrics present, which may suggest that there are different chronological phases within this or definitive areas of activity subject to particular functional processes. The assemblage is typologically very similar to other broadly contemporary

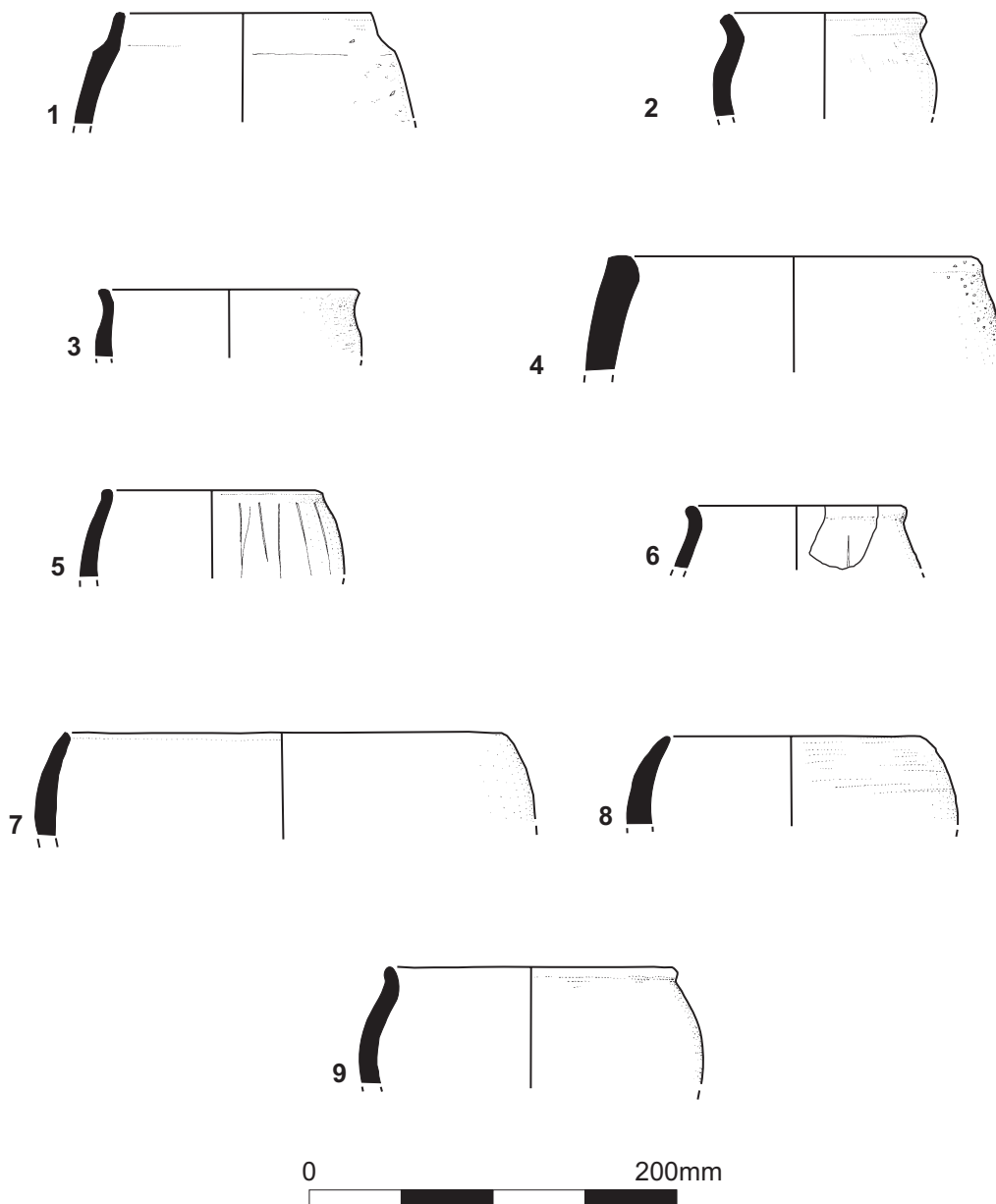


FIGURE 13 Iron Age pottery, 1-9

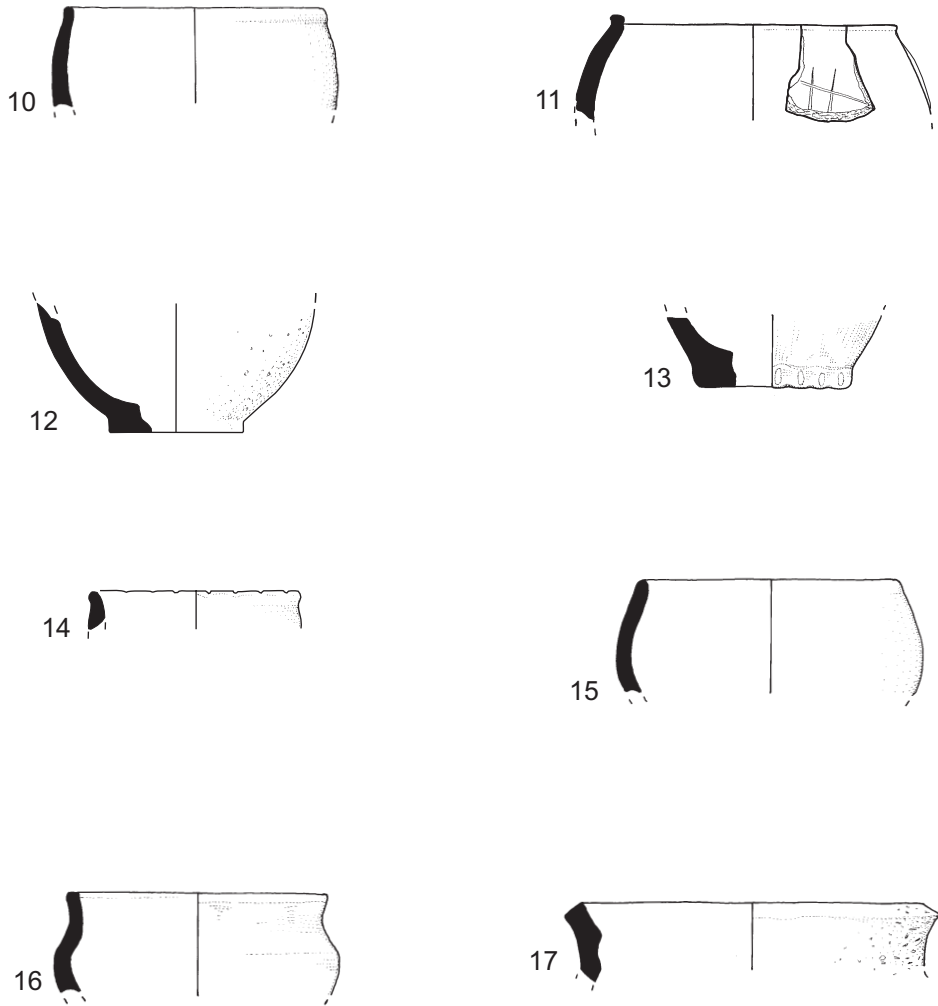


FIGURE 14 Iron Age pottery, 10-17

groups from the region, in particular Pennyland and Hartigans (Knight 1993), Salford in Bedfordshire (Dawson 2005, phase 4) and Twywell in Northamptonshire (Jackson 1975).

### **Illustrated pottery**

1. Slack-sided, shouldered jar. Fabric: OR2. The interior has charred residue adhering to the surfaces. Ditch terminal [10168] (10166), Group R1.
2. Small bowl with an everted rim. The exterior shows traces of wiping and scraping prior to firing. Fabric: SA6. Ditch terminal [10196] (10195), Group R4.
3. Bowl with a slightly everted, flat-topped rim. Fabric: OR2. Enclosure ditch [10290] (10289), Group R3/E2.
4. Large urn-like vessel in a pale brown fabric with a black core. Fabric: SH2 with surface voids. Ditch terminal [10319] (10318), Group R3/E2.
5. Barrel-shaped jar with a flat-topped rim marked with shallow scrape marks. The body is incised with mainly vertical deeply scored lines. Brown-orange exterior with a grey interior and core. Fabric: OR2. Ditch terminal [10474] (10473), Group R6.
6. Jar with a small simple everted rim. The body has vertical scoring. Black sandy ware, fabric SA3. Ditch terminal [10474] (10473), Group R6.
7. Wide-mouthed jar with a simple incurving, slightly tapered, rim. Fabric: OR2. Ditch terminal [10474] (10473), Group R6.
8. Small diameter jar/bowl with an incurving, slightly tapered, rim. Burnished exterior surface. Fabric: SA5 with some added organic material. Ditch terminal [10474] (10473), Group R6.
9. Round-bodied bowl with a simple short everted rim. Dark black-brown in colour. Fabric: OR2. Ditch terminal [10474] (10473), Group R6.
10. Globular bowl with a slightly shaped rim. Fabric: SA6. Ditch terminal [10474] (10473), Group R6.
11. Barrel-shaped jar with a flattened slightly, shaped, rim. The body is scored with crossing lines. Fabric: OR2. Ditch terminal [10474] (10473), Group R6.
12. Base from a globular bowl or jar. Fabric: OR2.

- Ditch terminal [10474] (10473), Group R6.
13. Heavy base with faceting around the foot. Fabric: OR2. Ditch terminal [10474] (10473), Group R6.
  14. Small vessel with a knicked rim. Fabric: OR2. Ditch terminal [10476] (10475), Group R6.
  15. Round-bodied bowl with a simple undifferentiated rim. Fabric SA3. Ditch terminal [10476] (10475), Group R6.
  16. Necked round-bodied bowl. Fabric: SA3. Boundary ditch [10593] (10592).
  17. Wide-mouthed jar with an internally bevelled rim. Fabric: OR2. Boundary ditch [10593] (10592).

