Land East of New Road, Melbourn, Cambridgeshire

Post-Excavation Assessment and Updated Project Design

June 2018

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Land East of New Road, Melbourn, Cambridgeshire

Post-Excavation Assessment and Updated Project Design

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Summary

Between August and December 2017, a team from Oxford Archaeology East undertook a 5.4ha archaeological excavation East of New Road, Melbourn, Cambridgeshire (TL 390 440). This followed evaluation work in August 2014.

Naturally formed periglacial hollows were found across the site, with mixed colluvial and incipient soil fills containing Mesolithic struck flints and Early Neolithic flint and pottery, as well as animal bone and, in one case, disarticulated human skeletal remains.

Later Neolithic activity was confined to three possible Early-Middle Neolithic pits and 16 Late Neolithic pits associated with Grooved Ware pottery. They were concentrated in, but not exclusive to, the south-west of the site. As well as pottery, struck and burnt flint, animal bone and charred nut shells, one of these contained both aurochs and domesticated cattle bones, another a selection of red deer, roe deer and elk antler (the latter previously considered to be extinct in the region at this time). Freshwater shell, rare for the period, particularly on inland sites was also found in two pits. The pits have been radiocarbon dated to broadly c.2900-2500calBC, although the elk antler itself, possibly curated, remains to be dated.

A single Early Bronze Age un-urned cremation burial and a slightly later inhumation burial, were also located in the south-west of the site, dated to 2141-1945 cal BC (95.4%) and 1922-1742 cal BC (94.3%) respectively. The latter was surrounded by a double ring-ditch and probably capped by a barrow. A second, undated probable barrow lay in the north of the site.

A multi-phased Middle Bronze Age settlement and enclosure system dominated the eastern part of the site, comprising lines of postholes (over 500 individual posthole in total) forming enclosures and paths, along with a ditched rectilinear enclosure. Three wells were dug across the east of the site, taking advantage of the lowest contours. One of these contained a Middle Bronze Age pottery assemblage. There were up to 10 post-built roundhouse-type structures, as well as several other structural forms. Environmental preservation from wells was moderate, including pollen, but poor from other features.

Possible Roman (or medieval) road-side structural remains were present in the form of beam slots, on the line of what would become Ashwell Street in the post-medieval period.

A post-Roman enclosure ditch with causeway, lying largely beyond the north of the site's limits, has been radiocarbon dated to the 7th-8th centuries AD (Early/Middle Saxon period). This was evidently modified, part-backfilled and cut through by a well. None of these later features producing contemporary finds.

Multiple phases of post-medieval (and earlier) ditches marking Ashwell Street were also present, itself forming a hollow way, as well as later post-medieval tracks. These were filled in by the time of enclosure in 1840 and the construction of New Road.

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Machine excavation was by Paul Monks and Rob Downey of Danbury Plant Hire Ltd.

The project was commissioned by Myk Flitcroft of CgMs on behalf of Hopkins Homes. It was managed by Richard Mortimer of OA East and directed by Stuart Ladd. The project was monitored by Kasia Gdaniec of Cambridgeshire County Council.

1 INTRODUCTION

1.1 Background

1.1.1 An archaeological excavation was conducted at Land East of New Road, Melbourn (TL 390 440).

1.1.2 This archaeological excavation was undertaken in accordance with a Brief issued by Kasia Gdaniec of Cambridgeshire County Council (CCC; Planning Application S/2791/14), supplemented by a Written Scheme of Investigation prepared by OA East (Bush 2017).

1.1.3 The work was designed to preserve by record any archaeological remains within the proposed development area, in accordance with the guidelines set out in National Planning Policy Framework (Department for Communities and Local Government March 2012).

1.1.4 This assessment has been conducted in accordance with the principles identified in Historic England's guidance documents *Management of Research Projects in the Historic Environment*, specifically *The MoRPHE Project Manager's Guide (2006) and PPN3 Archaeological Excavation* (2008).

1.2 Geology and topography

1.2.1 The mapped geology of the site (BGS 2017) comprises Zig-zag chalk in the north, overlain by an outcrop of the Melbourn rock, itself topped by Holywell Nodular Chalk to the south. Periglacial effects on the chalk have produced variations in its nature, with the formation of large silty hollows (Steve Boreham pers. comm. and see Archaeological Background, below).

1.2.2 Those geological layers rise up from the south, with the impermeable layers of the Totternhoe Stone and Melbourn Rock pushing water from the hills to the south to outcrop as springs across the north and north-east of the village, feeding tributaries of the rivers Mel, Rhee and Cam.

1.2.3 The site lies on relatively flat ground, ranging from 28 to 32m OD, to the north of a chalk ridge which reaches around 40m OD on the extreme southern edge of the wider Cam basin area. Chalk hills rise south-eastwards towards the Essex boulder clay plateau.

1.3 Archaeological background

Previous work

1.3.1 The site was subject to evaluation, geophysics and air photographic survey in 2014 (Ladd 2014 / CHER ECB4241; Prestidge 2014; Cox 2014), which began to place it into its broader prehistoric landscape. The recently completed National Archaeological Identification Survey: South-West Cambridgeshire (NAIS) by Historic England has combined LIDAR and air photo evidence to add to the understanding of continuity in this landscape, with earlier alignments influencing later features (Jonathan Last, pers. comm.). There have been several other infrastructure, housing and commercial

developments in and around Melbourn in recent years, complementing the results of aerial survey with archaeological excavations.

Late Mesolithic and Neolithic

1.3.2 A number of large silted up natural hollows in the chalk geology of the area have produced Late Mesolithic to Early Neolithic flints and Neolithic pottery. Prior to this project these had been most intensively evaluated at the New Road site itself, with the suggestion they might incorporate stratified working surfaces (Ladd 2017a). Productive examples were also recorded at Black Peak Farm to the east (Ladd 2017b) and next to Royston Road to the west (Ladd 2016). Pond-like features excavated at Back Lane, whose peat-like upper fills were radiocarbon dated to the Later Mesolithic/Early Neolithic periods (CHER MCB16894) were probably similar features.

1.3.3 The NAIS program has identified several long barrow-like crop marks across the chalk ridge to the south of Melbourn, the closest lying 700m to the south-west (Jonathan Last, pers. comm.). A henge-like enclosure has been subject to geophysical survey 3km south-west of the site (Brittain et al 2014), while a second similar monument has been identified 4km to the north-east by the NAIS.

Later Neolithic and Bronze Age

1.3.4 Transient exploitation and occupation of the landscape in the later Neolithic is evidenced by the discovery of increasing numbers of pits in the southern reaches of Melbourn. Probable later Neolithic/Early Bronze Age pits and associated postholes containing pottery, animal bone, including aurochs, and worked flints were found 50m south-west of the site at excavations around Victoria Way in 2015 (CHER MCB20977). A single pit containing 40 sherds of later Neolithic pottery and 38 worked flints was excavated during a pipeline watching brief 500m south-south-west of the site (Ladd 2016). Work at Water Lane/Saxon Way (now Chalkhill Barrow) uncovered probable Late Neolithic pits, as well as Early Bronze Age pits containing possible Collared Urn fragments, in association with a barrow ditch (Duncan et al 2003).

1.3.5 The landscape around the chalk hills to the south is dotted with many more such round barrow ring ditches (e.g. CHER MCB21276, 8-9, 09558, 08931 and SAMs: 1011719, 1011720) and square barrow (SAM 1020397). One round barrow was evaluated within the site itself (Ladd 2017a; MCB20334), as well as at least three at Black Peak Farm (Ladd 2017b) and another at Muncey's Farm (Ladd 2014, CHER ECB4298). No related burials were identified.

1.3.6 A nearby barrow was ploughed out in the 1960s. Located to the south of the site, next to New Road, it enclosed a central burial, as well as at least six secondary cremations with Deverel Rimbury pottery (CHER 03166 / Wilkerson 1960).

1.3.7 The evaluation identified a sub-square east-west/north-south-aligned Middle Bronze Age enclosure in the north-east of the site c. 90m across, with a watering hole/well near its centre. Several associated post-holes were also identified, though none were obviously structural. Crop marks sharing the alignment of this enclosure system clearly extend east-wards, although they are currently documented as Iron Age or Roman in date (CHER MCB21273-5).

1.3.8 A Bronze Age metalwork hoard was found in the 1800s at Back Lane, at least 300m south-west of the site (CHER MCB16894).

Iron Age

1.3.9 The site sits within a landscape that by the Early Iron Age was divided into semi-regular strips (as originally suggested by Dyer, 1960), separated by multi-ditched linear boundaries/droveways aligned north-west to south-east, with the closest identified boundaries being the Mile Ditches 6.5km to the west and the Bran Ditch precursors c.1km to the east (Ladd and Mortimer 2017).

1.3.10 Possible Early Iron Age sherds were retrieved from the north of the site during evaluation. Although these may be residual, they were associated with a flint surface (possibly natural) within a hollow or below a colluvial layer.

1.3.11 Earlier and Later Iron Age occupation has also been evaluated 1km east of the site, comprising enclosures around the springs adjacent to the enclosure at Black Peak (Ladd 2017b), at the northern end of the Bran Ditch precursors. Late Bronze Age to Early Iron Age pits were also found in excavations at Back Lane 700m west-south-west of the site (CHER CB15249) and ditches at Victoria Way contained Late Bronze Age to early Iron Age flints (CHER MCB20977).

Late Iron Age to Roman

Settlement and Agriculture

1.3.12 The landscape adjacent to the spring line and tributaries of the River Cam appears to have been well-used in the later Iron Age to Roman periods, with regular rectilinear and curvi-linear enclosure systems at various locations around the north of the village identified by the NAIS (e.g. CHER MCB21272-5, MCB21277), although as discussed above, some may be of Bronze Age date. A major Roman rural settlement lies to the east at Black Peak Farm, stretching towards Fowlmere.

1.3.13 Excavated Roman activity in Melbourn is focused to the north-west, where large numbers of sherds were collected in advance of the construction of the A10 bypass (CHER 08777A), and in the north-east around Portway (CHER 03197). The latter was the site of a ploughed out square ditched enclosure, taken by Beldam to be a Roman marching camp, which has produced part of a quern as well as being the site of Roman burials (CHER 03197). A further burial and evidence of occupation and field systems of several phases of Roman settlement were recently evaluated immediately north-west of that site (Capon 2017).

1.3.14 Only 5 sherds of Roman pottery were recovered from the New Road evaluation (Percival 2017), although an assemblage was reported adjacent to the Bronze Age barrow recorded in the 1960s to the south of the site (CHER 03166a / Wilkerson 1960).

Ashwell Street – Roman to Post-medieval

1.3.15 Ashwell Street has been used as a label for a long-running alignment of roads, headlands and boundaries in the landscape for decades (e.g. Fox 1923; Crawford 1936, pl xiii;), connecting Baldock and Ashwell in the south-west to the fens and Norfolk's Peddar's Way in the north-east. The post-medieval road across the site is shown on 18th and 19th century maps (1799 Ordnance Survey 2” Drawing and the 1839

enclosure map) and reflected as a headland in aerial photographs. It is, for convenience, referred to here as Ashwell Street and there is a case for suggesting it has Roman origins.

1.3.16 Ashwell Street would have worked as a lowland parallel to the Icknield Way, a collection of prehistoric routes along the Chiltern Hills to the south. Margary (1973, 207) was confident that Ashwell Street (Road 230) was Roman; with straight sections either side of Melbourn, but less clear eastwards between Melbourn and Fowlmere. Some of its straight sections, (e.g. at Littlington) appear to result from 19th-century straightening of pre-existing lines which Margary concluded, based on the location of Roman cemeteries, were probably Roman (ibid.).

1.3.17 Since Margary's analysis, aerial photography and fieldwork in the area have identified Roman settlement on Ashwell Street east of the site, between Melbourn and Fowlmere. A diversion north-westwards takes the post-medieval road through a Roman street-side ladder settlement at Black Peak Farm/Fowlmere (Ladd 2017b). This is the most direct route from Ashwell Street identified west of Melbourn towards Black Peak, skirting the chalk springs to the north, while avoiding the higher ground to the immediate south.

1.3.18 This is not to suggest that Ashwell Street was necessarily a major Roman road or a continuous, single construction in the Roman period, but it is a convenient label, like the 'Icknield Way' for the more southerly route of the Royston/Newmarket Road (now the A505). A network of irregular tracks is known to have existed across this landscape at the time (e.g. the Avenell Way, and those at Muncey's Farm and Black Peak Farm; Atkins and Hurst 2014; Ladd 2014 & 2017b; NAIS/Jonathan Last pers. comm.) and while the road here may have been no more important than the others, Black Peak Farm does appear to have been the site of a major rural settlement (Ladd 2017b). It is assumed there would also have been connections to the Portway site in the north-east of Melbourn.

1.3.19 Evaluation of the New Road site exposed a number of ditches and a hollow way on the line of Ashwell Street, but provided no dating evidence. No clear headland survived. Only the geophysics suggested that ridge and furrow of probable medieval origin respected a former headland which the post-medieval track followed. While it is highly probable that a Roman track passed through here, it did not necessarily precisely follow the later route fossilized by ditches and mapped.

Saxon and Medieval

1.3.20 Melbourn lies c.1km beyond the Bran Ditch, the south-westernmost of the early Anglo-Saxon boundaries which probably reiterated boundaries/droveways dating from the Early Iron Age. This may place it more in the Hertfordshire landscape in the 5th century, a setting lacking settlement evidence (Medleycott 2011, 57).

1.3.21 The area around Saxon Way/Water Lane, c. 350m south-west of the site, was the focus of Early Saxon burials, adjacent to a Bronze Age barrow (above). The location of the site partially excavated in the 1950s (over 28 adult skeletons; CHER CB15556) is lost and it may well be continuous with the portion excavated in 2000 (52 graves, 59 individuals; Duncan et al 2003). The latter was in use from c. AD 575 to AD 675,

spanning the end of the Migration phase and the Final phase of Early Saxon burial practices. Recent work between there and New Road narrows the space that could have been occupied by two distinct cemeteries, suggesting they were one and the same.

1.3.22 The name Melbourn is itself recorded in a gift in Liber Eliensis c. 970 and in Domesday Book. There are several interpretations of its (and neighbouring Meldreth's) origins, including the personal name Melda and possibly myln (Old English: mill stream; Reaney 1943, 58-59). Late Saxon and Saxo-Norman pottery sherds were retrieved from ditches during construction of the A10 bypass (CHER ECB476) 1km north-west of the site.

1.3.23 Medieval settlement at Melbourn was broadly focused along and north of the High Street and Cambridge Road, adjacent to the chalk streams and wetter ground around The Moor. Five hides in Melbourn and Armingford hundred were granted by King Edgar to Ely Abbey in 970 (Baggs et al 1982). Five landholdings were reported in Domesday Book, probably corresponding with the disparate manors later identifiable. The largest, Melbourn cum Meldreth was centred at Melbourn Bury in the north-west of the village while, Caxtons and Argentines manors lay to the north and north-east respectively – all were moated by the later medieval period (ibid.). Moated sites are recorded in the Cambridgeshire HER (CHER 11320, 01230, 01247, MCB21282, 01251, 01229). Further afield, a moated site in neighbouring Meldreth parish was excavated and shown to have been occupied in the Late Saxon period (CHER 01275). The village church, All Saints, is located on the High Street 680m north-west of the site, originating in the 13th century, probably rebuilt on the site of a 12th century antecedent (CHER 3115).

1.3.24 Sheep were central to the economy throughout the medieval period (696 being reported in Domesday; Baggs et al 1982). The site lay in an open field, Cawden Field until enclosure in 1839 (although some tracks/boundaries are shown in 1799) and was probably under pasture for much of that time, although ridge and furrow cultivation was visible on the geophysical survey at least in the western part of the site. Peterhouse obtained land in the north of Melbourn between 1450 and 1535, also holding the site at enclosure and until the present day (ibid.).

1.3.25 The remains of Ashwell Street and signs of ridge and furrow were the only medieval features on the site. The NAIS has formally recorded the network of long linear banks visible as crop marks across the hills south of Melbourn and around Royston and elsewhere in south-west Cambridgeshire. At Littlington, 6.5km to the south-west, it was demonstrated that these corresponded with medieval furlong boundaries on early maps but they were evidently influenced by the Iron Age Mile Ditches (Hesse 2000). South of this site, these respect the post-medieval Ashwell Street, stopping on its southern side (Jonathan Last, pers. comm.), although one is continued/extended as a known post-medieval ditch, on a pre-enclosure track.

Post-Medieval Enclosure

1.3.26 The site was not formally enclosed until an 1839 act of parliament. However, some piecemeal enclosure had evidently taken place prior to that date. Various acres in Fox and Cawdon fields are mentioned in court admissions (CRO K866/T4/2) as well as

leases of land in Cawdon field in 1791 (CRO K866/T7/5). The 1799 Ordnance Survey 2" Drawing shows several straight tracks/boundaries parallel to what would become New Road at inclosure, but only extending as far south as Ashwell Street, within the site. The main pre-enclosure road south, Wood Way, lay several hundred metres to the west.

1.3.27 At enclosure, Ashwell Street was closed east of Water Lane, and Barley Road (later New Road) was established, apparently realigning the existing roads all the way from the village centre, directly connecting it to the Royston-Newmarket road (A505). The tracks within the site were also largely closed off (the eastern track survived to the north as Norgett's Lane before being extended as Orchard Way and Trigg Way).

1.3.28 Grange Farm Barns, immediately north-west of and surrounded by the site were probably part of Peterhouse's 19th century management of the land. The college built two labourers' cottages there in 1870 (Baggs et al 1982).

1.4 Original research aims and objectives

1.4.1 The main aims of this excavation were:

- To mitigate the impact of the development on the surviving archaeological remains. The development would have severely impacted upon these remains and as a result a full excavation was required, targeting the areas of archaeological interest highlighted by the previous phases of evaluation.
- To preserve the archaeological evidence contained within the excavation area by record and to attempt a reconstruction of the history and use of the site.

