WILLINGHAM MERE-SIDE INVESTIGATIONS

2015 Excavations within Hanson's Over/Needingworth Quarry

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– 2015 –

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CONTENTS

THE SITE III BARROW

SITES IX and XII

This is the first report covering the Cambridge Archaeological Unit's investigations undertaken as part of the fourth mitigation phase of Hanson's Over / Needingworth quarry (Figure 1). The investigation area comprised a 7.6 ha area on the eastern side of the Ouse and encompassed the northeastern margin of the so-(Unit-) named Langdridge Spit peninsula/terrace and the western margins of Willingham Mere (a former lake deposit-area, which extends over much of the eastern part of the fourth mitigation phase area). The 2015 excavations were undertaken in three areas defined by previous evaluations (Vander Linden & Evans 2007; Tabor & Evans 2013): a 50x50m area targeted a round barrow at Site III (TL 39670 74050) while extensive open area excavations undertaken to the south/southwest of the Site III barrow encompassed Sites IX and XII (TL 39310 73600 and TL 39650 73900; Figure 2). Alongside the latter, the results of archaeological monitoring of the quarry diversion ditch works undertaken in 2013 are also included in this report.

THE SITE III BARROW

Identified by trial trenching in 2007 (Vander Linden & Evans 2007), the Site III barrow was situated at a height of *c.*0.5m AOD and lay on the low-lying margin of the *Langdridge Spit* gravel terrace, which is defined by a shallow palaeochannel to the northwest. Located approximately mid-way between the Low Grounds cemetery/Site II barrow (Evans *et al.* forthcoming) and the westernmost of the Hermitage Farm barrow clusters (Evans & Hodder 2006b) the barrow forms part of a swathe of funerary monuments situated along the former course of the River Great Ouse in this area.

Extensive palaeoenvironmental work has been undertaken in the area, both as part of the 2012 evaluation of the *Langdridge Spit* terrace and *Willingham Mere*, and as part of the *Over Narrows* investigations to the west (see Tabor & Evans 2012; Evans *et al.* forthcoming). The results of this work are detailed both in the grey literature and the forthcoming *Over Narrows* publication (*ibid.*) and are not reproduced here. In summary, however, the palaeoenvirons of the barrow and Sites IX and XII can be characterised by progressively rising and fluctuating water levels resulting in reed swamp conditions, punctuated by periods of deeper open water, and with willow and alder carr nearby (Boreham in Tabor & Evans 2012). Further palaeoenvironmental work undertaken as part of the current investigations (see Boreham, Fryer and Timberlake, below), has focussed specifically on the environmental setting of individual features, including the barrow, and, in the case of the latter, its relationship with a basal silt deposit identified by Dr. S. Boreham during a site visit as potentially the result of multiple flooding episodes caused by 'backing-up' of freshwater channels due to episodes of marine transgression.

Methodology

Following the machine stripping of a 50 x 50m area centred on the barrow, geophysical survey (which was ultimately unsuccessful in defining either the barrow edges or any funerary related features; see Figure 3) was undertaken by Dr. Colin Shell over the exposed mound and surrounding area.

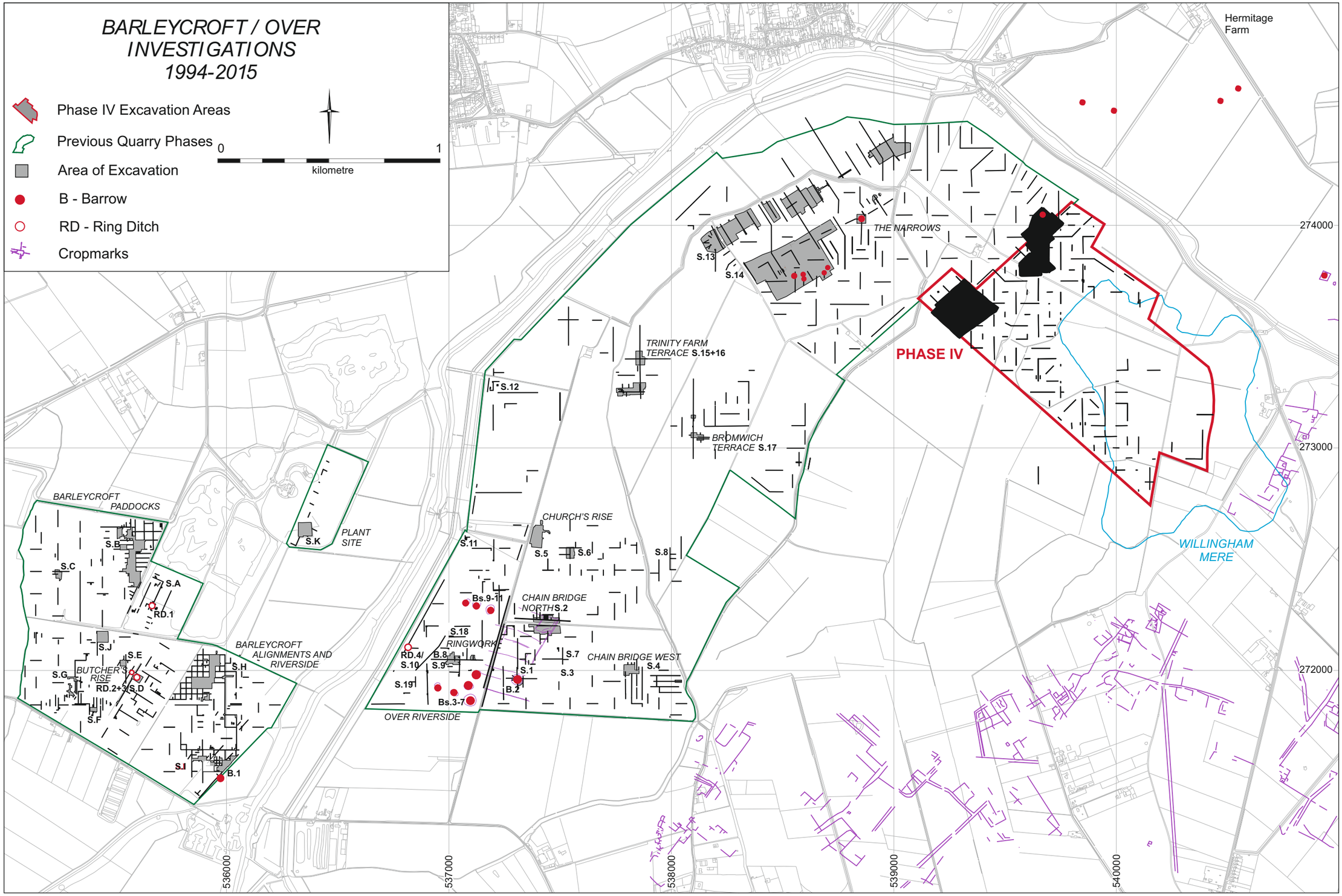


Figure 1. Site location

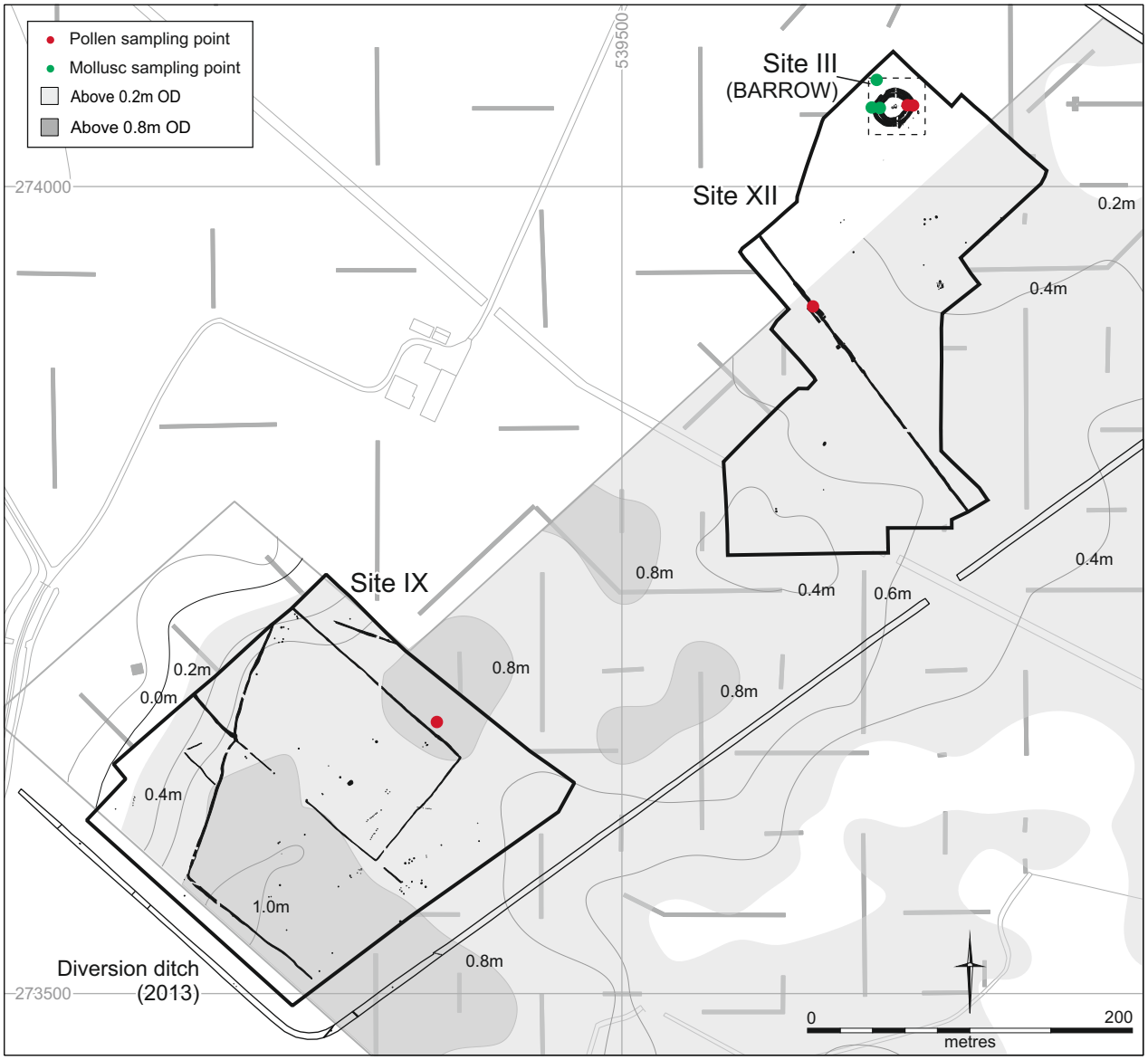
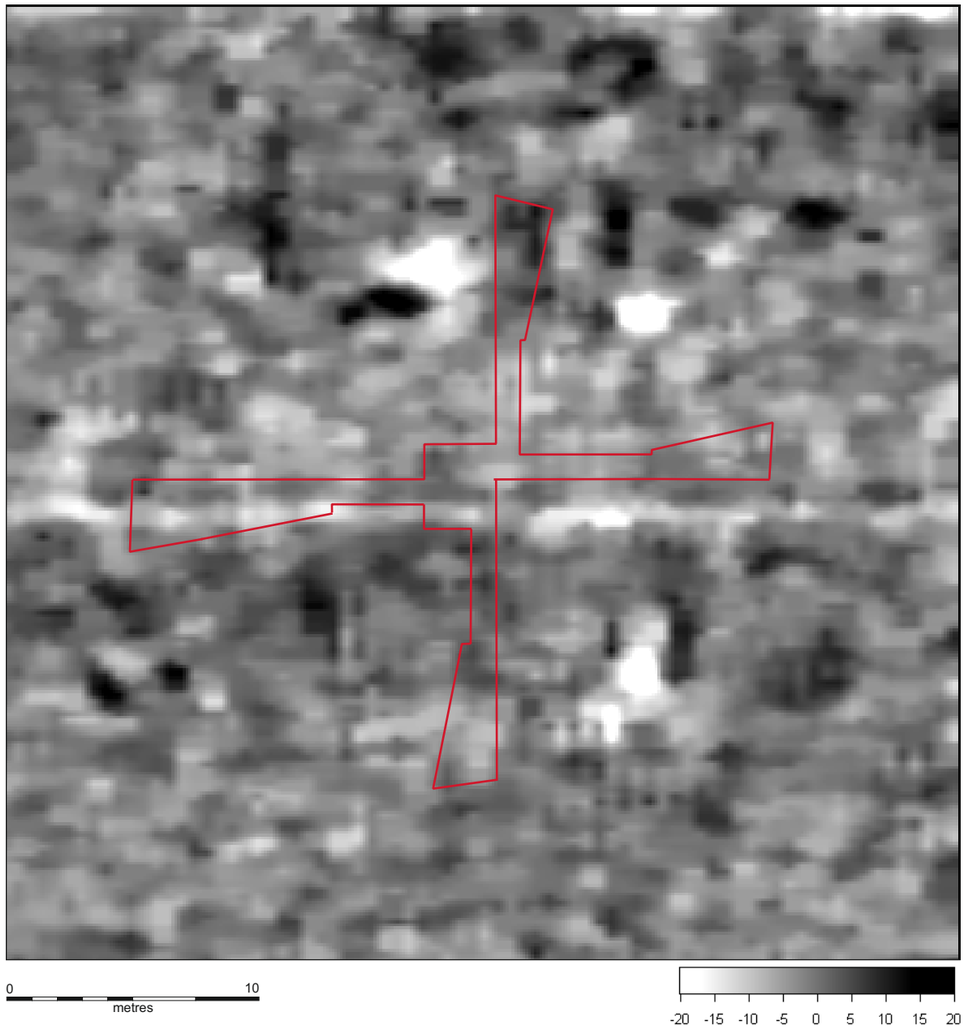
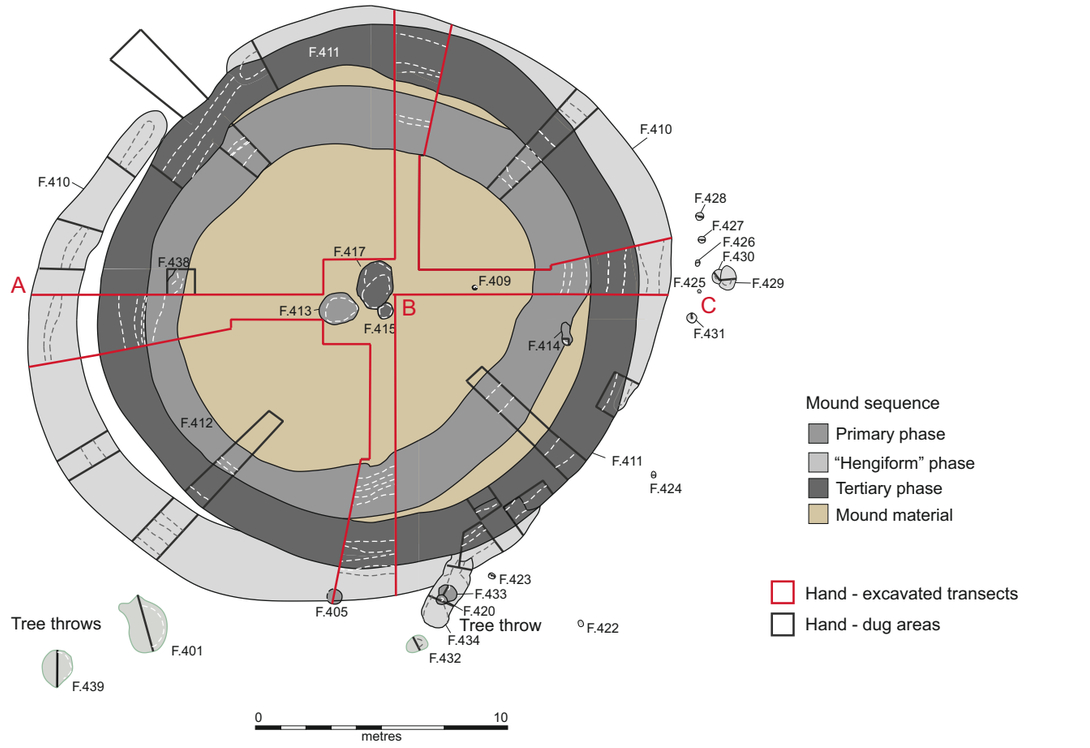


Figure 2. Excavation Areas III, IX and XII





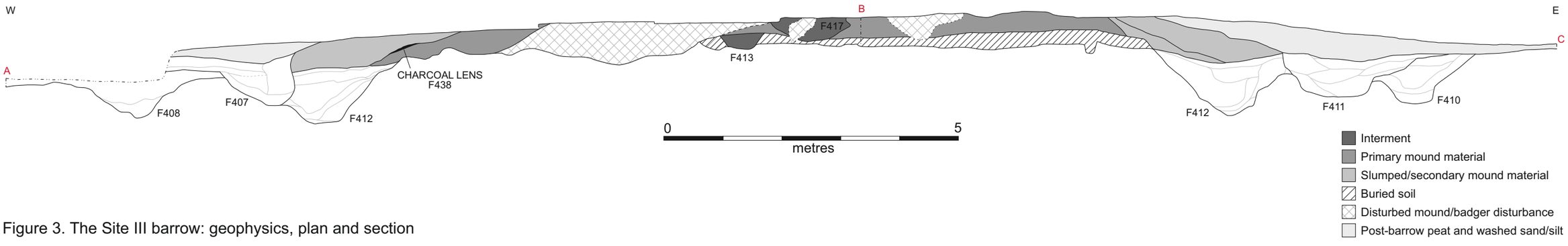


Figure 3. The Site III barrow: geophysics, plan and section

Figure 4. The Site III barrow (top, viewed from the north [D. Webb]; bottom, aerial view [B. Robinson]

Excavation of the barrow followed the same quadrant method used for the Low Grounds barrow group (Evans *et al.* forthcoming). The first stage comprised the hand excavation of eight sections across the outer ring-ditches. Following this, staggered cross-axial metre-wide transects were hand-dug across the upstanding mound and the underlying buried soil. Transects were excavated as a series of metre-square blocks and finds separated accordingly in order to assess the quantity and distribution of artefacts incorporated into the mound. In addition finds from the barrow mound itself were individually recorded and located on the site grid.

The hand-dug transects succeeded in establishing the constructional sequence of the mound and also identified two cremations and a single inhumation in the central area of the barrow. This central area was subsequently hand excavated in its entirety. Unfortunately, the geophysical survey results were inconclusive in terms of identifying any further cremations and pyre sites (in contrast to the Low Grounds barrow group where the results of the geophysical survey determined the location of additional hand excavated areas). Consequently, and in having no clear indication of any further funerary activity, the remainder of the barrow was reduced in 10cm spits using a mini-digger. Each spit was hand cleaned and planned at a scale of 1:50 before further reduction. This process continued until the buried soil and subsequently the surface of the underlying natural gravels was exposed. Throughout the spit-reduction of the mound 1m baulks were left *in situ* in order to provide a reference point and allow continuous re-appraisal of the mound and its construction.

As with the Low Grounds barrow group a major emphasis was placed on the photographic record of the site and the production of a sequence of photographs reflecting the various stages of excavation and phases of barrow construction.

Excavation Results

Excavation revealed the barrow to be a three-phase monument (Figures 3 and 4), each phase being defined by a ring-ditch. Given the scarcity of dating evidence as well as the lack of a stratigraphic relationship between the two earliest ditches, the sequence of the barrow has only become clear following the results of radiocarbon dating (see Table 1).

Feature	**Material**	**Laboratory code**	**δ13C** ($^{0}/_{00}$)	**Radiocarbon age** (BP)	**Calibrated date** (95% confidence)
F.408	Antler: Red deer	SUERC-66972	-23.6	4322 +/- 31	3016-2891 cal. BC
F.413	Bone: Human	SUERC-66975	-21.4	4602+/- 31	3501-3136 cal. BC
F.415	Cr. Bone: Human	SUERC-66974	-20.3	3451 +/- 31	1880-1688 cal. BC
F.420	Ch. Hazelnut shell	SUERC-66973	-25.2	3773 +/-31	2292-2051 cal. BC

Table 1: Radiocarbon measurements from selected features.

The radiocarbon results have revealed that the first barrow phase (and inhumation; F.413) is unexpectedly early and dates to the Early-Middle Neolithic whilst the latest cremation (F.415) is firmly Early Bronze Age in date, as such the 'lifespan' of the barrow covers a period of at least 1200 years. Whilst the early date is unexpected, there is currently no reason to doubt it – although testing of further samples will be undertaken as a check – and, therefore, the radiocarbon sequence has been used as a basis for the following chronology:

The barrow sequence (Figure 3) was initiated in the Early-Middle Neolithic (3501-3136 cal. BC) by a sub-oval ring-ditch with a single inhumation at its centre, over which a mound was raised. Following the apparent 'collapse' of the mound and associated in-filling of the primary ring-ditch, a secondary ring-ditch – which appeared 'henge-like' in form (see below) – was excavated around the perimeter of the primary ring-ditch in order to redefine the barrow and potentially to refurbish its mound. This appears to have taken place at least a century after the barrow was established (3016-2891 cal. BC) and no surviving interments appear to relate to this phase. Following a brief period of activity in the Beaker period (2292-2051 cal. BC; e.g. F.420) represented by pits/deposits in the top of the secondary ditch the final barrow phase belongs to the Early Bronze Age when a tertiary ring-ditch, which truncated both of the earlier ring-ditches, was associated with two cremations inserted into the barrow mound.

The Buried Soil

A variably preserved buried soil horizon survived below the barrow mound, which was sampled for micromorphological analysis by Dr. C. French (see below). Within the barrow transects these sealed buried soil horizons were 100% excavated and hand sorted for finds. In contrast to the Low Grounds barrows and particularly the Site II barrow, the buried soil yielded no finds indicating that activity in the area was minimal prior to the construction of the barrow.

The Neolithic Round Barrow (and Primary Ring-ditch)

The sequence of the barrow was initiated by a single crouched burial held within a sub-oval grave) and located centrally within the ring-ditch (Figure 5). Encountered during the excavation of the western barrow transect, the cut of the grave (L=1.57m, W=1.23m) could be seen relatively clearly within the underlying buried soil (although its eastern end had been disturbed by animal activity, see below), its relationship with the mound, however, was less clear. Having encountered the skeleton, a metre-wide (north-south) section was cleaned and recorded across the barrow transect and which clearly showed slumping of the overlying mound deposits into the grave. Although this most likely represents collapse following the decay of the body and/or an organic container in which it was held, it could represent the presence of a collapsed/in-filled cist of some description. As such, there remains some ambiguity as to whether the mound was raised over a grave or whether a 'cist' was constructed within the mound.

Figure 5. Skeleton F.413 (top), Grave F.413 and the charred timbers of F.417 (bottom)

The skeleton was that of an adult male and was positioned on its left side with its shoulders to the southwest (see Neil, below). It was poorly preserved and the bone heavily mineralised/iron panned; significantly the skull was missing and there are a number of possible reasons for this. Firstly, it could be a preservation issue; not only had the grave been disturbed by later animal activity (see below) but the bones were also very poorly preserved and heavily iron-panned (and with many other elements also missing, including the hands and feet) – either could account for the absence of a skull. Alternatively, it is also possible that the body was originally interred without the skull and although no evidence for decapitation was encountered this scenario should be considered. Finally, given the possible evidence of a cist or burial chamber, the skull (and other missing elements) may have been removed post-burial. No grave goods accompanied the skeleton although as detailed in Table 1 (above) it has been radiocarbon dated to 3501-3136 cal. BC (at 95% probability).

The primary barrow mound (F.435/436), which surviving to a maximum height of 0.3m appears to have been constructed from a combination of turf/earth sods and up-cast gravel excavated from ring-ditch F.412, by which it was surrounded. The mound deposits were poorly defined and often appeared to represent a 'jumble' of various materials (turf, earth sods and gravel), however, generally the construction sequence seems to have comprised the stacking of turves to create a 'core' followed by 'capping' and enlargement using gravel and subsoil excavated from the ditch. It is important to note, however, that no clearly defined primary 'turf stack' phase as recorded at Barrows 12 and 15 (Evans *et al.* forthcoming), for example, was evident. Determining the original dimensions of the primary mound was complicated by slumping/erosion of mound deposits and secondary mound modification as well as later animal disturbance; however, it seems likely that it entirely filled the area within the ring-ditch (diameter, 13.5m) and the extent of the preserved buried soil sealed by the mound appears to confirm this.

The ring-ditch (F.412) was sub-circular in plan (internal diameter, 13.5m) with a deep 'V'-shaped profile and 1.8-3.2m wide by 0.71-1.27m deep; it contained a sequence of sterile sand, silt and gravel fills, which largely comprised in-washed/slumped mound material that eventually completely in-filled the ditch. Periods of mound stability may have punctuated this in-filling process and charcoal patches (F.414 & F.438) in two areas on the eastern and western faces of the barrow respectively suggest activity – the character of which is unknown – on a stable primary mound surface. However, on the whole the character of the ditch fill sequence suggests the primary mound was unstable and therefore slumped into and filled the primary ring-ditch relatively rapidly.

F.414 was located on the eastern barrow face; it comprised a thin charcoal-rich deposit (0.04m thick), containing lenses of orange scorched soil and extending over an area *c.* 1.4m by 0.8m. No finds were recovered and the presence of plant macro-remains was limited.

F.438, on the western face of the barrow also comprised a charcoal-rich deposit, again measuring approximately 1.4m by 0.8m and *c.*0.05m deep, but with no evidence of scorching. No finds were recovered the presence of plant macro-remains was limited.

Figure 6. Hengiform ditch F.410, north-western causeway

The Hengiform Ditch (Secondary Ring-ditch)

The outer ring-ditch (F.408/410), which was noticeably henge-like in form and produced a radiocarbon date of 3016-2891 cal. BC (at 95% probability, see Table 1), was sub-circular in form and had an internal diameter of 20.3m. The ditch itself (1–2.2m wide by 0.35–0.92m deep) had a rounded profile with moderately steep sides. A clear entrance was located in the northwest of the ring-ditch where termini formed a causeway measuring 3m wide (Figure 6). Mirroring this, in the southeast a second potential causeway was recorded – albeit having been largely truncated by the tertiary barrow ring-ditch – resulting in its distinctive henge-like form. Although truncated, the width of the southeast entrance/causeway can be estimated to also be around 3m. No clear indication of whether the material excavated from the ditch was used to refurbish the 'collapsed'/eroded primary mound was recorded – although this must be the most likely scenario – and such was the degree of slumping and washing of mound material that it was impossible to identify clear phases of mound. No trace of an outer 'henge-type' bank was encountered although the former presence of a bank cannot be entirely discounted; given the evident flooding of the landscape both during the monuments use and after (see below) an insubstantial bank could feasibly have existed and been washed away.

The hengiform ditch contained a sequence of largely sterile slightly clayey silt fills closely resembling the 'flood deposit' (as identified by Boreham) that occurred across the low-lying area to the west of the barrow. Indeed on the western side of the barrow there was little to differentiate the fills of the ditch from the 'flood deposit' suggesting that they were effectively one and the same. The only fill that was markedly different was a charcoal-rich deposit 0.04m thick (F.414), which was recorded within the middle/upper ditch profile and yielded a few small fragments of calcined bone.

Finds recovered from the ditch were few and comprised four flints and an antler tip. The flints were interestingly all retouched forms; two end scrapers and a serrated flake are characteristically Late Neolithic/Early Bronze Age, whilst a flake knife recovered from the surface of the ditch is more likely to be Early Bronze Age (see Billington, below). The antler tip, recovered from the base of one of the northwestern termini of the henge ditch was from a red deer and showed signs of wear and had probably been used as a pick (see Rajkovača, below). It has been radiocarbon dated to 3016-2891 cal. BC at 95% probability (see Table 1).

With the exception of one possible posthole (F.409) no other features that may suggest activity associated with the possible hengiform monument were recorded in its interior; furthermore, no finds were recovered from the buried soil within this area.

Beaker 'Pits'

Located on the southern edge of the hengiform ditch (F.410) a cluster of features yielded sherds of Beaker pottery. Significantly, the features – three 'pits' (F.405, F.420 and F.433) and a tree-throw (F.434) – were stratigraphically later than the hengiform ditch, with two of the features cutting its ditch.

Feature	Pottery	Flint	Bone	Burnt stone/flint
405	3 (22g)		7 (96g)	
420	29 (234g)	25 (150g)	103 (164g)	3 (28g)
433	15 (85g)		41 (63g)	15 (348g)

Table 2: Beaker pits assemblage breakdown.

Of the 'pits' one (F.405) was cut through the upper fills of hengiform ditch F.410, whilst two (F.420 & F.433) were cut into the top of a tree-throw (F.434), which in turn truncated ditch F.410. The 'pits' each contained dark charcoal-rich fills and yielded finds assemblages comprising small amounts of Beaker pottery, worked flint, bone and burnt stone/flint (detailed in Table 2). In addition pit F.405 yielded a single piece of human bone, a disarticulated proximal foot phalange. A fragment of charred hazelnut shell form F.420 produced a radiocarbon date of 2292-2051 cal. BC at 95% probability.

Although labelled as 'pits', the features were ill-defined and could potentially represent midden material caught up in hollows rather than being pits in the true sense. Indeed, given that tree-throw F.434 itself contained eleven sherds of Beaker pottery (as well as very small quantities of animal bone and burnt stone), together with the fact that F.420 and F.433 were recorded as 'inter-cutting', these 'pits' could be interpreted as a discrete deposit of midden material within the top of the tree-throw. Likewise, F.405 could represent a second discrete patch of 'midden' deposit within the top of the hengiform ditch.

Four other features, three small pits/postholes (F.422-424) and a pit (F.432) were recorded in the vicinity of the Beaker features and are potentially related, however, no finds (except for a single fragment of burnt stone from F.432) were recovered from them and they remain undated.

The Early Bronze Age Barrow (Tertiary Ring-ditch)

Two cremations were inserted into the centre of the barrow mound; one was a simple pit cremation (F.415) and the second (F.417) a potential pit-pyre (see Dodwell in Evans *et al.* forthcoming).

Cremation F.415 (Figure 8) comprised a circular pit (diameter = 0.7m, depth = 0.07m), cut into the top of the barrow mound and in being located close to the modern day ground surface most likely partially truncated by ploughing. The pit contained two fills; the primary fill largely comprised cremated bone within a silty sand matrix whilst the secondary fill comprised a charcoal rich 'capping' layer. The cremated remains were that of an adult and although sex could not be formally determined certain dimorphic traits are female (see Neil, below).

Cremation F.417 (Figures 5 and 8) comprised a sub-oval pit (1.5m x 1.2m, depth = 0.34m) cut into the barrow mound. Charred timbers within its fill, together with the semi-articulation of some skeletal elements indicate that the feature was almost certainly a pit-pyre although as discussed further below, the absence of a lack of scorching around the sides of the pit is surprising. The cremated remains – that of an adult of indeterminate sex – were clustered in the southern half of the feature the northern half having apparently been disturbed by an animal burrow.

Figure 7. Site III barrow ditches F.410-12

Figure 8. Cremation F.417 (top),cremation F.415 (bottom)

In being located close to the centre of the mound and being stratigraphically related, the two pit-pyres together with inhumation F.413 provide a sound chronological sequence of burial; F.415 was cut into the barrow mound above and just to the northeast of the primary inhumation F.413, while F.417, the latest in the sequence was located just to the south of F.415 and slightly truncated its southern edge. It was not, however, possible to firmly establish the chronological relationship of the two cremations with the barrow ring-ditches and their respective mound phases.

The Tertiary Ring Ditch and Mound

The form of the latest barrow-phase was essentially determined by ring-ditch F.407/411. The ring-ditch served to enlarge the barrow mound slightly as well as redefine the edges of the eroded primary mound and re-establish its ditch, which by this point had been completely in-filled by eroded mound material. Although located largely 'outside' the line of primary ditch F.412, ring-ditch F.407/411 did truncate it in a number of places, most notably on the southwest side, thus providing a clear stratigraphic relationship between the two. The ring-ditch measured 1.4-2.93m wide by 0.66-0.92m deep; it had an internal diameter of 17.5m and was sub-circular in form. In contrast to the relatively sterile ditch fills of ring-ditches F.408/410 and F.412, ditch F.407/411 contained a sequence of waterlogged organic fills, with relatively good organic preservation and which produced a small finds assemblage. Amongst the finds five sherds of Collared Urn pottery provide an approximate indication of date; 51 fragments (561g) of animal bone and a single flint blade of probable Neolithic date (and therefore, residual) were also recovered.

The final mound phase (F.437) was difficult to identify, largely because it was effectively a re-sculpting/refurbishment of the primary mound, rather than a clearly defined enlargement. Like the primary mound, its form and extent is best determined by the inside edge of the tertiary ring-ditch (17.5m in diameter) and once again there was clear evidence within the ditch fills and the overlying deposits for the erosion and 'flattening' of the mound edges as they slumped into the ditch. Amongst these deposits it was possible to identify probable 'stabilised' edges/surfaces in the barrow section indicating that this was a gradual, long term process. In contrast to the primary mound, no trace of activity in the form of charcoal patches/spreads was recorded on any of these subsequent barrow surfaces.