### **Iron Age finds** by Tora Hylton

The range of finds, although small, is suggestive of domestic settlement and includes items relating to personal adornment and textile manufacture. The finds include fragments from two armlets and two bone weaving combs.

#### **Armlets**

There are two joining fragments from almost half of a D-shaped copper alloy penannular armlet, which expands slightly towards a rounded terminal (Fig. 15, 1). They measure 55mm and 61mm long respectively. The armlet is ornamented with opposing equidistant notches along the outside edge, which gives a segmented appearance rather like an example from the Caerleon *Canabae* (Lloyd-Morgan 2000, fig. 80, 49).

Part of a plain shale armlet, measuring c9mm by 8mm, has an oval cross-section and the curvature of the piece suggests that originally it would have measured c.65mm in diameter (Fig. 15, 2). It is difficult to determine if the original bracelet was hand made or turned on a lathe, but it has been carefully finished. Armlets of this type were in circulation throughout the Iron Age and early Roman periods. Stylistically it resembles plain examples recovered from Danebury, which have been manufactured from Kimmeridge shale (Cunliffe 1984, fig. 7.41, 41–4.3) and the Caerleon *Canabae* (Grep 2000, fig. 116, 12).

#### **Weaving combs**

Craft-based activities are represented by two small fragments from bone weaving combs. Combs of this type are frequently found on Iron Age sites. They would have been used in conjunction with a

warp-weighted loom to align the threads. Both fragments have been burnt (calcined) in antiquity and measure no more than 30mm by 17mm. One comprises a terminal fragment from the butt end of a handle (Fig. 15, 3). The butt end is 'squared' with rounded corners and resembles Type 4 combs from Maiden Castle (Wheeler 1943, 298). The upper surface is decorated with a 'compass' drawn double ring and dot, a common motif on combs of this style and date. Comparison of decorative techniques in relation to ceramic phases undertaken by Cunliffe on the combs from Danebury (1991, 354) and excavated examples from Maiden Castle (Wheeler 1943, 298), suggest that combs with ring-and-dot motifs were prevalent during their later phases. The other comb comprises the bases of three teeth, together with a vestige of the handle (Fig. 15, 4). The junction of the teeth and handle is marked by three lightly incised transverse lines, and just above there is a vestige of another incised line, which runs at an oblique angle and probably, would have formed a motif similar to that seen on an example from Hartigans, Milton Keynes (Williams 1993a, fig. 83, 4). Only one other example is known from Milton Keynes, found near Stanton Low Roman Villa (Britnell 1972, 214–215).