1.4.2 These aims and objectives were developed with reference to Regional and Local Research Agendas:

- Research and Archaeology: A Framework for the Eastern counties: 1. Resource Assessment (Glazebrook 1997)
- Research and Archaeology: A Framework for the Eastern counties: 2. Research Agenda and Strategy (Brown & Glazebrook 2000)
- Research and Archaeology Revisited: a revised framework for the East of England (Medleycott 2011)

1.4.3 Post-excavation assessment has also been informed by the draft Regional Framework Review (http://eaareports.org.uk/algao-east/regional-research-framework-review/ [accessed 12/03/2018]).

Site Specific Research Objectives

1.4.4 The following site-specific objectives were set out in the WSI (Bush 2017):

- To characterise the nature of early prehistoric occupation at the site with particular reference to the natural hollows. Understanding the water sources of the area will be important.
- To investigate the Bronze Age settled landscape and determine the contemporaneity or otherwise of the burial monument and the field system, along with any settlement remains. Close dating of pottery evidence, and their fabrics will be essential.

- To understand the nature of Iron Age and Roman settlement in relation to evidence from the surrounding area.
- To appraise the longevity of landscape routes in the area from prehistoric to post-medieval times (until altered by the establishment of 19th century fields)

1.5 Fieldwork methodology

1.5.1 The site was divided into three connected areas: A (north, 3.3ha); B (south/central, 1.6ha); C (south-west, 0.4ha). Work progressed on all three areas simultaneously and at different times due to the limited area available for storage of spoil. The site's irregular shape was informed by the results of the evaluation. Extensions (between Areas A and B) were agreed during the excavation, following the lines of features and alignments.

1.5.2 Excavation proceeded by removal of top and sub-soil with up to two tracked 360-type mechanical excavators to the top of the chalk or archaeological features, whichever came first. Following hand test-pitting of the natural hollows, a revised methodology of stepped sondages, dug by machine, was employed. Hand test pits were then excavated through the steps to the hollows' bases. Pre-modern linear features were excavated to c.10% of their lengths. Initially, 100% of post-holes were excavated to at least 50% of their width. Due to the paucity of finds, this sampling rate was reduced in the south of Area A, though all were recorded in plan.

1.5.3 Planning was undertaken by Leica RTK GPS supplemented with TST and detailed hand drawn plans of inter-cutting features. UAV photographic surveys were utilised to produce a 3D photogrammetric model of the site to aid post-excavation and produce a detailed topographical model. Feature sections were hand drawn at 1:20, with large hollow sections captured photogrammetrically from ground level.

1.5.4 The excavation was undertaken in accordance with the Chartered Institute for Archaeologists' (2014a) Standard and guidance for archaeological excavation, local and national planning policies (NPPF), and the WSI (Bush 2017).

1.6 Project scope

1.6.1 It has not proved possible to complete full analysis of the excavation results within 6 months of completion of the site work, as originally anticipated. This post-excavation assessment includes some of the completed full analysis (e.g. on Lithics) and assessments on material for which full analysis remains to be completed.

1.6.2 Where relevant, results and artefacts from the evaluation in 2014 (Ladd 2017a) have been incorporated.

2 FACTUAL DATA: STRATIGRAPHY

2.1 General

2.1.1 The site can be divided into three areas:

- Area A (Figs. 2 and 3): the northern half of the site, covering an array of small natural hollows and a band of the same along the north-west of the site, an Early Bronze Age barrow, early to middle Bronze Age settlement and wells, and Middle Saxon enclosure and well in the far north of the site.
- Area B (Fig. 4): the southern half of the site, taking in the bulk of the largest natural hollows and post-medieval track-way.
- Area C (Fig. 4): the very south-west of the site, including smaller natural hollows, a concentration of Late Neolithic pits and an Early Bronze Age barrow.

2.1.2 Soils were generally thin, except in the centre of Area B where colluvium had accumulated on the lower contours, resulting in almost 1m of overburden. Everywhere else, top soil was c. 0.3m thick and sub-soil was frequently absent and no more than 0.2m thick, composed of mid-light brown chalky silt.

2.1.3 The site produced features which have been assigned to the following periods:

- 1 Neolithic
  - 1.1 Early Neolithic (Hollow fills)
  - 1.2 Early-Middle to Later Neolithic (earlier Neolithic and Grooved ware pits)
- 2 Bronze Age
  - 2.1 Early Bronze Age (barrows and cremation)
  - 2.2 Middle Bronze Age (settlement, posthole alignments and ditched field system)
- 3 Roman (structures and road)
- 4 7th-8th century (?Middle Saxon enclosure ditch and later well)
- 5 Post-Medieval (Ashwell Street ditches and 19th century activity)
- 6 Modern (post-1900)
- 0 Undated

2.2 Period 1.1: Earlier Neolithic

2.2.1 This phase refers to the in-filling of peri-glacial hollows across the site. While the hollows themselves had formed much earlier, their fills derived from Neolithic or later soil development and colluviation from the hillside to the south. These contained Late Mesolithic flints, Early Neolithic flints and pottery, animal bone and, in one case, fragments of human skull. Two submitted samples of animal and human bone from these contexts have failed to produce radiocarbon dates, containing insufficient collagen. Snail shells examined suggest these features were never waterlogged.

2.2.2 These features were test-pitted and full analysis of the flint finds has been completed, demonstrating that the fills were mixed with no evidence of distinct, chronologically unmixed Mesolithic or Neolithic deposits or any *in-situ* working surfaces or events. The finds from fills are likely to represent the remains of formerly more extensive surface scatters. Often, fragments of Early Neolithic pottery were found at the lowest levels of

fill, mixed with Mesolithic flint. In fact, for several hollows, had the flint not been associated with Early Neolithic pottery, it would have been assumed to be exclusively of Mesolithic date (see Billington, discussion in Appendix A.3). In some cases, Bronze Age pottery was recovered from the final fill (deriving from colluvium or sub-soil).

2.2.3 Twenty-two hollows were investigated at the excavation stage, with a single further productive example from the evaluation which has also been incorporated into the assessment (**112**). In total 136 sherds (0.464g) of Early Neolithic pottery and 717 worked flints were recovered from these hollows. The hollows are summarized in Table 1.

Area	Hollow	Length (m)	Breadth (m)	Depth (m)	Approx. shape in plan	Methodologies
A	2374	>90	>21m	1.4	Amorphous	Machine sondage
A	2373	32	23	0.5	Sub-rectangular	Machine sondage
A	130	40	13	0.5	Amorphous	Evaluation hand test pit *
A	201	9	6	0.4	Amorphous	Evaluation hand test pit (2x1m)
A	1491	19	14	-	Amorphous	Evaluation hand test pit
A	224	17	4	0.2	Amorphous	Evaluation hand test pit
A	226	7	4	0.2	Amorphous	Evaluation hand test pit
A	1509	24	8	0.3	Amorphous	Hand test pit
A	2022	>18	>16	0.2	Amorphous	Hand test pit
A	221	12.5	9	0.3	Amorphous	Evaluation hand test pit
B	613	>72	>45	1.1	Amorphous	Evaluation; Machined trenches, hand test pits *
B	679	>50	>14	1.3	Amorphous	Evaluation; Machined trenches, hand test pits *
B	1437	10	6	0.3	Sub-oval	Hand slot
B	572	10	7	0.36	Sub-circular	Hand slot
B	450	8	5	0.2	Sub-circular	Hand slot
B	720	26	16	0.6-0.8	Sub-oval	Machined trenches, hand test pits *
B	345	15	10	0.8	Sub-oval	Machined trenches, hand test pits *
B	70	>15	>10	1.3	-	Evaluation hand test pit *
B	357	26.5	21.5	0.8	Sub-oval	Evaluation; Machined trenches, hand test pits *
B	307	10	8	0.36	Sub-rectangular	Hand slot
C	648	18.9	14	1.2	Sub-circular	Evaluation; Machined trenches, hand test pits *
C	781	>10.4	>7.2	0.3	-	Hand test pit
Trench 4	112	14.4	>2	0.35	-	Evaluation hand test pit *
						*hand test pits: 1m x 1m unless specified

Table 1: Period 1.1 Glacial hollows by area

2.3 Period 1.2: Early-Middle to Late Neolithic

Early-Middle Neolithic Pits

2.3.1 Two pits on in Area B produced flint assemblages of potentially earlier Neolithic date (**354** and **469**), while another produced possible Peterborough Ware sherds (**383**) and contained 21 wheat grains. A further two pits with no finds were closely associated with these (**352** and **385**). Pits **383** and **385** were situated among c.20 less regular, possibly natural features in the north of Area B which produced no finds. Typically, these earlier Neolithic features were less than 0.5m across and less than 0.3m deep.

Late Neolithic Grooved Ware Pits

2.3.2 Fourteen pits were associated with Grooved Ware pottery. Single pits were spread across the site, although most were in Area C, with four arranged in pairs and one apparent 'triplet' (assigned to 'clusters').

2.3.3 Five of these pits contained Grooved Ware pottery assemblages, up to 0.7kg (of 1.8kg from all the pits) in weight and up to 401 struck flints (of 1588 total). There was also over 10kg of animal bone, as well as charred hazelnut shells and, rarely, marshland snail shells. Other pits contained fewer finds but were phased by association with the these and are collectively referred to as the Grooved Ware pits.

2.3.4 The finds deposited in these pits, especially the faunal remains are significant on at least a regional, if not national level: one contained both cattle and aurochs bones which have been dated respectively to 2668-2473calBC (91.2%) (SUERC-78753) and 2870-2802 cal BC (23.9%) or 2779-2572 cal BC (71.3%) (SUERC-78752). Another (with cattle bone dated to 2870-2889-2833 cal BC (22.1%) or 2819-2662 cal BC (71.3%) (SUERC-78754)) contained antlers of red deer, roe deer and elk – the latter understood to have been hunted to extinction at that time in this part of the British Isles. The elk antler has been submitted for radiocarbon dating.

2.3.5 Probable freshwater shell was found within two of the Grooved Ware pits (and no other features on the site). This is a rare occurrence, with *marine* shell normally only found in Late Neolithic pits near the coast.

Cut	Pottery (kg)	Struck flint (count)	Burnt stone (kg)	Animal bone (kg)	Other finds	Notes and RC dating
2030	GW: 0.695	401	3.98	1.29	Shell	
2034	NEO?: 0.006	2	-	0.01		
2036	-	-	-	-		
301	LNEO?: 0.005	25	0.07	0.16		
352	-	-	-	-		
354	ENEO?: 0.006	4	-	-		
433	-	3	-	-		
669	ENEO?: 0.18	93	-	0.2		
673	0.002	111	0.01	0.5		
665	GW: 0.171	93	1.226	1.239		Antler: Roe deer, red deer, elk. Cattle dated 2819-2662calBC (71.3%) (SUERC-78754)
657	-	-	-	-		
659	GW: 0.02	325	-	0.33		
661	-	3	-	-		c. 80% truncated
540	GW: 0.034	142	0.76	0.78	Shell	
582	-	17	0.32	0.53		
577	GW: 0.324	63	0.06	5.71		Cattle dated 2668-2437calBC (91.2%) (SUERC-78753). Aurochs dated 2779-2572calBC (71.3%) (SUERC78752)

Table 2: Summary of grooved ware pits

2.4 Period 2.1: Early Bronze Age

2.4.1 An isolated unurned Early Bronze Age cremation deposit from a small pit (**652**) was found in Area B. This has been radiocarbon dated to 2141-1945 cal BC (95.4%) (SUERC-78748).

2.4.2 Two probable round barrows were present on site, both represented by ring ditchs. Barrow 1 was in Area A, comprising a single somewhat irregular circular ditch with inner diameter 21-24m, externally 25-28m. There was no sign of any associated burial, and no datable finds or material secure enough for radiocarbon dating.

2.4.3 Barrow 2 was in Area C, comprising double concentric ring ditches 16m across externally. Slightly off-centre from these ditches was a grave (**568**) containing a single inhumation burial (SK569). This was a juvenile, buried in a crouched position on its right-hand side facing north-west, holding a plano-convex flint knife. It has been radiocarbon dated to 1922-1742calBC (94.3%) (SUERC-78747). Sherds of Beaker pottery were recovered from the grave fill, although these did not appear to be placed grave goods.

2.5 Period 2.2: Middle Bronze Age

Introduction

2.5.1 Area A encompassed part of a Middle Bronze Age settlement. Clearly multi-phased, this comprised posthole alignments forming fences, paths and enclosures as well as up to 15 discrete post-built structures (Structures: 1360, 930, 952, 971, 1858, 1143, 1129, 1407, 1115, 1095, ?2291, ?1397, 1238, 2019). In total over 500 post holes were recorded. A boundary ditch (**817**) also enclosed parts of the settlement and probably formed part of a wider field system visible in crop marks to the north-east. A possibly related Middle Bronze Age boundary ditch (**415**), with a causeway, also crossed Area B.

Ditched/post-built lines and enclosures

2.5.2 The post alignments were evidently multi-phased, sometimes informing/respecting or contradicting the enclosure ditch and structures. The principal east-west lines were 40-50m in length (Lines 1286, 1593, 1823, 1917, 1927 and Lines 2202/2044) while the north-south lines were frequently 23-25m long (Lines 1179, 1522, 2066, 1733, 1773, 1905 and 1891), and up to 40m long (Line 995). Postholes within lines were typically spaced 0.8-1.2m apart, although gaps were apparent, and some lines were considerably sparser (e.g. Line 1823 with some intervals over 5m). Individual postholes were typically sub-circular, rarely more than 0.5m in diameter and most commonly 0.2m or less in surviving depth.

2.5.3 These alignments bounded a roughly rectilinear arrangement of enclosures as well as other partially enclosed areas. It is possible that archaeologically invisible lines (turf banks or hedges) could have completed these enclosures or that plough truncation has removed evidence for them. Paths lay between these enclosures, running along and across contours.

2.5.4 Other lines were more discrete, for example Line 1179 which appeared to respect well **908**. Line 1179 terminated short of a triplet of pits to its south – slightly reminiscent

of the T-set terminals of post alignments at Barleycroft/Over (Evans and Knight 2001, fig. 8.4).

2.5.5 Ditch **817** formed three sides of a sub-rectangular enclosure around 80-90m x 80m in size. It was up to 1.6m wide and 0.6m deep. It also continued northwards and eastwards beyond the limits of excavation, where it presumably enclosed additional parcels of land.

2.5.6 A level of truncation appears to have taken place towards the north-west of the settlement where the enclosure ditch was very shallow and there is a dearth of post-holes that might be expected to have continued Lines 1286 and 1522.

Structures

2.5.7 The posthole structures were mainly roundhouse-like: sub-circular to sub-ovoid in plan, with distinctive larger or more prominent pairs of post-holes to the south-east, assumed to represent entrances/porches (Structures 1360, 971, 930, 1858, 1143, 1129, 1407, 1115, 1095, ?1397). The largest structures were up to 6.4m long and up to 5m wide (Structure 1360), the smallest 4.8m long and 2.8m wide (Structure 1115) – the latter probably too small to represent a house.

2.5.8 There were so few finds from the structures that dating and phasing remains difficult. Structure 1143 was almost certainly rebuilt, and bone from one of its postholes (**1145**) has been submitted for radiocarbon dating. Structure 1095 had a shallow internal pit (**1111**) against a structural posthole containing burnt flint, burnt stone and charcoal, which has also been submitted for radiocarbon dating.

2.5.9 Except for possible Structures 2291 and 1397, all the roundhouse-like structures were contained within the bounds of ditch **817** and two were built over or were slighted by posthole lines, although no stratigraphic relationships between structures, posthole lines and enclosure ditch could be determined.

2.5.10 Two exceptions (Structures 952 and possible Structure 2291) were D-shaped, open to the south-east. Additionally, Structure 1239 clearly had some sort of industrial purpose, comprising four small posts 0.9-1.3m apart in a sub-rectangular arrangement, surrounding a shallow oblong pit/hearth containing hundreds of burnt fragments of stone. Structure 2019 lay well away from the settlement, close to Barrow 1. Almost totally truncated, one of its 5 post-holes produced 49 sherds of Middle Bronze Age pottery.

Wells

2.5.11 There were also two wells (**908**, and **1167**, the latter backfilled and re-cut as **1220**) within the settlement, with a third well (**1977**) found in the extreme north of Area A. Well **908** produced the largest part of the settlement's pottery, as well as a significant amount of animal bone. It was situated in the centre of the ditched enclosure, at the site's lowest point. Well **1167**/**1220** was less productive and situated c. 30m to the south-east, although it did contain a crane tarso-metatarsus, evidence for exploitation of nearby wetlands. The wells were sub-circular, 4-6m in diameter and c. 1.8-2m in depth with mainly steep sides – distinguishing them from shallow-sided watering holes for livestock.

2.5.12 Well **1977** contained animal bone, samples of which have been radiocarbon dated to 1399-1192 cal BC (92.1%) (SUERC-78756) and 1413-1230 cal BC (93.4%) (SUERC-78757). Its proportions and form were similar to wells **908** and **1167**/**1220**, but one side was stepped. Well **1977** was in an area with uncertain relationship to the wider settlement 150m from the other wells.

Pits

2.5.13 Over 20 pits were scattered across the settlement but typically these were small (<1m diameter) and produced few finds. An exception was pit **1888** which contained almost exclusively cattle bones from at least 4 individuals. Another pit (**2160**) contained a small burnt, broken quern stone.

Finds and Environmental Results

2.5.14 Pottery from the settlement was earlier Middle to Middle Bronze Age in date, the vast majority coming from well **908**, but also the other wells and enclosure ditch **817**. None came from roundhouse structures, and only two postholes within lines produced pottery. No secure organic material was produced from the posthole lines suitable for radiocarbon dating (following processing of all available environmental samples for these features).