Disarticulated Bone and Later Barrow Disturbance

Throughout the hand excavation of the barrow mound transects, fragments of disarticulated human bone and animal bone, were encountered 'within' the mound deposits towards its centre (see Figure 9). In addition, a complete disarticulated human humerus was exposed on the mound surface following initial machining. In some areas concentrations of bone were recorded within apparently disturbed areas of the mound, which were identified as probable animal burrows, post-dating the use of the barrow. It was only following the spit-reduction of the mound by mini-digger, however, that the extent of this disturbance emerged. Extensive burrowing was identified throughout the mound but was particularly visible within the surface of the underlying/sealed buried soil surface where traces of numerous burrows/tunnels were

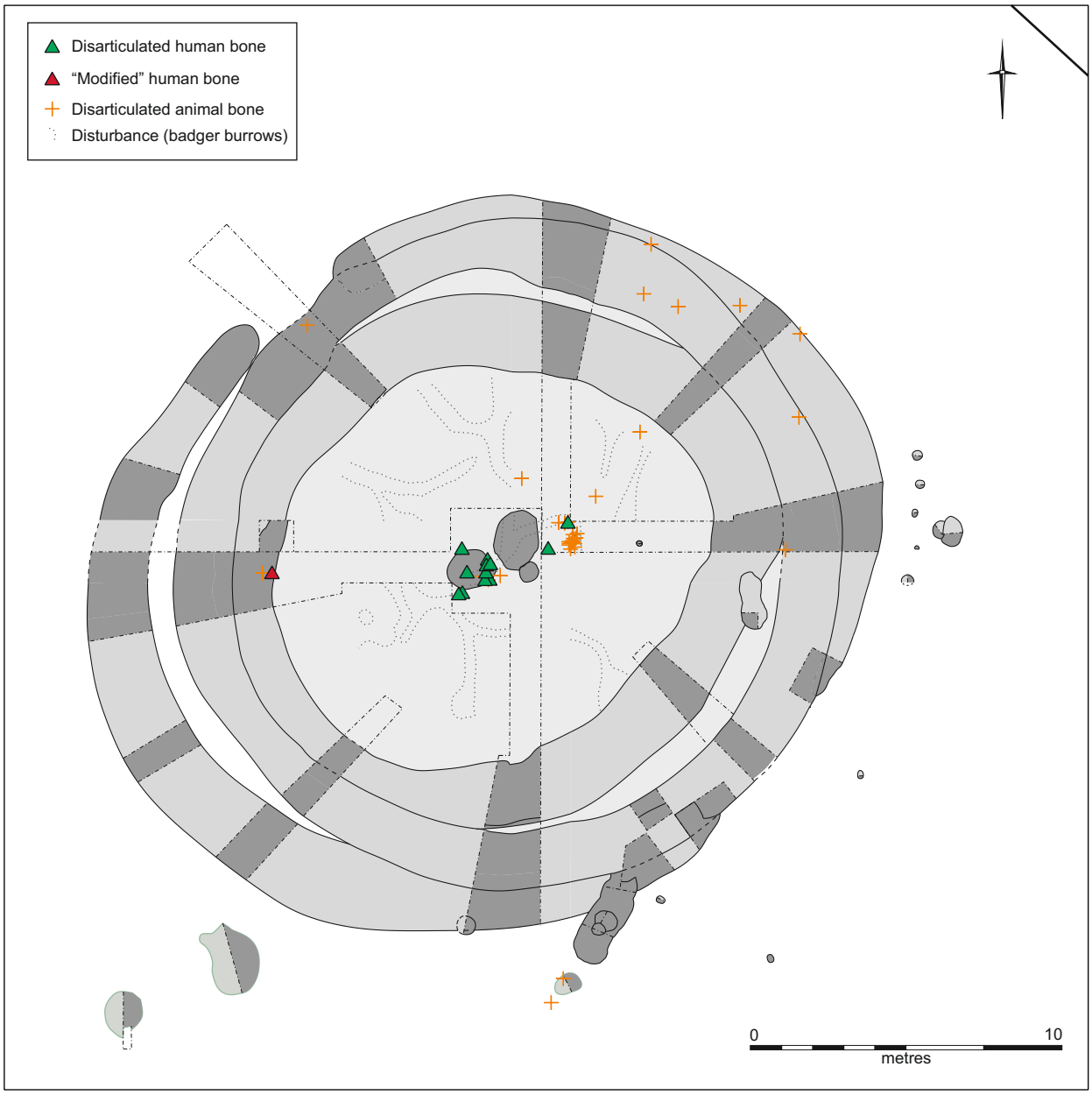
visible (see Figure 9). Such extensive disturbance is characteristic of badger activity and it seems highly likely that following its 'abandonment' the barrow became the location of a badger sett. The date of the badger sett is not known (needless to say it was long abandoned), however, it seems most likely to date to the later Bronze Age or Iron Age, when the barrow appears to have no longer been an active funerary monument and, for a period at least, would have effectively formed a dry 'island' before being completely submerged by fen deposits.

Probable badger tunnels were found to have disturbed both inhumation F.413 and cremation F.417, and human bone from both features had consequently been displaced, resulting in the distribution of human bone shown in Figure 9. Close examination of the condition/state of the bone in comparison to that of F.413 and F.415 has enabled the majority of scattered disarticulated bone to be associated with one or other of the disturbed interments (see Neil, below); however, two uncremated human bones were 'duplicates' of *in situ* elements of skeleton (1139) and represent the remains of two further individuals (in addition to the three from Fs.413, 415 & 417). In addition, the remains of a sixth individual were represented by a fragment of modified human bone (a right femoral diaphysis fragment, which showed evidence of having been split/shortened and polished) that was recovered from eroded mound deposits.

Animal and bird bone including wild species (juvenile crane and fox) as well as domesticates (pig and sheep/goat) were recovered from the barrow mound whilst fish bone (pike) was recovered from 'washed sand' deposits overlying the barrow. Of this material, the small amount of animal bone from domesticated species seems most likely to be residual fragments that were incorporated into the mound during one of its construction phases. The presence of bone from wild species seems more likely to be the result of badger activity, either directly (the bone represents their prey/food taken into the burrow) or indirectly (surface scatters of material were incorporated into the barrow mound by badger 'digging'). In terms of the latter a concentration of bird bone is of particular interest (as discussed further below). The bone concentration comprised 15 bones – five unidentified mammal, two juvenile crane and eight unidentified bird (but potentially crane). From the same cluster, which was roughly linear in form and extended across the eastern barrow metre-transect, a complete perforated clay weight together with a fragment of a second clay weight (SF137, see Timberlake, below; Figure 9), was recovered. All of the material was found within a linear deposit or 'cut', 0.4m wide, which was interpreted as a badger burrow, and the bone and clay weight, therefore, most likely represent surface material 'dragged' into the sett/mound.

Undated/natural Features

The only other potential archaeological features recorded in the vicinity of the barrow comprised a line of five possible postholes Fs.425-28 and F.431, immediately to the east of hengiform ditch F.407/410 and approximately aligned with its outer edge. The features produced no finds, however, and their function and date remains unknown. A small irregular hollow (F.429/430) immediately adjacent to the line of postholes was of natural origin.



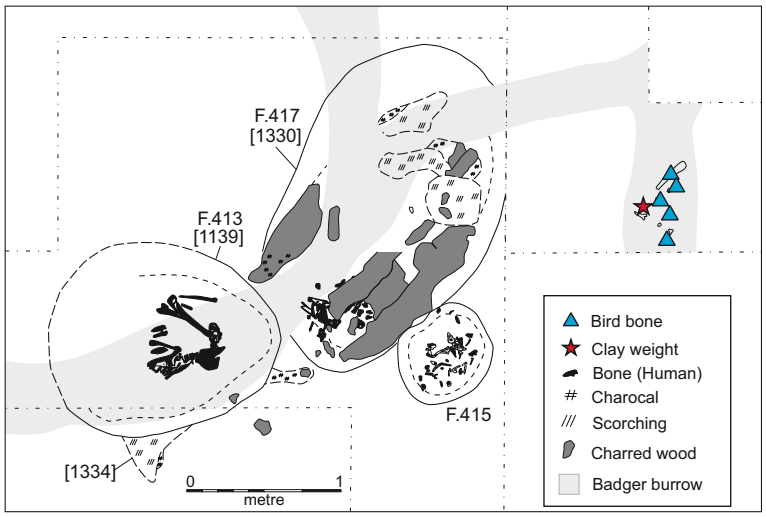


Figure 9. The Site III barrow: disarticulated human and animal bone (top), detail of barrow interments and bird bone/clay weight cluster (bottom)

A number of additional features, which were sample excavated, both in the area around the barrow and in one case, cut into the surface of the barrow, are also interpreted as of natural origin. The majority of these features contained organic silt fills, which were clearly the equivalent of the blanket deposit of peat/silt found across the excavation area (see Boreham in Tabor & Evans 2012) and as such their 'in-filling' clearly coincided with the formation of the fenland environment across the landscape during the later Bronze Age/Iron Age. Two irregular sub-circular features (F.401 & F.439) were evidently existing hollows into which the organic silt deposit 'settled', whilst two linear features (F.400 & F.441) almost certainly represent erosion gullies. A much more extensive hollow/low-lying area (F.440) was also located to the west of the barrow; analysis of the mollusc remains from the 'fill' of this feature (see below) indicate that it comprised a slow moving or still body of water for a time at least and once again it is clearly associated with the post-barrow 'flooding' of the landscape.

Tree-throws were recorded across the excavation area and were generally not excavated there being no evidence of human activity (e.g. charcoal, bone or artefacts) within their surface fills. The exceptions to this were F.434 (see above *viz*. the Beaker 'pits') and F.1012, the latter a heavily scorched and disturbed area on the western face of the barrow mound. Initially excavated as a potential cremation pyre it soon became clear that F.1012 represented the remnants of a burnt tree/tree stump; this interpretation was confirmed by the presence of an extensive root system beneath, preserved by the waterlogged conditions.

Specialist Studies

Human Bone – Benjamin Neil

The human bone assemblage consisted of an *in situ* inhumation (F.413), a cremation (F.415) and a 'failed' pit-pyre cremation (F.417), as well as disarticulated and fragmented material from the barrow environs. No immature bones were identified amongst the latter remains which comprised adult bone, with both male and female elements present. A proximal femoral diaphysis fragment with deliberate modification is also recorded from the eastern side of the barrow. Altogether, the bone represents a minimum of six individuals.

Sex estimation was accomplished using a multi-factoral process of identifying the dimorphic dimensions of the os coxae and the skull (where available) using methods outlined by Buikstra *et al.*, (1994) Bruzek, (2002) Phenice, (1969) Scheuer, (2002) Singh & Potturi, (1978) and White *et al.*, (2011). Each individual will be assigned according to the following:

Term	Read as	Meaning
Female	Female	Analyst has full confidence in the determination of sex for the remains
Male	Male	
(female)	Probably Female	Analyst does not have full confidence in the determination, but feels the remains are probably the stated sex.
(male)	Probably Male	
Female?	Possibly female	Analyst does not have confidence in the determination, but feels the available evidence hints at the stated sex.
Male?	Possibly male	
Indet.	sex indeterminate	The remains have been analysed, but are lacking sufficient diagnostic morphology for a determination of sex

Table 3: Sex estimation criteria**.**

Age at death estimation was principally based on data sets derived from British populations using methods based on changes in the auricular surface (Buckberry & Chamberlain, 2002), changes of the pubic symphysis (Brooks & Suchey, 1990) the acetabulum (Calce, 2012) and molar attrition (Brothwell, 1981). The degree of cranial suture closure complements the latter and follows methods outlined by Meindl and Lovejoy (1985). Where applicable, the degree of epiphyseal union will be used to estimate age and will be recorded following criteria outlined by Buikstra *et al* (1994). Isolated fragmented bone will often have ambiguous or unobtainable morphological information thus age is indeterminate; however where these fragments exhibit developmental and dimensional characteristics that are clearly not neonate, infant or juvenile, the inference will be adult. Each individual will be assigned according to the following: Neonate (< 6 months), infant (0-4 years), juvenile (5-12 years), sub-adult (13-18 years), adult (18+ years), young adult (19-25 years), middle adult (26-44 years), mature adult (45+ years). Isolated fragmented bone will be recorded according to zonation criteria set out by Knüsel & Outram (2004).

Inhumation F413 [1139] Male, Middle Adult

An east-west aligned skeleton where the head (although absent) would have been in the west. Flexed at the elbow and knee it had moderate preservation. The skeletal elements are significantly cemented together in anatomical positon with iron pan and gravel concretions. Notably, the skull is absent as are the scapulas, clavicles, upper ribs, cervical vertebrae, hands and the proximal epiphysis of the right humerus, yet there is little evidence for the reasons behind this truncation in the ground. Both tibias the right fibula and both feet are also missing.

Despite efforts to clean off the concretion pre-lifting, it remained strongly adhered. The skeleton was thus lifted in three blocks: the first containing the arms, vertebrae and ribs, the second containing three lumbar vertebrae, sacrum, pelvis and proximal femurs and the third with the rest of the femurs and left fibula. Post-excavation cleaning was more successful, enabling elucidation on sex and biological age; however, it is possible that the remaining significant concretions mask further obtainable data that would otherwise provide a more actuate assessment.

The formation of iron pan or *ortstein* is a fairly frequent occurrence in this landscape, being a consequence of humus compounds of iron and aluminium carried down through the soil and precipitated in solution. That all pre-excavation bone breaks are covered by concretions, notably of the right proximal humerus and distally the ulna and radius, suggests that there has been a period of fragmentation in antiquity prior to its formation. That burrows are in extensive evidence over the barrow mound suggests that the missing skeletal elements have been removed by this activity. Badger activity is recorded at a number of archaeological sites including Kinsey Cave, Yorkshire, where there is a strong suggestion that badgers in this environment used bone as bedding material (Taylor *et al.* 2011).

Cremation F. 415 [1168] Female? Adult

An unurned cremation comprising disarticulated, fragmented human bone lying in all orientations throughout the fill and against an un-scorched cut edge. Excavated in two spits with the fill being 100% sampled, the bone derives from two contemporary deposits [1167] and [1168].

A total weight of 773g is recorded. The bone is highly fragmented and ranges within 5-40mm; the colour indicates uniform oxidisation, ranging through hues of blue and grey to white with surface textures comprising longitudinal splits, transverse checking and curved cracks.

Although a modern commercial cremation of an adult produces approximately 3000g of bone, (Ublekaer 2015) the results of an archaeological study on British cremations suggests the total weight of cremations (> 2 mm fraction), may range between 1001.5g and 2422.5g, with an average of 1625.9g (Mckinley 1993). The colour of cremated bone relates to the pyre's physical and thermal relationships, heat fluxes (radiant heat) and environmental factors (temperature distribution). The size of the pyre, (the amount of fuel) its construction, (the mechanism of oxygen supply) the duration of cremation and the size and position of a corpse within it all contribute to the variability of cremation efficiency and thus oxidation of the bone. In very broad terms, blackened bone is exposed to a temperature around

300˚C and white bone is exposed to a temperature in excess of 600˚C. Body fat is known to flame at around 900 ˚C.

Although most of the fragments can be broadly assigned to anatomical region, there are a few that are specifically identifiable including a fragment of right frontal bone, the supraorbital margin and zygomatic process, the pterygold process of the sphenoid bone, a humeral head, an ulna diaphysis fragment, a humeral diaphysis fragment, a fibula diaphysis fragment, a manubrium fragment and a 4th metatarsal fragment. Although it should not be taken as an absolute estimation of sex, it is noted that the sexually dimorphic trait of the supraorbital margin is female as is the metric estimation of the humeral head.

Given the lack of scorching evident it is unlikely that this deposit represents an *in situ* pyre site that would otherwise indicate a busta style cremation, (Dodwell 2012). Rather it likely represents a burial where cremated bone and pyre debris was spread across the base of the pit. This is further illustrated in section and plan where deposit [1168] is understood to have been deposited into the feature from the southwest towards the northeast; deposit [1167] partially overlies [1168], infilling the feature from the northeast.

Cremation F.417 [1329] Indet., Adult

An east-west aligned partial skeleton in moderate to poor preservation. Flexed at the knee, it lay on its right side in partial articulation and was burnt. The lower appendicular elements predominated and included the distal half of both left and right femurs and the proximal halves of the right tibia and fibula, which were semi-articulated. Thoracic vertebrae fragments were distributed around the southern periphery of the legs. It is likely that the rest of the body was truncated by an animal burrow.

Where observable, the bone surface is blackened and the cortex is a dark greyish yellow brown colour, significantly cemented with sooty, iron pan/gravel concretions. This is firstly indicative of burning (yet falls short of the high temperatures usually achieved within pyres) and secondly it is suggestive of iron precipitation which leads to the formation of concretions; the latter process also has implications on the observed crystalline inclusions within the trabecular spaces of the bone.

The colour lends to an idea that the pyre was extinguished either through quenching or sudden rainfall. This would not only have halted the cremation but also catalysed a diagenetic process (a physico-chemical process that alters the state of the bone; see Hedges 2002) where environmental conditions and any subsequent flooding influence the degree of microbial attack, bone porosity (thus its reactivity) and further water sorption; the process however is complicated by the presence of collagen in the bone, which has a hydrophilic surface (*ibid.*).

Alternatively, it is also possible that the 'failed pyre' could be the result of the method used. The semi-articulation of skeletal elements in F.417, together with the presence of charred timber is characteristic of a pit-pyre; a bustum-type pyre that experiments carried out by Dodwell (2012) indicate was an efficient method of cremation. However, the intense scorching of the pit and immediate periphery characteristic of pit-pyres was not evident in F.417. Consequently it is possible that an alternative, less efficient method of cremation (potentially where the body was placed in the pit with the fuel source) was used and could have resulted in lower temperatures (thus minimal scorching) and produced larger quantities of soot as is evident within this feature (see *ibid.*).

If this individual was complete, it is of possible interest that in projecting the line of the skeleton, the head would have come to rest near the feet of the skeleton in F.413. Although stratigraphically distinct by 0.32m, the placement of the skeleton in F.415 may suggest an awareness of the skeleton in F.413 as a primary inhumation and thus respect it.

SF.165 and **SF.166** are the distal articulation of the left humerus and the diaphysis of a radius respectfully; both lie approximately 0.45m SW of the truncated edge of F.417 and are characterised by the same level of preservation and condition as that of Skeleton [1329] in F.417 thus is likely to be the same individual. The humeral fragment has a septal aperture, a condition more frequently found in females (Mann & Hunt, 2013). A thoracic vertebra within F417 from [1348] is seen to be covered in

significant iron pan/gravel concretions and is unknown without further cleaning whether it belongs to the same skeleton.

Disarticulated Bone Elements

The following small find represents a single individual (additional to the recorded inhumation and cremations) and was found in the eastern transect over the western break of slope of ditch F.412:

SF.107 A proximal right femoral diaphysis fragment, characterised by deliberate modification. There is an axial chop directed superiorly, either with the intention to split the bone or to shorten the diaphysis to exclude the distal epiphysis. Superiorly, the bone is broken perpendicular to the diaphysis; there is evident grading of the linea aspera and polishing of the cortical bone on the medial surface.

The following small finds are calcined bone found within 2m NE of F.415 and may represent disturbed elements of the cremation contained within:

SF.120 A calcined cortical diaphysis fragment.
SF.138 A calcined cortical diaphysis fragment with moderate iron pan concretions.

The following small finds were human bone concentrated in clusters around the limits of F.413 That the following fragments represent non-reproducible elements, including possible skull fragments, suggests that they are part of Skeleton [1138]. It also infers a high degree of taphonomic agency wherein agents such as badgers work and re-worked the ground in the vicinity of the inhumation.

SF.109 A fibula diaphysis fragment with a fresh superior break and concreted inferior break.
SF.110 A proximal left ulna fragment (Zone ABCD partial E) with significant concretions.
SF.111 Possible calvaruim fragments with significant cemented iron-pan/gravel concretions.
SF.112 A rib shaft fragment towards sternal end with moderate cemented iron-pan/gravel concretions.
SF.117 A distal right radius fragment (Zones 9/10/3/4/J) with moderate iron pan concretions
SF.143 The distal end of the right tibia (Zone 5), which has been broken into three pieces; refitted, it includes part of the medial maleous and talar facet. Six other unidentifiable cortical and trabecular fragments form part of the small find as well as a possible metatarsal fragment; however the latter is too concreted for positive identification.
SF.149 A rib shaft fragment.
SF.150 A left tibia diaphysis, fragmented into two pieces with moderate iron pan/gravel concretions. A fragmented fibula diaphysis fragment is associated with the tibia, concreted in anatomical position.
SF.151 A possible left calcaneus, however, significant iron pan/gravel concretions preclude definitive identification.
SF.171 A right third metatarsal
SF.172 A left navicular (tarsal) bone

The following humerus bones were found to the south of F.413; they are unrelated to the inhumation and thus represent a minimum of two further individuals:

SF.115 A complete right humerus, assessed to be of an adult male with a noted supracondylar process. This is a congenital variation and can manifest in a syndrome whereby the ulnar nerve, median nerve and/or brachial artery are compressed, causing pain and paraesthesia. It can also be easily fractured, again causing pain. Minor cemented iron-pan/gravel concretions occur.
SF.147 A right humeral diaphysis fragment (Zone 7/8), with significant iron-pan/gravel concretions. An indeterminate mass of iron-pan/gravel cemented concretion precludes element identification of trabecular bone.

Finally, a single disarticulated proximal foot phalange was recovered from Beaker ‘pit’ F.405, a feature cut into the surface of hengiform ditch F.408/410.

Further analysis could further offer elucidation on the character of the surviving inhumation (F.413), where the removal of surface concretions could reveal hidden pathologies. However, that these concretions are tightly bonded to the surface of the bone presents challenges in avoiding cortical peeling and breakage that would ultimately destroy any evidence. That there are up to three additional individuals within the spot finds, represented by the most abundant, non-reproducible elements leaves questions open as to the possible later utilisation of the barrow site and the placement of secondary inhumations. Questions also arise concerning the modified femoral diaphysis and the possibility of later Bronze-Age inhumations or Iron-Age cult practices. It is recommended that ^{14}C sampling and analysis be carried out on this element to further shed light on this area.

Flint – Lawrence Billington

A total of 30 worked flints were recovered from the excavations. The assemblage is quantified by context in Table 4. The majority of the flintwork from the site (20 pieces) was recovered from a single pit associated with Beaker pottery with a small amount of worked flint deriving from contexts associated with the barrow itself.

Context type	Feature	Context	Irregular waste	Flake	Blade	Blade like flake	End scraper	Thumbnail scraper	Flake knife	Serrated piece	Core fragment	Totals
Hengiform ditch	408	1025					1					1
Hengiform ditch	408	1206					1					1
Hengiform ditch	408	surface							1			1
Hengiform ditch	410	1061								1		1
Primary barrow ditch	412	1300			1							1
Cremation deposit	415					1						1
Beaker pit	420	1336	2	12				6			1	20
Animal bone cluster	402	1004				1						1
Surface finds				1					1			2
Totals			**2**	**13**	**2**	**1**	**2**	**6**	**2**	**1**	**1**	**30**

Table 4. Basic quantification of the flint assemblage.

The assemblage is generally in a very good condition with minimal edge damage. Cortication ('patination') is rare, occurring on two pieces. The corticated pieces are not strongly diagnostic and it is uncertain whether the cortication is of chronological significance, although it is much more common on 'early' (Mesolithic/Early Neolithic) flintwork from other assemblages from the Over/Needingworth landscape. The entire assemblage is made up of flint, generally of good quality. The colour and surviving cortical surfaces of the flint suggest the use of flint from various sources, probably dominated by material collected from relatively local gravel sources but also including some pieces with an unweathered cortex characteristic of flint derived from the chalk.

Barrow Contexts

Four flints derive from contexts associated with the hengiform ditch F.408/410. Remarkably, all four of these are retouched forms. These include two end scrapers ([1025] & [1026]). Neither of these are chronologically diagnostic but probably date to the Late Neolithic or the Early Bronze Age. A single serrated flake was also recovered, this piece is made on a very narrow elongated flake which probably derives from the working of a discoidal or levallois like core and has one serrated lateral edge and some steep retouch on the other edge, probably to facilitate handling. This piece is closely comparable to examples recovered from local Grooved Ware associated assemblages and, as such, is probably of later Neolithic date. The final flint from the hengiform ditch is an invasively retouched knife of lanceolate form, collected from the surface of F.408/410. Made on a distinctive banded brown/grey flint, this piece is characteristic of Early Bronze Age (i.e. Beaker/Collared Urn associated) knife forms, found both in 'domestic/settlement type' assemblages (e.g. Beadmoore & Evans 2009) and ostensibly less mundane (mortuary) contexts (e.g. Bishop 2009; Evans *et al*. forthcoming).

In contrast to the material from the hengiform ditch, the flints from other contexts associated with the barrow are made up of unretouched removals; a blade of probable Neolithic date from barrow ditch F.412, and a broad blade-like flake, unburnt, from cremation F.415 (SF 154). This piece is in fresh condition and appears to show some traces of utilisation on one lateral edge.

Beaker Pit F.420

A total of 20 worked flints were recovered from this feature. The raw materials are dominated by flint derived from small gravel cobbles and the unretouched flakes are generally small squat pieces with large unprepared striking platforms. Six retouched tools are present in the assemblage, all of which are small scrapers. These have all been broadly classified as thumbnail forms here (Table 4) but there is considerable morphological variability between individual pieces. Only one of these scrapers is a classic, invasively retouched, thumbnail scraper with most examples having abrupt to semi abrupt retouch. All are made on simple flake blanks, generally relatively thick and squat flakes, two of which are primary removals with fully cortical dorsal surfaces. The assemblage as a whole is typical of Early Bronze Age assemblages from Over (notably those recovered from the excavation of pit features from the Godwin and O'Connell Ridges) and the wider region (Petersen & Healy 1986; Beadsmoore 2009), particularly in terms of exhibiting a very simple and expedient flake based technology. The dominance of small scraper forms amongst the retouched component is also highly characteristic.

One further blade like flake was found as a surface find with animal bone cluster F.402, located to the south of the barrow.

In common with the evidence from the Low Ground barrows and the Site II barrow (Evans & Tabor 2008; 2010; Evans *et al*. forthcoming) very little flintworking or use appears to have been associated with the construction and use of the barrow, and the assemblage from Beaker pit F.420 is entirely characteristic of other contemporary 'domestic' assemblages. The high proportion of retouched forms associated with the hengiform ditch may be of significance and at least some of this may have resulted from Late Neolithic activity and potentially be associated with the use of the monument, although both the typology and stratigraphic position of the flake knife recovered from the surface of hengiform ditch F.408/410 suggest this piece should be associated with the Early Bronze Age phases of the sites use.

The only flint which could be interpreted as a grave good/deliberate deposit is the unburnt, possibly utilised, blade-like flake from cremation F.415. This piece is in fresh condition and technologically is not inconsistent with an Early Bronze Age date. Although the flintwork associated with cremation deposits from the Low Grounds barrows was generally heavily burnt and appeared to have passed through the cremation process, three flints from an urned cremation deposit from Barrow 12

(F.1032) were unburnt and included an unretouched flake alongside two flake knives, providing a possible parallel for the inclusion of this artefact in the cremation deposit.

Prehistoric Pottery – Alisdair Wright

The pottery assemblage (Table 5) comprises 73 sherds weighing 444g. Beaker made up the main component of the assemblage (66 sherds). The remainder consisted of five sherds of Collared Urn and two sherds of an Early Bronze Age/Middle Bronze Age fabric.

Type	**Feature**	**Context**	**Sherds**	**Weight** (g)
Beaker	405	1010	3	22
	420	1336	26	226
	433	1428	18	81
	434	1430	18	47
Total			*66*	*378*
Collared Urn	407	1192	1	28
	407	1017	3	28
	407	1018	1	6
Total			*5*	*64*
EBA/MBA	415	1167	2	2
Combined total			**73**	**444**

Table 5: Assemblage breakdown.

Beaker

The Beaker pottery is entirely derived from a group of four pits, which cut the probable hengiform ditch. The assemblage (see Table 6) contained sherds which could be described as 'rustic' and 'fine' ware, but was dominated (in terms of sherd count) by finer forms, which is unusual for a pit-derived (domestic) assemblage. The 'rustic' pottery could be characterised by sherds with larger wall thickness and a coarser fabric containing a high quantity of sand, poorly sorted flint and some grog. Stylistically the 'rustic' wares were decorated with vertical rows of crows foot, other fingertip impressions, and horizontal comb impressed lines. The sherds described as 'fine' Beaker were thin walled and tempered with sand and finely crushed flint. Classic 'S'-profile vessel form could be identified, and decoration was far more complex. Designs included; comb impressed and incised lines sometimes filled with further incised decoration or rows of fingernail impressions.

Type	**Sherds**	**Weight** (g)	**Sub-style**	**Sherds**	**Weight** (g)
Beaker	66	378	Fine	31	108
			Rustic	10	193
			Undiagnostic	25	79

Table 6: Components of the Beaker assemblage.

The assemblage contained a number of refitting sherds that made up the majority of the base of one vessel. There were also a further two occurrences where it was clear one vessel was represented by several sherds, which is uncharacteristic of domestic Beaker assemblages of East Anglia (Garrow 2006).

Collared Urn

Five sherds of Collared Urn were recovered from the secondary barrow ditch (F.407). A single rim sherd exhibited three rows of incised chevrons covering the entire collar.

Early Bronze Age/Middle Bronze Age

Two small sherds of pot with shell rich fabric were recovered from cremation burial F. 415. Profuse use of crushed shell as temper is consistent with the fabric of Deverel Rimbury pottery in the Cambridgeshire region. However, shell temper is not exclusive to Deverel Rimbury and without further insight into vessel form or decoration it is difficult to assign these sherds to a specific pottery tradition.

Worked Clay – Simon Timberlake

One complete and one partial crudely made clay weight (combined weight 128g) were recovered as small finds from the barrow mound. The lumpy clay fabric (Fabric 1) used to make these weights is quite similar to that of the Late Neolithic (Grooved Ware)–Beaker clay loomweights found on Site IX (F.138).

<**594**> SF 137a. 60mm x 50mm x 55mm (124g) Complete round bi-pyramidal weighing with 5-6mm diameter central stick perforation. Fabric type 1.

<**594**> SF 137b. 60mm x 45mm x 35mm (70g) . Small and lumpy square-round crudely fashioned weight. Fabric type 1.

Fabric 1 – A light brown-buff to pinkish grey coloured silty clay with inclusions of 2-10mm angular unburnt flint within a poor flow-laminated and lumpy clay texture

Preserved Wood – Michael Bamforth

A total of 14 discrete pieces of charred wood were recovered during the excavation. All the material has survived due to charring. The material was recovered from the primary, central cremation deposit of a barrow provisionally dated to the Bronze Age (F.417, [1240]). The material is thought to represent the remains of a pit-pyre.

This document has been produced in accordance with English Heritage guidelines for the treatment of waterlogged wood (Brunning & Watson 2010) and recommendations made by the Society of Museum Archaeologists (1993) for the retention of waterlogged wood. Each discreet item was recorded individually using a pro forma 'wood recording sheet', based on the sheet developed by the Fenland Archaeological Trust for the post excavation recording of waterlogged wood. All records were then entered into a database.

Every effort was made to refit broken or fragmented items. However, due to the nature of the material, the possibility remains that some discrete yet broken items may have been processed as their constituent parts as opposed to as a whole. The metric data were measured with hand tools including rulers and tapes; tool marks were measured using a profile gauge. The system of categorisation and interrogation developed by Taylor (1998, 2001) has been adopted within this report. Joints and fixings are described in accordance with the Museum of London archaeological site manual (Spence 1994).

The wood considered herein has survived due to charring. The nature of this type of preservation is such that a high degree of preservation bias is assumed. Any uncharred timber or part of a timber will not have survived. Similarly, it is assumed that much of the original pyre material has completely combusted and will not be represented in the assemblage. Factors including timber size, species, degree

of seasoning and relative position within the pyre will each have played their part (Taylor forthcoming). Finally, there may have been a degree of selection in terms of the pyre material that was deposited in the pit.

All of the material is, as a result of charring, severely fragmented. All the items are completely charred to the extent where any surface evidence of tooling will have been obliterated. Although several items are clearly radially or tangentially aligned, it is not possible to ascertain with any certainty if the conversions are a reflection of the original form of the uncharred timber, or are in fact an artefact of the charring.

The condition scale developed by the Humber Wetlands Project (Van de Noort *et al*. 1995: Table 15.1) will be used throughout this report (Table 6). The condition scale is based primarily on the clarity of surface data. Material is allocated a score dependent on the types of analyses that can be carried out, given the state of preservation. The condition score reflects the possibility of a given type of analysis but does not take into account the suitability of the item for a given process.

Condition score	Museum conservation	Technology analysis	Woodland management	Dendro-chronology	Species identification
5 excellent	+	+	+	+	+
4 good	-	+	+	+	+
3 moderate	-	+/-	+	+	+
2 poor	-	+/-	+/-	+/-	+
1 very poor	-	-	-	-	+/-
0 non-viable	-	-	-	-	-

Table 6: Condition scale.

If preservation varies within a discreet item, the section that is best preserved is considered when assigning the item a condition score. Items that were set vertically in the ground often display relatively better preservation lower down and relatively poorer preservation higher up. Using the above condition scale, the material all scores **2**. Material that scores a **2** will be suitable for species identification. The form of the item will probably be visible, and it may be possible to see some woodworking evidence. The conversion may be apparent, but it is unlikely that clear faceting will be visible.