### Illustrated finds

1. Armlet, copper alloy. Incomplete. Height: 4mm; Length: 55mm and 61mm; SF 5 and 6, Context (10057), Ditch [10058], Enclosure E2
2. Armlet, shale. Fragment only. Dimensions: c.9 × 8mm; Length: 22mm; SF 23, Context (10592), Ditch [10593]

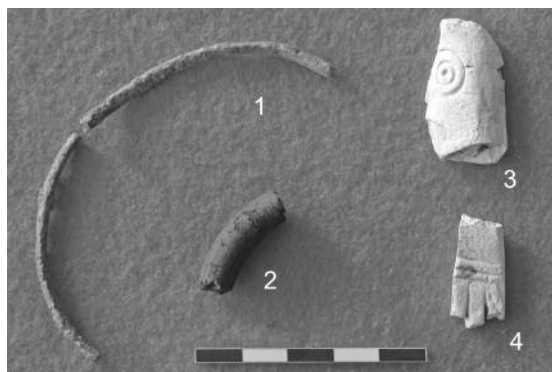


FIGURE 15 Iron Age finds, 1-4 (50mm scale)

3. Weaving comb, bone. Burnt fragment, incomplete, part of handle only. Dimensions: 30 × 17mm; SF 9, Context (10085), Ditch [10086], Post-medieval ditch, vicinity of Roundhouse R4
4. Weaving comb, bone. Burnt fragment with the vesicular cortex surviving on the underside. Dimensions: 23 × 11mm Thickness: 6mm; SF 10, Context (10074), Pit [10075], Enclosure E2

### Metalworking debris by Andy Chapman

Two sherds, weighing 16g, recovered from the penannular ditch of Roundhouse R7, are from bronze working crucibles as used in lost-wax casting in investment moulds.

Both sherds are in a fine, slightly sandy fabric, pale grey in colour and containing numerous small voids. The body of the crucible is 10-11mm thick and this tapers in to form a simple pointed rim. The rim sherd has a very slight curvature, which probably indicates that it comes from a triangular crucible of the form commonly in use during the Iron Age (EH 2001, fig. 22, 1; Chapman forthcoming).

On the body sherd the exterior is covered with a white encrustation with a pitted surface. On the rim sherd the outer surface and the interior immediately below the rim, to a depth of 15mm, is similarly encrusted and pitted.

Metalworking crucibles were found along the Stoke Hammond bypass (Kidd 2007, 15; Edgeworth *et al* 2006). A few crucible fragments of similar fabric have come from a late Iron Age and Roman settlement at Newport Pagnell (Chapman 2008). They are similar to crucibles and mould fragments from a middle Iron Age settlement at Coton Park, Rugby, Warwickshire (Chapman forthcoming).

Among the fired clay there is a proportion of the material that does not contain large mineral inclusions and characteristically has a grey core and oxidised light brown to orange-brown surfaces. At least some of this material might have come from broken-up investment moulds but none retain any diagnostic features. Such material was present in enclosure ditch [10305] and ditch terminal [10319] in Roundhouse R5; ditch terminal [10455] and gully [10517] in Roundhouse R6; and ditch [10593], a later drainage modification.



**Fired clay** by Pat Chapman

A total of 55 fragments of fired clay weighing 472g were examined, comprising one third of the total assemblage. The material selected was from the vicinity of Roundhouse R6. It is made from soft slightly sandy clay with varying quantities of flint and chalk inclusions from 1-11mm long, the most poorly mixed having the largest inclusions. The fabric is pale orange brown to red brown with creamy streaks and some pale brown surfaces.

The fired clay fragments are generally irregular in shape, typically between 10 × 10mm and 35 × 20mm, and 15mm thick. There are a few large fragments, about 65 × 50 × 25mm from pit [10525] and some small flat pieces 5mm thick from enclosure ditch [10503]. The most poorly mixed come from pit [10537]. There are no features, such as stem or wattle impressions, or smoothed surfaces. These fragments would appear to be random dispersed debris.

**Roman pottery** by Tora Hylton

Seven sherds of Roman pottery weighing 64g were recovered. With the exception of one base angle, this small assemblage comprises undiagnostic body sherds that display minimal signs of abrasion. The assemblage comprises coarsewares in locally produced sandy greywares (5 examples), shell-gritted ware (1 example) and ?grog/sand tempered ware (1 example). Two of the sherds are from post-abandonment alluvium and the remainder were intrusive within Iron Age deposits, either introduced by field drains or lying very close to the surface where disturbed by medieval ridge and furrow.

**Roman finds** by Ian Meadows

Two brooches and a conical lead weight were recovered by metal detector from alluvial and subsoil layers.

A fragmentary Nauheim derivative brooch was recovered from flood deposit (10388). It comprises the bow with plain solid catch plate and the start of the first twist of the spring. As a type this form generally belongs to the period c.25–75AD.

A plate brooch was recovered from the subsoil (10002). It has a circular plate of which about 50% survives, including the plain catchplate (Fig. 16). The circular plate measures c38mm diameter and extends as a small 5mm lug above the catchplate, this lug has a cast ring-and-dot motif. The surface

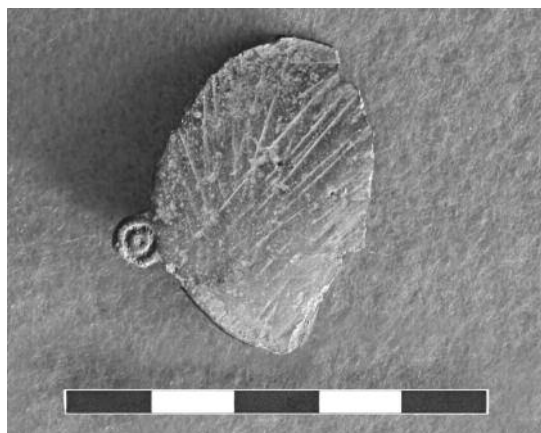


FIGURE 16 Roman plate brooch, 2nd century AD (50mm scale)

of the plate is plain other than a series of random striae and the surface appears to preserve a thin white metal coating. This type of brooch would normally have a decorative appliqué *répoussé* plate, often affixed by means of solder (hence the white metal). Brooches of this type date to the 2nd century AD.

**Illustrated brooch**

5. Plate brooch, copper alloy. Incomplete, part of plate (c.50%) and catch-plate survive, no pin. Diameter : c.38mm; SF 3, Context (10002), Subsoil

## THE ENVIRONMENTAL EVIDENCE

**Faunal remains** by Matilda Holmes

A total of 665 animal bone elements and fragments were analysed. Of the specimens, 67% had been hand-collected during the excavation and the remaining 33% were recovered from the sieved bulk environmental samples. Employing standard zooarchaeological methodological procedures, 175 specimens (26% of the total) were identified to taxa and parts of anatomy, representing four mammalian species. No bird, amphibian, fish or small mammalian bones were recovered.