2.5.15 The wells also produced the majority of the site's animal bone. Pollen samples from two of the wells have produced tentative evidence for grazing and open landscape nearby, while cereal grains (including barley) were also found within the fills of well **908**.

2.6 Period 3: Roman

2.6.1 The Roman period is the most poorly represented, and most tentatively dated on site. Working on the assumption that some part of what became Ashwell Street passed through the site (see Archaeological Background), associated structural features have been assigned a Roman date, although they lack finds. Metal work finds (Appendix A.1), though limited, include a major Roman component consistent with road contexts.

2.6.2 The structural features comprised probable beam slots found along the line of post-medieval Ashwell Street, cut by wheel ruts of the later road. There are published, well-dated 2nd-4th century, local comparisons for these in the form of road-side structures on the Iron Age/Roman segment of the putative Avenell Way at Odsey (Atkins and Hurst 2014 20). Those were interpreted, based on other local parallels, as potential shepherds' huts or loading stations for harvested crops (*ibid.*).

2.6.3 Structure 363 was the most coherent, while nearby Structure 372 was potentially more spread out. Both were adjacent to or on the line of post-medieval Ashwell Street. Possible Structure 119 lay further north (Fig. 2) but was the only comparable feature on site to produce Roman pottery (albeit in small quantities). Possible remains of Structure 2371 comprised a single possible beamslot, also within the line of Ashwell Street, truncated by wheel ruts.

2.6.4 Structure 363 produced a small fragment of lava quern. Structure 372 produced a possible medieval sherd and Structure 363 possible post-medieval CBM, although

these could have been intrusive (particularly given the post-medieval wheel ruts cutting across Area B).

2.6.5 Even more tentatively dated were two ditches within the Ashwell Street line in the west of Area B. These may align with Structure 363 and were certainly earlier than the post-medieval ditches and wheel ruts.

2.7 Period 4: 7th-8th Century

2.7.1 Radiocarbon dating of the only bone recovered from an enclosure ditch (**857**) at the northern edge of Area A returned a date of 642-724 cal AD (78.9%) or 739-768 cal AD (16.5%) (SUERC-78755). The interior of this enclosure (and presumably the majority of it) lay beyond the site limits, but it was possible to demonstrate a sequence of modification by backfilling the eastern corner and digging out a former causeway, followed by the digging of a well (**1484**) through the backfilled segment.

2.7.2 Small to moderate quantities of Roman pottery, all in apparently abraded condition consistent with a post-Roman date, were recovered from the ditch and the well.

2.8 Period 5: Medieval/Post-medieval

2.8.1 A poorly dated pit (**584**) was dug adjacent to the burial in Barrow 2, containing six pieces of post-medieval peg tile along with residual Roman pottery, a Roman brooch part and struck flints.

2.8.2 Ditches flanking Ashwell Street represent the major features belonging to this period. These were almost certainly of post-medieval date (and some earlier, including a segmented length of 5 segments), although a medieval horseshoe find suggests there was a medieval phase.

2.8.3 Multiple ditches on both sides of the road (which survived until the site's enclosure in 1840) were excavated, but produced scant dating material. Their form and geophysical signals have enabled some understanding of their sequence. Patterns of wheel ruts (as distinct from plough scars) between the ditch pairs, and beyond, demonstrate a more complex picture. In Area C, the road between these ditches had eroded down to a hollow way (the western part of which may have remained in use following enclosure).

2.8.4 Later tracks, established by the late 18th-19th centuries were less intensively investigated, appearing on the 1799 Ordnance Survey Drawing. One of these was metalled while the other had eroded to a hollow way in sections.

2.9 Undated Features

2.9.1 A narrow, shallow ditch (**2017**) containing small amounts of probably residual Roman pottery was recorded within Area A, close to Barrow 1.

2.9.2 A group of up to 5 inter-cutting pits (**715** etc) in Area C was excavated but produced no finds. At evaluation, probable Iron Age sherds had been recovered but not in significant quantities. The dearth of Roman or later material across the entire site and poor preservation of environmental remains make it impossible to speculate on their date, although small Iron Age storage pits is a possible interpretation.

3 FACTUAL DATA: ARTEFACTS

3.1 General

3.1.1 The total quantification of finds by material is given in Table 3. All finds have been washed, quantified and bagged.

Material	Object Name	Weight in kg	Count
Ceramic	Vessel	6.143	840
Ceramic	Ceramic Building Material	0.35	11
Ceramic	Fired clay	0.07	5
Organic	Animal Bone	46.241	472 (recordable)
Organic	Human Skeletal Remains	1.935	34
Organic	Shell	0.01	3
Flint	Flint	7.796	2384
Glass	Bead	0.001	1
Copper Alloy	Artefacts	-	9
Iron	Artefacts	-	22
Lava	Quern	0.161	2
Stone	Artefact	18.02	271

Table 3: General finds quantification

3.2 **Metalwork** *by Denis Sami*

3.2.1 The metal assemblage recovered from the site consist of nine copper-alloy artefacts (Table 6) and twenty-two iron finds (Table 7).

3.2.2 Artefacts can be divided into three groups: portable and dressing accessories (SF 22,23,25,27 and 30), economy and commerce (coins SF 38-40) and horseshoeing (SF 21, 26) of Roman, medieval and post-medieval date.

3.3 **Pottery** *by Nick Gilmour*

3.3.1 A total of 842 sherds (6.149kg) of pottery was recovered during the fieldwork. This was mainly of prehistoric origin, although there was also Roman and post-medieval material. The material has been quantified and spot dated.

3.4 **Flint** *by Lawrence Billington*

A.1.1 A total of 2384 worked flints and 457 fragments of unworked burnt flints (7796g) were recovered during the excavation phase, to which can be added a further 370 worked flints and 3 unworked burnt flints (3g) from the evaluation phase of the fieldwork (previously reported on by Bishop, in Ladd 2017).

3.5 **Worked and burnt stone** *by Simon Timberlake*

3.5.1 A total of 16.21 kg (258 pieces) of burnt stone and 1.81 kg (13 pieces) of worked stone (i.e. saddle quern/rubber stone and lava quern) were recovered from this excavation.

3.6 **Glass bead** *by Mary Andrews*

3.6.1 One opaque light blue glass annular bead was retrieved from the fill (689) of Barrow 2's ditch inner **688** in Area C.

3.7 **Ceramic building material** *by Ted Levermore*

3.7.1 Archaeological work recovered 11 fragments, 345kg, of ceramic building material (CBM). This assemblage comprised mostly tile fragments which could only be attributed broadly to the medieval to post-medieval periods. A single fragment of brick, possibly a fireplace brick was also recovered. This material was heavily abraded and largely non-diagnostic.

3.8 **Fired clay** *by Ted Levermore*

3.8.1 Archaeological work recovered 5 fragments, 70g, of fired clay. This assemblage comprised amorphous pieces with no discernible features. Three fragments of a chalky baked clay were recovered from a Neolithic pit; they show evidence of only light heat exposure. Generally, this material was heavily abraded and non-diagnostic.

4 FACTUAL DATA: OSTEOLOGICAL AND ENVIRONMENTAL EVIDENCE

4.1 Human Skeletal Remains *by Natasha Dodwell*

4.1.1 An Early Bronze Age unurned cremation deposit (Pit **652**) was identified in Area B and, an immature tightly flexed Early Bronze Age burial, skeleton 659 (grave **568**), was recorded within Barrow 2 in Area C. This juvenile was buried on their right side, in a shallow grave holding a plano-convex flint knife in their right hand. In addition, disarticulated human bone was recovered from Early Neolithic natural hollow contexts (fills 651.3 and 651.4 of hollow **648**).

4.2 Animal bone *by Hayley Foster*

4.2.1 The assemblage was of a medium size, 46.24kg of bone from hand collection and 1.0kg from environmental samples, 18kg of which were identifiable to element and species. The number of recordable fragments totalled 444 from hand collection and 28 fragments from environmental samples. Material was recovered via hand-collection and from environmental samples. Animal bone was recovered from a variety of features including pits, ditches, wells and hollows. The species represented includes cattle (*Bos taurus*), sheep/goat (*Ovis/Capra*), horse (*Equus caballus*), pig (*Sus scrofa*), dog (*Canis familiaris*), roe deer (*Capreolus capreolus*), red deer (*Cervus elaphus*), crane (*Gruidae*), elk (*Alces alces*), frog (*Anura sp.),* and vole (*Microtus arvalis*). Animal bone was recovered from phases belonging to the Neolithic (1.1 and 1.2), Bronze Age (2.1, 2.2), Middle Saxon (4) and Post-Medieval (5).

4.3 Environmental Samples *by Rachel Fosberry*

A.1.2 Approximately 200 bulk samples were taken from features within the excavated areas A, B and C. Preservation of plant remains is poor with only occasional exceptions where carbonised remains are present. Charcoal volumes are low. Snail shells are frequent in all the samples with moderate to good preservation.

4.4 Pollen *by Mairead Rutherford*

4.4.1 Four sub-samples from monolith tins from well **908** and one from a bulk sample of well **1220** were assessed for pollen.

4.4.2 Additional unprocessed monoliths were taken from three of the natural hollows and other unprocessed bulk environmental sample buckets (see Environmental Samples, above) may also be processed for pollen.

4.4.3 The five well sub-samples contained pollen, although with relatively low counts (sufficient for cautious interpretation) and the upper contexts contained insufficient pollen for interpretation. Three sub-samples from hollow fills taken during evaluation produced no pollen or insufficient pollen for analysis (Rutherford 2017).

4.5 Shell *by Carole Fletcher*

4.5.1 A total of three fragments of shell were collected, representing probably fresh water oyster species. These came exclusively from Late Neolithic Grooved Ware pits.

4.6 Molluscs *by Sam Corke*

4.6.1 Fifty-seven samples, of approximately 200 bulk samples collected on site, were assessed. These were selected from a variety of representative features. Snail shells were abundant, typical of the chalkland environment. Marshland snails were found in two Late Neolithic pits, thought to have been introduced into these features.

4.7 Radiocarbon dating

4.7.1 An initial selection of 11 radiocarbon samples was submitted in early 2018 (Table 49). Two (from Period 1.1 natural hollows) failed to produce a date, but the other nine returned dates. An additional 11 samples have since been submitted.

5 STATEMENT OF POTENTIAL

5.1 Stratigraphy

5.1.1 The following stratigraphic records were created:

Type	Count - Excavation (& Evaluation)
Context Registers (A4)	43 (6)
Plan registers (A4)	1 (1)
Section registers (A4)	6 (2)
Small find registers (A4)	1 (1)
Photographic registers (A4)	28 (4)
Environmental registers (A4)	20 (1)
Drawing sheets (A3 permatrace)	30 (25)
Contexts	2083 (229)
Plan drawingss	4 (30)
Section drawings	237 (54)
Small finds	41 (18)

Table 4: Stratigraphic records

5.1.2 Hand-written/drawn records are quantified in Table 4. Written records have been indexed and checked for internal consistency on archival quality paper. The site paper archive has been digitised into an MS Access database and the plans into an AutoCAD drawing (DWG). Features have been assigned initial phasing based on pottery spot dates, initial radiocarbon dates, stratigraphy and spatial relationships.

5.1.3 All primary records are retained at the offices of OA East, Bar Hill. The site codes MELNER14 (evaluation) and MELNER17 (excavation) are allocated and all paper and digital records, finds and environmental remains are stored under these codes. The receiving body for this archive, Cambridgeshire County Council Stores, have also allocated Accession Numbers for these records: ECB4241 (evaluation) and ECB5153 (excavation).

5.1.4 The site data is of sufficient quality to begin addressing all of the project's Research Objectives and form the basis of further analysis and targeted publication of the key features, finds and environmental assemblages.

Range and variety of features and deposits

5.1.5 Features on site included early prehistoric natural hollows (containing mixed Late Mesolithic and Early Neolithic material); Late Neolithic pits; an Early Bronze Age unurned cremation and two barrows (one inclosing an inhumation burial); Middle Bronze Age wells, roundhouses, pits, ditches and posthole alignments; possible Roman structural beamslots; a 7th-8th century enclosure ditch and well; and medieval/post-medieval road-side ditches and a hollow way.

Condition of features and deposits

5.1.6 The survival of the features was generally good, although an indeterminate level of plough damage would have affected the entire site. In Area C, the Late Neolithic pits and Early Bronze Age barrow were in places severely truncated by the post-medieval road ditches and hollow way.

5.2 Metalwork

5.2.1 The assemblage has no research potential beyond the assessment presented here. The Roman assemblage has the potential to inform discussion about the nature of the site and postulated road in the Roman period.

5.3 Pottery

5.3.1 All the pottery has potential to inform on the phasing of the site. However, the Roman pottery is of less interest, as it is largely residual. The prehistoric pottery assemblage is of much greater potential. Some re-fitting sherds are certainly present within the prehistoric pottery assemblage and it is probable that some vessels can be partly re-constructed. Any re-fitting between sherds should be recorded.

5.3.2 Some of the Late Neolithic pottery is in good condition and much is of the Grooved Ware tradition. Analysis of the decorative styles present on this pottery would allow it to be attributed to a particular sub-style (or -styles). This would add to current discussions on the spatial and temporal spread of this pottery tradition (e.g. Brindley 1999).

5.3.3 There is a moderately sized assemblage of Middle Bronze Age pottery, which is of regional interest, as much is in good condition. Of particular interest is the material from context 911 (well **908**), which includes at least 42 sherds (1.095kg) from a single vessel. This vessel may be of the Cordoned Urn tradition, although it is undecorated apart from a single applied cordon 40mm below the rim and such a vessel would be unusual in this region. The vessel may also belong to the Deverel-Rimbury tradition, however, it does not have particularly straight sides, as would be expected in this tradition. This vessel should be analysed in detail and, if possible, a radiocarbon date obtained from any associated material.

5.4 Flint

5.4.1 The worked flint assemblage has been fully recorded/catalogued. A full report and discussion is included in Appendix A.3. This is sufficient for inclusion within the grey literature report.

5.5 Worked and burnt stone

5.5.1 The current assessment and discussion (Appendix 78A.4) is sufficient for inclusion within the grey literature report.

5.6 Glass bead

5.6.1 The single bead has little potential to contribute to the understanding of the site, particularly as it is a potentially intrusive item.

5.7 Ceramic building material

5.7.1 The assemblage is of little archaeological significance.

5.8 Fired clay

5.8.1 The assemblage is of little archaeological significance.

5.9 Human Skeletal Remains

5.9.1 No further work needs to be undertaken on the bones themselves, all have been fully recorded. However, the burials and the disarticulated human bone need to be discussed with reference to contemporary features within the site and the archaeology of the surrounding landscape.

5.10 Animal bone

A.1.3 The faunal assemblage from Melbourn is significant due the frequency of wild species present. The amount of aurochs remains recovered would be considered a 'significant concentration' for Cambridgeshire. The fragment of elk antler is also noteworthy as the literature suggests that elk remains have not been recovered from Cambridgeshire faunal assemblages and were previously thought to be extinct in southern Britain by the Late Neolithic.

5.10.1 As the assemblage contains consecutive phases of occupation with an ample amount of faunal data, it would provide a good deal of insight into the human-animal interaction and understanding into the life and landscape of the area particularly during the Neolithic and Bronze Age periods.

5.11 Environmental samples

5.11.1 Further study of the assemblages from well **908** is recommended to identify a few other species present and to quantify the remains. The assessment of pollen from these deposits also indicates a local environment of wet pasture and the combined information from both proxies will contribute to the goals of Regional Research Frameworks relevant to this area.

5.12 Pollen

5.12.1 No further work is suggested for the pollen sequence through well **908**. However, it may be possible to look in greater detail at the sub-sample from well **1220**, along with any further suitable sub-samples that may be available from this feature, to clarify and improve our understanding of land use, both regionally and locally, surrounding the well.

5.13 Shell

5.13.1 Though very small, the shell assemblage is rare and has the potential to inform our knowledge of Late Neolithic consumption and transport of marine/fresh water resources both as food and as temper in Grooved Ware pottery.

5.14 Molluscs

5.14.1 The majority of the samples reflect the chalkland environment. It would be worth examining residues of the other Late Neolithic pits to see if they contain similarly imported species. No further work is recommended on the other samples.

5.15 Radiocarbon dating

5.15.1 Two failed samples suggest it is not worth attempting to date further material from the natural hollows, particularly given their mixed Late Mesolithic and Early Neolithic artefact assemblages.

5.15.2 The dates returned have confirmed the suspected age of Grooved Ware pits and refined the chronology of the Early Bronze Age inhumation and cremation burials. A sample from the elk antler from a Grooved Ware pit has been submitted. It is likely that dating of the Bronze Age settlement features on site will be refined when the additional samples produce results.

5.15.3 There was insufficient organic material from excavation and bulk environmental samples to attempt to date the posthole alignments and Barrow 1's ditch.

5.16 Overall potential

5.16.1 The artefactual and environmental evidence and stratigraphic data are sufficient to address most of the project's research aims and progress the project to the analytical stage.

6 UPDATED PROJECT DESIGN

6.1 Revised research aims

Mesolithic activity on the chalklands

6.1.1 Peri-glacial natural hollows, containing Late Mesolithic and Early Neolithic material occur across the chalk landscape of south Cambridgeshire and north-east Hertfordshire e.g. Royston Road (Ladd 2016 & CHER MCB16894), Black Peak Farm (Ladd 2017b) and the examples at Thriplow, 6km to the north-east (Wright 2014). These represent rare survival of Mesolithic material on the chalk of south Cambridgeshire. However, they have only been subject to small scale excavation, evaluation or watching brief and have not been extensively investigated.

6.1.2 The larger scale excavation at New Road will enable reporting on the formation processes and environment around these features. The Late Mesolithic finds, though mixed with Early Neolithic material, provide rare evidence for Mesolithic activity on chalk rather than sand/gravel geologies and represent a significant addition to the regional record (see Discussion in Appendix A.3).