Range and Variation

The majority of the material has been positively identified as oak (*Quercus* sp.) from macroscopic features. Four items are identified as probable oak (Table 7).The material all appears to be derived from larger timbers, as opposed to roundwood or off-cuts. As such, it is likely to have formed the main fuel or supporting structure of the pyre. The majority of the timbers are straight grained, knot free, good quality timber. The exception to this is T.18, which has a large side branch and appears more like a log than a timber. The material is all predominantly slow grown, with growth rings often between 0.5-1mm, suggestive of trees that have grown in an established forest environment.

Several of the items display the wide / narrow ring pattern that has previously been noted from pyre timbers recovered from this site (Taylor forthcoming). There are slightly more radially aligned timbers (8) than tangentially aligned (6). Although it is possible that these alignments are a result of the charring, the form of the items is very suggestive of cleft timbers. Some of the charred remains are fairly substantial, with items measuring up to 800mm in length. In several cases, it is possible to estimate the original minimum diameter of the timbers the charred remains are derived from - these vary from 150-320mm in diameter. The 'bubbly' effect previously noted from some pyre timbers, hypothesised to represent quenching (Taylor forthcoming), was not noted within this assemblage. It is worth noting that where timbers overlay one another, no matrix was noted at the contact point, with the charred timbers directly contacting one another. In summary, the surviving elements describe a pyre constructed predominantly of large, good quality, split oak timbers derived from medium to large trees, possibly growing in an established forest environment. This is very much in keeping with the timbers recorded from other primary cremation pyre pits recorded at the site (Taylor forthcoming).

Wood No.	Taxa	Notes	Split	Charred?	Length (mm)	Breadth (mm)	Thickness (mm)	Original diam. (mm)
T01	Quercus sp?	Heartwood. On face, sloping c.45 degrees to east. Lying on edge of feature	Tan	100%	800	200	55	
T02	Quercus sp.	Heartwood	Tan	100%	600	160	40	
T03	Quercus sp.?	Heartwood	Rad 1/6	100%	770	390	30	
T04	Quercus sp.	Heartwood	Tan?	100%	110	40	20	
T06	Quercus sp.	Heartwood	Tan?	100%	150	100	30	
T10	Quercus sp.	Heartwood. On face, outside up	Tan	100%	410	180	90	>200
T11	Quercus sp.	Heartwood	Rad	100%	210	100	40	>150
T12	Quercus sp.	Heartwood. On face, sloping 30 degrees to SW	Rad	100%	120	70	20	
T13	Quercus sp.	Heartwood. On face	Rad	100%	340	70	11	>150
T14	Quercus sp.	Heartwood. On face	Rad	100%	120	110	20	
T15	Quercus sp.?	Heartwood. On face, sloping to SE	Tan	100%	120	10	15	
T16	Quercus sp.	On face, sloping 30 degrees to N	Rad	100%	260	90	40	>150
T17	Quercus sp.?	Heartwood. On face, on edge of cut	Rad?	100%	335	90	33	
T18	Quercus sp.	Heartwood	Rad	100%	420	160	35	>320

Table 7: Material recovered from F.417 (1240).

Statement of Potential

Woodworking technology: Although there are timbers aligned in the radial and tangential plane, it is impossible to be certain if this represents reduction of the timbers by cleaving or is a result of the charring process. No other woodworking evidence remained. There is no scope for further analysis of the woodworking technology.

Woodland reconstruction and species identification: The items have all been identified as oak or possible oak and are all predominantly slow grown. The sample size is too small to allow any inferences regards woodland reconstruction to be made. However, it is interesting to note that the distinctive wide / narrow growth pattern reported from previously excavated charred pyre material at this site is also present within this assemblage.

Dendrochronology: None of the oak items displays the minimum 50 years of growth rings required to be considered viable for this process.

Decay analysis : As the material is totally charred, there is no scope to carry out decay analysis.

Conservation and retention : As the material is charred and as such stable, it is suggested that it is retained and forms part of the site archive.

The material has been drawn and photographed as appropriate during the excavation. No further analysis is recommended although it is suggested that the four items identified as probably oak are submitted for microscopic identification (T1, T3, T15 & T17).

Faunal Remains – Vida Rajkovača

The barrow excavation resulted in the recovery of a relatively small amount of animal bone. Of a raw count of 439 fragments and a total weight of 3350g, some assessable 177 specimens were recorded, and a further 55 identified to species. The material comprises the hand-recovered bone and that coming from heavy residues following the processing of environmental bulk soil samples. This report aims to quantify and characterise the assemblage and assess its potential for future study.

The bone came from the ring-ditches (including the potential henge ditch), other barrow-associated contexts and three Beaker pits. Only a small proportion of the bone came from the mound material.

The zooarchaeological investigation followed the system implemented by Bournemouth University with all identifiable elements recorded (NISP: Number of Identifiable Specimens) and diagnostic zoning (amended from Dobney & Reilly 1988) used to calculate MNE (Minimum Number of Elements) from which MNI (Minimum Number of Individuals) was derived. Identification of the assemblage was undertaken with the aid of Schmid (1972), and reference material from the Cambridge Archaeological Unit. Most, but not all, caprine bones are difficult to identify to species however, it was possible to identify a selective set of elements as sheep or goat from the assemblage, using the criteria of Boessneck (1969) and Halstead (Halstead et al. 2002). Age at death was estimated for the main species using epiphyseal fusion (Silver 1969) and mandibular tooth wear (Grant 1982, Payne 1973). Where possible, the measurements have been taken (Von den Driesch 1976). Taphonomic criteria including indications of butchery, pathology, gnawing activity and surface modifications as a result of weathering were also recorded when evident. Undiagnostic fragments were assigned to a size category.

Beaker 'Pits'

Three Beaker pits generated 28 assessable specimens, though only six were identified to species. Cow is the only positively identified species (Table 7).

	Beaker pits NISP			
Taxon	**F.405**	**F.420**	**F.433**	**Total**
Cow	1	4	1	6
Sub-total to species	**1**	**4**	**1**	**6**
Cattle-sized	4	3	3	10
Sheep-sized	.	12	.	12
Total	**5**	**19**	**4**	**28**

Table 7: Number of Identified Specimens for all species from Beaker pits .

The Ring-ditches

Two specimens identifiable to species came from the henge ditch F.408; a tip of a red deer antler, with probable signs of use, and a cow vertebra. In addition, three sheep-sized specimens were recovered from a charcoal patch on the surface of F.408.

Nine specimens were derived from contexts associated with the primary barrow ring-ditch (F.412) and further 17 from the barrow's secondary ditch (F.407/411; Table 8). Red deer is represented by antler elements – indicating these were collected as a valuable commodity – of which one specimen could potentially be categorised as worked. An antler tip, recovered from F.411 and collected as small find 157, showed clear signs of use probably as an antler pick. The tip may partially be rounded as a result of rubbing during the rut, though, upon closer inspection, a few shallow scoop marks were noted near the tip.

Taxon	Barrow NISP				
	Primary barrow ditch F.412	**Hengiform ditch F.408**	**Charcoal patch F.419**	**Secondary barrow ditch F.407/411**	**Disartic. bone from surface of F.407/411**
Cow	2	1		6	5
Sheep/ goat	2	.		2	.
Pig	.	.		1	1
Dog	1	.		.	.
Dog/ fox	.	.		1	.
Red deer	1	1		.	1.
Coot	.	.		1	.
Sub-total to species	**6**	**2**		**11**	**7**
Cattle-sized	.	6		6	1
Sheep-sized	3	1	3	.	2
Mammal n.f.i.	.	.		.	1
Bird n.f.i.	.	.		.	.
Total	**9**	**9**	**3**	**17**	**11**

Table 8: Number of Identified Specimens for all species from ring-ditches; the abbreviation n.f.i. denotes that the specimen could not be further identified.

Material from Barrow Mound and Associated Deposits

A further 49 specimens were recovered as small finds from the barrow mound material, deposits immediately overlying the barrow/ring-ditches and from inhumation/cremation contexts (including later animal disturbance). The material is quantified and considered according to origin (Table 9). From this sub-set, pig and wild fauna were more dominant than the remainder of domesticates, especially from the barrow mound.

Taxon	**Barrow mound**	**Pit/ pyre cremation F.417**	**Bone associated with inhumation F.413**	**Animal burrow F.418** (truncated F.417)	**Bone from lower organic peat/washed sands above barrow**	**Total NISP**
Cow	.	.	.		.	.
Sheep/ goat	3	.	.		.	3
Pig	8		.	1	.	9
Fox	1	.	.		.	1
Cat	.	.	.		1	1
Crane	3	.	.		.	3
Pike	.	.	.		4	4
Sub-total to species	**15**	**.**	**.**	**1**	**5**	**21**
Cattle-sized	4		.		1	5
Sheep-sized	5	1	1		1	8
Mammal n.f.i.	1	.	.	1	1	3
Bird n.f.i.	9	.	.	2	1	12
Total	**34**	**1**	**1**	**4**	**9**	**49**

Table 9: Number of Identified Specimens for all species recovered as small finds; the abbreviation n.f.i. denotes that the specimen could not be further identified.

Miscellaneous

The remainder of the hand-recovered assemblage was made up of small quantities of bone from features outside the barrow. These comprised a peat filled hollow (F.401), which yielded one specimen of sheep/goat, and a small surface cluster of bone to the south of the barrow (F.402; four specimens, one identifiable as cow).

Sieved Material

In addition to the hand-recovered material, some 46 specimens were recovered as heavy residues following the processing of bulk soil samples (Table 10). Apart from an ovicaprid loose tooth, recovered from cremation F.415 (sample 110), no other species were positively identified, with microfauna, aviofauna and fish remains being absent from the sub-set.

	Layer	**Inhumation**	**Cremation**	**Cremation**	**Beaker pits**		
Taxon	**F.419**	**F.413**	**F.415**	**F.417**	**F.420**	**F.433**	**F.434**
Sheep/ goat	.	.	1	.	.	.	.
Sub-total to species	**.**	**.**	**1**	**.**	**.**	**.**	**.**
Cattle-sized	.	.	.	.	1	.	.
Sheep-sized	.	5	.	.	6	5	4
Rodent-sized	.	.	.	.	.	1	3
Mammal n.f.i.	4	1	.	.	10	4	.
Bird n.f.i.	.	.	.	1	.	.	.
Total	**4**	**6**	**1**	**1**	**17**	**10**	**7**

Table 10: Number of Identified Specimens for all species recovered as heavy residues; the abbreviation n.f.i. denotes that the specimen could not be further identified.

Reflecting the patterns recorded locally (Evans & Tabor 2008; 2010; Evans *et al. in press*), fauna from the barrow-associated contexts is defined by the typical range of domesticates, with high counts for cow and pig. Occurrence of wild fauna is seemingly small (combined NISP=10), yet proportionately relatively high (8.3% of the assemblage's total), a clear indication of site's strong connection with the surrounding landscape. Especially interesting is the presence of juvenile crane elements from the barrow mound, a find reminiscent of that from Haddenham (Serjeantson 2006), where a near complete juvenile skeleton was recovered. This is a clear indication that cranes were nesting in the locale at the time. In contrast, Beaker pits generally contained more, exclusively 'domestic' bone (hand-recovered and sieved), represented by six cow specimens.

There is very little evidence associated with the construction or the use of the barrow. Most of the identified domestic species count is made up of mandibular elements and loose teeth, with a selection of pig meat-bearing elements being the only indication of meat consumption, possibly associated with visits to the monument.

Bulk Environmental Samples – Val Fryer

Samples for the retrieval of the plant macrofossil assemblages were taken from across the excavated area and 21 were submitted for assessment. The samples were bulk floated by CAU and the flots were collected in a 300 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x 16 and the plant macrofossils and other remains noted are listed in Table 11. Nomenclature within the table follows Stace (2010). Both charred and de-watered plant remains were recorded, with the latter being denoted within the table by a lower case 'w' suffix. Modern roots, seeds and arthropod remains were also present.

Although charcoal/charred wood fragments are present throughout, other plant macrofossils occur very infrequently. Charred plant remains are particularly scarce, and although de-watered macrofossils occur marginally more frequently, it is currently unclear whether these may be contemporary with the contexts from which the samples were taken, or later contaminants. For ease of interpretation, the samples have been divided by feature type and excavation phase.

Beaker Pits

The Beaker pits (F.420, F.433 & F.434) – although all four assemblages (Samples 139, 150, 151 & 153) contain moderate to high densities of charcoal/charred wood, other remains are all but absent. However, sample 150 does include fragments of charred hazel (*Corylus avellana*) nutshell.

The Ring-ditches

The primary ring-ditch (F.412) – Samples 107 and 134 are both from lower fills within the ditch. Charcoal flecks are recorded along with fragments of de-watered root/stem and arthropod remains, but other plant macrofossils/material types are entirely absent.

The hengiform secondary) ditch (F.408, F.410 & F.419) – charred macrofossils are particularly scarce within the lower fills (samples 123 and 135), although the top fill (sample 136) does contain a high density of comminuted charcoal fragments. De-watered seeds of wetland and aquatic plants including water crowfoot (*Ranunculus* subg. *Batrachium*) and horned pondweed (*Zannichellia* sp.) are present, but as stated, their true significance (if any) is unknown.

The tertiary ring-ditch (F.411) – the assemblages from the lower fill (Sample 129) and secondary fill (Sample 128) both include de-watered seeds of pansy (*Viola* sp.) type and 'pips' and elderberry (*Sambucus nigra*) seeds. Again, the significance of these remains is not known, although they do suggest that at some stage, the ditch became overgrown by colonising shrubs.

Barrow Interments and Charcoal Deposits

The cremations (F.415 & F.417) – not unsurprisingly, these assemblages contain the highest density of charred material, although even here, the volume of flot is generally quite limited (i.e. 0.3 litres or less). An individual seed of dock (*Rumex* sp.), is recorded along with charcoal/charred wood fragments, some of which are quite large (i.e. >10mm in size). It is supposed that much of this material is derived from pyre debris, and there is certainly no indication that any offerings were ever placed alongside the bodies of the deceased.

Charcoal deposits (F.414 & F.438) – these assemblages also contained high densities of charcoal material as well as single seeds of fat hen type (Chenopodiaceae) and bur-reed (*Sparganium* sp.) as well as tree/shrub macrofossils including bramble type (*Rubus* sp.). A single possible grain fragment was also recovered.

Grave F.413 (Samples 111 & 144) – the assemblages are extremely small and limited in composition, although Sample 111 does contain de-watered seeds of chickweed (*Stellaria media*) and stinging nettle (*Urtica dioica*) along with seeds/fruits of wetland and aquatic plants. Given the context, it is, perhaps, most likely that these remains accumulated after interment, as it seems very unlikely that a grave would be dug into a wetland habitat. If this is the case, it may suggest that the other de-watered macrofossils recorded within the assemblages from Over also post-date the henge and barrow.

In summary, the paucity of material within these assemblages makes any interpretation of the plant macrofossils extremely difficult. However, the following points may be of note:

- The highest densities of charcoal/charred wood are recorded from the cremation deposits and from the fills of Beaker features F.420, F.433 and F.434. As charcoal is generally scarce within the ditch and grave assemblages, it is suggested that the barrow probably stood in total isolation from any external source of anthropogenic detritus, with both the cremations and the Beaker pits representing very deliberate deposits of material placed within the vicinity of the monument.

- Compared within other Beaker pit assemblages recorded from East Anglia (for example from Flixton Park Quarry, Suffolk (Fryer 2012) and Harford Park and Ride, Norwich (Fryer, in prep.), the current assemblages are extremely limited, containing only charcoal and a single possible fragment of hazel nutshell. The reason for this is currently unclear. However, it is noted that much of the charcoal is abraded, possibly suggesting that it is principally derived from scattered refuse, which was exposed to the elements for some considerable period prior to incorporation within the pit fills.

- At some point, the barrow ceased to be a significant landmark and became overgrown with colonising shrubs. It would also appear that the land on which the monument stood became very wet and possibly inaccessible.

As none of the assemblages contain a sufficient density of material for quantification (i.e. 100+ specimens), no further analysis is recommended.

Molluscs and Microfossils **-** Simon Timberlake

Ring-ditch F.410 was sampled in bulk and by 30cm monolith to look for molluscan as well as some of the larger microfossil (e.g. ostracod) evidence. This was done primarily in order to check for salinity changes consistent with any brackish water/ tidal incursion. The secondary barrow ditch, F.407 [1193], was examined for similar reasons.

In addition, a hollow or shallow ‘pond’ (F.440) just to the northwest of the barrow was sampled at two locations (A & B) approximately 5-8m apart. At both sites sections were cut through the peaty/organic silt overlying the post-barrow ground surface to a depth of 34cm and 40cm respectively. Bulk samples were taken of the upper halves of the peaty sediment in each, whilst a 30cm monolith tin was recovered from the top of Section A.

Table 11: Plant macrofossils from bulk enviro sample analysis from barrow features. KEY: x = 1 – 10 specimens xx = 11 – 50 specimens xxx = 51 – 100 specimens xxxx = 100+ specimens cf = compare w = de-watered fg = fragment LF/MF/UF = lower fill/middle fill/upper fill ph = post-hole P/W = pit/well

Sample No.	**103**	**109**	**110**	**122**	**133**	**141**	**142**	**143**	**111**	**144**	**107**	**134**	**129**	**128**	**123**	**135**	**136**	**139**	**150**	**151**	**153**
Context No.	**1188**	**1166**	**1167/8**	**1316**	**1316**	**1348**	**1348**	**1316**	**1138**	**1138**	**1097**	**1097**	**1085**	**1084**	**1315**	**1080**	**1333**	**1336**	**1336**	**1428**	**1430**
Feature No.	**F.438**	**F414**	**F415**	**F417**	**F417**	**F417**	**F417**	**F417**	**F413**	**F413**	**F412**	**F412**	**F411**	**F411**	**F408**	**F410**	**F419**	**F420**	**F420**	**F433**	**F434**
Feature type	**Charc.**	**Charc.**	**Crem.**	**Crem.**	**Crem.**	**Crem.**	**Crem.**	**Crem.**	**GLF**	**Grave**	**IDLF**	**IDLF**	**MDLF**	**MDSF**	**ODLF**	**ODLF**	**ODTF**	**BF**	**BP**	**BP**	**BP**
Cereals																					
Cereal indet. (grains)		xcf																			
Dry land herbs																					
Chenopodiaceae indet.	x																				
Rumex sp.				x																	
Stellaria media (L.)Vill									xw												
Urtica dioica L.									xw												
Viola sp.													xw	xw							
Wetland plants																					
Aphanes arvensis L.																xw					
Bolboschoenus/ Schoenoplectus sp.			xxw						xw												
Eleocharis sp.									xw												
Mentha sp.																xw					
Potamogeton sp.									xw												
Ranunculus subg. *Batrachium* (DC)A.Gray									xw							xw					
Sparganium sp.	x																				
Zannichellia sp.																xw					
Tree/shrub macrofossils																					
Corylus avellana L.																			xcf		
Rubus sp.	x												xxw	xw		xcfw	xw				
R. sect *Glandulosus* Wimmer & Grab													xw								
Sambucus nigra L.													xw	xw							

Sample No.	**103**	**109**	**110**	**122**	**133**	**141**	**142**	**143**	**111**	**144**	**107**	**134**	**129**	**128**	**123**	**135**	**136**	**139**	**150**	**151**	**153**
Context No.	**1188**	**1166**	**1167/8**	**1316**	**1316**	**1348**	**1348**	**1316**	**1138**	**1138**	**1097**	**1097**	**1085**	**1084**	**1315**	**1080**	**1333**	**1336**	**1336**	**1428**	**1430**
Feature No.	**F.438**	**F414**	**F415**	**F417**	**F417**	**F417**	**F417**	**F417**	**F413**	**F413**	**F412**	**F412**	**F411**	**F411**	**F408**	**F410**	**F419**	**F420**	**F420**	**F433**	**F434**
Feature type	**Charc.**	**Charc.**	**Crem.**	**Crem.**	**Crem.**	**Crem.**	**Crem.**	**Crem.**	**GLF**	**Grave**	**IDLF**	**IDLF**	**MDLF**	**MDSF**	**ODLF**	**ODLF**	**ODTF**	**BF**	**BP**	**BP**	**BP**
Other plant macrofossils																					
Charcoal <2mm	xxxx	xxxx	xxxx	xxxx	xx	xxxx	xxxx	xxx	x	xx	x	x	x	x	x	xx	xxxx	xxxx	xxxx	xxxx	xxxx
Charcoal >2mm	xxx	xxxx	xxxx	xx	xx	xxxx	xxxx	xx		x		x	x				xxxx	xxxx	xxxx	xxxx	xxxx
Charcoal >5mm	xx	xx	xxx	x		xxxx	xxx										xx	xxx	xx	xxxx	xxx
Charcoal >10mm		xx	x			xx	xx										x	xx	x	xxx	x
Waterlogged root/stem									x		xxxx	xxxx	xxxx	xxxx	xxxx	xxx	xx				
Indet. culm node																	x				
Indet. seeds	x																	xw			
Characeae indet.									xw							xw					
Wood <10mm											xw										
Other remains																					
Black porous 'cokey' material					x				x								x				
Burnt stone																		x			
Small mammal/amphibian bones					xb	x															
Vivianite concretions															x						x
Waterlogged arthropod remains									x			x	x			x					
Sample volume (litres)	**16**	**13**	**16**	**18**	**4**	**72**	**68**	**17**	**29**	**12**	**15**	**14**	**14**	**14**	**16**	**14**	**26**	**28**	**14**	**104**	**42**
Volume of flot (litres)	**<0.1**	**<0.1**	**0.2**	**<0.1**	**<0.1**	**0.2**	**0.3**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**0.1**	**<0.1**	**<0.1**	**0.1**	**0.1**	**0.1**	**0.4**	**0.2**
% flot sorted	**100%**	**100%**	**50%**	**100%**	**100%**	**50%**	**50%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**25%**	**50%**

Table 11 contd.

In all cases the bulk samples were processed, sieved and picked for shells in the manner of normal environmental samples at the CAU, but with these the remainder of the >300 micron fraction of the flot as well as all of the residue(s) were then re-examined and picked to try and recover the smallest mollusc evidence. Each monolith tin was serially sampled in 3-4 different 30mm deep slices every 5-8cms so as to add to the bulk analytical result. It was hoped that any changes in the fauna relating to the above would be picked up at this interval resolution. Effectively these 'small enviro samples' would be processed (sieved and floated) in the normal way, but the >300 micron to1mm heavy residue would be collected to be examined for small shells or microfossils. A binocular microscope with x40 magnification was used to examine the smaller fractions. Standard identification texts of British Mollusca (Beedham 1972; Ellis 1972), ostracods and carophytes (Brasier 1980; Ellis & Messina 1952) were used in the recording.

Ring-ditch F.410 [1254]

This, the secondary ditch, was associated with the hengiform phase of the monument and, therefore, probably of Late Neolithic (Grooved Ware) date.

The abundant presence of charophyte oogonia (derived from Stonewort algae – hard water-loving freshwater aquatic plants) along with planorbid snails (in particularly *Planorbis planorbis*) are good indicators of persistently flooded conditions typical of an already well developed alkaline fenland (See Environment Agency Report SC030202 [2009]). In this case we are probably looking at still to very slow moving water present within a semi-permanently waterlogged and vegetation-filled ditch – effectively a pond deposit. The evidence for this comes from the small flot fraction, the sieved residues from this feature being much more sandy, with very few faunal remains. This suggests considerable slumping and erosion into the waterfilled base of the ditch, yet with much clearer water with aquatic plants in it towards the top. The flora and fauna suggests minimal management and therefore minimal clearance/ re-cutting of the ditch.

Ring-ditch F.407 [1193]

The latest phase of barrow ditch, probably broadly contemporary with the secondary cremations and thus believed to be associated with Early Bronze Age collared urn.

Interestingly, analysis of the flot remains from the organic-looking fill horizon within this barrow ditch has revealed the highest numbers of freshwater ostracods amongst all of the samples looked at. All the ostracod species identified were essentially freshwater ones, although some such as *Darwinula stevensoni* will tolerate fresh-mildly brackish water within the normal range $1‰_0$ to $<5‰_0$ salinity found on the very margins of tidal reaches and in slightly brackish lakes, yet much more typically these are characteristic of inland freshwaters (Gandofi 2001), and thus common to fenland mires and dykes. Still more important was the complete absence of washed-in marine or else living brackish water-tolerant species (such as *Cyprideis torosa*) as was encountered within the dominantly freshwater roddens at Must Farm, Whittlesey (Smith 2013). In fact this assemblage supports the idea of a very clear separation of this area of the Ouse Washes from the sea, and even the most extreme tidal/ storm surge limit. Essentially this took the form of a freshwater barrier. The ostracod Herpetocypris (*H. incongruens*?) commonly inhabits seasonal pools and small water bodies (such as water-filled ditches), and is dominantly oligohaline (Rossi *et al*. 2011), as was the other Cyprid species (*Cypria* sp.) encountered. The minor occurrence of charophytes supports the idea of a link with the surrounding freshwater fen, and with seasonal to semi-permanent calcium-rich standing waters. The planorbid mollusc (snail) fauna is similarly a good indicator of ditch-fill standing 'ponded water, but *not* of slow-moving waters typical of the long linear fenland ditches.

Feature (Context)	Type	Fraction	Wt (g) / smpl	Snails	Bivalve	Ostracod	Carop	other	Salinity/ Environ.
F.410 (1254)	henge ditch	>300 um FLOT	2	*Planorbis* sp (juv); *P. planorbis*	Pisidium sp.		290		hard, cool freshwater, small pond/ ditch, rich aquatic plant
F.407 (1193)	Oval barrow ditch	>300 um FLOT	1	*Planorbis* sp ; *P. alba*		*Darwinula stevensoni* 14 *Herpetocypris Cypria* sp.	2		fresh water, seasonal ponding, salinity<1 $‰_0$
		residue	200 (10)	*Planorbis* sp				BC	
F.440 (Sect. A)	'peat' filled hollow	hand collected snails		*Lymnaea stagnalis*; *L.peregra* x5 *Planorbis* sp; *P.planorbis* x3; *Bythnia tentaculata* x4					slow-moving to still hard, fresh water larger flood area, stony or weedy
		>4mm	2	*Lymnaea*sp x7 *L. peregra* x3; *L. truncatula*?; *B.tentaculat* x7 *Valvata piscinalis* x2; *P. planorbis* x5					ditto – with occasional softer flowing water input
		2-4mm	2	*B. tentaculata* (operculii) x37; *L. palustris* x2; *L. peregra* x8; *P. planorbis* x3 *P. albus*; *P. vortex* x9					ditto - with occasional flowing water input + pond edge vegetation
		>300 um FLOT	12 (4)	*B.tentaculat* x2 *L. peregra* x7; *Valvata* sp x6; *P. planorbis*; *P. contortus*; *P. vortex* x10		*D.stevenson* 2 *Cypria* sp. x2 *H. reptans* x2; *Candona candida*			ditto- essentially oligohaline FW ostracod salinity 1-5 $‰_0$
F.440 (Sect. B)	'peat' filled hollow	>300 um FLOT	14	*Lymnaea* sp *Planorbis* sp. *P.planorbis*			4		ditto
		residue		*Bythnia* sp. (operculii) x10 *B.tentaculat* x7				BF	ditto - still or slow-moving + larger flooded area

Table 12: Mollusc and macrofossil sampling of bulk environmental samples from barrow contexts

'Pond' F.440

This organic deposit, in-filling a hollow, just to the north of the barrow appears most likely to post-date the construction and abandonment of the monument, and perhaps reflects the Middle Bronze Age fenland encroachment taking place around the margins of existing fields and drainage ditches. The main section (A) cleaned and then sampled through the peat and organic silt/ clay infilling a natural depression lying in front of the barrow had the following sequence:

0-2cm	orange-grey silty sandy gravel
2-10cm	light grey silty soil/mud with long reed rootlet holes and visible snails (towards top)
10-22cm	dark grey-brown peaty silt with vegetation debris and occasional flint
22-34cm	light grey silty clay (natural subsoil) with root holes and organic-filled hollows

The bulk sample was taken from the middle part of this section (10-22cm). Snails were looked at both from a hand-collected sample (i.e. larger shells), and the >4mm, 2-4mm, and >300um fractions from the bulk sieved sample. This consisted of the following species: *Lymnaea stagnalis*, *L. peregra*, *L. truncatula*, *L. palustris*, *Bithynia tentaculata*, *Planorbis sp*., *P. planorbis*, *P. albus*, *P. contortus*, and *P. vortex*. The 2-4mm fraction contained the operculii of some 37 *Bithynia tentaculata* shells, implying

the overall dominance of this snail species. The latter is typical of hard water, freshwater bodies, and large flooded areas; either quiet rivers or still water, but not small ponds (Beedham 1972, 80) The similarly large numbers of *Lymnaea* spp. also support the interpretation of this being part of a larger shallow and weed-filled waterbody surrounding the barrow (and eventually submerging it), either as a mere or as a slow-moving channel, but not as previously suggested a pond. The planorbid snail species likewise were not those typical of, or just restricted to ditches and ponds. The flot fraction (>300 um) contained small numbers of ostracods (*Darwinula stevensoni* [2], *Herpetocypris* sp. [2], *Cypria* sp. [2] and *Candona candida* [a cyprid]), yet no carophytes were recovered. The low incidence of carophytes suggests that the waterbody was unlikely to have been clogged with submerged aquatic plants, although it may have been dominated by reeds, something which would help support the molluscan fauna. A number of the molluscs as well as the ostracod *Candona candida* favour slow-moving but certainly flowing water, mostly hard water, but with some soft water mixing in it (as suggested by the presence of *Valvata piscinalis etc*.). It seems likely that this area formed part of a very shallow, slow-moving reedy channel.

Slice (cm)	Fraction	Wt (g) / smpl	Snails	Bivalve	Ostracod	Carop	othr	Salinity/ Envirom
0-3	>1mm	106	*L. peregra* x3; *L. stagnalis*; *L. palustris*; *L.truncatula* x2 *B. tentacul* x11 *Bythnia* sp (operculii) x37 *B. leachi*; *Viviparus* sp 6 *Planorbis* x15 *P.planorbis* 11 *P. ?alba* x6 *P. corneus* x7 *Physa fontinalis*; *Valvata* sp ; *Radix labiata*	Unio sp (x6 shell frags)				mixed hard and soft freshwater slow-moving + flood conditions with minor vegetation
	>300 um	54 (20)	*Lymnaea* sp. juv x6; *L. peregra*; *Bythinia* sp. (operculii) x4; *Viviparus* sp. operculum; *Planorbis* x9; *P. ?planorbis*;			12		
8-11	>1mm	34	*L. peregra* x3; *Lymnaea* x3; *B. tentacul* x3 *Bythnia* sp (operculii) x13; *Planorbis* sp. x4	*Unio* sp. small frag				-ditto-
	>300 um	24	*Bythnia* sp. x3 *Bythnia* (operculii) x8; *Lymnaea* spx3 *L. peregra* x3 *Viviparus* sp *Valvata cristatus* x5; *Planorbis* sp x3			6		
16-19	>1mm	50	*Planorbis* sp. x1	*Unio* sp. worn shell frag			sand	sand, silt+ muddy, turbid condn
23-26	>1mm	35	unident small snail shell frags					erosional conditions. sandy

Table 13: Mollusc and macrofossil monolith serial sampling of F.440 (Section A).

The serial sampling of a monolith taken from the top part of this section (0-30 cm) in general supports the above interpretation, but with some recovery of carophytes from the upper two levels (0-3cm and 8-11cm respectively) as well as fragments of the **bivalve** *Unio* sp. (probably *Unio pictorum* typical of larger hard water freshwater bodies), whilst the lower levels (16-19cm and 23-26cm) present a much more impoverished shelly fauna (some of it fragmented and re-worked) indicative of sandy/ muddy, turbulent and slightly more erosive conditions. The slight changes in the faunal composition at different levels may reflect flood conditions as opposed to drying-out (i.e. a return to shallow pond conditions), as well as variations in the overall percentage of reeds/ aquatic plants.

The bulk sample from Section B (sampled some 5m to the north of Section A) produced very much the same result, although this was much poorer in molluscs, contained no ostracods, and just a few carophytes. However, it was similarly dominated by *Bithynia tentaculata*, a good indicator of slowly flowing hard water.

Micromorphological Analysis of the Buried Soil and Mound Material – Charles French

The buried soil observed beneath the barrow mound was variably preserved as a consequence of truncation in the barrow building process and more recently extensive badger disturbance. It was best preserved over a thickness of *c*. 15-18cm on the inside of the inner ditch as Context [1091] in the southeastern quadrant of the excavations. Elsewhere, the pre-barrow soil is either absent or very thin (<10cm). There is also much turf material and oxidised sand/gravel intermixed within the mound make-up. The sample profile was as follows:

0-28	grey/orangey brown mottled (10YR5/2, 10YR6/8) mixture of turf, fine sandy/silt loam soil material and oxidised sand/gravel; truncated, mixed barrow mound make-up
28-37	grey (10YR5/2) fine sandy silt loam; redeposited soil ?
37-39	orangey brown (10YR5/6) discontinuous pan of amorphous iron impregnated fine sandy/silt loam and fine gravel; trample/truncation zone
39-53/55	greyish brown (10YR5/2) fine sandy silt loam; B horizon of buried soil
53/55+cm	sand/gravel substrate; B/C horizon.