The animal bone was identified using the author's reference collection, and further guidelines from Hillson (1992) and Schmid (1972). Due to anatomical similarities between sheep and goat,



bones of this type were assigned to the category 'sheep or goat', unless a definite identification using guidelines from Prummel and Frisch (1986) or Payne (1985) could be made. Bones that could not be identified to species were, where possible, categorised according to the relative size of the animal represented (small: rodent or rabbit sized, medium: sheep, pig or dog sized, large: cattle or horse sized). Ribs and vertebrae except 1st and 2nd cervical and sacral were not identified to species. All fragments were recorded.

Tooth wear and eruption were noted using guidelines from Grant (1982) and Silver (1969), as were bone fusion (Amorosi 1989, Silver 1969), metrical data (von den Driesch 1976), anatomy, side, zone (Serjeantson 1996), pathology, butchery, bone working, size and condition of the bones (Lyman 1994).

A number of sieved samples were present, the bones from which were recorded only if they could be identified to species or anatomy, or showed some sign of taphonomic process.

#### ***Taphonomy and condition***

The bones were generally in bad condition and very fragmentary, most being less than 50mm in size. Emphasising the fragmentary nature of the assemblage, 326 fragments could be joined to make 61 larger pieces. Taphonomic factors affecting the material were recorded including burnt, gnawed, butchered and recently broken bones. Nearly 5% of the fragments recorded had been burnt, and a further 5% showed signs of fresh breaks. Approximately 2% had been gnawed by dogs, and only 1% had been affected by butchery. No articulated bones were recovered.

Despite the relative scarcity of butchery marks on bones, the highly fragmented nature of the assemblage suggests it was subject to rigorous processing prior to deposition, most likely the result of meat and marrow preparation, supported by the number of burnt bones recorded. The presence of canid gnawing on bones suggests that they were accessible to dogs before being buried, suggesting that dogs were present on the site though none of their bones were recorded in the faunal assemblage.

#### ***Discussion***

Most animal bone was retrieved from ring ditches in groups R1-5. Bones were present from all parts

of the carcass and no isolated deposits of industrial or bone working waste was present.

Table 4 shows the fragment count of species. Due to the high fragmentation and poor condition of the assemblage, only 26% were identified to species. The majority of bones came from cattle (45%) and sheep or goat (39%). Horse was the next most common species, and pig was also present, although in very small numbers. All these species were probably consumed on the site as butchery marks were found on cattle, sheep or goat and horse bones.

Little ageing data was available, although some epiphyseal fusion was recorded for horse, cattle and sheep or goat bones, suggesting that the majority of these animals were mature at death. One horse humerus was recorded from an animal less than 18 months old when it died, and four cattle and sheep or goat bones were from animals less than 36 months old at death. Tooth wear and eruption data was scarce, although it supported the fusion data.

The state of preservation for bone on the site was generally poor and the amount of material retrieved was below the level anticipated for a site of domestic occupation. Few bones exhibited signs of butchery. Many bones were smashed in antiquity or burnt signifying that the chosen method of disposal may distort the pattern of the assemblage. There was a general absence of small bones from sieved samples. Only 26% of the assemblage could be identified to species. The assemblage was very small with only 175 bones identified to species and further interpretation of the assemblage would probably be misleading.

TABLE 4 Species present in the animal bone assemblage by fragment count

<i>Species</i>	<i>Count</i>	<i>%</i>
Cattle	78	45
Sheep or goat	68	39
Pig	2	1
Horse	27	15
Subtotal of identified bone	175	100
Unidentified large mammal	198	
Unidentified medium mammal	74	
Unidentified small mammal	218	
<b>Total</b>	<b>665</b>	

### Plant macro-fossils by Wendy Carruthers

Soil samples were taken during the excavation for the recovery of environmental information. The features targeted included an enclosure, penannular ditches, a charcoal pit, drainage ditches connecting to the watercourse and the sediment deposits of the watercourse itself. Waterlogged deposits were not encountered.

The samples were processed using standard methods of floatation using a siraf tank fitted with 500 micron mesh and flot sieve. Samples were washed through a series of stacked sieves with 500 micron, 1mm and 3.5mm apertures. The flots and charcoal from nine samples were assessed for charred plant remains.

The flots were dry-sieved through a 1mm sieve to facilitate sorting before being scanned under a stereoscopic microscope for charred plant remains. Charcoal over 2mm in size was rapidly scanned to assess the range of taxa present, but identifications were not confirmed by high-power microscopy at this stage. Identifiable charcoal was bagged separately for further analysis.

All the flots were very small and unproductive, except the flot from the charcoal rich deposit in pit [10467]. The flots were fully sorted at the assessment stage rather than being scanned, since this took very little extra time. The large charcoal sample was scanned more rapidly. These types of charcoal-rich deposits rarely produce cereal remains, so it is unlikely that plant macrofossils were missed.

### Results

Despite being located at the base of the valley, with a watercourse that periodically flooded the area, very little evidence of waterlogging had survived. Where uncharred seeds were found these were obviously modern with fresh embryos present. Although a sample from the penannular ditch of R6 contained a few fragments of uncharred wood, the state of preservation was so poor that more fragile items such as seeds must have been lost through drying out over time. Waterlogged deposits do not appear to have survived in this locality.

The condition of the charred plant remains was poor in all cases, except for the well-preserved large deposit of charcoal in the base of pit [10467]. The few cereal grains that were recovered from this pit, pit [10131] in Roundhouse R4 and the fill of penannular ditch R6 were eroded and fragmented.

Sparse emmer/spelt wheat (*Triticum dicoccum/spelta*) chaff fragments from pit [10130] and the ditch of Enclosure E2 were too poorly preserved to be identified to species level. This, and the general scarcity of charred cereal remains, suggests that the material in the samples represents low levels of background domestic waste that had been lying around for some time before it was blown or washed into the features.