Late Neolithic economy

6.1.3 Late Neolithic Grooved Ware type pits in the region tend to include a component of wild as well as domesticated species, with a major representation of pig in addition to cattle bones, and low representation of cereals. Their finds assemblages sometimes appear to be selected or curated. Local examples include those at Victoria Way (CHER MCB20977) and a single pit from south of Melbourn (Ladd 2016) as well as the more distant chalk site at Peterhouse Technology Park, Cherry Hinton (Gilmour 2015) or Babraham Road (Hinman 2004). In respect of the pottery, flint and the majority of the faunal assemblage the Grooved Ware pits at New Road were typical but will add significantly to the region's corpus.

6.1.4 Other aspects of the New Road pits are noteworthy: probable freshwater shell from two pits is of potentially regional/national significance. Shell in Grooved Ware pits is rare, with marine shell being found in coastal contexts and one other in-land example in Amesbury, Wiltshire (Cleal *et al* 1994). There, the Grooved Ware pottery was shown to have non-fossil shell inclusions (*ibid*.). More locally non-fossil use of shell as a Grooved Ware pottery temper comes from Over (Timberlake 2016). Further work on the pottery assemblage and, if possible, a full identification of the shell finds will contribute to discussions regarding exploitation of marine/riverine resources both for food and pottery production.

6.1.5 Elk are thought to have been extinct in southern Britain by the Neolithic period, meaning that the presence of elk antler in a Late Neolithic pit at the subject site is significant. A radiocarbon date is awaited in order to establish whether it was curated or potentially imported. Both scenarios have significant implications to be discussed that will contribute to regional and national debate.

Early Bronze Age inhumation practices

6.1.6 The general trend through the Early Bronze Age into the Middle Bronze Age from inhumation to cremation burial has been challenged by more complex sequences,

such as those established at Over (Garrow et al 2014, 225-6) and Raunds (Harding and Healy 2007, 237), with early cremations found at Hazelend Road, Bishop's Stortford (2122-1900 cal BC; Bush 2107). The sequence at New Road, with an Early Bronze Age cremation deposit pre-dating inhumation within a round barrow, adds to this body of evidence.

Persistent places

6.1.7 'The placing of monuments at sites that had already been marked by human activity is a persistent feature of many areas' (Last 2007, 165). The setting of Barrow 2, within the densest area of Late Neolithic pits, possibly indicative of a clearing and surface midden deposits, will be discussed in this light.

Middle Bronze Age settlement

Regional context

6.1.8 There is a dearth of evidence for 2nd millennium BC occupation (including field systems) in Hertfordshire, despite the profusion of burial monuments (Bryant 2015, 80-83), although potentially Late Bronze Age field systems have been recorded. To the north, the fen edge river gravels have been much more intensively investigated. Understanding any difference in character between these fen-edge and this inland site will contribute to filling the gap in the record in this part of the region. Further research is needed to compare this site's faunal assemblages, layout and development to compare it with others in the region.

6.1.9 Principal local sites for comparison include:

- Clay Farm, Trumpington, 12km to the north-east on the river gravel terraces of the Cam: extensive Middle Bronze Age ditched field system following potential Early Bronze Age settlement (Phillips and Mortimer forthcoming)
- Bell Language School, Cambridge, 13km to the north-east: extensive Middle-Late Bronze Age double- and triple-post alignments within an existing Middle Bronze Age field system (Bush 2012)
- Fulbourn Hospital, 16km to the north-west: Short functional curvilinear alignments of funnelling post-holes in association with Middle Bronze Age enclosure ditches (Brown and Score 1999)
- Hazelend Road, Bishops Stortford, 23km to the south: Early Bronze Age cremations (of the same date as cremation **652**) and a Middle Bronze Age field system (Bush 2015)
- Barleycroft/Over, 25km to the north: monumental post lines respecting the extents of the Middle Bronze Age ditched field boundaries (Evans and Knight 2001, fig. 8.3)
- Fordham Road, Newmarket, 33km to the north-east: with Middle Bronze Age ditched and fenced enclosures containing post-built structures, also on chalk geology (Rees, 2017)

6.1.10 Comparators lying further afield include:

- Norwich Northern Distributor Road, Area 3, 100km north-west: Middle Bronze Age rectilinear ditched enclosure with posthole alignments

reinforcing/re-establishing and extending the same lines, with roundhouse structures (Moan 2017)

Field systems and farming economy

6.1.11 Bronze Age post alignments appear both to occur in linear, monumental/ceremonial contexts with examples at Over (Evans and Knight 2001) and Bell Language School (Bush 2015) as well as forming enclosure systems such as at Norwich NDR Area 3 (Moan 2017). The fenced enclosures at New Road are a significant addition to the latter category, but it is as yet unclear how they relate to the later ditched phase.

6.1.12 Increasingly there is the acceptance of a mixed economy in the Middle Bronze Age, rather than one dependent on and constructed around cattle management (Evans 2009, 63). Palynological evidence is required to understand the adoption and development of farming and permanent field systems (Medleycott 2011, 20). Although the dating evidence is poor, there is some very limited palynological and archaeobotanical evidence suggestive of arable farming at New Road and further work will be done on productive deposits to contribute to this discussion.

6.1.13 The use itself of fence lines rather than ditches is potentially significant in the development of farming in the area, as well as suggesting the potential for managed woodlands. Refined dating from the wells may help understand the development and longevity of the fields and the settlement.

Settlement density and structures

6.1.14 Middle Bronze Age settlement evidence, particularly house structures, is rare (Evans 2009, 66; Medleycott 2011, 20). Comparison with sites such as Ormesby St Michael, Norfolk (Gilmour 2014) and Fordham Road, Newmarket (Rees 2017) is necessary. The density of structures at New Road, despite a relative dearth of pottery evidence, even within the wells, will affect interpretation of the settlement's nature.

Roman roads and continuity

6.1.15 Continuity/survival of Roman roads is not always well understood. Often, as with Ashwell Street either side of Melbourn, road lines have been inferred based on settlements and cemeteries connected by partial fossilisations in the landscape (Margary 1973, 207). The Historic England NAIS survey has revealed more complex Roman/Iron Age precursors along what, in post-enclosure times were assumed to have been straight Roman roads (Jonathan Last, pers. comm.). The structures uncovered at New Road offer tentative evidence that a Roman Ashwell Street crossed the site. This should be considered with the medieval and post-medieval development of Ashwell Street.

Middle Saxon settlement in Hertfordshire/the east Chiltern Hills

6.1.16 Hertfordshire is largely devoid of Early to Middle Saxon settlement evidence, although it is unclear if this is due to lack of excavation, recognition or a genuine lack of occupation (Medleycott 2011, 50). The presence of a 7th-8th century, potentially Middle Saxon enclosure should be discussed with the landscape setting, south-west of the Bran Ditch, i.e. 'beyond' Cambridgeshire. Taken with Early Saxon the evidence from Hazelend Road (Bush 2017) this may add to the known Anglo-Saxon settlement sites in the wider area of the east Chilterns and south Cambridgeshire chalk hills.

Post-medieval

6.1.17 The broad sequence of the post-medieval development of Ashwell Street, the addition of 18th century straight linear tracks and 19th century enclosure are understood. The full narrative will be produced at analysis stage.

6.2 Methods statement

Stratigraphic analysis

6.2.1 Contexts, finds and environmental results will be analysed with reference to site plans and topographic data in AutoCAD and GIS. Artefactual results and radiocarbon dates will be used to inform phasing, the stratigraphic narrative and environmental reports. A full stratigraphic narrative will be produced, integrating the results of specialist analysis.

Illustration

6.2.2 Existing site plans will be illustrated for each period. Selected section drawings informing the stratigraphic narrative will also be digitised and reproduced. Representative or significant finds will be illustrated on the basis of artefactual analysis recommendations.

Documentary Research

6.2.3 Comparative sites for each period will be sought both regionally and within Cambridgeshire using published sources and the Cambridgeshire HER as appropriate, with respect to the revised research aims.

Artefactual and environmental analysis

6.2.4 All artefacts and ecofacts have been assessed (Appendix A and Appendix B). Recommendations for further work are listed below.

Metalwork

- No further work

Prehistoric Pottery

- Produce full prehistoric potter catalogue.
- Write prehistoric pot report.

Flint

- Apply possible minor edits to analysis pending radiocarbon dating results.
- Incorporate existing full analysis.

Worked and burnt stone

- Illustration of selected worked stones

Ceramic Building Material

- No further work.

Fired clay

- No further work.

Human Skeletal Remains

- No further work
- Incorporate report into grey literature report and discussion

Animal Bone

- Following final phasing, measurements will be taken and full recording of the assemblage will be completed.
- Write the animal bone report.

Environmental Samples

- Process well **908** flots
- Incorporate discussion into existing assessment report

Palaeoenvironmental evidence

- Process additional sub-samples from well **1220** (as available), well **1977** and hollow **345** (with the richest finds assemblage).
- Write the palaeoenvironmental report.

Shell

- Full identification of the shell

Molluscs

- Examine remaining Late Neolithic pit samples
- Incorporate forthcoming results into site phasing.

6.3 Publication and dissemination of results

6.3.1 The primary archive report will be the unpublished analytical report, to be titled *Land East of New Road, Melbourn, Cambridgeshire: Excavation Report*. Following approval this will be lodged with the Cambridgeshire HER and available online at the ADS and Oxford Archaeology's library (http://library.thehumanjourney.net).

6.3.2 It is proposed to publish some of the results in *Proceedings of the Cambridge Antiquarian Society* under the title *A Neolithic to Bronze Age landscape south of Melbourn*. This will include discussion of the Late Neolithic pits but will focus on the Bronze Age funerary features, settlement and field system.

6.3.3 In addition, it may be appropriate to publish separately a note on the Grooved Ware pits, specifically the presence of shell and selection/curation of an elk antler, as well as aurochs and deer in a domain-specific journal such as *Environmental Archaeology*.

Outreach

6.3.4 A drop-in evening was held at Melbourn Village College in February 2018, with c. 100 visitors and coverage in the *Royston Crow*.

6.4 Retention and disposal of finds and environmental evidence

6.4.1 Retention/disposal recommendation for finds is summarized in Table 5 and detailed in the respective specialist assessments (Appendix A and Appendix B).

Artefacts	Retain/discard
Copper Alloy objects	Retain
Iron objects	Partial discard
Pottery	Retain
Flint	Retain
Stone	Partial discard
Glass	Retain
CBM	Discard
Fired clay	Discard
Environmental evidence	
Human skeletal remains	Retain
Animal bone	Retain
Sample flots	Retain
Shell	Retain
Molluscs	Discard following analysis

Table 5: Finds and environmental evidence retention/discard summary

6.5 Ownership and archive

6.5.1 Transfer of title forms, for both evaluation and excavation, have been sent to the client.

6.5.2 OA will retain copyright of all reports and the documentary and digital archive produced in this project. OA will maintain the archive to the standards recommended by the Chartered Institute for Archaeologists (CIfA 2014), the Archaeological Archives Forum (Brown 2011), and Cambridgeshire County Council's Archive Guidance 2017 (Deposition of Archaeological Archives in Cambridgeshire v2 https://ccc-live.storage.googleapis.com/upload/www.cambridgeshire.gov.uk/residents/libraries-leisure-&-culture/Deposition%20of%20archaeological%20archives%20in%20Cambridgeshire%202017.pdf?inline=true [accessed 31st May 2018]).

7 RESOURCES AND PROGRAMMING

7.1 Project team structure

7.1.1 The project team is set out in the table below:

Name	Initials	Organisation	Role
Richard Mortimer	RM	OA East	Project management
Matt Brudenell	MB	OA East	Project management
Elizabeth Popescu	EP	OA East	Post-Excavation and Publication manager
TBC	Ed	OA East	Editor
TBC	ill	OA East	Illustrator
James Fairbairn	JF	OA East	Finds photography
Nick Gilmour	NG	OA East	Prehistoric pottery
Lawrence Billington	LB	OA East	Lithic specialist
Simon Timberlake	ST	Freelance	CBM and worked stone
Natasha Dodwell	ND	OA East	Osteologist
Hayley Foster	HF	OA East	Zooarchaeologist
Rachel Fosberry	RF	OA East	Archaeobotanist
Mary Andrews	MA	OA East	Environmental supervisor
Sam Cork	SC	OA East	Snails specialist
Mairead Rutherford	MR	OA North	Palynologist
Katherine Hamilton	KH	OA East	Archives supervisor

7.2 Task list and programme

7.2.1 The programme of work of 6 months will commence in June 2018 and end with the issue of the report in December 2018.

7.2.2 A task list is presented below. A programme is appended at the end of the report.

Task no.	Description	Performed by	Days
1	Project management	RM/MB, EP	3
2	Team meetings	RM/MB, EP, SL	1
3	Liason with relevant specialists	RM/MB, SL, NG, LB, ND, HF	
Stage 1: Stratigraphic Analysis			
Stratigraphic narrative			
4	Incorporate artefact and radiocarbon dates into site phasing	SL	1
5	Update digital plans and database to reflect dating	SL	1
6	Finalise phasing and groups	SL	1
Artefacts			
7	Produce full prehistoric pottery catalogue	NG	3
8	Write prehistoric pottery report	NG	2
Illustration			
9	Produce site phase plans, sections and other figures	ill	3
10	Select sections for inclusion	SL	0.5
11	Select lithics for illustration	LB	0.25
12	Digitise selected sections	ill	2
13	Illustrate selected Neolithic pottery (c. 5)	ill	1
14	Illustrate selected Bronze Age pottery, (c.5 including single vessel)	ill	1.5
15	Illustrate/photograph selected animal bone (c. 8: 3x antlers, aurochs/domestic, crane etc.)	ill/JF	2/0.25
16	Illustrate selected lithics	ill	2
17	Photograph other artefacts (c.4)	JF	1
Environmental			

Task no.	Description	Performed by	Days
18	Take measurements and complete full recording of animal bone	HF	2
19	Write animal bone report	HF	2.5
20	Flot sorting	RF/MA	0.5
21	Identification and quantification of plant remains	RF	0.5
22	Tabulation and inclusion in final report	RF	1
23	//Snails	(RF)	
24	Process additional pollen samples	MR	1
25	Analyse additional pollen samples	MR	2
26	Write final pollen report	MR	1
Stage 2: Report writing			
27	Compile stratigraphic narrative, group and phase text	SL	5
28	Review and collate final specialist reports	SL	2
29	Compile list of illustrations/liaise with illustrators	SL	1
30	Write discussion and conclusions	SL	3
31	Prepare report figures	ill	3
32	Collate/edit captions/bibliography/appendices	SL	1
33	Edit text and figures	RM/MB, EP/Ed	2
34	Incorporate edits	SL/ill	1/2
35	Compile PDF and distribute hard copies	SL/ill	0.5
Stage 3: Publication			
Primary publication (*Proceedings of the Cambridge Antiquarian Society*)			
36	Write publication proposal	SL	0.5
37	Edit/submit proposal	EP	0.5
38	Compile site narrative, refining from archive report	SL	4
39	Compile list of illustrations/liaise with illustrators	SL	1
40	Write discussion	SL	3
41	Produce draft	SL/ill	0.5
42	Internal edit	EP	1
43	Incorporate internal edits	SL	1
44	Final edit	EP	0.5
45	Send to publisher for refereeing	EP	-
46	Post-refereeing revisions	SL/EP	0.5
47	Submit finished article	EP	-
Second publication note (*Environmental Archaeology*?)			
48	Compile short note on finds from the Late Neolithic pits	HF/SL	1/0.5
49	Photograph shell and antler finds	JF	0.25
50	Prepare illustration (antlers)	ill	1
51	Internal edit	EP	0.5
52	Incorporate internal edits	SL	0.5
53	Final edit	EP	0.5
54	Send to publisher for refereeing	EP	-
55	Post-refereeing revisions	SL/EP	0.5
56	Submit finished note	EP	-
Stage 4: Archiving			
57	Compile paper archive	SL/KH	2
58	Archive/delete digital photographs	SL	2
59	Compile/check and deposit material archive	KH	10

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Appendix A ARTEFACT ASSESSMENTS

A.1 Metalwork Alloy Objects

By Denis Sami

Introduction

A.1.1 The metal assemblage recovered from the site consists of nine copper-alloy artefacts (Table 6) and twenty-two iron finds (Table 7).

A.1.2 Artefacts can be divided into three groups: portable and dressing accessories (SF 22, 23, 25, 27 and 30), economy and commerce (coins SF 38-40) and horseshoeing (SF 21, 26).

A.1.3 All finds were recovered from layers, fills of pits, ditches and gullies dating to the Roman, medieval and modern periods. Some were metal detected from features as well as spoil heaps, and others were hand collected from excavated slots.

A.1.4 The assemblage is poorly preserved and in great part incomplete, copper-alloy objects present oxidation while iron artefacts are heavily rusted and encrusted. Non-diagnostic iron artefacts from post-medieval contexts were discarded following quantification.

Summary

A.1.5 Dress-accessories are represented by two Roman brooches of Colchester derivative type both dating to the second half of the first or early second century AD. A copper-alloy hair pin is also Roman and its chronology spans from the first to the fourth century AD (Cool 1990). A single hobnail may also be of Roman date.

A.1.6 Medieval belt mount SF 27 is a common late medieval artefact dating from the 13th to the 14th century and it was part of a possibly same feature series of mounts fitted to a belt though two rivets (Egan and Pritchard 1991: 187). Cuff-link plate SF 23 is modern and possibly dates to the late 18th or 19th centuries.

A.1.7 All the coins documented on site are Late Roman third and fourth centuries emissions possibly indicating an intensification of the use of the area during this period.

A.1.8 The presence of two horseshoes is indicative of transport or agricultural activity in the area in late medieval and modern periods.