Two sample blocks were taken for soil micromorphological analysis (Bullock *et al*. 1985; Courty *et al*. 1989; Stoops 2003) at 29-40 and 40-55cm (see App. 4), with accompanying small bulk samples for physical characterisation. pH values were calcareous (range of 7.55-7.7), and the magnetic susceptibility values were relatively high at 421-287 SI (see App. 5).

The lower half of the buried soil (Sample 1/2) was characterised by a very fine sandy clay loam with abundant, oriented and organised, pure to dusty clay in the groundmass (Fig. A), which was exhibited irregular frequencies of amorphous to micritic calcium carbonate partly to completely filling the void spaces with juxtaposed clay and fine-sand-rich fabrics (Fig. B). This gradually changed to a humic sandy clay loam up-profile with most of the voids filled with amorphous to micritic calcium carbonate. In the upper slide (sample 1/1), this horizon became strongly affected by the formation of amorphous sesquioxides, 'cementing' the soil and calcium carbonate components alike (Fig. C), along with a concentration of fine gravel pebbles. These features are reflected in the calcareous pH and highest magnetic susceptibility value (App. 5). Above an undulating but clear boundary, there was an open, humic very fine sandy loam with calcium carbonate void fills (Fig. D).

This soil sequence suggests that the buried soil is composed of a buried, clay-enriched or Bt lower horizon (cf. Bridges 1978, 60-61; Bullock & Murphy 1979), which gradually becomes more organic up-profile as it becomes a lower A horizon. This A horizon appears to have been truncated, removing the upper, organic Ah or topsoil part of the soil profile. This deliberate act, presumably as part of the process of constructing the barrow above, has resulted in some and disturbance and fabric mixing, exposure and oxidation and probably also compaction, which in turn has caused the iron 'cemented' gravelly zone at a depth of about *c*. 37-39cm down-profile (cf. Lindbo *et al*. 2010). The material above is a similar humic sandy loam soil material, as if it is redeposited soil from the same immediate area. Above this level was a barrow mound composed of a jumbled mass of turves and similiar soil material with the grass root matt often picked out by strong replacement with amorphous sesquioxides.

The partly truncated, argillic brown earth soil profile is very typical of this lower Great Ouse terrace area in prehistoric times, to say nothing of similar circumstances in fen-edge river valleys to the north such as the Nene and Welland and around the western margin of the fens in Cambridgeshire (French 2003, 83ff). Its presence, although already disturbed and opened up by the time of the barrow's construction, is indicative of stable, well vegetated and probably wooded conditions pertaining prior to Early Bronze Age times. The act of constructing the barrow further arrested development of this soil, led to its exposure and re-burial, which was accompanied by the seasonal rise and fall of the ambient groundwater, causing the secondary formation of iron oxides and hydroxides (rubifying the soil) and calcium carbonate (making the soil appear more silt-rich) throughout, with both features associated with the gradual rise of the base groundwater levels pre-drainage, and the fall of these since drainage began in earnest in the last century.

The analysis of this buried soil profile has provided a good insight into the nature of the immediate landscape prior to the construction of the barrow. Importantly also, it has added to the wider repertoire of soil micromorphological studies of the Over Quarry landscape already carried (French 2003, 113ff, in press). It has indicated that there is considerable variation in soil development in earlier prehistoric times in just this part of the lower great Ouse valley - from thick well developed woodland soils under the Neolithic long barrow at Haddenham (French 2006), to slightly less well developed and already being modified soils under this Over barrow and under and around the southern barrow group at over (French 2003), to even more poorly developed and transformed brown earth soils on the Godwin Ridge (French in press).

Pollen Analysis – Steve Boreham

The hengiform ditch (F.408) and the tertiary barrow ditch (F.410) were sampled for pollen analyses. The results are detailed and discussed below (Part 2), together with the results of the pollen analysis of Sites IX and XII.

Discussion

The Site III barrow is the eighth barrow to be excavated within the Over/Barleycroft landscape following the excavation of the Low Grounds cemetery (three round barrows – 12,13 & 15 – and two pond barrows. 14 & 16), the Site II round barrow (17) and Barrow 2 in the south of the quarry (Evans *et al.* forthcoming). The radiocarbon dates obtained for the early barrow phases, however, set the Site III barrow apart and appear to indicate that the monument is Early-Middle Neolithic in date and was then re-used – following a probable hiatus of some 1000 years – during the Early Bronze Age. Whilst the Early Bronze Age cremations inserted in to the

barrow mound clearly resonate with the cremation rites practised at the Low Grounds cemetery, for example, the barrow's Neolithic phase make it by far the earliest barrow recorded at Over/Barleycroft.

From the outset it is worth underlining the importance of the radiocarbon dates as well as the survival of the barrow mound in interpreting the Site III barrow. Firstly, without the protection that the overlying peat and alluvial deposits afforded, the site would undoubtedly have been 'ploughed out' and the secondary cremations and, in all likelihood, the primary inhumation would have been destroyed without trace (highlighting how much is 'missing' from many upland ring-ditch sites). Secondly, of the surviving ring-ditches only the latest would have been dated with any confidence to the Early Bronze Age; the earlier two ring-ditches would have been regarded as earlier phases of later Neolithic/Early Bronze Age activity. Furthermore, without the radiocarbon dating the F.413 would logically have been identified as a probable Beaker burial; in short the established sequence is heavily reliant on the radiocarbon dates achieved.

The Neolithic Barrow

Based on the current understanding of the site the barrow sequence was initiated during the Early-Middle Neolithic (3501-3136 cal. BC) with the interment of the central inhumation at the centre of a sub-circular ring-ditch the interior of which was covered by a mound (Figure 10). There remains some ambiguity as to the exact manner of the interment; was the inhumation was held within a simple grave over which the mound was raised or whether it was held within a timber 'cist' that could later be accessed. The clear slumping of overlying deposits together with the 'missing' skull, hands and feet – as well as other skeletal elements – do to some extent support the latter interpretation and potentially there was a void or cist, which was accessible after burial. On the other hand, no trace of any potential (presumably) timber structure was encountered and the slightly sub-oval shape of the cut does rather suggest a grave. Furthermore, based on Kinnes' (1979) typology, the form of the barrow most closely resembles 'Stage Da' (enclosed cemetery and grave), which is seen by Kinnes as part of a development from 'prolonged mortuary activities with cumulative deposits' associated with chambers towards a single grave tradition by the middle of the third millennium BC (*ibid.,* 74). Clearly however, with a date of 3501-3136 cal. BC at 95% probability and 3494-3350 cal. BC at 68% probability, F.413 is far too early to fit neatly into Kinnes' chronology and generally the classification of monuments according to type and chronology is clearly problematic. Indeed, it is not beyond the realms of possibility that the establishment of the Site III round barrow was contemporary with the latter phases of use at the 'chambered' long barrow at Haddenham (3655-3355 cal. BC at 95% probability; Whittle *et al.* 2011, 290-91).

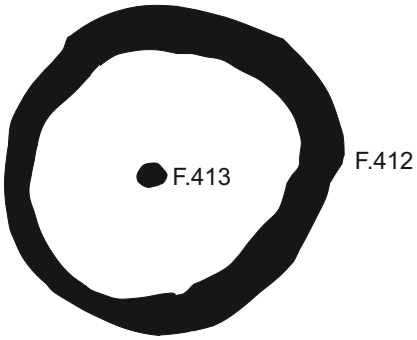
The closest regional parallel to the Site III barrow comes from the Biddenham Loop some 45km to the southwest where a series of Neolithic sub-circular monuments form part of monument groups also including Early Bronze Age ring-ditches (Luke 2016). Of these, two had surviving interments and have been radiocarbon dated. Firstly, ring-ditch L2356 is strikingly similar in form and date (3520-3350 cal. BC) to the Site III barrow (*ibid.,* 36-50). Secondly, ring-ditch L2312 has been dated to 3940-3660 cal. BC (*ibid.*) and further undermines any previously made link between chronology and

form (e.g. Kinnes 1979). A second group of Neolithic barrows is recorded at Must Farm, Cambridgeshire where a round/oval barrow surrounded by a pennanular ditch had an inhumation located centrally as well as an Ebbsfleet style Peterborough ware vessel placed on the ground surface beneath the mound (Knight & Murrell 2011). In addition, two barrows were identified during evaluation of the wider landscape in 2004/5; firstly an oval barrow with associated Peterborough Ware pottery assemblages within its ditch and secondly an undated round barrow, which although presumed to be Early Bronze Age could with hindsight be interpreted as an earlier monument (Evans *et al.* 2005*).* Consequently, the Site III barrow is the latest addition to a growing list of Neolithic round/oval barrows in the region (also including sites such as Aldwincle, Grendon and Orton Meadows in the Nene valley: see Evans & Hodder 2006a, Fig. 3.74, 198).

The 'Hengiform' Ditch

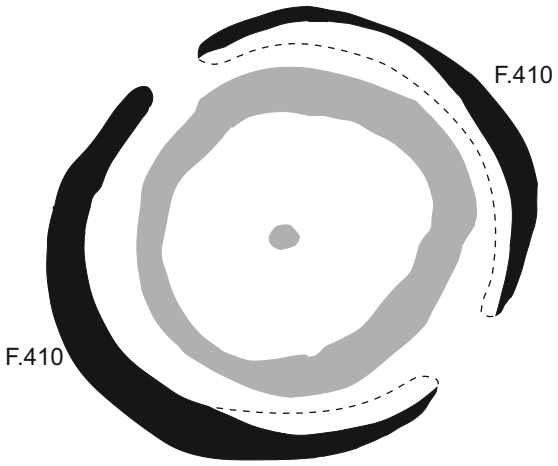
The hengiform ditch phase of the monument has been radiocarbon dated to 3016-2891 cal. BC, at least a century (potentially more) after the establishment of the barrow. By this point the primary ditch appears to have been completely in-filled/silted up – although the gravel ditch fills suggest could this could have happened relatively quickly as a result of mound collapse/erosion – and the barrow mound significantly weathered. As such the hengiform ditch can be clearly considered as a redefinition of the monument however, to what extent it should be considered a barrow phase or a separate 'henge' phase is less clear. Given that there is no interment associated with this secondary phase, the latter must be a possibility and the ring-ditch's classic 'henge' form in plan (see hengiform ring-ditch 2513 at Eynesbury, for example; Ellis 2004) cannot be ignored. However, if the secondary phase is considered a henge-type monument there is remarkably little within its ditches representing associated activity; finds were limited to four worked flints and a red deer antler tip – this despite the fact that a Grooved Ware occupation site is located only *c.*100m to the southeast (see Part 2, below). Likewise, a general lack of finds from the mound itself – any interior activity would have had to be on the top of the mound – suggest little activity during this phase.

This paucity of later Neolithic activity could potentially be explained by immediate barrow environment during this period. Located right on the edge of the Langdridge Spit terrace it would no doubt have been a site prone to flooding and the blanket silt deposit recorded across the site, which also effectively formed the fill of the hengiform ditch, appears to be indicative of numerous flooding events. This silt deposit appears likely to be the result of the backing up of freshwater channels (the work of Timberlake, above, indicating the absence of salinity) and consequently multiple inter-tidal flooding episodes caused by marine transgression during the later Neolithic/Early Bronze Age and the setting of the monument may well have been one of 'mud flats' extending to towards the Ouse channel to northwest (Boreham *pers comm*).

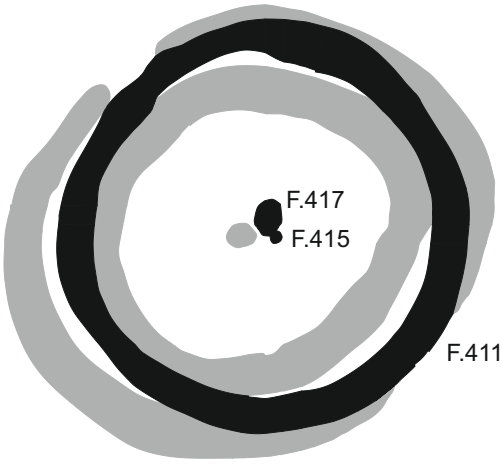


Primary ring-ditch and inhumation

0 10
metres



Secondary ditch



Tertiary ring-ditch and cremations

Figure 10. Barrow development sequence

Early Bronze Age Barrow

Cremations F.415 and F.417 can both be associated with the tertiary ring-ditch with relative confidence; F.417 has been radiocarbon dated to 1880-1688 cal. BC at 95% probability whilst pit-pyre cremation F.415 – although frustratingly the sample from which did not provide enough carbon to date – is of a type closely associated with the Early Bronze Age (see Evans *et al.* 2016). The re-use of Neolithic barrows/monuments during the Early Bronze Age is not uncommon in the region with one of the monuments from the Biddenham Loop once again being a potential parallel where monument L3210 has been interpreted as a Neolithic h enge monument that was later modified with the addition of an internal ring-ditch of probable Early Bronze Age date (Luke 2016). Further examples are recorded at sites including at Norton, Hertfordshire (Fitzpatrick-Matthews 2015) – where Early Bronze Age activity, including a cremation, was recorded within a Middle Neolithic henge – and at King's Dyke, Whittlesey where one of two Early Bronze Age barrows 'abutted' a henge monument (Knight & Brudenell forthcoming). Nevertheless, the direct re-use of the Site III barrow after *c.* 1000 years is significant and represents an example of a surprisingly long social/historical memory and/or the deliberate use of a 1000 year old feature recognised as a burial place.

Turning to the cremations themselves, both are of a type recorded widely within the Over/Barleycroft landscape. Cremation F.415 was a simple pit cremation, while cremation F.417 was a pit-pyre (see Dodwell in Evans *et al.* forthcoming); neither produced grave goods or associated Collared Urn vessels (cf. Barrow 17; Evans *et al.* forthcoming). Pit-pyre F.417 is, however, worthy of further discussion, primarily due to its only partially burnt/charred bone and its probable 'failed pyre' status. The partial cremation of the bone could be due to quenching/dousing by water – either deliberately or due to rainfall – or even be the result of a poorly constructed pyre (which would account for the lack of scorching around the pit). Either way, it could potentially be construed as evidence that the barrow is relatively early in the development of pit-pyre technology (i.e. before the technique was perfected).

Later Activity and Barrow Disturbance

Disarticulated human bone amongst the mound material largely resulted from disturbance to interments F.413 and F.415, almost certainly by badgers. In addition, however, the remains of at least three other individuals were in evidence in the form of un-burnt/charred bones, which were duplicates of skeletal elements in inhumation F.413. In the case of two of the disarticulated bone it is possible that they derive from interments that had been truncated by ploughing having previously been disturbed/removed from their original context by badgers. No secondary inhumations were recorded within the mounds of the Low Grounds barrows or Barrow 17, however, a secondary inhumation was found inserted into the mound of Barrow 2, and which was potentially of Middle Bronze Age date (Evans *et al.* forthcoming, 457-58). Furthermore, an undated secondary inhumation was also recorded inserted into the mound of the Snow's Farm barrow at Haddenham (Evans & Hodder 2006b). Alternatively, the bones could have been deposited as disarticulated elements, as was the apparently the case with modified bone SF107, which had been intentionally split and possibly polished. Such activity is perhaps more reminiscent of the Iron Age

deposition of human bone recorded along the Godwin Ridge (Evans *et al.* forthcoming.). Regardless, all three fragments should ideally be radiocarbon dated.

An indication of potential post-barrow use is also provided by the concentration of bird/juvenile crane bone found 'within' the centre of the barrow mound together with two clay weights. Based on the presence of a linear 'cut' (i.e. a burrow), the deposit has been interpreted as the residues of activity on top of the barrow, which had been incorporated into the mound itself by badger burrowing. That the concentration could have been a deliberate deposit within the barrow mound cannot be entirely ruled out, although confirmation that it is post-barrow – and therefore more likely to be 'late' surface material – could be sought through radiocarbon dating. Either way the deposit as a whole is significant; there are no known direct parallels for the perforated clay 'weight' although one suggested function – and one which clearly resonates with the presence of wild bird bone – is as some kind of fowling net weight. If this is the case, then it is relatively clear evidence of the secondary use of the barrow as a location for wild fowling. During the Late Bronze Age/Iron Age the barrow would, for a period at least, have effectively formed a dry 'island' before being completely submerged by fen deposits. As such, the barrow's crown would have been a prime location amongst the surrounding marshes from which to utilise the area's rich natural resources, not least the wild fowl. Similar activity has been postulated by Evans and Hodder (2006b, 58–59) regarding the Hermitage Farm barrow at Haddenham, which potentially saw secondary use as a 'procurement stand', whilst finds of Iron Age pottery 'above' other round barrows in the area suggest this activity may have been relatively widespread (*ibid.*).

Finally, the later badger sett, which occupied the barrow site, is of interest if only for the disturbance it caused to its interments as well as for the evidence of probable post-barrow activity, which it effectively preserved. Modern badger disturbance has been recorded in barrows on the Wiltshire Downs (Cromwell *et al.* 2006), whilst the presence of an articulated badger skeleton within the mound of Barrow 17, which was interpreted as 'intrusive', is also a clear indication that it was used by badgers (Evans & Tabor 2010). Given the environmental history of the site it seems most likely that the sett dates to the Late Bronze Age/Iron Age and, like the probable fowling 'stand' discussed above, effectively occupied a dry island within the surrounding fen.

SITES IX and XII

Sites XII (*c*. 3ha) and IX (*c*. 4.1ha) lay to the south and southwest of the barrow, the latter separated from the former by almost 200m. The southern edge of the barrow defined the north end of Site XII, whilst the south end of this excavated strip centred on TL 39667377. South of here Site IX was centred upon TL 39317376 at its north end and TL 39297345 at its southern tip.

These particular 'site zones' were chosen for open area excavation based on the results of the previous fieldwork evaluation (Tabor & Evans 2013), which suggested the presence of a prehistoric landscape containing small numbers of Late Neolithic and Middle Bronze Age features and low to moderate densities of finds within the buried soil.

Excavations revealed a series of probable Late Neolithic posthole alignments, posthole structures, and pit groups, plus the moderately well-preserved ground plan of a 'Durrington Walls' type house (Site XII). In addition three Beaker pit clusters and, more rarely, isolated Collared Urn (Early Bronze Age) pits. Elements of a probable Middle Bronze Age fieldsystem consisting of ditched enclosures and rare pit-wells/ waterholes dominated the archaeology of the southern area (Site IX).

The topographically low western edge of Willingham Mere (at 0m AOD) lies approximately 400m east of these sites. The topography of the gravel terrace across Site XII ranges from a low of about 0.45 – 0.5m AOD around the barrow to 0.85m AOD at its southeast end. Site IX, on the other hand, is defined by a low edge of Palaeochannel VIII to the west (0.43-0.57m; see Boreham in Evans *et al*. forthcoming), and an elevated gravel terrace to the east with a high point of around *c*.1.2m AOD.

Methodology

Systematic stripping of the sites was undertaken using 360° tracked excavators, the peat overburden and subsoil first being removed and transported off-site by dumper truck, then the top of the natural (gravel, sand and silt) cleaned to expose any underlying archaeology. Both contour survey and planning was carried out by the CAU Survey Team using GPS prior to the manual excavation of individual features by the archaeologists, and subsequently their recording and re-survey by GPS. All of the archaeological features encountered were excavated; linear ditches were sampled at approximately 10m intervals by means of standard 1m slots, whilst discrete features such as postholes and pits were 50% excavated and occasionally 100% excavated for the recovery of finds. The CAU-modified Museum of London recording system (Spence 1994), was employed throughout with sections drawn at 1:10 scale. Environmental bulk samples were taken from pit or ditch fills containing organic deposits, whilst monolith samples were taken from sections containing waterlogged organic material suitable for pollen and seed preservation and for the recovery of mollusc and microfossil evidence.

Excavation Results

The combined area(s) of Sites IX and XII contained 162 excavated features (546 contexts), consisting of 68 pits, two watering holes/pit-wells, 68 posthole/stakeholes, two beam slots, 13 ditches and two up-cast banks (of ditches). Just 57 of these features yielded finds/samples that were potentially dateable, whilst most of the total number of features (125) at Site XII yielded no dating evidence.

Various groups or clusters of features were identifiable across the two excavation areas (Figures 11-12 and 14-15). Amongst the earliest of these was the ground plan of a Late Neolithic *Durrington Walls-type house* with its associated pit(s), postholes and stakeholes (Structure 1 on Site XII; Figure 13). Also dating to the Late Neolithic were two Grooved Ware associated pit clusters (Clusters 1 & 2) and a small number of isolated or paired features including a *cooking pit* (F.152).

Features that might be either Late Neolithic or Beaker in date included five distinct and variously oriented *posthole alignments* (1–4) as well as further small groups of pits and isolated pits. Three pit clusters (Clusters 3–5) have been dated with more confidence to the Beaker period along with a large single pit (F.240), the latter at an isolated location on Site XII.

Only two confidently dated Early Bronze Age (Collared Urn) pits were recognised across the entire two sites. This included one pit on Site IX approximately 110m SSW of the barrow (F.209), which formed part of a cluster with three other 'empty' pits (Cluster 6) and another on Site XII at its southernmost end (F.164). However, at the northern end of Site IX a large *watering hole* (F.135) returned an Early Bronze Age radiocarbon date from some wood recovered in its base.

Middle Bronze Age features included a number of northwest–southeast and northeast–southwest aligned linear ditches forming part of a co-axial *fieldsystem* (F.87, F.116/F.117, F.131, F.136, F.139 & F.121, F.106, F.184, F.151) on Site IX, whilst a large linear boundary ditch and bank (F.403 & F.406) which appears to be related to this crosses Site XII. A number of postholes and pits appeared to be associated with a *field entrance* or *gateway* (e.g. F.102, F.118 & F.120) crossing one of the enclosure ditches on Site IX (F.116), whilst two narrow ditches associated with a *hedge-line enclosure* (F.136–137) lay just to the west of the main fieldsystem. A small *pit-well* (F.115) located within the centre of one of the fields seems likely also to be an associated feature as does a possible four post structure (Structure 2).

Up to 28 undated features un-associated with the above groups were identified; most of these were pits and postholes, and most (26) were located on Site IX. All were probably Late Neolithic–Early Bronze Age in date.

Five samples from individual features were submitted for radiocarbon dating. The full details of the radiocarbon measurements are shown in Table 14, below.

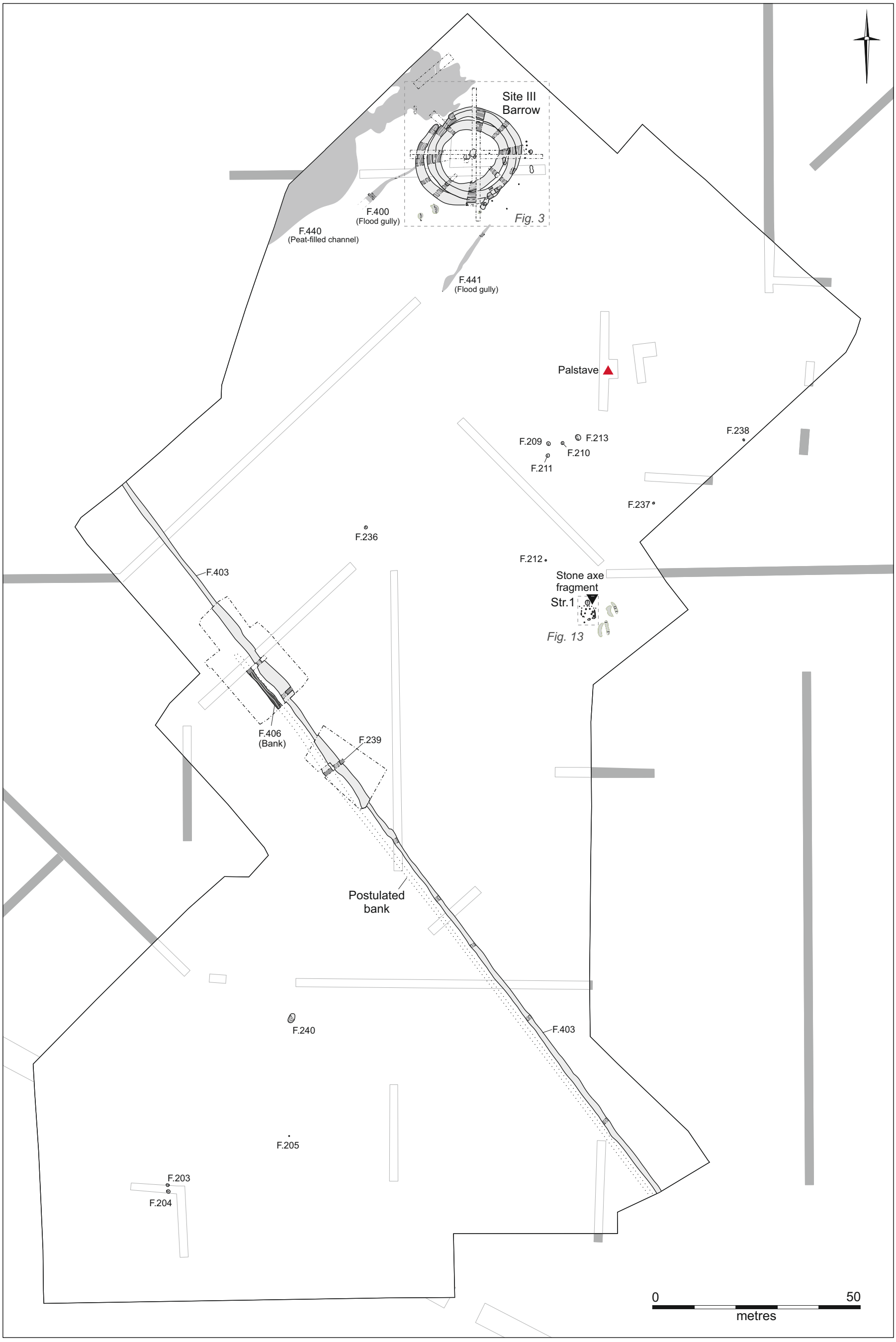


Figure 11. Site XII feature plan

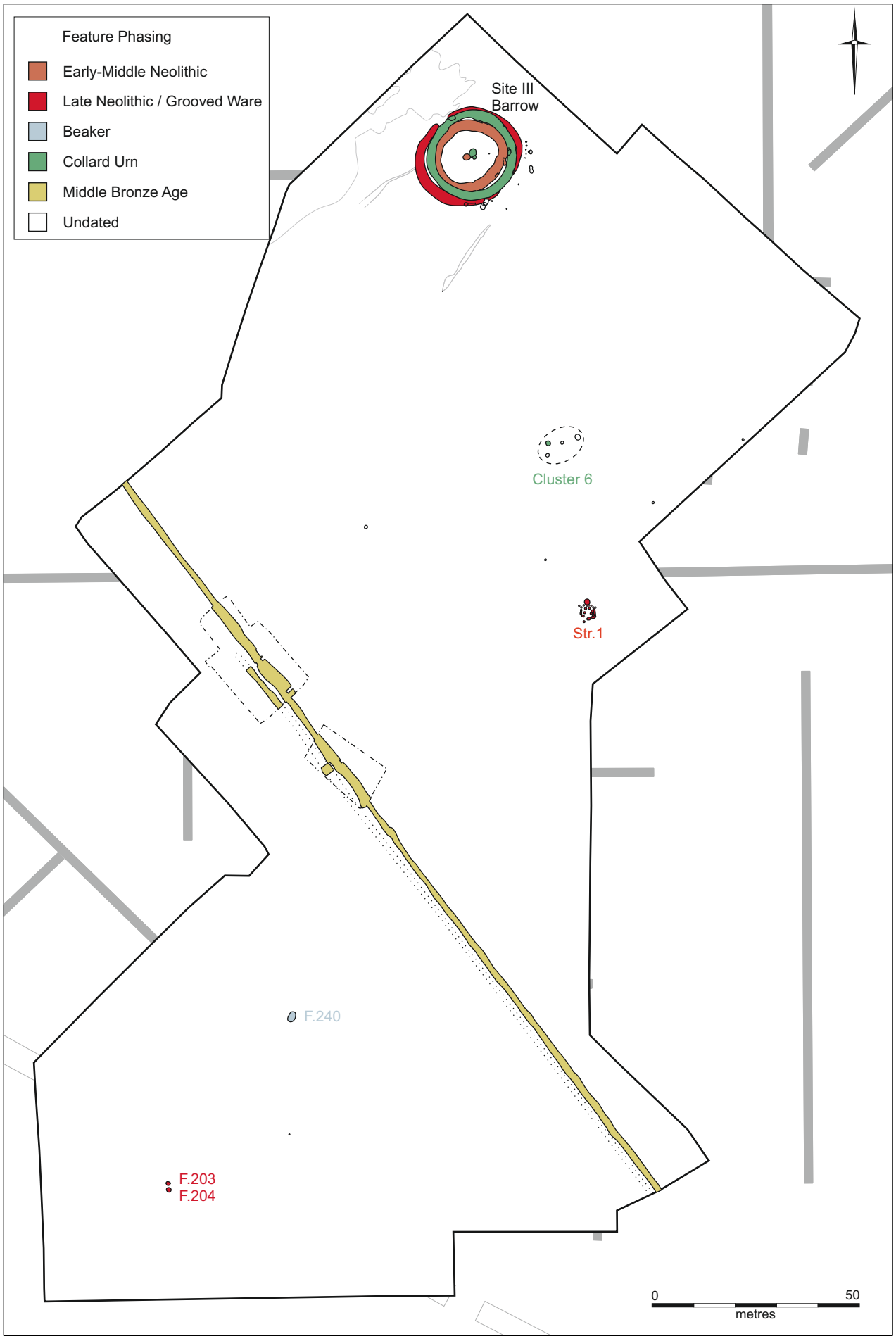


Figure 12. Site XII phased plan

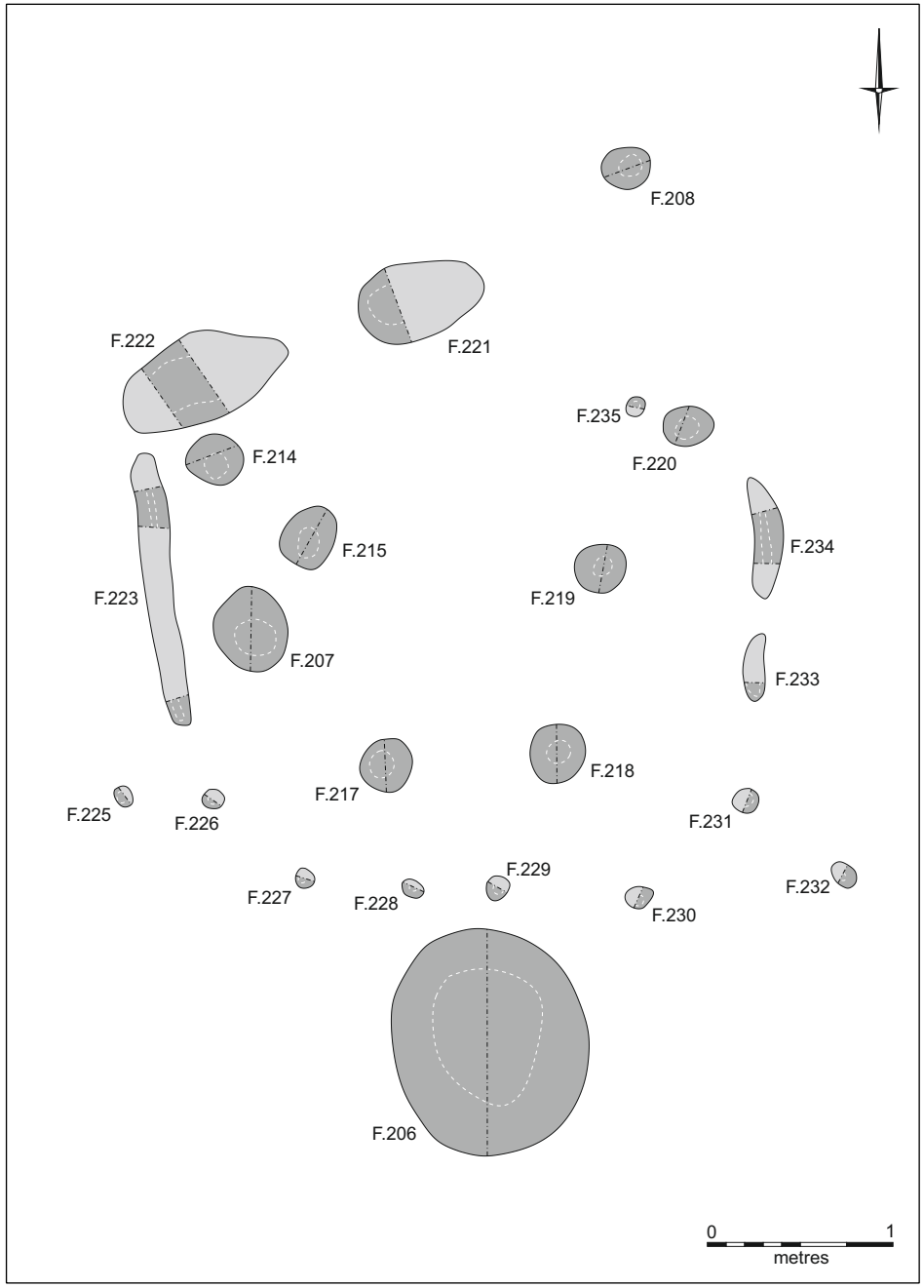


Figure 13. Durrington Walls-type house (Structure 1)

Feature	Material	Laboratory code	δ13C (‰)	Radiocarbon age (BP)	Calibrated date (95% confidence)
F.135	Wood: roundwood	SUERC-66983	-29.2	3355 +/- 31	1740 -1534 cal. BC
F.139	Wood: roundwood	SUERC-66981	-28.1	3102 +/- 31	1434 -1282 cal. BC
F.152	Ch. Hazlenut shell	SUERC-66976	-21.5	4088 +/- 31	2860 -2497 cal. BC
F.207	Calcined bone	SUERC-66982	-23.4	4202 +/- 31	2896 -2678 cal. BC
F.209	Ch. Hazlenut shell	SUERC-66977	-19.6	4000 +/- 31	2579 -2467 cal. BC

Table 14: Radiocarbon measurements from selected features

Late Neolithic (Grooved Ware)

Durrington Walls-type Late Neolithic House (Structure 1)

The foundation footprint for a single round-cornered 3.5m x 4m wide sub-square building with its entrance facing due south was encountered approximately 105m south of the barrow (Structure 1; Figures 13 and 14). A circle of features was first noted following the machine strip, but after hoeing and trowelling a total of 22 building-related pits, postholes/stakeholes and beam slots were uncovered. Within this could be seen the outline shape of a medium-sized Durrington Walls-type house (see Pearson *et al.* 2006; https://www.sheffield.ac.uk/archaeology/research/2.4329/intro).

