Archaeological Investigations at Haversham Road, Milton Keynes: Phase II

Post Excavation Assessment

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Summary

This report presents the archaeological results from the 2016 Haversham excavation. This marks the final phase of work to be carried out at the Manor Farm/Haversham Quarry. Further excavation took place on the cursus complex previously recorded at the site, whilst the Wolverton Mound, a suspected barrow exposed in the 2015 excavation, saw some investigation. Additional archaeology comprised a Grooved Ware pit cluster, some wateringholes and two pit alignments. With the site situated directly on the Great Ouse valley floodplain, fluvial processes were highly influential on the sites formation sequence. Blanket alluvium deposits and palaeochannels attest to the sites dynamic paleogeography and environmental succession. Abundant palaeoenvironmental remains have so far allowed detailed studies of the Neolithic and Iron Age environments. During the Neolithic, the valley was largely free of alluvium. The monument complex was seen to be carefully situated in reference to the contours and active river channels of the pre-alluvium landscape. Whilst posts driven into the palaeochannels show some usage of the active watercourses, the landscape was largely grassland with cereal cultivation nearby. In the Iron Age, the valley had become much aggraded by alluvium. Pit alignments crossed the floodplain, which at this time, was grazed meadow. Cereal cultivation and stands of woodland and scrubland or hedgerows were located nearby, but clearly off site.

INTRODUCTION

Between September 2016 and December 2018 an archaeological monitoring and recording exercise was undertaken by Cambridge Archaeological Unit (CAU) on land east of Haversham Road and north of Grafton Street, Milton Keynes (centred on TL 481948 242124). The excavation comprised an area totalling 8.63ha and was undertaken in order to address a condition placed upon planning consent for mineral extraction at the site. Work was carried out in accordance with a project specification produced by Phoenix Consultancy (Richmond 2014) on behalf of Hanson Aggregates in response to a brief issued by Nick Crank of the Historic Environment Team, Milton Keynes City Council.

Location, geology and topography

Located to the south of Grafton Street and east of Haversham Road, the development area is sited in the Great Ouse valley, 3km northwest of 'Centre:MK' (Fig. 1). With the Great Ouse river forming the northern limit of the excavation area, the site occupied the floodplain. Beyond this, the relief rises steeply out of the confines of the valley, encompassing an elevation change of 60–100m OD (Fig. 2). Prior to excavation, the valley bottom was grazed meadow in surroundings of mixed arable and pastoral land with a plantation of cricket bat willows flanking the site to the south. The wider geographical context is characterised by undulating plateau, incised by the Great Ouse valley and its tributaries (Loughton Brook, Broughton Brooks, etc.). Rising in the Cotswolds upland to the west, the Great Ouse flows east entering the Fenland basin before draining into the Wash. As shown in Figure 2, the river Tove meets the Ouse roughly 2km upstream from the site. Although the Grand Union Canal obscures much of the Tove's original course, this juncture forms one of the major confluences of the Ouse catchment. The Loughton Brook valley joins the Great Ouse immediately east of the site. Although this is a minor tributary, several significant archaeological sites are located here. The underlying geology consists of Jurassic clays and mudstones (Kellaway Series and Oxford Clay) with limestone beds (Great Oolite Group). This sequence outcrops in the valley sides, with the higher ground capped by till (Oadby Member), deposited during the Anglian glaciation. Pleistocene terrace gravels underlie the valley bottom with Holocene alluvium built up on the floodplain.

Fieldwork at Manor Farm and Haversham (Hogan 2013, Wright 2016) recorded blanket deposition of alluvium, traces of pre-alluvium land surface and relic Great Ouse palaeochannels. These deposits demonstrate the changing Holocene palaeogeography and environmental evolution of this section of the Great Ouse valley. The basic sequence is summarised here. An argillic brown earth woodland soil, formed on the gravel terrace surface (French 2012), accounts for the early Holocene terrestrial

deposits. Relic courses of the Great Ouse have also been dated to this period. Whilst the deposition of alluvium began as early as the Mesolithic (Hogan 2013, French 2012), significant aggradation of the floodplain does not take place until later prehistory (Wright 2016). At this time, the environment was extensively meadow (Wright 2016). Palaeochannels of Mesolithic–post-Roman date attests to avulsions of the Great Ouse in the later Holocene.

Archaeological background

As shown in Figure 2, excavations at Manor Farm Quarry (Hogan 2013), Haversham (Wright 2016) and Bancroft (William & Zeepvat 1994) account for the most prominent archaeological work in the study area. As the extensive prehistoric–Saxon remains at Manor Farm/Haversham form a further component of the current site, this will be outlined in *Previous archaeological work* below. Whilst Bancroft, amongst several other sites will be covered in a summary of known archaeology in the 'study area', some reference must firstly be made to the sites broader context. Across the Milton Keynes area, early prehistoric evidence is limited to traces of Mesolithic and Neolithic archaeology seen at Broughton (Atkins *et al.* 2014), Salford (Dawson 2005), Pennylands and Hartigans (Williams 1993), Fenny Locks (Ford and Taylor 2001), Heelands (Williams 1981) and Stacey Bushes (Greene & Sofranoff 1985). The evidence here amounts to no more than low-level settlement or task related activity. Whilst Bronze Age settlement is poorly represented, Early Bronze Age ring ditches are known at Salford (Dawson 2005), Little Pond Ground and Warren Farm (Green 1974), and a well preserved barrow cemetery of the same age was recently excavated at Gayhurst Quarry (Chapman 2007). In contrast to early prehistory, Iron Age and Roman archaeology is well represented, with settlements excavated at Pennylands and Hartigans (Williams 1993), Salford (Dawson 2005) and Broughton (Atkins *et al.* 2014) with pit alignment sites seen at Gayhurst Quarry (Chapman 2007) and Fenny Lock (Ford and Taylor 2001). The Iron Age settlement and Roman villa complex at Bancroft (William and Zeepvat 1994) is one of the most prominent sites of this period. Given its proximity to the development area, this site will be outlined in more detail later. Attention must also be drawn to the extensive fieldwork carried out in the Great Ouse valley, which has identified a range of prehistoric sites, which most notably includes several well-known Neolithic monument complexes (Biddenham Loop, Eynesbury and Godmanchester).

Palaeolithic and Mesolithic

Whilst the significant Palaeolithic and Mesolithic activity at Manor Farm will be outlined below, contemporary sites that represent a low-level presence were identified at Warren Farm and Little Pond Ground (Green 1974), both near Wolverton.

Neolithic–Early Bronze Age

Cropmarks of a rectilinear enclosure, which falls within the 'mortuary enclosure' classification (Deegan & Foard 2008) were identified near Cosgrove. This may form a further component of the monument complex at Manor Farm/Haversham, which will be outline later. Early and Late Neolithic settlement evidence also exists at Stacey Bushes (Greene and Sofranoff 1985) and Heelands (Williams 1981) in the Loughton Brook Valley c.1km south of the excavation area. A ground stone axe was also found near Wolverton station (William and Zeepvat 1994). Early Bronze Age evidence is represented largely by ring-ditches, with examples excavated at Warren Farm and Little Pond Ground (Green 1974). Beaker burials were associated with both monuments.

Middle Bronze Age–Iron Age

Whilst some sparse Middle Bronze Age activity was present at Manor Farm (Hogan 2013), Late Bronze Age–Early Iron Age activity in the study area is evidenced by a massive, 20m diameter roundhouse at Bancroft (William & Zeepvat 1994), and cache of metalwork recovered during 19th century building works at the County Arms Pub, New Bradwell (William and Zeepvat 1994). A further complex of roundhouses and enclosures at Bancroft provide Middle and Late Iron Age settlement evidence. Pit alignments at Manor Farm, loosely dated to the Early Iron Age account for land-use in the river valley (Hogan 2014).

Roman

The villa complex, mausoleum and shrine at Bancroft (William & Zeepvat 1994) account for the only excavated settlement evidence in the area. However, more humble settlements may exist near Wolverton Station and to the south of Haversham village (William & Zeepvat 1994).

Medieval – Post-medieval

Medieval documents reference Saxon settlement in the study area. However, development of a more substantial settlement did not occur until the 11th century with a motte and bailey castle at its centre. Immediately south of Manor Farm Quarry are the remains of a Gilbertine monastery, represented by a series of earthworks. The extant 19th century buildings of Manor Farm itself are presumed to directly overlie much of the monastic grange. The whole area comprising the medieval motte and bailey, the deserted medieval village and the site of the monastic grange at Manor Farm has been scheduled.

Previous Archaeological Work

Excavations at Manor Farm (Hogan 2013) and Haversham (Wright 2016) have exposed a considerable section of the Great Ouse valley floodplain, revealing a sequence of activity ranging from Upper Palaeolithic–Saxon. A discrete scatter of Late Upper Palaeolithic flint attest to the earliest evidence of activity in the study area. The vast majority of residual flint recovered from Manor Farm, can be attributed to the Mesolithic, but this material probably spans millennia and represents no more than a 'background presence'. Of greater significance, are the large assemblages from a series of *in situ* Late Mesolithic scatters sealed in alluvium. These were the product of multiple episodes of activity or occupation. Whilst a few Mildenhall pits and residual flints from tree throws account for all Early Neolithic activity, the Middle Neolithic is represented by a cursus complex extending along a 2km section of the valley, from Manor Farm to Haversham. In addition to the cursuses, the monument complex included an oval enclosure and the Wolverton Mound at Haversham, and a henge at Manor Farm. As well as the henge, Grooved Ware pits account for further Later Neolithic activity. A few sherds of Beaker pottery from the upper fills of the cursuses account for all known Early Bronze Age activity. Whilst ditches possibly delineating a field system and a small group of cremations have been attributed to the Middle Bronze Age, a spread of burnt stone over a palaeochannel at Manor Farm contained Deverel Rimbury pottery. Further later prehistoric activity is represented by three pit alignments. Two of these fell within the Manor Farm site, and a single pit alignment associated with a ditch was excavated at Haversham. Trackways, made up of levelled stone rubble, reused tile and quern stones flanked by ditches were Roman and a platform in a palaeochannel at Manor Farm has been dated to the Saxon period.

Wolverton Mound

Featuring as an earthwork in the excavation area, the Wolverton Mound was subject to excavation during the current phase of work. With fieldwork also carried out in the 20th Century and 2015, the mound has a slightly convoluted excavation history, which requires some mention here. First recorded in the 1960's as a possible Bronze Age barrow rising 0.75m above the floodplain, the earthwork received geophysical survey and trenching in the 1970s. As no ring ditch or burial were encountered, the mound was tenuously interpreted as a geological feature, deposited by flooding events (Williams 1981). Williams (1981, 1) However, it does suggest that, even as a natural mound it may have been mistaken by Bronze Age people as a tumulus and used for secondary burial. Following the removal of the topsoil and alluvium from the mound in 2015, the mound was seen to be constructed of turf and topsoil, over a relic soil horizon developed on the underlying gravels. With numerous worked flints also recovered from the mound and its ominous location at the head of the cursus, it was re-interpreted as an anthropogenic feature, probably a barrow. Fieldwork in this phase of excavation comprised the re-excavation of William's 1970's trench only. The mound will be preserved as an earthwork following restoration of the quarry.

RESEARCH AIMS

The overriding research aims for the project were outlined in the Written Scheme of Investigation compiled by Phoenix Consultancy (Richmond 2014). This states the primary aims of the archaeological investigation is to characterise, date and record any areas of archaeological activity identified during the work. Whilst areas of archaeology will contribute to the developing picture of the changing prehistoric and later landscape in the region, the investigation will be in line with the research framework for the region (Knight *et al.* 2012).

The following more detailed research aims have been made in response to the result of the 2015 phase of excavation.

- Characterise and record further components of the Neolithic monument complex and Neolithic settlement evidence.
- Characterise and record further components of the Iron Age complex
- Characterise and record further areas of archaeology and land-use on site
- Characterise, date and understand the formation processes of the valley sediment sequence
- Recover palaeoenvironmental data to recreate environment and land-use

METHODOLOGY

The area was stripped of its topsoil and underlying deposits using a 360° tracked excavator fitted with a toothless bucket operating under the supervision of an experienced archaeologist. With a sequence of palaeochannels identified across site and the formation of deep valley sediments sealing archaeology at different horizons, bespoke methodologies were employed to deal with these features and deposits.

Palaeochannels and alluvium

All palaeochannels were machine excavated in spits under archaeological supervision. Bulk profiles across the channels were left *in situ* for recording and

palaeoenvironmental sampling. Where archaeological material was encountered, palaeochannel deposits were left *in situ*.

Some archaeological features, principally the pit alignments were seen to be cut from horizons in the alluvium. Whilst it was attempted to machine to this layer, it proved unfeasible to do this across extensive areas of the site. In light of this, smaller zones were left at this level so that positive features (banks etc.) could be articulated. Baulk profiles were also left so such horizons could be identified in section.

Wolverton Mound

With the Wolverton mound stripped of its topsoil and overburden in 2015, it was decided the monument, the platform of buried soil the monument stood on and a 10m stand off zone would be preserved *in situ* and left as an earthwork within the nature reserve following restoration of the quarry. The only fieldwork comprised the re-excavation and recording of William's 1970's trench. All trench profiles were cleaned, drawn, described and sampled (this is further described below).

Recording and sampling

The site was located using an advanced Global Positioning System (GPS) with Ordnance Datum (OD) heights obtained. Potential archaeological features were digitally planned using a total station following the stripping of the site. Potential features were all initially hand excavated and slots digitally planned. All archaeological finds were retained for analysis. Environmental bulk soil samples were taken from selected features to recover macro plant remains and appropriate monolith samples were taken for soil micromorphology and pollen analysis. A written record of archaeological features and *in situ* buried deposits was created using the CAU extensive recording system and sections were drawn at an appropriate scale. Finally, a digital photographic record of the excavation was maintained throughout. All the features were metal detected prior to hand excavation.

RESULTS

The site's setting, the Great Ouse valley floodplain, is particularly significant to the site's archaeological sequence. The fluvial processes at work here create an unstable and changeable environmental context, prone to episodes of erosion (incision of channels, etc.) and rapid sedimentation (blanket alluvium, silting of palaeochannels). These processes are shown to be influential to past land-use and to the preservation of the archaeological deposits. Whilst the preservation of the barrow and pit alignment were owed to the accumulation of alluvium over the site, archaeological features were seen to respect natural features and major environmental events were seen to have a

human influence. This shows that both the anthropogenic and natural components of the site were inextricably linked. For this reason, the palaeoenvironmental sequence has been set out below, to provide context for the archaeological results.

Whilst the sites sedimentary and environmental sequence can be seen as a fairly fluid development, the archaeological sequence punctuates this in a number of episodes spanning much of prehistory. With such a dearth of material culture recovered from site, dating is currently ambiguous. Many phases of activity have been loosely assigned to broad time periods, based on feature typologies (i.e. pit alignments are broadly dated to the Iron Age). Some features could be dated to specific periods (i.e. Late Neolithic), but this was not possible for the majority of features. As a result, features have been group by early prehistory and later prehistory. These division refer to the Mesolithic–Early Bronze Age and Bronze Age–Iron Age. Whilst justification of the phasing is discussed throughout this report, it is summarised below,

- **Early Prehistoric**
    - ***Cursus*** — Middle Neolithic
    - ***Barrow (Wolverton Mound)*** — barbed and tanged arrowheads were associated with the mound, but it is uncertain whether this were in a surface scatter on the mound or in the mound material itself
    - ***Grooved Ware Pits*** — Late Neolithic
    - ***Post driven into the palaeochannel*** — stone axe working indicates a Mesolithic–Neolithic date
- **Later Prehistoric**
    - ***Two wateringholes and a pit*** — generally dating to Bronze Age or Iron, one of these features is truncated by Pit Alignment 1
    - ***Pit alignments and associated ditches*** — Early–Middle Iron Age

Sediment sequence and site formation

With the site situated in the active floodplain of the Great Ouse, fluvial processes were hugely influential on the site's formation sequence, particularly in terms of sedimentation rate, with up to 3.6m of Holocene deposits built up in the valley. Throughout this time, significant changes to the site's geography and environmental history took place. The deposits laid down across the site are significant to understanding these changes. The basic sequence comprised:-

- Blanket deposition of floodplain alluvium via flood events seen across the entire site. Whilst deposition began before the Iron Age, this layer is still actively aggrading.

- Pre-alluvium horizon, which consisted of the weathered surface of the gravel, with a remnant soil profile surviving in places and frequent tree throws. This horizon provides evidence of woodland cover in the valley, but has undergone significant weathering resulting in largescale soil depletion.

- Palaeochannels, including a relic Great Ouse channel, were incised into the gravel terrace.

Whilst the deposits provide a rudimentary understanding of Holocene environmental sequence, pollen and plant remains from both Neolithic and Iron Age contexts afford a comprehensive view of environment and land-use across both time slices. Pollen was recovered from the cursus and Pit Alignment 2 (F.329), and waterlogged plant remains have so far been recovered from the basal fills of F.69, Pit Alignment 1, F.329, Pit Alignments 2 and F.283, Pit Alignment 3. Whilst in summary, the results show extensively open environments with stands of woodland, some scrub/hedgerow and cereal cultivation in both the Neolithic and Iron Age, full results are presented in the specialist studies, later in the report.

Floodplain alluvium

A pale grey sterile silt-clay formed across the entire site/valley bottom to a maximum depth of 2.20m. Recognised across the 2015 excavation area and Manor Farm excavation up river, this deposit is indicative of episodic cumulative deposition of fine-grained material by floodwater, actively aggrading the valley. The alluvium is ostensibly a turf developed on a thickness of silt-clay alluvium, deposited in such thin sheets it cannot bury the turf horizon only microscopically expanding the profile, eventually developing to its current thickness (French 2012). The extent of the alluvium defines the 'active floodplain', or area in which the river floods. Whilst flooding was initially confined to the extinct palaeochannel courses, a 500m wide section of the valley bottom is now buried beneath alluvium. As will be described in more detail later in the report, the pit alignments were cut from a horizon in the alluvium, which provides some sense of sedimentation rate. A total of 0.6m of alluvium had formed before the pit alignments were established in the Early-Middle Iron Age. A further 1.3m of alluvium formed between the Iron Age and now.

Pre-alluvium soil horizon

Discrete zones of grey-brown sand-silt were seen, sandwiched between the alluvium and gravel substrate. This layer was a truncated remnant of an argillic brown earth soil (M. Allen pers. Comm.) formed on the terrace gravels under woodland cover. This buried soil was equivalent to the pre-barrow soil horizon, but absent across the majority of the site. The erosion of the pre-alluvium soil, the loss of small fraction sediment from

the pit alignment banks and wholesale removal of the cursus banks attests to attritional weathering process at work within the valley. With the barrow formed from the pre-alluvium soil, and its presence in the fills of the Cursus and Grooved Ware pits, albeit re-worked, attest to its presence in the Neolithic–Early Bronze Age. However, these features are all located on the highest contour of the pre-alluvium horizon, the lower slope may have been suffering erosion during this time. The pre-alluvium horizon was a much more contoured land surface than the current floodplain, which was slowly buried by alluvium.

Tree throws

The frequency of tree throws littering the pre-alluvium horizon attest to the valleys woodland cover. Fire reddened soil, burnt stone and charcoal were mixed throughout the fills of many of the tree throws in the northern extent of site. This implies that an episode/s of intense woodland burning, took place across this area. Charcoal was recovered from a number of these tree throws. Charcoal specimens from tree throw <101> comprised entirely oak and three throws <103> entirely wild/bird cherry.

Palaeochannels

A total of six Palaeochannels were identified across the site (Fig. 4). Whilst some evidence of anthropogenic use of these channels was identified, this is outlined later in the report. Palaeochannel 2 and to a large extent Palaeochannel 1 represent old courses of the Great Ouse. Palaeochannels 3, 4 and 5, represent inlets channels. Palaeochannel 6 was a minor stream channel, rising from the slopes above the floodplain. Although Palaeochannel 2, the former Great Ouse channel was only partially exposed, it appears to show the river meandering from the northern edge of the valley towards the south, broadly mimicking its current course. The inlet channels (3, 4 and 5) confluence with the relic Great Ouse channel in the southeast corner of the site. The Loughton Brook valley also confluences with the Great Ouse at this point. With such scant finds assemblages recovered from the channels, chronological understanding is currently poor. Timber posts worked by stone axe present in all the palaeochannels, indicate a Mesolithic or Neolithic date. The quern stone recovered from Palaechannel 2, quern rubber from Palaeochannel 1 and domestic animal bone recovered from Palaeochannel 4, demonstrate these channels were ‘active’ from the Neolithic onwards. As the entire channel network was truncated by the pit alignments, all channels must have dried up before the Early-Middle Iron Age. The accumulation of c.05m of alluvium between the top of the palaeochannels and the pit alignment horizon, demonstrates there was a considerable interval between the cessation of the channels and the construction of the pit alignments. The later courses of the river Great Ouse (Iron Age and later) must be located to the north of the site against the northern edge of the river valley, as this is the only part of the valley bottom not exposed in the excavation area.

Palaeochannel 1

The channel sediments (seen in Fig. 4) filled a broad, but shallow cut, aggraded down 1.1–0.90m from the adjacent terrestrial surface. A channel migrated within this broader basin, generally cutting from west to east, based on sedimentation patterns. The initial deposition of bedded sterile sand and gravel with gravel bars, indicating fast-water braided channels. The deposition of [1060], a fine blue silt, grading into silt clay, indicating an abrupt change in flow rate or a channel avulsion, rendering Palaeochannel 1 the floodplain basin to an 'active' channel to the north.

Palaeochannel 1			
Phase	**Context**	**Description**	**Artefacts**
Final silting, slow/standing-water	1060	Blue silt clay becoming siltier and more 'buttery' down its profile	
Primary deposition of sand and gravels with gravel bars and erosive episodes	1000	Fine well sorted orange sand	Posts (F.200) driven from this horizon
	1001	Orange sand with grit.	
	1002	Blue well sorted sand	
	1003	Grey sand	
	1004	Coarse sand and gravels	
	1046	Blue-grey coarse sand and gravel with infrequent organic inclusions.	Quern rubber
	1063	Bedded yellow-orange sands, grey silt and orange sand and grits	
	1064	Bedded yellow-orange sand with grit and gravel lenses	
	1065	Bedded yellow-orange sands, grey silt and orange sand and grits	
	1066	Coarse poorly sorted orange-grey gravels, gravel bar	
	1067	Grey-blue well sorted fine sand	
	1068	Well sorted, fine, grey-blue sand	

Table 1: Palaeochannel 1 deposits sequence and artefact density.

Palaeochannel 2			
Phase	**Context**	**Description**	**Artefacts**
Final silting, slow/standing-water	1060	Blue silt clay becoming siltier and more 'buttery' down its profile	
Slow-water with abundant vegetation	1061	Dark brown-grey organic silt with frequent organic material <40mm and frequent shell	
Cutting event, slow-water with vegetation	1062	Grey 'buttery' organic silt with frequent organic material <40mm	Red deer bone
Primary deposition of sand and gravels with erosive episodes	1028	Green-grey coarse sand and angular gravels with frequent pieces organic material <30mm	Disarticulated, human bone, Red deer bone, quern stone

Table 2: Palaeochannel 2 deposit sequence and artefact density.

Palaeochannel 2

Only partially exposed within the excavation area, Palaeochannel 2 is thought to be a former course of the Great Ouse. Truncating Palaeochannel 1, Palaeochannel 2 erodes out a shallow broad cut. The primary sediments indicate fast-water with organics, succeeded by a phase of slow-water with abundant vegetation, depositing a fine organic silt. A secondary erosive event cut down through [1061], but clearly lacked the energy to degrade the basal gravels [1028]. Returning to slow-water conditions with abundant vegetation, a further organic silt was laid down [1062]. The final silting episode [1060] indicates a gradual switch to floodplain conditions.

Palaeochannel 3			
Phase	**Context**	**Description**	**Artefacts**
Final silting, slow/standing-water	1012	Well sorted grey blue clay silt	
	1015	Well sorted fine blue sand silt	
	1051	Well sorted blue silt/organic silt	Posts driven from this horizon
Slow-water with organic silt episodes/intervals	1013	Well sorted fine sand silt	
	1014	Well sorted yellow silt	
	1016	Organic silt with frequent organic pieces <30mm	
Re-cut channel depositing sand and gravels, fast-water	1687	Lensed blue silt, organic silt and blue sand and grit	
Primary deposition of sands and gravels, with erosive episodes Primary deposition of sands and gravels, with erosive episodes	1017	Poorly sorted coarse sand and gravel	
	1018	Well sorted yellow sand silt	
	1019	Yellow sand silt	
	1020	Blue grey sand and gravel	
	1022	Poorly sorted organic silt	
	1047	Blue grey coarse sand and gravel with organic pieces	Posts driven from this horizon
	1052	Blue grey coarse sand and gravel	Posts driven from this horizon
	1054	Orange sand and grit	Posts driven from this horizon
	1055	Orange coarse sand sand gravel	
	1056	Orange coarse sand sand gravel	
	1688	Orange blue sand and gravel	
	1689	Coarse sand and gravels with organic material	

Table 3: Palaeochannel 3 deposit sequence and artefact density.

Palaeochannel 3

This channel was aligned northwest–southeast, joining with Palaeochannel 4 before entering the main Ouse channel. Palaeochannel 3 comprised a shallow 'marshy' contour [1022] at it northwestern extent, but elsewhere formed a more sizeable cut

reaching 29m in width. However, the pattern of sedimentation shows the watercourse did not develop beyond a narrow stream, migrating within the broader basin. Sedimentation was broadly characterised by coarse sands and gravels, replaced by successively finer sediments, finally merging into the floodplain alluvium. Areas of organic silt with frequent vegetation were identified at intervals along the channel, which indicate vegetation rich, slow-water sections of the channel, which corresponded with a group of timber uprights driven into the channel.

Palaeochannel 4

Palaeochannel 4 comprised a broad and shallow basin, tapering to a gentle contour at its western end. Initial sedimentation comprised deposition of coarse sand and gravels, indicating fast-water, which probably corresponded with further erosion as the channel migrated within its basin. F.300 represents a considerable re-cutting event at the confluence with Palaeochannel 3 (Fig. 4). This event truncated the sands and gravels laid down in the previous episode, cutting out a channel 1.90m deep. Initial sedimentation here comprised a well-sorted fine sand-silt with frequent bedding plains, indicating 'quickish-water', depositing sediment episodically. This was replaced by a sequence of organic silts decreasing in fraction, demonstrating a trend towards slow-water. Organic material became more abundant throughout the sequence, particularly in layer [1587–1592], which comprised slow-water conditions with profuse vegetation. Frequent shell fragments in layer [1591] and lensing of fine sand [1575] indicate an erosive episode took place up stream, depositing sediment as it lost energy on entering F.300. A group of timber posts, worked by stone axe were inserted into this slow-water vegetation rich section of the channel.

Palaeochannel 5

Representing the watercourse from the confluence of Palaeochannels 3 and 4, Palaeochannel 5 joined the main Ouse channel in the eastern corner of the site. This broad channel shows evidence of fast-water migrating within this basin, laying down coarse sand and gravel. A build-up of organic silt in zones along the length of the channel, indicates areas of slow-water with vegetation growth, eventually sealed by a fine blue silt, representing the final silting episode, as the channel finally becomes the floodplain basin.

Palaeochannel 6

This minor channel rose from above the floodplain, flowing down the valley side meeting with Palaeochannel 5. Carving out a narrow, deep channel, the primary sedimentation comprised a sequence of coarse sands and gravels with some organics. With an abrupt change of sediment fraction to fine, well sorted silt the channel appeared to undergo a rapid change in flow rate as it finally silted up.

Palaeochannel 4			
Phase	**Context**	**Description**	**Artefacts**
Final silting, slow/standing-water	1568, 1594, 1595, 1596, 1597, 1353	Well sorted blue silt-clay	
Slow-water with organic episodes	1354	Well sorted yellow silt	
	1355	Grey brown slightly organic silt	
F.300. Erosive event at confluence with Palaeochannel 3. Initial 'quickish-water', depositing bedded fine silt-sand [1608], slowing with increasing abundance of vegetation	1587, 1508, 1572, 1576	Well sorted grey silt with organic/peat lenses with frequent organic pieces <30mm and occasional wood	Cow and cow/aurochs bone. Stakes driven from this horizon
	1588, 1505, 1522, 1524, 1573, 1577	Well sorted grey silt with frequent organic pieces <30mm and occasional wood	Stakes driven from this horizon
	1589, 1525, 1578	Dark grey organic silt/peat with frequent organic pieces ,30mm and occasional wood	Stakes driven from this horizon
	1590, 1506, 1526, 1574	Brown-grey organic silt with frequent organic pieces <30mm and occasional wood	
	1591, 1507, 1575	Yellow-brown fine sand silt with frequent shell fragments and frequent organic pieces <30mm and occasional wood. Lenses of fine brown grey sand were present in places.	
	1592	Dark grey brown organic silt/peat with frequent organic pieces <30mm and occasional wood	Articulated cow/aurochs bone.
	1593, 1612, 1614, 1615, 1616, 1617	Well sorted grey fine sand silt with organic pieces <30mm	Posts driven from this horizon
Primary deposition of sands and gravels, with erosive episodes	1356	Orange sand and gravel	Worked flint, Stakes driven from this horizon
	1357	Orange sand and gravel	
	1358	Grey-brown sand and gravel with organic material	
	1359	Orange grey sand and gravel with organic material	
	1360	Orange sand and gravel	
	1361	Grey-yellow sand and gravel	
	1362	Grey-yellow sand and gravel	
	1363	Orange sand and gravel	
	1598	Orange coarse sand and gravel	
	1599, 1520	Well sorted blue silt	
	1600, 1517, 1518	Grey sand and gravel	
	1601	Green sand	
	1602	Grey sand and gravel	
	1603	Orange sand and gravel	
	1605	Green sand and gravel	
	1606, 1514	Grey-green sand and gravel	
	1607	Grey sand and gravel	
	1608, 1613	Bedded lenses of grey-blue sand and grit with occasional organic pieces	
	1569	Channel gravels	
	1570	Channel gravels	

Table 4: Palaeochannel 4 deposits and artefact.