Discussion

A.1.9 The metal finds attest to sporadic frequentation of the area from Roman to modern times, possibly with a peak around the late third and fourth century AD. The copper alloy finds seem to suggest a potential passage of people along a road rather than agricultural activity. Dressing accessories are in fact common finds in residential as well as road contexts and given the absence Roman pottery or Roman residential features, it is most likely that the artefacts from New Road were unintentionally lost while moving through the landscape. In the post-Roman period the area appears, given the scarcity of metalwork to have been used as pasture or cultivated land.

Statement of potential

A.1.10 The assemblage has a no archaeological potential beyond the assessment presented here. The Roman assemblage has the potential to inform discussion about the nature of the site and postulated road in the Roman period.

Recommendation

A.1.11 No further analysis is needed for this assemblage. The post-medieval/undated iron finds can be discarded.

Catalogue

SF	Area	Context	Feature	Object	Description	Date
22	C	546	**545** Backfilled evaluation trench	Brooch	A complete Colchester derivative double-lug brooch with slightly crested central upper bow. L: 41 mm; W: 17; Th: 14 mm; Wg: 6.8 g.	AD 43- c.100 AD
23	-	1	Top soil (unlocated)	Cuff-link (?)	Oval flat plate. On one side possible evidence of a loop welding while the opposite side the decoration is unreadable (NARC-2E6553). L: 17.6 mm; W: 12.5 mm; Th: 1 mm; Wg: 1.5 g	Modern
25	B	421	**419** (Slot **420**) Medieval/post-medieval road ditch	Hair-pin	Incomplete. Bi-conical, globular head with truncated stem presenting tree ridges at the connection with the head (Cool 1990 group 1, see also PAS: NMS-C4D6B4). L: 22.5 mm; W: 11.4 (head); Diam (pin): 1.9 mm	Roman
27	-	2	Subsoil (unlocated)	Mount	Incomplete sexfoil-domed belt mount with two separate rivets polygonally trimmed (Egan and Pritchard 1991: 187, n 61.) Diam: 17 mm; Th: 0.3 mm; Wg: 0.5	1300-1400
30	C	585	**584** Post-medieval pit	Brooch	Incomplete and heavily oxidised very small Colchester derivative double-lug brooch. Only the bow is preserved. L: 2 mm; W: 6.5 mm; Th: 2 mm; Wg: 0.7 g	AD 43- c. 100 AD
32	B	686	**381** (Slot **685**) Medieval/post-medieval road ditch	Coin	A complete coin of the house of Constantine Ob: Rev: [GLORIA EXERCITVS]. Two soldiers standing holding spear and shield; between them one standard Diam: 12.3 mm Th: 1 mm Wg: 1.3 g	AD 335-41
38	A	1493	Colluvium	Coin	A complete Radiate of the Gallic Empire, possibly Tetricus I, Reece 13. Ob: Radiate, bust right Rev: Standing figure left Diam: 21 mm Th: 0.9 mm Wg: 2 g	AD 271-74 AD
39	-	2	Subsoil (unlocated)	Coin	A complete Radiate coin of Tetricus I Ob: Radiate bust right Rev: Standing figure left (?) Diam: 16.8 mm Th: 0.9 mm Wg: 1.7 g	AD 271-74 AD
40	B	499	**498** Post-medieval ditch	Artefact	Incomplete shapeless thin metal foil. L: 23 mm; W: 15.7 mm; Th: 0.4 mm	

Table 6: Copper Alloy objects

Small Find No	Area	Context	Feature	Object Name	Description	Date
15	C	169	**318** (Evaluation Slot **168**) Post-medieval road hollow way	Artefact	Incomplete trapezoidal thin metal foil. L: 46.4 mm; W: 22.3 mm; Th: 3.2 mm	Modern
21	B	349	**310** (Slot **348**) Medieval/Post-medieval road ditch	Horseshoe	Complete hand forged horseshoe with wide web (32 mm) and feathered heel. Two nails with expanded head are still attached (Clark 1995, type 4). L: 138.8 mm; W: 122 mm; Th: 4 mm; Wg: 303 g	Medieval, 1250-1450
26	B	581	**618** Post-medieval road ditch (surface metal detected)	Horseshoe	Incomplete fragment of horseshoe branch with calkin and hollow. Web: 29 mm; L: 112 mm; Th: 4.5 mm	Modern
28	C	585	**584** Post-medieval pit	Nail	Discarded	NCD
29	C	585	**584** Post-medieval pit	Nail	Discarded	NCD
31	C	585	**584** Post-medieval pit	Nail	Discarded	NCD
37	A	863	**857** (Slot **857**) 7th century enclosure ditch	Hobnails	Two incomplete hobnails with conical head. L: 16 mm	Roman?
-	B	313	**310** (Slot **310**) Road ditch	Nail	Discarded	NCD
-	B	319	**318** (Slot **318**) Post-medieval road hollow way	Artefact	Discarded	NCD
-	B	319	**318** (Slot **318**) Post-medieval road hollow way	Nail	Fe Nail frags - Discarded	NCD
-	B	322	**320** hollow way	Nail	Discarded	NCD
-	B	334	**314** Post-Medieval road ditch (secondary)	Artefact	?Fe Nail frag - Discarded	NCD
-	B	337	**336** road ditch	Artefact	Discarded	NCD
-	B	337	**336** road ditch	Artefact	?Fe Nail frag - Discarded	NCD
-	B	337	**336** road ditch	Artefact	Discarded	NCD
-	B	339	**310** (Slot **310**) Road ditch	Nail	Discarded	NCD
-	B	349	**310** (Slot **310**) Road ditch	Nail	Discarded	NCD
-	B	364	Structure 363 (slot **363**)	Nail	x3 frags - Discarded	NCD
-	B	612	**498** (Slot **611**) Post-medieval ditch	Nail	Discarded	NCD
-	B	632	**631** Post-medieval wheel rut	Horseshoe	Discarded	NCD

Table 7: Iron objects

A.2 Pottery

by Nick Gilmour

Factual Data

A.2.1 A total of 842 sherds (6.149kg) of pottery was recovered during the fieldwork. This was mainly of prehistoric origin, although there was also Roman and post-medieval material (Table 8).

A.2.2 The material has been quantified and spot dated (with Matt Brudenell and Richard Mortimer; Table 9).

Spot date	Sherd count	weight (kg)
Early Neolithic	136	0.464
Early/Middle Neolithic	9	0.043
Late Neolithic	327	1.810
Neolithic	64	0.213
Late Neolithic/Early Bronze Age	2	0.110
Beaker	11	0.032
Early Bronze Age	1	0.001
Earlier Middle Bronze Age	23	0.047
Middle Bronze Age	206	2.964
Bronze Age	1	0.040
Roman	48	0.415
medieval	1	0.024
Post-medieval	2	0.032
Unid	9	0.047
Total	**840**	**6.143**

Table 8: Pottery quantification by feature spot date

Context	Weight in kg	Sherd Count	Spot date
78	0.002	1	Early Neolithic
304	0.001	1	Late Neolithic
304	0.005	2	Late Neolithic
315	0.001	1	Residual Roman
317	0.003	1	Residual Roman
321	0.032	2	Post-medieval
325	0.047	9	Unstrat
342.1	0.093	31	Late Neolithic
342.3	0.002	1	Early Neolithic
343.2	0.004	2	Early Neolithic
343.3	0.013	5	Early Neolithic
343.4	0.005	2	Early Neolithic
343.5	0.005	1	Early Neolithic
344.1	0.062	13	Middle Bronze Age
344.2	0.016	3	Early Neolithic
344.2	0.016	3	Early Neolithic
344.2	0.016	3	Early Neolithic
344.3	0.030	5	Early Neolithic
356	0.006	1	Early Neolithic
359	0.002	2	Early Neolithic
359	0.002	2	Neolithic
360	0.007	3	Early Neolithic

Context	Weight in kg	Sherd Count	Spot date
361	0.007	3	Early Neolithic
362	0.004	2	Early Neolithic
364	0.003	3	Residual Roman
369.1	0.031	12	Early Neolithic
369.2	0.016	3	Early Neolithic
369.5	0.002	1	Early Neolithic
371	0.002	2	Residual Roman
373	0.001	1	Residual Roman
379	0.024	1	Medieval
380	0.008	2	Neolithic
384	0.035	5	E/M-Neo
384	0.008	4	E/M-Neo
430	0.003	2	Early Neolithic
431.6	0.007	6	Early Neolithic
431.7	0.003	3	Early Neolithic
432.7	0.003	1	Early Neolithic
436.6	0.005	2	Early Neolithic
437.8	0.011	1	Early Neolithic
486	0.003	2	Residual Roman
495	0.002	1	Early Neolithic
496	0.010	2	Early Neolithic
497	0.010	3	Residual Beaker
497	0.010	3	Middle Bronze Age
497	0.013	3	Residual Beaker
497	0.013	3	Middle Bronze Age
553	0.032	13	Late Neolithic
554	0.002	1	Neolithic
565	0.012	3	Residual Roman
570	0.009	5	Beaker
576	0.003	1	Early Neolithic
576	0.037	10	Early Neolithic
576	0.037	10	Early Neolithic
576	0.003	1	Early Neolithic
578	0.008	3	Late Neolithic
578	0.316	19	Late Neolithic
578	0.316	19	Late Neolithic
578	0.008	3	Late Neolithic
579	0.008	2	Neolithic
579	0.008	2	Early Neolithic
585	0.012	1	Residual Roman
623	0.004	1	Residual Roman
640.4	0.017	4	Early Neolithic
640.4	0.010	1	Early Neolithic
660	0.020	5	Late Neolithic
668	0.171	49	Late Neolithic
668	0.171	49	Late Neolithic
670	0.001	1	Late Neolithic
672	0.017	3	Late Neolithic
676	0.003	4	Late Neolithic
687.3	0.003	2	Early Neolithic
687.5	0.001	1	Early Neolithic
687.6	0.023	5	Early Neolithic
687.7	0.005	2	Early Neolithic
696.4	0.006	1	Early Neolithic
696.5	0.009	3	Neolithic
696.6	0.035	8	Early Neolithic

Context	Weight in kg	Sherd Count	Spot date
704	0.002	3	Early Neolithic
722	0.007	2	Neolithic
734.1	0.002	1	Early Neolithic
734.2	0.003	2	Neolithic
734.3	0.014	6	Early Neolithic
734.4	0.004	2	Early Neolithic
734.5	0.004	1	Neolithic
734.6	0.009	3	Early Neolithic
734.7	0.005	4	Neolithic
754	0.004	1	Early Neolithic
758	0.005	1	Neolithic
759	0.051	9	Neolithic
801	0.007	1	Residual Roman
820	0.019	4	EMBA
822	0.005	1	Neolithic
842	0.026	4	Middle Bronze Age
872	0.124	25	Middle Bronze Age
888	0.040	1	BA
895	0.035	6	Residual Roman
911	0.006	2	Middle Bronze Age
911	0.118	10	Middle Bronze Age
911	1.095	42	Middle Bronze Age
912	0.034	1	Middle Bronze Age
915	0.250	4	Middle Bronze Age
915	0.250	4	Middle Bronze Age
917	0.013	1	Early Neolithic
953	0.052	6	Middle Bronze Age
953	0.052	6	Middle Bronze Age
1077	0.071	2	Middle Bronze Age
1100	0.006	2	Middle Bronze Age
1100	0.064	3	Middle Bronze Age
1136	0.008	3	EMBA
1190	0.006	9	EMBA
1190	0.003	6	Middle Bronze Age
1196	0.012	1	Middle Bronze Age?
1196	0.024	1	Middle Bronze Age?
1196	0.193	8	Middle Bronze Age?
1196	0.321	1	Middle Bronze Age?
1198	0.013	1	Middle Bronze Age
1221	0.005	1	Middle Bronze Age
1221	0.041	7	Middle Bronze Age
1221	0.050	5	Middle Bronze Age
1244	0.011	1	EMBA?
1487	0.129	9	Residual Roman
1493	0.004	1	Residual Roman
1493	0.083	1	Residual Roman
1493	0.004	1	Residual Roman
1493	0.083	1	Residual Roman
1734	0.001	1	Early Bronze Age
1836	0.002	2	Residual Roman
1838	0.002	3	Residual Roman
1856	0.009	2	Residual Roman
1857	0.010	1	Residual Roman
1976	0.004	2	Middle Bronze Age
1998	0.002	1	Neolithic
1998	0.003	1	Neolithic

Context	Weight in kg	Sherd Count	Spot date
2018	0.006	5	Residual Roman
2020	0.068	49	Middle Bronze Age
2021	0.011	2	LNeo-EBA
2033	0.695	136	Late Neolithic
2033	0.046	20	Late Neolithic
2035	0.006	1	Neolithic?
Total	**6.143**	**840**	

Table 9: Pottery spot dates

Statement of potential

A.2.3 All the pottery has potential to inform on the phasing of the site. However, the Roman pottery is of less interest, as it is largely residual. The prehistoric pottery assemblage is of much greater potential. Some re-fitting sherds are certainly present within the prehistoric pottery assemblage and it is probable that some vessels can be partly re-constructed. Any re-fitting between sherds should be recorded.

A.2.4 Some of the Late Neolithic pottery is in good condition and much is of the Grooved Ware tradition. Analysis of the decorative styles present on this pottery would allow it to be attributed to a particular sub-style (or -styles). This would add to current discussions on the spatial and temporal spread of this pottery tradition (e.g. Brindley 1999).

A.2.5 There is a moderately sized assemblage of Middle Bronze Age pottery, which is of regional interest, as much is also in good condition. Of particular interest is the material from context 911 (Bronze Age well **908**), which includes at least 42 sherds (1.095kg) from a single vessel. This vessel may be of the Cordoned Urn tradition, although it is undecorated apart from a single applied cordon 40mm below the rim and such a vessel would be unusual in this region. The vessel may also belong to the Deverel-Rimbury tradition, however, it does not have particularly straight sides, as would be expected in this tradition. This vessel should be analysed in detail and, if possible, a radiocarbon date obtained from any associated material.

Methods statement

A.2.6 The Roman pottery appears to be largely residual, however, it should still be recorded in sufficient detail to be certain that it is residual.

A.2.7 All the prehistoric pottery should be fully recorded following the recommendations laid out by the Prehistoric Ceramic Research Group (2011). After a full inspection of the assemblage, fabric groups will be devised on the basis of dominant inclusion types, their density and modal size. Sherds from all contexts will be counted, weighed (to the nearest whole gram) and assigned to a fabric group. Sherd type will be recorded, along with evidence for surface treatment, decoration, and the presence of soot and/or residue. Rim and base forms will be described using a codified system recorded in the catalogue, and assigned vessel numbers. Where possible, rim and base diameters will be measured, and surviving percentages noted. In cases where a sherd or groups of refitting sherds retain portions of the rim, shoulder and/or other diagnostic features, the vessel will be categorised by ceramic tradition (Grooved Ware, Deverel-Rimbury etc.).

Retention and dispersal

A.2.8 None of the prehistoric pottery should be deselected from the archive.

Task list

Description	Performed by	Days
Produce full prehistoric pottery catalogue	NG	3
Write prehistoric pottery report	NG	2

Table 10: Pottery task list

A.3 Flint

By Lawrence Billington

Introduction

A.3.1 A total of 2384 worked flints and 457 fragments of unworked burnt flints (7796g) were recovered during the excavation phase, to which can be added a further 370 worked flints and 3 unworked burnt flints (3g) from the evaluation phase of the fieldwork (previously reported on by Bishop, in Ladd 2017). This report describes and characterises the flint assemblage according to major groups of features/contexts, which largely relate to the different phases of the site as set out in the results section of the excavation report. A full catalogue of worked flint by context, including material from the evaluation and excavation phases is provided at the end of this report and a summary quantification is presented in Table 11 This is followed by a discussion which places the assemblage in its regional and chronological context.

Type	No.
Chip	460
Shatter/core fragment	119
Primary flake	27
Secondary flake	761
Tertiary flake	896
Secondary narrow flake	30
Tertiary narrow flake	9
Secondary blade-like flake	56
Tertiary blade-like flake	76
Secondary blade/let	45
Tertiary blade/let	96
Flake from polished axe-head	6
Core	42
Microburin	4
Scraper	61
Serrate	22
Microlith	5
Edge retouched	20
?Fabricator/borer?	1
Plano convex knife	1
?Rod	1
Fabricator	1
Truncated blade	1
Piercer	1

Type	No.
Burin	1
Arrowhead/blank	6
Polished axe-head fragment	1
Miscellaneous retouched	5
Total worked	**2754**
Unworked burnt flint count	*460*
Unworked burnt flint weight (g)	*7799*

Table 11: Summary quantification of the flint assemblage

Methodology

A.3.2 The worked flint assemblage has been recorded/catalogued according to technological and typological classes based largely on the approach of Inzian and colleagues (1999) and follows standard practice for the analysis and classification of post glacial British lithic assemblages (e.g. Healy 1988; Bamford 1985; Butler 2005; Jacobi 1975; 1978; Reynier 2005). All measurements were taken following the methodology of Saville (1980). The assemblage was recorded on an Excel spreadsheet, a copy of which is retained in the site archive. This includes a complete breakdown of flint from individual contexts and detailed recording of retouched pieces and cores.

A.3.3 For the purposes of this report, and in line with current understandings of technological and typological changes in lithic assemblages, the Mesolithic is divided into Early (including Star Carr and Deepcar type assemblages, c. 9000- 8000 BC), Middle (including Horsham, Honey Hill and early/pioneering narrow-blade assemblages, c. 8000-7000/6500 BC)) and Later (narrow-blade, 7000/6500-4000 cal BC) phases. The Neolithic is separated into an earlier and later Neolithic, the former dating to c. 4000–3400/3300 cal BC and corresponding broadly to the use of carinated, plain and decorated bowl pottery, and the latter dating to c. 3400/3300 – 2400 cal BC, corresponding to the use of Peterborough ware and grooved ware pottery. The period between c. 2400 and 1500 cal BC is referred to as Early Bronze Age (corresponding to the use of beakers, food vessels, collared/cordoned urns etc. and including the British 'Chalcolithic'). Given the difficulties in dating post-Early Bronze Age flint assemblages, such material is generally characterised as 'later prehistoric' unless it is securely associated with features which can be dated to the various phases of the later Bronze Age and Iron Age.