Although the evidence was scarce, it is probably significant that the four samples out of nine examined that produced cereal remains were all associated with the penannular ditches of Roundhouses R4 and R6. Domestic activities occurring nearby meant that food waste such as charred cereals was more likely to become deposited around these structures, particularly near the entrances. Two poorly preserved grains of barley (*Hordeum* sp.) were recovered from samples at the entrance of Roundhouse R6, providing evidence of a crop that may have been primarily grown for fodder. Barley is commonly recovered in small quantities from Iron Age sites, although in most cases emmer and/or spelt wheat are the most abundant cereals.

The chaff and weed seed chaff *Bromus* sect. *Bromus* in pit [10131] towards the centre of Roundhouse R4 may represent contaminants picked out of the grain prior to cooking. Chaff fragments were also present from Roundhouse R6. This large arable weed is difficult to separate from the grain during processing, as it is a similar size to wheat grains. For this reason it is often present as a contaminant of processed grain. Since its first appearance coincides with the introduction of spelt wheat (*Triticum spelta*), it is thought to have been introduced into the British Isles with this crop (Helbaek 1953, 223).

The only other weed taxon represented was red bartsia/eyebright (*Odontites verna/Euphrasia* sp.). The seeds from these plants are too similar to be sure which species was present, although red bartsia is more characteristic of arable fields than eyebright, a genus of grassland herbs. Both taxa are semi-parasitic on grasses. Seeds from this group are commonly recovered from later prehistoric charred cereal assemblages.

### Discussion

Comparing the small amount of charred cereal information from Newton Leys with findings from nearby sites such as the Willington to Steppingley

pipeline to the east of Milton Keynes, and the A43 Road Project to the west, low recovery rates and poor preservation appear to be typical (Carruthers forthcoming; Carruthers 2007a). This is probably due to the heavy clay soils, which may have limited arable cultivation to a low, subsistence level and would also have caused increased post-depositional loss of charred remains. Clay soils lead to silt impregnation and failure to float during soil processing, as well as surface erosion and destruction during the wetting and drying processes that occur in clays. The latter taphonomic problem should not apply if deep features filled with richly organic domestic waste were present. These types of features appear to be rare where the soils are predominantly clay, unlike the deep storage pits that are common on Iron Age sites in southern Britain. Two possible storage pits were found at Silverstone Fields Farm, A43, but this was amongst a total of 63 samples, the remainder of which produced low-level background waste, as at Newton Leys. It is likely, therefore, that the combination of limited arable agriculture and the loss of charred material deposited in clay-filled features is the cause of scant information being recovered from the Milton Keynes area.

Low-level arable cultivation was probably taking place close to the site, involving the cultivation of emmer and/or spelt wheat. Barley would probably be hulled, 6-row, barley but this could not be confirmed due to poor preservation of the grains. It is possible that semi-processed cereals were

brought onto the site from further away, but it is most likely that the occupants would have been able to grow enough grain for their own purposes. Although difficult to clear and plough in the first place, clay soils can be productive and are well-suited to the cultivation of spelt wheat, in particular. The absence of deposits containing cereal processing waste or quantities of weeds suggests that cultivation was probably taking place on a small scale. Where livestock are important, cereal processing waste is a useful source of fodder, thus where processing was taking place on a very large scale charred deposits of burnt processing waste tend to survive better than on smaller subsistence sites (Carruthers 2007b).

#### Charcoal by Lisa Gray

Identifiable fragments were present in five of the six selected samples, comprising fragments of oak (*Quercus* sp.), hazel (*Corylus avellana* L.), elm (*Ulmus* sp.), willow/poplar (*Salix/Populus*) and apple/pear/whitebeam/hawthorn (*Maloideae*). These were counted and weighed and the results are presented in Table 5.

Several of the taxa could not be separated into species microscopically. These were the two native species of oak (sessile and pendunculate), willow/poplar, elm and *Maloideae* (Hather 2000, 11). *Maloideae* includes the genera *Malus*, *Pyrus*, *Sorbus* and *Crataegus* (Hather 2000, 11).

It is clear that oak and hazel fragments were the most frequent taxa, followed by elm,

TABLE 5 Identification of charcoal fragments by taxa

Feature	Gully [10214]	Pit [10130]	Alluvium	Ring ditch R6	Pit [10467]	Ring ditch R6
Taxa	Weight (g) / Count of fragments					
<i>Ulmus</i> sp. (elm)	–	<1 (1)	–	1 (1)	27 (32)	–
<i>Quercus</i> sp. (oak)	–	–	–	1 (2)	328 (463)	–
cf. <i>Quercus</i> sp. (oak)	–	–	<1 (1)	–	26 (46)	–
<i>Corylus avellana</i> L. (hazel)	–	–	–	<1 (1)	68 (112)	<1 (2)
<i>Salix/Populus</i> (willow/poplar)	–	<1 (2)	<1 (1)	<1 (1)	17 (44)	–
<i>Maloideae</i> (apple/pear/whitebeams/ hawthorns)	–	–	<1 (5)	<1 (2)	5 (14)	<1 (4)
undifferentiated diffuse porous	–	–	–	–	12 (18)	–
indeterminate charcoal >4mm <sup>2</sup>	–	–	1 (2)	–	141 (276)	–
indeterminate wood flecks <4mm <sup>2</sup>	<1	2	7	6	528	4

willow/poplar and *Maloideae*. The hazel, willow/poplar and *Maloideae* fragments to provide radiocarbon dates.

### Discussion

The taxa represented in these samples would have provided the community with useful sources of fuel, using larger timbers such as oak, elm and coppiced hazel. Scrub elm, willow/poplar and *Maloideae* would also provide smaller fuel. This is consistent with the charcoal assemblage from the Iron Age site at Pennyland, Milton Keynes where fragments of oak, hazel, hawthorn and blackthorn (*Prunus spinosa* L.) were identified (Thomas 1993, 158). The richest assemblage came from pit [10467]. The taxa within it are typically used as fuel. Well-seasoned oak burns slowly providing steady heat, while seasoned hazel makes good kindling, burning well and fast (Skellern 2000).

Oak species prefer damp, non-calcareous soils and often grow with hazel and ash. Hazel grows in wet but not waterlogged conditions in basic to moderately acid soils among oak and ash. Elm species prefer rich alluvial soils, particularly riverine habitats. Species of willow are common in damp ground beside rivers or streams and poplar species frequent flood plains and rich alluvial soil (Gale and Cutler 2000; Grogan *et al* 2007). All of these species are consistent with the topographical location of the settlement.