No trace of the internal floor level could be seen, perhaps as a result of truncation, though a 'U'-shaped arrangement of seven small (0.3-0.6m diameter x 300-400mm deep) round-oval pits defined the internal space facing the southern entrance (F.207, F.214, F.215, F.217, F.218, F.219 & F.220). One of these pits (F.207) contained burnt stone, burnt clay, charcoal, worked flint, half a burnt cow tooth and a fragment of calcined bone, which was radiocarbon dated (2896–2678 cal. BC at 95% probability, see Table 14). Two other pits (F.214 & F.218) contained much smaller amounts of worked flint, burnt stone/flint and charcoal. Meanwhile another two oval irregular-shaped pits (F.221 & F.222) that were sterile of finds may have defined the course of the wall at the front, and it is possible therefore that these were dug-out beam slots, or perhaps just pits dug inside or just outside of the house.

Yet another 0.3m diameter pit or large posthole (F.208) marked the entrance to the house, some 0.8m in front of it, whilst immediately to the rear of the house, and just 0.1m beyond the circular ring of fence-type stakeholes was a large shallow pit (F.206) approximately 1.2m in diameter which was finds-rich, and possibly therefore a foundation deposit for this dwelling (the absence of animal bone within the fill of does not support the idea of this being a domestic rubbish pit). The end of a Group III polished stone axe (<1427>) was recovered from this along with fragments of burnt stone, 14 pieces of worked flint, six sherds of Clacton-type Grooved Ware pot, plus the matching half of the cow's tooth found inside of the house in pit F.207. The presence of the latter fairly conclusively links this pit with the house, thus by default its association with Grooved Ware pottery.

Four unequal beam slots (of 1m: F.223, 0.5m: F.224, 0.8m: F.234 and 0.4m: F.233 length) defined the approximate position or shape of the walls on the east and west sides of the house respectively. The base of these cuts are narrow and sometimes pointed (i.e. 0.1–0.15m-wide in F.223 & F.224) suggesting that in some cases these

beams may have been sharpened boards that were hammered into the ground. The severe truncation of the archaeological surface made it difficult to assess the exact position of the walls, or for that matter the internal floor area of the dwelling, the absence of beam slots at the front or back perhaps being an aspect of building style, or simply a function of poor preservation and/or truncation (it seems unlikely that such evidence was removed in the machine stripping). Partial or all-round beam slot gullies associated with these structures were noted during the excavation of eight such houses at Durrington Walls by the Stonehenge Riverside Project in 2005 (Pearson *et al*. 2006).

The location of nine round-bottomed stakeholes were recorded around the rear and western side of the house (these ranged in size from 0.1–0.2m diameter and 0.075–0.1m deep). At Durrington Walls the interpretation of these stakeholes is as a wattle fence placed immediately to the rear and around two sides of the house, and to some degree this accords with what survives here at Over, yet the proximity of this back row to the internal pits (F.217 and F.218) of the house is problematic (just 0.4m distance between them). An alternative explanation for this rounded square 'ring' of stakeholes is that it represents the actual wall of this wattle-and-daub house, and this is the interpretation used in the reconstruction of Durrington Walls House at Butser Ancient Farm. In this interpretation the parallel beam slots thus lie inside of the stakehole ring, and could not therefore be walls, but perhaps could be slots for wooden furniture, in a similar fashion to the stone slab cots and cupboards encountered at Skara Brae (and likewise interpreted as such in the Butser wood and wattle reconstruction).

Neither of the two interpretations (beam slot wooden walls and stakehole wattle walls) completely fits with the archaeological footprint which survives at Over, yet the shape, size and this arrangement of outer stakeholes and inner beam slot certainly does match with the general plan of a Durrington Walls House. In fact, in some ways the Over house would seem to be a combination of the two; a composite of beam slot sides and wattle and daub walled-rear, with little space in between.

Almost certainly the entrance to this house faced due south, and was probably around 0.8–1m wide, lying in between pit/posthole F.220/F.235 and pit F.221. Given its location, the 0.1m-diameter posthole F.235 may have been a possible door post or jamb for a door opening to the right, and the two irregular-shaped 'pits' F.221–222 part of a windbreak structure.

Late Neolithic Pit Clusters

Two other concentrations of Grooved Ware features were noted; Pit Cluster 1 in the north corner (F.140–146) and Pit Cluster 2 along the southeast side of Site IX (F.185–187 and F.200; Figures 15 and 16). Both of these pit clusters were larger in area than the footprint for the confirmed Neolithic house (Structure 1) on Site XII, each being about 10m in projected diameter. No further features were identified here following a renewed inspection of the groups (following the discovery of Structure A), and there was otherwise little overt resemblance of these to the footprint of the Durrington Walls house. Consequently although the pit clusters could potentially mark the site of a structure/house, they are not themselves considered to represent structures.

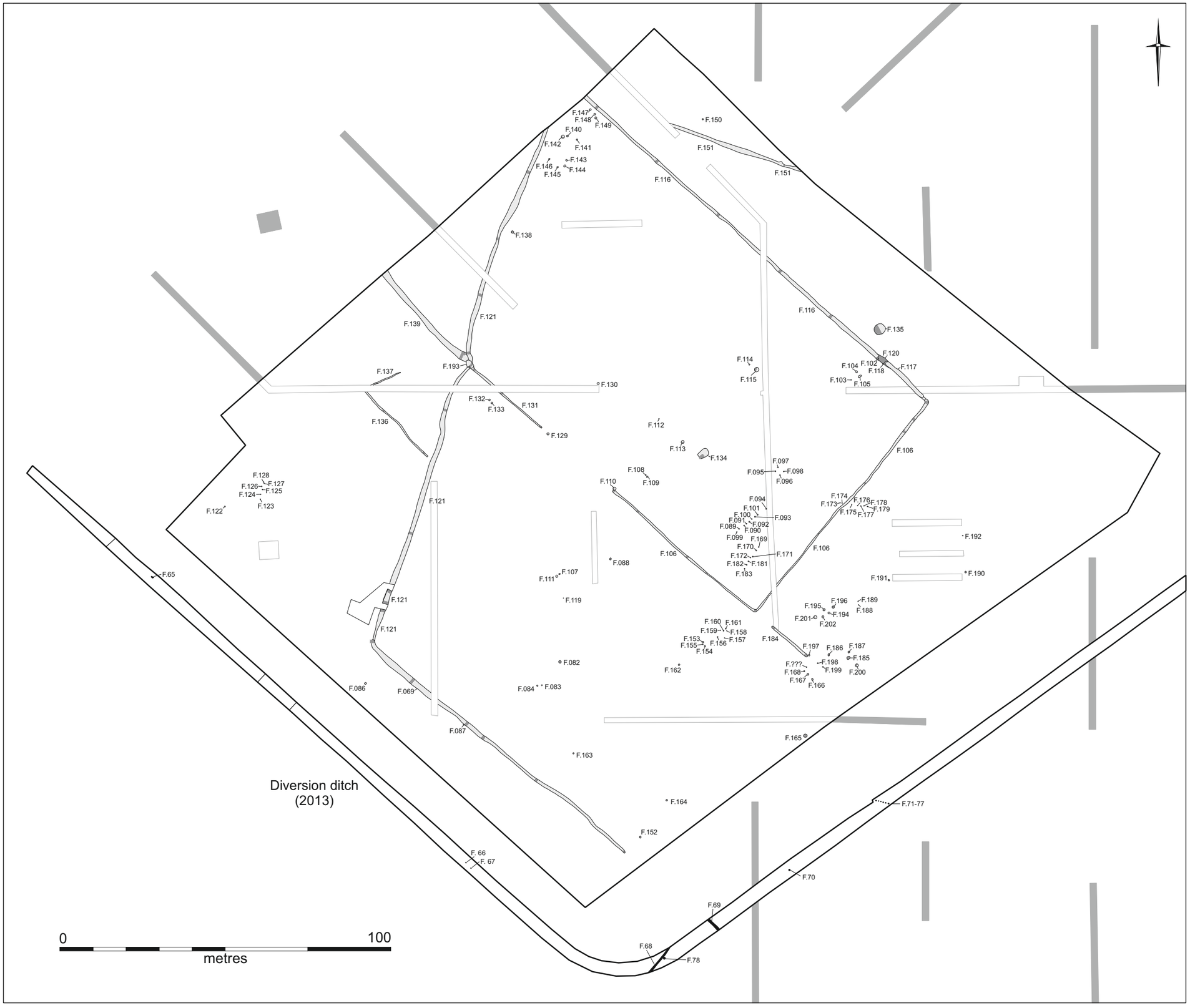


Figure 14. Site IX feature plan (including 2013 diversion ditch)

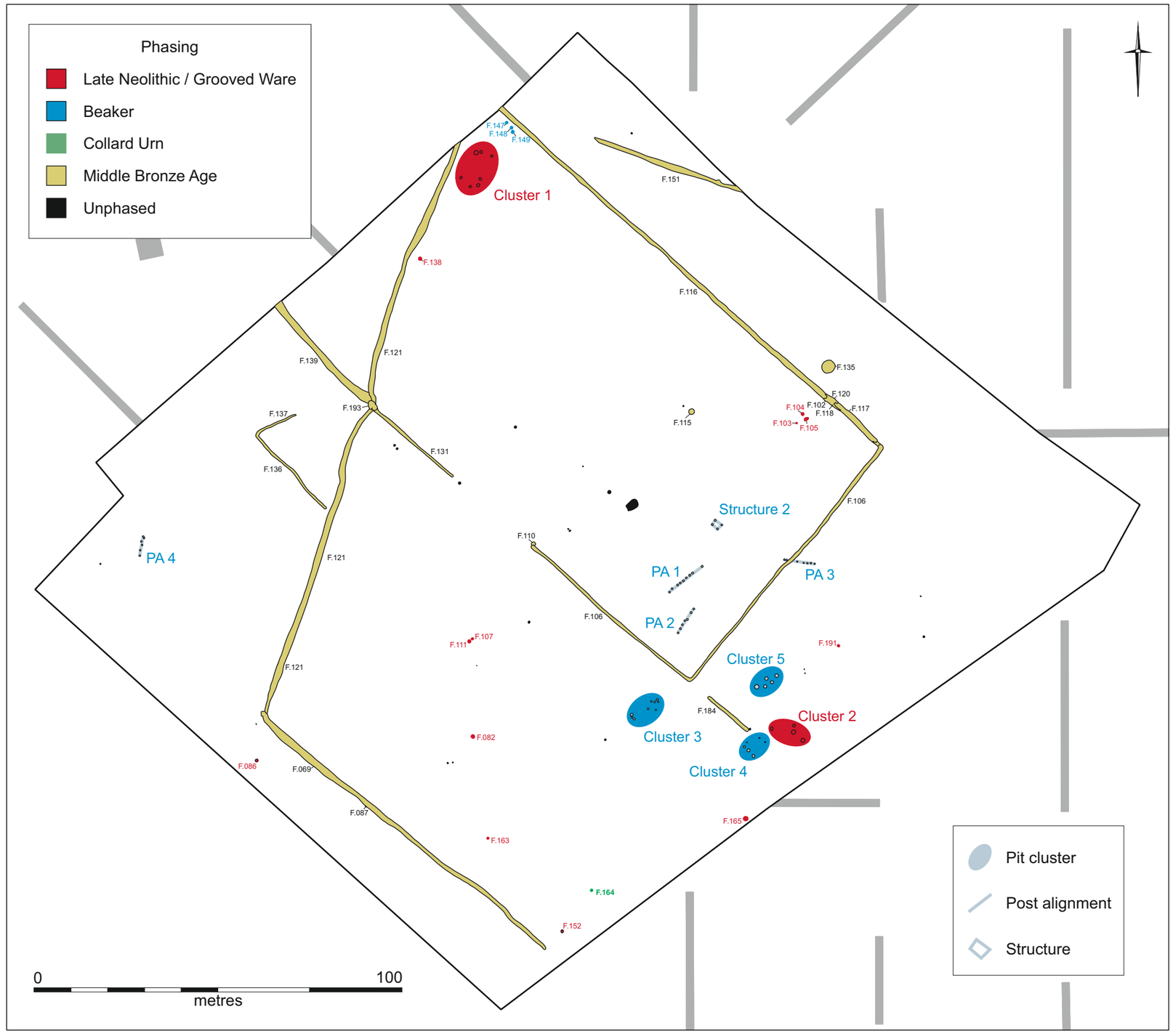


Figure 15. Site IX phased plan

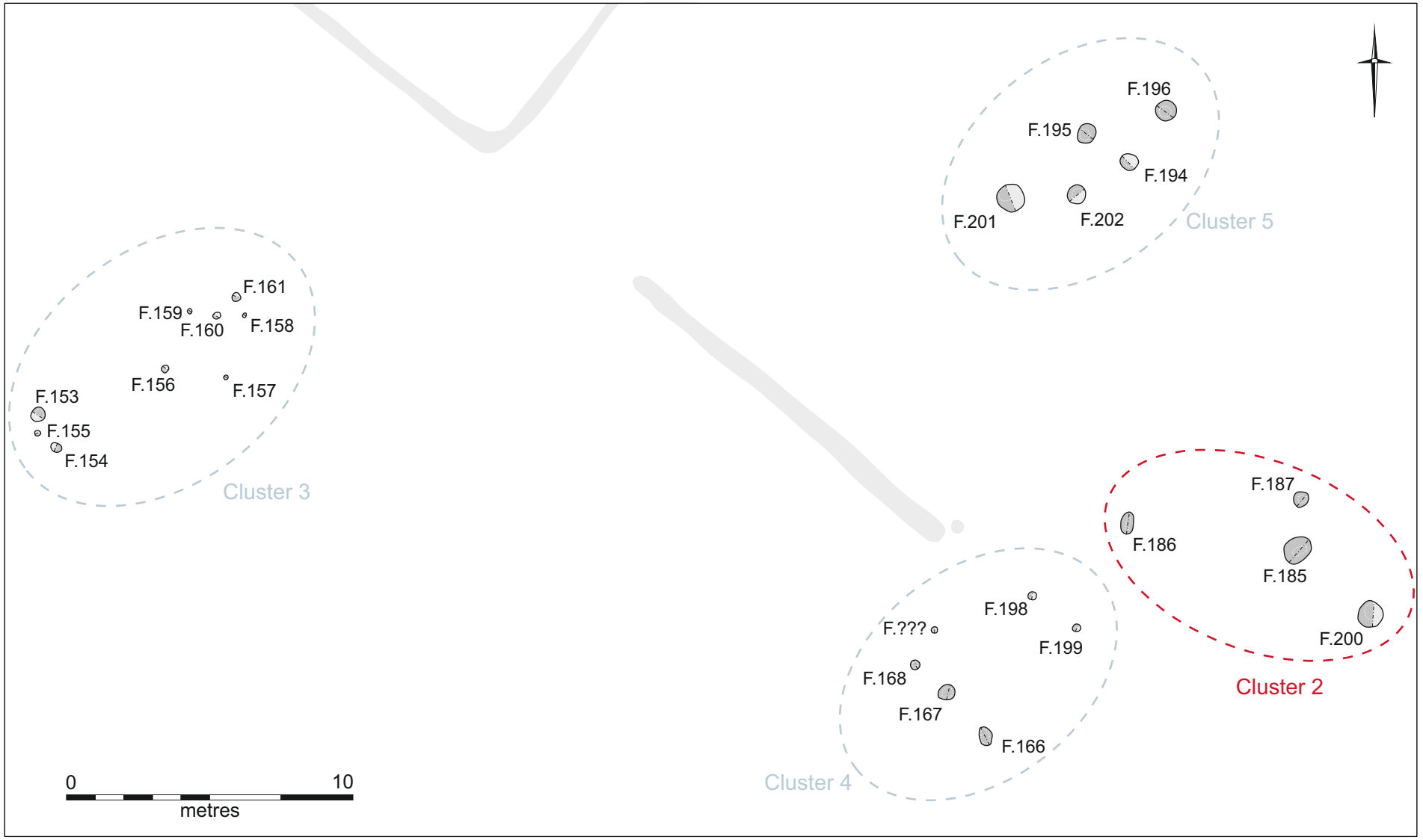


Figure 16. Pit clusters 2-5

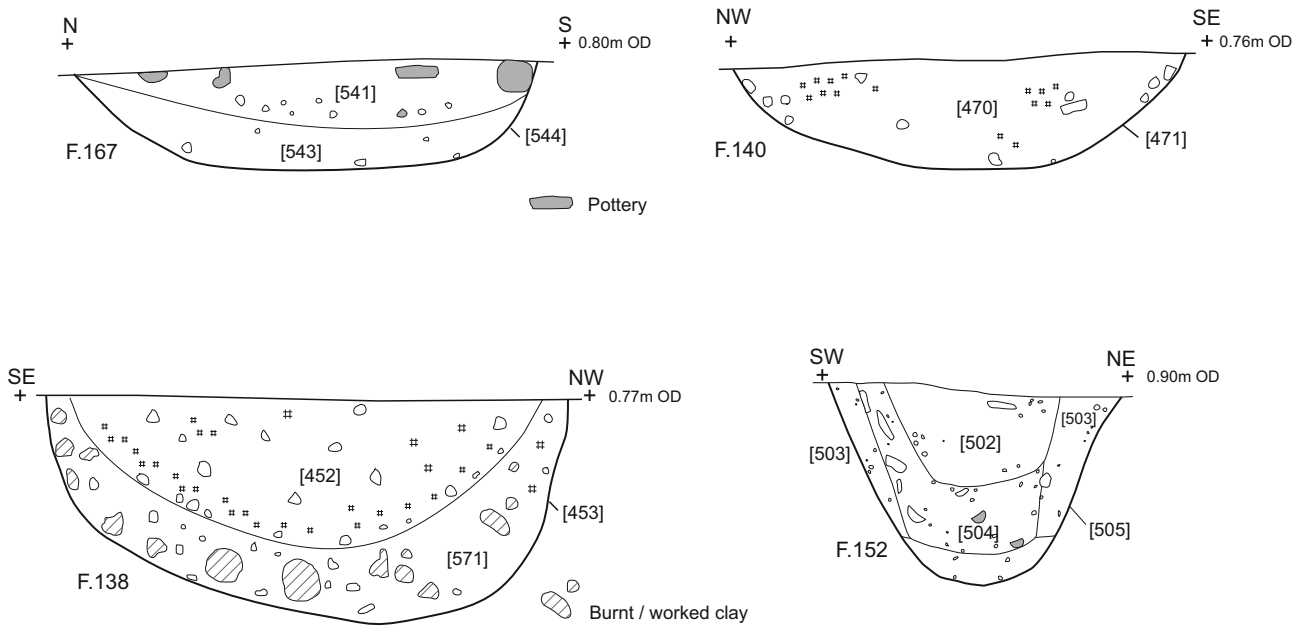


Figure 17. Grooved Ware pit sections (top) and worked/fired clay assemblage from F.138 (bottom)

All seven pits of Pit Cluster 1 were between 0.36–0.78m in diameter; all were associated with burning. One pit (F.140) contained domestic material including 100 sherds of Durrington Walls-type Grooved Ware pot, a small hand-held quern, worked flint and a single cattle bone (Figure 17). This might suggest some association with a dwelling, although no indications of an actual structure survived and the distance between individual pits does not really support the interpretation of these being the internal features of a house. Aside from pit F.140, finds recovered were limited to a single flint and small assemblages of burnt flint and stone (see Table 15, below).

Pit	**Pottery** (g)	**Flint** (g)	**Bone** (g)	**Burnt Clay** (g)	**Burnt Flint** (g)	**Burnt Stone** (g)	**Worked Stone** (g)
140	100 (434g)	7 (13g)	12 (2g)	-	-	-	1 (766g)
141	-	1 (8g)	-	-	-	-	-
142	-	-	-	-	-	-	-
143	-	-	-	-	-	-	-
144	-	-	-	-	7 (32g)	3 (56g)	-
145	-	-	-	-	-	-	-
146	-	-	-	-	-	-	-
Total	**100 (434g)**	**8 (21g)**	**12 (2g)**		**7 (32g)**	**4 (822g)**	**-**

Table 15: Pit Cluster 1 assemblage breakdown

Each of the four pits of in Pit Cluster 2 was more irregular in shape and size (between 0.5–0.93mm wide with shallow flat bottoms) and all were associated with burning and charcoal-rich fills. All four pits contained Grooved Ware pot, which, where identifiable to sub-type was all Durrington Walls-type. Other finds included small assemblages of flint, animal bone (the only identifiable fragment of which was cattle) and burnt flint/stone (see Table 16, below).

Pit	**Pottery** (g)	**Flint** (g)	**Bone** (g)	**Burnt Clay** (g)	**Burnt Flint** (g)	**Burnt Stone** (g)	**Worked Stone** (g)
185	1 (1g)	26 (238g)	3 (2g)	-	9 (12g)	33 (1760g)	-
186	3 (12g)	4 (16g)	10 (1g)	-	-	-	-
187	5 (47g)	-	39 (42g)	-	2 (92g)	4 (82g)	-
200	2 (13g)	-	32 (34g)	-	-	-	-
Total	**11 (73g)**	**30 (254g)**	**84 (79g)**	**-**	**11 (104g)**	**-**	**-**

Table 16: Pit Cluster 2 assemblage breakdown

Cooking Pit F.152

At the south end of Site IX an isolated oval-shaped (0.63m x 0.56m x 0.44m) Grooved Ware pit (F.152) was excavated which had the collapsed remains of a Clacton-style Grooved Ware pot (50 sherds) in it underlain with burnt material, charcoal and burnt stone (Figure 17). Environmental analysis of this underlying fill revealed only fine charcoal and burnt clay, yet it contained stone consisting of adjoining heat-fractured pieces, and the worked flint was thermally-fractured; both suggesting *in situ* burning or the emplacement of hot stone. If as it seems this was a cooking pit, an attempt at residue analysis of the insides of the broken pot is warranted here. Radiocarbon measurements undertaken on a single hazelnut shell from the basal fill of the pit confirmed its Late Neolithic date (2860–2497 cal. BC at 95% probability, see Table 14).

Single and Paired Pits

Three isolated Late Neolithic pits were excavated on Site IX; pits F.82, F.165 both yielded Durrington Walls-type Grooved Ware pottery, while F.212 produced four sherds of Clacton-type. Groups of paired pits comprised F.107 and F.111 on Site IX F.203 and F.204 at the south end of Site XII. The latter pits were identified (but not excavated) in the 2012 evaluation and identified as probably Collared Urn; on excavation Durrington Walls and Clacton-type Grooved Ware pot was recovered along with burnt stone, flint, and broken hazelnut shell (F.204). Charred grains of both barley and wheat were also found within pit F.203, implying cultivation somewhere in the near vicinity. Pit F.111 produced a single sherd of Clacton-type Grooved Ware pottery while F.107 is dated by association.

Late Neolithic – Beaker

Beaker pits

Three pit clusters were investigated on the east side of Site IX in an area immediately to the west of Grooved Ware Cluster 2 (Figures 15 and 16). Some of these pits (e.g. F.153; F.167; F.195–196 and F.210) produced fine and rusticated Beaker pottery, whilst the rest would appear to be of this date by virtue of their association. Virtually all were small oval to round-bottomed features, occasionally with fills containing animal bone, burnt stone, burnt clay, flint and pottery (see Tables 17-19). Pit F.167 produced two small hand-held querns and is also notable in that it produced by far the greatest quantity of pottery of any of the pits in this group.

Pit	**Pottery** (g)	**Flint** (g)	**Bone** (g)	**Burnt Clay** (g)	**Burnt Flint (g)**	**Burnt Stone** (g)	**Worked Stone** (g)
153	2 (22g)	-	1 (54g)	-	-	-	-
154	-	-	-	1 (18g)	-	-	-
155	-	-	-	-	-	-	-
156	-	-	-	-	-	-	-
157	-	-	-	-	-	-	-
158	-	-	-	-	-	-	-
159	-	-	-	-	-	-	-
160	-	-	-	-	-	-	-
161	-	-	-	-	-	-	-
Total	**2 (22g)**	**1 (54g)**	**-**	**1 (18g)**	**-**	**-**	**-**

Table 17: Pit Cluster 3 assemblage breakdown

Pit	Pottery (g)	Flint (g)	Bone (g)	Burnt Clay (g)	Burnt Flint (g)	Burnt Stone (g)	Worked Stone (g)
166	-	-	-	-	-	-	-
167	39 (133g)	3 (52g)	10 (2g)	-	-	1 (22g)	2 (336g)
168	-	1 (4g)	-	-	-	-	-
197	-		-	-	-	-	-
198	-	-	-	-	-	-	-
199	-	-	-	-	-	-	-
Total	**39 (133g)**	**4 (56g)**	**10 (2g)**	**-**	**-**	**3 (354g)**	**-**

Table 18: Pit Cluster 4 assemblage breakdown

Pit	Pottery (g)	Flint (g)	Bone (g)	Burnt Clay (g)	Burnt Flint (g)	Burnt Stone (g)	Worked Stone (g)
194	-	-	-	-	-	-	-
195	3 (10g)	1 (8g)	-	-	-	-	-
196	6 (48g)	3 (16g)	-	-	-	-	-
201	-	1 (4g)	12 (45g)	-	-	4 (102g)	-
202	-	-	40 (6g)	-	-	-	-
Total	**9 (58g)**	**5 (28g)**	**52 (51g)**	**-**	**-**	**4 (102g)**	**-**

Table 19: Pit Cluster 5 assemblage breakdown

In addition to the pit clusters, a large oval pit, 4.2m long and 1.45m wide, containing a single sherd of rusticated Beaker was investigated at the south end of Site XII. More than 30m distant of anything else, this may in fact have been a modified tree-throw containing cultural material.

Later Neolithic/Beaker (?) Pits

A number of pits did not yield dating evidence but have been attributed a broad Later Neolithic/Beaker date based on their character and their proximity/relationship to other well-dated features (it should be noted, however, that an Early Bronze Age or even Middle Bronze Age for these features cannot presently be ruled out). Amongst these was the burnt clay and charcoal-filled round-bottomed circular pit F.138. Burnt clay (>1000 pieces) was recovered from the base of this pit, the sides having been burnt, and the clay a mixture of amorphous lumps and crudely-made round/cylindrical objects possibly representing loomweights (between 40–100 examples; see Timberlake, below). One well preserved perforated clay ball/loomweight finds a close parallel in the perforated baked clay ball from Over Site 6 (*Church's Rise*; Evans 2002), which also came from a pit (albeit undated).

Other pits in this group include two small clusters each comprising three undated pits. Pits F.105–107 represent a relatively isolated group while pits F.147–149 were located just to the northeast of Grooved Ware Pit Cluster 1. Finally, pits F.86 and F.163, represent isolated pits, which both yielded worked flint.

Posthole Alignments

At least four distinct alignments of between 3–9 postholes were investigated on Site IX; 1) F.89–94 and F.100–102; 2) F.169–172 and F.181–183; 3) F.173–179; 4) F.123–128 (see Figures 14 and 15). None of the excavated features produced any culturally dateable finds, yet the typical form and association of these suggest that they may be either Late Neolithic or Beaker in date. Typically the postholes were equidistant, of similar size (0.25–0.3m diameter and 0.1–0.3m deep), and less than a metre apart, with orientations ranging from SSW–NNE, SW–NE, E–W and NNW–SSE. All of these alignments were to be found on Site IX flanking the higher ground, particularly in the central area, where they lie in close proximity to Late Neolithic and Beaker Pit Clusters 2–5. The alignments could potentially represent short stretches of wattle fencing, or perhaps tethering posts for animals.

Early Bronze Age

Collared Urn Pits

Just two pits containing Collared Urn pottery were identified across the entire site, one (F.164) at the extreme southern end of Site IX, and another (F.209) amongst a small cluster of four pits (Pit Cluster 6) located mid-way between the Durrington Walls-type house (Structure A) and the Site III barrow on Site XII (Figures 11 and 12). Pit F.164 was a medium-sized round pit with a rounded base containing just charcoal and six sherds of pot. Pit F.209 was larger but shallower, and also sub-round with a flattish base, a charcoal-rich fill, and 55 sherds of elaborately decorated pot, worked flint, burnt clay and some fragments of hazelnut shell. The pit was located amongst a cluster of three other pits (F.210, F.211 and F.213 which otherwise produced only a single worked flint (see Table 20, below). A hazelnut fragment from pit F.209 was submitted for radiocarbon analysis and produced a date of 2579–2467 cal. BC at 95% probability, (see Table 14). This clearly does not tally with the relatively large Collared Urn pottery assemblage recovered from the pit and the hazelnut shell must be presumed to be residual.

Pit	**Pottery** (g)	**Flint** (g)	**Bone** (g)	**Burnt Clay** (g)	**Burnt Flint** (g)	**Burnt Stone** (g)	**Worked Stone** (g)
209	55 (282g)	8 (166g)	-	2 (88g)	-	-	-
210	-	1 (6g)	-	-	-	-	-
211	-	-	-	-	-	-	-
213	-	-	-	-	-	-	-
Total	**55 (282g)**	**9 (172g)**	**-**	**2 (88g)**	**-**	**-**	**-**

Table 20: Pit Cluster 6 assemblage breakdown.

Watering Hole F.135

The use of this part of the landscape for unenclosed rough grazing during the Early Bronze Age is suggested by the radiocarbon dating of a piece of unworked roundwood recovered from the base of a large pit well or watering hole to the later Early Bronze Age (1740–1534 cal. BC at 95% probability, see Table 14).

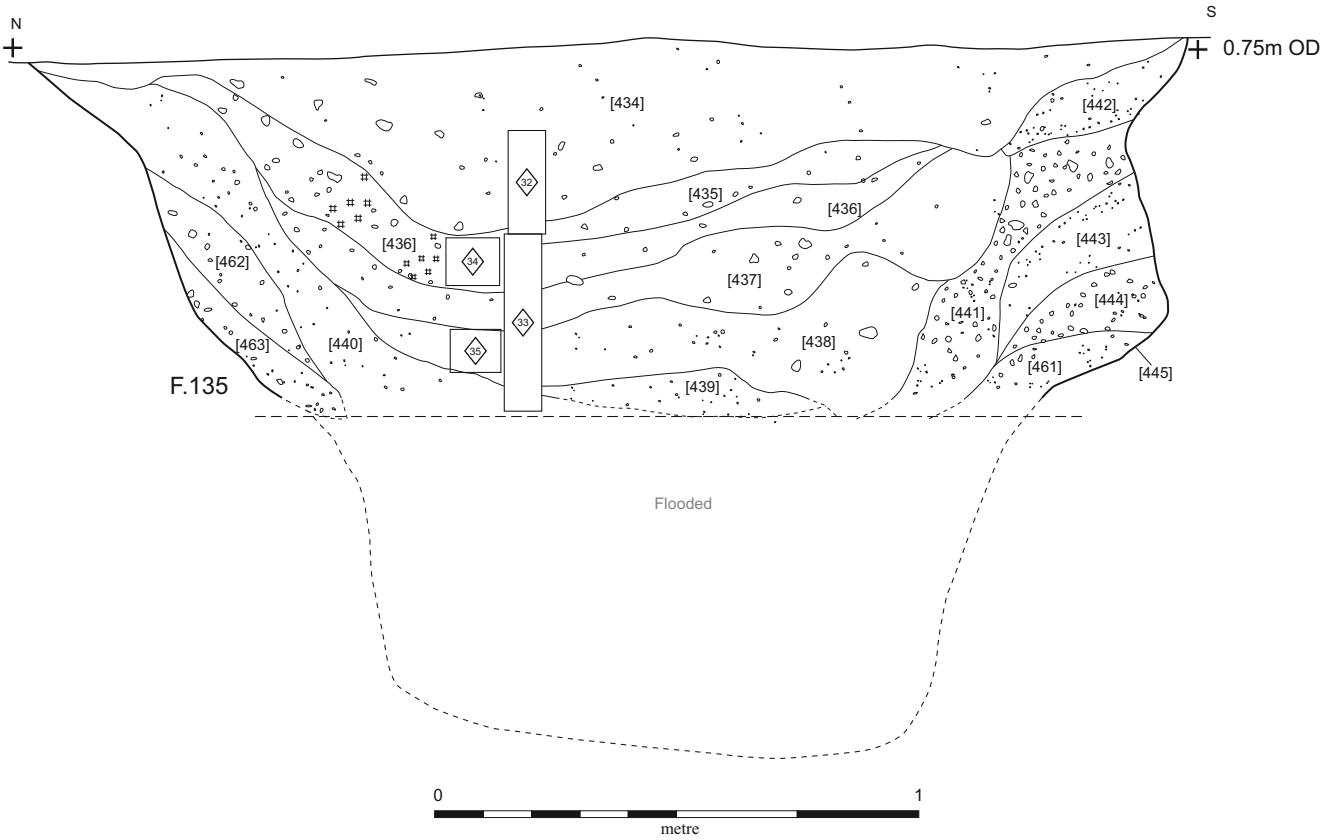


Figure 18. Pit F135

Approximately 3.3m in diameter at the surface, this feature was located within a relatively empty area at the north end of Site IX, just 6m from an entrance to a rectangular enclosed field, believed to be Middle Bronze Age in date. The feature was half-sectioned and dug by hand to a depth of 1.2m, then proved by machine excavation to a depth of 1.85m; the shape was typical of a pit-well without any ramp for animal access i.e. it was 'U'-shaped with shallow ledges at the top, and with an undercut, flat to round-bottomed 2m-wide base (Figure 18). No burnt stone was recovered from the infill and slumped-in sediments removed from here, nor for that matter any other finds except for a piece of animal (cow) bone, unworked roundwood, and charcoal.