Raw materials and condition

A.3.4 The entire assemblage is made of flint, generally of high quality. Virtually the entire assemblage – with the exception of a small quantity from flintwork from the fill of well **908** - is heavily recorticated an opaque white, often accompanied by a distinctive grey basketwork/dendritic patination. This recortication has made detailed assessment of the character of raw material difficult, but modern breaks invariably reveal a very dark semi-translucent flint. Surviving cortical surfaces are varied but include a large proportion of pieces with a relatively thin but unweathered cortex suggestive of a source closely associated with the parent chalk. Although useable flint does not appear to have been directly available in the chalk on the site itself, flint nodules derived from flint bearing chalk deposits to the north were probably available very locally, either in surface deposits or, possibly through small-scale quarrying, as is represented by putative Neolithic quarry pits found elsewhere on the Cambridgeshire

chalk escarpment (McFadyen 1999; Woodley and Abrams 2013). The condition of the assemblage is varied but most of the assemblage is in fairly good condition, although the heavy recortication has tended to render thin feathered edges somewhat friable and, as a result, minor edge damage/rounding is common.

Period 1.1: The natural hollows

A.3.5 Table 12 presents a basic quantification of the flintwork recovered from the natural hollows during the excavation whilst a fuller quantification by context can be found in the flint catalogue. For individual hollows sampled during both the evaluation and excavation phases this quantification includes the material derived from both phases of fieldwork, whilst the assemblages from two hollows (**70** and **112**) which were investigated during the evaluation but were not subject to further sampling during the excavation phase are also quantified here (previously discussed in the evaluation report, Bishop in Ladd 2017). The majority of the 717 worked flint recovered from the hollows quantified in Table 12 were hand collected during the excavation of 1x1m test squares (although some material was recovered on a more *ad hoc* basis during machining etc.) with a small proportion (40 worked flints) deriving from the residues of seven bulk soil samples taken from deposits infilling these hollows.

Hollow	345	357	613	648	679	720	781	70	112	Totals
Chip	13	22	8		2			93	16	154
Shatter/core fragment	8	8	3					3		22
Primary flake	1	2	1		1				1	6
Secondary flake	45	24	25	1	35			39	22	191
Tertiary flake	57	34	12		29		2	41	18	193
Tertiary narrow flake									2	2
Secondary narrow flake	1	5	1							7
Secondary blade-like flake	10		2		1	1		3	2	19
Tertiary blade-like flake	10	1			1			10	7	29
Tertiary blade	14	8	2		5			8	9	46
Secondary blade	9	3	2		1	2		1	4	22
Microburin									4	4
Core	3	2	1					1		7
Scraper			3							3
Serrate					3					3
Microlith	2	1								3
Edge retouched		1	2							3
Fabricator									1	1
Burin	1									1
Arrowhead/blank			1							1
Total worked	**174**	**111**	**63**	**1**	**78**	**3**	**2**	**199**	**86**	**717**
Unworked burnt flint no.	*67*	*67*	*8*		*1*			*2*	*1*	*146*
Unworked burnt flint weight (g)	*735*	*590*	*80.9*		*18.9*			*1.6*	*1.3*	*1428*

Table 12: Basic quantification of the flint assemblage from the natural hollows

A.3.6 Of the hollows listed in Table 12, three (**648**, **720** and **781**) produced very small quantities of flintwork (one, three and two pieces respectively). The material from hollow **720** includes blade-based material probably of Mesolithic or earlier Neolithic date but little more can be said of the flint from these features. The more substantial assemblages recovered from the remaining nine hollows quantified in Table 12 are discussed individually below.

A.3.7 Hollow **70** produced a total of 199 worked flints alongside a very small quantity of unworked burnt flint. All of the flintwork derived from a single 1 x 1m test square excavated during the evaluation phase of fieldwork (Trench 10), and came from seven individual contexts/spits between 0.1 and 0.2m thick. The assemblage includes a high proportion of micro-debitage and small flake fragments, with chips making up almost half of the assemblage. Technologically the assemblage is coherent and is dominated by evidence for systematic blade-based reduction, with blades and blade-like pieces making up a large proportion (22%) of unretouched removals. In the absence of diagnostic retouched pieces, it is only possible to suggest a broad Mesolithic to Early Neolithic date for the material from this hollow.

A.3.8 A total of 86 worked flints were recovered from hollow **112**, deriving from five 0.1m thick spits from a single 1x 1m test square excavated during the evaluation (Trench 4). The assemblage is coherent and heavily dominated by blade-based material, with blades and blade-like flakes accounting for 34% of the unretouched removals. All stages of core reduction appear to be represented, with cortical and non-cortical removals well represented – although no cores were recovered. A single formal retouched tool was recovered, a fabricator, manufactured on a robust narrow flake with direct scalar retouch along both lateral edges and a characteristically crushed and polished proximal end. The most remarkable aspect of this relatively small assemblage is the presence of no less than four microburins (the distinctive by-products of microlith production). All are proximal examples measuring between 14 and 10mm wide and all are notched on the left hand side (as viewed with the proximal end uppermost), indicating the production of microliths based on a left- hand-side ('sinistral') oblique truncation, but which could have taken many forms, from simple obliquely blunted points to scalene micro-triangles or rods/backed bladelets. This assemblage gives every appearance of being coherent and chronologically unmixed, and the presence of microburins clearly indicates a Mesolithic date.

A.3.9 Hollow **345** produced one of the largest worked flint assemblages from the hollows with a total of 174 worked flints and 67 burnt flints deriving from five 1 x 1m test squares, which produced between one and 50 worked flints and up to 338g of unworked burnt flint each. All stages of core-reduction are represented, with decortication flakes, chips, finer non-tertiary removals and discarded cores and tools. The assemblage includes a high proportion of Mesolithic/earlier Neolithic blade-based material, with blades, bladelets and blade-like flakes making up 29% of the unretouched removals and many of the other flakes clearly deriving from analogous, structured and systematic, core reduction. This said, there is a proportion of flake-based material which seems likely to relate to later activity – most notably at least two flakes which appear to have been struck from later Neolithic type Levallois-like cores.

A.3.10 Although these pieces attest to a later component in the assemblage from **345**, both the cores and the retouched tools are overwhelmingly dominated by pieces likely to be of early Neolithic and (especially) Mesolithic date. The cores include one minimally worked piece (context 344.6) and two blade cores; one with opposed platforms from 342.1 and one single platform bladelet core from 344.6. The only retouched tools within the assemblage from hollow **345** are two later Mesolithic narrow-blade microliths and a single burin. One of the microliths is a delicate elongated micro-

scalene triangle (L: 17mm, W: 3.5mm) with backing along its two shorter edges (Jacobi's class 7a[1]; Jacobi 1978) from context 342.1, and the other is a very fine complete rod/needle point (L: 32mm, W: 4mm) with direct backing along both lateral edges, giving a quadrangular cross section and converging to form a sharp point at the proximal end (Jacobi's class 6; cf. needle points, e.g. Waddington 2007) from context (343.3). The burin is a partly cortical flake with a series of short burin spalls removed from an unretouched edge at its distal end – it is possible this reflects a failed attempt at bladelet production using a flake as a core rather than representing a tool ('pseudo-burin').

A.3.11 There was no clear evidence that the depth of artefacts recovered from the deposits in-filling the hollow related in any way to their date, and it is notable that one of the Mesolithic microliths was recovered from the uppermost spit excavated through the hollow fill, whilst both of the putative/probable later Neolithic flakes were derived from the third spit. This suggests that the deposits filling the hollow have been subject to considerable vertical displacement – a phenomena common in biologically active soil horizons (cf. Colcutt 1992).

A.3.12 Hollow **357** produced a smaller, but fairly substantial assemblage of 111 worked flints and 67 fragments (590g) of unworked burnt flint, derived from three test squares, with additional material collected on a more casual basis during machining material from contexts 359-362, and including 28 pieces recovered from wet sieving of bulk soil samples taken from three spits in test square 437 (a total of 87 litres of sediment). In terms of composition and general character the flintwork is closely comparable to the material from hollow **345** and **112**, exhibiting all stages of core reduction and including a high proportion of pieces clearly derived from a Mesolithic/Early Neolithic blade-based technology. This said, the proportion of blade-based material is significantly lower in the assemblage from **357** (16% of unretouched removals), suggesting that there may be a greater proportion of later (later Neolithic/Early Bronze Age) flintwork here than in some of the other hollow assemblages. Two cores were recovered – both typical of Mesolithic/earlier Neolithic technologies, including one heavily burnt opposed platform core and one single platform narrow flake core. Retouched tools were restricted to a single later Mesolithic microlith and an edge retouched flake, both from 361. The microlith is a rod/straight backed bladelet (Jacobi's class 5b/6; L:22mm, W: 5mm); fully backed along one lateral edge with some additional retouch on the opposing edge at its distal end. This additional retouch is truncated by a burin-spall like removal which originates from a break at the proximal end - a kind of breakage which is highly characteristic of impact damage sustained by flints used as projectile points (e.g. Fischer et al 1984). The edge retouched flake is less diagnostic, taking the form of a blade-like flake with scalar retouch along one convex lateral edge with some backing on the opposing edge.

A.3.13 A total of 63 worked flints and eight fragments (80.9g) of unworked burnt flint were recovered from hollow **613**. The flint was recovered from three test squares and on a less systematic basis during machining and surface collection (contexts 645-647). This assemblage is clearly chronologically mixed; Earlier Neolithic/Mesolithic material is represented by a small number of blade-based pieces, most notably two bladelets from 696.1, but a large proportion of the struck flints are simple competently struck

flakes more typical of later Neolithic/Early Bronze Age technologies. Especially characteristic is a single piece probably removed from a discoidal or Levallois-like core (a possible *éclat debordant*). Retouched pieces comprise an edge-retouched robust blade of probable Neolithic date, the distal end of a heavily burnt end scraper and an Early Bronze Age barbed and tanged arrowhead, missing its proximal tip and the end of one tang.

A.3.14 Hollow **679** produced 78 worked flints, derived from two test squares which both contained relatively high densities of flintwork (42 and 36 pieces). The assemblage appears to be chronologically mixed, with some fine blade-based removals likely to be of earlier Neolithic or Mesolithic date and several flakes removed from Levallois-like core of later Neolithic date, alongside a majority of less specialised flake-based removals. The retouched tools are restricted to three serrated pieces, two serrated blades and a serrated flake, two of which bear a macroscopically visible gloss/polish on their ventral surface. These serrated pieces are not strongly diagnostic – they are a major feature of both earlier and later Neolithic assemblages in the region, as well as appearing in Mesolithic assemblages – although the technological traits of the examples here suggest a Neolithic date is more likely.

A.3.15 A consideration of the significance of the hollow assemblages can be found in the discussion which concludes this report. Here, it is important to note that whilst there is a degree of variability in the probable date of assemblages recovered from the individual hollows (and many appear to be chronologically mixed to some extent) they are dominated by Mesolithic and Neolithic flintwork. Truly diagnostic types include several Mesolithic microliths and microburins, and this, together with a dearth of definite early Neolithic tool forms, might suggest that the majority of the blade-based material which forms a major component of the assemblages, especially from hollows **70**, **112**, **357** and **345**, is of Mesolithic date. This is supported to some extent by the high proportion of opposed platform cores among the few cores recovered and the quality of much of the blade-based material – with a large number of fine prismatic blades and bladelets. However, the presence of Early Neolithic pottery in the same deposits strongly suggests that an ultimately unquantifiable proportion of the material is Early Neolithic, highlighting the well-established difficulties of distinguishing Early Neolithic material in chronologically mixed assemblages which include a substantial Mesolithic component (see e.g. Billington 2016b, 153). The assemblage from hollow **679** is distinguished by a lower proportion of blade-based material and a restricted set of retouched tools made up entirely of serrated pieces, this assemblage seems likely to include a much higher proportion of Neolithic material than the material from the other hollows.

Period 1.2: Early-Middle to Late Neolithic features
Earlier-Middle Neolithic features

A.3.16 The identified Neolithic pits from the site were invariably associated with Grooved Ware pottery and/or contained coherent Late Neolithic worked flint assemblages (see below). Two features, however, produced relatively substantial assemblages suggestive of a somewhat earlier Neolithic date (Table 13).

Cut	354	469
Context type	**Pit**	**Tree throw**
Chip	1	1
Shatter/core fragment		3
Flakes	6	13
Blades/bladelets	3	4
Total worked	**10**	**21**
BF count	*1*	
BF weight	*6.9*	

Table 13: Quantification of flint from Early-Middle Neolithic features

A.3.17 Tree throw feature **469** contained twenty-one worked flints representing a coherent assemblage of bale based material, comparable in general terms to material from the natural hollows sampled on the site (see above). Although no retouched tools or cores are present in this assemblage it is most consistent with a Mesolithic or, more likely, Early Neolithic date.

A.3.18 A total of ten worked flints were recovered from pit 354. Again this assemblage did not include any retouched tools or cores but was heavily dominated by blade based removals. These include some unusually large and robust blades, two of which are in excess of 60mm long and are distinct from any examples recovered from the natural hollows. An earlier Neolithic date seems most likely for this assemblage, although the presence of robust blades such as the examples recorded here have been noted to be a feature of the few substantial Peterborough Ware (i.e. Middle Neolithic) assemblages known from Cambridgeshire (see Billington 2017).

Late Neolithic Pits

Introduction and quantification

A.3.19 A total of 1588 worked flints (making up 70% of the total assemblage) together with 552.9g of unworked burnt flint, were recovered from 13 Neolithic pits, generally associated with Grooved Ware pottery (Table 14). The majority of the flintwork from these features was hand collected, although 323 worked flints – the vast majority of which were chips and small flake fragments – were recovered from the residues of bulk soil samples. The number of worked flints recovered from individual features ranged from 2 to 503, and it is possible to make a useful, if essentially arbitrary, threefold distinction between two pits containing large quantities of over 300 worked flints (**659** and **2030**), five pits containing moderately large assemblages of 94-152 flints (**577**, **665**, **669**, **673** and **540**) and, finally five pits containing smaller quantities of 2-47 flints each (**661**, **433**, **582**, **301** and **2034**).

Cut	301	433	540	577	582	659	661	665	669	673	2030	2034	Totals
Chip	12		17	32	4	45		15	47	23	64		259
Shatter/core fragment	2		7	3		27		5	2	6	8		60
Primary flake	1		1			2			2	1	7		14
Secondary flake	7	1	42	15	7	120	1	37	32	43	149		454
Tertiary flake	17		63	27	3	126	2	46	39	54	191	2	570
Secondary narrow flake	1	1		1		3			1		6		13
Tertiary narrow flake				1		3					2		6
Secondary blade-like flake	1		3			1			1		9		15
Tertiary blade-like flake	1		1	1	1	5		5	11	1	7		33
Secondary Blade					1	3			5		3		12
Tertiary blade			3	1	3	2		1	3	4	18		35

Cut	301	433	540	577	582	659	661	665	669	673	2030	2034	Totals
Flake from polished axe-head						1		1			4		6
Core			2	6		8			3	4	2		25
Scraper	4		2	7	2	8		5	2		13		43
Serrate	1	1				2		1	3		9		17
Microlith			1										1
Edge retouched					1	1		3	1	2	5		13
Fabricator/borer?										1			1
Rod?						1							1
Arrowhead/blank								1			4		5
Misc retouched						1		2			2		5
Total worked	47	3	142	94	22	359	3	122	152	139	503	2	1588
No. of worked flints from sample residues	**22**	**0**	**0**	**31**	**5**	**34**	**0**	**29**	**59**	**28**	**102**	**0**	**323**
Unworked burnt flint count	*3*	*0*	*19*	*5*	*1*			*1*		*5*	*2*	*17*	*54*
Unworked burnt flint weight (g)	*78.2*	*0*	*61.4*	*62.3*	*80.6*			*15.1*		*44*	*19.7*	*184.7*	*553*

Table 14: Quantification of flint from Late Neolithic Pits

A.3.20 Although several of the smallest individual pit assemblages did not produce strongly diagnostic/distinctive material all the larger assemblages can be dated on technological and/or typological grounds to the Later Neolithic, and as discussed in more detail below, and are typical of assemblages recovered from grooved ware associated pits elsewhere in the county, and in Eastern England more generally.

Composition

A.3.21 The assemblages from the pits are technologically coherent and clearly represent single period assemblages. This said, there may be a very small proportion of residual material present, the most obvious example of which is a later Mesolithic micro-scalene microlith (Jacobi's class 7a[2], L:11.5mm W:3mm) from pit **540** (fill 553). Despite the overall coherence of the assemblage brief attempts at refitting material within individual contexts were unsuccessful (although it be should be noted that the very uniform recortication of the flintwork hindered these attempts) and the flintwork from all of the pits clearly represent elements of many individual reduction sequences. This is characteristic of lithic assemblages derived from Neolithic pits in the region and they are best interpreted as ultimately deriving from more extensive surface scatters/midden like deposits, some of which has subsequently been collected and deposited. There was no clear evidence for any formal/placed deposits of the kind occasionally reported for Grooved Ware associated pits elsewhere in the region (see Garrow 2006, 89, 117-118). Neither, although it is difficult to demonstrate this unequivocally, is it thought that the assemblages were selected or structured or in any overt sense (cf. Brown 1991) – instead, the majority of the flintwork is interpreted here as representing a sample of material collected and deposited *en masse* alongside other cultural material including pottery and faunal remains.