The charcoal assemblage supports the exploitation of marginal land on the edge of the watercourse. This is consistent with Iron Age settlements in the area of Milton Keynes that have a ‘...broadly riverine distribution...’ where heavy clay soils were avoided and marginal land was inhabited (Thomas 1993, 213).

### Radiocarbon dating by Jim Brown

The selection of samples for radiocarbon dating were chosen from deposits yielding sufficient charcoal to provide datable material and were based upon the species identification of charcoal from short-lived species such as hazel, poplar and hawthorn/whitebeams and the nature of the deposits in which they were found. Only two deposits were definitely secure single-event context deposits. All the other samples were or could conceivably have included accumulations of material of a wind blown or waterborne nature. Such material settled in the fill during the Iron Age

over a longer period of time and would have reduced the chances of narrowing the date ranges that radiocarbon dating produces.

### Results

Due to the nature of the middle Iron Age radiocarbon curve, two groupings of dates were identified from each sample as opposed to a single narrow range. This is always a problem with radiometric calibration for the period. By choosing undisturbed single event deposits it prevented the date ranges being even wider as had been a problem with the waterlogged wood at Hartigans (Zeevat 1993b, 191–2).

The dates confirmed occupation of the site towards the end of the middle Iron Age, perhaps bordering on the later Iron Age. There is a strong likelihood that the charcoal from pit [10467] dates in the range 210–40 cal BC. Given that the site had a distinct lack of early or later Iron Age pottery, and that the stratigraphic sequences of features demonstrate a close and rapid site development, it is likely that the grouping of dates is closer than the 2 sigma calibration may otherwise suggest. It is therefore suggested that the date range for pit [10131] is more likely to be in the range 300–210 cal BC than earlier and that the period of abandonment would probably have been in the earlier part of the 1st century BC. The gap between the dates of the two samples places a broad sequence of occupation to between 200–300 years and on the basis of the pottery and morphology could be as little as 150 years. This would equate to a maximum 3–6 generations of people living continuously upon the site and is probably at the lower end of that estimate. This assumes an average life expectancy of around 40–50 years. If life expectancy was higher, then the generation gap might also be greater, allowing for a smaller number of generations during the interim. Given the morphological evidence for site development the disparity of dates is both feasible and informative in terms of settlement occupation. It would appear that the site was inhabited for a relatively short period of time.

## DISCUSSION

### Period of settlement

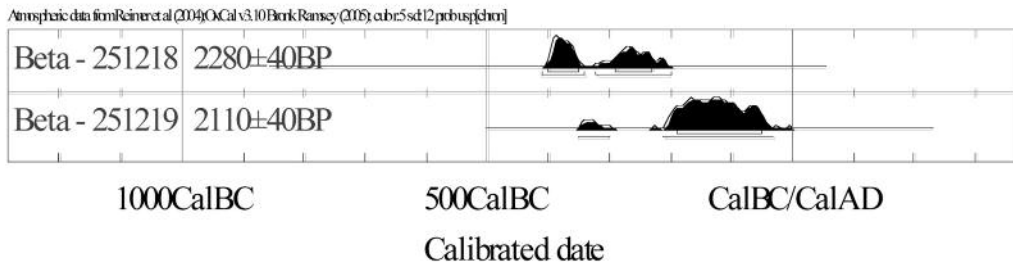
The time period between occupation and abandonment at Newton Leys falls within a narrow band,

TABLE 6 The radiocarbon determinations

Laboratory sample	Context	Sample details	$\delta^{13}C/12C$	Conventional Radiocarbon Age BP	Cal BC Intercept 68% confidence 95% confidence
Beta-251218 10130	Pit [10130]	Wood charcoal (short-lived species only)	-24.0	2280 +/-40	380 390-360 400-350 & 300-210
Beta-251219 10467	Pit [10467]	Wood charcoal (short-lived species only)	-24.4	2110 +/-40	160 190-60 340-320 & 210-40

Laboratory: Beta Analytic, Miami, Florida, USA

Calibration: Ox Cal v3.10 Bronk Ramsey 2005



likely to be 250–100 BC. Few sites within the Milton Keynes area have been dated to such a narrow time frame and exclusively within the middle Iron Age period. The Iron Age settlement at Pennyland produced radiocarbon dates from Oak charcoal for 420 cal BC (2370±80BP, HAR-4582) and 320 cal BC (2270±90BP, HAR-4583). Animal bone samples from the same context failed to corroborate these charcoal dates (Williams 1993a, 44, 175). Given a total absence of wheel-thrown late Iron Age pottery, the abandonment of both sites before the middle of the 1st century BC is a distinct possibility (Williams 1993a, 47). Prehistoric enclosure activity at Caldecotte (MK117) was also of broadly Iron Age date and associated with a possible partial roundhouse gully, pits and inhumation (Zeepvat 1994a, 30–35).

Generally the published corpus of sites represents multi-phase settlement spanning a broad time scale. In these instances the settlements tend to have made continuous use of good quality land, while the settlement morphology has taken on numerous changes in form, function and arrangement. Excavations at Bancroft investigated archaeological remains with a long period of development

beginning with dispersed flint scatters of Mesolithic origin (Williams and Zeepvat 1994). The first settlement features occurred in the late Bronze Age and there was significant Iron Age and Roman activity. Medieval robbing of stone from Roman structures was associated with the establishment of the nearby priory. At Hartigans there was prehistoric occupation from the late Bronze Age to its cessation in the mid 2nd century BC (Williams 1993a, 178). Occupation continued on the site throughout the period occupied at Newton Leys and increased alluviation elsewhere at the end of the Iron Age did not adversely affect Hartigans (Zeepvat 1993b, 192). At Wavendon Gate occupation of the site continued into the Roman period, and it is likely to have been established at a time with some overlap of occupation with Newton Leys in its early phase (Williams *et al* 1996, 15).

#### Topography and location

The stream beside which the settlement was situated forms a minor tributary to the river Ouzel, which flows north to join the Great Ouse at Newport Pagnell. Like many of the minor tributary valleys in the area, river gravels are overlain by a



mask of colluvium beside the channel with Oxford Clay on the lower slopes overlain by Boulder Clay on the upper slopes. Other variations are present along the main valley of the river Ouzel (Zeepvat 1993a, fig. 2).