Palaeochannel 5			
Phase	**Context**	**Description**	**Artefacts**
Final silting, slow/standing-water	1511	Well sorted blue silt	
	1568	Well sorted blue silt	Post F.319 inserted from this horizon
Slow-water with vegetation		Dark grey organic silt, infrequent organic pieces <30mm	
Primary deposition of sand and gravel	1512	Grey-green and orange sand and gravel	
	1569	Yellow green sand and gravel	
	1570	Blue sand and gravel	

Table 5: Palaeochannel 5 deposits and artefact.

Palaeochannel 6		
Phase	**Context**	**Description**
Final silting, slow/standing-water	1690	Well sorted blue silt
Primary deposition of sand and gravel	1691	Blue sand and gravel, grey sand and gravel, green sand and gravel with infrequent organic pieces <30mm

Table 6: Palaeochannel 6 deposits and artefact.

Early Prehistoric

Whilst the Grooved Ware pit can be dated to the Late Neolithic and the cursuses are seen to be Middle Neolithic, unfortunately the barrow and post driven into the palaeochannels can only loosely date to this phase. Aside from these feature, 26 Late Mesolithic–Neolithic flints were recovered from tree throws across the pre-alluvium horizon.

Monument complex — cursus and barrow

This section of the report details the 2016 fieldwork carried out on the barrow and cursus, which is shown in Figures 5 and 6. Before outlining the results, it is important to first state the circumstances surrounding the excavation of these features. Following the initial removal of topsoil and alluvium from the barrow in the summer of 2015, it was decided the mound, the platform of buried soil the mound stood on, and a further 10m zone encompassing the cursus terminal would be preserved *in situ*. However, in advance of this, a minor phase of fieldwork was carried out on the barrow and cursus terminal in December 2017. The work on the cursus comprised, a 5m slot cut into the northern terminal ditch and the excavation of the causeway postholes. The southern cursus ditch was left unexcavated as it was sealed beneath the barrow. The work on the barrow comprised the re-excavation, recording and sampling of William's 1970's

trenches and the recovery of the lithic scatter from the surface of the mound. The backfill of William's trench was largely removed by machine. The trench sections were cut back by hand to remove weathering and disturbance in order to expose a clean profile suitable for analysis and sampling. The profiles were drawn and described and samples were taken for micromorphological analysis. As such a large amount of material (up to 0.3m) had to be removed to prepare the profiles, three sample columns, 1.5m wide were carefully excavated in 0.1m spits to assess artefact density within the mound. Following this, the trenches were backfilled with topsoil. The mound and a 10m exclusion zone, including the cursus terminus was covered with geotextile membrane and buried beneath a further 0.3m of topsoil.

Dating of both the cursus and barrow is ambiguous. No dating evidence was recovered from the cursus itself, but accurately dated examples from across eastern England would suggest a construction date between 3500–3000BC. Although barbed and tanged arrowheads were recovered from the surface of the barrow, these only provide a *terminus ante quem*, as will be shown later. No dating evidence for the construction of the barrow was recorded. Based on dated parallels, the barrow could range from Neolithic–Early Bronze Age. As the barrow and cursus show clear association, the two were undoubtedly in use contemporaneously at some point in their evolution, hence, the barrows inclusion in this section of the report.

Cursus

The cursus measured 28m in width and the interior was flanked on both side by sizeable postholes arranged asymmetrically, with fewer sited along the northern arm than the southern. The ditch varied in form along its length, but was generally deeper towards the terminal. In total, 148m of the cursus was exposed, but only the final 15m was the focus of this investigation (Fig. 6). Whilst the terminal of the cursus and siting of the barrow appear to be far from incidental, both monuments occupy the highest contour of the gravel terrace in respect of the palaeochannels to the east (Fig. 5). The 6m wide causeway, was positioned centrally to the rounded end of the Cursus. The ditches terminals had slightly oblique ends, which were aligned parallel with the axis of the cursus. On the interior, postholes were located on either side of the causeways.

Measuring 2.55m across and 1.25m deep, the cursus ditch (F.105) was U-shaped in profile with a heavily eroded upper break of slope. The primary fill comprised sand and gravel eroded from the edges of the ditch. Lenses of gravel, dipping into the ditch from the southwest were derived from a bank on the interior of the cursus. Upper fills consisted of a yellow-brown sand-silt, derived from the Neolithic soil horizon. The ditch was sterile of artefacts.

Two substantial postholes (F.314, 1.1m dia. x 0.67m deep and F.315 1.2m dia. x 0.83m deep), which clearly held sizeable timbers marked the cursus causeway. In F.314 a postpipe was defined by sand and gravel derived from the bank, replacing the post as it rotted *in situ*. In F.315, gravel and river cobbles were used as post packing. A thin lens of organic silt above the packing material defined the position of the post.

The round Barrow (Wolverton Mound)

The mound stood to a height of 0.90m above the pre-mound horizon (buried soil) and 1.10m above natural substrate. Measuring 45m in diameter, the monument appeared circular. However, with the eastern limits of the mound not exposed, its shape is not entirely clear. In its current state the barrow deposits were seen to overlie the cursus ditch, this however, may have been the result of erosion. The extensive, low mound was probably much denuded from its original form, slumping under its own gravity and spreading out over a wider area, consequently, in their original form, the two monuments may have been separated by a berm.

Comprising two distinct layers [1527] and [1528], the mound appeared to be constructed in two phases. A thin, patchy pre-mound horizon was identified, which comprised a truncated buried soil (Fig. 6). No human remains were identified, but with such a small percentage of the mound excavated, the chances of encountering burials or cremation were low. An enclosure (F.131), 21m across was cut into the top of the mound. Its ditch measured 1.05–1.20m wide and 0.38–0.42m deep and was generally U-shaped. With no artefacts retrieved from the enclosure, its date and function remain intangible.

Primary mound
Covering an area estimated to be 40m diameter, layer [1527] was a largely stone free red-brown sand-silt with frequent fossil rootlets. This deposit consisted of turfs or topsoil material derived from the pre-alluvium soil. Patches of coarser stony material derived from subsoil or even terrace gravels were mixed throughout the primary mound. Diagonal lensing of this material indicates the mound was probably constructed from the centre outwards (see Fig. 6).

Secondary mound
Layer [1528] was a yellow-brown stone free sand-silt with a sharp contact to the primary mound. This deposit was a mix of turf and topsoil derived from the pre-alluvium soil, piled up around the exterior of the primary mound, extending the overall diameter by 4–5m.

Buried soil
This horizon consisted of three layers,

- [1529], a patchy dark grey humic stone free silt
- [1530] and [1531], an inconsistent layer of red-brown/yellow-brown stony sand-silt, sitting beneath [1529]
- [1532] a brown orange silt-sand with frequent gravel, which was consistently seen in all profiles.

Together the three buried soil layers constitute the truncated remnants of the horizon the mound was constructed on. The humic layer, [1529], represents patches of topsoil or buried turf. The lower horizons, [1530] and [1531], were the subsoil component of the buried soil and [1532] was the weather surface of the gravel (C-horizon). The pre-

mound soil survived thickest towards the centre of the mound with the preserved turf only present in this area. Across the majority of the pre-mound horizon, almost all the soil cover was removed. However, the mechanism of this process is unclear. Whilst, large amounts of soil must have been stripped to raise the mound, trampling during the construction of the mound must have had some impact on the soil horizon.

The artefact assemblage from the barrow comprised worked flint only. The sample excavation columns, detailed above, produced three probable Neolithic flints, and ten probable Neolithic flints were recovered from the backfill of William's 1970's trench. A more significant assemblage of 60 flints was recovered during systematic walking over the surface of the mound. This group contained a small Late Mesolithic–Neolithic component, but was largely Early Bronze Age in character and included two barbed and tanged arrowheads. With such minimal excavation of the barrow, it has proved difficult to understand the taphonomic characteristic of the flint. Whilst it is possible the assemblage was residual, material latent in the soil gathered up to build the mound, it is equally feasible the Early Bronze Age surface scatter, was deposited directly on to the mound as a product of activity taking place on its surface. Therefore, the flint work cannot provide accurate dating evidence for the barrow. Although it is tempting to assign an Early Bronze Age date on the basis of the barbed tanged arrowheads, it is equally possible the mound could be Neolithic in origin, particularly given its close association with the cursus.

Grooved Ware pits

A cluster of three pits (F.216-8) and a tree throw (F.219) produced a sizeable assemblage of Grooved Ware, animal bone, red deer antler, worked flint and burnt stone (Fig. 7; Table 7). The pits, located to the west of the barrow and east of the palaeochannels, shared a basic similarity in form. These were small, circular, bowl shaped features, ranging from 0.9–1.5m in diameter and 0.12–0.34 in depth. They were filled with a grey sand-silt with dark grey, charcoal rich lenses. This deposit was derived for the now extant Neolithic soil horizon, and included latent domestic detritus or 'midden waste' (pot, flint, charcoal etc.). A similar deposit had silted into the tree throw, located 8m northwest of the pit cluster.

Feature	Pottery		Animal Bone		Flint	Burnt stone	
	Qty	Weight (g)	Qty.	Weight (g)	Qty	Qty.	Weight (g)
216	185	4220	100	53	8	5	2672
217	5	7	76	46	4	6	2843
218	158	1710	157	209	20	13	558
219	7	25	-	-	2	-	-
Total	**355**	**5962**	**333**	**308**	**34**	**24**	**6073**

Table 7: Artefact quantities from Grooved Ware Pits and associated tree throw.

Pit F.216 and F.218 received considerable dumps of pottery (Fig. 5). In both cases the sherds represented a largely complete, but fragmented vessel (Wright and Knight, this

report). The remaining finds assemblage was mixed throughout the overlying fill and was interred along with it.

Palaeochannels use

Whilst the character and date of the palaeochannels was set out earlier in this report, this section focuses on their anthropogenic usage. Artefacts from the channels comprise faunal remains (including red deer, aurochs and cattle), a single fragment of abraded human bone, a worked flint and a saddle quern. As these objects were potentially re-worked by the channels, it is difficult to associate them with any actual usage. However, rivers are often seen as contexts for the deposition of human remains in several periods of prehistory (Bradley 2007). The 32 timber posts inserted into the palaeochannels, possibly represent some of the earliest activity on site. Whilst many posts were in isolation, two concentrations of multiple posts were identified (Wood Group 1 and 2). Woodworking technique was broadly consistent across the entire assemblage. This was shown to be crude, comprising chopping and tearing to split timbers, with a similar method employed to work the ends to blunt chisel or wedge shapes (Robinson Zeki, this report). Where identified, tool marks were consistent with stone axe use, implying a Mesolithic or Neolithic date, suggesting these posts could represent some of the earliest activity on site. Domestic animal bone was recovered from the upper layers of Palaeochannel 2. This estimate can be refined to the Neolithic by the posts driven from this context. It must be stressed that this date is an approximation based on the limited evidence available and will be tested going forward by absolute dating methods.

As the posts were driven vertically into the channels, sediment was dragged down along with them, providing an indication of their stratigraphic situation. As it is assumed posts could also be inserted without disturbing all or indeed any of the layers they were driven through, dragged sediment has been taken to indicate a minimum height of insertion, except where posts were seen to displace the upper most channel layer.

Wood Group 1

Comprising six posts driven into northern reaches of Palaeochannel 3, Wood Group 1 appears to include two rows of posts, loosely arranged perpendicular to the axis of the channel (Fig. 8). The posts were badly preserved, only the tips survived in most instances. Sediment displacement indicates most posts were inserted from at least the top of the basal gravels. The blue silt forming the upper deposit of Palaeochannel 3 was dragged down by post F.207.

Wood Group 2

Comprising 15 posts, Wood Group 2 was located in Palaeochannels 4 near its confluence with Palaeochannels 3 (Figure 8). This deeper section of the channels (F.300) was silted-up with a sequence of organic silts, indicating a slow flowing vegetation rich stretch of the channel. Whilst there appeared to be limited ordering to

the arrangement of the posts, a possible row of six narrow diameter posts were positioned along the north bank of Palaeochannel 4. Larger posts loosely organised in a vague swathe through the centre of the channel.

Wood group	Palaeochannel	Feature	Wood type	Length (mm)	Breadth (mm)	Width (mm)
1	Channel 3	206	River debris	662	275	27
1	Channel 3	208	Pile	662	115	87
1	Channel 3	207	Pile	130	120	120
1	Channel 3	209	Pile	279	234	208
1	Channel 3	210	Pile	568	108	108
1	Channel 3	211	Pile	110	110	90
1	Channel 3	213	Pile	424	120	95
2	Channel 4	262	Pile	268	118	115
2	Channel 4	264	Pile	815	143	140
2	Channel 4	265	Pile	750	80	79
2	Channel 4	266	Pile	269	144	71
2	Channel 4	274	Pile	641	148	110
2	Channel 4	301	Pile	1146	101	101
2	Channel 4	302	Pile	542	-	-
2	Channel 4	303	Pile	492	178	90
2	Channel 4	304	Pile	465	198	114
2	Channel 4	305	Pile	510	212	148
2	Channel 4	321	Pile	812	340	156
2	Channel 4	324	Pile	576	-	-
2	Channel 4	325	Pile	540	119	96
2	Channel 4	326	Pile	142	-	-
2	Channel 4	327	Pile	713	-	-
-	Channel 1	200	Pile	1123	212	115
-	Channel 2	212	River debris	887	168	87
-	Channel 2	215	Pile	496	103	94
-	Channel 3	221	Pile	843	152	149
-	Channel 1	229	Pile	217	83	55
-	Channel 3	261	Pile	159	75	74
-	Channel 4	267, 268	Pile	893	248	240
-	Channel 4	269	Pile	702	142	123
-	Channel 4	271	Pile?	751	140	103
-	Channel 4	272	Pile	360	-	-
-	Channel 4	273	Pile	545	-	-
-	Channel 5	319	Pile	1694	524	516
-	Channel 4	322, 323	River debris	2397	274	216

Table 8: Wood from palaeochannels.

With sediment being dragged down as the posts were inserted, many of the posts positioned in the centre of the channel displaced layer [1587], the upper context of the sequence. With stone axe marks on several of the posts and domestic cattle bone recovered from the insertion horizon, a Neolithic date is estimated for this wood group. F.326 and F.327 were only seen at the base of the channel. Whilst these may be

snapped-off post driven deeper than the others, it is perhaps more likely these were inserted at an earlier date.

Isolated posts

A total of 10 posts were identified in isolation (Fig. 3). Of these, F.267–9 were likely to be fragments of a single, but broken post inserted into the eastern end of Palaeochannel 4. F.319 was notable for its size, measuring 0.5m in diameter and 1.4m in length (Fig. 8).

Later Prehistory

This phase includes two wateringholes, a pit and the pit alignments. Whilst the wateringholes probable represent a separate phase superseded by the pit alignments, the dearth of material from these features has resulted in poor dating overall, but is particular problematic for the wateringholes. This is outlined in more detail below. In contrast to the early prehistoric phase, later prehistoric features were all cut from a horizon within the alluvium, indicating considerable aggradation to the valley and somewhat different environmental and geographic surroundings (as outlined earlier). Whilst the alluvium afforded preservation of banks in association with the pit alignments, the heightened water table in later prehistory allowed excellent preservation of palaeobotanical evidence, including wooden artefacts.

Wateringholes

Two wateringholes F.202/203 and F.343 and pit F.214, were located towards the north of the site and formed a broad alignment with the wateringholes excavated in the 2015 phase (Fig.9). Whilst no dating evidence was recovered from any of these features, accurately dated wateringholes from across the region suggests a Bronze Age–Iron Age origin. Like the wateringholes in the 2015 area, F.343 was stratigraphically earlier than Pit Alignment 1, indicating a pre-Early–Middle Iron Age date.

F.202/203

Located towards the north of the site, this wateringhole comprised a large, steep sided oval pit with one re-cut (Fig. 9). F.203, the primary pit in the sequence, was filled by a gravelly, orange-brown silt-sand intermixed with grey silt-clay, derived from the up-cast gravels and alluvium. The re-cut, F.202, was considerably more elongated. A thin layer of well sorted organic silt and lensed sand and gravel made up the primary fill, indicating waterlogging and *in situ* vegetation growth. Unfortunately,

palaeoenvironmental samples from this layer were barren of intact plant remains and pollen. The secondary filling episode comprised gravels intermixed with silt-clay.

Feature	Length (m)	Width (m)	Depth (m)	Artefacts
202	3.9	2.1	0.82	Roundwood
203	1.6	1.5	0.74	
214	4.85	3.2	0.28	
343	4.1	3.2	0.85+	

Table 9: Data from wateringholes and associated features.

F.214

Located towards the north of the site and to the east of F.202/203, this oval sand and gravel filled pit reached a total depth of 0.28m, clearly not deep enough to act as a wateringhole.

F.343

This large oval pit, was truncated by F.16, the ditch associated with Pit Alignment 1, replicating the same sequence as F.45/46 and F.32 identified in the 2015 phase. The fill sequence consisted of intermixed sand and gravel, grey-brown sand-silt and grey silt-clay, with lenses of well sorted organic silt, all of which was derived from up-cast material silting back into the pit with some gravel eroding of the edges. Periods of stability where vegetation took hold were evidenced by organic lenses, which were subsequently buried by further collapse events. Slumping of the overlying alluvium formed the capping fill [1908].

Pit Alignments

Three pit alignments were identified across the site (Fig. 10). Pit Alignment 1 was largely excavated during the 2015 phase of fieldwork, with only a small component within the 2016 area, located in the northwest corner of the site. Whilst the pit alignments were broadly Iron Age in date, pottery from the upper fills of Pit Alignment 2 suggests the Haversham examples were open during the Middle Iron Age.

All three pit alignments traversed the valley perpendicular to its orientation. Pit Alignments 1 and 3 were associated with a ditch running parallel to their axis. Further ephemeral ditches running perpendicular to the pit alignments appeared to subdivide the space between the pit alignments. The pit alignments were cut from a horizon in the alluvium, on which traces of up-cast banks were preserved. All pit alignments conclusively cut the Palaeochannels, indicating they were all out of use by the Iron Age.

Pit Alignment 1

Comprising a curvilinear alignment of pits, Pit alignment 1 was flanked by a ditch (F.16). A 6m wide space between the pit alignment and ditch was seen along the entire length. On top of those recovered during the 2015 excavation, a further seven pits were exposed during 2016, of which three were excavated. Two additional sections were excavated through the ditch. The 2015 excavation identified a bank to the southeast of the ditch and up-cast features associated with the pit alignment. These were not encountered during this phase of fieldwork.

Feature	Length m)	Width (m)	Depth (m)
341	2.9	2.1	0.7
344	3.2	2.25	0.75
345	3.1	2.4	0.62

Table 10: Pit Alignment 1 feature dimensions.

The fill sequence of the large, oval pits was consistent across the three excavated examples, and comprised two distinct events. The primary fill consisted of sands and gravels eroded from the edges of the pits with lenses of organic silt indicating episodes of stability where vegetation could take hold. Secondary silting consisted of a well sorted, grey silt-clay with sparse stones and occasional gravel lenses. This was derived from the alluvium with some up-cast material also returning into the pits during this episode.

The ditch, F.16 was consistently 1.50m wide, varying from 0.45–0.70m in depth. Much like the pit alignment, its fill sequence consisted of gravels eroded from the edge of the ditch with alluvium derived, grey clay-silt capping fill.

Pit Alignment 2

A total of 91 pits belonging to Pit Alignment 2 were exposed and 45 of those were excavated. Orientated northeast–southwest, the pit alignment formed a sinuous row of closely spaced pits, which were very difficult to identify against the deposits of Palaeochannel 1. Here, several pits were probably removed during machining. Although the evidence is lost, the pit alignment probably extended further to the northeast. At the opposite end, it is clear Pit Alignment 2 extended beyond the limits of excavation. Up-cast banks flanked both sides of the pit alignment and were captured in baulk profiles (Fig. 11).

The oval or sub-rectangular pits were closely spaced and almost adjoining in some circumstances. With the presence of organic silt and well sorted silts forming the primary fills of the majority of these features, most of the pits retained water with vegetation, including meadowsweet, marsh woundwort and sweet grasses growing and rotting *in situ* (Clapham, this report). The upper fills comprised a grey silt-clay with gravels mixed throughout. This deposit was derived from the alluvium with the denuded bank, eroding back into the pits.

Pits	Length m)	Width (m)	Depth (m)	Artefacts
224	1.45	0.78	0.23	
225	1.35	1.2	0.31	
226	1.98	1.55	0.67	
227	1.87	1.72	0.66	
228	1.9	1.35	0.64	
230	2.07	1.83	0.75	
231	1.9	1.5	0.71	
232	2	1.57	0.6	
233	1.9	1.62	0.7	
236	2	1.6	0.8	
237	1.6	1.97	0.73	
239	2.4	2.03	0.84	
240	2.48	2.05	0.74	
241	2	1.6	0.79	426 sherds (2056g) of MIA pottery
242	2.5	2	0.84	
243	2.9	1.9	0.73	
245	1.23	1.25	0.42	
246	1.5	1.25	0.24	
247	1.1	0.9	0.18	
248	1.6	1.2	0.3	
249	1.48	1.34	0.25	
250	2.1	1.7	0.5	
251	1.85	1.8	0.6	
252	1.58	1.55	0.5	
253	1.8	1.5	0.8	
254	1.62	1.3	0.48	
256	1.75	1.6	0.4	
257	2	1.5	0.35	
258	2.1	1.67	0.63	
259	1.55	1.4	0.6	
260	1.76	1.64	0.68	
316	2.33	1.45	0.49	
317	2.3	1.9	0.8	
318	1.65	1.6	0.55	
329	1.65	1.5	0.75	
330	1.65	1.38	0.32	
331	1.95	1.35	0.75	
333	1.79	1.18	0.48	
334	1.85	1.53	0.55	
335	1.68	1.65	0.46	
336	1.7	1.65	0.5	
337	1.6	1.45	0.57	
338	1.72	1.35	0.62	Trimmed roundwood
339	1.82	1.55	0.71	Trimmed roundwood
340	1.78	1.7	0.68	Trimmed roundwood

Table 11: Pit Alignment 2 feature dimension and artefact quantities.

Baulks sections of alluvium were left standing to the northeast of Palaeochannel 3. Here, the horizon from which the pit alignment was cut 'Iron Age horizon' was captured

in profile. Up-cast spreads of gravel were identified on both sides of the pit alignment. To the northwest, a thin layer of coarse gravel [1308], no more than 0.10m thick, covered an area 3.20m wide. To the southeast, a thicker layer of coarse gravel [1307], up to 0.18m, extended over an area no more than 2.60m wide. In both circumstances, the up-cast material contained no fine-grained sediment (clay, silt or fine sand). This component of the up-cast, is assumed to have been eroded away via natural processes (flooding events, rain splash, wind erosion etc.), leaving behind a mere remnant of the original banks. Although a near equal quantity of up-cast sediment was present on both sides of the pit alignment, the material to the southeast formed a more pronounced feature.

Finds from the pit alignment comprised, 426 sherds of Middle Iron Age pottery and 349 pieces of wood. The pottery, representing the majority of a single fragmented vessel appears to have been deposited with some immediacy into the upper fills of pit F.241. The roundwood was deposited into the basal fills of pits F.316, F.338, F.339 and F.340. These were a thorny species, most likely blackthorn/hawthorn. As the timbers shared a uniform alignment it seems the wood was deposited in bundles (Fig. 11). Woodworking was evident, however, it largely comprised simple cut marks from felling or trimming. A small amount of the branches were worked to points probably for use as stakes

Pit Alignment 3

Located in the southeast corner of the site, Pit Alignment 3 comprised a length of 34 pits, flanked on the southeast by a ditch (F.278, F.281, F.293, F.295 and F.296). The full extent of its course was not confined to the excavation area. It clearly extended beyond the site in both directions. Spaced roughly 2.90–4.40m apart, these features formed a curvilinear configuration, orientated northeast–southwest. A section of Pit Alignment 3 was excavated from the Iron Age horizon. Here, banks associated with the pit alignment and ditch were articulated (Fig. 12).

The pits were difficult to identify in plan where they cut Palaeochannel 5, and had to be machined well below their upper break of slope to be accurately defined. This may account for the depth of these pits and the short break in the pit alignment seen in this area. The causeway however, does correspond with a segmented section of the ditch and may well be an intentional feature (Fig. 12). The fill sequence was broadly consistent along the pit alignment. The primary fills are generally characterised by sands and gravels eroded from the edges of the pits. Organic silts were present in most features, indicating waterlogging with abundant growth of aquatic plant species, rushes and marsh woundwort being amongst the most prevalent (Clapham, this report). A grey silt-clay with intermixed or lenses of gravel made up the secondary fill. This was derived from the alluvium and bank deposits denuding back into the ditch. Organic silts and channel derived silts made up a larger component of the fill sequence over Palaeochannel 5.

A single re-cut was identified along the majority of the length of the ditch, which corresponded with a clear re-configuration of the ditch. The earliest phase (F.281 and F.293) was a more slender, shallow feature, which was largely destroyed by the later more substantial re-cut (F.278, F.293 and F.295). The re-cut was segmented for a short stretch where it cut Palaeochannel 5. Depth and morphological discrepancies seen here

were the result of low machining levels over Palaeochannel 5. The fill sequence was broadly consistent along the length of the ditch. Basal fills comprised sands and gravels eroded from the edges of the ditch with organic silts present in places. The upper fill comprised a grey silt-clay derived from the alluvium with gravel lenses derived from bank deposits eroding into the ditch. Organic silts and channel derived silts made up a larger component of the fill sequence where the pit alignment cut Palaeochannel 5.

Pit	Length (m)	Width (m)	Depth (m)	Artefacts
275	1.2	0.8	0.2	
276	1.4	1.4	0.35	
277	1.85	1.7	0.78	
283	1.25	1.16	0.2	Roundwood
284	2.4	2.2	0.85	
285	2.1	2	0.95	
286	1.48	1.3	0.45	
287	1.45	1.35	0.45	
288	2.5	2.17	0.85	
289	1.5	1.5	0.4	
290	1.75	1.5	0.4	Roundwood
291	1.6	1.5	0.45	
292	1.6	1.45	0.48	Roundwood
294	1.5	1.25	0.21	
297	2.1	2.1	0.65	
298	1.6	1.6	0.45	

Table 12: Pit Alignment 3 dimensions.

Feature	Cut	Width (m)	Depth (m)	Artefacts
278	1368	1.1	0.13	
	1393	3.2	1.2	
	1410	2.56	1.03	
	1447	1.37	0.53	Worked wood
	1451	1.6	0.45	
	1478	1.1	0.48	
281	1400	0.86	0.62	
293	1486	0.35	0.08	
	1488	0.52	0.15	
	1503	0.86	0.11	
295	1474	1.35	0.9	
	1484	0.65	0.28	

Table 13: Pit Alignment 3 ditch dimensions.

A short length of Pit Alignment 3 was excavated from the Iron Age horizon. Here, a continuous length of bank was seen between the pit alignment and ditch with a further bank to the southeast of the ditch. Like Pit Alignment 2, the banks survived as a thin layer of coarse gravel. Finer fraction sediment had been eroded away. The bank material between the pit alignment and ditch [1378] survived to a thickness of 0.10m. Much of the bank had returned into the pit alignment and the ditch, making up a large component of the primary fill of the pit alignment and the primary and secondary fills of the ditch

(Fig. 12). The bank to the southeast of the ditch [1379] survived to a depth of 0.08m, and was spread over an area 5.60m wide. As only a few lenses of gravel in the upper fills of the ditch were derived from the bank, a berm must have originally separated the two features. A thin, patchy layer of up-cast gravel was seen to the northwest of the pit alignment [1386], but it is difficult to establish whether this constituted a genuine bank.

Undated Features

Undated features comprise two cremations, two ditches and a further four pits distributed across the excavation area.

Cremations

Located in close proximity to one another, the cremations were sited to the south of Pit Alignment 2 (Fig. 3).

F.234 contained the cremated remains of a single adult, placed into a small circular pit (0.6m diameter x 0.3m deep) alongside a considerable mass of charcoal, which was mixed with the cremated bone. This was presumably the remnants pyre debris.

F.235 comprised a small circular pit (0.3 diameter x 0.07m deep) containing the cremated remains of a single neonate (less than 6 months) with frequent pyre debris (charcoal) mixed throughout. A tree throw (F.238), adjacent to the cremation pit contained further cremated bone, presumably derived from the same individual, however, caught up in surface deposits (extant soil horizon) and re-worked into the tree throw.

No dating evidence accompanied either cremation. The material filling both features was derived from pre-alluvium deposits unlike the adjacent pit alignment suggesting a pre-Iron Age date.

Ditches

Two lengths of ditch were identified to the south of Pit Alignment 2 (Fig. 3).

F.244 was a narrow ditch 0. 90m wide and 0.50m deep, which ran perpendicular to Pit Alignment 2. This feature clearly extended further to the northwest and southeast, but was indistinct amongst the Palaeochannel deposits and could not be traced any further.

Ditch F.328/F.346 was orientated on a diagonal to Pit Alignment 2, but terminated in respect to it. This shallow feature clearly formed an uninterrupted ditch, extending further to the southwest, but was not cut deep enough to impact the excavation horizon.

No artefacts were recovered from either ditch, but considering their very general association with Pit Alignments 2, they may be Iron Age. Like F.47 in the 2015 phase, these ditches could have formed minor divisions in-between the pit alignments.

Pits

Four undated pits were identified across the site.

F.220 was a small circular pit with frequent charcoal, burnt stone and scorched soil located to the southeast of the barrow.

Located to the north of Pit Alignment 2, F.222/3 comprised a sizable circular pit (1.02m diameter x 0.9m deep) with a post pipe, which was cut by pit F.222, an oval pit measuring 1.3m in diameter and 0.5m deep.

F.342 was located to the northeast of the barrow, this gravel-filled shaft like feature (1.9m diameter x 1.3m deep) possibly acted as a well, but has limited evidence it ever held water.

DISCUSSION

Early Prehistory

Whilst there is limited palaeoenvironmental evidence for the early Holocene some basic understanding of the environment at this time can be gleaned. The pre-alluvium woodland soil, seen under the barrow and in pockets across the site, probably began forming during this period. Tree throws cut by the cursus also provide glimpses of the sites early woodland cover.