Both the environmental evidence and pollen indicate that this watering hole was dug in a damp grassy-wooded landscape with little evidence for disturbance, and almost no indications of arable activity. The landscape then gradually became more wooded, and perhaps also wetter as it silted up, with persistent alder carr and sedge reed beds nearby (see Fryer and Boreham, below. The abandonment of this well (which was presumably dug for watering animals) appears to pre-date the clearance and more intensive grazing which becomes characteristic of this landscape in the Middle Bronze Age.

Middle Bronze Age

Fieldsystem

Dating to the Middle Bronze Age, the fieldsystem was much more evident and complicated towards the south than in the Site XII-area. Its main component was a large rectangular, northwest–southeast oriented 'block' (*c.* 80 x 150m) that was defined by a series of *c.* 1.m-wide and 0.15-1.09m deep ditches (F.106, F.116, F.131 & F.139). In addition, although not extending to the site's eastern edge, a short length of comparably minor ditch (F.184) continued the block's alignment beyond its southeastern corner. The western aspect of the main block-setting had been truncated and modified by a ditch – F.121 – running north/northeast–south/southwest along the crest of the palaeochannel there. While this reworking may have involved some recutting of the original field-block (?F.117 locally replacing F.116), in the north ditch F.151 would appear to have been F.121's return–axis. That said, in the south, F.121 returned southeastward (as F.87) and was traced for at least 60m beyond the limits of excavation in that direction, within both the diversion ditch-line (F. 69; see below) and the earlier evaluation trenches (F.13; see Tabor & Evans 2103, fig. 21), and that its orientation actually followed that of the main field-block. (Note that, within the diversion ditch-exposure, a return-axis ditch to the F.69/87 boundary was exposed southeast of Site IX proper: F.68.)

An interesting junction of these field boundary ditches was examined where F.121, F.131, and F.139 meet on the channel-side edge along the western side of the site. Here the change of gradient and floor level of these ditches suggested that they functioned as field drains, the water from F.131 and F.121 flowing into a pit or small ditch section (F.193), and then into a *c.* 2m wide ditch (F.139) which drained into the

western palaeochannel. Wood from this ditch has been radiocarbon dated (1434–1282 cal. BC at 95% probability, see Table 14), so confirms a Middle Bronze Age date for this fieldsystem. Freshwater and marsh species of snails present within the fill of ditch F.139 indicate semi-permanent water, whilst the preserved seeds suggest marshland habitat and damp grassland (see Fryer, below). In general, the very low incidence of animal bone and, indeed, any finds whatsoever within these Middle Bronze Age ditches must reflect the distance of these fields from settlement.

Aside from the major, *c*. 25m-wide entrance-gap in ditches F.106/131 along the southern side of the main rectangular field-block (Site IX), a minor entrance was indicated by a break in ditch F.116 along its northern side and which was interpreted as a 1.25m-wide gateway on account of the pair of postholes that flanked it (F.118 & F.102). The excavation of the entrance-gap proper (F.120) revealed an area of trample and compaction, perhaps the result of stock movement.

Part of a small enclosure, located on the west side of Site IX and running just beyond the secondary/channel-side field boundary, may have related to the primary-phase fieldsystem. Its shallow and narrow ditches (F.136-137) were rather irregular and they may, in fact, have marked a hedge-line; F.136 contained a single re-deposited Early Neolithic flint bladelet and a piece of animal bone.

A single NNW-SSE boundary ditch (F.403; *c*. 1.2-1.7m wide and 0.3-0.75m deep) accompanied by an eroded bank (F.406) on its southern side crossed the southern half of Site XII (Figures 11 & 19). Essentially having the same orientation as the fieldsystem, effectively this ditch would have separated the area of fields/paddocks to the south from what appears to have been ‘empty land’ to the north; though, the partially water-surrounded mound of the Site III’s barrow would there have been visible. As with the fieldsystem, no finds at all were forthcoming from this extensively sample-dug ditch; freshwater snails, bivalves, ostracods and carophytes within its fills confirmed the presence of semi-permanent to permanent flowing water. Pollen from its different levels demonstrated post-clearance damp grassland vegetation, with alder and more open woodland, and with indications of both pastoral and arable agriculture (there being good indications of cereal cultivation; see Boreham, below).

Other Features

A small well or deep rubbish pit (F.115) located within the Middle Bronze Age field enclosure on Site IX was half excavated, along with an adjacent posthole (F.114). The likelihood is that both were related, and that this was a small pit-well linked to stock grazing. If a pit-well, which seems likely, then it small (just 1.3m across and 1m deep) but in some respects similar to the much larger Early Bronze Age well F.135, with a shelf and undercut profile, the latter formed as a result of it being repetitively filled and emptied. No finds, except for a single cow bone and some wood chips, were recovered.

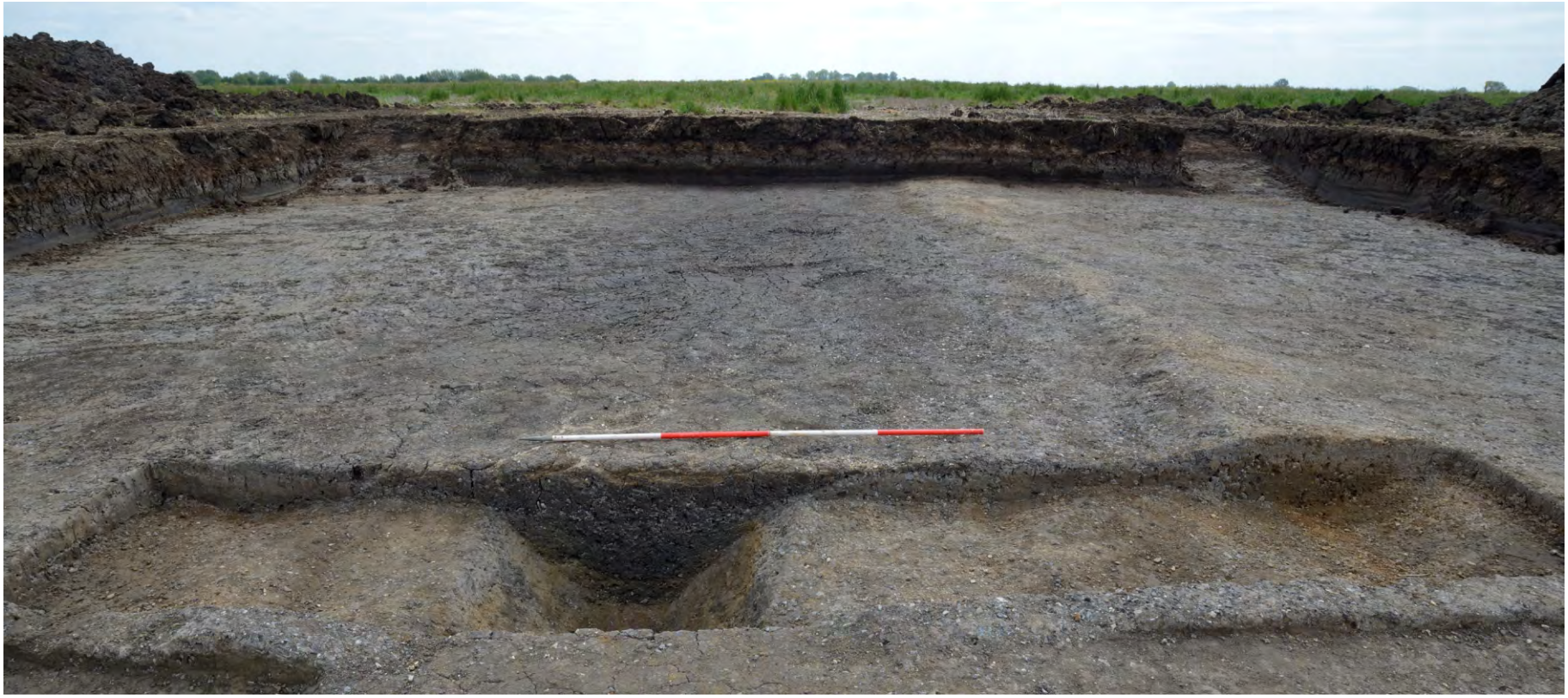


Figure 19. Bank and ditch F.403/406

A four posthole 'structure' (F.95–F.98) was identified within the central area of Site IX and located within one of the Middle Bronze Age fields. Its postholes were *c*. 1–2.5m apart, similarly dimensioned (0.25–0.3m in diam.), and had post-pipes; there were no finds except charcoal. This setting may have been built to hold a platform or small granary. As none of the postholes produced dateable finds and the structure can only tentatively be assigned to the Middle Bronze Age; equally, it lay some 10m due north of Posthole Alignment 1 (see above) and close to an area of Late Neolithic and Beaker activity and, therefore, a somewhat earlier date cannot be ruled out.

2013 Diversion Ditch Monitoring Results (with Lizzie Middleton)

Archaeological monitoring was carried out during the excavation of the diversion ditch in advance of the current phase of quarrying in 2013. The area stripped comprised a 5m 'corridor' running around the eastern and southern edge of the area to be quarried. A total of 18 archaeological features were recorded (see Figure 14) and of these, four were post-medieval ditches. Two possible Middle Bronze Age ditches (F.68 & F.69) were recorded although no finds were recovered from either feature. In addition, a total of 12 undated small pits or postholes, none of which yielded any finds were recorded. Most significant amongst these was an alignment of seven postholes (F.71–78), which is comparable to the short posthole alignments recorded in Site IX just to the northwest and thought to date to the Late Neolithic – Beaker period

Specialist Studies

Flint – Lawrence Billington

A total of 125 worked flints and 44 fragments (394.4g) of unworked burnt flint were recovered from the excavations. The assemblage derives mostly from the excavation of cut features with a smaller number of worked flints (ten pieces) collected as surface finds. A basic breakdown of the flint assemblage by broad feature type is given in Table 21 and a more detailed quantification by individual features is presented in Appendix 2. The flint was generally recovered in small numbers, with a total of 125 worked flints coming from 28 individual features. Only two features (pits F.206 & F.152) contained in excess of ten worked flint

The condition of the assemblage is generally very good with minimal edge damage or edge rounding and is characteristic of material recovered from sealed contexts which have seen little post depositional disturbance. The entire assemblage is uncorticated ('unpatinated'), this seems likely to have a degree of chronological significance; reflecting the lack of 'early' (earlier Neolithic/Mesolithic) material in the assemblage, which, where present in other assemblages from Over, often includes a high proportion of corticated pieces.

The raw material of the assemblage is entirely made up of flint. Although varied the assemblage is distinctive in having a very high proportion of very dark grey/black translucent, high quality flint. Where cortical surfaces survive these are often relatively thick and unweathered and are characteristic of material collected from deposits closely related to the parent chalk. The use of chalk flint is a very distinctive characteristic of later Neolithic assemblages from the Lower Ouse, seen most clearly in the Grooved Ware associated assemblages from Over (e.g. Edmonds 2004; Pollard 1998; Billington 2010) and the extensive use of chalk flint appears to be restricted to the later Neolithic, although local early Neolithic assemblages may also contain a small proportion of chalk flint (Middleton 2006; Billington forthcoming). This phenomenon is part of a larger scale regional trend during the later Neolithic, which

sees greater complexity in the use and exchange/transport of flint raw materials than in earlier or later periods of prehistory (Bishop 2012). Also present is material presumably derived from secondary sources, probably local terrace gravels.

Type	Pits	Ditches	Surface finds	Total
Irregular waste	4	0		**4**
Flake	75	4	5	**84**
Narrow flake	3	0		**3**
Blade	3	0		**3**
Bladelet	0	1	2	**3**
Blade like flake	4	1		**5**
End scraper	3	0		**3**
Side scraper	1	0		**1**
Thumbnail scraper	0	1		**1**
End and side scraper	1	0		**1**
Horseshoe scraper	3	0	1	**4**
Other scraper	1	0		**1**
Chisel arrowhead	1	0		**1**
Retouched flake	4	0	1	**5**
Serrated piece	2	0		**2**
Multiple platform flake core	0	0	1	**1**
Levallois like core	1	0		**1**
Minimally worked core	1	0		**1**
Core on flake	1	0		**1**
Total worked	**108**	**7**	**10**	**125**
Unworked burnt flint (no.)	44	0		**44**
Unworked burnt flint (g)	394.4	0		**394.4**

Table 21: Basic quantification of the flint assemblage

Pits/postholes

The vast majority of the worked flint (108 pieces) was derived from the excavation of discrete pit/posthole features. The bulk of this flintwork (96 pieces) was recovered from features provisionally spot dated to the Late Neolithic (Grooved Ware associated) with smaller quantities deriving from features spot dated to the Early Bronze Age (Beaker/Collared Urn associated). The flintwork recovered from putatively Late Neolithic features is entirely characteristic of Grooved Ware associated assemblages previously recorded from Over (references above, see also Garrow 2006, chapter 6). Typically these assemblages are marked by the use of chalk flint, much evidence of levallois-like technologies (see Ballin 2011) and a distinctive range of retouched tools including finely made, often relatively large, scrapers, chisel arrowheads and serrated pieces. The Late Neolithic flintwork includes two relatively substantial assemblages from F.206 (13 pieces) and F.152 (31 pieces) alongside numerous smaller assemblages of between one and seven worked flints . It should be emphasised that, although small, these latter assemblages invariably include pieces with technological traits diagnostic or suggestive of a Late Neolithic date and the evidence of the flintwork strongly supports the spot dating of the vast majority of these features.

Taken as whole the composition of the assemblage suggests a variety of activities are represented by the worked flint. Flint working is evidenced by waste flakes and discarded cores although it should be noted that small chips are poorly represented and the high proportion of retouched and utilised pieces suggests that a substantial proportion of the assemblage may have been 'imported' to the site in the form of finished tools or blanks. Retouched tools account for 16% of the assemblage, a high proportion which is typical of Late Neolithic assemblages from the local area but which contrasts with the low proportions seen in more flint rich areas of Eastern England (such as the Breckland) where flint

working appears to have been carried out on a greater scale (e.g. Healy 1995; see Garrow 2006, chapter 6). The proportion of tools is significantly elevated if unretouched pieces with macroscopically visible traces of utilisation are included, which make up a further 15% of the assemblage and generally take the form of fine, regular flakes and blade like flakes with heavy edge rounding and damage on their lateral edges consistent with having been used a cutting or scraping tools.

Technologically the Late Neolithic material is characterised by a mixture of 'generalised' flake-based material, reflecting the simple exploitation of single and multiple platform flake cores together with abundant evidence of the use of sophisticated technologies associated with the working of discoidal and levallois-like cores. Many of the tool blanks and unretouched flakes are characteristic of removals from levallois-like cores, with multiple direction/complex dorsal scar patterns, relatively broad, thin and regular morphologies and finely faceted striking platforms. There is one example of a classic levallois-like core, probably discarded due to an internal thermal flaw, from pit F.152. Another distinctive technological feature is the presence of two flakes and a retouched tool with evidence for intentional breakage. The intentional breakage of tools and tool blanks is increasingly recognised as a common feature of Late Neolithic assemblages from the region (Saville 1981; Beadsmoore 2009; Billington 2010) and in southern Britain more generally (e.g. Anderson Whymark 2011). In some cases this appears to have been part of tool production, particularly used as technique to remove the proximal end of flakes used as blanks for transverse arrowheads, and one of the intentionally broken piece form this assemblage, from pit F.206, possibly represents one such discarded proximal portion of an arrowhead blank. More enigmatic is an intentionally broken piece made up of two refitting pieces which was initially retouched to from a simple end scraper before the distal end (scraper edge) was removed via an intentional break and further steep retouch executed on the lateral edge of the remnant proximal end.

The retouched forms from the Late Neolithic contexts include eight scrapers of various forms generally made on fine, large and regular blanks with semi-abrupt, scalar, retouch. Also present is a large broken chisel arrowhead, of Clark's (1934) Type C or D, from pit F.86. Two serrated pieces are present, both made on robust blade-like blanks, one of which is heavily burnt and made up of two refitting pieces. The other retouched pieces include the intentionally broken scraper discussed above and two pieces with small lengths of retouch on their lateral edges.

Pit F.209, which contained Collared Urn pottery, also yielded a small assemblage of seven flints. The assemblage is not particularly distinctive, with no retouched tools. Chalk flint appears to be virtually absent, with several pieces displaying a hard and abraded cortex characteristic of material derived from fluvial gravels. Technologically the worked flint appears to derive from a relatively expedient flake-based core reduction strategy with little concern of the form or morphology of removals.

Three worked flints were recovered from pit F.354. This pit has not been assigned a date on the basis of pottery or its association with other dated features, yet it is possible to state with some certainty that its flint assemblage is of Late Neolithic date. This includes a flake struck from a levallois-like core and a broken medial flake segment.

Ditches

A total of seven flints were derived from the excavation of putatively Middle Bronze Age ditches. There is no clear evidence for any flintwork contemporary with these features, and all of the flintwork is thought to be residual material inadvertently caught up in the infiling deposits. These include a diagnostically Early Bronze Age thumbnail scraper (from F.121) as well as probable Late Neolithic material. A single bladelet was recovered from F.136. This is the only piece from the entire assemblage which seems likely to be of pre-Late Neolithic date, probably dating to the Early Neolithic.

Surface Finds

A total of ten worked flints were collected as surface finds. Whilst some of the less diagnostic pieces could be the product of later periods, the majority are closely comparable to the material recovered from the Late Neolithic contexts. These pieces include a fine horseshoe scraper (SF 9), a retouched blade like flake (SF 7) and several levallois-like removals (SF 2, SF 11) as well as a well worked out flake core (SF 11).

Although relatively small, the flint assemblage from these excavations includes a high proportion of small to medium sized assemblages from secure contexts of Late Neolithic date. Also present is small amount of material associated with Early Bronze age activity. The Late Neolithic flintwork is entirely typical of other Grooved Ware associated assemblages from Over (see above), and appears to reflect limited flint working alongside the use of flint tools within an ostensibly 'domestic' context.

Perhaps one of the most interesting aspects of this assemblage is the dearth of 'early' (Mesolithic/early Neolithic) flintwork from this site(s). This was noted also when the small assemblage from the evaluation of the area was assessed (Billington in Tabor & Evans 2013). Thus the observations made then regarding the low levels of early activity in this area have been strengthened by the results of this excavation phase. The paucity of Early Neolithic material is likewise a feature of many of the flint assemblages derived from the Over Lowlands. This contrasts with the much larger assemblages on the other side of the Ouse at Barleycroft (Evans *et al.* 1999). Far more striking though is the absence of Mesolithic material given the extensive and dense Mesolithic scatters recovered from the Over Narrows (see Evans *et al*. forthcoming), alongside the small but still substantial assemblages from the other Over sites including Sites 3(Area B) and 6 (Pollard 1998, Evans 2002). Crucially, all of the locations which have yielded flint assemblages with a substantial Mesolithic component are located relatively close to the early courses of the Ouse and its seems that there was a real and very marked preference for riverside settlement during the this period, with far less activity on the gravel terraces away from the major watercourses.

The assemblage has been fully recorded and no further analysis is required. The most important aspect of the assemblage is its Late Neolithic component, and as such it represents a small but significant addition to the other assemblages of this date from the Over landscape. Both the composition and characteristics of this assemblage should, in due course, form part of a larger scale discussion on the organisation of flint use in this landscape during the Late Neolithic. However, prior to any future work or publication it may be necessary first to revisit the dating/phasing of individual assemblages from some of these features based on the full analysis of the pottery and other finds.

Prehistoric Pottery – Mark Knight

The prehistoric pottery assemblage comprised 517 sherds weighing 3516g (MSW [=mean sherd weight] 6.8g; see Table 22). The material was derived from 21 separate features and included types consistent with Grooved Ware (GW), Beaker (BK) and Collared Urn (EBA) traditions. The dominant component was Grooved Ware (77% by

number and 84% by weight) and contained both Durrington Walls (DW) and Clacton (CL) sub-styles (69% and 21% by number respectively; see Table 23).

	Number	Weight	MSW
Grooved Ware	405	2989g	7.4g
Beaker	51	229g	4.5g
Collared Urn/EBA	61	298g	4.9g
Total	*517*	*3516g*	*6.8g*

Table 22: Assemblage composition.

Sub-style	Number	Weight	MSW
Durrington Walls	274	1881g	6.9g
Clacton	124	1085g	8.7g
Total	*398*	*2966g*	*7.4g*

Table 23: Grooved Ware pottery – quantities by sub-styles.

Cat No	Feature	Context	Qty	Wt (g)	Type	*Sub-style*	Description/notes
50	82	264	4	20	GW	*DW*	vertical cordons GROG
60	111	350	1	2	GW	*CL*	corky SHELL
74	140	470	100	434	GW	*DW*	panels
81	152	503	50	366	GW	*CL*	bucket with internal lip cordons
85	152	504	50	614	GW	*CL*	ditto
89	153	506	2	22	BK		fine and rusticated
93	164	530	6	16	EBA		Collared Urn?
98	165	532	5	116	GW	*DW*	
101	167	542	30	104	BK		plain?
111	186	593	3	12	GW		?
114	187	595	3	42	GW	*DW*	
119	191	603	70	810	GW	*DW*	
122	195	651	3	10	BK		fineware
124	196	653	4	24	BK		?
126	200	664	1	8	GW	*DW*	cord
132	203	672	36	216	GW	*DW*	
136	204	674	2	12	GW	*CL*	
138	206	688	6	30	GW	*CL*	
148	209	697	55	282	CU		elaborate decoration
152	212	703	4	30	GW	*CL*	
158	240	797	1	16	BK		rusticated
630	82	264	11	68	GW	*DW*	
639	140	470	3	10	GW		?
641	152	504	11	31	GW	*CL*	
646	191	603	37	137	GW	*DW*	
649	187	595	2	5	GW	*DW*	
650	185	591	1	1	GW		?
652	167	542	9	29	BK		rusticated
658	196	653	2	24	BK		?
659	200	664	1	5	GW	*DW*	
662	203	672	4	20	GW	*DW*	
			528	*3550*			

Table 24: Assemblage breakdown by type.

Attributes such as raised vertical cordons, tapered rims with twisted cord impressions demonstrated the occurrence of Durrington Wall's style Grooved Ware whereas incised horizontal grooves around bucket profile vessels with internal lip cordons indicated a Clacton presence. In addition, delicate scoring was identified on the rim of a Durrington Walls type vessel. The Beaker assemblage was comparatively small but included several fragments of exceptionally fine forms with intricate decoration. Rusticated were also present indicating a settlement component. Pieces of an elaborately embellished tripartite Collared Urn completed the assemblage.

Worked Stone – Simon Timberlake

A total of 1.26kg of worked and utilised stone was recovered from various archaeological features. This consisted of 194g of fragments from a single Late Neolithic polished stone axe found within a pit adjacent to Durrington Walls-type house Structure 1, small flat pebbles utilised as quern (776g) and as anvil/ mortar stones (84g) from other Late Neolithic pits, and two miniature saddle querns (336g) found within a Beaker pit. The latter material had originally been collected as 'burnt stone' during the excavation of these features.

Polished Stone Axe

<1427> F.206 (688) A butt end fragment of a Late Neolithic polished stone axe (162g; 55mm x 56mm x 32mm), plus also 32g in fragments. The axe was thin-sectioned for further analysis.

The butt end of the axe had seen minor use in the form of an asymmetric (hammered) indentation on one side. The weathered bleached patina over the surface of this axe covers this area of damage, suggesting that its use preceded the fracture and first discard of the tool. A small amount of secondary re-use can also be seen on the opposing corner of the butt, although the degree of wear here is slight, and may be usefully compared with the 'rounding-off' wear which can be seen upon both ends of the lower fracture surface, and which may be secondary. Within the middle of this fracture (flake scar) surface it is also possible to see a small area of pitting. This suggests a further secondary use of the broken butt end as a hand-held hammer, perhaps for the crushing of bone, clay, shell or foodstuffs such as nuts.

Three other small undiagnostic fragments from this axe (32g) were recognised within the burnt stone assemblage examined from this pit. Their presence here suggests that at least some of the fragments of this broken axe were present at the time the butt end was deposited in the pit. The implication is that the axe was probably broken (or else re-broken) nearby. However, all three of these fragments had a different history of deposition to that of the axe, having experienced intensive burning alongside the burnt pebbles, some of which may have been used for cooking.

Petrological Thin Section

A 15mm deep x 25mm wide x 1mm thick rock slice was taken from the edge of the butt end of the axe to make a 30 micron thick petrological thin section. The cut was then filled with a grey cement paste, and the tool returned to the site archive.

Thin section analysis revealed an altered micro-gabbro or greenstone consisting of hornblende, plagioclase feldspar and decomposed ilmenite. The 1-2mm sized euhedral lath-like crystals of plagioclase appeared to be heavily altered, in places to a microcrystalline indeterminate alteration product, probably andesine-oligoclase sericite, but possibly albite. Some relict islands of unaltered felspar revealed classic plagioclase twinning. Fibrous, often sheaf-like 1-3mm long masses of acicular pale-green amphibole showing yellow-brown to blue second-order birefringence under x-polars (xpl) was the other main mineral. Amongst this amphibole could be seen relict crystal shapes, a few of these

readily identifiable by their opaque rims, presumably of iron oxides or ilmenite. Included also were smaller anhedral crystals probably representing hornblende after now-altered pyroxene. This dominant sheaf-like texture of acicular but otherwise unidentifiable amphibole within altered gabbros/dolerite is sometimes referred to as 'uralite'. Intergrown amongst the altered plagioclase and amphibole is a skeletal network as well as grains of ilmenite, some of which under plane polarised light (ppl) can be seen to be altering to leucoxene. Some minor apatite in the form of short hexagonal crystals (<0.5mm) was identified throughout the groundmass, but this was rare in the sample rock.

The axe can be identified as a Group III implement based on its characteristic mineralogy and texture (Keiller *et al*. 1941). A variation from the published description of this Group is the smaller amount of apatite present, yet the 'uralite' amphibole and its habit, the altered plagioclase and ilmenite matches the main description quite accurately. The distinctive texture and absence of mica and epidote precludes this being Group IIIa. The source for this axe type has been identified as Trenow Quarry, Marazion in Cornwall. The actual axe-factory site has yet to be identified, yet we know that Group III axes were being produced at the same time as the nearby Mounts Bay (Group I) axes (Stone & Wallis, 1951, 110).

This is a Group III axe made of metadolerite or uralitized microgabbro from Marazion, West Cornwall. The coincidence of finding another axe of similar petrology on *The Narrows'* Marlow Ridge (see M. Edmonds in Evans *et al.* forthcoming) seems interesting, if not unusual, given the wide variety of differently sourced axes that were available for use during the Late Neolithic (at least 34 different axe factory sites/ sources have now been identified across Britain). However, this may not be such a coincidence if it turns out it is something to do with the date of Late Neolithic occupation at Over and the dominance of this particular axe trade route at the time (we still know very little about the fine-tuned chronological sequence of axe production). Alternatively the choice of axe might be linked to existing allegiances; it seems that the trade in Cornish stone axes, gold and later tin was almost certainly controlled from Wessex. In fact Over may not be that unusual in this respect, given that a fair proportion of the stone axes turning up in Cambridgeshire/Eastern England seem to have a southwest English provenance.

Quern

<77> F.140 (470) x1 heat fractured pebble-like slab of sandstone used very briefly upon one of its flat surfaces as a small hand-held quern; 776g (110mm x 110mm x 35mm).

This small stone slab has an area of approximately 50mm x 50mm wide, upon which the surface has been ground smooth; a use which apparently post-dates the burning of the stone. One corner of this was also used as a hammer, likewise prior to its having been burnt. This was recovered from Late Neolithic Grooved Ware pit.

<105a> F.167 (543) A single fragment from the end of a miniature saddle quern possessing a smooth and highly polished grind surface 130g (75mm x 25mm x 40mm [thick]).

A hard but very well-used and worn quern with faint riffle striae covering one of the polished faces. The latter confirms that the primary grinding use was in the direction of long axis of fragment. The area of polished surface is approx. 60mm long, but has a worn rounded edge beyond this of *c.*20mm. The quern came from a probable Beaker pit.

<105b> F.167 (543) A fragment from the end of a miniature saddle quern/ hammerstone 206g (60mm x 54mm x 40-45mm [thick])

Part of a small slab quern made from a hard micaceous sandstone. The slope of the smooth grind surface (just 30mm x 40mm of it surviving) slopes suggests that this quern had an angular or concave top. The upper rim edge of the stone is both battered and rounded, suggesting that this implement saw

some secondary (opportunistic) use as a hammerstone following the breakage of the quern. Likewise from a Beaker pit.

Anvil/mortarstone

<63> F.113 (354) x1 small pebble anvil/ mortar stone used on both sides 84g (80mm x 65mm x10-15mm).

A thin flat pebble used as a miniature anvil/ mortar stone and probably broken following its fracture at the thinnest point. A smooth hammered depression measuring 55mm x 30mm can be seen on one face, with a more indented 'mortar' surface of approx. 35mm x 40mm on the reverse. The surface of this is now heavily weathered. From an undated pit, probably Late Neolithic?

Burnt Stone – Simon Timberlake

A total of 5.44 kg (128 pieces) of burnt stone was recovered from the excavation of pits and postholes across the over site (see Table 25).

Feature/ SF	**Context**	**Nos. frags**	**Size** (mm)	**Weight** (g)	**Geology**	**Notes**
F.138	571	2	30 + 80	128	sandstone (slightly micaceous)	found within burnt + worked clay assemblage
F.140	470	1	111x105x34	776	micaceous flaggy sstn	>WS – minor opportunistic quern use
F.144	478	3	30-45	60	sstn + qtz sstn + qtz grit	small smooth gravel pebbs only
F.152	504	14	30-55	482	quartzite(8) + micaceous sstn(6)	some are fragments of same cobble
F.152	503	19	20-90 (40)	738	qtz mica sstn(3) + micac sstn(7) + qtzite(7) +dolerite(2)	some are fragments of same cobble
F.152	504	2	50-60	162	quartzitic sstn	from >4mm enviro <37> : pebbles
F.164	530	1	60	144	micac sstn	
F.167	543	3	35-70	358	BF + quartzitic sstn + micac sstn	x2>WS (qtz sstn + micac sstn) both miniature querns (one also hammer)
F.185	591	35	15-70 (45)	1778	dolerite(2) + gritty sstn(1) + sstn-sltstn(1) + calcar sstn(1) + Est Delt Ser Jur sstn(4) + micac sstn LGS?(12) + banded soft sstn(5) + sstn(9)	NB. minor copper staining on some of BS fragments decayed Cu metal fragment within fire?
F.113	354	2	55 + 80	172	qtz sstn + quartzite	>WS x1 broken flat pebble used as a very small anvil/ mortar on both sides
F.187	595	3	35-50	84	sstn	
F.201	668	4	15-60	106	gritty sstn. poss carstone(3)+ quartzite	
F.204	674	7	30-40	42	BF + gritstone	prob from fl + st within burnt soil?
F.206	688	1	45	30	chert	from >4mm fraction enviro <58>
F.206	688	3	10-35	32	greenstone/ epidiorite?	>WS – almost certainly v burnt fragments from the end of polished stone axe <1427>
F.206	688	3	15-25	10	brachiopods in cherty Carb Lmstn.	
F.207	693	9	10-30	72	quartzite(3) + sstn(3) + sft white sstn(3)	
F.212	703	10	10-45 (20)	102	BF(7)+ meta-sandstone(4) sstn(1)	
F.214	708	6	20-65	168	sstn	all from one cobble

Table 25: Catalogue of burnt stone from Sites IX & XII.

The largest amounts of burnt stone came from F.185 (1778g), F.152 (1382g) and F.140 (776g). The generally small size of these burnt fragments implies repeated firings of the stone and the use of this for cooking or boiling. This is confirmed by the bleaching and also crazing (cracking) of some of the pebble surfaces, which is indicative of the dropping of hot stones into water, perhaps as potboilers.