The topographical location of the middle Iron Age settlement at Newton Leys is unusual when compared to many other sites that have been excavated in the Milton Keynes area; it lay upon low ground, confined to the gravel geology, and immediately beside the watercourse. The site had been settled at a time when the land appeared to have been relatively easy to drain. Within a short space of time this situation changed and the ground became increasingly wet, requiring extensive drainage channels that were eventually overwhelmed by localised flooding. The site at Fenny Lock, despite its morphological dissimilarities, was also located on low ground (Ford and Taylor 2001). It lay upon the west side of the river Ouzel upon alluvium and river terrace gravel and would have been subject to the same episodes of flooding, further downstream from the site at Newton Leys. Both of the sites were located on marginal land and, whereas Fenny Lock was resettled during the Roman period, Newton Leys remained marshland.

Many sites that have been excavated were upon gravel and sand ridges forming raised ground, away from the flood margins. These sites have generally exhibited longer periods of settlement, better conditions for agricultural practise and represent preferred locations. The site at Pennyland lay upon a low gravel spur projecting from the Boulder Clay ridge between two smaller tributaries of the river Ouzel. The land was level, with ground dropping away at the settlement margins (Williams 1993a, 4). At Hartigans, prehistoric occupation was located upon the second gravel terrace of the eastern flood plain of the Ouzel (Williams 1993a, 178). This was some distance away from the present watercourse and upon higher, better-drained ground than at Newton Leys. Remnants of prehistoric settlement activity at Caldecotte (MK117) were located in a similar fashion to Hartigans on the second gravel terrace, east of the Ouzel (Zeepvat 1994a, 30–35). Later features indicated that there was continued use during the Roman period, and this site too seemed to avoid the effects of increased alluviation. At Wavendon Gate late Iron Age occupation was located on the northern downslope of a low glacial sand and gravel ridge

overlooking the floodplain to the east of the Ouzel (Williams *et al* 1996, 9).

Other sites in the area lay upon predominantly clay slopes overlooking the floodplain. While exhibiting some difficulties with drainage, these sites were not subject to inundation as seems to have been the case at Newton Leys. They were, however, subject to wetter conditions and poorer drainage. At Bancroft Iron Age settlement was focused upon the Boulder Clay and glacial sand and gravel ridge and across its north-east face towards the Great Ouse (Zeepvat 1994b, 12). Early to middle Iron Age settlement along the route of the modern Stoke Hammond bypass occupied a low ridge of Boulder Clay overlooking the Ouzel to the east (Edgeworth *et al* 2006, 120, fig 1). It was found *c.*1.2–1.4km east-north-east of the site at Newton Leys. Excavations at Tattenhoe Park in 2005 uncovered extensive Iron Age settlement located upon a Boulder Clay ridge and extending down the slope towards one of the headland tributaries of the Loughton Brook (Taylor 2006). On this basis it is perhaps more than coincidence that the sites at Bancroft and Tattenhoe share similarities in their morphology with the presence of four-post structures.

### Settlement morphology

The settlement at Newton Leys was principally a large family farmstead comprising 2–3 round-houses at any one time, a small enclosure and a larger outfield. The site expanded over a period of 3–6 generations to include better drainage and additional dwelling space, probably proportional to the size of the family group. The agricultural activities appeared to expand, increasing the size of the outfield and would probably have extended over a larger area than at its inception. Its abandonment and subsequent flooding took place over a relatively short period.

The pattern of enclosure at Newton Leys bears many similarities with other sites in Milton Keynes. At Pennylands the composition of settlement largely comprised enclosures and round-houses arranged in conjunction with a principal driveway (Williams 1993a). At Newton Leys there was no driveway, but Enclosure E2 was of similar proportions to small enclosures at Pennylands that contained a greater number of recuts, and were thus equally well maintained. Due to a longer sequence of development at Pennylands, associations

between feature groups were constantly changing, as opposed to a relatively short sequence at Newton Leys.

The principal features of Iron Age occupation at Hartigans included an enclosure of similar proportions to Enclosure E2 at Newton Leys. It was attached to a roundhouse, much in the same way that the final phase of Roundhouse R5 was attached to Enclosure E2 (Williams 1993a, 180–1). Enclosures joined to adjacent roundhouses have been excavated at Pennylands, Hartigans and at Westcroft (Williams 1993a; Anthony 2003). In all of these instances they are thought to have been stock enclosures. These principal occupation features were also set within a wider arrangement of narrow linear ditches that emerged early in the sequence of occupation similar to Enclosure E1. While the topography of the site at Hartigans was very different, it appears to have shared a similar morphology in its settlement dynamics. Such similarities continue throughout the Iron Age period, a later example being that of the roundhouse and small adjoining enclosure at Cranborne Avenue, Westcroft (Anthony 2003, 39–46). Little has been done to assess whether the attached roundhouses were ancillary structures or domestic dwellings. At Newton Leys the evidence suggests that Roundhouse R5 was probably an ancillary structure rather than a principal dwelling.

The continuity and consistency in native form of penannular ditches and roundhouses was evident at Newton Leys, just as it had been at Wavendon Gate (Williams *et al* 1996, 15). The common characteristic of many roundhouses of the region is the lack of internal postholes (Williams 1993a, 28). In the case of some of the roundhouses at Newton Leys a better level of survival meant that the partial curvature of wall slots, some pits and postholes were present, although not all of the roundhouses exhibited precisely the same features. In the case of Roundhouse R6 a substantial entrance could be examined that none of the others possessed. This was by no means a departure from the regional trend as in most cases the internal features did not exhibit an arrangement of post supports beyond paired door posts and for the most part earth-fast foundations were not used. Variations in the tradition of roundhouse construction between post-built structures and wattle and daub structures without post foundations were seen at Fenny Lock, where broadly contemporary features identified the pres-

ence of circular post arrangements as opposed to ring gullies (Ford and Taylor 2001, fig 5). At Fenny Lock, the site was unenclosed and probably subject to the same seasonal flooding as at Newton Leys. There was no apparent discussion of the possible relationship between flood horizons and the post-built structures. There appears to have been a break of occupation spanning the late Iron Age before it was reoccupied in the Roman period and fresh ditch systems were laid out to provide adequate drainage (Ford and Taylor 2001, 89–90).