Palaeoenvironmental evidence from the cursus c.3500–3000BC provides the site's first detailed environmental study. At this juncture, it is uncertain whether alluvium had begun to form in the valley. The higher contours of the pre-alluvium horizon certainly remained exposed, as the cursus and the barrow were clearly sealed beneath the alluvium. Evidence indicates that the palaeochannels were active in the Neolithic, but it is uncertain whether they were definitively contemporary with the cursus. As the entire Manor Farm/Haversham monument complex seemed to terminate respecting the channels, it would strongly suggest this was the case. Pollen, conclusively demonstrates the cursus was constructed in an open grassland surrounding. The minimal representation of tree species (8.3%), suggests clearance was far more extensive than a simple avenue to facilitate the cursus. Tree pollen evidence shows fragments of alder woodland were present and possibly some juniper scrub. Wetland species present in the pollen counts indicate such species possibly grew in the waterlogged cursus ditch. Aquatic plant seeds were recovered from the same context, although in very low

quantity and the species do not cross match with the pollen. Aquatic plants could also have been present in the margins of river channels. The surprisingly high cereal pollen (8.3%) confirms abundant cultivation in close proximity. *Tricium sp.* grains from the cursus postholes suggest cultivation of wheat (however, these grains could be residual). Whilst it is difficult to draw any conclusions surrounding the function of the cursus from this, it has important implications for broader land-use. Despite the total absence of occupation evidence across the site, abundant cereal production implies occupation must have taken place somewhere nearby probably for a substantial part of the year. With a similar quantity of cereal pollen present at 0.29m above the base of the cursus ditch, land-use associated with the monument remained fixed for much of its use and some management of the environment seems likely.

Whilst the sites woodland phase is so far unrepresented by the current palaeoenvironmental data, woodland clearance would have marked a major environmental event. Given the frequency of tree throws, which litter the site, woodland was evidently present across the valley. With some tree throws pre-dating the cursus and others containing Later Neolithic pottery, trees were evidently present on site before the Middle Neolithic and in or after the Later Neolithic. The area of tree throws containing scorched soil, burnt stone and charcoal suggests a burning event of considerable scale. The same phenomenon has been identified at a number of river valley sites across southern England, most pertinently Biddenham Loop and Willington in the Great Ouse valley and Raunds, in the Nene valley. It is generally assumed this evidence is the result of woodland clearance by burning (Luke 2008, Harding & Healy 2008). However, a current notion would suggest burning would not be an effective method to clear damp deciduous woodland (Brown 1997). It is more likely these burning events acted to remove the detritus left by clearance (Lambrick with Barclay 2003), or was simply a way of managing woodland, burning off single trees to retain clearings (Moore 1997). At Haversham, charcoal from the tree throws shows woodland comprising oak and wild/bird cherry. The presence of wild/bird cherry, a species, which requires ample light, suggests woodland with openings. More significantly, however, individual tree throws produced only a single species, implying that the charcoal derives from the tree, which stood above that tree throw. This would suggest individual trees were burnt in separate episodes, possibly implying a woodland management strategy as opposed to clearance wholesale. This would be consistent with the evidence for open woodland, implied by the cherry species charcoal. Whilst there is currently no dating evidence for the burning event at Haversham, radiocarbon dating has indicated a Late Mesolithic–Early Neolithic at Raunds (Harding & Healy 2008) and Later Neolithic at Biddenham Loop (Luke 2007). Although we must assume some offset when dating charcoal, the extensive dating program at Willington, Derbyshire has conclusively demonstrated woodland burning was carried out episodically over several centuries of the Late Neolithic and Early Bronze Age. This may be reminiscent of the evidence emerging at Haversham, which could be tested by further charcoal identification and radiocarbon dating.

Monument complex

With the further work carried out on the monuments complex, the relationship between the cursus and barrow is much elucidated. The barrow was probably considerably denuded from its original form, it appears flattened and has probably spread out and

draped itself over the southern cursus ditch. Considering it as a more contracted earthwork when first raised, it seems likely the barrow was carefully positioned off-centre to the cursus, allowing access through its causeway. This would suggest both monuments were in use simultaneously, but not necessarily constructed concurrently. As has already been mentioned, there is no evidence to suggest what sequence the monuments were constructed in. Whilst round mounds are known to pre-date cursuses, the henge at Manor Farm shows the cursus complex was still the focus of monument construction in the Late Neolithic. Beaker pottery recovered from the upper fills of the cursus at Haversham, demonstrates it survived as an earthwork into the Early Bronze Age (Wright 2016). Consequently, the barrow could have been sited in respect of the cursus long after its construction.

The single transect excavated through the barrow was designed primarily to create a record of the monument. It has proved insufficient to set out a basic understanding of the feature. The barrow's date and even its interpretation as a 'burial mound' cannot be confirmed. Although barrow is by far the most likely function of the mound, a turf built long mound and round mound with no accompanying burial were components of the Neolithic monument complex at Raunds (Harding and Healy 2007). Whilst the flint scatter recovered from the surface of the mound may imply an Early Bronze Age date, it cannot be discounted that this was deposited on the mound, as a result of activity taking place on its surface, sometime after its construction. Butchers Rise at Barleycroft Farm also has evidence of Early Bronze Age activity taking place on top of an earlier barrow (Evans and Knight 2000).

The absence of further monuments in the 2016 excavations is of considerable significance and appears at least to mark a substantial break in the Manor Farm/Haversham monument complex, if not its complete termination. The siting of the barrow at the end of the cursus and the 'oval enclosure' adjacent, comprises a noticeable grouping of monuments, which seems to indicate some embellishment to the complex at this point. As Figure 2 shows, the monument complex was sited at the Great Ouse/Tove river confluence, a similar correlation has been observed at another cursus complex in the Ouse valley (Malim 2000) and further afield (Barclay and Hey 1999). It is also clear the complex seems to have a close affinity to the natural topography. Cursus 1 was angled towards the axis of the Tove valley, and the remaining cursuses closely mimic the curvature of the Great Ouse valley. At Haversham, it seems quite likely the entire monument complex terminates in respect of the palaeochannels, which appear to show the Great Ouse meandering from the north bank of the valley to the south, whilst being met by several off-shoot channels or inlets.

Grooved Ware Pits

Grooved Ware pits of the type identified at Haversham are widely perceived as the ephemeral traces of Late Neolithic settlement sites (Garrow, 2006, Thomas 1999). The two fragmented, but complete Grooved Ware vessels inserted into the base of the pits, appeared to have been deposited with some immediacy. The remaining sherds and other artefacts were presumably interred along with the charcoal rich, 'middeny' deposit filling the pits. This was most probably drawn from a more extensive surface context (a 'midden' or 'occupation scatter'), which was subsequently eroded away along with the site's pre-alluvium horizon. Therefore, the artefacts from the pits and those re-

worked into the tree throw represent only a fragment of the original assemblage. The finds assemblage comprised Grooved Ware from four to six vessels, including two sizeable vessels with residue from cooking. Smaller, fine vessels were also represented, indicating a further range of practices (storage, consumption, etc.). The flint assemblage represents low-level working, including evidence of axe production or work down of spent axes (Beadsmoore, this report) and scrappers were the only tool types present in the assemblage. Faunal remains indicate subsistence based around pig, cattle and possibly sheep. Unfortunately, no evidence of plant-based subsistence survived. The red deer antlers were likely utilised as tools, probably for knapping. With burnt stone also present, the assemblage generally reflects domestic practices typically associated with Later Neolithic settlement, but with low vessel representation and no indication of domestic plant remains, there is little evidence to reflect settlement of any scale or longevity.

Palaeochannel use

The function of the posts driven into the palaeochannels is ambiguous. With few comparative sites seen across the county, even fewer are Mesolithic–Neolithic. In many cases, groupings of posts in palaeochannels are seen as structural remains, which supported a platform or bridge, (such as Yarnton for example (Hey 2016)). However, function has only convincingly been deduced where posts were associated with horizontal elements, such as hurdle weirs or fish traps, as seen at Must Farm (Robinson *et al.* 2015) or Stainton West (Brown 2011). Of significance here, the latter site was convincingly dated to the Neolithic.

Given the *ad hoc* arrangement of posts with tenuous alignments seen in Wood Group 1 and 2 at Haversham, perhaps task related practices, such as fishing or moorings is a more appropriate interpretation. Nets or weirs could easily have been run between the timber upright in Wood Group 1 and 2. At Haversham, the post groups (Wood Group 1 and 2) were concentrated in parts of the channels where rich organic silt accumulated. Whilst this could feasibly be a context where the timbers would be less prone to erosion, the usage associated with this post group was perhaps directly related to their context. These slow-water, vegetation rich habitats may have yielded abundant resources (fish or plants), which were being exploited. Further work to understand which plants and fauna populated the organic sections of the channels may be instrumental in understanding the function the posts played.

Neolithic–Early Bronze Age activity in the Milton Keynes area

The sequence at Haversham begins with trace evidence of Mesolithic and Early Neolithic activity. Represented by worked flints from tree throws, the scale of this evidence is hard to gauge. With heavy erosion of the pre-alluvium horizon, much evidence of activity during this period has potentially been lost. Across the Milton Keynes area, evidence from this period is sparse, residual flint scatters at Pennyland and Hartigans (Williams 1993), and pits identified at Broughton (Atkins 2014) and Fenny Lock (Ford and Taylor 2001) account for low level settlement and other activity, which was confined to the Great Ouse valley and tributaries. Although the timber posts

in the palaeochannel can only broadly be dated to the Mesolithic–Neolithic, these features reflect the utilisation of the watercourse for episodes of utilitarian activity.

By the Middle Neolithic (c.3500–3000), the cursuses dominate the valley, certainly as physical entities or 'monuments'. However, it is difficult to quantify practice associated with these features. Peterborough Ware pits at Salford (Dawson 2005) provide evidence for the only contemporary settlement activity in the Milton Keynes area. Biddenham Loop (Luke 2017) some kilometres further down the Great Ouse is one of the nearest sites with substantial Middle Neolithic settlement evidence. However, the Great Ouse and to a lesser extent the neighbouring Nene valleys are known for their numerous cursuses complexes.

By the Late Neolithic the cursus is still an earthwork within the landscape, but settlement and utilitarian activity is practiced within the valley. Grooved Ware pits were also present in the 2015 excavation area at Haversham (Wright 2016) and Grooved Ware associated settlement evidence was identified at Stacey Bushes (Greene & Sofranoff 1985) in the Loughton Brook valley just to the southeast. An assemblage of Grooved Ware, faunal remains and worked flint was also recovered from the henge at Manor Farm (Hogan 2013). Whilst it is difficult to gauge the scale or duration of these sites, especially considering the material was derived from an extant surface context, the small finds assemblages recovered from these sites probably attests to short episodes of settlement. However, the henge may imply activity of a different nature. With domestic animals dominating Late Neolithic faunal assemblages and wild species dominating plant assemblages, pastoral activity is assumed to be a feature of land-use at this time.

Whilst the barrow could feasibly be added to the monument complex during the Early Bronze Age, the worked flint collected from the surface of the mound attest to activity of this period. Whether this took place on the barrow itself or elsewhere on site, the absence of pottery or faunal remains suggests this was task related activity.

Later Prehistory

As has been made clear throughout this report, the dearth of artefacts from the site has resulted in poor phasing. This is abundantly clear for the later prehistoric archaeology. The features, which represent this phase, pit alignments and wateringholes, are seen widely on sites across the region, and therefore their chronology is already defined. This would suggest a Bronze Age–Iron Age date for the wateringholes and Iron Age date for the pit alignments. Pottery from the upper fills of Pit Alignment 2, suggests this was at least an earthwork in the Middle Iron Age. Although the purpose of pit alignments is still seen as enigmatic and the choice of pits over a continuous ditch has been seen by some as symbolic (Pollard 1996), both pit alignments and wateringholes alike, are seen as utilitarian features (Rylatt and Bevan 2007), a distinct contrast to the monuments of the Neolithic phase. A considerable amount of alluvium had formed in

the valley by the Iron Age, indicating more exaggerated flooding, which would make the site unsuitable for use at certain times of the year.

Whilst no artefacts or palaeoenvironmental evidence was recovered from the wateringholes to provide evidence of land-use, the presence of these features alone strongly suggests pastoral activity. Although their use cannot be assigned to a specific period, some sense of chronology can be established. The broad rectilinear alignment of the wateringholes implies these features were sited on some form of boundaries. It is possible this was delineated by a hedge or lightweight fence. Such divisions would have had limited subsurface impact and little to no trace archaeologically, accounting for their absence on site. If the wateringholes were in fact sited on a shared set of boundaries, it would imply these features were broadly contemporary, representing a clear phase of activity. With Pit Alignment 1 re-cutting this axis, it would suggest the pit alignments were superimposed over these divisions.

Pit Alignments, environment and land-use

With little archaeological or palaeoenvironmental evidence dated to the Bronze Age, palaeoenvironmental data from the pit alignments, marks a further detailed environments study. As the pit alignments cut alluvium, it is evident flood events had much aggraded the valley. This had eradicated much of the valley's early contours, giving it a flat-bottomed profile, more akin to its contemporary appearance. All the palaeochannels on site had dried up and the Great Ouse had migrated to the north, beyond the limits of the excavation. The Iron Age environmental characteristics were similar to those of the Neolithic. Pollen and waterlogged plant remains were dominated by meadow species with frequent weed species, which colonised bare or broken ground, which was also present. Relatively high cereal pollen provides evidence of arable activity, but the almost total absence of waterlogged cereal remains suggests cultivation took place off site. The detritus of chaff and stem fragments inevitably created during harvest would presumably register as a considerable component of the waterlogged plant assemblage if cereal production had taken place on site. It is therefore apparent that the bare or broken ground plant species imply trampling from pastoral activity. The abundance of weed species in the samples from Pit Alignment 3 show considerable disturbance in this area. The ample aquatic plant remains, demonstrate that the pit alignments were evidently waterlogged for long periods, becoming overgrown with vegetation. Aquatic species in the pollen spectra may also be registering vegetation growing on the margins of the river channels. Alder, hazel and juniper pollen provide evidence of woodland and scrubland/hedgerows in the broader landscape. Spores of the polypody fern indicate stands of mature woodland. Whilst Apple/pear/whitebeams, hawthorn and abundant blackthorn/hawthorn roundwood was present in the pit alignments, these species were not represented by pollen. However, as insect pollinated species, they are unlikely to register any significant pollen signature unless they were sited immediately over that feature. As these scrub/hedgerow species would shed leaves, seeds and fruits annually, this would no doubt show as a component of the waterlogged plant remains, if they were located anywhere near the pit alignment. As a result, these branches must have been collected away from the pit alignment or off site and imported, possibly for use as construction material. A number of these pieces were clearly trimmed to points and probably used as stakes in structures such as a fences. The thorny branches making up the majority of the assemblage would likely have

created an effective barrier. Whilst there is no evidence to associate fences directly with the pit alignments, the ditches possibly associated with Pit Alignment 2 (F.244, F.328 and F.346) suggest other divisions may have been established across the site.

Whilst palaeobotanical evidence has produced a vivid understanding of the pit alignments environmental context, the alluvium has provided the conditions to preserve banks and up-cast features associated with the pit alignments. Although these features were not seen along the full length of the pit alignment, evidence suggests up-cast banks were deposited either side of the pit alignments. A coherent bank was placed to the southeast of all pit alignments, whereas the material cast to the northwest was less formal. A considerable amount of material was also heaped up between the pits and the ditch of Pit Alignment 3, which seemed counter productive as the majority of this soon eroded back into both the ditch and pits. Even though the up-cast material was much diminished from its original form, its distribution around the pit alignments seems *ad hoc* in nature and may have appeared somewhat untidy.

Pit alignment in the Milton Keynes area and Iron Age land-use patterns

The rich palaeoenvironmental remains show quite vividly that in the Iron Age the valley bottom was grazed meadow, divided up by pit alignments and episodically submerged by floodwater, following heavy spells of precipitation. Ditches and fence lines may have defined subdivision. Cereal cultivation was carried out within the broader landscape, probably clear of the floodplain. Stands of mature woodland and scrubland/hedgerow were also present and utilized for gathering wood as a raw material. The only known contemporary settlement in the immediate area was located at Bancroft. This was sited on the valley side, above the Loughton Brook floodplain. This mosaic landscape of pasture, cereal plantation, woodland stands and settlement, appears carefully ordered, placing settlement and cereal production on higher ground above the flood margin, with the lush floodplain reserved for pastoral use. Faunal evidence from Bancroft, the nearest known contemporary settlement, would suggest cattle were the favoured livestock, but sheep were also reared. Whilst it appears, land-use was dictated by geography and the environment, all practices rarely strayed far beyond the river valleys.

Whilst other studies have suggested pit alignments divide areas of contrasting land-use (Rylatt and Bevan 2007), it is clear at Haversham that land-use was uniform across the site. The pit alignments ran perpendicular to the valley, breaking up the floodplain into sections and possibly using the river, located to the north of the site in the Iron Age, as a boundary. This shows a close relationship with geographical features, as has been noted at other sites (Bradley 2007). With the land-use at the time evidently pastoral, the pit alignments may have functioned to separate meadows, possibly allowing areas to regenerate after periods of heavy grazing. The abundant weed species, particularly seen in plant remains from Pit Alignment 3, show the damp floodplain meadow was heavily disturbed. Alternatively, the pit alignments could have separated livestock or even tenures. The pit alignments did not terminate within the limits of excavation, and probably extended beyond the valley bottom. Evidence from across the region, illustrates that pit alignments could extend over kilometres, across huge tracts of land. As the pollen spectra shows, the environment differed beyond the confines of the valley, therefore, their function beyond the floodplain may have differed. At sites such as

Biddenham Loop or Gayhust, the pit alignments divide the landscape on an immense scale, with the Biddenham example, cutting off a huge meander of the river Great Ouse (Luke 2016). In contrast, the Haversham pit alignments were more tightly spaced. Whilst their spacing has partly implied their function, to facilitate pastoral activity, the Haversham pit alignments were perhaps utilised differently to other known examples.

ASSESSMENT OF POTENTIAL

Artefactual analysis

The limited finds assemblage detailed in Table 14 provides little potential to understand the archaeology on site, at least for the two main phases. The use of both the Neolithic monuments and pit alignments did not result in deposition of abundant material, therefore, interpretation will be based on other indicators. The Grooved Ware pit cluster assemblage would be the only exception to this. From a sealed Neolithic context, this material provides the potential to reconstruct Late Neolithic practice. With other known Later Neolithic assemblages in the immediate study area, this is a small, but valuable component of the sites. Whilst the worked stone, burnt stone and animal bone requires no further analysis, further work on the remaining materials is outlined below.

Material type	Quantity	Weight (g)
Flint	105	911
Neolithic pottery	355	5962
Iron Age pottery	426	2056
Burnt stone	29	6660
Worked stone	2	6460
Wood	405	-
Human bone	1	200
Cremated human bone	-	308
Animal bone	341	1464

Table 14: Excavation total assemblage breakdown

Neolithic Pottery

It is rare to find two largely complete Grooved Ware vessels. As an important component of the Late Neolithic finds assemblage, the pottery will help to define the characteristics of the site's occupation, in relation to regional Later Neolithic practice. The pottery will receive full analysis and integration with contemporary assemblage from earlier phases. Selected sherds and vessels will also be drawn.

Iron Age pottery

Derived from a single vessel deposited in Pit Alignment 2, the assemblage is of limited potential, but further analysis to refine its dating and type of vessel would be beneficial, as would illustration.

Flint

With much of the flint from tree throws, later features or open contexts, it is largely derived and therefore, a proxy for activity across the site. Whilst some implements from the barrow assemblage may require illustration, the Grooved Ware pit cluster assemblage is significant in understanding activity on site. This will require integration with material from early phases of work and further analysis.

Wood

The wood assemblage has potential as an environmental indicator and as artefacts of past practice. Further identification of species from the pit alignments would be useful to understand the composition of the surrounding habitat and how this was exploited as a resource. Some illustration or photography of selected posts from the palaeochannels would be useful to represent wood working techniques.

Radiocarbon dating and dendrochronology

As the lack of artefacts from the site has made phasing difficult, radiocarbon dating will be important to remove the current ambiguity. All features with dendrochronology or radiocarbon dating potential are detailed below.

- ***Grooved ware pits***
  Large pieces of antler and animal bone as well as carbonised residue on the pottery are secure samples for radiocarbon dating. With Late Neolithic activity seen across the Manor Farm/Haversham site, radiocarbon dating would provide evidence to understand whether this was a single phase or multiple episodes.

- ***Wateringhole***
  Short life roundwood was recovered from the base of pit F.202 and is the only wateringholes with suitable radiocarbon samples.

- ***Pit alignments***
  Frequent short life roundwood specimens from the basal context of all pit alignments are secure samples for radiocarbon dating. There are currently few good radiocarbon dates for pit alignments across the region and country. Dating could indicate to some extent whether all pit alignments on site were contemporary.

- ***Cremation***
  Ample cremated bone from both cremations will provide accurate dating for these otherwise undated features.

- ***Tree throws***
  The burnt material from the tree throws may be evidence of woodland burning for clearance or management (see *Discussion*). This represents an important environmental event, with probable anthropogenic influence, which would be important to date. Whilst radiocarbon dating charcoal is likely to result in some offset, short life tree species, such as cherry or hazel, (up to 60 years life cycle) could be targeted. Multiple dates, if possible could decipher whether this was a single event or episodic burning (see *Discussion* for detail).

- ***Palaeochannels***
  Some 15 of the 31 posts driven in to the palaeochannels have medium–high dendrochronology potential and all have radiocarbon dating potential. Whilst this will provide dating of the post related activity, it will also provide some chronological understanding for the palaeochannels. This will be useful to relate active palaeochannels to other phases of activity across the site (i.e. monument complex). Of significance here, dating posts driven from the top of Palaeochannel 4 and articulated animal bone in the lower sediments will provide accurate dating for a palaeoenvironmental sequence. Dendrochronology will require the dating of many samples and has no guarantee of success (I. Tyers, pers. comm.). Samples must also be chosen on the basis of ring counts as opposed to stratigraphic location or context. Therefore, in this circumstance strategic radiocarbon dating may more appropriate to articulate the palaeochannels sequence and the date of channel use.

Environmental analysis

As the site was directly on the floodplain, fluvial processes made for an unstable environment. The geography and environment here was seen to alter more rapidly than on other sites. Whilst this makes the palaeoenvironmental sequence more significant, it has provided an excellent context for preservation of environmental material. The preservation conditions in the pit alignments and cursus have already been exploited and a good preliminary understanding of the palaeoenvironmental has been achieved. Whilst there is potential for further analysis here, the palaeochannels also provide another excellent resource, but these features could be characterised in more detail and

dated more accurately. Beyond botanical remains, geoarchaeological analysis is possible for the multitude of surviving deposits (buried soil, the barrow, alluvium, etc.). As burnt material in tree throws may evidence woodland clearance, a major environmental event, this could be targeted for further work. Whilst there is clearly abundant palaeoenvironmental data, it must be extracted from contexts, which are well dated. So far, well dated features comprise the cursus and pit alignments, but is likely to included Palaeochannel 4, as the post driven from the top of the channel and articulated bone in lower deposits are secure radiocarbon samples.

Geoarchaeology

A number of features and deposits have potential for further analysis. Whilst the buried soils and barrow would benefit from detailed technical description, this would be particularly significant for the palaeochannels. The channels were clearly utilised in early prehistory and probably had some influence on the siting of the Neolithic monument. Further understanding of the characteristics, habitats and chronology of the palaeochannels would be complementary to the broader interpretation of the site.

The buried soils, the horizon sealed beneath the pit alignment banks and the barrow could be further understood through micromorphological assessment. Whilst this would provide an understanding of the pre-alluvium soil formation, soil condition, alluviation and land-use, it could also clarify the construction sequence, of the barrow (contact between the primary and secondary mounds).

Palaeobotanical evidence

Whilst pollen has been important to infer the Middle Neolithic environment, the combined results of the pit alignments plant remains and pollen spectra have created a vivid understanding of the Iron Age landscape. As the plant remains refer to the immediate environment surrounding the context they were recovered from, processing a small quantity of additional samples from the pit alignments will provide a more complete understanding of Iron Age land-use across the site. The well dated Palaeochannel 4 has high potential for preservation of both plants remains and pollen. The sequence here is likely to date the Neolithic and should therefore be complementary to a significant phase of archaeology, which will have relevance to Wood Group 2 that was sited adjacent to the column sample.

Insect remains

Assessment of insects/beetles present in the pit alignment will be helpful to support the current evidence for pastoral use in association with these features. Insect are likely to be preserved in Palaeochannel 4 deposits and could provide further evidence of land-use and environment.

Wood

The wood assemblage from the pit alignments is an important component of the sites palaeoenvironmental assemblage. Whilst pollen has indicated that woodland and scrubland was a component of the broader environment, the wood assemblage may be a link to how this was utilised and exploited. Even though much of the wood from Pit Alignment 2 was preliminarily identified as blackthorn/hawthorn, this is yet to be confirmed. Species identification of wood from the pit alignments will be helpful to demonstrate which species were present on site and which were sourced off-site.

Wood charcoal

Many tree throws from across the site contained significant amounts of burnt material, which has been seen here and elsewhere as evidence of woodland burning for clearance or management (see *discussion* for detail). Whilst preliminary samples of wood charcoal from the tree throws was successful in providing some understanding of the composition of the site 'woodland phase', further species identification would probably prove significant. As it is important to radiocarbon date the burning event/events, identifying charcoal to species will also be important to obtain short life samples.

Statement of potential

The Haversham site has two significant phases of archaeology, the Neolithic and Iron Age. Both phases relate directly to the archaeology at Manor Farm and essentially form the same site. The Haversham/Manor Farm cursus complex is one of the most extensively excavated sites of its type, which has provided abundant data to test preconceived notions about these enigmatic monuments. The palaeoenvironmental evidence and palaeogeographical understanding also allow an appreciation of how the cursuses interact with the landscape and environment. In a broader context, contemporary monument complexes are seen in the Great Ouse valley and neighbouring Nene valley. The Iron Age phase, dominated by pit alignments has provided abundant environmental evidence, which allows an appreciation of land-use and their potential function, which for these features, is little understood. Whilst it was argued that, the Haversham pit alignments were more tightly spaced than other examples and perhaps served a more idiosyncratic use, the palaeoenvironmental evidence and preservation of surface features, provided an unparalleled understanding of these features and their associated land-use.

REVISED RESEARCH AIMS

- Carry out a radiocarbon dating program, focusing on the post in the palaeochannels, the palaeochannels, Grooved Ware pits, Pit Alignments and cremations
- Woodland burning event — identify further charcoal from tree throws and radiocarbon date suitable samples
- Consider the Neolithic monument complex in relation to Manor Farm and broader monument complex in the Great Ouse valley
- Consider the monument complex in relation to topography, rivers and other natural features
- Consider the monument complex in the context of the Great Ouse valley complexes
- Carry out a study of Late Neolithic occupation and activity in the immediate area
- Present pit alignments in relation to Manor Farm and consider broader Iron Age activity in the study area

PUBLICATION AND DISSEMINATION

The Haversham excavations will be published alongside the results from Manor Farm in a series of papers. This will comprise,

- Mesolithic–Neolithic activity, the monument complex and palaeoenvironmental sequence
- Iron Age pit alignments, land-use and palaeoenvironmental sequence

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SPECIALIST STUDIES

Late Neolithic Pottery — *Alasdair Wright and Mark Knight*

A total of 355 sherds (and many crumbs), weighing 5962g were recovered from four features, three pits and one tree throw. The entire assemblages is Grooved Ware of the Durrington Walls Style. A minimum of four and a maximum of six vessels are represented, with the majority of the assemblage derived from two vessels (87% by sherds count, 94% by weight).

Some 185 sherds (4220g) represented Vessel 1. Many of these re-fitted (thanks to the skills of Floor Huisman). This large, grog tempered vessel measured 23cm in diameter across the base (not enough of the rim survived to estimate its diameter). The vessel was barrel shaped with no shoulder and a simple rim. Closely spaced (1–2cm) vertical cordons were profusely used across the body, with three horizontal cordons applied to the neck. Carbonised residue was present on the interior of the vessel, largely on the base and lower body sherds. A little residue and some sooting was also present on the exterior.

Vessel 2 (121 sherds, 1357g) was smaller, much more fragmentary with few re-fitted sherds. This coarse, shell tempered vessel was barrel shaped in form. Its rim was rounded, tapered and slightly in turned. The vessel was entirely plain.
A few sherds of a small, fine, grog tempered vessels (V3) were present in the assemblage, and several sherds in a hard shell tempered fabric account for a further vessel (V4). A number of plains sherds and sherds with vertical cordons were also present. It is uncertain whether these belonged to the Vessels 1 and 2, or represent additional vessels.

Closed form and use of vertical cordons is clearly indicative of Durrington Walls style of Grooved Ware. Whilst Grooved Ware is seen nearby at Stacey Bushes (Green and Sofranoff 1985) and across the Haversham/Manor Farm stretch of the Great Ouse, a vessels embellished with solely with vertical cordons was recovered from the 2015 phase work (Wright 2016). Entirely plain Durrington Walls style Grooved Ware is unusual, but similar vessels have been identified at Over site 4 (Garrow 2006).

Iron Age Pottery — *Kate A Beats*

A total of 426 sherds (2056g, plus crumbs) of pottery were recovered from Pit Alignment 3 F. 241. These sherds came from a single vessel, which despite there being a high quantity of sherds, identification has been difficult. This was due to the vessel's fragmentation, which means that it was no possible to reconstruct a complete profile. However, it is most likely a slack-shouldered Middle Iron Age. Ceramic phasing was

partly based upon the application of light scoring to the vessel body. This is considered in the tradition of East Midlands Scored Ware. The vessel has been classified as courseware, due to its decorative style and the use of poorly sorted fossil shell fabric.

Clues towards the intended function of the vessel can be found in the large diameter of the vessel (25cms), which points to its probable use for food storage. There was no evidence of soot or carbonised residue, making its use in food production unlikely. With regards to its depositional story, it appears that the vessel arrived in the pit as an incomplete vessel as there was no sign of a surviving base or complete rim diameter. The mean sherd weight is 5g and there are no sherds larger than 8cms. Further fragmentation must have taken place in the ground which leaves the potential for refitting.

When viewed alongside the Middle Iron Age assemblage from the previous phase of excavation, this vessel contributes to a picture of the use of later Middle Iron Age ceramics in the area, and the nearby site of Biddenham Loop (Wells 2016).

Flint — *Emma Beadsmoore*

A total of 141 (976g) flints were recovered from the site; 105 (911g) were unburnt and worked, 7 (65g) were burnt and worked, whilst 31 (118g) were just burnt. The flints are listed by type and feature in Table 15.