Burnt and Worked Clay – Simon Timberlake

Approximately 9.8kg of burnt and worked clay was recovered from eight different features (see Table 26), the majority of this coming from the Late Neolithic–Early Bronze Age pit F.138 (9654g). The next largest amount (88g) came from pit F.209, and appears to consist almost wholly of broken-up and dumped *loomweight.* At least 40 (but possibly up to a 100+) highly fragmented and crudely moulded bun to cylindrical-cone shaped weights were identified, the majority of which showed no signs of any central perforation. However, there were half a dozen examples that show some indications of having been hand-bored; in this case finger-perforated acentrically-aligned holes which ranged from 20 to 30mm diameter.

To some degree the form of these resembled the cylindrical clay loomweights of the Middle Bronze Age, yet they were cruder in almost all respects; some being little more than dome-shaped 'mud balls'. Some of the smaller fragments had parallel 'finger' grooves cut across their external surfaces, implying that these were tied around their circumference and hung as weights. Whilst broadly standard in shape, their sizes of these weights also appeared to vary. Reconstructions suggested objects of between 50mm to 90mm in diameter, but closer to the former (thus an average weight of about 150g). In general, the slightly larger bun-shaped forms of these weights seemed to be the ones most likely to have been centrally perforated.

Two different, though not that dissimilar, clay fabrics were recognised amongst the burnt and worked clay assemblage:

Fabric 1	a light brown-buff to pinkish grey coloured silty clay with inclusions of 2-10mm angular unburnt flint within a poor flow-laminated and lumpy clay texture
Fabric 2	similar to above but more silty-sandy and also more burnt reddish in colour with occasional charcoal or ash fleck

Fabric 2 (a more reddish sandy-silty fabric) defined the dump of broken loomweight and burnt clay deposited within pit F.138, yet it was also recognised in the clay from the Collared Urn pit F.209 where it was interpreted as being the moulded clay detached from the door or window opening of a wood/wattle/daub-built dwelling. Fabric 1 (a slightly darker grey-brown clay-rich fabric) on the other hand was associated with the Late Neolithic pit/postholes F.106, F.113 and F.207 (the latter linked to the 'Durrington Walls' house). Interestingly, this same fabric was also encountered in the clay weight from the Site III barrow, as it was in the single piece of daub recovered from one of the Middle Bronze Age ditch on Site IX (<58> F.106), where it was considered to be residual.

Cat. no	Feature	Context/ SF no <>	Wt. (g)	Nos. piece	Size (mm)	Fabric type	Inclusions	WC	Notes
56	104	328	24	2	25	2			pressed cubes/ balls of daub
58	106	333	4	1	10	1			
64	113	354	4	1	20	1	charcoal?		daub
635	138	452	174	11	largest: 60x60x40 + 55x55x30	2	flint + more reddened	?	poss parts of crude loomweights or lumps daub
71a	138	571	5280	371	10-80 (av 35)	2	flint	Y	min 18 pieces show moulding to a standard bun-cylindrical-cone shape *loomweight* of 50-60mm x 50mm tall, with largest 80-90mm diam. - poss some unperforated, but one with moulded aperture of c.20mm
71b	138	571	4200	216	10-90 (av 40)	2	flint	Y	minimum 20 pieces show moulding to bun cylindrical-cone shape 50-80mm diam. *loomweight*. 3 x pieces with asymm moulded aperture of between 20-30mm diam.
91	154	508	18	1	45x30	2			pressed lump of daub
146	207	693	8	1	30x20	1	flint		daub
149	209	697	88	2	75x45x35	1	flint	Y	moulded lump of daub: either part of door frame within a wood/daub dwelling OR partly elongate unperfor *loomweight*

Table 26: Burnt and worked clay catalogue from Sites IX and XII

Faunal Remains - Vida Rajkovača

Of the assemblage with a raw count of 247 fragments weighing 935g, some 57 assessable specimens were recorded from features on Sites IX and XII. Only 17 specimens were identified as either cattle or pig. The material was highly fragmented, though there was not much erosion of the bone surface.

The zooarchaeological investigation followed the system implemented by Bournemouth University with all identifiable elements recorded (NISP: Number of Identifiable Specimens) and diagnostic zoning (amended from Dobney & Reilly 1988) used to calculate MNE (Minimum Number of Elements) from which MNI (Minimum Number of Individuals) was derived. Identification of the assemblage was undertaken with the aid of Schmid (1972), and reference material from the Cambridge Archaeological Unit. Taphonomic criteria including indications of butchery, pathology, gnawing activity and surface modifications as a result of weathering were also recorded when evident.

The majority of bone came from contexts associated with Late Neolithic (Grooved Ware) pottery. The material was typically characterised by the remains of cattle and pigs (Table 27). Cattle was identified based on mandibular elements and loose teeth, as well as a tibia and metacarpus fragment, and pig was recorded based on meat joints, represented by remains of radius, ulna, scapula and a calcaneum. A number of fine knife marks, suggestive of meat removal, recorded on a pig radius from pit F.104 ([328]), appear to have been made using a flint rather than metal blade.

Taxon	NISP			Total NISP
	Prehistoric	*Late Neolithic*	*Early/Middle Bronze Age*	
Cow	.	13	.	13
Pig	.	4	.	4
Sub-total to species	**.**	**17**	**.**	**17**
Cattle-sized	.	10	3	13
Sheep/pig-sized	1	14	.	15
Mammal n.f.i.	.	12	.	12
Total	**1**	**53**	**3**	**57**

Table 27: Number of Identified Specimens for all species from all contexts on Sites IX + XII (the abbreviation n.f.i. denotes that the specimen could not be further identified) .

Plant Macrofossil and Mollusc Remains – Val Fryer

Twenty-nine bulk environmental samples were processed and examined from twenty seven different features. One of these features (F.115) was a probable Middle Bronze Age water hole, another a probable Early Bronze Age well (F.135), three others probable Middle Bronze Age field ditches (F.117, F.121 and F.139), whilst a further fifteen consisted of either Late Neolithic or else Late Neo – Early Bronze Age pits and postholes (F.82, F.86, F.103, F.104, F.138, F.140, F.152, F.165, F.167, F.185, F.187, F.190, F.191, F.196, F.200, F.201, F.203, F.206, F.207, F.209, F.212 and F.217).

All the samples were bulk floated at the CAU and the flots collected in a 300 micron mesh sieve. The dried flots were then scanned under a binocular microscope at magnifications up to x 16 and the plant macrofossils and other remains noted are listed in Tables and . Nomenclature within the tables follows Stace (2010). Both charred and de-watered plant remains were recorded, with the latter being denoted within the tables by a lower case 'w' suffix. Modern roots, seeds and arthropod remains were also present.

Results

Although charcoal/charred wood fragments were identified within most assemblages, other plant macrofossils were exceedingly scarce. Individual charred grains of barley (*Hordeum* sp.) and wheat (*Triticum* sp.) were present within the fill of a late Neolithic pit F.203 (sample 56), whilst a wheat grain was also noted within the assemblage from the Early Bronze Age well F.135 (sample 34). The latter feature (samples 34 and 35) also included fragmentary seeds of an indeterminate small legume (Fabaceae) and goosegrass (*Galium aparine*). The only other charred seed was a single bur-reed (*Sparganium* sp.) fruit from the Late Neolithic/Early Bronze Age pit F.138 (sample 31). Small fragments of charred hazel (*Corylus avellana*) nutshell were also noted within three of the assemblages.

De-watered seeds of dry land herbs, wetland/aquatic plants and tree/shrub species were present at low density within all but one of the Middle Bronze Age features. Taxa noted include thistle (*Cirsium* sp.), silverweed (*Potentilla anserina*), black nightshade (*Solanum nigrum*), sedge (*Carex* sp.), marsh pennywort (*Hydrocotyle vulgaris*), water dropwort (*Oenanthe aquatica*), water-crowfoot (*Ranunculus* subg. *Batrachium*), bramble (*Rubus* sect. *Glandulosus*) and elderberry (*Sambucus nigra*), many of these also associated with the later Early Bronze Age well. It is unclear whether these are contemporary with the features from which the samples were taken, or were later contaminants. However, it is noted that similar remains were also recorded within some of the barrow features on Site III (Fryer 2015). As already noted, comminuted charcoal fragments were recorded within all but one of the assemblages, although rarely at a high density. Other plant macrofossils are scarce, but do include de-watered bud/bud scales, moss fronds and twigs.

Other materials were particularly scarce, although sample 38 from Middle Bronze Age ditch F.121 did include a number of 'ferrous' concretions. These are most likely to be natural in origin, being derived from soluble iron within the soil. The abraded shells of a limited range of marsh and freshwater mollusc were recorded within the assemblages from the Late Neolithic pit F.201 (sample 55) and from the Middle Bronze Age ditch F.139 (sample 51). These included the taxa *Anisus leucostoma*, *Bithynia* sp., *Lymnaea* sp., *Succinea* sp. and *Valvata cristata*.

In summary, the recovered assemblages are all extremely small (i.e. <0.1 litres in volume) and limited in composition. Although this paucity of material precludes any accurate interpretation of the assemblage, the following points may be noted:

- Although the samples were taken from a range of features including pit groups, linear ditches and a potential dwelling, there is little to suggest that the site was ever occupied for any extended period of time. Anthropogenic remains are generally scarce, and it is thought that the macrofossils recorded are all derived from a very low density of scattered refuse, much of which was probably accidentally incorporated into the feature fills.

- The few cereal grains indicate that there was some limited agricultural activity in the area during the Neolithic and also the Middle Bronze Age. However, it should be noted that individual grains will travel easily through the soil column and, therefore, those cereals recorded may be later contaminants.

  Assuming that the de-watered assemblages from the Middle Bronze Age features are contemporary, it would appear that the local environment at that time was largely dominated by rough, damp grassland. Deeper negative features were wet or semi-permanently water-filled and some appear to have been overgrown by colonising shrubs. There is little to suggest that the Bronze Age fieldsystem (if such) was ever agricultural (i.e. cultivated) in nature, and it would appear that the site was only in use for a limited time before falling into dereliction.

Since none of the assemblages contained a sufficient density of material for the purposes of quantification (i.e. 100+ specimens), no further analysis is recommended.

Sample No.	**23**	**24**	**36**	**37**	**39**	**40**	**41**	**42**	**44**	**47**	**52**	**54**
Context No.	**272**	**264**	**470**	**504**	**601**	**603**	**595**	**591**	**542**	**532**	**653**	**664**
Feature No.	**F86**	**F82**	**F140**	**F152**	**F190**	**F191**	**F187**	**F185**	**F167**	**F165**	**F196**	**F200**
Feature type	**Pit**	**Pit**	**Pit**	**Pit-LF**	**Pit**	**Pit**	**Pit**	**Pit**	**Pit**	**Pit-UF**	**Pit**	**Pit**
Date	**LN**	**LN**	**LN**	**LN**	**LN**	**LN**	**LN**	**LN**	**LN**	**LN**	**LN**	**LN**
Cereals												
Hordeum sp.(grain)												
Triticum sp. (grains)												
Cereal indet. (grains)												
Wetland/aquatic plants												
Sparganium sp.												
Tree/shrub macrofossils												
Corylus avellana L.				xcf						x		
Other plant macrofossils												
Charcoal >2mm	xxxx	xx	xxx	xxx	xxxx	xx	xx	xxxx	xxx	xxx	xx	xx
Charcoal >5mm	xx	x	xxx	x	x	x		xx	xx	x	x	x
Charcoal >10mm			x	x				x	x			
Charred root/stem			x									
Indet. seeds			x									
Other remains												
Black porous 'cokey' material		x						x				
Burnt/fired clay				x								
Ferrous concretions												
Mollusc shells												
Marsh/freshwater species												
Anisus leucostoma												
Valvata cristata			x									
Sample volume	**8**	**14**	**14**	**24**	**8**	**10**	**6**	**8**	**6**	**6**	**4**	**5**
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 28: Plant macrofossils and molluscs from bulk environmental sample analysis from Neolithic – Early Bronze Age features on Sites IX and XII.

KEY: x = 1 – 10 specimens xx = 11 – 50 specimens xxx = 51 – 100 specimens xxxx = 100+ specimens cf = compare w = de-watered fg = fragment LF/MF/UF = lower fill/middle fill/upper fill ph = post-hole P/W = pit/well

Sample No.	**55**	**62**	**65**	**26**	**27**	**31**	**56**	**59**	**67**	**58**
Context No.	**668**	**726**	**693**	**325**	**327**	**452**	**672**	**697**	**703**	**688**
Feature No.	**F201**	**F217**	**F207**	**F103**	**F104**	**F138**	**F203**	**F209**	**F212**	**F206**
Feature type	**Pit-LF**	**Pit/ph**	**Pit**	**Pit-UF**	**Pit-UF**	**Pit**	**Pit**	**Pit**	**Pit**	**Pit**
Date	**LN**	**LN**	**LN**	**LN/EBA**	**LN/EBA**	**LN/EBA**	**EBA**	**Beaker**	**Beaker**	**?**
Cereals										
Hordeum sp.(grain)							x			
Triticum sp. (grains)							x			
Cereal indet. (grains)							x			
Wetland/aquatic plants										
Sparganium sp.						x				
Tree/shrub macrofossils										
Corylus avellana L.							xcf			
Other plant macrofossils										
Charcoal >2mm	x	xx	xxxx	xxxx	x	xxxx	xxxx	xx	xx	x
Charcoal >5mm			xxxx	x		xxxx	xxxx	x		
Charcoal >10mm			x			xx	xx	x		
Charred root/stem			x				x			
Indet. seeds						x				
Other remains										
Black porous 'cokey' material							x		x	x
Burnt/fired clay										
Ferrous concretions						x				
Mollusc shells										
Marsh/freshwater species										
Anisus leucostoma	x									
Valvata cristata										
Sample volume (litres)	**4**	**4**	**7**	**1**	**4**	**16**	**12**	**10**	**4**	**10**
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 28 cont'd.

Sample No.	**30**	**34**	**35**	**38**	**50**	**51**	**29**
Context No.	**361**	**436**	**438**	**464**	**616**	**624**	**375**
Feature No.	**F115**	**F135**	**F135**	**F121**	**F139**	**F139**	**F117**
Feature type	**P/W-LF**	**P/W-MF**	**P/W-LF**	**Ditch**	**Ditch-LF**	**Ditch-LF**	**DT-MF**
Date	**MBA**	**MBA**	**MBA**	**MBA**	**MBA**	**MBA**	**?**
Cereals							
Triticum sp. (grains)		x					
Dry land herbs							
Chenopodiaceae indet.						xw	
Cirsium sp.			xw		xcfw		
Fabaceae indet.		xcf					
Galium aparine L.		xcf	x				
Potentilla anserina L.					xw	xw	
Ranunculus acris/repens/bulbosus					xw		
Rumex sp.					xw		
Solanum nigrum L.			xw			xw	
Stellaria media (L.)Vill					xw		
Torilis sp.			xwfg				
Wetland/aquatic plants							
Alisma plantago-aquatica L.						xw	
Carex sp.			xw	xw			
Hydrocotyle vulagris L.					xw		
Lycopus europaeus L.						xw	
Mentha sp.						xw	
Oenanthe aquatica (L.)Poiret					xw	xw	
Ranunculus subg. *Batrachium* (DC) A.Gray						xw	
Tree/shrub macrofossils							
Rubus sp.			xw				
R. sect. *Glandulosus* Wimmer & Grab			xxw				
Sambucus nigra L.			xw			xw	
Other plant macrofossils							
Charcoal >2mm	x	xxx		x		x	x
Charcoal >5mm		xx	x	x			
Charcoal >10mm		x					
Waterlogged root/stem		x			xxxx	xxx	
Indet. buds/scales			xxxx				
Indet. moss			xw		xw		
Indet. seeds					xw		
Indet. twigs					xw		
Other remains							
Ferrous concretions				xxx			
Ostracods						x	
Waterlogged arthropod remains						x	
Mollusc shells			x				
Marsh/freshwater species							
Anisus leucostoma							
Bithynia sp.						x	
Lymnaea sp.						x	
Succinea sp.						x	
Valvata cristata						x	
Sample volume (litres)	**10**	**6**	**10**	**4**	**6**	**4**	**4**
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 29: Plant macrofossils and molluscs from bulk environmental sample analysis from Early/Middle Bronze Age features on Sites IX and XII.

Molluscs and Microfossils – Simon Timberlake

A number of environmental samples were examined from the upper fill(s) of a putative Bronze Age NW-SE field boundary ditch (F.403) which crossed Site XII some 150m SW of the barrow. The upper peaty-silty fills of this ditch reflect the post-MBA flooding of the landscape. This may be the same event as is represented by the ponding and peat deposition just to the north of the barrow.

One bulk sample and one monolith tin were processed, sieved and picked for shells in the manner of normal environmental samples at the CAU, but the remainder of the >300 micron fraction of the flot as well as the residue(s) were then re-examined and picked to try and recover the small mollusc and microfossil evidence. A binocular microscope with x40 magnification was used to examine the smaller fractions. Standard identification texts of British Mollusca (Beedham 1972; Ellis 1972), ostracods and carophytes (Brasier 1980; Ellis & Messina 1952) were used in the recording.

Results

Fragmented de-calcified bivalve shells were hand-picked from the uppermost context ([775]) of the ditch fill. With little more than the periostracal sheath of these surviving, it was difficult to identify them with any certainty, although they appeared to be of *Unio* sp., most likely *Unio pictorum*. The minute ripple bedding within this sandy peat suggested a stronger flow regime at this level, whilst the presence of these shells with relatively few snails implies clear weed-free water conditions. The use of these field ditches as drains as well as livestock barriers was evident from the excavation of one of the junctions on the southern area, the water seemingly flowing (i.e. draining) to the northwest.

Analysis of the Bulk Sample <72> (F.403 [776]) revealed a mollusc fauna which included *Valvata piscinalis*, a snail preferring soft-flowing water conditions (the result perhaps of the mixing of hard surface water with the more acidic groundwaters issuing from springs associated with the iron-rich gravels), together with *Planorbis vortex*, *Bithynia tentaculata*, and *Lymnaea* spp.; most of the latter species associated with weed-filled slow-moving hard water bodies such as long linear drainage ditches dissecting the peat fen. Likewise the small numbers of pea-mussel (*Psidium amnicum*) were another good indication of clear flowing water.

Serial monolith sampling of the ditch fill sequence (<73> [775–776]) revealed some of the more subtle changes in water composition and ecology that took place during the open and silting-up phases of the ditch. The lower levels of this fill appeared relatively inorganic, with very little shelly material enclosed. However at 21–24cms depth this all changed, there now being good indicator species for shallow clear water (of low salinity [<5%]) containing both weeds and aquatics (an ecology suggested by the small number of carophytes as well as the freshwater ostracods *Darwinula stevensoni*, *Candona candida* and *Cypria* sp.). In addition to this were found the small molluscs such as the pea mussel and snails *Lymnaea truncatula*, *Bithynia tentaculata*, *Valvata* spp. and *Planorbis* spp. Between 14–17 cm we witness the arrival of high water levels (i.e. flood conditions) which is suggested by the increase in aquatic vegetation (i.e. a gradual rise in carophytes) and weeds (the weed-loving snails *Valvata cristata* and *Lymnaea* species). However, between 7–10 cms the change is greater still, with considerably more evidence for the aquatic plants (350 carophytes counted within just 33g of residue), for weed-loving snail species, and for the presence of clear flowing water. The abundant recovery of ostracods and carophytes at this level confirms the dominance of slightly alkaline oligohaline freshwater conditions typical of the fenland water courses, but also of softer (though not brackish) water mixing.

The ecology of this ditch/ watercourse is not that dissimilar from the point-location sampled adjacent to the Site III barrow; thus this could represent the very same event of fenland flooding and encroachment occurring during the later Bronze Age.

Type	Context	Fraction	Wt (g) / smpl	Snails	Bivalve	Ostracod	Carop	Salinity/ Envirom
MBA ditch	**775/ 776**	hand collected snails			*Unio* sp. (*Unio pictorum ?)*			slow-moving freshwater in large ditches (not small ponds)
	776	2-4mm	2	*V.?piscinalis* 4 *Planorbis* sp12 *P. planorbis* *L. peregra*	*Psidium amnicum* x4			hard and soft flowing water (flood changes)
		>300um	16 (4)	*V.piscinalis* x3; *L. peregra* x2; *L. truncatula*; *P. planorbis*; *P. vortex* (x10)	*Psidium* sp			ditto
		residue	176 (8)	*B. tentaculata* (operculii) x2; *Planorbis* sp.; *P. planorbis*; *P. vortex*; *V. piscinalis*	*Psidium amnicum* x2			ditto

Table 30: Mollusc and microfossil sampling of bulk Sample <72> (F.403), Site XII.

Context	Slice (cm)	Fraction	Wt (g) / smpl	Snails	Bivalve	Ostracod	Carophyte	Salinity/ Envirom
775	**7–10**	>1mm	18	*L.palustris* ; *Lymnaea* x2; *Valvata* sp. 1; *V.cristata* x3; *B.tentacula* (operculii) x9	*Psidium amnicum* x8	*Darwinula stevensoni*; *Cypria* sp. x3	x130 (2 sp incl. *C.hispeda*)	slow-moving freshwater which is more vegetation rich with occ softer water influx
		>300 um	40 (15)	*B.tentacul*; *Bythnia* sp (operculii) x5	*P. amnicum*		x217	
776	**14–17**	>1mm	38	*V. piscinalis*; *V. cristata* x4; *L. truncatula*; *Lymnaea* sp; *B.tentaculata*; *Planorbis* sp	*P. amnicum*			flooded conditions, less vegetation
		>300um	74 (9)	*L.peregra*; *Lymnaea* sp; *Valvata cristata*			*C.hispeda* x60	
776	**21–24**	>1mm	72	gastropod frags (unid) x12 *Lymnaea* sp.; *L. truncatula* ; *Planorbis* sp x3; *P.alba*; *Bythnia* sp (operculii) x2; *V. cristata*	bivalve shell frag	*Candona candida*	x5	slow flowing hard freshwater oligohaline < 5‰ salinity with some vegetation
		>300um	38 (8)	gastropod frag (unid)x4; *Planorbis* sp x3; *L. truncatula* x2; *V. piscinalis*;	*P. pseud sphaerm*	*Cyprid sp* ; *D. stevensoni*	x20	

Table 31: Mollusc and microfossil sampling of Monolith <73> (F.403), Site XII.

Pollen Analysis – Steve Boreham

This report presents the results of assessment pollen analyses from 11 sub-samples of sediment taken during the excavations. Four separate features were investigated during this study; a presumed Early/Middle Bronze Age pit-well (F.135), a presumed Middle Bronze Age field boundary ditch (F.403), the outer (secondary) ditch of a barrow (F.410) and the adjacent tertiary ditch of the barrow (F.411).

Pit-well F.135

The pit-well was sampled using two 50cm contiguous monolith tins <33> & <32>, representing the basal and upper parts of the sequence.

In Sample <33> the basal context (0 to 12cm) [440] comprised a dark brown organic silty clay was sub-sampled for pollen at 6cm. The next context (12–29cm) [438] was an oxidised orange brown sandy silt/silty sand with flint pebbles with poor pollen preservation potential. The third context (29–42cm) [437] comprised a dark grey silt with a little sand with flint chips and charcoal. It was sub-sampled for pollen at 35cm. There was a sharp boundary with the overlying context (42–50cm) [436], which comprised an oxidised orange brown slightly sandy silty clay with poor pollen preservation potential.

In Sample <32> the lower context (0–20cm) [435] was a grey brown sandy silt with flint pebbles and occasional flecks of charcoal, which was sub-sampled for pollen at 10cm. There was an inclined contact with the overlying context 20 to 30cm [434], which comprised an oxidised orange silty sand with flint chips with poor pollen preservation potential.

Ditch F.403

The field-boundary ditch was sampled using a 30cm monolith tin <61> that encompassed a single context [712] decribed as the 'lower peat'. The monolith showed three horizons. The basal interval 0–10cm comprised a soft grey brown organic silty clay that was sub-sampled for pollen at 5cm. Above this, the interval 10–21cm comprised soft brown to oxidised orange organic silty clay, which was sub-sampled for pollen at 15cm. At the top of the sequence (21–30cm) the sediment comprised a firm grey silty clay with some organic remains including rootlets, which was sub-sampled for pollen at 25cm.

Ditch F.410

The outer barrow ditch was sampled using a single 50cm monolith tin <131>. The basal part of this sequence (0–1cm) comprised a grey medium sand. Above this (1–26cm) [1080] was a grey stiff sandy clay with pebbles, which was sub-sampled for pollen at 15cm. Overlying this (26–33cm) [1079] was a grey silty sand and gravel with poor pollen preservation potential. The final context 33–50 cm [1078] was a stiff grey brown silty clay with occasional pebbles sub-sampled for pollen at 40cm.

Ditch F.411

The middle barrow ditch, adjacent to the outer barrow ditch, was sampled using two 50cm overlapping monolith tins <119> & <118>, representing the basal and upper parts of the sequence.

In Sample <119> the basal part of the sequence (0–2cm) comprised orange brown medium sand and gravel. The basal context (2–32cm) [1085] comprised a stiff grey brown slightly organic silty clay. It was sub-sampled for pollen at 15cm. The next context (32–50cm) [1084] was a grey black very organic silty clay with occasional pebbles and was sub-sampled at 40cm for pollen.

Sample <118> overlapped with the top of <119> by 10cm. The basal context (0–10cm) [1084] was the same grey black very organic silt with pebbles previously described from <119>. The next context (10–30cm) [1076] comprised a grey brown and partly-oxidised orange mottled silty clay with pebbles and

some organic inclusions, which was sub-sampled for pollen at 15cm. Above this the interval 30–39cm [1075] comprised an oxidised orange brown silty clay with small pebbles and flint chips with poor pollen preservation potential. The upper horizon (39–50cm) [1075] comprised a dark grey silty sand with occasional pebbles with poor pollen preservation potential.

The 11 sub-samples of sediment from the monoliths were prepared using the standard hydrofluoric acid technique, and counted for pollen using a high-power stereo microscope. The percentage pollen data from these samples is presented in Appendix 3.

Three pollen sub-samples (<131> 15cm and 40cm, <119> 40cm) contained no countable pollen and consequently had concentrations below 1052 grains per ml. The two samples from the outer barrow ditch <131> showed some signs of oxidation and had been assessed as having only moderate pollen preservation potential. The real surprise here is the sample of very organic silty clay from the middle barrow ditch <119>, which was assessed as having good pollen preservation potential and must have suffered intense oxidation in order to render it barren.

The pollen concentrations encountered in the remaining eight sub-samples ranged between 21,373 and 62,261 grains per ml. Some samples contained a lot of finely divided organic debris, which made pollen counting difficult for these slides, but preservation of the fossil pollen grains (palynomorphs) was in general quite good. Assessment pollen counts were made from a single slide. The pollen sums achieved (total land pollen and spores) ranged between 50 and 148. These counts do not exceed the statistically desirable total of 300 pollen grains main sum and as a consequence caution must be employed during the interpretation of these results.

<33> F.135 – 6cm [440] (pit-well)

The basal sub-sample from the pit-well was dominated by grass pollen (Poaceae) (15.9%), oak pollen (*Quercus*) 14.3%), undifferentiated fern spores (14.2%) and hazel pollen (*Corylus*) (11.1%). These were accompanied by a range of herbs including members of the lettuce family (Asteraceae [Lactuceae]; 6.3%), members of the cabbage family (Brassicaceae; 4.8%), dock (*Rumex*; 3.2%) and sedges (Cyperaceae; 3.2%). Other arboreal taxa included alder (*Alnus*; 6.3%), ivy (*Hedera*; 3.2%), ash (*Fraxinus*; 3.2%), pine (*Pinus*; 3.2%), juniper (*Juniperus*; 1.6%) and birch (*Betula*; 1.6%). Obligate aquatic plants were represented by the fringing emergent bur-reed (*Sparganium*; 1.6%).

<33> F.135 – 35cm [437] (pit-well)

The middle sub-sample from the pit-well was dominated by grass pollen (Poaceae) (18%), undifferentiated fern spores (16%), alder pollen (*Alnus*; 12%), hazel pollen (*Corylus*; 10%) and sedges (Cyperaceae; 10%). There was a range of herbs present including members of the lettuce family (Asteraceae (Lactuceae)) (8%), members of the cabbage family (Brassicaceae; 2%) and dock (*Rumex*; 2%). Other arboreal taxa included oak (*Quercus*; 6%), pine (*Pinus*; 4%), ash (*Fraxinus*; 2%) and willow (*Salix*; 2%). Obligate aquatic plants were represented by the fringing emergent bur-reed (*Sparganium*; 4%).

<32> F.135 – 10cm [435] (pit-well)

The upper sub-sample from the pit-well was dominated by grass pollen (Poaceae; 29.7%), undifferentiated fern spores (20.1%), and sedge pollen (Cyperaceae; 12.5%) with a limited range of herbs including members of the lettuce family (Asteraceae [Lactuceae]; 4.7%) and members of the fat-hen family (Chenopodiaceae; 3.1%). Arboreal taxa included alder (*Alnus*; 9.4%), hazel (*Corylus*; 7.8%), oak (*Quercus*; 4.7%), pine (*Pinus; 1.6%*) and lime (*Tilia*; 1.6%). No obligate aquatic plants were detected in this sub-sample.

<61> F403 – 5cm [712] (field boundary ditch)

The lower sub-sample from the field boundary ditch was dominated by alder pollen (*Alnus*; 29.5%), grass pollen (Poaceae; 15.2%) and undifferentiated fern spores (12.5%). There was a range of herbs present including members of the lettuce family (Asteraceae [Lactuceae]; 5.4%) and members of the lily family (Liliaceae; 3.6%). Cereal pollen was present at 7.1%. Other arboreal taxa included hazel (*Corylus*; 8%), juniper (*Juniperus*; 4.5%) and oak (*Quercus*; 0.9%). Spores of the polypody fern were present at 0.9% and obligate aquatic plants were represented by bur-reed (*Sparganium*; 9.8%).

<61> F403 – 15cm [712] (field boundary ditch)

The middle sub-sample from the field boundary ditch was dominated by grass pollen (Poaceae) (16.2%), undifferentiated fern spores (16.2%) and sedge (Cyperaceae) pollen (12.2%). A broad range of herbs was present including members of the lily family (Liliaceae) (7.4%), the disturbance indicator ribwort plantain (*Plantago lanceolata*) (3.4%) and members of the lettuce family (Asteraceae (Lactuceae)) (2.7%). Cereal pollen was present at 7.4%. Arboreal taxa included alder (*Alnus*) (9.5%), hazel (*Corylus*) (5.4%), juniper (*Juniperus*) (2.7%), pine (*Pinus*) (1.4%) and oak (*Quercus*) (0.7%). Obligate aquatic plants were represented by water mil-foil (*Myriophyllum*) (0.7%) and bur-reed (*Sparganium*) (7.4%).

<61> F403 – 25cm [712] (field boundary ditch)

The basal sub-sample from the field boundary ditch was dominated by grass pollen (Poaceae; 21.8%), undifferentiated fern spores (17.6%) and sedge (Cyperaceae) pollen (12.7%). A range of herbs was present including members of the lily family (Liliaceae; 5.6%), buttercup (Ranunculus; 2.8%), members of the fat-hen family (Chenopodiaceae; 2.8%) and members of the bean family (Fabaceae; 2.8%). Cereal pollen was present at 5.6%. Arboreal taxa included alder (*Alnus*; 5.6%), juniper (*Juniperus*; 1.4%), pine (*Pinus*; 1.4%) and oak (*Quercus*; 1.4%), and willow (Salix; 0.7%), hazel (*Corylus*; 0.7%), birch (*Betula*; 0.7%) and lime (*Tilia*; 0.7%). Spores of the polypody fern were present at 1.4%, and horse-tail (*Equisetum*) and royal-fern (*Osmunda*) spores were both present at 0.7%. Obligate aquatic plants were represented by bur-reed (*Sparganium*) (9.2%).

<119> – 15cm [1085] tertiary barrow ditch

The basal sub-sample from the middle barrow ditch was dominated by undifferentiated fern spores (20.8%) and grass (Poaceae) pollen (18.9%). A range of herbs was present including members of the lettuce family (Asteraceae [Lactuceae]; 9.4%), sedges (Cyperaceae; 5.7%), members of the lily family (Liliaceae; 3.8%) and members of the pink family (Caryophyllaceae; 3.8%). Cereal pollen was present at 3.8%. Arboreal taxa included alder (*Alnus*; 7.5%), pine (*Pinus*; 5.7%), hazel (*Corylus*; 3.8%), oak (*Quercus*; 1.9%) and birch (*Betula*; 1.9%). Obligate aquatic plants were represented by bur-reed (*Sparganium*; 11.3%).

<118> – 15cm [1076] tertiary barrow ditch

The upper sub-sample from the middle barrow ditch was dominated by grass (Poaceae) pollen (29.3%), undifferentiated fern spores (15.5%) and alder pollen (*Alnus*; 12.9%). A range of herbs was present including sedges (Cyperaceae; 5.2%), members of the cabbage family (Brassicaceae; 5.2%) and members of the fat-hen family (Chenopodiaceae; 3.4%). Cereal pollen was present at just 0.9%. Arboreal taxa included hazel (*Corylus*; 7.8%), pine (*Pinus*; 3.4%), oak (*Quercus*; 1.7%) and juniper (Juniperus; 1.7%), and ivy (*Hedera*; 0.9%), ash (*Fraxinus*; 0.9%), lime (*Tilia*; 0.9%) and birch (*Betula*; 0.9%). Obligate aquatic plants were represented by bur-reed (*Sparganium*; 6.9%) and reed-mace (Typha; 1.7%).