Newton Leys was morphologically very different to Bancroft (Williams and Zeepvat 1994) and Tattenhoe Park (Taylor, *in prep*). At Newton Leys there was a complete lack of four-post structures, while Bancroft and Tattenhoe Park exhibited a distinct absence of enclosures and major ditch networks. Tattenhoe Park had a dense concentration of largely unenclosed settlement comprising numerous roundhouses with several associated four-post structures spread across the area (Taylor 2006). The Iron Age occupation was very similar to that at Bancroft, and it is likely that the arrangement represents a migration of settlement over an extended period of time (Williams and Zeepvat 1994). The current favoured theory for four-post structures is that they were small grain stores with raised floors (Williams and Zeepvat 1994, 54; Poole 1984, 94–95). If so, it lends further credence to the idea that the primary form of subsistence at Newton Leys was not arable cultivation.

Bancroft had been occupied by a single extended family occupying the same site for many centuries. At any one time there were probably no more than two or three roundhouses present, with structures continually rebuilt or replaced in such a way that the settlement focus gradually migrated over time (Williams and Zeepvat 1994, 56). At Newton Leys the window of time was shorter and migration of settlement was not evident over the potential 3–6 generations that it was occupied. Roundhouse R5 in particular had many rearrangements in form occupying the same space. That the settlement expanded seems clear, but the area of land was only a fraction of that covered at Bancroft, indicative that the site at Newton Leys may have been confined by its topographical location. While the middle Iron Age was a period in which many new settlements emerged across southern Britain, data for the intensity and demand for land is still being revealed. The site at Newton Leys occupied



land that was marginal in later periods. Only a broad study of Iron Age settlement across the region could confirm the strong probability that it was marginal settlement during the middle Iron Age.

### **Economy and environment**

The pattern of ditches visible within a very small area of the access road suggested that the upper slopes of the valley contained well-drained land, probably cleared for agriculture. The channels were consistent and generally uniform but may have represented several recuts following the same basic pattern, rather than a single episode drainage system. There was little evidence from the settlement site to support arable farming practises, and the site along Stoke Hammond bypass, c.1.2-1.4km to the east, is consistent with that view (Edgeworth *et al* 2006). Arable practices are suggested in the Milton Keynes area, evidence from Tattenhoe Park and Bancroft suggests the presence of four-post structures, often interpreted as raised grain stores (Taylor 2006; Williams and Zeepvat 1994, 54). In contrast sites comparable to Newton Leys – at Pennylands, Hartigans and Westcroft – have all been associated with pastoral practices (Williams 1993a; Anthony 2003). Both pasture and arable land can benefit from good drainage and the overall landscape of the Milton Keynes area during the middle Iron Age appears to have contained elements of both farming economies. The presence of drainage channels of the kind excavated on the upper slopes at Newton Leys cannot demonstrate a specific land use other than to indicate the benefit of land improvement.

The principal features at Stoke Hammond incorporated two roundhouses in proximity to drove-ways, a larger enclosure and a pit alignment. Its interpretation presented the broader view that the site formed part of a larger landscape given over mainly to pastoral stock rearing, and that evidence for cultivation was absent since the heavy clay soils precluded arable farming (Edgeworth *et al* 2006, 143). Wendy Carruthers disputes this point, arguing that spelt wheat can be grown very well on heavy clay soils. At Newton Leys the evidence for charred seeds did produce small quantities of cereals, demonstrating that barley and emmer/spelt wheat were being consumed by the occupants. Limited evidence was present for chaff or cereal processing, but hardly enough to indicate that it

was being cultivated. This is consistent with other sites in the region where there is a low incidence of cultivated foodstuffs, often with fodder crops as secondary components (Kidd 2007, 7). The layout of Newton Leys and its comparison to local sites supports the view that stock rearing was the primary mode of subsistence. The upper slopes indicated a largely cleared landscape consistent with the site at Stoke Hammond bypass (Edgeworth *et al* 2006). Elsewhere in the region molluscan analyses have continually presented evidence for open grassland landscapes (Kidd 2007, 4). There could have been some cultivation nearby and a mixed farming economy in the local region is suggested by the potential evidence for grain stores at Tattenhoe and Bancroft (Taylor 2006; Williams and Zeepvat 1994, 54). The site at Stoke Hammond did not exhibit occupation into the Roman period, and its abandonment may have been within the same period as that at Newton Leys. At Newton Leys abandonment was followed by encroaching marshland, while along the route of Stoke Hammond bypass there was evidence for a period of woodland regeneration (Edgeworth *et al* 2006, 134–135). Given its close proximity this phenomenon may well indicate that similar woodland regeneration might be expected on the upper slopes, south of the site at Newton Leys, providing uniformity in the regeneration of the natural environment in the wider landscape.

### **Summary**

The site at Newton Leys was probably occupied by a single family for 3-6 generations, during which time they made various minor improvements and rearrangements to the settlement by rebuilding old structures, extending their domestic or agricultural space and modifying the spatial use of different parts of the settlement. Although they may have cultivated on a small scale, it seems likely that cereal produce was largely brought onto the site from elsewhere. There was no evidence that they were manufacturing pottery, processing large amounts of cereal or working hides themselves. Weaving and metalworking activities were present, supplementing the needs of the households and stock rearing activities, but they were not on a large scale and no specific features could be assigned to them. Stray finds indicating such activities are common among sites in the region, such as the metalworking crucibles found along the Stoke

Hammond bypass (Kidd 2007, 15; Edgeworth *et al* 2006). The inhabitants appeared to have kept some stock on the site; cattle, sheep/goat, pig and horse bones were all represented, and there were five instances of young animals among the assemblage of animal bone. Butchery marks were present for cattle, sheep/goat and horse and much of the bone had been fragmented prior to deposition, suggesting a desire not to waste any available resources. Much of their rubbish may have been burned and the burnt residue turned over into the soil, since very little material was actually deposited in pits. The occupation of a waterside location appeared not to migrate, as at other sites, and this may have been the result of a constraining topographical landscape in which more desirable neighbouring land was unavailable. In its latter stages of occupation the site was subject to seasonal inundation from the watercourse. The initial response was to improve the drainage network, but it seems that this strategy could not keep pace with increasingly wet conditions, and that final abandonment was followed by rapid regeneration of the marshland along the waterside. Sites nearby at Fenny Lock and Stoke Hammond bypass shared a similar period of abandonment, while occupation at Tattenhoe Park, Pennyland, Hartigans, Wavendon Gate and Bancroft all continued well into the late Iron Age or Roman periods. The topographical differences between these sites begins to suggest that a significant change in environmental conditions may have been coupled with social and economic changes – reflected in the availability of more attractive land – and together gave rise to changing patterns of settlement.

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