Thirty-four of the flints were recovered from three Grooved Ware pits, F. 217, F. 218 and F. 219. All of the flints were worked and six were also burnt, providing evidence for a post manufacture/use, pre-deposition deposit. The Grooved Ware assemblage comprised predominantly working waste with evidence for systematic flake production/core reduction, focused predominantly on the production of thin but broad flakes. Further evidence for systematic core reduction was provided by a core rejuvenation flake. Several thinning flakes were also in the pits; a honey coloured flint axe thinning flake from F. 219 and three others from F. 218, which were either from discoidal core reduction or biface manufacture. Evidence for tool use was provided by three scrapers.

Two tree throws yielded twenty-six flints, comprising two flakes, broadly datable to the Neolithic, and twenty-four unworked, burnt chunks. A blade was recovered from the Palaeochannel, which potentially dates to the Late Mesolithic/earlier Neolithic.

The remaining eighty-one flints were recovered from the primary barrow material [1527], the barrow trench backfill [806] / [1551] and the surface of the barrow [242]. The flints from the primary barrow material comprised a potentially Neolithic flake, an unusual scraper, with concave retouch, but also potentially broadly Neolithic and a neat core rejuvenation flake, the product of systematic core reduction prevalent in the Neolithic. The barrow trench backfill yielded several flakes, some of which were irregular, a Neolithic scraper, a thinning flake, either the by-product of axe manufacture

or discoidal core flake production, a flake knife, likely to be later Neolithic and two cores.

	Type																					
Feature/ context	chip/chunk	primary flake	secondary flake	tertiary flake	thinning flake	secondary blade	tertiary blade	end scraper	side scraper	end and side scraper	flake knife	barbed and tanged arrowhead	miscellaneous retouched flake	serrated flake	core rejuvenation flake	irregular core	opposed platform core	multpile platform core	core fragment	keeled core	unworked burnt chunks	**Sub totals**
F. 217	1	1	3	2				1														**8**
F. 218	3		11	7				1		1					1							**24**
F. 219					1														1			**2**
F. 234																					7	**7**
F. 270						1																**1**
[1]		1		1																	24	**26**
[242]	9	2	16	10		2	1		1		1	2	4	1	5	1	1	3		1		**60**
[806]		1	2								1											**4**
[1527]			1																			**1**
[1527.4]								1							1							**2**
[1551]			2		1			1										1	1			**6**
Totals	**13**	**5**	**35**	**22**	**2**	**3**	**1**	**4**	**1**	**1**	**2**	**2**	**4**	**1**	**7**	**1**	**1**	**4**	**2**	**1**	**31**	**143**

Table 15 –Flints listed by features/context and type

Sixty flints were recovered from the surface of the barrow, comprising flint working waste and tools. The waste/blank flakes included narrow flakes and blades that are the products of systematic flake production/core reduction, prevalent in the Late Mesolithic/earlier Neolithic. Further evidence for this type of systematic flake production/core reduction was provided by at least three core rejuvenation flakes, one of the multiple platform cores and a retouched flake. However, other waste/blank flakes, two of the core rejuventation flakes and several of the cores were more characteristic of the still comparatively systematic flake production/core reduction prevalent during the later Neolithic/Beaker/Early Bronze Age periods. Further evidence for Beaker/Early Bronze Age activity is provided by two barbed and tanged arrowheads.

The flint recovered from the barrow material and the trench backfill is broadly datable to the Neolithic, with some evidence for later Neolithic activity. Whereas the flint that was on the surface of the barrow is chronologically mixed, with clear evidence for both Late Mesolithic/earlier Neolithic an later Neolithic/Beaker/ Earl;y Bronze Age activity.

Faunal Remains — *Vida Rajkovača*

A small assemblage was recovered with a raw count of 341 fragments and a total weight of 1464g. Of this figure, only some 26 assessable specimens were recorded, and 18 were identified to species. Preservation was varied, with the channel-derived bone being in generally better state of preservation compared to the material from the Grooved Ware pits. Red deer antler tine, a mandible fragment and a chopped radius were recovered from Palaeochannel 2 (F.4), and four fragments of cow and cow/aurochs bone were obtained from Palaeochannel 4 (F.300). These comprised, the midshaft of a right cow humerus, a small aurochs-sized (measurement was not possible) metatarsus, and a vertically split aurochs-sized right tibia, which was unfused proximally, but epiphysis was present and articulated. Dominated by pig, the Grooved Ware associated material was heavily eroded and highly fragmented. Red deer was represented entirely by antler fragments.

	Palaeochannel 2	*Palaeochannel 4*	*Grooved Ware pits*		
Taxon	F.4	F.300	F.216	F.217	F.218
Cattle		1			
Cattle/Aurochs		3			
Pig					9
Red deer	3		1		1
Sub-total to species	**3**		**1**		**10**
Cattle-sized	1			1	
Sheep/ pig-sized					4
Mammal n.f.i.				2	
Total	**4**	**4**	**1**	**3**	**14**

Table 16. Number of Identified Specimens for all species from all contexts; the abbreviation n.f.i. denotes that the specimen could not be further identified.

Human Bone — *Benjamin Neil*

Two cremations and a disarticulated fragment of left tibia are reported. Cremations F.234 and F.235 were located south of Pit Alignment 2, towards the northeast end of the alignment. The fragment of tibia was found within the basal gravels of Palaeochannel 2.

Sub-Adult				**Adult**				
Neonate	Infant	Juvenile	Sub-adult	Adult	Young adult	Young Middle adult	Old Middle Adult	Mature adult
<6months	0-4	5-12	13-18	18+	18-25	26-35	36-45	46+

Table 17: Age estimation

The cremations were processed through a 1mm nylon mesh over a 90L floatation tank, then through a set of three tiered Endecotte sieves at 10mm, 5mm and 2mm. Each fraction was measured for volume using graduated borosilicate beakers and weighed using a 500g x 0.01g digital scale. This allowed the calculation of a fragmentation index (FI) (Harvig & Lynnerup 2013). Age was estimated by broad developmental, dimensional and degenerative characteristics (Table 17). The level of oxidation and thermal alteration was recorded according to criteria outlined by Buikstra et al. (1994) and McKinley (2004: 9-13). Bone dimension was measured using a 150mm digital sliding calliper (with a resolution of 0.01mm and accuracy of ± 0.02mm). The disarticulated bone was recorded according to zonation criteria set out by Knüsel & Outram (2004). Stages of preservation followed the notation system developed by Mckinley (2004: 16).

Feature	Type	(g)	(ml)	FI	Representation	Oxidation	Age	Sex
234	Pit	242.23	293	0.83	Skull, teeth, radius, ulna, vertebrae, phalanx, plus diaphyseal, flat and irregular bone types	White: c.85% Tan/Black: c.15%	Adult	Indet.
235	Pit	65.25	92	0.71	Skull, teeth, ribs, pelvis plus diaphyseal, flat and irregular bone types	White: 100%	Neonate	Indet.
238	Tree throw	0.91	2	0.5	diaphyseal, flat and irregular bone types	White: 100%	Sub-adult	Indet.

Table 18: Summary of the cremations

Feature	Context	Element	Age	Sex	Zones	Modification	Taphonomy
04	1028	Left tibia	Adult	Indet.	7, 8	Possible distal chop mark directed obliquely from a posterolateral-superomedial direction. The 'mark' terminates in the medial third of the cortex.	Preservation: 1 General dark brown stain with dark greyish-black dendritic marks Stepped fracture proximally, with longitudinal cracking Distal apex is rounded but unlikely though usewear

Table 19: Summary of disarticulated remains

The estimation of sex for all the skeletal material was classed as indeterminate due to a lack of measurable elements. The thermal alteration of the bone from F.234 was predominantly confined to transverse cracking. Thicker diaphyseal fragments had an oxidised surface yet the cortex remained carbonised. The medullary cavity of these

fragments were variably oxidised as indicated by white, blue-grey and tan colours. This, together with indications of shielding suggests dynamic fire behaviour that may have been influenced by limited fuel and oxygen availability. The range of identified elements were confined to the skull, arms and vertebrae, which might be interpreted as a product of human agency (i.e. a selection criteria). However, the unidentified diaphyseal like bone, especially the thicker cortex fragments may be attributable to the legs. The fragmentation index suggests minimal post cremation agency. This cremation sits below the range of an average British archaeological cremation (600-900g) (McKinley 2013). In relation to the weight of an average modern adult cremation, (2016.4g) (McKinley 1993) it represents around 12% of an individual.

The thermal alteration to the bone of F.235 indicated complete oxidisation, suggesting an optimal pyre temperature and duration. The range of identified elements were confined to the axial skeleton; however, the identified bone type suggests representation of the whole body. It is likely that the small quantity of cremains from tree throw F.238 were from the same individual found in adjacent F.235.

Worked Stone — *Simon Timberlake*

A total of 2 worked and utilised stones were identified. These consisted of a hammer stone, saddlequern and rubbing stone.

SF 103 — Recovered from a tree throw, this hammerstone consisted of a well-rounded and smooth oval-shaped cobble of quartzitic sandstone which was utilised at both ends (145mm x 80mm x 85mm; 1.46g). This possesses small sub-flattened pounding facets of 30mm diameter on each of the narrowest points. One of these was slightly flatter and better-used than the other. The hammerstone seems likely to be prehistoric, perhaps Neolithic in date.

SF 100 — Recovered from Palaeochannel 2 (F.4 [1028]), this saddlequern was made from a large block of quartzitic sandstone sarsen (340mm x 210mm x 130mm; weight >5kg) with a moderately-well polished grinding surface (432 sq cm), which was level except for a very slight depression of <1mm in the middle. There is very little, but just some minor traces of contemporary wear polish along several of the edges. There is no other evidence for working on this, but the scratches are modern, and perhaps relate to its machine-removal from the excavated feature. The saddlequern itself was recovered from a pre-Iron Age palaeochannel, yet it shows no distinctive characteristics of pre-Iron Age type saddlequerns.

Burnt Stone — *Simon Timberlake*

The burnt stone was assessed visually with the aid of a x10 illuminated hand-lens, weighed, measured and where relevant tested for calcium carbonate using a 10% solution of hydrochloric acid. Attention was paid to the possibilities of re-fitting cobble stone fragments and evidence for pre or post-burning working or utilisation.

Feature	Context	Nos. pieces	Size (mm)	Weight (g)	Geology	Comments
130	822	1	40	40	quartzitic sstn	fragment
133	827	2	50 + 105	465	cherty sstn + quartzitic sstn	burnt but unfragmented
216	1076	2	70-90	834	laminated fissile micac sstn + med gr soft sstn	heavily burnt and water quenched
216	1077	3	90-160	1871	quartzitic laminated fine-grained sstn + med g quartzitic sstn + hard sstn	reddened burnt + mostly complete
217	1080	7	32-130	2857	laminated soft fissile sstn + coarse gr soft sstn + dolerite (x5)	lamin sstn same <45> +dolerite all one cobble
218	1086	8	30-80	310	felspathic cherty sstn + lamin ripple bedded sstn + quartzitic sstn + Bunter metaquartzite + soft sst + micac sstn	small fragments of cobbles well burnt
218	1084	5	15-50	255	fissile micac sstn + hard micac sstn(x2) + fine g quartz sstn	strongly burnt
219	1089	1	52	31	garnetiferous metaquartzite	fragment

Table 20: Burnt stone catalogue.

Results

A total of 6660g (29 pieces) of burnt stone was recovered from 6 features (8 contexts), of which the largest amounts came from F.216 (2.7 kg) and F.217 (2.86 kg). No fragments of worked or utilised stone were found amongst this, all of the pieces being quite strongly burnt, and some of it also water-quenched and fragmented. When fragmented, the average size of these burnt stone fragments was between 50-60 mm. The majority of this consisted of fragments of burnt and reddened pebbles/cobbles of sandstone, with fragments of dolerite amongst it. Most therefore showing signs of having been intentionally fired within open fires, perhaps as cooking stone, but in most cases with strong indications of cracking and disintegration of the grains and cement as a result of quenching in water. It seems likely that most of this burnt stone is prehistoric, the stone having been gathered locally from the glacial erratic component of the gravel terraces.

Discussion

Approximately 92% (by weight) of this burnt stone comes from Late Neolithic (Grooved Ware dated) pits (F.216, F.217 & F.218), within which it appears to be deposited as rubbish, sometimes alongside pot, the original cooking pits and hearths, being shallower, are mostly truncated. Insufficient burnt stone was collected during the course of excavation to draw many conclusions about the size and type of stone burnt, yet the absence of many large cobbles (i.e. >100mm diameter), and the presence also within some features of small cracked and quenched fragments of just 30-80mm (i.e. F.218) is characteristic of pre-Iron Age burnt stone (cooking pits). Also, the absence of evidence for the re-use of discarded worked stone, such as saddlequern, supports this notion. Useful comparisons can be made with other river valley excavation sites where Neolithic or Early Bronze Age landscapes have been found associated with burnt stone mounds/spreads and cooking pits, such as Babraham in South Cambridgeshire (SEE Armour & Timberlake 2006; Timberlake 2014; Timberlake, Armour, Collins & Dodwell etc. *forthcoming in prep*.).

Waterlogged wood — *Iona Robinson Zeki*

405 pieces of waterlogged wood from the 2016 phase of excavations at Haversham Road Quarry were examined for this assessment. The assemblage was derived from three distinct contexts: The palaeochannels, pit well F.202 and Pit Alignments 2 and 3. The wood is assessed under these headings.

The wood was recorded on-site and off-site (at the Cambridge Archaeological Unit) between 2016 and 2019. The condition of the wood was assessed using the 0–5 scale developed by the Humber Wetlands Project which considers the clarity of the surface data on the material and its potential for use in various forms of analysis (0 = not viable for further assessment – 5 = excellent preservational condition; Van de Noort et al. 1995, table 15.1). Macroscopic identification to taxa was undertaken where distinct morphological traits were observed with a hand lens. In this assemblage, such macroscopic identifications were limited to oak (*Quercus* sp.). In all other cases, sub-samples were retained for microscopic identification to taxa, if the condition of the item was suitable. The angle and shape of cut roundwood was described following Coles & Orme's categorisation of worked roundwood (Coles & Orme 1985, 25–29). Terms defining wood conversion follow those set-out by Orme & Coles (1983) and by the Museum of London (Spence 1994, fig. 32). Roundwood is defined here as wood of any diameter that has not been transformed through splitting, hewing or sawing into a converted timber. Part-transformed roundwood, where a good proportion of the wood's original outer surface remains, is categorised as modified roundwood. The dendrochronological potential of wood was assessed following Historic England Guidelines (English Heritage 1998, 15).

Palaeochannels

Some 35 pieces of wood were recorded from the palaeochannels (Table 22). The majority of these items came from Palaeochannel 4, with smaller assemblages from Palaeochannels 1, 2, 3 and 5. Many of these items had no clear association to each other, but there were two discrete groups of spatially associated items: Wood Group 1, in Palaeochannel 3, and Wood Group 2, in Palaeochannel 4. The condition of the material from the channel was varied, but was generally classed as poor (grade 2) or moderate (grade 3) (Table 21). The presence/absence of woodworking evidence could be judged with certainty in the latter category, but was not always definite in the former. Three items from Palaeochannel 4 were in good condition (grade 4). It is recognised that, as these items were derived from several different channels, they may have quite different dates of origination, however, as they share many characteristics in terms of both the character of woodworking and the character of the wood itself, they are discussed here as an 'assemblage'. All 35 items were oak (*Quercus* sp.).

Condition grade	PC 1	PC 2	PC 3	PC 4	PC 5	Total
5 excellent	0	0	0	0	0	0
4 good	0	0	0	3	0	3
3 moderate	2	1	3	14	1	21
2 poor	0	1	6	4	0	11
1 very poor	0	0	0	0	0	0
0 non-viable	0	0	0	0	0	0
Total	2	2	9	21	1	35

Table 21. Condition grades of wood from Palaeochannels 1–5 (PC).

Three of the items from the channel were pieces of debris deposited in the river's fills, including one item with possible evidence of woodworking. The remaining 32 items were roughly worked piles or stakes, although not all retained clear evidence of woodworking (Table 22). The ambiguity in regards to the woodworking evidence relates in part to the poor condition of some of the material, but also to the nature of the working demonstrated. The woodworking evidence observed could be characterised as 'crude' throughout, suggesting minimal effort had been exerted in transforming the wood for its desired function. Eleven of the piles and one of the pieces of river debris had been radially-split. Split items were cleaved unevenly with multiple grooves and ridges along the split faces left by rough tearing of fibres. This suggests that the splitting process was not carefully controlled and involved a degree of ripping, once the initial separation had been started. Five items also featured faceting on the split faces where an axe or adze had been used to sever fibres in order to complete a split.

Wd No.	Wd group	Area	Feat. no	Wd type	Cond. score	Dimensions (mm)	Growth characteristics	WW Pres.	Woodworking description
1006	-	Channel 1	200	Pile	3	Length: 1223; Breadth: 212; Thickness: 115	Curved bough with twisted grain; many knots	y	Modified roundwood. Crudely half-split log; slightly concave facets from axe/adze on split face (MFL: 59; MFW: 54); one end trimmed from all directions to point; facets slightly concave (MFL: 81; MFW: 37); bark removed above point for 243mm
1048	1	Channel 3	206	River debris	2	Length: 662; Breadth: 275; Thickness: 27	Quite straight	n	Roundwood debris. Possible rough ‘split’ surface; fragment of outer of large tree, very decayed (water transport/exposure); fragment is tangentially aligned, no evidence split was human induced; likely to be natural debris
1049	1	Channel 3	208	Pile	2	Length: 662; Diam.: 115x87	Off-centre pith; NGR	p	Roundwood. Sapwood absent, possibly trimmed away towards tip, but no clear facets. Tip is angled from one direction at a steep angle; probable chop and tear
1050	1	Channel 3	207	Pile	2	Length: 130; Diam.: 120x120	-	p	Roundwood. Probable rough chop & tear facet creates blunt point. Highly fragmented.
1053	1	Channel 3	209	Pile	2	Length: 279; Diam.: 234x208	1 large side-branch, partly intact; 2 smaller knots; NGR	p	Roundwood. ‘Tip' is uneven, probable torn end
1057	1	Channel 3	210	Pile	3	Length: 568; Diam.: 108	Quite straight; NGR	y	Roundwood. Rough chop and tear from one direction creating a stepped, roughly 'chisel-shaped' end; steep angle to the point
1058	1	Channel 3	211	Pile	2	Length: 110; Diam.: 110x90	Quite straight; NGR	p	Roundwood. Narrows to a rough, uneven point; no clear facets surviving
1069	-	Channel 2	212	River debris	2	Length: 877; Breadth: 168; Thickness: 87	Slightly curved	p	Modified roundwood. Rough radial half-split, no woodworking evidence surviving on ends; although rough, split is long and quite even, probably intentional working
1070	1	Channel 3	213	Pile	2	Length: 424; Diam.: 120x95	Quite straight; NGR	y	Roundwood. Sapwood trimmed away around point; rough steep angled chops to create a point, chop and tear on 'tip'

Wd No.	Wd group	Area	Feat. no	Wd type	Cond. score	Dimensions (mm)	Growth characteristics	WW Pres.	Woodworking description
1075	-	Channel 2	215	Pile	3	Length: 496; Diam.: 103x94	Slightly curved; NGR	y	Roundwood. Rough steep angled chops to create a long, chop and tear on 'tip'
1097	-	Channel 3	221	Pile	3	Length: 843; Diam.: 152x149	Forked at distal end; NGR	p	Roundwood. Both ends of fork have probable tearing scars, where side-branches removed; driven fork-end down
1141	-	Channel 1	229	Pile	3	Length: 217; Breadth: 83; Thickness: 55	Uneven, knotty grain	y	Modified roundwood. Rough radial half-split, one end trimmed from two directions to a rough point
1343	-	Channel 3	261	Pile	3	Length: 159; Breadth: 75; Thickness: 74	Quite straight; NGR	y	Modified roundwood. Probable rough radial 1/4 split; one end trimmed from all directions to a point; facets are slightly concave (MFL: 64; MFW: 42)
1344	2	Channel 4	262	Pile	3	Length: 268; Diam.: 118x115	Slightly curved; two large knots; NGR	p	Roundwood. ‘Tip’ is steep, uneven tear, with probable facets from chops to induce tear
1345	2	Channel 4	264	Pile	3	Length: 815; Diam.: 143x140	Very slow growth; knotty; NGR	p	Roundwood. Probable chop and tear at 'tip', no clean facets surviving
1346	2	Channel 4	265	Pile	4	Length: 750; Diam.: 80x79	Not straight; 2x side-branch knots; branch-like; NGR	p	Roundwood. Distal end down; on ‘tip’ there is a large side-branch knot with large scar where branch and some of the ‘main body’ or the log torn away (using character of branch to create tip in the loosest sense)
1347	2	Channel 4	266	Pile	3	Length: 296; Breadth: 144; Thickness: 71	NGR	y	Modified roundwood. Rough radial 1/4 split; possible evidence of working on end but uneven shape, possible tear
1348	-	Channel 4	267, 268	Pile	3	Length: 893; Diam.: 248x240	Curved; knotty; NGR	y	Roundwood. Poorly preserved evidence of trimming on driven end to remove bark and sharpen slightly; end is torn (chop and tear); facets are moderately steep (MFL: 74; MFW: 58); in two pieces

Wd No.	Wd group	Area	Feat. no	Wd type	Cond. score	Dimensions (mm)	Growth characteristics	WW Pres.	Woodworking description
1350	-	Channel 4	269	Pile	3	Length: 702; Breadth: 142; Thickness: 123	Multiple small knots, distortion of grain; NGR	y	Modified roundwood. Hewn down on two faces to create a three sided radial 1/3 conversion leading int a three-sided point, poss. split and tear on at least one face, but also clear, wide, dished and measurable facets on one face including 3 nested facets (MFL: 102; MFW: 58 (this measurement = actual tool-width as clear side features present on both sides)). White mould post ex; pre ex decay of knot voids and working into some areas – heart rot? Pre-use decay?
1351	-	Channel 4	271	Pile?	3	Length: 751; Breadth: 140; Thickness: 103	Slightly curved; NGR	n	Modified roundwood. Item was pulled out by machine in area of 1348; possible top of pile 1348
1364	-	Channel 4	272	Pile	2	Length: 360; Diam.: 144x119	Slightly curved; NGR	p	Roundwood. Blunt tipped; probable tear with evidence that sapwood was probably trimmed away narrowing point slightly
1365	-	Channel 4	273	Pile	3	Length: 545; Diam.: 110x105	Very knotty, curved limb; 3 x large side-branch knots; NGR	p	Roundwood. Driven end is at point where side-branch has been torn away leaving torn, partial section; no clear facet from axe-use in this process
1366	2	Channel 4	274	Pile	3	Length: 641; Breadth: 148; Thickness: 110	Not straight; knot at broken top end; NGR	y	Modified roundwood. Roughly split into radial half, facets visible from axe/adze-use in splitting process; 2x clear facets from this process, plus some possible ones; at 'point' one short, dished facet from chip removal; also c.5 very close to right-angle cuts to sever end of point (brutal shaping); 2x possible dished facets from sapwood removal on other surface - could be excavation damage (MFL: 85; MFW: 58)
1504	2	Channel 4	301	Pile	4	Length: 1446; Diam.: 101x101	Not straight; twisted grain; 4 x knots from side-branches; NGR	y	Roundwood. Distal end has three uneven chop facets cutting log to blunt point; 2x removed side-branches with facets from removal; one clear dished, short facet (MFL: 44; MFL: 53 long; MFD: 14).

Wd No.	Wd group	Area	Feat. no	Wd type	Cond. score	Dimensions (mm)	Growth characteristics	WW Pres.	Woodworking description
1513	2	Channel 4	302	Pile	3	Length: 542; Diam.: 98x98	Some twist in grain, but looks like possible post-dep. compression; NGR	y	Roundwood. Driven end 'point' is uneven, no smooth facets/clean trims; three stopmarks from counter direction blows, i.e. probable use of axe to sever torn fibres, two of these blows leaving measurable, dished facets (MFW: 32; MFD: 16); facet angles suggest 'point' made in two-step process using chop and tear
1516	2	Channel 4	303	Pile	3	Length: 492; Breadth: 178; Thickness: 90	Grain is even but not straight, slight curve to grain at 'tip'; NGR	y	Modified roundwood. Log converted to rough radial half split; 1 split face is clean; one is uneven with probable trim facets from blows to aid separation of fibres; one end is trimmed predominantly from 2 directions with secondary short trim from additional 2 direction to create point; facets are dished, short and, in places, rough (MFL:45; MFW: 42) Gravel concretion damage to surface in places.
1519	2	Channel 4	304	Pile	2	Length: 465; Breadth: 198; Thickness: 114	Straight; NGR	y	Modified roundwood. Radially 1/3 split; outer has bark present in one strip, with partly-decayed facets down one edge from removal of bark; clear, dished facets from use of axe/adze on split faces to sever fibres (MFL: 117; MFW: 42); one end trimmed from 3 directions to wide point (i.e. two split faces trimmed slightly to narrow the end, which was then cut across at a steep angle); no measurable facets on end.
1521	2	Channel 4	305	Pile	3	Length: 510; Breadth: 212; Thickness: 148	Straight; NGR	y	Modified roundwood. Radially 1/4 split; 1 end trimmed from one direction at steep angle; choppy uneven facets with dished profiles
1568	-	Channel 5	319	Pile	3	Length: 1694+; Diam.: 524x516	Grain slightly twisted towards worked end; NGR	y	Roundwood. Sapwood removed to sapwood/heartwood boundary for area c.670 x 480mm on one side plus sapwood trimmed away towards point with long faint facets (MFW: 55); point very damaged, surviving portion shows trimming from all directions to a short, blunt point; facets on point are short, narrow and rough (MFL: 98; MFW: 61)
1571	2	Channel 4	321	Pile	2	Length: 812+; Breadth: 340; Thickness: 156	-	y	Modified roundwood. Radially half split; one end trimmed to point; no measurable facets

Wd No.	Wd group	Area	Feat. no	Wd type	Cond. score	Dimensions (mm)	Growth characteristics	WW Pres.	Woodworking description
1585	-	Channel 4	322, 323	River debris	4	Length: 2397; Diam.: 274x216	Twisted grain; multiple side-branches, poss. old pollard; NGR	n	Roundwood. 2x pieces found diagonal in channel; although stratigraphically separate they refitted after lifting; no evidence of woodworking
1604	2	Channel 4	324	Pile	3	Length: 576; Diam.: 77x76	Straight grain; NGR	y	Roundwood. One end trimmed from 1 direction to an asymmetric, blunt point; 1 x stopmark preserved, incomplete but measurable (34.5:6mm)
1609	2	Channel 4	325	Pile	3	Length: 540; Breadth: 119; Thickness: 96	Slightly knotty grain; NGR	y	Modified roundwood. Rough radial 1/3 split; long, narrow and neat facets from bark and sapwood removal from 458mm from point (MFW: 33); additional narrow facets towards point to narrow wood to wedge-shaped point
1610	2	Channel 4	326	Pile	3	Length:142; Diam.: 88x88	Straight grain; NGR	y	Roundwood. Trimmed from 4 direction with short steep, dished facets from chops to remove sapwood, leaving narrow heart of untrimmed heartwood sticking out as 'point' (MFL: 35; MFW: 54; MFD: 16)
1611	2	Channel 4	327	Pile	2	Length: 713; Diam.: 123x121	NGR	p	Roundwood. Probably trimmed at end but evidence distorted bu buckling of fibres; probable facets suggest trimming from all directions to point; no measurable facets. Point buckled when driven into gravelly silty-sand, large gravel in cracks on buckled end

Table 22. Catalogue of wood from Palaeochannels 1–5. (NGR = narrow growth rings, typically <1.5mm apart; WW Pres. = woodworking evidence present; y = woodworking evidence present; n = no woodworking evidence present; p = probable woodworking evidence present; MFL = maximum facet length in mm; MFW = maximum facet width in mm; MFD = maximum facet depth in mm; side-features of a facet = upstanding wood to the right and/or left of a facet which register the width of the tool's blade edge (see Sands 1997))

The points of the piles showed varying levels of working. Some 16 items had clearly identifiable facets from axe-work on the point, although in several cases this work was very rudimentary. A total of 19 items featured evidence of a 'chop-and-tear' technique to shape the 'tip' of the pile, where a cut from an axe at a relatively steep angle was used to initiate a tear, which was then completed by ripping away the remaining wood along the grain, crudely narrowing its cross-section. Piles worked in this manner featured relatively blunt or 'stepped' points, with uneven pseudo-facets associated with torn fibres. In two cases the 'point' of the pile had been formed by simply ripping away a large side-branch at one end, creating a slightly narrowed 'tip' ([1346] and [1365]).

The characteristics of the axe-facets that were clearly observable are notable. With the exceptions of [1006] and [1343] (where the facets were only slightly concave), the facets were 'dished', i.e. deeply concave, and were often steep in angle. One or both of these latter characteristics were noted on [1348], [1350], [1366], [1504], [1513], [1516], [1519], [1521] and [1610]. Facets were particularly clear on [1350], where three nested, dished facets could be traced along a split face. Rough, steep and dished facets have been observed as signatures of work with a stone axe (Coles & Orme 1985). Chop-and-tear has also been noted as a signature of early woodworking where metal tools were not employed (Coles & Orme 1985; Bamforth et al. 2018). The prevalence of chop-and-tear work and the presence of rough, steep and dished facets amongst the palaeochannel's worked wood assemblage provides good, but not definitive, evidence for the use of stone axes in the working of many of these items.

A single stopmark (an impression left by the blade of the axe) was preserved on [1604]. This mark had a width to depth ratio of 34.5:6mm, indicating that the end of the axe used on this piece was quite strongly curved. A single record of an axe-mark is not sufficient to reconstruct the type or types of axes being used on this assemblage, however, further consideration of the sizes of the recorded facets may provide additional details in this respect (see recommendations, below).