The three sub-samples from the pit-well (F.135) describe a landscape with a patchwork of mixed-oak woodland, alder carr (wet woodland), sedge swamp and meadows with tall herb and riparian communities. There is little or no evidence of eutrophication, soil disturbance or arable activity in these pollen spectra. Some aspects of the local wetland signal appear to increase through the sequence. The relatively low pollen concentrations and the elevated proportion of undifferentiated fern spores and Asteraceae pollen in the sub-samples causes some concern in that they may suggest oxidative post-depositional modification of the pollen signal. For this reason care must be exercised during this interpretation. However, these pollen assemblages are not typical of a fully post-clearance landscape and resemble those from the early-mid Bronze Age elsewhere in southern England.

In contrast, the three sub-samples from the field boundary ditch (F.403) derive from a post-clearance landscape with pronounced arable activity and soil disturbance. Whilst alder carr and hazel/juniper scrub form an important part of the countryside, the evidence for mixed-oak woodland is tenuous at best and more likely represents trees in fields, hedgerows and distance copses. However, the upper sub-sample (25cm) contains polypody fern and royal fern spores associated with woodland, or at least the presence of large trees. The basal sample (5cm) is dominated by alder pollen suggesting that wet woodland grew at or near the site. Towards the top of the sequence the wetland signal is replaced by sedges and by the emergent aquatic bur-reed, which may suggest progressively rising water tables. On drier land the pollen signal must represent a landscape of mixed pastoral and arable agriculture. The elevated proportion of undifferentiated fern spores may suggest that some degradation of the pollen signal has occurred, although this does not seem to be reflected in the pollen concentration or a commensurate rise in the proportion of the Asteraceae. This pollen assemblage seems most likely to be associated with the later Bronze Age or Iron Age.

The two sub-samples from the middle barrow ditch in some respects appear to be intermediate between the pollen assemblages seen in the pit-well and field boundary ditch. The common theme throughout all of the OVE15 samples is the presence of alder carr. Superimposed on this is a weak mixed-oak woodland signal and the presence of some cereal pollen, but little or no evidence of soil disturbance. There is some emergent vegetation and sedges, but little sign of radically changing edaphic conditions. The pollen assemblages suggest a landscape with a mosaic of wet woodland, dry woodland fragments, meadows and more distant arable agriculture. Again, there is the possible problem of abundant undifferentiated fern spores and Asteraceae pollen suggesting post-depositional changes to the pollen signal. This post-clearance pollen assemblage may date from the mid to late Bronze Age, although it could easily be a little earlier or later, depending on variations in local conditions.

Taken together, these pollen analyses show various stages in the gradual clearance of woodland and the adoption of widespread pastoral and arable activity. Wetland environments were never far away, although there is scant evidence for large expanses of open water. There is also very little evidence for saltmarsh or intertidal conditions, for example elevated from Chenopodiaceae pollen, in these sub-samples. Both the pit-well and the field boundary ditch were presumed to be Middle Bronze Age, but they have produced different pollen assemblages that strongly suggest the pit-well is somewhat earlier. It is tempting to place the middle barrow ditch as intermediate in

age between the 'older' pit-well and the 'younger' field boundary ditch, although it is important to remember that these are assessment pollen counts where some evidence for post-depositional signal modification exists, and as such should not be over-interpreted.

Discussion

Although the archaeology within the two areas investigated can by no means be considered particularly dense, their findings provide major insights concerning this low terrace's prehistoric land-use. It would have to be said, moreover, that the recovered features largely correlate with the test point artefact sampling results (Tabor & Evans 2013, Fig. 20). While the latter's values were, for the most part, relatively low, the higher-value distributions generally correlate to those swathes where greater feature densities were encountered, with the greatest intensity being in Site IX in the south.

Amongst the most extraordinary findings of the excavation is a matter of negative evidence: *the marked paucity of any pre-Late Neolithic material*. Indeed, as stressed by Billington, from the non-barrow contexts only one flint of probable Early Neolithic date was recovered – a bladelet from the Middle Bronze Age ditch F.136 – and no 'Early' pottery whatsoever. The complete absence of Mesolithic material is just as surprising, but some explanation for this can be sought in the number and extent of the scatters of that date upon *The Over Narrows*' light sandy ridges (Evans *et al*. 2014). Yet, there was only very little indication of Early Neolithic activity upon those ridges and here, at the current site, close by Willingham Mere's low basin and the Upper Delphs great causewayed enclosure, there was essentially none (and which makes the unexpectedly early date of Site III's oval barrow's interment all the more surprising). While corresponding with the results of the area's evaluation, this is something without obvious explanation at this time. This being said, it needs to be stressed that no further buried soil sampling was conducted as part of the programme (aside from the excavation of the barrows' mounds; i.e. as redeposited). If, therefore, any Mesolithic/Early Neolithic activity only here occurred as 'open' scatters (i.e. without features), then it would not be recovered. Yet, had such activity been substantive, one might then expect more of their finds to have occurred residually in later features.

In a similar manner, given that the Site III round barrow-phase (and cremations) must relate to Collared Urn activity (and some such pottery was forthcoming from its ditch), it is noteworthy just how little such attributed material registered in the surrounding area; this, again, being in contrast to *The Narrows*' Ridges (Evans *et al*. 2014 and forthcoming).

The recovery of the Grooved Ware-associated building, Structure 1, is certainly significant and it adds an important new entry into the project's series of such structures. While, as outlined above, having distinct parallels with the recently excavated buildings of that date and type at Durrington Walls itself, it differs from the previously found Over examples (Sites 2 & 3; Evans *et al*. forthcoming) that rather were more sub-rectangular shed-like settings; whereas, in this case, wall-line slots actually survived and it seems of sub-square/ovoid form. As to the structure's dating

(SUERC-66982: 2896–2678 cal. BC), it admittedly is based on only an inferential linkage between it and the nearby F.207 pit; however, the joining burnt cow's tooth-portions shared between them does seem genuine and, therefore, this is solid basis of association.

Of the sites' other Grooved Ware-attributed clusters, as indicated, the quasi-circular arrangement of Cluster 1's setting could suggest that its pits may have occurred in relationship to still another building. Yet, the frequency of any associated finds was so low/localised that this possible interpretation must remain highly tentative. On the other hand, the finds recovered from the contemporary Cluster 2, in the southeast of Site IX, were far more consistent between its features. What is relevant in its case is the immediate proximity of the subsequent Beaker Clusters 3–5. Occurring across an area of *c*. 1500sqm – like the O'Connell Ridge's Number 10, 11, 14 and 15 'packed' multi-period clusters (Evans *et al*. forthcoming) – this could attest to successive short-lived occupation within a maintained/expanded woodland clearing. (Of the Beaker pit clusters, the finds density was low with relatively little pottery occurring in any of their features; only one pit – F.167 in Cluster 4 – had more than six such sherds: 39.) Otherwise, three isolated Grooved Ware-associated pits occurred across Site IX, with 'pit pairs' occurring both there and at Site XII exposures. In addition, F.152, located in the southeast of Site IX is of interest as, apart from its 50 sherds of Clacton-style pottery, it appears to represent an isolated cooking pit.

Unfortunately, insufficient dating evidence was forthcoming to assign the various short post alignments with any certainty (PA 1–4, plus that exposed within the diversion ditch-line east of Site IX and another found beside the Site III barrow). Though in some instances their alignments were complimentary to the fieldsystem (PA 1 & 4), in one instance – PA 3 – the post-line was actually truncated by a Middle Bronze Age boundary. On the whole, therefore, it is probably appropriate to generically assign them to the Late Neolithic/Early Bronze Age – and, as such, they may be compared to those exposed on Must Farm's raised terrace (e.g. Knight & Murrell 2011) – while still acknowledging that some might be of somewhat later, Middle Bronze Age date.

Although thus far only a very small portion of the area's Middle Bronze Age fieldsystem has been investigated, based on the exposures to date the main F.403 boundary crossing Site XII seems likely to have marked its northern limits. The system, moreover, clearly becomes more elaborated and sub-divides towards the south (i.e. Site IX). What is, though, somewhat surprising is that its main axes appear to be those northwest–southeast oriented, as expressed by F.403's line and that, in the south (based on both the evaluation and diversion ditch results), ditch F.87 continues for more than 60m eastward beyond Site IX's edge of excavation. In this, given the 'lie of the land' and its southwest down to northeast gradient, one might have expected that orientation to dominate. It would, moreover, appear that this system has little expression within the fan-like arrangement of cropmarks plotted north of Willingham proper (see Figure 1) and which, therefore, are more likely to be largely of Romano-British date. Also worth mentioning is that, akin to that at the Barleycroft Paddocks Sub-site (Evans & Knight 2000), the Middle Bronze Age field boundaries seems a very 'big-scale' system, with there being a *c*. 80m-wide interval between its northwest–southeast ditches within Site IX (F.69, F.131/106/184 & F.116/117).

With the achieved pollen samples generally indicative of a 'mosaic landscape' (with sustained/strong alder carr values), amongst the fieldwork's most intriguing findings is its evidence of cereals. Interestingly, there was no such register within F.135's earlier Bronze Age pit-well, but which, by its very nature, must relate to either the immediate presence of settlement or, more probably, livestock watering. By way of contrast, the F.403 boundary ditch of 'Middle-period' date had between 5.6 and 7.4% cereal pollen. Lying so low in the landscape – at just *c*. 0.50m OD – the latter was unexpected, but then its arable signal only registered, and its pollen survived, because of the area's increasingly damp conditions. Confirmation of this activity is furthermore shown by the Site III barrow's tertiary-phase ditch; with its basal sample having 3.8% cereal pollen, this could even attest to the occurrence of arable some centuries earlier.

That there was little direct evidence of the proximity of the Mere's lake-beds must essentially reflect that its main formation (apart from localised deeper pools) evidently occurred during the first millennium BC. By inference, its only obvious representation could be the bird bones recovered from the barrows' mounds, particularly the crane. In this regard, the concentration of the latter – along with the perforated clay ball (possibly net-related) – might attest to fowling and, in which case, during the later Bronze/Iron Ages the earlier monument might then have served as an elevated marsh-fast 'procurement station', as was true, for example, of the Haddenham Project's Hermitage Farm barrow (Evans & Hodder 2006b). That said, given the bird bone, it will be crucial to radiocarbon date both it and the mound's loose human remains in case they together related to first millennium BC ritual activity akin to that at the western end of *The Narrows*' Godwin Ridge (Evans 2013).

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Appendix 1

Feature List Assessment, Sites IX and XII (finds categories and samples)

Feature/ SF <>	**Type/ date of feature**	**Cont.**	**Pot**	**Flint**	**Worked stone**	**BS/ BF**	**BC**	**Animal bone**	**Enviro sample**	**Charcoal for C14** (C+W)
82	LNeo (DW + CL) pit	264	(4)	(1)						C
86	LNeo	272		(1)					x	
103	LNeo? ph	325		(6)					x	C
104	LNeo	328		(2)			(2)	(3)	x	C
105	LNeo	330		(5)					x	
106	MBA ditch	333				(1)				
107	L Neo/ EB pit	337		(1)						
111	Neo (CL)	350	(1)							
112	ph	352						(1)		x post
113	pit	354		(3)	x anvil/ mortar	(2)		(1)		
115	MBA well?	359						(2)	x	x wood C
116	MBA ditch	317		(1)						
121	MBA ditch	389		(1)						
135	MBA waterh	436						(1)	x	x wood C
136	MBA ditch	427		(3)				(1)		
138	L Neo/ EB pit	571					(1000)		x	x C
139	MBA ditch	459		(2)						C
	MBA ditch	620					(2)		x	x wood
140	L.Neo (DW) pit	470	(100)	(5)	x quern	(1)		(12)	x	C
141	LNeo	472		(1)						
144	LNeo	478				(10				
152	L Neo (CL)	503	(50)	(2)		(14		(2)	x	x 'hay'? hazelnut
153	Beaker (F+Ru)	506	(2)					(1)		
154		508					(1)			
163	LNeo	526		(4)						
164	EBA Collar Urn?	530	(6)			(1)	(1)		(6)	
165	L Neo (DW)	532	(5)	(3)				(22)	x	C
166	"	539							x	
167	Beaker? pit	542	(30)	(3)		(3)	(3)	(3)	x	C
168	LNeo?	545		(1)					x	
185	L Neo (DW?)	591	(26)			(42 Cu?			x	x wood C
186	L Neo (GW?)	593	(3)	(4)				(10)	x	
187	L Neo (DW)	595	(3)			(6)		(29)	x	C
190	"	601							x	C
191	L Neo (DW)	603	(70)	(1)				(14)	x	C
195	Beaker (fine) pit	651	(3)	(1)					x	
196	Beaker (Rus?)	653	(4)	(3)					x	C
200	L.Neo (DW) pit	664	(1)					(5)	x	C
201	"	668		(1)		(4)		(10)	x	C
202	"	670						(40)		
203	L Neo (DW)	672	(36)	(3)		(5)			x	C hazelnut
204	L Neo (CL)	674	(2)			(7)			x	
206	L.Neo (CL) pit	688	(6)	(14)	(1) stone axe	(6)		(1) cow tooth (link F.207?)	x	
207	L.Neo pit/ph	693		(6)		(9)	(1)	(2) cow tooth + calc bone	x	C

208	L.Neo ph	695							x	
209	EBA Collar Urn pit	697	(55)				(2)			C
209	"	724		(8)					x hazel nut	x charc
210	BK?	699		(1)					x	
212	L Neo (CL)	703	(4)	(6)		(10			x	C
<SF 8>	"							(1)		
214	L.Neo ph	708		(2)		(5)				
217	"	726							x	C
218	"	728		(1)						
219	"	730							x	
225	"	744								
240	Beaker (Rust) pit	797	(1)							
242	prehist	804					x			
403	MBA ditch	712 + 774 etc							x	
<SF 1>								(1)		
<SF 2>				(1)						
<SF 3>				(1)						
<SF 4>				(1)						
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<SF 7>				(1)						
<SF 9>				(1)						
<SF 10				(2)						
<SF 11				(2)						

Appendix 2

Flint Assemblage

Feature	Type	Spot date	Irregular waste	Flake	Narrow flake	Blade	Bladelet	Blade like flake	End scraper	Side scraper	Thumbnail scraper	End and side scraper	Horseshoe scraper	Other scraper	Chisel arrowhead	Retouched flake	Serrated piece	Multiple platform flake core	Levallois like core	Minimally worked core	Core on flake	Total worked	Unworked burnt flint (no.)	Unworked burnt flint (g)
82	pit	LN	1																			**1**		
86	pit	LN													1							**1**		
104	pit	LN		1													1					**2**		
105	pit	LN		2													1					**3**		
107	pit	LN/ EBA		1																		**1**		
113	pit	?		3																		**3**		
116	ditch	MBA						1														**1**		
121	ditch	MBA									1											**1**		
136	ditch	MBA		2			1															**3**		
139	ditch	MBA		2																		**2**		
140	pit	LN		3												1						**4**		
141	pit	LN						1														**1**		
144	pit	LN																					7	34.8
152	pit	LN	2	21	1			3	1				1						1		1	**31**		
163	pit	LN		3												1						**4**		
165	pit	LN		2									1									**3**		
167	pit	LN		2					1													**3**		
168	pit	LN				1																**1**		
185	pit	LN	1	3																		**4**	29	211.5
186	pit	LN		3	1																	**4**		
187	pit	LN																					2	93.8
191	pit	LN		1																		**1**		
195	pit	LN								1												**1**		
196	pit	LN		2		1																**3**		
201	pit	CU																					1	4.5
203	pit	CU		1								1				1						**3**	4	43.5
206	pit	LN		9		1			1				1			1						**13**		
207	pit	LN		4	1																	**5**		
209	pit	CU		6																1		**7**	1	6.3
210	pit	?		1																		**1**		
212	pit	LN		6																		**6**		
214	pit	LN												1								**1**		
218	pit	LN		1																		**1**		
Surface finds				5			2						1			1		1				**10**		
Grand Total			**4**	**84**	**3**	**3**	**3**	**5**	**3**	**1**	**1**	**1**	**4**	**1**	**1**	**5**	**2**	**1**	**1**	**1**	**1**	**125**	**44**	**394.4**

Appendix 3: Pollen

	MBA pit - well			MBA field boundary ditch			Outer barrow ditch		Middle barrow ditch		
Sample	33	33	32	61	61	61	131	131	119	119	118
Feature	135		135	403	403	403	410	410	411	411	411
Context	440	437	435	712	712	712	1080	1078	1085	1084	1076
Pollen sub-sample	6cm	35cm	10cm	5cm	15cm	25cm	15cm	40cm	15cm	40cm	15cm
Trees & Shrubs											
Betula	1.6	0.0	0.0	0.0	0.0	0.7			1.9		0.9
Pinus	3.2	4.0	1.6	0.0	1.4	1.4			5.7		3.4
Quercus	14.3	6.0	4.7	0.9	0.7	1.4			1.9		1.7
Tilia	0.0	0.0	1.6	0.0	0.0	0.7			0.0		0.9
Alnus	6.3	12.0	9.4	29.5	9.5	5.6			7.5		12.9
Fraxinus	3.2	2.0	0.0	0.0	0.0	0.0			0.0		0.9
Corylus	11.1	10.0	7.8	8.0	5.4	0.7			3.8		7.8
Salix	0.0	2.0	0.0	0.0	0.0	0.7			0.0		0.0
Juniperus	1.6	0.0	0.0	4.5	2.7	1.4			0.0		1.7
Hedera	3.2	0.0	0.0	0.0	0.0	0.0			0.0		0.9
Herbs											
Poaceae	15.9	18.0	29.7	15.2	16.2	21.8			18.9		29.3
Cereals	0.0	0.0	0.0	7.1	7.4	5.6			3.8		0.9
Cyperaceae	3.2	10.0	12.5	2.7	12.2	12.7			5.7		5.2
Asteraceae (Asteroidea/Cardueae) undif.	1.6	2.0	0.0	2.7	1.4	1.4			1.9		0.0
Asteraceae (Lactuceae) undif.	6.3	8.0	4.7	5.4	2.7	2.1			9.4		2.6
Artemisia type	0.0	2.0	0.0	0.9	0.7	0.0			0.0		0.0
Cirsium type	1.6	0.0	0.0	0.0	0.0	0.0			0.0		0.0
Centaurea nigra type	1.6	0.0	0.0	0.0	0.7	1.4			0.0		0.9
Caryophyllaceae	0.0	0.0	1.6	0.0	1.4	0.7			3.8		0.0
Chenopodiaceae	1.6	2.0	3.1	1.8	1.4	2.8			1.9		3.4
Brassicaceae	4.8	2.0	1.6	0.9	2.0	1.4			1.9		5.2
Fabaceae	0.0	0.0	0.0	0.0	1.4	2.8			0.0		1.7
Filipendula	0.0	0.0	0.0	0.0	0.7	0.7			0.0		0.9
Helianthemum	0.0	0.0	0.0	0.0	0.0	0.0			1.9		0.0
Lamiaceae	0.0	2.0	0.0	0.0	0.0	0.0			0.0		0.9
Plantago lanceolata	0.0	0.0	0.0	0.9	3.4	2.1	*barren*	*barren*	0.0	*barren*	0.0
Ranunculus type	0.0	0.0	1.6	1.8	1.4	2.8			1.9		0.0
Rumex	3.2	2.0	0.0	0.9	2.0	1.4			1.9		1.7
Apiaceae	1.6	0.0	0.0	0.0	1.4	0.7			1.9		0.0
Liliaceae	0.0	0.0	0.0	3.6	7.4	5.6			3.8		0.0
Veronica type	0.0	0.0	0.0	0.0	0.7	0.7			0.0		0.9
Lower plants											
Equisetum	0.0	0.0	0.0	0.0	0.0	0.7			0.0		0.0
Osmunda	0.0	0.0	0.0	0.0	0.0	0.7			0.0		0.0
Polypodium	0.0	0.0	0.0	0.9	0.0	1.4			0.0		0.0
Pteropsida (monolete) undif.	7.9	10.0	10.9	9.8	13.5	15.5			13.2		10.3
Pteropsida (trilete) undif.	6.3	6.0	9.4	2.7	2.7	2.1			7.5		5.2
Aquatics											
Myriophyllum verticillatum	0.0	0.0	0.0	0.0	0.7	0.0			0.0		0.0
Sparganium type	1.6	4.0	0.0	9.8	7.4	9.2			11.3		6.9
Typha latifolia	0.0	0.0	0.0	0.0	0.0	0.0			0.0		1.7
Sum trees	28.6	24.0	17.2	30.4	11.5	9.9			17.0		20.7
Sum shrubs	15.9	12.0	7.8	12.5	8.1	2.8			3.8		10.3
Sum herbs	41.3	48.0	54.7	43.8	64.2	66.9			58.5		53.4
Sum spores	14.3	16.0	20.3	13.4	16.2	19.7			20.8		15.5
Main Sum	63	50	64	112	148	142			53		116
Concentration (grains per ml)	21373	29214	25888	58895	62261	55312	<1052	<1052	22296	<1052	53042

Appendices 4 and 5: **Soil Micromorphology**

Detailed Soil Micromorphological Descriptions (App. 4)

Profile 1

Sample 1/1

Two fabric units: Upper fabric unit (29-33.5cm): *Structure*: apedal; porphyric; *Porosity*: up to 25% vughs, <750um, sub-rounded; rare (<1%) channel, <1cm long, <500um wide, accommodated, smooth to weakly serrated; *Mineral components*: <20% stone, <1cm, sub-rounded; c/f ratio: 30/70; coarse fraction: 10% medium and 20% fine quartz sand, 100-750um, sub-rounded; fine fraction: 30% very fine quartz sand, 50-100um, sub-rounded; 15% micrite; 25% dusty clay, weak birefringence, impregnated with amorphous sesquioxides; yellowish/reddish brown (PPL), yellowish brown/dark reddish brown (CPL); *Organic components*: 5% very fine charcoal/organic punctuations, <75um; *Amorphous*: occasional (2%) sesquioxide nodule, <1mm, sub-rounded; undulating but clear boundary with Lower fabric unit (33.5-38.5cm): as for fabric above, except: 20% large stones, <3cm, sub-rounded; up to 50% of groundmass strongly rubified with amorphous sequioxides; and 50% of void space filled with calcium carbonate.

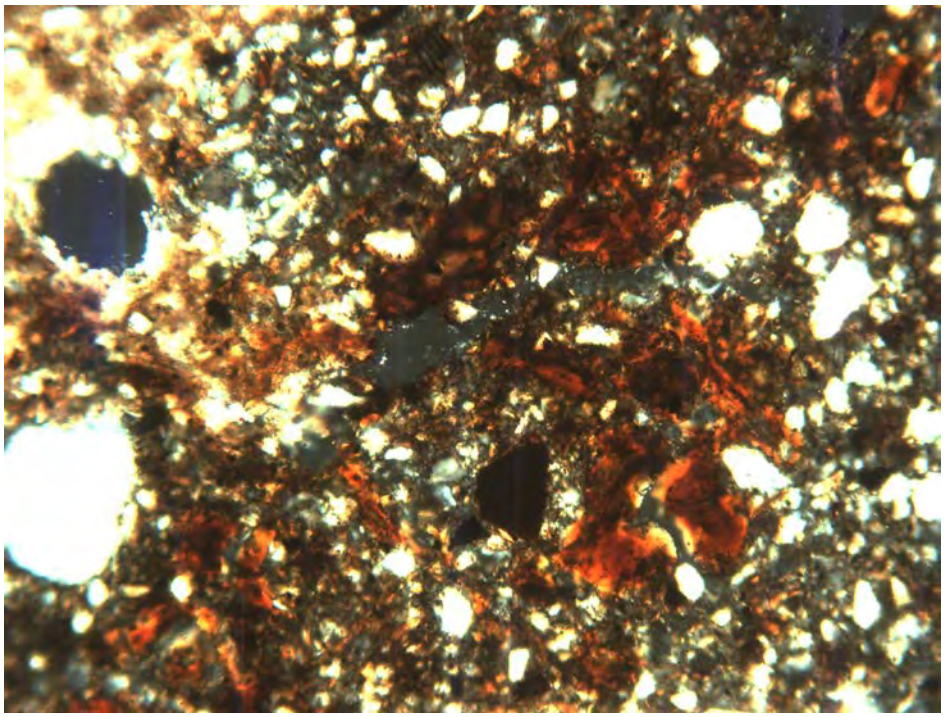
Sample 1/2

Two fabric units: Lower fabric unit (*c*. 44-55cm): *Structure*: apedal; porphyric; *Porosity*: <10% vughs, <750um, sub-rounded; *Mineral components*: <5% stone, <1cm, sub-rounded; c/f ratio: 30/70; coarse fraction: 10% medium and 20% fine quartz sand, 100-750um, sub-rounded; fine fraction: 30% very fine quartz sand, 50-100um, sub-rounded; 25-30% pure to fine dusty clay, moderate to strong birefringence, impregnated with amorphous sesquioxides, golden to orangey red (CPL/PPL); reddish brown (CPL), yellowish/reddish brown (PPL); *Organic components*: 5% very fine charcoal/organic punctuations, <75um; *Amorphous*: occasional (2%) sesquioxide nodule, <1mm, sub-rounded; merging boundary over *c*. 1cm with Upper fabric unit (41.5-43cm): as for upper fabric of sample 1/1, with diminishing pure clay and 25% dusty clay with depletion zones of about half of fabric; up to 30% amorphous to micritic calcium carbonate in the voids; grading into base of sample 1/1 above with strong reddening of *c*. 50% of groundmass and 20% fine stones.

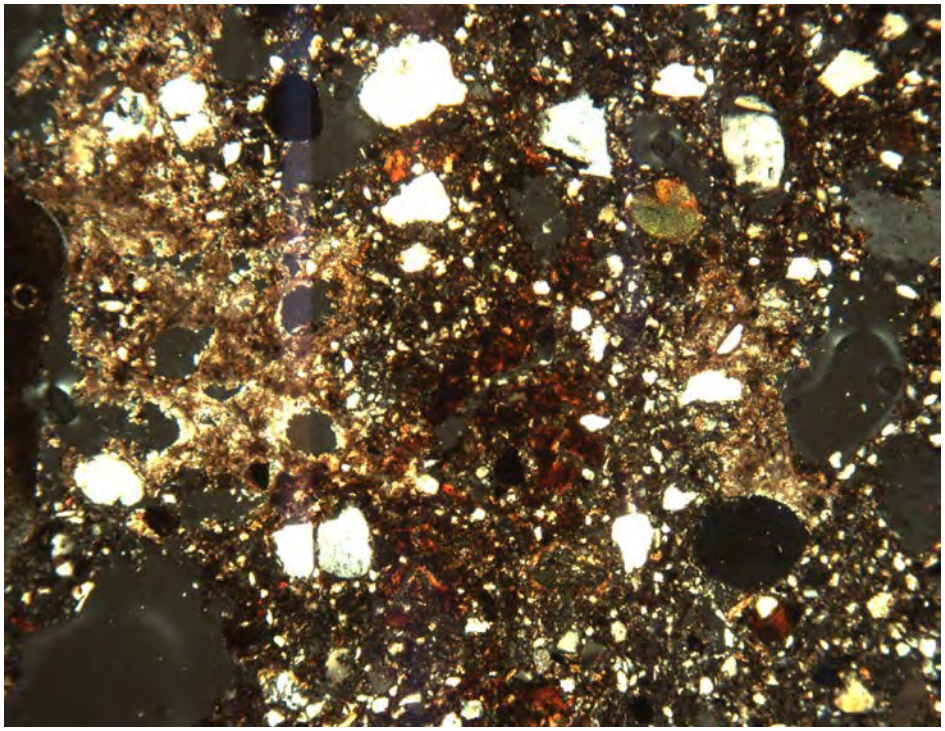
PH and Magnetic Susceptibility Values (App. 5)

Sample	**pH**	**Magnetic susceptibility** (SI)
1/1	**7.7**	**421.6**
1/2 upper	**7.55**	**307.1**
1/2 lower	**7.55**	**287.7**

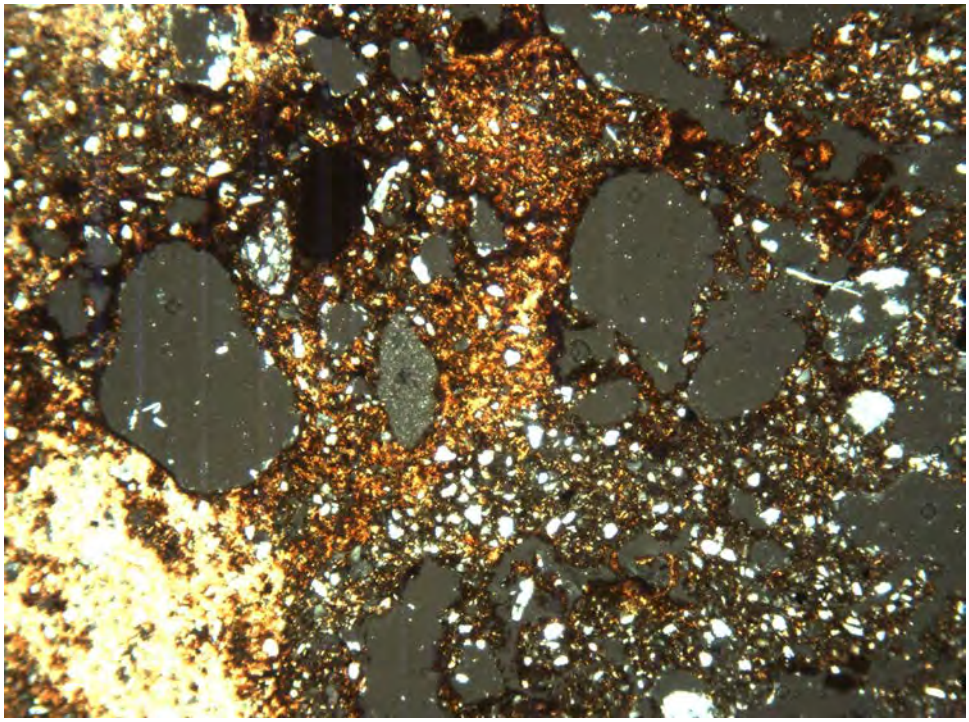
Figures



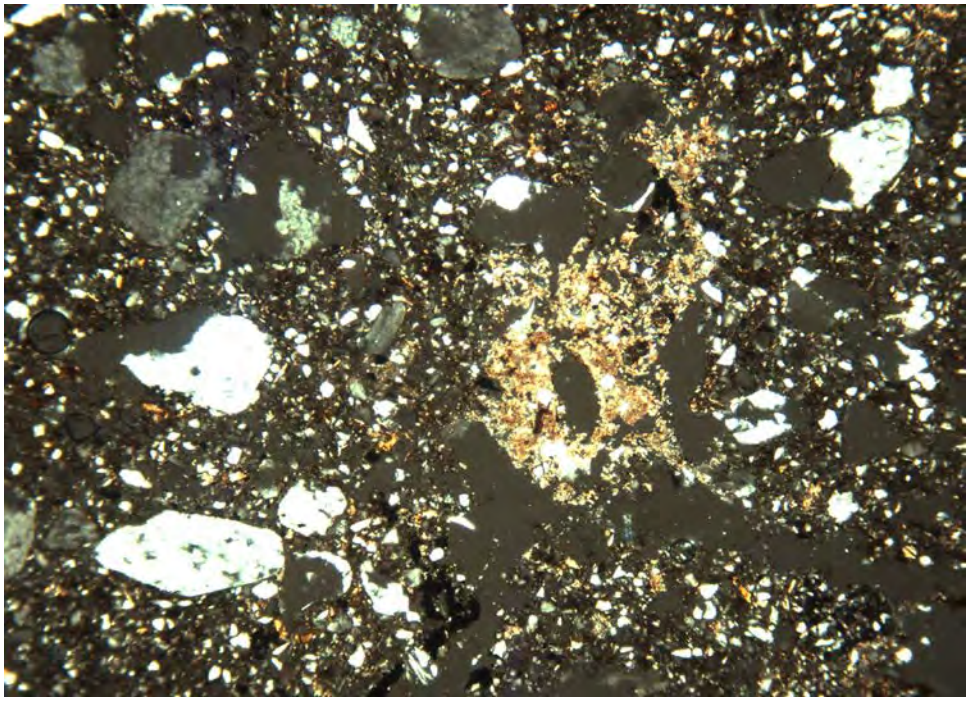
A. Photomicrograph of micro-laminated pure to dusty clay in the groundmass of the Bt horizon, Sample 1/2 (frame width = 2.25mm; cross polarized light).



B. Photomicrograph of mixed dusty clay, humic fine sand and calcium carbonate, upper Sample 1/2 (frame width = 4.5mm; cross polarized light).



C. Photomicrograph of the amorphous iron cemented calcium carbonate-rich truncation zone, base of Sample 1/1 (frame width = 4.5mm; cross polarized light).



D. Photomicrograph of the humic sand with calcium carbonate void fill, upper Sample 1/1 (frame width = 4.5mm; cross polarized light).