A.3.22 Although much of the characterisation of the worked flint from the Neolithic pits which follows treats the assemblage as a whole, it is necessary to emphasise the variability in the composition and character of assemblages derived from individual features. Disparities in the overall quantity of worked flint have already been

highlighted, and Table 15also presents some simple figures which highlight differences in the composition of the individual assemblages in terms of the proportions of non-cortical removals and baled-based pieces and the percentages of retouched tools and cores. Most significant here are some of the differences between the larger pit assemblages. Among the pits which contain in excess of 100 worked flints the percentage of retouched tools ranges from 2.1 to 9.8%; the percentage of cores from 0 to 2.8% and the proportion of blade-based removals from 4.2 to 21.3%. This variability hints at significant differences in the nature and tempo of activities ultimately represented by individual assemblages.

Cut	301	433	540	577	582	659	661	665	669	673	2030	2034
Total worked	**47**	**3**	**142**	**94**	**22**	**359**	**3**	**122**	**152**	**139**	**503**	**2**
% non-cortical	64.3	0.0	59.3	63.0	46.7	50.2	66.7	58.4	56.4	57.3	55.1	100.0
% blade/blade-like	7.1	0.0	6.2	4.3	33.3	4.2	0.0	6.7	21.3	4.9	9.4	0.0
% retouched	10.6	33.3	2.1	7.4	13.6	3.6	0.0	9.8	3.9	2.2	6.6	0.0
% cores	0.0	0.0	1.4	6.4	0.0	2.2	0.0	0.0	2.0	2.9	0.4	0.0

Table 15: Basic composition of the Neolithic pit assemblages

Technology and core reduction practices

A.3.23 As is typical for later Neolithic flint assemblages in the region (e.g. Beadsmoore 2009, Bishop in prep, Billington 2015; 2016, Dickson forthcoming), the flintwork from the pits can be described as belonging to two or three relatively distinct, but overlapping, approaches to core reduction. The first of these is generalised flake-production of the kind characteristic of both later Neolithic and Early Bronze Age industries, with the removal of flakes of varied morphology from simple platform cores with a minimum of preparation or formal core maintenance/rejuvenation. Secondly, there is abundant evidence for reduction of more specialised cores including simple discoidal/keeled cores and more elaborate Levallois-like and prepared-platform cores. Thirdly, there is some possible evidence for the production of blades and narrow flakes from dedicated blade cores – although many, if not most, of the blades may have also have been produced from Levallois-like cores.

A.3.24 To allow a characterisation of the technological and metric traits of the unretouched removals in the assemblage a sample of 100 complete flakes from each of the largest pit assemblages (**659** and **2030**) have been subject to detailed technological analyses. The results of these analyses are summarised in Table 16 whilst a summary of breadth: length ratios are presented in Table 17. The technological characteristics of the unretouched removals reflect the diverse technological strategies summarised above.

		659	2030	Total
Proportion of dorsal cortex %	None	34	45	39.5
	0-24	37	34	35.5
	25-49	14	13	13.5
	50-74	4	6	5
	75-99	7	1	4
	100	4	1	2.5
Striking platform type %	cortical	25	4	14.5
	faceted	8	15	11.5
	marginal	13	10	11.5
	natural	2		1
	plain	42	59	50.5

		659	2030	Total
	polyhedral	8	12	10
	shattered	2		1
Dorsal platfrom edge treatment %	trimmed/abraded	43	57	50
	none	57	43	50
Dorsal scar pattern %	fully cortical	4	1	2.5
	multi	38	35	36.5
	opposed	1	2	1.5
	single	9	23	16
	unidirectional	48	39	43.5
Termination type %	feather	73	86	79.5
	hinged	26	13	19.5
	plunge	1	1	1
Metric summary	platform depth mean (σ)	4.8 (3.3)	4.1 (2.2)	4.5 (2.8)
	length mean (σ)	35.1 (10.2)	35.8 (12.2)	35.4 (11.2)
	width mean (σ)	30.49 (11.4)	28.28 (8.3)	29.4 (10.0)
	thickness mean (σ)	8.1 (4.1)	6.6 (2.6)	7.3 (3.5)

*Table 16: Attributes of samples of unretouched removals from pits **660** and **2030***

		Narrow blades	Blades	Narrow flakes	Flakes	Broad flakes
Breadth / Length Ratio	<0.2 (%)	0.21-0.4 (%)	0.41-0.6 (%)	0.61-0.8 (%)	0.81-1.0 (%)	1.0+ (%)
E. Meso (Pitts 1978a, 194)	2	43	27	13	6.5	9
L. Meso (Pitts 1978a, 194)	0.5	15.5	30.5	22	14.5	17
E. Neo (Pitts 1978a, 194)	0	11	33	27.5	14.5	13
L. Neo (Pitts 1978a, 194)	0	4	21.5	29	20	25.5
Chalcolithic (Pitts 1978a, 194)	0	2.5	15	24	24	35
Bronze Age (Pitts 1978a, 194)	0	3.5	14.5	23	23	35.5
Peterhouse Technology Park, Cherry Hinton (Bishop in prep)	0	11.1	20.9	22.4	16.9	28.7
New Road Melbourn pit 659	0	4	13	26	21	36
New Road Melbourn pit 2030	0	4	17	29	23	27
New Road Melbourn all	0	4	15	27.5	22	31.5

*Table 17: Breadth:length rations for unretouched removals from pits **659** and **2030** alongside Pitt's national figures and Bishop's figures for the grooved ware assemblage from Cherry Hinton.*

A.3.25 The majority of removals are simple flakes, varied in morphology, but typically relatively broad, with simple plain or cortical striking platforms sometimes with trimming of the dorsal platform edge. Dorsal scar patterns suggest the use of both simple single platform cores as well as multiple platform cores which have been rotated to remove flakes from a different platform. The ventral features of the vast majority of these simple flakes suggest the use of relatively hard hammers and although many pieces have diffuse bulbs or ventral scars suggestive of the use of relatively 'soft' hammerstones (e.g. sandstones or cortical flints) very few have the lipped bending fractures often associated with organic (e.g. antler) hammers. A proportion of these simple flakes must represent the less distinctive products of relatively sophisticated discoidal and Levallois-like cores but the majority are thought to derive from simple flake cores.

A.3.26 Alongside this generalised flake-based material are removals which clearly derive from the working of discoidal/centripetally worked and levallois-like cores. As noted above, many of the flakes removed from such cores are not necessarily readily distinguished from removals from simple platform cores but some pieces – especially those deriving from the debitage surface of Levallois-like cores - are highly distinctive, often taking

the form of relatively large and proportionately thin flakes with well organised, often centripetal, dorsal scar patterns and finely faceted striking platforms. These include some 'classic' preferential levallois flakes as well as other characteristic pieces such as those which have removed part of the edge of a levallois-like or discoidal core (*éclat debordant*; see Boëda 1994).

A.3.27 As noted above, blade-based pieces make up between 4.2 to 21.3% of the unretouched removals in the larger pit assemblages. Notwithstanding the significant variability between assemblages this is fairly typical of later Neolithic assemblages from the region which invariably include a small but notable proportion of blade-based pieces, as well as narrow flakes. Some of these blade-based removals are closely comparable in morphology and technological traits to those from earlier Neolithic assemblages (which are typically dominated by blade/narrow flake based technologies) but others are distinctively robust, often with dorsal scar patterns and sometimes with polyhedral/faceted striking platforms, which suggest they are the product of levallois-like or related prepared platform cores.

A.3.28 Six flakes from the Neolithic pits, including four from pit **2030**, retain areas of ground and polished surfaces and clearly derive from the reworking of polished implements, almost certainly axe heads. Such pieces are consistently present in small numbers in Neolithic assemblages in the region and appear to reflect the re-use of polished axe-heads as cores (e.g. Billington 2017; Dickson *forthcoming*).

A.3.29 Another distinctive feature of a small number of the flakes is evidence for intentional breakage. Pits **669** and **577** both produced single examples of proximal portions of flakes that appear (on the basis of traits including wedge shaped fracture lines, lipped breaks and impact marks/traces of direct percussion; see Bergman et al 1987; Anderson-Whymark 2011) to have been intentionally broken/segmented, whilst the relatively small assemblage of 18 worked flints from pit **613** includes no less than three such proximal portions, all clearly deriving from Levallois-like/prepared-platform cores. Perhaps the most obvious interpretation of the function of intentional breakage of this kind is as by-products of transverse arrowhead production, whereby the proximal end of a suitable flake is removed to leave the medial and distal portion of a flake which provides an ideal blank for a chisel or oblique type arrowhead, although other tool blanks may also have been deliberately modified through breakage (for a full discussion, see Anderson-Whymark 2011). In the regional context, intentionally broken flakes of this kind have been identified in later Neolithic contexts at Edgerley Drain Road, Peterborough (Beadmoore 2009, 131); Sutton Gault (Billington 2015, 41, fig. 7.3) and at Over/Needingworth (Billington 2016b, 258, 497-8, fig. 6.9 no. 3). In most cases these pieces are consistent with representing the by-products of transverse arrowhead production, although at Over it has been suggested that other tool-forms, notably scrapers, may have had their proximal ends deliberately removed, perhaps to aid hafting (*ibid*).

A.3.30 Examination of the cores generally supports the observations made on the character of the unretouched removals. The classification and selected attributes of the 25 complete cores from the Neolithic pits are presented in Table 18. Six of these are minimally worked pieces, generally made on nodular fragments, from which a small number of flakes have been removed. Ten cores can be described a simple platform

cores and include seven single platform cores and three with two or more platforms. These are generally well reduced/exhausted, with a mean weight of 59g, almost all of which have plain striking platforms formed by previous flaked or 'quartered' surface - over half of which show some trimming of the platform edge. The remaining cores are all more complex bifacially worked types. Two of these are keeled cores, pieces with one bifacially worked edge whilst there is also a single discoidal core where flakes have been removed in centripetal pattern from both faces around most of the perimeter of a broadly sub-circular shaped core. The remaining six cores can also be classified as levallois-like in that the two worked faces are hierarchically organised, with one principle debitage surface designed to produce fine levallois flakes. One of these levallois-cores seems to have been worked to produce a single linear preferential flake whilst the others have multiple (recurrent) centripetal removals (cf. Boëda 1994). It is notable that, despite the presence of a relatively large number of blade-based products in the assemblage none of the cores show clear signs of the production of blades, and although it is possible that some of the exhausted simple platform cores may have produced blades at an earlier stage of their reduction it is thought that the bulk of the blades were probably removed alongside flake shaped removals from levallois-like cores (cf. Shimelmitz and Kuhn 2013).

Cut	Length (mm)	Breadth (mm)	Thickness (mm)	Weight (g)	Type
540	55	47	32	67.9	Discoidal
540	49	35	21	44.1	Multiple platform core
577	91	57	25	82.5	Levallois-like
577	78	53	40	173.2	Minimally worked/irregular
577	52	44	20	40.8	Levallois-like
577	49	52	15	35.8	Single platform flake core
577	60	58	35	94.8	Levallois-like
577	46	45	29	70.3	Single platform flake core
659	55	72	46	181.4	Single platform flake core
659	57	41	31	64.5	Levallois-like
659	70	43	21	60.4	Levallois-like
659	84	77	27	161.6	Minimally worked
659	31	33	44	42.8	Minimally worked
659	83	95	34	234.7	Keeled core
659	33	30	14	12.4	Minimally worked
659	63	61	18	81.4	Keeled core
669	29	63	31	54.7	Single platform flake core
669	55	35	27	49.3	Minimally worked
669	93	66	36	216.3	Minimally worked
673	75	38	22	69.1	Two platform flake core
673	40	40	37	58.4	Single platform flake core
673	33	27	33	36.1	Multiple platform core
673	23	35	30	26.1	Single platform flake core
2030	14	30	25	11.9	Single platform flake core
2030	44	40	28	40.9	Levallois-like

Table 18: Cores from the Neolithic pits

Tool manufacture and use

A.3.31 Retouched tools are well represented in the assemblage from the Late Neolithic pits, with 85 pieces accounting for 5.3% of the total assemblage (see Table 14). Retouched

forms are dominated by scrapers which make up 51% of the total tools, followed by serrated pieces (20%) and simple edge-trimmed pieces (15%), with smaller numbers of other pieces including four arrowheads, a fabricator, a rod and several miscellaneously retouched pieces (as well as the residual Mesolithic microlith described above). There is a degree of variability in the different tool types represented in individual features, but the general pattern for scrapers to dominate, followed by serrated and edge-trimmed pieces holds good for most of the larger individual pit assemblages (Table 14).

A.3.32 The 43 scrapers are classified below in Table 19, which also provides details on selected metric and non-metric attributes of these tools. The vast majority are essentially forms of end-scraper, although several have been classified as horseshoe scrapers, one double ended-scraper is present and there is one combination scraper/knife which bears low-angled, semi-invasive retouch along one lateral edge in addition to a more steeply retouched distal end. The measurements of the complete scrapers (n.=32) indicates that flake blanks were elected on the basis of both their size and morphology with the mean measurements for scrapers indicating they were generally larger and proportionately narrower than the average flake removals (compare Table 16Table 19). A relatively high proportion of the scrapers bear finely faceted striking platforms and many appear to derive from levallois-like/prepared platform cores, whilst others are made on decortication flakes. In most cases retouch was applied directly to the distal end of flakes and had a regular, often highly symmetrical, convex delineation formed from sub-parallel to scaler retouch. Very steep or undercutting retouch was rare and there is little evidence that the scrapers were particularly curated or subject to numerous episodes of sharpening.

Scraper type		No.	%
Scraper type	End	32	74.4
	Horseshoe	4	9.3
	Side	2	4.7
	End and side	2	4.7
	Scraper/knife	1	2.3
	Double ended	1	2.3
	Unclassifiable	1	2.3
Attributes		No.	%
Proportion of dorsal cortex (%)	Primary (fully cortical)	2	4.7
	Secondary (partly cortical)	20	46.5
	Tertiary (non-cortical)	21	48.8
Striking platform type (complete/proximal portions only)	Faceted	6	18.2
	Cortical	1	3.0
	Plain	21	63.6
	Removed by retouch	5	15.2
Breakage	Complete	31	72.1
	Siret fracture	1	2.3
	Distal end only	1	2.3
	Missing proximal end	9	20.9
	Severe thermal damage	1	2.3
Metric data (complete pieces only)			**mm**
	Length mean, mm (σ)	52.4 (10.2)	
	Breadth mean, mm (σ)	36.9 (8.5)	

	Thickness mean, mm (σ)	10.7 (3.8)

Table 19: Selected attributes of the scrapers from the Neolithic pits

A.3.33 Details of the 17 serrated pieces are provided in Table 20. The majority of these are made on narrow flakes or blades, with a clear preference for the selection of regular, narrow blanks of a kind that are relatively rare within the unretouched removals from the assemblages. Several of these blades bear finely faceted platforms and many appear to derive from levallois-like cores. The majority of the serrated pieces bear fine (up to 10-12 notches per 10mm) along one lateral edge. It seems likely that many of these functioned as hand-held tools and it is notable that several are 'naturally backed', with cortical surfaces or acutely angled lateral edges opposing the serrated edge. Two examples, however, have steeply retouched deliberate truncations, one with a single truncation removing the proximal end and one with both ends truncated, and it is possible these were designed to held within a haft – perhaps as part of composite tools. Traces of polish/gloss resulting from use were macroscopically visible on the serrated edges of three pieces.

Blank type		**No.**	**%**
	blade/blade-like	10	58.8
	narrow flake	2	11.8
	flake	5	29.4
Attributes		No.	%
Proportion of dorsal cortex (%)	Primary (fully cortical)	0	
	Secondary (partly cortical)	8	47.1
	Tertiary (non-cortical)	9	52.9
Breakage	Complete - truncated	2	11.8
	Complete	7	41.2
	Distal portion	3	17.6
	Medial portion	1	5.9
	Proximal portion	3	17.6
	Distal end only	1	5.9
Retouch	One lateral edge serrated	13	76.5
	Both lateral edges serrated	1	5.9
	Serrated with additional retouch	3	17.6
Metric data (complete pieces only)		mm	
	length mean (σ)	49.7 (12.1)	
	width mean (σ)	23.9 (6.3)	
	thickness mean (σ)	7.4 (1.9)	

Table 20: Selected attributes of the serrated pieces from the Neolithic pits

A.3.34 Of the remaining retouched pieces, the largest number are made up of what have been classified as edge-retouched pieces, of which there are thirteen examples. The blanks for these tools appear to have been less carefully selected than those of the scrapers and serrates; the blanks are typically smaller than those used for the scrapers and include broad flakes as well as narrower pieces, and it seems likely that they were chosen more on the basis of suitable, useable edges rather than size/morphology. This said, one example was made on a large, fine levallois-like flake measuring 75mm in length and 41mm in breadth. These pieces typically display a length of short, low angle retouch along part or all of one lateral edge and appear to have functioned as cutting tools.

A.3.35 Five arrowheads were recovered from the Late Neolithic pits, a single example from pit **665** and four from the large assemblage from pit **2030**. The piece from pit **665** has been reconstructed from two refitting pieces and appears to be an unfinished chisel arrowhead, broken during manufacture. The four arrowheads from pit **2030** are remarkable for their diversity; in traditional typological terms (following Green 1980) they comprise one leaf-shaped arrowhead, one chisel arrowhead and two oblique arrowheads. Of these, the leaf-shaped arrowhead (36mm long and 17mm wide with covering dorsal retouch and inverse invasive edge retouch; Green's type 3c) is an unusual find in this context as these are normally understood to be restricted to the Earlier Neolithic, or at least to the fourth millennium BC, and its presence in a Grooved Ware associated assemblage is highly unusual. It is an open question whether this it be regarded as contemporary with the remainder of the flint assemblage from this feature or whether it represents a significantly older artefact, either incorporated accidentally into the pit or found and curated during the Late Neolithic. There is a dearth of sites where leaf-shaped arrowheads have been recovered in *secure* association with Grooved Ware pottery, a possible exception being one example recovered in association with an assemblage of Grooved Ware pottery from the fill of a small pit-dug hengeiform monument on the floodplain of the Great Ouse at Manor Farm, Milton Keynes (Hogan 2013).