The oak selected to create the piles had some common characteristics. Close-set growth rings were observed throughout the assemblage, indicating the wood was derived from slow-growing trees in mature woodland. The wood was often quite curved, or even a little crooked in its grain, with frequent knots indicating the presence of numerous side-branches. Several of the pieces featured off-centre piths. These general traits suggest that the raw material for much of the assemblage was derived from the branches of oak trees, rather than the straighter, more substantial trunks. With twist in the grain and numerous knots, this material would not have been suitable for 'higher finish' woodworking products. Instead the use of branches allowed piles to be created with minimal splitting or dressing of the source material. Many of the piles were found in 'slumped', angled positions that suggests that these blunt piles were only ever relatively-shallowly driven. The combination of the poor quality of wood selected, the low level of working employed, and the shallow insertion of the piles suggests that these items were somewhat *ad hoc* creations and are unlikely to have been intended for a lasting weight-bearing structural function.

Pit well F.202

Some 21 pieces of wood were retrieved from the same context within pit well F.202 [1033]. The wood was fragmentary and in universally poor condition (grade 2), the outer surface transformed into a soft, spongy texture and prone to disintegration. Twelve of the fragments were identified as oak: eleven with sapwood-only growth and one, the largest fragment [1043], with around four rings of heartwood growth. The remaining fragments were too decayed either to preserve any clear macroscopic identifying features or to subsample for microscopic identification. The fragments ranged in length from 17–290mm and in diameter from 3–30mm. A full catalogue of wood dimensions is recorded in the site archive. All these wood fragments had strikingly similar growth characteristics and may have all derived from a single original bough. No evidence of woodworking was preserved on these fragments.

Pit Alignments and associated ditch F.278

A total of 349 pieces of wood were recorded from Pit Alignments 2 and 3 and associated ditch F.278. The great majority (345 items) of this assemblage came from four consecutive pits in Pit Alignment 2, F.316, F.339, F338 and F.340. 97% of the wood from these pits was in moderate or good condition (grades 3 or 4), with clear evidence of presence/absence of woodworking, 2% were in poor condition (grade 2), with sufficient evidence to judge the probable presence/absence of woodworking and 1% were in very poor condition, with evidence of woodworking obscured by inadequate preservation (Table 23). The wood was recorded *in situ* by the author, an approach, which prevented fragmentation on lifting which affected the wood counts from Pit Alignment 1, which were, recorded off-site (Robinson Zeki 2017). As the quantity of wood from the pits was large, a degree of sampling was employed in the recording process. The two pits with smaller assemblages were 100% recorded, i.e. F.316, 37 items and F.338, 20 items. In the two pits with larger assemblages all wood was examined for evidence of woodworking and all worked wood was recorded, then a sub-sample of the unworked wood was recorded with the remainder of the wood counted by diameter class. In F.339, 170 items were present, 7 with evidence of woodworking and 163 without evidence of woodworking of which 30 (18% of unworked wood) were fully recorded. In F.340, 118 items were present, 3 with evidence of woodworking and 115 without evidence of woodworking of which 19 (17% of unworked wood) were fully recorded.

The pieces of wood from the four pits of Pit Alignment 2 were exclusively slender roundwood with diameters ranging from 1–45mm. The frequency of roundwood in different diameter ranges in each pit is given in Table 24. In this table, items with diameters <5mm are given as a distinct category as these represented broken thorns and probable broken thorns. It is useful to separate this material from 'roundwood proper' as it accounts for a large proportion of the assemblages from F.339 and F.340, indicating that the high wood-counts from these pits is mostly the result of the presence of a large number of broken thorns. The length of the pieces ranged from 12–972mm, although many were broken or more decayed at one end and therefore their lengths do not necessarily reflect their original dimensions. One item in F.338 ([1673.15]) had clear evidence of having been chopped to length at either end, indicating this piece's original length was 972mm, with a maximum diameter of 31mm. The character of the roundwood varied with some quite straight rods (usually the larger diameter items) and

some side-branch and 'twig'-like growth, straight, curved, forked and/or crooked in aspect (usually the smaller diameter items). A high incidence of evidence of broken side-branches and smaller broken stubs of leaf-stems or thorns as well as intact thorns were noted on both straight and crooked growth. These traits suggest scrub growth, featuring some straight or fairly straight stems bearing multiple side-branches and smaller twigs growing in a more uneven fashion. The high frequency of thorns and broken thorns present may suggest that the assemblage is dominated by a single species with thorns that grow at right angles to the stem, likely to be a *Crataegus* sp. or *Prunus* sp.

Condition grade	Pit Alignment 2				Pit Alignment 3			Total
	F.316	F.338	F.339	F.340	F.278	F.290	F.292	
5 excellent	0	0	0	0	0	0	0	0
4 good	9	11	154	102	1	0	0	277
3 moderate	22	9	15	13	0	0	0	59
2 poor	6	0	1	1	0	2	1	11
1 very poor	0	0	0	2	0	0	0	2
0 non-viable	0	0	0	0	0	0	0	0
Total	37	20	170	118	1	2	1	349

Table 23. Condition grades of wood from Pit Alignment pits and associated ditch F.278

Diam. (mm)	F.316	F.338	F.339	F.340
0–4.9	0	0	90	80
5–14.9	15	5	53	29
15–24.9	6	5	22	6
25–34.9	11	9	5	3
35–44.9	4	1	0	0
45	1	0	0	0
Total	**37**	**20**	**170**	**118**

Table 24. Diameters of roundwood from Pit Alignment 2.

Across the four pits, 27 items (8% of the total assemblage from Pit Alignment 2) showed clear evidence of woodworking (Table 25). There were also four items with torn surfaces at their proximal ends. Such tears can occur naturally, but amongst such a homogenous assemblage, it is likely that they reflect tearing of greenwood during acquisition of these items. Two items feature working from four or five directions, which created a sharp point ([1674.04] in F.338 and [1683.01] in F.339). Working roundwood from all directions in this manner entails more work than is required simply to fell small diameter roundwood of this type and therefore it would appear that these two items were prepared for use as stakes, but were subsequently discarded. The other 23 worked items featured more simply-worked ends:

a. 20 items with ends worked from one direction at a shallow angle to a chisel-shaped end or point (including one item worked from one direction at both ends)
b. four items worked from two directions to a variant end or point
c. one item worked from two direction to a wedge-shaped end or point.

Simple worked 'ends or points' of these types would have been produced in the felling or trimming-down process, where one or two blows at a shallow angle were used to sever the stem or branch. The product of such cuts at shallow angles are sharp ends which could also act as *de facto* points, hence 'end or point', although there is no clear evidence amongst this assemblage that any of these items were intended for use as, or were used as, stakes.

Pit no.	WW	Quantity (%)	Dimension range (mm)	Woodworking description	Total
F.316	Y	9 (24%)	Length: 81–502 Diam.: 12–40 (n=9)	7 items chopped at one end from 1 direction to chisel-shaped end; 2 items chopped at one end from 2 directions to variant shaped end	37
	N	28 (76%)	Length: 45–423 Diam.: 5–45 (n=28)	No evidence	
F.338	Y	8 (40%)	Length: 183–972 Diam.: 26–38 (n=8)	6 items chopped at one end from 1 direction to chisel-shaped end; 1 item chopped at both ends from 1 direction to chisel-shaped ends; 1 item chopped at one end from four directions to a point	20
	N	12 (60%)	Length: 46–928 Diam.: 8–30 (n=12)	No evidence	
F.339	Y	7 (4%)	Length: 210–823 Diam.: 9–29 (n=7)	4 items chopped at one end from 1 direction to chisel-shaped end; 1 item chopped at one end from 2 directions to variant shaped end; 1 item chopped at one end from 2 directions to wedge-shaped end; 1 item chopped at one end from five directions to a point	170
	N	163 (96%)	Length: 12–842 Diam.: 1–20 (n=30)	No evidence	
F.340	Y	3 (3%)	Length; 342–766 Diam.: 29–32 (n=3)	2 items chopped at one end from 1 direction to chisel-shaped end; 1 item chopped at one end from 2 directions to variant shaped end	118
	N	115 (97%)	Length: 61–930 Diam.: 2–20 (n=19)	No evidence	

Table 25. Roundwood from Pit Alignment 2. WW = woodworking evidence. Y = woodworking evidence present. N = no woodworking evidence present. n = sample size.

The high percentage of roundwood without evidence of woodworking from the pits of Pit Alignment 2 (92%) does not necessarily indicate a high percentage of natural, unworked material in these pits. The context of the material as probable deposited bundles (see below) would suggest that much or all of this 'unworked' material may in fact represent fractured elements from larger entities which were worked in one or two discrete areas (e.g. the proximal felled end).

Within each of the four pits, the roundwood occurred in a discrete layer, close to or on the base of the pit, and displayed a general alignment east–west, which corresponded to the east–west alignment of the pits themselves. Such an arrangement of the roundwood suggests that this material was deposited together in a loose bundle. It also suggests that the material may have been brought to the location in bundles, as trimming debris from nearby growth, casually discarded in a piecemeal manner, would be unlikely to result in an aligned assemblage when thrown into a pit that was dry or contained non-flowing water.

In Pit Alignment 3, the retrieved wood assemblage was considerably smaller, with just three items found in two pits (F.290 and F.292) and one item retrieved from the associated ditch F.278. The two items from pit F.290 were both pieces of unworked small-diameter roundwood in poor condition (grade 2), one straight with evidence of multiple broken side-branches ([1452.01] length: 206mm, max. diameter: 25mm), the other crooked with extremely frequent, very small stubs of side-stems or thorns ([1452.02] length: 157mm, max. diameter: 12mm). The singe item in pit F.292 was a piece of roundwood debris also in poor condition ([1492] length: 424mm, max. breadth: 49mm, max. thickness: 19mm). This piece was radially half-split, but the poor preservation of this item made it unclear if this splitting was the result of human action.

The one piece of wood ([1396]) from ditch F.278, was clearly worked. A roundwood pole, 1648mm in length with a maximum diameter of 60 x 41mm, this item was in good condition, although it had been quite severely compressed in cross-section, as indicated by the uneven measurements of the diameter axes. Both ends of the pole were worked. The proximal end had been trimmed from two direction as a shallow angle to a variant end or point. The distal end had also been cut to length, but from one direction, at a relatively steep angle, to form a comparatively blunt chisel-shaped end. In addition, there were two very long facets at a shallow angle which extended from the distal end for 738mm and 742mm down the length of the pole. These facets modified the cross-section of the pole at the distal end, making it more sub-rectangular, and appear to be the products of long tears, which tapered out towards the proximal end. It is unclear why the pole would have been modified in this way. It is possible that the long strips of sapwood and bark removed from the pole were the desired product, rather than the pole itself.

Statement of potential and recommendations

Palaeochannel wood – Palaeochannels 1–5 are thought to be Mesolithic–Neolithic in date, a phasing which suggests that the 32 piles found in these channels, although crude in their working, may be significant. Woodworking of such an early date, especially if Mesolithic in origin, is always of great interest, even if the assemblage does not contain any highly-finished products, as clear evidence of early woodworking is nationally scarce (Bradley et al. 2014, 113; Bamforth 2017). For this reason, the facets from probable stone tool-work on several of the piles are noteworthy and their metrics, noted in Table 22, are worthy of further study. Items with clear tool facets were photographed during the recording process, but it is recommended that [1350], which featured the clearest, nested toolmarks, should also be illustrated. The date(s) of the assemblage is of great interest in terms of providing temporal context to the woodworking evidence, and also, more broadly, in terms of understating the channel formation sequence.

Site Code	Feature number	Feature type	Wood Identifier	Context number	Cat. number	Wood group	Description	B S H	Ring count	Potential
HMK 15	40	Large pit	<109>	159	109	na	Redeposited pile	S? H	80	Low
HMK 15	74	Pit alignment 1	<116>	369	116	na	Timber debris	H	50	Low
HMK 16	200	Palaeochannel 1	[1006]	1006	15	na	Pile	B S H	100	Medium
HMK 16	212	Palaeochannel 2	[1069]	1069	11	na	Pile	BE S H	75	Low
HMK 16	215		[1075]	1075	13	na	Pile	BE S H	40	Very low (<50)
HMK 16	208	Palaeochannel 3	[1049]	1049	7	1	Pile	S? H	40	Very low (<50)
HMK 16	210		[1057]	1057	9	1	Pile	BE S H	65	Low
HMK 16	213		[1070]	1070	12	1	Pile	BE S H	45	Very low (<50)
HMK 16	261		[1343]	1343	16	na	Pile	BE? S H	65	Low
HMK 16	262	Palaeochannel 4	[1344]	1344	17	2	Pile	BE S H	90	Medium
HMK 16	264		[1345]	1345	18	2	Pile	BE S H	90	Medium
HMK 16	265		[1346]	1346	19	2	Pile	BE S H	70	Low
HMK 16	266		[1347]	1347	20	2	Pile	BE S H	70	Low
HMK 16	274		[1366]	1366	26	2	Pile	BE S H	tbc	tbc
HMK 16	301		[1504]	1504	-	2	Pile	B S H	70	Low
HMK 16	302		[1513]	1513	-	2	Pile	B S H	65	Low
HMK 16	303		[1516]	1516	-	2	Pile	BE? S H	100	Medium
HMK 16	304		[1519]	1519	-	2	Pile	B S H	115	Medium
HMK 16	305		[1521]	1521	-	2	Pile	BE S H	95	Medium
HMK 16	321		[1571]	1571	-	2	Pile	S H	140	High
HMK 16	325		[1609]	1609	-	2	Pile	S H	60	Low
HMK 16	326		[1610]	1610	-	2	Pile	BE? S H	60	Low
HMK 16	327		[1611]	1611	-	2	Pile	B S H	80	Low
HMK 16	322		[1585]	1585	-	na	River debris	B S H	100	Medium
HMK 16	323		[1586]	1586	-	na	River debris	B S H	100	Medium
HMK 16	267		[1348]	1348	21	na	Pile	BE S H	105	Medium
HMK 16	269		[1350]	1350	23	na	Pile	S? H	tbc	tbc
HMK 16	271		[1351]	1351	24	na	Pile	BE S H	85	Medium
HMK 16	272		[1364]	1364	27	na	Pile	BE S H	70	Low
HMK 16	273		[1365]	1365	25	na	Pile	BE S H	85	Medium
HMK 16	319	Palaeochannel 5	[1568]	1568	-	na	Pile	B S H	170	High

Table 26. Potential of oak (*Quercus* sp.) material for dendrochronological dating. Items with <30 growth rings or with very distorted/knotty growth or with advanced decay were excluded. All ring counts given are approximate; sapwood rings were particularly difficult to count and estimates were used in most cases. 'B S H' refers to the presence of bark (B), sapwood (S) and heartwood (H). 'BE', or bark edge, denotes the presence of the outermost ring of xylem (the xylem/bark boundary), but the absence of the bark itself. (In many samples marked 'BE' the bark was present *in situ* but became detached during lifting). 'Potential' is given based on the approximate ring count: 0–29 rings, not suitable for submission; 30–49 rings, very low potential, suitable for submission only in certain circumstances; 50–84 rings, low potential; 85–119 rings moderate potential; 120+ rings, high potential.

As the channel wood assemblage was exclusively oak, with moderately long growth sequences including sapwood layers present in most cases, the potential for exploring the dating of these items through dendrochronology is quite good. Six items from the palaeochannel assemblage were not suitable for dendrochronological analysis, due to decay, distorted growth or because there were too few growth rings present (<30). The remaining 29 items were sampled for dendrochronological analysis, and their relative potential in terms of estimated ring count is given in Table 26. Two oak items from the HMK15 phase, which were sampled in 2017, are also included in this table so that the whole assemblage of relevant material can be assessed together.

When determining whether to submit dendrochronological samples, the value in terms of providing dating for the assemblage and the site should be considered alongside the potential for other types of scientific dating to answer similar questions. The palaeochannel assemblage would also have good potential for radiocarbon dating as a very high percentage of the items had sapwood growth present, which would allow the date of the felling of the wood to be modelled. However, it should be noted that the value of submitting dendrochronological samples also lies in the potential of the samples to contribute to regional dendrochronological chronologies, which can only be developed and improved through submission of further suitable material. Improved regional chronologies will increase the likelihood of future dendrochronological dating submissions being successful. The routine collection of samples for scientific dating on order to make regional chronologies more robust and reliable is a stated goal of the region's research agenda for the Mesolithic period (Hey 2014, 6.2.2–6.2.3). Dendrochronological analysis can contribute to this programme on two fronts, providing potential refinement to local chronologies, but also providing dendrological information on the growth characteristics of woodland and the relationship between those characterise and human activity , which is also a key research goal for the Mesolithic and Neolithic periods during which tree clearance transformed the landscape (Bradley et al. 2014, 111; Hey 2014, 6.3.3).

Pit F.202 – The material from pit F.202 was in poor condition and featured no evidence of woodworking. No further work on this assemblage is recommended.

Pit alignment wood – Analysis of the wood from Pit Alignments 2 and 3 has potential, when combined with plant macrofossil and pollen data from the pits, to reconstruct the local environment in the Early–Middle Iron Age. For this reason, microscopic identification of wood taxa is recommended for samples from both Pit Alignments. Some 100 identification samples were taken from the four pits of Pit Alignment 2, which contained 345 pieces of wood total. The macroscopic characteristics of the wood from the pits suggested that this assemblage might be dominated by, or entirely composed of, a single thorned species. It is recommended that a sub-sample of 5% of the total Pit Alignment 2 assemblage are initially submitted, i.e. 17 samples. It is suggested that this sub-sample should target certain items with distinct woodworking or growth characteristics (e.g. 10 items: the sharpened 'stakes', items with straight growth and no thorns, items with bent growth and no thorns, straight items with thorns, bent items with thorns) and that the remainder of the sub-sample should be made up of items chosen at random (7 items). If, as predicted, this sub-sample returns results indicative of a single taxa, or dominated by a single taxa, this sub-sample may be considered sufficient to characterise the greater assemblage (although a larger sub-sample would be more scientifically representative and should still be considered). If

more varied taxa are demonstrated, then a bigger sub-sample of 10–20% should subsequently be examined to provide a representative sample of the taxa present. It is recommended that all four items from Pit Alignment 3 should be identified. This would make a total initial submission of 20 wood identification samples from the HMK16 assemblage

Charred plant macrofossils and wood charcoal — *Ellen Simmons*

Thirteen bulk sieving samples, comprising a total of one hundred and fifty litres of soil, were taken during archaeological excavations at Haversham Quarry, Wolverton (NGR: SP 81927 42084) by The Cambridge Archaeological Unit. The samples were processed for the recovery of plant macrofossils and wood charcoal and assessed in order to determine the concentration, diversity, state of preservation and suitability for use in radiocarbon dating, of any palaeoenvironmental material present. A further aim of this assessment was to evaluate the potential of any palaeoenvironmental material present in the samples to provide evidence for the function of the contexts, the economy of the site or for the nature of the local environment. The samples were taken from a series of tree throw fills, Grooved Ware pits and two cremations.

Methodology

The bulk sieving samples were processed by The Cambridge Archaeological Unit using a water separation machine. Floating material was collected in a 300µm mesh, and the remaining heavy residue retained in a 1mm mesh. The flots and heavy residues were air dried.

The samples were assessed in accordance with Historic England guidelines for environmental archaeology assessments (Historic England 2011). A preliminary assessment of the samples was made by scanning using a stereo-binocular microscope (x10 - x65) and recording the abundance of the main classes of material present. Where a total of thirty or more items of plant material was present, this material was quantified using a scale of abundance (- = <5 items, + = > 5 items, ++ = > 10 items, +++ = > 30 items, ++++ = > 50 items, +++++ = > 100 items). Where a total of less than thirty items of plant material was present, this material was identified and quantified in full.

Wood charcoal fragments greater than 2mm in size were counted except where more than 500 fragments were present. A sub-sample of twenty-five wood charcoal fragments greater than 4mm in size were identified from samples 101 and 103, both from context [001], the charcoal rich fill of a treethrow, context [1086], the fill of Grooved Ware pit F.218 and from context [1170], the charcoal rich fill of cremation F.234. Wood charcoal fragments were fractured manually and the resultant anatomical features observed in transverse, radial and tangential planes using high power binocular reflected light (episcopic) microscopy (x 50, x 100 and x 400). A record was also made,

where possible, of the ring curvature of the wood and details of the ligneous structure, in order for the part of the woody plant which had been burnt and the state of wood before charring, to be determined (cf. Marguerie, & Hunot 2007). Where at least three growth rings were present, the ring curvature of the charcoal fragments was designated as weak, intermediate or strong, indicating larger branches or trunk material, intermediate sized branches and smaller branches or twigs. The presence of thick walled tyloses in vessel cavities, which indicate the presence of heartwood and therefore mature trunk wood, the presence of fungal hyphae and insect degradation, which indicate the use of dead or rotting wood and the presence of bark and pith were also recorded. The degree of vitrification of the charcoal fragments was recorded as a measure of preservation, with levels of vitrification classified as either low brilliance refractiveness (degree1), strong brilliance (degree 2) or total fusion (degree 3).

Identification of plant material and wood charcoal fragments was carried out by comparison with material in the reference collections at the Department of Archaeology, University of Sheffield and various reference works (e.g. Cappers et al, 2006; Schweingruber 1990; Hather 2000). Plant nomenclature follows Stace (2010). The composition of the samples is recorded in table 27, with charcoal identifications recorded in tables 28–31. The seed, in the broadest sense, of the plant is always referred to in table 27 unless stated otherwise. The abbreviation cf. means 'compares with' and denotes that a specimen most closely resembles that particular taxa more than any other.

Results

Preservation

The only charred plant remains present in the sampled contexts are a fragment of parenchyma and a fragment of indeterminate tuber/rhizome. Wood charcoal fragments greater than 2mm in size in cross section are present in context [001], the fill of a treethrow, contexts [1080] and [1086] from Grooved Ware pits F.217 and F.218, context [1089] from treethrow F.219, contexts [1119] and [1170] from cremation F.234 and context [1174] from cremation F.235. Wood charcoal fragments were somewhat poorly preserved due to vitrification.

Charred plant macrofossils

A fragment of indeterminate parenchyma (undifferentiated plant storage tissue) was found to be present in sample 101 from treethrow fill [001] and a fragment of indeterminate tuber/rhizome was found to be present in sample 103 from treethrow fill [001]. No other charred plant macrofossils were found to be present in the sampled contexts.

Context number	**1**	**1**	**1**	**1**	**1076**	**1077**	**1080**	**1086**	**1089**	**1174**	**1119**	**1170**	**1367**
Feature number					**216**	**216**	**217**	**218**	**219**	**235**	**234**	**234**	**236**
Sample number	**100**	**101**	**102**	**103**	**116**	**117**	**118**	**119**	**120**	**127**	**128**	**129**	**142**
Feature type	**Tree throw**	**Tree throw**	**Tree throw**	**Tree throw**	**Grooved ware pit**	**Grooved ware pit**	**Grooved ware pit**	**Grooved ware pit**	**Tree throw**	**Crem.**	**Crem.**	**Crem**	**Ditch**
Date					LNL	LNL	L. Neo	L. Neo	L. Neo				IA
Sample volume (litres)	10	15	10	25	10	10	10	15	15	5	5	10	10
Flot volume (ml)	<1	1	1	1	<1	<1	1	4	1	<1	2	10	5
Charred plant material													
>1mm parenchyma fragments		1											
Tuber / rhizome				1									
Wood and wood charcoal													
> 2mm roundwood charcoal fragments													
> 4mm wood charcoal fragments				1				1			3	9	
2-4 mm wood charcoal fragments		17		18			2	3			20	117	
>4mm wood charcoal fragments from residue	2	99		227				27	6	18	71	240	
Charcoal (DP = predominantly diffuse porous. RP = predominantly ring porous)	DP	RP		DP			RP	DP	DP	RP	RP	RP	
Recommendations													
Sample suitable for further analysis? (CPM = charred plant macrofossils, WPM = waterlogged plant macrofossils, WC = wood charcoal, M = Mollusca, IM = invertebrate macrofossils)		WC		WC				WC			WC	WC	
Retain flots?	yes	yes	no	yes	no	no	yes	yes	no	no	yes	yes	no

Table 27: Composition of charred plant remains.

Wood charcoal

A rich assemblage of over one hundred wood charcoal fragments greater than 2mm in size in cross section were found to be present in sample 101 from tree throw fill [001] and sample 103 from tree throw fill [001]. Identification of a sub-sample of twenty-five wood charcoal fragments from the greater than 4mm fraction of sample 103 indicated that the assemblage is likely to be composed primarily of probable wild bird cherry (Prunus cf. padus/avium). Identification of a preliminary sub-sample of twenty-five wood charcoal fragments greater than 4mm in size from sample 101 indicated that the assemblage is composed primarily of oak (Quercus sp.). The charcoal fragments in sample 101 were generally too small and the charcoal fragments in sample 103 were generally too poorly preserved or distorted, for a determination of ring curvature to be made. Tyloses were however observed in the vessel cavities of fourteen of the oak charcoal fragments in sample 101, indicating some use of trunk wood from mature oak trees. Eleven of the charcoal fragments in sample 101 and all of the charcoal fragments in sample 103 exhibited signs of vitrification.

Fragment No.	Taxon	Ring curvature	Tyloses	Reaction wood	Fungal hyphae	Pith[b]	Bark	Insect degradation	Vitrification[c]
1	*Quercus* sp.								2
2	*Quercus* sp.								
3	*Quercus* sp.		1						
4	*Quercus* sp.		1						
5	*Quercus* sp.		1						
6	*Quercus* sp.		1						
7	*Quercus* sp.		1						
8	*Quercus* sp.		1						2
9	*Quercus* sp.								1
10	*Quercus* sp.								
11	*Quercus* sp.		1						
12	*Quercus* sp.								
13	*Quercus* sp.		1						2
14	*Quercus* sp.		1						
15	*Quercus* sp.								2
16	*Quercus* sp.		1						1
17	*Quercus* sp.								1
18	*Quercus* sp.		1						2
19	*Quercus* sp.								
20	*Quercus* sp.		1						
21	*Quercus* sp.								
22	*Quercus* sp.		1						
23	*Quercus* sp.		1						2
24	*Quercus* sp.								2
25	*Quercus* sp.								2

Table 28: Identification of a preliminary subsample of wood charcoal fragments present in sample 101 from tree throw context [001].[a]1 = low curve rings; 2 = intermediate curved rings; 3 = strong curve rings. [b]1 = yes. [c]1 = low brilliance; 2 = strong brilliance; 3 = total fusion.

Rich assemblages of wood charcoal fragments greater than 2mm in size were also found to be present in contexts [1119] and [1170] from cremation F.234. Identification of a preliminary sub-sample of wood charcoal fragments greater than 4mm in size from context [1170] indicated that the assemblage is likely to be composed primarily of oak

(Quercus sp.). The charcoal fragments were generally too small for a determination of ring curvature to be made although tyloses were observed in the vessel cavities of five of the oak charcoal fragments indicating some use of trunk wood from mature oak trees. Fifteen of the charcoal fragments exhibited signs of vitrification.

A small assemblage of just over thirty wood charcoal fragments greater than 2mm in size in cross section was also found to be present in context [1086] from Grooved Ware pit F.218. Identification of a preliminary sub-sample of twenty-five wood charcoal fragments greater than 4mm in size from context [1086] indicated the presence of a mixed assemblage of wood taxa which includes oak (Quercus sp.), hazel (Corylus avellana) and blackthorn (Prunus cf. spinosa). The charcoal fragments were generally too small for a determination of ring curvature to be made although tyloses were observed in the vessel cavities of two of the oak charcoal fragments indicating some use of trunk wood from mature oak trees. Two of the charcoal fragments exhibited signs of vitrification.

Discussion

It is possible that the fragment of parenchyma and fragment of tuber/rhizome present in treethrow fill [001] are representative of the use of uprooted grasses as kindling or turves burnt as fuel. However, it is also possible they represent the processing of plant material for consumption.

The presence of primarily wild/bird cherry (Prunus cf. padus/avium) in the charcoal assemblage from sample 103 and primarily oak (Quercus sp.) in the charcoal assemblage from sample 101, both recovered from tree throw fill [001], indicates that two separate burning episodes are likely to be represented. It is possible that the assemblages are also representative of the burning out of a fallen tree stump, due to the richness of the assemblage and larger size of the charcoal fragments. The selection of oak as a cremation pyre fuel is indicated by the dominance of oak in the assemblage of wood charcoal present in the fill [1170] of cremation F.234. The more mixed assemblage of wood charcoal present in context [1086] from Grooved Ware pit F.218 includes blackthorn (Prunus cf. spinosa), hazel (Corylus avellana) and oak (Quercus sp.).

Analysis of wood charcoal assemblages from Neolithic and Bronze Age contexts at Barrow Hills, Radley, Oxfordshire indicated the presence of a wider range of taxa in Grooved Ware pits in comparison to inhumations and cremations with a dominance of a single taxon, frequently oak, in Neolithic and Bronze Age funerary contexts (Thompson 1999). A similar preference for the use of oak as a cremation pyre fuel has been indicated by analysis of wood charcoal assemblages from Neolithic and Bronze Age contexts at Gravelly Guy, Stanton Harcourt, Oxfordshire (Gale 2004). Oak, especially oak heartwood, is one of the best fuel woods, burning slowly whilst producing a hot fire (Webster 1919, Porter 1990).

The presence of tyloses in a significant proportion of the oak charcoal fragments from tree throw fill [101] as well as in some of the oak charcoal fragments from cremation fill [1170] and Grooved Ware pit fill [1086] indicates the availability of mature oakwood in the vicinity of the site. Other taxa present in tree throw fill [001] and

Grooved Ware pit fill [1086] are generally underwood and woodland margin trees. Hazel, wild cherry and bird cherry are underwood trees which can grow to canopy height but can also grow as a component of hedgerows (Rackham 2003, 203, 351-352). Blackthorn is a small underwood, woodland margin and hedgerow tree (Rackham 2003, 352). All of these taxa produce edible wild food in the form of fruits and nuts.

Fragment No.	Taxon	Ring curvature	Reaction wood	Fungal hyphae	Pith	Bark	Insect degradation	Vitrification[c]
1	*Prunus* cf. *padus / avium*							1
2	*Prunus* cf. *padus / avium*							1
3	*Prunus* cf. *padus / avium*							1
4	*Prunus* cf. *padus / avium*							2
5	*Prunus* cf. *padus / avium*							1
6	*Prunus* cf. *padus / avium*							1
7	*Prunus* cf. *padus / avium*							2
8	*Prunus* cf. *padus / avium*							1
9	*Prunus* cf. *padus / avium*							1
10	*Prunus* cf. *padus / avium*							2
11	*Prunus* cf. *padus / avium*							2
12	*Prunus* cf. *padus / avium*							1
13	*Prunus* cf. *padus / avium*							1
14	*Prunus* cf. *padus / avium*							1
15	*Prunus* cf. *padus / avium*							1
16	*Prunus* cf. *padus / avium*							2
17	*Prunus* cf. *padus / avium*							1
18	*Prunus* cf. *padus / avium*							2
19	*Prunus* cf. *padus / avium*							1
20	*Prunus* cf. *padus / avium*							1
21	*Prunus* cf. *padus / avium*							2
22	*Prunus* cf. *padus / avium*							2
23	*Prunus* cf. *padus / avium*							2
24	*Prunus* cf. *padus / avium*							1
25	*Prunus* cf. *padus / avium*							1

Table 29: Identification of a preliminary subsample of wood charcoal fragments present in sample 103 from treethrow context [001]. 1 = low curve rings; 2 = intermediate curved rings; 3 = strong curve rings. [b]1 = yes. [c]1 = low brilliance; 2 = strong brilliance; 3 = total fusion

Palaeoenvironmental evidence from sites along the floodplain of the river Nene indicate woodland clearance occurring at a number of locations during the later Neolithic and early Bronze Age, although the presence of extensive areas of remaining woodland is also indicated (Brown and Keough 1992, Brown 2000, Harding and Healy 2011). The taxa present in the wood charcoal assemblage from Haversham Quarry would be consistent with the local availability of mature oak woodland, as well as areas of woodland clearance where light demanding trees and shrubs such as hazel, wild/bird cherry and blackthorn would have flourished.

Fragment No.	Taxon	Ring curvature	Tyloses[b]	Reaction wood	Fungal hyphae	Pith	Bark	Insect degradation	Vitrification
1	*Prunus* cf. *spinosa*								2
2	*Corylus avellana*								
3	*Prunus* cf. *spinosa*								
4	*Quercus* sp.		1						1
5	*Quercus* sp.								
6	*Corylus avellana*								
7	*Quercus* sp.								
8	*Quercus* sp.								
9	*Corylus avellana*								
10	*Quercus* sp.								
11	*Quercus* sp.		1						
12	*Corylus avellana*								
13	*Corylus avellana*								
14	*Quercus* sp.								
15	*Quercus* sp.								
16	*Quercus* sp.								
17	*Corylus avellana*								
18	*Corylus avellana*			1					
19	*Prunus* cf. *spinosa*								
20	*Quercus* sp.								
21	*Quercus* sp.								
22	*Prunus* cf. *spinosa*								
23	*Prunus* cf. *spinosa*								
24	*Prunus* cf. *spinosa*								
25	*Prunus* cf. *spinosa*								

Table 30: Identification of a preliminary subsample of wood charcoal fragments present in sample 119 from context [1086], the fill of grooved ware pit F.218. 1 = low curve rings; 2 = intermediate curved rings; 3 = strong curve rings. [b]1 = yes. [c]1 = low brilliance; 2 = strong brilliance; 3 = total fusion

Recommendations

It is possible but unlikely that further identification of wood charcoal fragments from samples 101 and 103 from tree throw fill [001] and sample 129 from context [1170], the fill of cremation F.234 would yield additional taxa. Sample 119 from context [1086], the fill of Grooved Ware pit F.218 only contained a small assemblage of wood charcoal fragments greater than 2mm in size in cross section, the majority of which was identified as a preliminary sub-sample. No further identification and analysis of the wood charcoal assemblage would therefore be recommended. The charred plant remains assemblage has been identified and quantified in full during preliminary assessment. It would however be recommended that the results of this assessment be included in any final report on the site.

Should any further work be carried out at the site it would also be recommended that bulk sieving samples of fifty litres in volume be taken where possible in order to maximize the recovery of plant remains which are often present at low densities in Neolithic deposits (Clay 2006, 89).

Fragment No.	Taxon	Ring curvature	Tyloses	Reaction wood	Fungal hyphae	Pith	Bark	Insect degradation	Vitrification
1	*Quercus* sp.								2
2	*Quercus* sp.								2
3	*Quercus* sp.								
4	*Quercus* sp.								
5	*Quercus* sp.								2
6	*Quercus* sp.								2
7	*Quercus* sp.								
8	*Quercus* sp.								1
9	*Quercus* sp.		1						2
10	*Quercus* sp.								
11	*Quercus* sp.								2
12	*Quercus* sp.		1						2
13	*Quercus* sp.								
14	*Quercus* sp.								
15	*Quercus* sp.								
16	*Quercus* sp.								2
17	*Quercus* sp.								2
18	*Quercus* sp.								1
19	*Quercus* sp.		1						2
20	*Quercus* sp.		1						1
21	*Quercus* sp.								1
22	*Quercus* sp.								
23	*Quercus* sp.								
24	*Quercus* sp.		1						
25	*Quercus* sp.								2

Table 31: Identification of a preliminary subsample of wood charcoal fragments present in sample 129 from context [1170], the fill of cremation F.234. 1 = low curve rings; 2 = intermediate curved rings; 3 = strong curve rings. [b]1 = yes. [c]1 = low brilliance; 2 = strong brilliance; 3 = total fusion

Pollen — *Steve Boreham*

This report presents the results of assessment pollen analyses of eight sub-samples of sediment taken from three features (F.104, F.202 & F.329) sampled from excavations at Haversham, Milton Keynes.

Context descriptions

Sample 78, F.104

- 0 to 3 cm Orange brown medium course sand and gravel
- 3 to 18 cm Grey slightly mottled silty clay with a little sand and occasional flints (up to 1 cm). Moderate preservation potential. A pollen sub-sample was taken at 12cm.

- 18 to 26 cm Orange grey brown mottled sandy silt and silty sand with pebbles. Poor preservation potential.

- 26 to 33 cm Grey slightly mottled silty clay with occasional pebbles. Moderate to poor preservation potential. A pollen sub-sample was taken at 29cm.

Sample 110, F.202

- 0 to 3 cm Orange brown medium coarse sand with pebbles

- 3 to 14 cm Grey brown sandy silty clay with abundant pebbles. Moderate to poor preservation potential. A pollen sub-sample was taken at 8cm.

- 14 to 21 cm Orange grey mottled silty clay with occasional pebbles. Moderate to poor preservation potential. A pollen sub-sample was taken at 18cm.

- 21 to 24 cm Orange brown mottled sandy silty clay. Moderate to poor preservation potential. A pollen sub-sample was taken at 22cm.

Sample 157, F.329

- 0 to 2 cm Orange brown medium to coarse sand and gravel

- 2 to 6 cm Grey black organic silty clay with pebbles (up to 1 cm). Moderate to good preservation potential. A pollen sub-sample was taken at 4cm.

- 6 to 14 cm Grey black organic silty clay with plant fragments. Good preservation potential. A pollen sub-sample was taken at 10cm.

  14 to 22 cm Grey slightly sandy organic silty clay with flint and brick. Moderate preservation potential. A pollen sub-sample was taken at 18cm.

Result

The eight sub-samples were prepared using the standard hydrofluoric acid technique, and counted for pollen using a high-power stereo microscope at x400 magnification. The percentage pollen data from these 8 samples is presented in Appendix 1.

Unfortunately, three of the pollen sub-samples investigated in this study proved to be barren. These were all from Sample 110 Feature 202 where the sandy mottled deposits were assessed as having medium to poor preservation potential.

The remaining five sub-samples had pollen concentrations that ranged between 39,439 and 45,574 grains per ml. Most sub-samples contained finely divided organic debris, which often made pollen counting difficult. In addition, the preservation of the fossil pollen grains (palynomorphs) was often poor. Assessment pollen counts were made

from a single slide. The pollen sums achieved (total land pollen and spores) ranged between 52 and 60. 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.

Sample 78, F.104 — Cursus ditch

- *12cm* — This sub-sample was dominated by grass pollen (Poaceae) (31.7%), with herbs including the fat hen family (Chenopodiaceae) (10%), dock (*Rumex*) (8.3%), sedges (Cyperaceae) (5%) and meadow rue (*Thalictrum*) (5%). Ribwort plantain (*Plantago lanceolata*) was present at 3.3% and cereal pollen accounted for a noteworthy 8.3%. Arboreal taxa were represented by hazel (*Corylus*) (6.7%) and pine (*Pinus*) (1.7%). Undifferentiated fern spores together accounted for 8.3%, and obligate aquatics were represented by bur-reed (*Sparganium*) (1.7%).

- *29cm* — This sub-sample was dominated by grass pollen (Poaceae) (28.8%), with a range of herbs including the fat hen family (Chenopodiaceae) (7.7%), dock (*Rumex*) (5.8%) and the cow parsley family (Apiaceae) (5.8%). Ribwort plantain (*Plantago lanceolata*) was present at 3.8% and cereal pollen accounted for 5.8%. Arboreal taxa were represented by hazel (*Corylus*) (5.8%) and juniper (*Juniperus*) (1.9%). Undifferentiated fern spores together accounted for 11.5%, and obligate aquatics were represented by bur-reed (*Sparganium*) (3.8%).

Sample 157, F.329 — pit alignment

- *4cm* — This sub-sample was dominated by grass pollen (Poaceae) (30.5%), with a range of herbs including the lettuce family (Asteraceae (Lactuceae) undif.) (8.5%), dock (*Rumex*) (3.4%) and the cow parsley family (Apiaceae) (3.4%). Ribwort plantain (*Plantago lanceolata*) was present at 1.7% and cereal pollen accounted for an impressive 8.5%. Arboreal taxa were represented by alder (*Alnus*) (5.1%), hazel (*Corylus*) (3.4%) and pine (*Pinus*) (1.7%). Spores of the polypody fern (*Polypodium*) were present at 1.7%, and undifferentiated fern spores together accounted for 17%. Obligate aquatics were represented by bur-reed (*Sparganium*) (3.4%).

- *10cm* — This sub-sample was dominated by grass pollen (Poaceae) (28.3%), with a range of herbs including the lettuce family (Asteraceae (Lactuceae) undif.) (7.5%), dock (*Rumex*) (7.5%), the fat hen family (Chenopodiaceae) (5.7%) and sedges (Cyperaceae) (5.7%). Ribwort plantain (*Plantago lanceolata*) was present at 1.9% and cereal pollen accounted for 5.7%. Arboreal taxa were represented by alder (*Alnus*) (7.5%), hazel (*Corylus*), juniper (*Juniperus*) and pine (*Pinus*) (all 1.9%). Spores of the polypody fern (*Polypodium*) were present at 1.9%, and undifferentiated fern spores together accounted for 13.2%. Obligate aquatics were represented by bur-reed (*Sparganium*) (1.9%).

- *18cm* — This sub-sample was dominated by grass pollen (Poaceae) (42.1%), with a range of herbs including the lettuce family (Asteraceae (Lactuceae) undif.) (5.6%) and the fat hen family (Chenopodiaceae) (5.6%). Ribwort plantain (*Plantago lanceolata*) was present at 3.7% and cereal pollen also accounted for 5.6%. Arboreal taxa were represented by hazel (*Corylus*) (5.6%), hazel (*Corylus*) and juniper (*Juniperus*) (both 1.9%). Spores of the polypody fern (*Polypodium*) were present at 1.9%, and undifferentiated fern spores together accounted for 13%. Obligate aquatics were represented by bur-reed (*Sparganium*) (5.6%).

Feature	**104**	**104**	**202**	**202**	**202**	**329**	**329**	**329**
Sample	**78**	**78**	**110**	**110**	**110**	**157**	**157**	**157**
Pollen sub-sample	**12cm**	**29cm**	**8cm**	**18cm**	**22cm**	**4cm**	**10cm**	**18cm**
Trees & Shrubs								
Pinus	1.7	0.0				1.7	1.9	0.0
Alnus	6.7	5.8				5.1	7.5	5.6
Corylus	0.0	0.0				3.4	1.9	1.9
Juniperus	0.0	1.9				0.0	1.9	1.9
Herbs								
Poaceae	31.7	28.8				30.5	28.3	38.9
Cereals	8.3	5.8				8.5	5.7	5.6
Cyperaceae	5.0	3.8				3.4	5.7	3.7
Asteraceae (Asteroidea/Cardueae) undif.	3.3	1.9				3.4	1.9	3.7
Asteraceae (Lactuceae) undif.	3.3	3.8				8.5	7.5	5.6
Cirsium type	0.0	1.9				0.0	1.9	1.9
Chenopodiaceae	10.0	7.7				1.7	5.7	5.6
Fabaceae	3.3	1.9				0.0	0.0	0.0
Lamiaceae	0.0	1.9				1.7	0.0	0.0
Plantago lanceolata	3.3	3.8	*barren*	*barren*	*barren*	1.7	1.9	3.7
Ranunculus type	0.0	1.9				3.4	1.9	3.7
Rumex	8.3	5.8				3.4	7.5	1.9
Thalictrum	5.0	3.8				0.0	3.8	1.9
Apiaceae	0.0	5.8				3.4	0.0	0.0
Liliaceae	1.7	1.9				1.7	0.0	0.0
Lower plants								
Polypodium	0.0	0.0				1.7	1.9	1.9
Pteropsida (monolete) undif.	3.3	7.7				11.9	9.4	9.3
Pteropsida (trilete) undif.	5.0	3.8				5.1	3.8	3.7
Aquatics								
Sparganium type	1.7	3.8				3.4	1.9	5.6
Sum trees	8.3	5.8				6.8	9.4	5.6
Sum shrubs	0.0	1.9				3.4	3.8	3.7
Sum herbs	83.3	80.8				71.2	71.7	75.9
Sum spores	8.3	11.5				18.6	15.1	14.8
Main Sum	60	52				59	53	54
Concentration (grains per ml)	39439	45574				44322	42877	40566

Table 32. Pollen counts for Cursus, wateinghole and pit alignment.

Discussion & Conclusions

It is immediately apparent that all these pollen analyses, represent a rather similar assemblage of grass and herb pollen, with evidence for soil disturbance (*Plantago lanceolata*) and arable activity from a variety of post-clearance plant communities. Cereal pollen was ubiquitous and exceeded 8% in two sub-samples, suggesting farming very close to the site in both the Neolithic and Iron Age. Alder (*Alnus*) pollen was found in all samples and suggests the presence of wet woodland (carr) nearby. Damp conditions (possibly ditched) are also indicated by sedges (Cyperaceae) and bur-reed (*Sparganium*).

There are however, clear differences in the pollen spectra between the two features (104 & 329). The sub-samples from the cursus (Neolithic) contained elevated pollen of the fat hen family (Chenopodiaceae) and dock (*Rumex*) suggesting a bias towards arable weeds and riparian environments. In contrast, sub-samples from the pit alignment (Iron Age) contained more pollen from the lettuce family (Asteraceae (Lactuceae) undif.), suggesting tall-herb and meadow environments. They also contained spores of the polypody fern (*Polypodium*) and hazel (*Corylus*) pollen, which are indicative of mature trees and woodland or scrub. Although determining past environments through pollen analysis can often be helpful, as always care must be taken not to over-interpret assessment pollen counts.

Waterlogged plant remains — *Alan Clapham*

Three features were selected for assessment for their plant remain content. Two of the features, F.283 and F.329, are Iron Age pit alignments. The third feature F.202, a wateringhole is broadly dated to Bronze Age–Iron Age. It was decided that only the basal samples from each of the features should be assessed in order to establish if it was possible to determine the vegetation when these features were first initiated. After initial assessment it was decided to sample the overlying deposit of the basal deposit of F.202 to see if there were any plant remains present which may help interpret the feature.

The wateringhole, F.202, produced little in the way of plant remains apart from fine root fragments. The other two features from Pit Alignment 2 and 3, F.329 and F.283 respectively, produced richer plant assemblages with that from F.283 being more diverse. Various habitats were represented in these features, which were, cultivated/disturbed ground, aquatic/wetland, grassland and a cosmopolitan element. The proportions of each habitat type between F.283 and F.329 varied and may represent the function of each feature. A charred grain of barley (*Hordeum vulgare*) was noted in F.283.

Methods

The features were sampled as monolith blocks, HMK16, F.202<110>, HMK16 F.283 <145> and HMK16 F.329 <157>. These were cleaned in order to reduce contamination across depositional boundaries. The basal contexts of each block were then subsampled according to the contexts marked on the side of the block with no boundaries being crossed. This proved to be extremely difficult in the case of F.283 where the boundary between the basal context [1412] and the one above [1411] was very difficult to ascertain, therefore it is possible that some of the overlying context [1411] may be included with the subsampling of [1412].

The volume of each sample was estimated by displacement and each sample was then processed using the standard washover technique as outlined by (Kenwood et al 1980).

Each sample was then examined under a low magnification (x7-x56) stereomicroscope and each taxon identified, using the author's own modern reference collection and reference works such as Cappers et al, (2006). The samples were scored according to abundance, using a four-stage system as shown in Table 33.
Plant nomenclature follows that of Stace (2010).

Results

Wateringhole, F.202, <110> contexts 1032 and 1033

The lowermost context [1033] from the fill of wateringhole F.202 consisted of a light brown gravelly, sandy matrix with some silt present. The only plant remains present were fine root fragments.

Context [1032] consisted of an organic silt, although some large pebbles were present. Result were similar to [1033] with the only plant remains recorded being fine root fragments.

Pit Alignment 2, F.329, <157>, context 1636

Basal context [1636] consisted of an organic silt with some sand present along with some large gravel inclusions. Plant remains other than fine root fragments were noted from this context but not in such a large quantity or diversity than in F.283. None of the taxa present was dominant and all were recorded in low numbers.

Several habitats were represented in the plant assemblage (Table 33) an aquatic/wetland habitat along with cosmopolitan taxa were dominant in this sample with cultivated/disturbed ground and grassland habitats were also present.

Cultivated species in the form of a single grain of hulled barley (*Hordeum vulgare*) was recorded. A small amount of fine charcoal fragments too small to identify were also present.

The dominant habitat represented in this assemblage was that of cultivated/disturbed ground, followed by an aquatic/wetland habitat. Grassland species were the least represented in this assemblage.

Feature number	**Common name**	**Habitat**	**F202**	**F202**	**F283**	**F329**
Sample no.			**110**	**110**	**145**	**157**
Context			**1033**	**1032**	**1412/11**	**1636**
Volume (ml)			**200**	**400**	**400**	**400**
Ranunculus acris/repens/bulbosus	buttercup	CD			+++	+
Trifolium sp petal	clover	ABD			+	
Filipendula ulmaria	meadowsweet	E				+
Rubus subgenus Glandulosus frags.	bramble	CD				+
Potentilla anserina fruits	silverweed	ABD			++++	
Urtica dioica	common nettle	ABCD			+	
Viola palustris	marsh violet	E			+	
Brassica nigra	black mustard	BE			+	
Persicaria maculosa	redshank	AB			+	
Persicaria minor	small water-pepper	E			+	
Polygonum aviculare	knotgrass	AB			+	
Fallopia convolvulus	black-bindweed	AB			+	
Rumex crispus/conglomerarus fruits	curled/clustered dock	ABDE			++	
Rumex crispus/conglomerarus perianth	curled/clustered dock	ABDE				+
Rumex sp (nutlets)	dock	ABCD			++	+
Stellaria media	common chickweed	AB			+	
Stellaria graminea	lesser stitchwort	D				+
Myosoton aquaticum	water chickweed	E			+	
Silene latifolia	white campion	ABC			+	
Chenopodium album	fat hen	AB			++++	+
Plantago major	greater plantain	ABD			+	
Stachys palustris	marsh woundwort	E			++++	+
Lamium sp	dead-nettles	ABC			+	
Prunella vulgaris	selfheal	D			+	
Carduus/Cirsium sp	thistle	ABDE			+++	+
Sonchus oleraceus	Smooth sowthistle	ABD			+	
Sonchus asper	prickly sowthistle	ABD			+	
Juncus spp	rushes	DE			+	
Carex cf *otrubae*	false fox-sedge	E			+	
Carex sp (lentic)	sedge	E			+	
Carex sp (trigonous)	sedge	E			+	
Glyceria spp	sweet grasses	E				+
Miscellaneous plant remains						
Hordeum vulgare grain (charred)	barley	F			+	
Fine root fragments			++++	++++	++++	++++
Roundwood (non-oak)					++	
Small charcoal fragments					+	
Other remains						
Earthworm cocoons					+++	++
Insects					+++	++

Table 33: Plants and other remains. +=1–10, ++=11–20, +++=21–40, ++++=41+. A=cultivated ground, B=disturbed ground, C=woodland, scrub, hedgerow, D=grassland, meadow and heath, E=aquatic/wetland, F=cultivar.

Several pieces of roundwood were present and 2 were of a size that could be identified with confidence and suitable for radiocarbon dating. Both pieces were of Maloideae (apple/pear/whitebeams and hawthorn).

Discussion

The plant assemblages from Pit Alignment 2 (F.329) and 3 (F.283), emphatically show that the local landscape was open. The dominant habitat, especially that of Pit Alignment 3 is one of disturbance. Whether this is due to cultivation of crops or to trampling by animals is difficult to say. The other common habitat type is that a wetland/aquatic habitat. The presence of grassland in the area is also indicated in the assemblages. Some scrub may have been present in the area as indicated by the finds of Maloideae round wood in Pit Alignment 3.

The lack of cereal remains, apart from the charred barley grain noted in F.283, does not rule out cereal cultivation in the area and may be occurring on a different part of the site which so far has not been studied. The dominance of disturbed ground and grassland taxa may suggest that the main economic activity in the area was that of animal husbandry and the disturbed habitat was most likely caused by the trampling by animals around the features.

The wetland/aquatic taxa may represent plants growing in the pit bottoms which being closer to the water table may have had either standing water or were wet for some part of the year enabling these plants to flower and produce seed. Another possibility is that they may represent flooding episodes as mentioned in the previous report on the plant remains (Clapham, 2017).

In comparison with the work from Clapham (2017) which concentrated on an assessment of a complete profile of F.69 of a pit alignment, the same habitats are represented but the aquatic/wetland element is reduced. Whether this is an effect of only looking at the basal deposits of each feature or due to geographical differences is difficult to say. It is possible that as the features begin to silt up through time a more wetland/aquatic element to the assemblages may become more apparent.

The lack of plant remains from the wateringhole F.202 from both contexts studied suggests that if, the feature was a wateringhole, it was kept clear preventing any plant growth in the feature. Another possibility is the area around the watering hole was so poached by the trampling by animals drinking that no plants were growing in the area. The presence of fine root fragments does suggest that plants were growing in this feature, but either did not produce seed or are from plants growing on much later deposits.

Conclusion

The plant assemblages assessed here from the wateringhole and pit alignments demonstrate that the local area was open with areas, which were either cultivated, fallow or trampled by animals, which may have been grazing on the grassland element.

There is little evidence of scrub/woodland within the bottom deposits. The wetland/aquatic element of the assemblages may indicate plants growing in the bottom of the features or they may have been deposited by flooding. The former is the most likely scenario.

The differences in the proportions of the habitats represented by the plant assemblages in Pit Alignment 2 and 3 may be related to differences in local economic activity.

Recommendations

As only the base contexts of each feature were assessed, it is suggested that if further work is to be carried out on the analysis of the plant remains from these features, the overlying deposits should also be studied. This will then provide a more direct comparison with the previous work carried out at Haversham Road, (Clapham 2017) and may enhance the palynological work that has been carried out. This will then provide a more complete picture of environmental and economic change through time.

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FEATURE INDEX

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
4	Palaeochannel 2	1028	L					Pre-IA
		1060	L					
		1061	L					
		1062	L					
16	Ditch	1903	F					IA
		1904	F					
		1905	F					
		1906	F					
		1907	C	Linear		1.5	0.7	
		1915	F					
		1916	F					
		1917	C	Linear		1.5	0.45	
		1918	F					
		1919	F					
		1920	F					
		1921	F					
		1922	C	Linear		1.85	0.6	
105	Cursus	1540	F					M.Neo
		1541	F					
		1542	F					
		1543	C	Linear		2.55	1.25	
200	Post	1006	W					Meso–Neo
201	Palaeochannel 3	1012	L					Pre-IA
		1013	L					
		1014	L					
		1015	L					
		1016	L					
		1017	L					
		1018	L					
		1019	L					
		1020	L					
		1022	L					
		1047	L					
		1051	L					
		1052	L					
		1054	L					
		1055	L					
		1056	L					
		1687	L					

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1688	L					
		1689	L					
202	Wateringhole	1029	F					BA-IA
		1030	F					
		1031	F					
		1032	F					
		1033	F					
		1034	C	Oval	3.9	2.1	0.82	
		1040	F					
		1041	F					
		1043	W					
		1044	W					
		1045	W					
203	Wateringhole	1035	F					BA-IA
		1036	F					
		1037	F					
		1038	C	Oval	1.6	1.5	0.74	
204	Tree throw	1039	L					
		1042	C	Irregular	0.75	0.75	0.25	
205	Palaeochannel 1	1000	L					Pre-IA
		1001	L					
		1002	L					
		1003	L					
		1004	L					
		1005	L					
		1046	L					
		1063	L					
		1064	L					
		1065	L					
		1066	L					
		1067						
		1068						
206	Wood	1048	W					Meso-Neo
207	Wood	1050	W					Meso-Neo
208	Wood	1049	W					Meso-Neo
209	Wood	1053	W					Meso-Neo
210	Wood	1057	W					Meso-Neo
211	Wood	1058	W					Meso-Neo
212	Wood	1069	W					Meso-Neo
213	Wood	1070	W					Meso-Neo
214	Wateringhole	1071	F					BA-IA
		1072	F					
		1073	F					
		1074	C	Oval	4.85	3.2	0.28	

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
215	Wood	1075	W					Meso-Neo
216	Grooved Ware Pit	1076	F					L.Neo
		1077	F					
		1078	F					
		1079	C	Circular	0.9	0.85	0.12	
217	Grooved Ware Pit	1080	F					L.Neo
		1081	F					
		1082	F					
		1083	C	Sub-circular	1.11	1.1	0.24	
		1090	F					
		1091	F					
218	Grooved Ware Pit	1084	F					L.Neo
		1085	F					
		1086	F					
		1087	C	Sub-circular	1.44	1.42	0.34	
		1092	F					
219	Tree throw with Grooved Ware	1088	F					Post-L.Neo
		1089	F					
220	Pit	1093	F					
		1094	F					
		1095	F					
		1096	C	Circular	0.7	0.7	0.13	
221	Wood	1097	W					pre-IA
222	Pit	1098	F					
		1099	F					
		1100	F					
		1101	F					
		1102	C	Circular	1.3		0.5	
223	Pit	1103	F					
		1104	F					
		1105	F					
		1106	F					
		1107	F					
		1108	F					
		1109	F					
		1110	C	Circular		1	0.9	
224	Pit Alignment 2	1111	F					IA
		1112	F					
		1113	C	Oval	1.45	>0.78	0.23	
225	Pit Alignment 2	1114	F					IA
		1115	F					
		1116	C	Rectangular	1.35	1.2	0.31	
226	Pit Alignment 2	1117	F					IA

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1118	F					
		1119	F					
		1120	F					
		1121	F					
		1122	F					
		1123	F					
		1124	F					
		1125	F					
		1126	F					
		1127	C	Sub-rectangular	1.98	1.55	0.67	
227	Pit Alignment 2	1128	F					IA
		1129	F					
		1130	F					
		1131	F					
		1132	F					
		1133	C	Oval	1.87	1.72	0.66	
228	Pit Alignment 2	1134	F					IA
		1135	F					
		1136	F					
		1137	F					
		1138	F					
		1139	F					
		1140	C	Oval	1.9	1.35		
229	Wood	1141	W					Meso-Neo
230	Pit Alignment 2	1142	F					IA
		1143	F					
		1144	F					
		1145	F					
		1146	F					
		1147	C	Sub-rectangular	2.07	1.83	0.75	
231	Pit Alignment 2	1148	F					IA
		1149	F					
		1150	F					
		1151	F					
		1152	F					
		1153	F					
		1154	F					
		1155	F					
		1156	C	Sub-rectangular	1.9	1.5		
232	Pit Alignment 2	1162	F					IA
		1163	F					
		1164	F					

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1165	F					
		1166	F					
		1167	C	Sub-rectangular	2	1.57	0.6	
233	Pit Alignment 2	1157	F					IA
		1158	F					
		1159	F					
		1160	F					
		1161	C	Sub-rectangular	1.9	1.62	0.7	
234	Cremation	1168	F					
		1169	F					
		1170	F					
		1171	F					
		1172	F					
		1173	C	Circular	0.6	0.6	0.3	
235	Cremation	1174	F					
		1175	C	Circular	0.3	0.3	0.07	
2346	Pit Alignment 2	1176	F					IA
		1177	F					
		1178	F					
		1179	F					
		1180	F					
		1181	F					
		1182	F					
		1183	C	Oval	2	1.6	0.8	
237	Pit Alignment 2	1184	F					IA
		1185	F					
		1186	F					
		1187	F					
		1188	F					
		1189	F					
		1190	C	Sub-circular	1.6	1.97	0.73	
238	Tree throw	1191	F		1.1	0.68	0.2	
239	Pit Alignment 2	1197	F					IA
		1198	F					
		1199	F					
		1200	F					
		1201	F					
		1202	F					
		1203	F					
		1204	F					
		1205	F					
		1206	F					

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1207	C	Circular	2.4	2.03	0.84	
		1208	F					
240	Pit Alignment 2	1192	F					IA
		1193	F					
		1194	F					
		1195	F					
		1196	C	Oval	2.48	2.05	0.74	
241	Pit Alignment 2	1209	F					IA
		1210	F					
		1211	F					
		1212	F					
		1213	F					
		1214	F					
		1215	F					
		1216	C	Oval	2		0.79	
242	Pit Alignment 2	1217	F					IA
		1218	F					
		1219	F					
		1220	F					
		1221	F					
		1222	F					
		1223	F					
		1224	F					
		1225	F					
		1226	C	Circular	2.5	2	0.84	
243	Pit Alignment 2	1227	F					IA
		1228	F					
		1229	F					
		1230	F					
		1231	F					
		1232	C	Oval	2.9	1.9	0.73	
244	Ditch	1234	F					IA
		1235	F					
		1236	F					
		1238	F					
		1239	F					
		1240	C	Linear	>10m	>0.9	>0.5	
		1241	F					
		1242	C	Linear	1	0.6	0.16	
245	Pit Alignment 2	1246	F					IA
		1247	F					
		1248	F					
		1249	F					
		1250	F					

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1251	F					
		1252	F					
		1253	F					
		1254	C	Sub-circular	1.23	1.25	0.42	
246	Pit Alignment 2	1255	F					IA
		1256	F					
		1257	F					
		1258	C	Oval	1.5	1.25	0.24	
247	Pit Alignment 2	1259	F					IA
		1260	F					
		1261	C	Oval	1.1	0.9	0.18	
248	Pit Alignment 2	1265	F					IA
		1266	F					
		1267	C	Oval	1.6	1.2	0.3	
249	Pit Alignment 2	1262	F					IA
		1263	F					
		1264	C	Oval	1.48	1.34	0.25	
250	Pit Alignment 2	1268	F					IA
		1269	F					
		1270	F					
		1271	F					
		1272	F					
		1273	F					
		1274	C	Oval	2.1	1.7	0.5	
251	Pit Alignment 2	1275	F					IA
		1276	F					
		1277	F					
		1278	F					
		1279	F					
		1280	F					
		1281	C	Oval	1.85	1.8	0.6	
252	Pit Alignment 2	1291	F					IA
		1292	F					
		1293	F					
		1294	F					
		1295	F					
		1296	F					
		1297	F					
		1298	F					
		1299	C	Oval	1.58	1.55	0.5	
253	Pit Alignment 2	1301	F					IA
		1303	F					
		1304	F					
		1305	F					

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1306	C	Oval	1.8	1.5	0.8	
		1686	F					
254	Pit Alignment 2	1282	F					IA
		1283	F					
		1284	F					
		1285	F					
		1286	F					
		1287	F					
		1288	F					
		1289	F					
		1290	C	Oval	1.62	1.3	0.48	
255	Pit Alignment 2	1307	L					IA
		1308	L			2.5	0.15	
256	Pit Alignment 2	1316	F					IA
		1317	F					
		1318	F					
		1319	F					
		1320	F					
		1321	F					
		1322	F					
		1323	F					
		1324	C	Oval	1.75	1.6	0.4	
257	Pit Alignment 2	1309	L					IA
		1310	F					
		1311	F					
		1312	F					
		1313	F					
		1314	F					
		1315	C	Oval	2	1.5	0.35	
258	Pit Alignment 2	1325	F					IA
		1326	F					
		1327	F					
		1328	F					
		1329	C	Oval	2.1	1.67	0.63	
259	Pit Alignment 2	1330	F					IA
		1331	F					
		1332	F					
		1333	F					
		1334	F					
		1335	F					
		1336	C	Oval	1.55	1.4	0.6	
260	Pit Alignment 2	1337	F					IA
		1338	F					
		1339	F					

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1340	F					
		1341	F					
		1342	C	Oval	1.76	1.64	0.68	
261	Wood	1343	W					Meso–Neo
262	Wood	1344	W					Meso–Neo
264	Wood	1345	W					Meso–Neo
265	Wood	1346	W					Meso–Neo
266	Wood	1347	W					Meso–Neo
267	Wood	1348	W					Meso–Neo
268	Wood	1349	W					Meso–Neo
269	Wood	1350	W					Meso–Neo
270	Palaeochannel 4	1353	L					Pre-IA
		1354	L					
		1355	L					
		1356	L					
		1357	L					
		1358	L					
		1359	L					
		1360	L					
		1361	L					
		1362	L					
		1363	L					
271	Wood	1351	W					Meso–Neo
272	Wood	1364	W					Meso–Neo
273	Wood	1365	W					Meso–Neo
274	Wood	1366	W					Meso–Neo
275	Pit Alignment 3	1369	F					IA
		1370	F					
		1371	C	Oval	1.2	0.8	0.2	
276	Pit Alignment 3	1372	F					IA
		1373	F					
		1374	F					
		1375	F					
		1376	C	Circular	1.4	1.4	0.35	
		1377	F					
277	Pit Alignment 3	1381	F					IA
		1382	F					
		1383	F					
		1384	C	Oval	1.85	1.7	0.78	
278	Ditch	1367	F					IA
		1368	C	Linear		1.1	0.13	
		1387	F					
		1388	F					
		1389	F					

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1390	F					
		1391	F					
		1392	F					
		1393	C	Linear		3.2	1.2	
		1396	wd					
		1406	F					
		1407	F					
		1408	F					
		1409	F					
		1410	C	Linear		2.56	1.03	
		1445	F					
		1446	F					
		1447	C	Linear		1.37	0.53	
		1448	F					
		1449	F					
		1450	F					
		1451	C	Linear		1.6	0.45	
		1475	F					
		1476	F					
		1477	F					
		1478	C	Linear		1.1	0.48	
279	Tree throw	1395	L					
281	Ditch	1397	F					IA
		1398	F					
		1399	F					
		1400	C	Linear		0.86	0.62	
282	Tree throw	1401	F					IA
		1402	F					
		1403	F					
		1404	F					
		1405	C	Irregular				
283	Pit Alignment 3	1411	F					IA
		1412	F					
		1413	F					
		1414	C	Circular	1.25	1.16	0.2	
284	Pit Alignment 3	1415	F					IA
		1416	F					
		1417	F					
		1418	F					
		1419	F					
		1420	F					
		1421	C	Oval	2.4	2.2	0.85	
285	Pit Alignment 3	1431	F					IA
		1432	F					

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1433	F					
		1434	F					
		1435	F					
		1436	C	Oval	2.1	2	0.95	
286	Pit Alignment 3	1422	F					IA
		1423	F					
		1424	F					
		1425	C	Oval	1.48	1.3	0.45	
287	Pit Alignment 3	1426	F					IA
		1427	F					
		1428	F					
		1429	F					
		1430	C	Oval	1.45	1.35	0.45	
288	Pit Alignment 3	1437	F					IA
		1438	F					
		1439	F					
		1440	F					
		1441	C	Oval	2.5	2.17	0.85	
289	Pit Alignment 3	1442	F					IA
		1443	F					
		1444	C	Circular	1.5	1.5	0.4	
290	Pit Alignment 3	1452	F					IA
		1453	F					
		1454	C	Oval	1.75	1.5	0.4	
291	Pit Alignment 3	1455	F					IA
		1456	F					
		1457	F					
		1458	C	Oval	1.6	1.5	0.45	
292	Pit Alignment 3	1459	F					IA
		1460	F					
		1461	F					
		1462	C	Oval	1.6	1.45	0.48	
293	Ditch	1485	F					IA
		1486	C	Linear		0.35	0.08	
		1487	F					
		1488	C	Linear		0.52	0.15	
		1502	F					
		1503	C	Linear		0.86	0.11	
294	Pit Alignment 3	1479	F					IA
		1480	F					
		1481	C	Oval	1.5	1.25	0.21	
295	Ditch	1463	F					IA
		1464	F					
		1465	F					

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1466	F					
		1467	F					
		1468	F					
		1469	F					
		1470	F					
		1471	F					
		1472	F					
		1473	F					
		1474	C	Linear		1.35	0.9	
		1482	F					
		1483	F					
		1484	C	Linear		0.65	0.28	
296	Ditch	1489	F					IA
		1490	F					
		1491	C	Linear		1.17	0.32	
297	Pit Alignment 3	1492	F					IA
		1493	F					
		1494	F					
		1495	F					
		1496	F					
		1497	C	Circular	2.1	2.1	0.65	
298	Pit Alignment 3	1498	F					IA
		1499	F					
		1500	F					
		1501	C	Circular	1.6	1.6	0.45	
299	Palaeochannel 5	1511	L					Pre-IA
		1512	L					
		1568	L					
		1569	L					
		1570	L					
300	Palaeochannel 4	1505	L					Pre-IA
		1506	L					
		1507	L					
		1508	L					
		1509	L					
		1514	L					
		1515	L					
		1517	L					
		1518	L					
		1520	L					
		1522	L					
		1523	C					
		1524	L					
		1525	L					

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1526	L					
		1572	L					
		1573	L					
		1574	L					
		1575	L					
		1576	L					
		1577	L					
		1578	L					
		1579	L					
		1580	L					
		1581	L					
		1582	L					
		1583	L					
		1584	L					
		1587	L					
		1588	L					
		1589	L					
		1590	L					
		1591	L					
		1592	L					
		1593	L					
		1594	L					
		1595	L					
		1596	L					
		1597	L					
		1598	L					
		1599	L					
		1600	L					
		1601	L					
		1602	L					
		1603	L					
		1605	L					
		1606	L					
		1607	L					
		1608	L					
		1612	L					
		1613	L					
		1614	L					
		1615	L					
		1616	L					
		1617	L					
301	Wood	1504	L					Meso–Neo
302	Wood	1513	W					Meso–Neo
303	Wood	1516	W					Meso–Neo

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
304	Wood	1519	W					Meso–Neo
305	Wood	1521	W					Meso–Neo
312	Pit (pre-barrow)	1533	F					
		1534	F					
		1535	F					
		1536	F					
		1537	C	Circular		0.46	0.7	
313	Square enclosure on barrow	1538	F					
	Square enclosure on barrow	1539	C	Linear		1.02	0.46	
314	Cursus posthole	1544	F					M.Neo
		1545	F					
		1546	C	Oval	1.2	0.99	0.67	
315	Cursus posthole	1547	F					M.Neo
		1548	F					
		1549	F					
		1550	C	Circular	1.1	1.1	0.83	
316	Pit Alignment 2	1552	F					IA
		1553	F					
		1554	C	Oval	2.33	1.45	0.49	
		1670	F					
317	Pit Alignment 2	1555	F					IA
		1556	F					
		1557	F					
		1558	F					
		1559	F					
		1560	F					
		1561	C	Oval	2.3	1.9	0.8	
318	Pit Alignment 2	1562	F					IA
		1563	F					
		1564	F					
		1565	F					
		1566	C	Oval	1.65	1.6	0.55	
319	Wood	1567	W					Meso–Neo
320	Palaeochannel 6	1690	L					Pre-IA
		1691	L					
321	Wood	1571	W					Meso–Neo
322	Wood	1585	W					Meso–Neo
323	Wood	1586	W					Meso–Neo
324	Wood	1604	W					Meso–Neo
325	Wood	1609	W					Meso–Neo
326	Wood	1610	W					Meso–Neo
327	Wood	1611	W					Meso–Neo

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
328	Ditch	1620	F					IA
		1621	F					
		1622	F					
		1623	C	Linear		1.3	0.5	
		1624	F					
		1625	C	Linear		0.7	0.2	
		1630	F					
		1631	C	Linear		0.75	0.28	
329	Pit Alignment 2	1632	F					IA
		1634	F					
		1635	F					
		1636	F					
		1656	F					
		1657	F					
		1658	C	Oval	1.65	1.5	0.75	
330	Pit Alignment 2	1637	F					IA
		1638	C	Oval	1.65	1.38	0.32	
331	Pit Alignment 2	1639	F					IA
		1640	F					
		1641	F					
		1642	F					
		1643	C	Oval	1.95	1.35	0.75	
332	Pit Alignment 2	1644	F					IA
		1645	F					
		1646	F					
		1647	F					
		1648	C	Oval	1.82	1.31	0.71	
333	Pit Alignment 2	1649	F					IA
		1650	F					
		1651	C	Oval	1.79	1.18	0.48	
334	Pit Alignment 2	1652	F					IA
		1653	C	Oval	1.85	1.53	0.55	
335	Pit Alignment 2	1654	F					IA
		1655	C	Circular	1.68	1.65	0.46	
		1665	F					
336	Pit Alignment 2	1659	F					IA
		1660	F					
		1661	F					
		1662	F					
		1663	F					
		1664	C	Oval	1.7	1.65	0.5	
337	Pit Alignment 2	1666	F					IA
		1667	F					
		1668	F					

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1669	C	Oval	1.6	1.45	0.57	
338	Pit Alignment 2	1671	F					IA
		1672	F					
		1673	F					
		1674	F					
		1675	C	Oval	1.72	1.35	0.62	
339	Pit Alignment 2	1681	F					IA
		1682	F					
		1683	F					
		1684	F					
		1685	C	Oval	1.82	1.55	0.71	
340	Pit Alignment 2	1676	F					IA
		1677	F					
		1678	F					
		1679	F					
		1680	C	Oval	1.78	1.7	0.68	
341	Pit Alignment 1	1892	F					IA
		1893	F					
		1894	C	Oval	2.9	2.1	0.7	
342	Pit	1895	F					IA
		1896	F					
		1897	F					
		1898	F					
		1899	F					
		1900	F					
		1901	F					
		1902	C	Oval	1.9	1.6	1.3	
343	Wateringhole	1908	F					Pre-IA
		1909	F					
		1910	F					
		1911	F					
		1912	F					
		1913	F					
		1914	C	Oval	4.1	3.2	0.85+	
344	Pit Alignment 1	1923	F					IA
		1924	F					
		1925	C	Oval	3.2	2.25	0.75	
345	Pit Alignment 1	1926	F					IA
		1927	F					
		1928	F					
		1929	C	Oval	3.1	2.4	0.62	
346	Ditch	1626	F					IA
		1627	C	Linear		0.55	0.15	
		1628	F					

Feature	Type	Context	Type	Shape	Length	Width	Depth	Period
		1629	C	Linear		0.6	0.15	
	Pit Alignment 3 Bank	1378	L			3.25	0.12	IA
	Ditch F278 Bank	1379	L					IA
	Pit Alignment 3 bank	1386	L			1.5	0.08	IA
	Ditch F278 Bank	1394	L					IA
	Primary barrow	1527	L					
	Secondary barrow	1528	L					
	Pre-barrow soil	1529	L					
	Pre-barrow soil	1530	L					
	Pre-barrow soil	1531	L					
	Pre-barrow soil	1532	L					
	Barrow trench backfill	1551	L					1970's

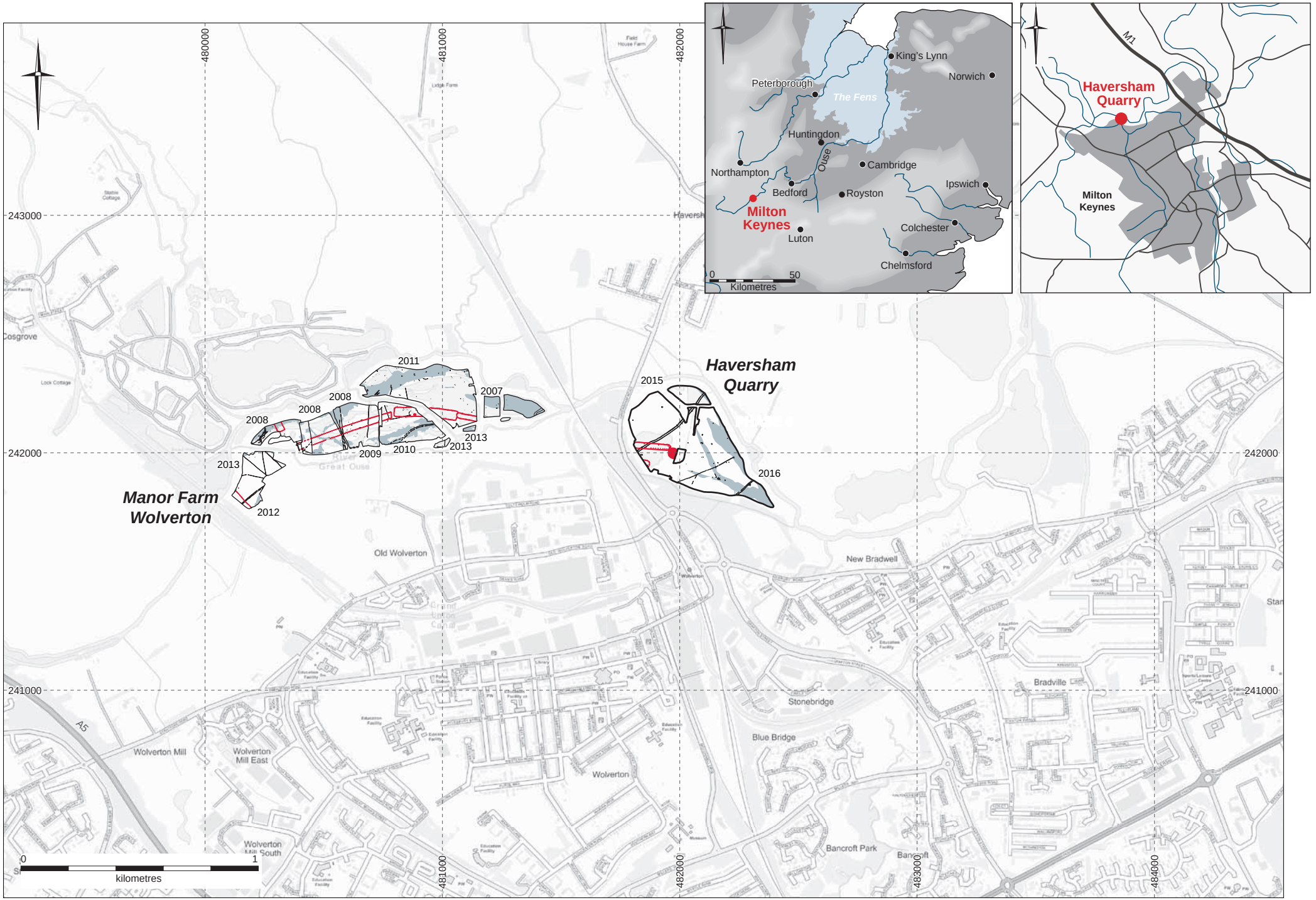


Figure 1: Site location

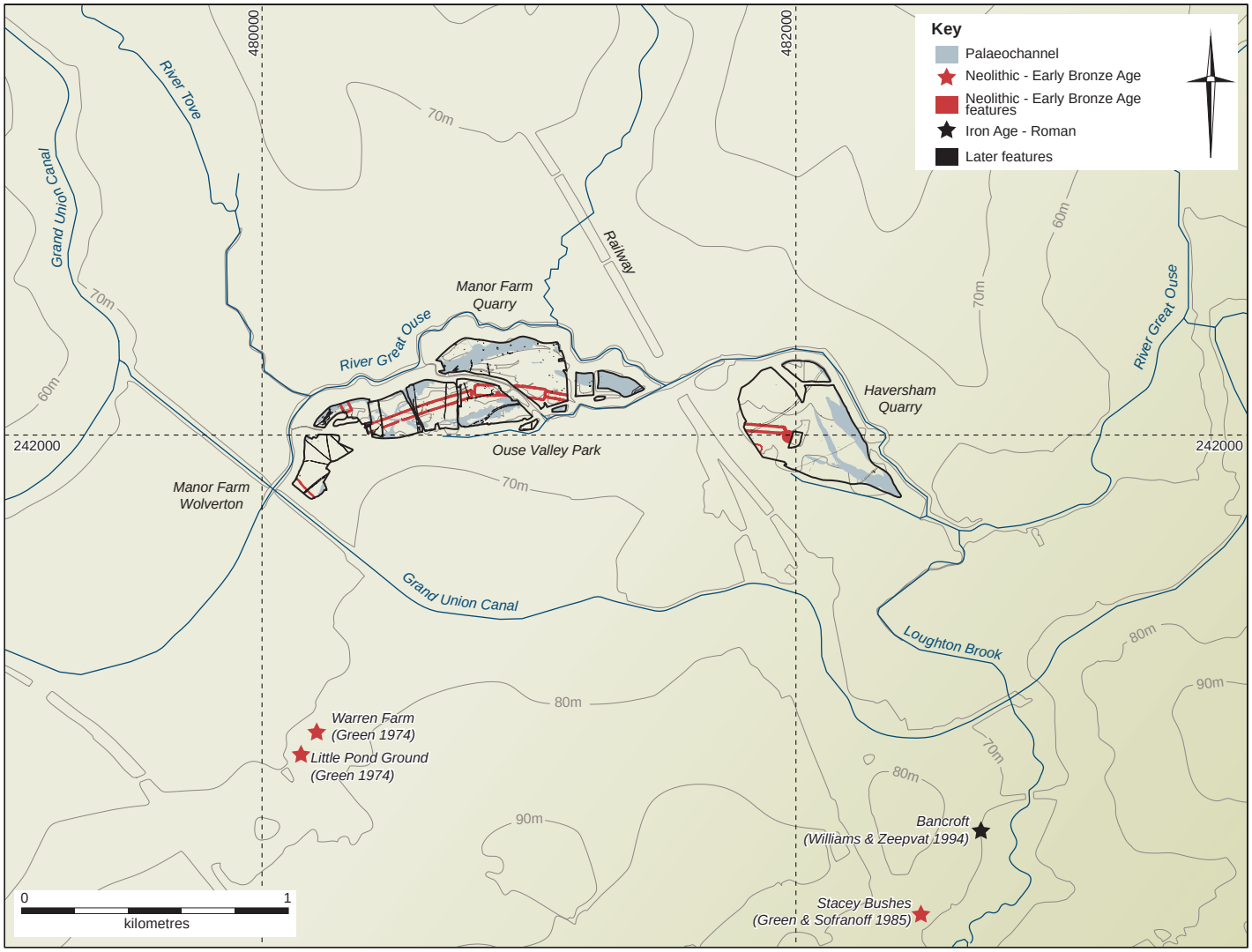


Figure 2: Site geographic and archaeological context with Lidar image.

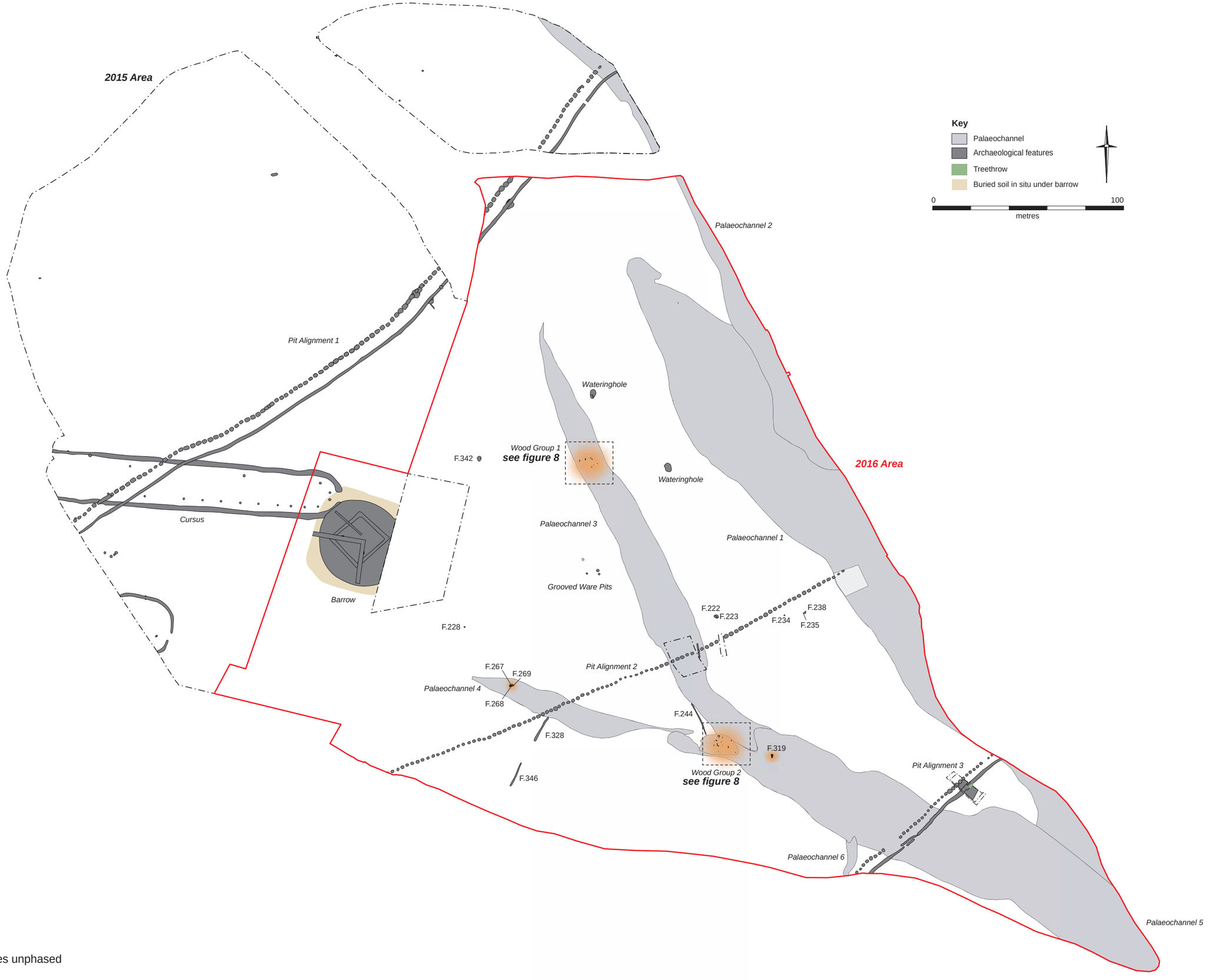
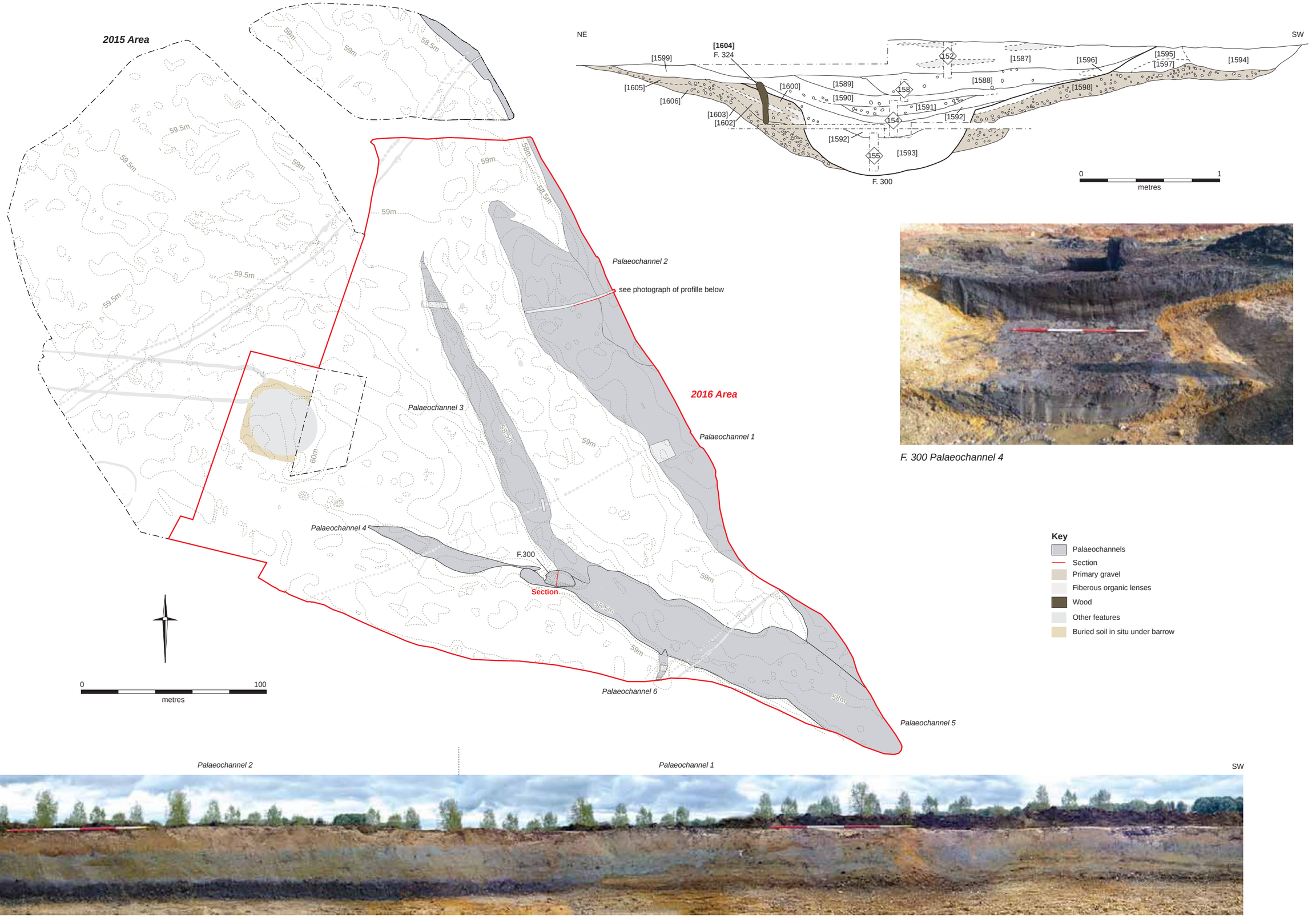


Figure 3: All features unphased



F. 300 Palaeochannel 4

Figure 4: Plan of Palaeochannels

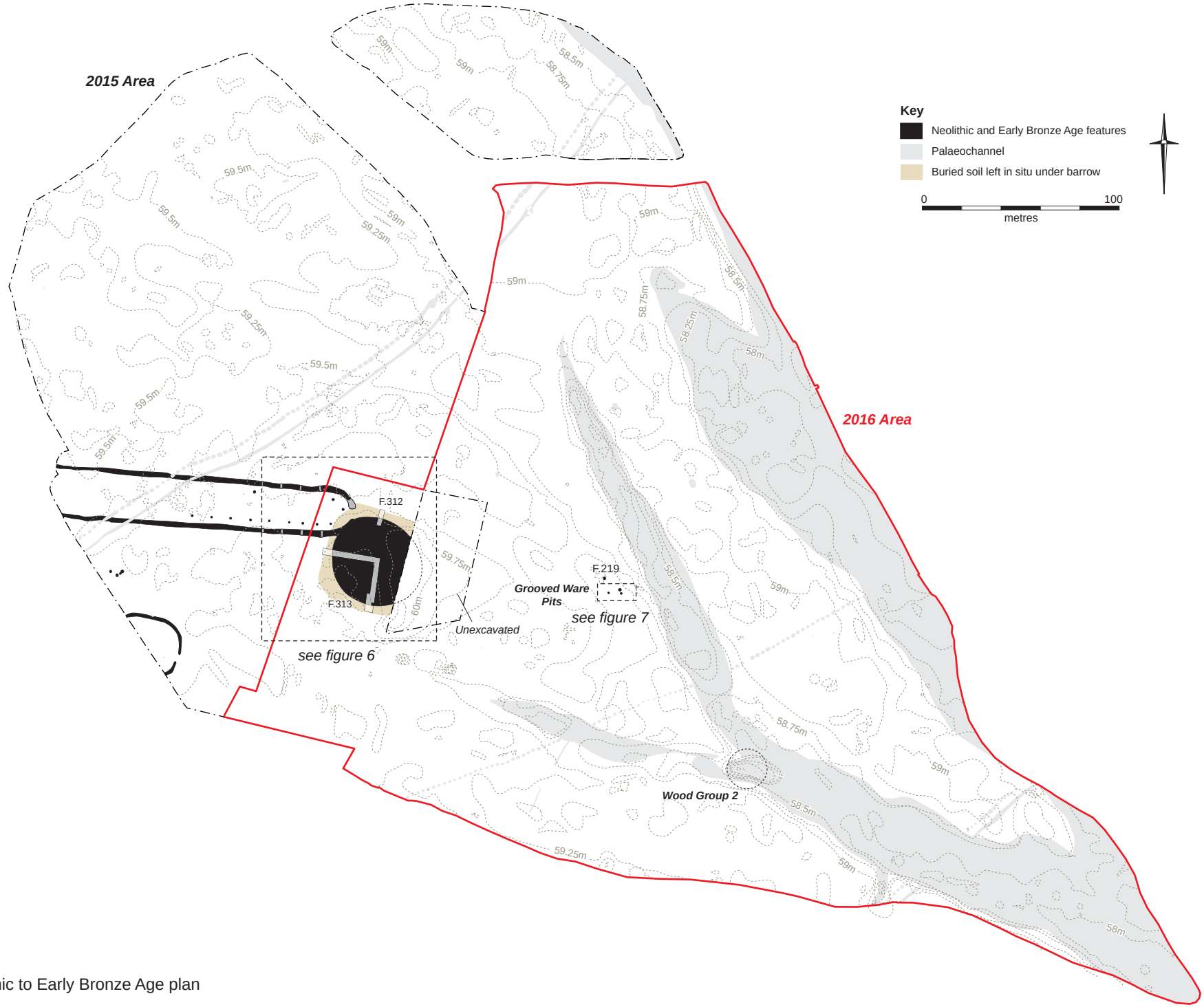
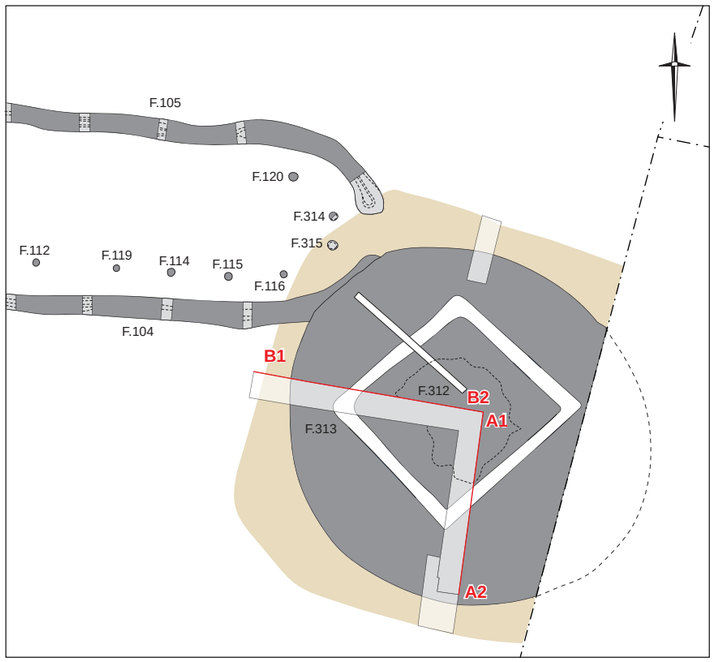


Figure 5: Neolithic to Early Bronze Age plan



Key

- Neolithic and Early Bronze Age features
- Buried soil left in situ under barrow
- Undated feature
- Projected line of feature
- Section line
- Break of slope

0 50

metres

Cursus terminus under excavation

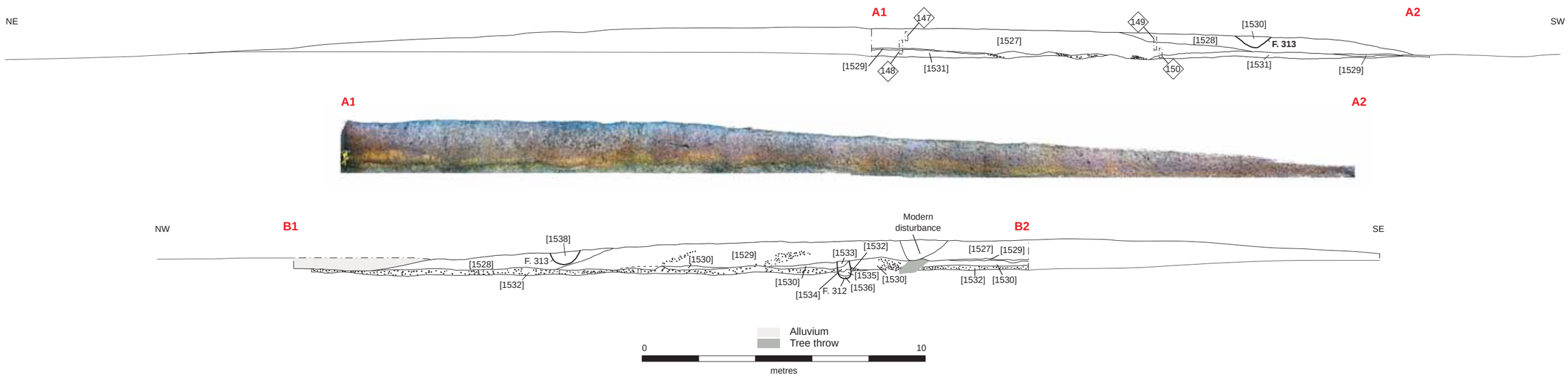
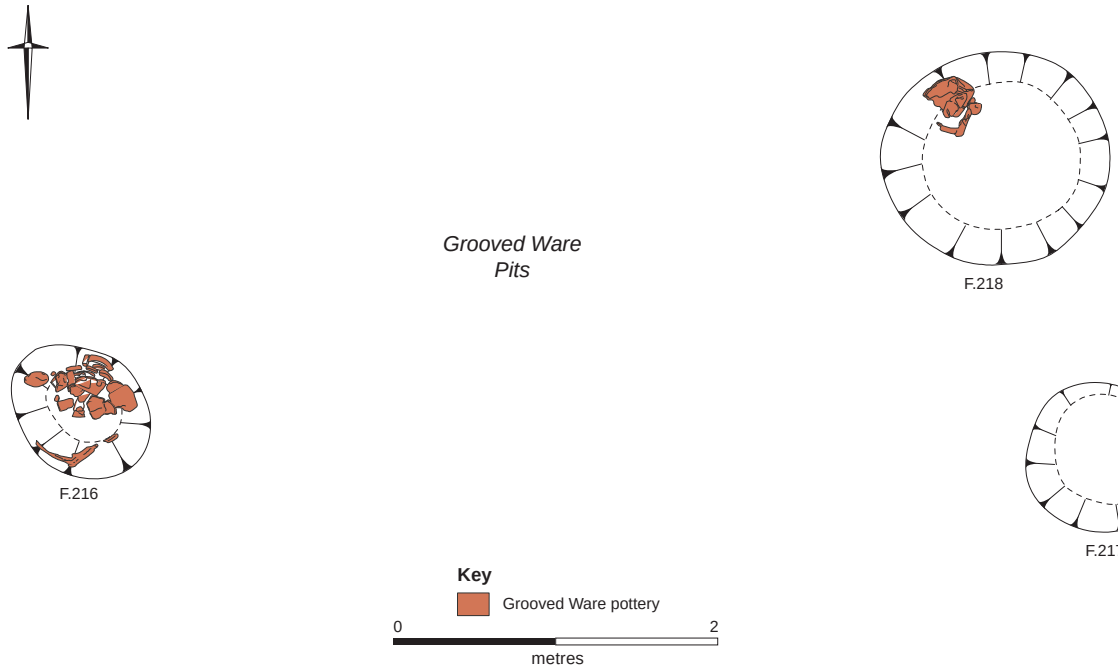


Figure 7: Barrow and cursus



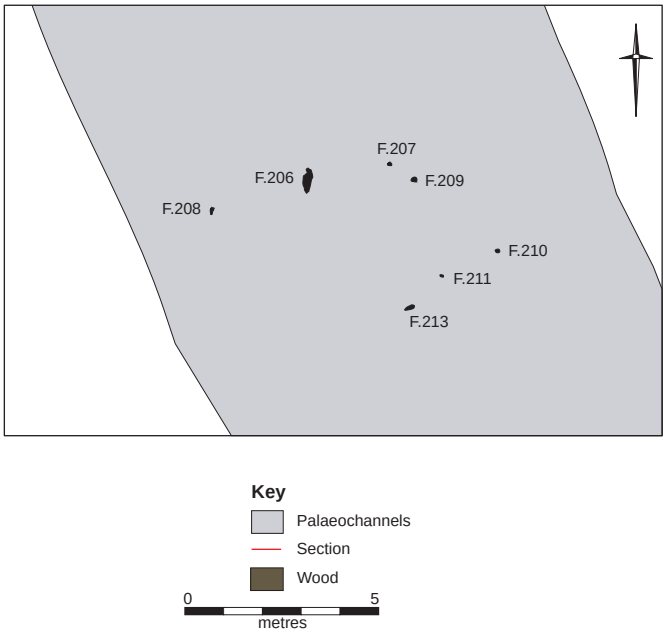
F.216

F.218

F217 & F.218

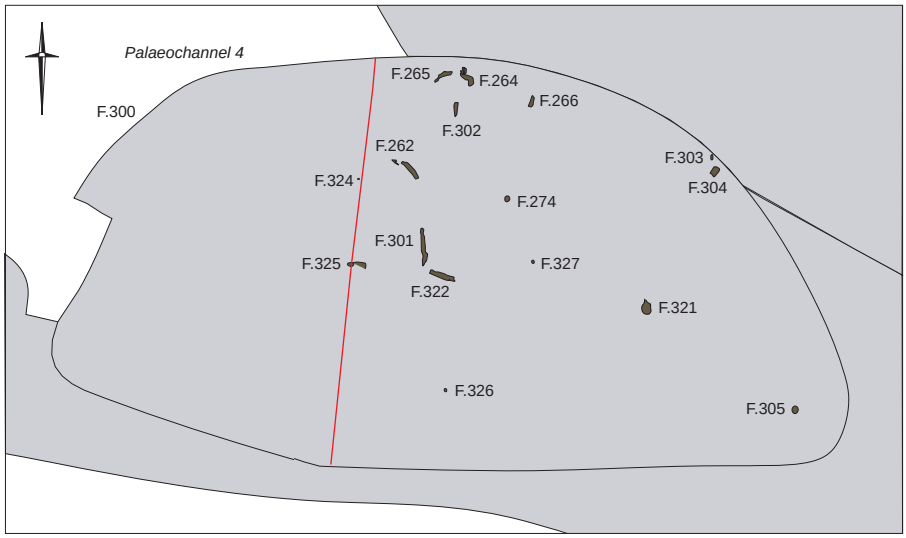
Figure 7: Grooved Ware pits

Wood Group 1



F.319 (see figure 4 for location)

Wood Group 2



Section on figure 4

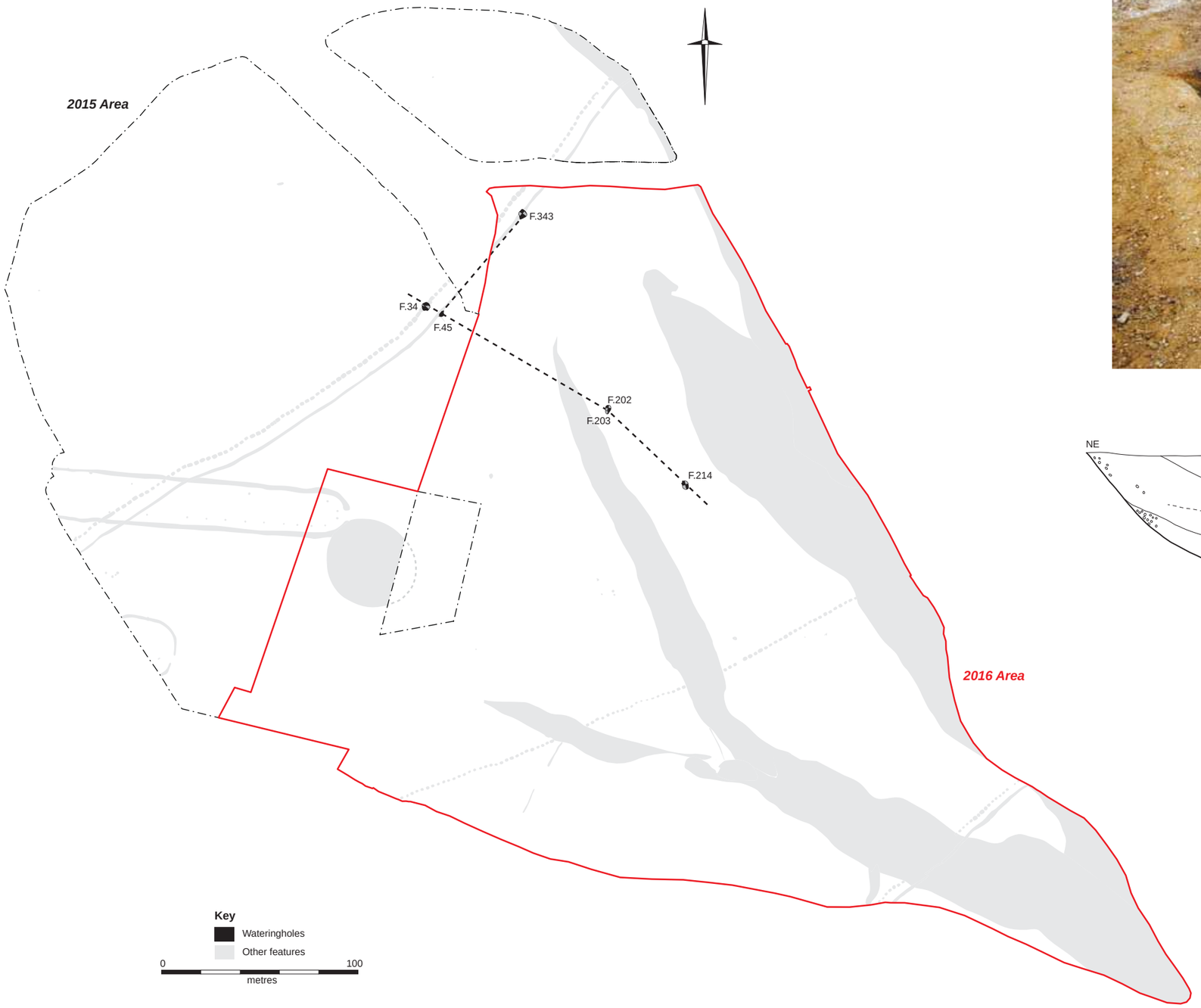
F.266

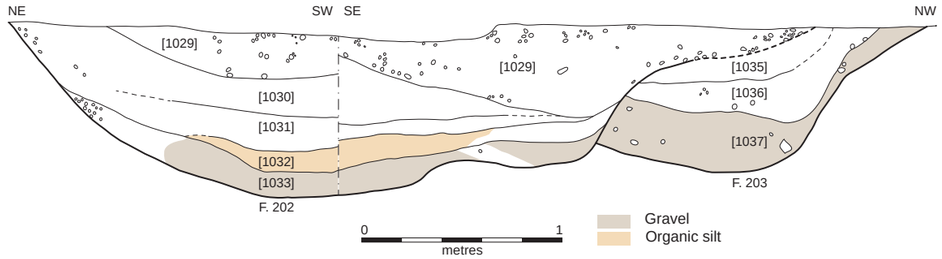
F.324

F.262

F.325

Figure 8: Wood Groups 1 and 2





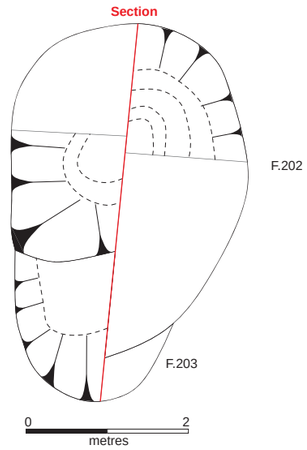


Figure 9: Plan of Wateringholes

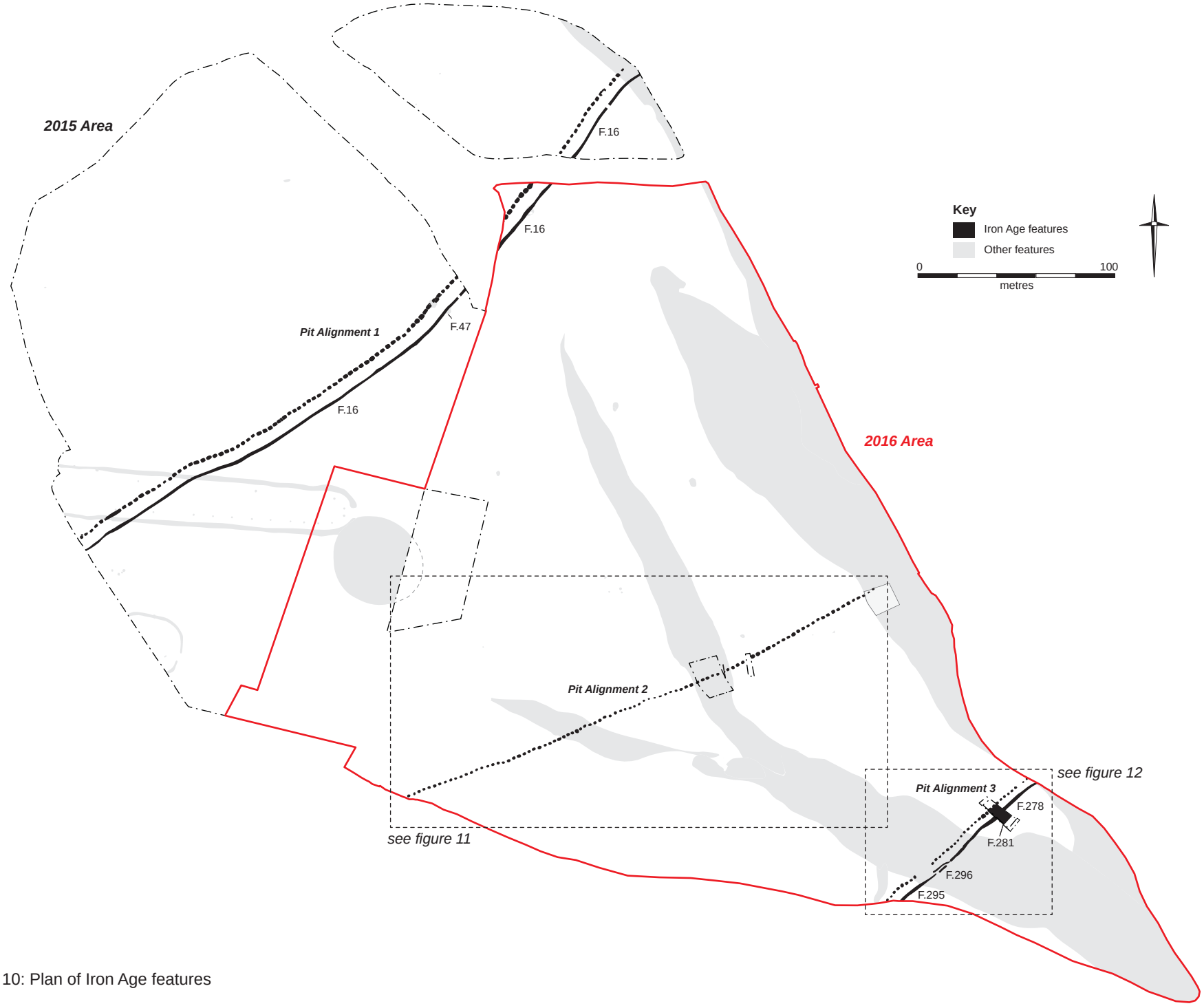
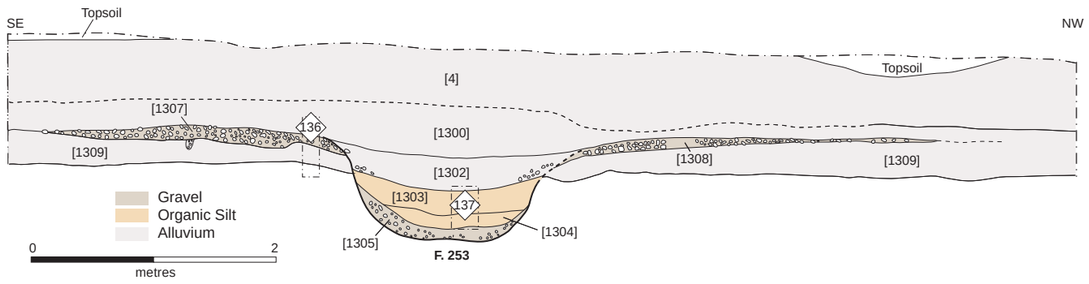


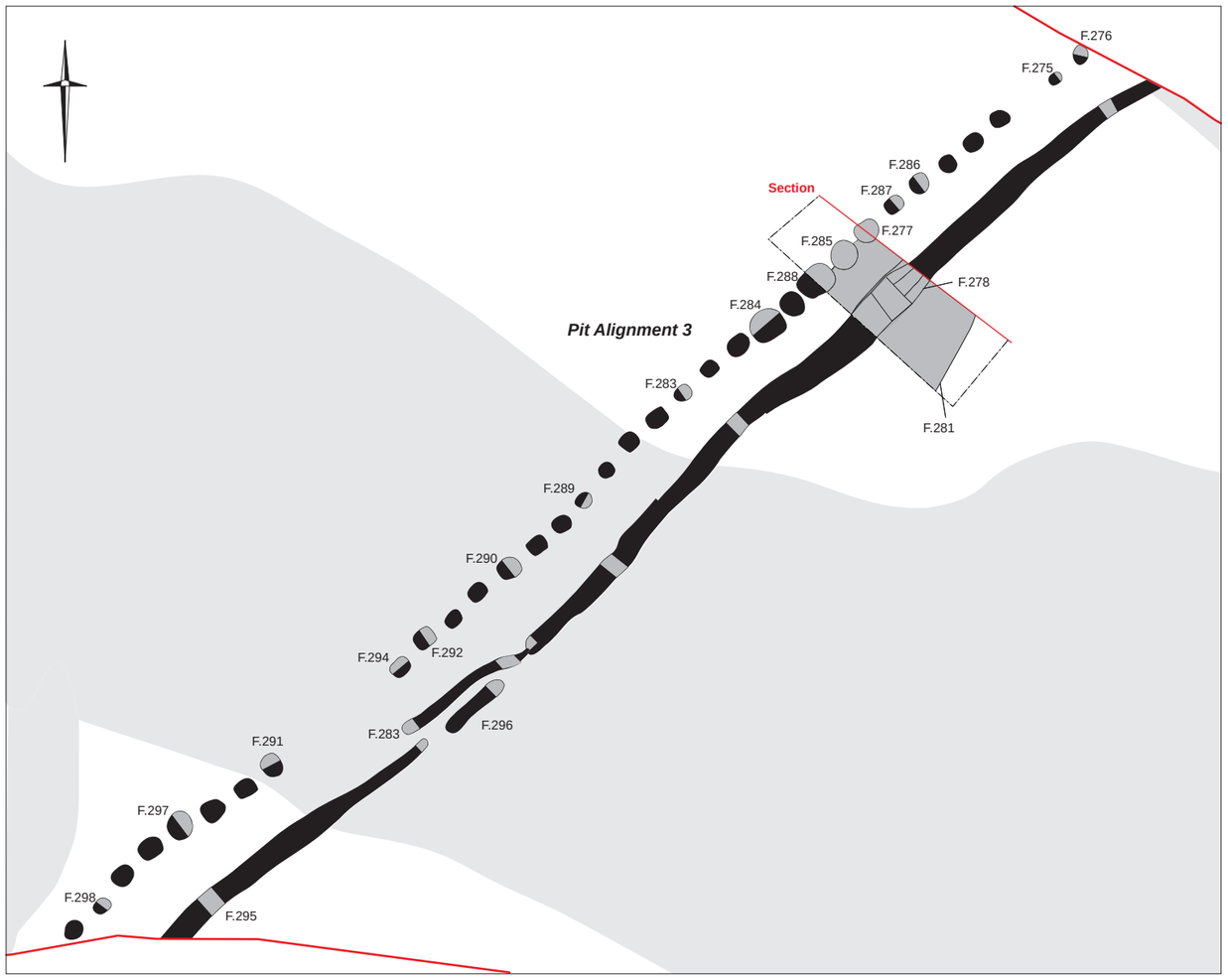
Figure 10: Plan of Iron Age features

Banks associated with Pit Allignment 2

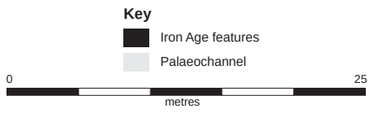


Round wood in F.316 and 338-340

Figure 11: Pit Alignment 2



Banks associated with Pit Allignment 3



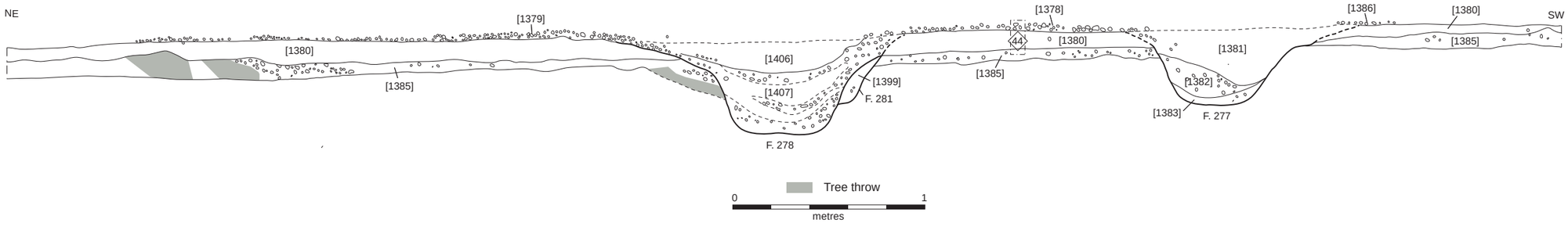


Figure 12: Pit alignment 3

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Project details

Project name	Haversham, Milton keynes
Short description of the project	This report presents the archaeological results from the 2016 Haversham excavation. This marks the final phase of work to be carried out at the Manor Farm/Haversham Quarry. Further excavation took place on the cursus complex previously recorded at the site, whilst the Wolverton Mound, a suspected barrow exposed in the 2015 excavation, saw some investigation. Additional archaeology comprised a Grooved Ware pit cluster, some wateringholes and two pit alignments. With the site situated directly on the Great Ouse valley floodplain, fluvial processes were highly influential on the sites formation sequence. Blanket alluvium deposits and palaeochannels attest to the sites dynamic paleogeography and environmental succession. Abundant palaeoenvironmental remains have so far allowed detailed studies of the Neolithic and Iron Age environments. During the Neolithic, the valley was largely free of alluvium. The monument complex was seen to be carefully situated in reference to the contours and active river channels of the pre-alluvium landscape. Whilst posts driven into the palaeochannels show some usage of the active watercourses, the landscape was largely grassland with cereal cultivation nearby. In the Iron Age, the valley had become much aggraded by alluvium. Pit alignments crossed the floodplain, which at this time, was grazed meadow. Cereal cultivation and stands of woodland and scrubland or hedgerows were located nearby, but clearly off site.
Project dates	Start: 01-09-2016 End: 12-12-2018
Previous/future work	Yes / No
Any associated project reference codes	HMK16 - Sitecode
Type of project	Environmental assessment
Site status	None
Current Land use	Grassland Heathland 2 - Undisturbed Grassland
Monument type	CURSUS Middle Neolithic
Monument type	PIT ALIGNMENTS Iron Age
Monument type	BARROW Early Bronze Age
Monument type	PITS Late Neolithic
Significant Finds	POT Late Neolithic
Significant Finds	POT Middle Iron Age
Significant Finds	FLINT Neolithic
Significant Finds	BONE Neolithic
Significant Finds	ANTLER Neolithic
Significant Finds	WOOD Neolithic
Survey techniques	Archaeology

Project location

Country	England
Site location	BUCKINGHAMSHIRE MILTON KEYNES WOLVERTON Haversham
Study area	8.63 Hectares
Site coordinates	TL 481948 242124 51.896263931196 0.15403840333 51 53 46 N 000 09 14 E Point
Height OD / Depth	Min: 60m Max: 60.3m

Project creators

Name of Organisation	Cambridge Archaeological Unit
Project brief originator	Local Authority Archaeologist and/or Planning Authority/advisory body
Project design originator	Emma Beadsmoore
Project director/manager	Emma Beadsmoore
Project supervisor	Alasdair Wright
Type of sponsor/funding body	Developer
Name of sponsor/funding body	Hanson Aggregates

Project archives

Physical Archive recipient	Cambridge Archaeological Unit
Physical Contents	"Animal Bones","Ceramics","Environmental","Human Bones","Wood","Worked stone/lithics"
Digital Archive recipient	Cambridge Archaeological Unit
Digital Contents	"Stratigraphic","Survey"
Digital Media available	"Images raster / digital photography","Spreadsheets","Survey","Text"
Paper Archive recipient	Cambridge Archaeological Unit
Paper Contents	"none"
Paper Media available	"Context sheet","Drawing","Notebook - Excavation',' Research',' General Notes","Plan","Section","Survey ","Unpublished Text"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Archaeological Investigations at Haversham road, Milton Keynes: Phase 2: a Post Excavation Assessment
Author(s)/Editor(s)	Alasdair Wright
Other bibliographic details	1440
Date	2019

Issuer or publisher	Cambridge Archaeological Unit
Place of issue or publication	Cambridge
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Entered on	17 December 2019

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