A.3.36 The remaining three arrowheads are more typical of Grooved Ware associated assemblages, and include one chisel arrowhead (Clarks type D; Clark 1934; see Ballin 2011a) and two oblique arrowheads (one type E and one type F/H). Both of the oblique arrowheads are relatively simple and lack the exaggerated barbs and extensive invasive retouch that characterise some examples (cf. Bishop et al 2011; Devaney 2016).

A.3.37 The remainder of the retouched tools form a diverse group, with several unclassifiable pieces bearing miscellaneous, often expedient retouch, and two rod-like pieces, one of which may be the broken and unused end of a fabricator, and the other which may have been used as a borer.

Period 2.1: Early Bronze Age

Cremation 652 (Table 21)

A.3.38 A small assemblage of fifteen worked flints, almost half of which were chips or small fragments were recovered from the residues of an environmental sample. There is little diagnostic about this material but it is notable that none of it is burnt and clearly was not caught up in the cremation process. The only notable piece is a large fine flake which displays clear signs of having been utilised along one lateral edge.

Barrow 1 (Table 21)

A.3.39 A small assemblage of five worked flints, recovered from three individual contexts were recovered from the fills of Barrow 1. This includes one end scraper, broadly comparable with the examples recovered from the Late Neolithic pits but which could equally be of Early Bronze Age date, and a few flakes consistent with a broad later Neolithic/Early Bronze Age date. A single robust secondary bladelet seems more likely to be of Neolithic date.

	Cremation 652	Barrow 1 ditch	Barrow 2 inner ditch	Barrow 2 outer ditch	Barrow 2: Grave 568 (inhumation)	Barrow 2: Grave 568 (backfill)
Chip	6	1	5	4		3
Shatter/core fragment	1	1	2	1		
Primary flake			1			
Secondary flake	6	6	10	3		8
Tertiary flake	1	2	12	11		9
Secondary narrow flake		1		1		
Secondary blade-like flake	1			1		1
Tertiary blade-like flake			1			1
Secondary blade/let		1				
Scraper		2		1		
Serrate			1			
Edge retouched				1		
Plano-convex knife					1	
Core		1		1		
Total worked	**15**	**15**	**32**	**24**	**1**	**22**
Unworked burnt flint count			*1*	*4*		*5*
Unworked burnt flint weight (g)			*0.8*	*69.9*		*80*

Table 21: Quantification of the flint from Barrows 1 and 2 and associated features

Barrow 2 (Table 21)

A.3.40 Features making up and associated with Barrow 2 produced a slightly larger assemblage of 79 worked flints and a small quantity of unworked burnt flint. One of the flint from ring ditch 2 is clearly a deliberately deposited grave-good - a fine plano-convex knife found associated with inhumation burial 569, grave **568.** This piece is rectilinear in planform with a flat/straight distal end and parallel edges which converge to a rounded point at the proximal end. It has fine sub-parallel invasive retouch covering its dorsal face – with its ventral face left unmodified - giving a characteristic plano-convex transverse profile. Whilst also appearing as a rare element within domestic 'Chalcolithic' and Early Bronze Age assemblages (c. 2400-1600 cal BC), carefully made knives of this form are a fairly common grave-good accompanying inhumations of this period in the region (e.g. Lethbridge 1950).

A.3.41 The back-fill of grave **568** also contained a fairly substantial quantity of worked flints, 22 in total, but these were distributed throughout the fill - not found in association with the inhumation. Moreover, this material includes flakes and blade-like removals closely comparable to the material recovered from the Late Neolithic pits in the immediate vicinity of the barrow and seem likely (as with the bulk of the material from the associated ring ditch) to represent residual material deriving from the Later Neolithic phase of occupation in this area.

A.3.42 Flintwork was recovered in fairly low densities from the excavated sections of both the inner and outer ring ditches of the monument, with a total of 56 worked flints and up to ten pieces deriving from any one individual context. This material includes a high proportion of characteristically later Neolithic material including several removals from levallois-like cores, a classic centripetally prepared levallois-like core (fill 758) and a serrated blade (fill 689). Two further retouched pieces are present; an edge

retouched flake and a scraper – both of which can be paralleled in the later Neolithic assemblages, but which are not strongly diagnostic and could conceivably represent later activity associated with the ring ditch itself. Similarly, although a large proportion of the assemblage is not strongly diagnostic and could represent Early Bronze Age flintwork, it is thought that the overwhelming majority of this material relates to the later Neolithic occupation and represents material derived from surface scatters/middens incorporated into the fills of the ring ditch.

Period 2.2: Middle Bronze Age Wells

A.3.43 A total of 48 worked flints and a very small quantity of unworked burnt flint were recovered from four wells (Table 22). Two of these features produced single pieces of worked flint, a piece of irregular thermal shatter from **1977** and a bladelet – probably of Mesolithic/early Neolithic date, from **1220** (the recut of **1167**). Somewhat more substantial assemblages were recovered from features **908** and **1167**.

Cut	908	1167	1220	1977
Chip	1			
Shatter/core fragment	1			1
Secondary flake	2	8		
Tertiary flake	8	14		
Secondary narrow flake	1	1		
Secondary blade-like flake		2		
Tertiary blade-like flake		3		
Secondary blade/let			1	
Tertiary blade/let	1			
Scraper	2	2		
Total worked	**16**	**30**	**1**	**1**
Unworked burnt flint count		*3*		
Unworked burnt flint weight (g)		*10.4*		

Table 22: Quantification of flint from the wells

A.3.44 Well **1167** contained 30 worked flints. This assemblage is clearly chronologically mixed and includes some fine Mesolithic/early Neolithic blade-based material alongside more generalised flake-based material. This includes some pieces which appear to derive from levallois-like cores and a large proportion of the assemblage is consistent with representing residual material deriving from the Late Neolithic activity at the site, including a fine utilised blade-like flake which might be a very worn serrated piece. Two scrapers were recovered from this feature (both from fill 1221), one of which is on a large laminar flake and is closely comparable to the later Neolithic forms found elsewhere on the site. The second is a small sub-circular scraper which can be classed as a thumbnail scraper (made on a primary flake) but lacks the invasive retouch which characterises highly diagnostic Early Bronze Age thumbnail scrapers, although it may well be of comparable date. There is no clear evidence for the very crude and expediently worked flake-based material that would be excepted in a Middle Bronze Age or later context and it seems likely that this assemblage is largely residual.

A.3.45 Well **908** contained a smaller assemblage of sixteen worked flints. As noted above, the condition of this assemblage was exceptional, with several pieces bearing a light recortication quite different to heavy opaque recortication that has affected the vast bulk of the assemblage. Especially notable is a fine, heavily recorticated decortication

flake which has abrupt retouch at the distal end, cutting through the recorticated surface to create an end scraper, and evidently representing the recycling of earlier material. Although little of the material from this context is distinctive in technological terms there is little clear evidence for Mesolithic or Neolithic technologies such as those seen in most of the residual assemblages from the site, and it seems likely, especially in light of the condition of the assemblage, that a proportion of this material is contemporary with the Bronze Age pottery recovered from this feature. The re-use/scavenging of earlier flake blank for retouching as tools, as represented by the scraper on the heavily recorticated flake, is also a phenomenon most commonly encountered in assemblages of Bronze Age date in the region (e.g. Billington 2016b, 260).

Period 2.2: Middle Bronze Age enclosures and associated features

A.3.46 Despite the intensive investigation of the features associated with the Middle Bronze Age phase of the sites use the flint assemblage derived from these contexts can only be described as modest, with a total of 129 worked flints derived from over thirty individual contexts. The unworked burnt flint assemblage is somewhat more substantial, with over 5.5kg, but the vast majority of this derives from the fill of single pit feature associated with possible structure 1397. The assemblage is quantified according to the major ditch and structure groups in Table 23 with full quantification by context in the flint catalogue.

Feature group	Chip	Shatter/core fragment	Primary flake	Secondary flake	Tertiary flake	Secondary blade-like flake	Tertiary blade-like flake	Tertiary blade/let	Scraper	Serrate	Edge-retouched	Core	Total worked	Unworked burnt flint count	Unworked burnt flint weight (g)
Ditch 415	4	16	2	19	18	4	2	2	1		1	4	**73**	5	151.3
Ditch 817		3		8	6			2	2	1		2	**24**	2	36
Pits	1	6	1	2	3						1		**14**	1	2
Structure 952					2				1				**3**		
Roundhouse 930	2			1									**3**		
Roundhouse 1095	1	1							1				**3**	231	5376
Structure 1397				1	2								**3**		
Post line 997					1								**1**	1	14.8
Post line 1223									1				**1**		
Post line 1733	1												**1**		
Post line 1927	2				1								**3**		
Totals	**11**	**26**	**3**	**31**	**33**	**4**	**2**	**4**	**6**	**1**	**2**	**6**	**129**	**240**	**5580**

Table 23: Summary quantification of flint from Middle Bronze Age feature groups

A.3.47 The majority of the worked flint from the Middle Bronze Age features was derived from the fills of ditches. Over half of the worked flint came from the causeway terminals of boundary ditch **415** (Ditch Group 415), which produced 73 worked flints. The worked flint was recovered from thirteen individual contexts belonging to this group, most of which produced small quantities of worked flint (one to six pieces) with the exception of fills 428, 477 and 606, which produced somewhat larger assemblages

(28, 19 and nine pieces respectively). Some of this material, including some pieces from the larger assemblages are clearly residual and include blade-based removals and fine flakes comparable to those from the Late Neolithic contexts and the two retouched pieces – an edge trimmed flake and a short end scraper – are more consistent with a date in the later Neolithic/Early Bronze Age rather than the Middle Bronze Age. This said, there is a proportion of this material, impossible to quantify exactly, which is probably contemporary with the features from which it derives. This material takes the form of very simple flake-based material and irregular shatter and is most convincingly represented by some of the material from the larger assemblage from fill 428.

A.3.48 The same general trend also applies to the smaller assemblage (22 pieces) recovered in low densities from seven individual contexts belonging to Ditch Group 817. Residual material is well represented, and the three retouched forms in particular are all probably of later Neolithic date and include a serrated flake and a scraper made on a flake from a levallois-like/prepared platform core. Flintwork potentially contemporary with the ditches themselves is limited to a few crude flakes, including several from fill 872.

A.3.49 A total of 14 worked flints were recovered from four Middle Bronze Age pits (**952**, **1111**, **1099**, **1399**). None of these need represent material contemporary with the features from which they derive and there is at least one demonstrably/diagnostically residual piece: a worn levallois-like flake from pit **2160**.

A.3.50 Features belonging to Structures 930, 952 and 1397 produced small quantities of worked flint (see Table 23), none of which can be confidently dated to the Middle Bronze Age, and which includes a probable Mesolithic/Early Neolithic scraper made on what was originally a single platform core from structure 952. Structure 1095 produced three worked flints including one scraper which could be contemporary with use of the structure, but is perhaps more likely to be residual. More significantly, pit **1111** – belonging to this structure - contained a large quantity of burnt flint fragments, weighing 5376g, an amount too large to envisage having derived from material incidentally caught up in hearths and which must represent the residue for some domestic/craft process requiring quantities of heated stone.

A.3.51 Of the many features making up the Middle Bronze Age post alignments/boundaries only four produced any flint; small chips were recovered from **1759** and **1943**, whilst **1036** contained a single undiagnostic tertiary flake and **1126** produced a Late Neolithic end scraper made on flake with a finely faceted striking platform.

Other contexts

A.3.52 A small proportion of the assemblage, some twenty pieces from the excavation phase, was derived in low densities either from post-Middle Bronze Age features or undated/unstratified contexts. This material was similar to the residual element of the assemblages derived from the ring-ditches and Middle Bronze Age ditches and included a notable proportion of probable Late Neolithic material and some Mesolithic/early Neolithic pieces alongside less diagnostic generalised flake-based material

A.3.53 Little material was recovered from topsoil or subsoil during the excavation phase, but it is worth noting that a broken polished flint axe-head was recovered from the topsoil in the area of Trenches 16, 17 and 18 during the course of the evaluation (Bishop 2017).

Discussion

A.3.54 In the context of reported lithic assemblages from South Cambridgeshire, the assemblage from Melbourn is large and represents a significant addition to the regional record. The assemblage clearly represents activity from the Mesolithic through to at least the Early Bronze Age, and whilst the most significant element of the assemblage is the large assemblage derived from the Late Neolithic pits, other aspects of the assemblage, particularly the evidence for Mesolithic activity, are also of regional significance.

Mesolithic and earlier Neolithic

A.3.55 Mesolithic and earlier Neolithic flintwork is best represented by material from the soils and sediments infilling the series of natural hollows exposed across the area of excavation, as well as by a small earlier Neolithic assemblage from pit **354** and a (relatively small) proportion of the residual material recovered from later features. The flintwork from the natural hollows is interpreted as probably representing the surviving remains of formerly more extensive surface scatters distributed across the site, fortuitously preserved within the hollows. These deposits cannot be considered stratified or sealed in any conventional sense, and this is reflected in the clearly multi-period character of their associated lithic assemblages.

A.3.56 Blade-based material of Mesolithic/Early Neolithic date does, however, dominate the largest assemblages from **70**, **112**, **345** and **347**. It should be emphasised that if the flintwork from hollows **345** and **347** had not been associated with Early Neolithic pottery it would have been assumed that the overwhelming majority of the assemblage was of Mesolithic date. This conclusion would have been reached on the basis of the retouched tools present – which, aside from a single edge trimmed piece and a burin, comprised three diagnostically Later Mesolithic microliths – and, to a lesser extent, on the technological traits of the blade-based material, which included a high proportion (in an admittedly small sample) of Mesolithic-type opposed platform bladelet cores and a high proportion of prismatic blades and bladelets. This observation only serves to highlight the extent to which Early Neolithic flintwork can be extremely difficult to isolate within chronologically mixed assemblages which include a substantial Mesolithic component, and in this instance the evidence from the flintwork can contribute very little to any understanding of the character of Early Neolithic activity at the site.

A.3.57 The Mesolithic material from these assemblages is more readily characterised. The three microliths from the hollows (and the residual microlith recovered from Late Neolithic pit **2030**) are all of narrow-blade form, and all could arguably represent the kind of 'miniaturised' and heavily retouched forms which especially characterise the last two millennia of the Mesolithic, from c. 6000 to 4000 cal BC (Jacobi 1984, 65-9; Barton and Roberts 2004); it is certainly very unlikely that any of these forms predate c. 7500 cal BC. Later Mesolithic activity is relatively poorly represented in

Cambridgeshire – where Mesolithic assemblages are more commonly dominated by Early/Middle Mesolithic 'broad-blade' microliths (Billington 2016a), although assemblages with an important narrow-blade component have been recovered from the fen-edge, including scatters from Lode (Billington 2016a, 102-129) and March (Bishop 2011), as well as on the Greensand at Cottenham (Conneller 1998) and Gamlingay (Murray 2004; Billington 2016a, fig. 6.23) and it is suspected that the relatively low numbers of diagnostically later Mesolithic material is at least partly a product of the practical difficulties in recovering the diminutive microliths that characterise this period during routine fieldwalking and excavation (Billington 2016a, 345-6).

A.3.58 Whilst the Mesolithic material from most of the hollows was recovered as an element of chronologically mixed assemblages, and was often associated with Neolithic pottery, the substantial assemblage of 86 worked flints recovered from the single test square in hollow **122** appears to represent a chronologically unmixed and coherent Mesolithic assemblage. The presence of four microburins in this assemblage is notable and suggests that the much of this flintwork may relate to a single and specific episode of activity, presumably relating to the manufacture of microlithic armatures. Whilst the microburins can only be dated to the Mesolithic (occurring throughout the period) it seems likely, based on activity from elsewhere on the site, that this assemblage also reflects activity in the later part of the period.

A.3.59 Aside from representing a useful addition to the relatively sparse record of demonstrably Later Mesolithic findspots in the region, the evidence from Melbourn is also of interest in terms of representing Mesolithic activity on the chalklands of the region. Recent study of the distribution of Mesolithic findspots across Cambridgeshire, Suffolk, Norfolk and Bedfordshire has shown that the density of Mesolithic findspots on areas of chalk geology is relatively low – certainly much lower than on the terrace gravels of the major river valleys and on the lighter soils of the Lower Greensand, coversands and glacial outwash deposits of the region (Billington 2016a, 67-71). Whether this pattern reflects genuine differences in the intensity of occupation in different parts of the landscape during the Mesolithic remains an open question and it has been suggested that the relatively low numbers of sites on the chalk might reflect biases introduced by patterns in fieldwork and land-use - with larger areas of the chalk escarpment of Cambridgeshire and Suffolk remaining under pasture and seeing less development than around the major urban areas and centres of aggregate extraction on the river terraces and fen-edge (*ibid*, 209-213).

A.3.60 Little is known of environmental character of the chalk 'uplands'/escarpment of Cambridgeshire during the earlier Holocene, with available pollen sequences invariably coming from palaeochannel sequences in the lower-lying parts of the county (e.g. Smith et al 1989; Wiltshire 2007). In light of recent work on the character of Holocene woodland on the chalklands of Southern England (French et al 2007; 2012), it is possible that there were some larger and potentially persistent areas of open ground, but it is probably more reasonable to assume that the area was covered by relatively dense deciduous woodland of the kind well-documented over Eastern England in the latter part of the Mesolithic (Bennett 1988; Rackham 2003; 97-11; 2006; 71-101). It is as inhabitants of this woodland environment that we should

envisage the Mesolithic communities represented by the flintwork at Melbourn and, according to traditional understandings of Mesolithic landscape occupation, these lithic scatters could be interpreted as representing the activities of small groups of hunter-gatherers, with the site perhaps being subject to episodic visitation as part of a mobile settlement pattern which included fleeting task-based activities as well as somewhat more sustained episodes of occupation (e.g. Barton and Roberts 2004; Conneller 2005). Taken at face value, the composition of the Mesolithic assemblage, with few or no retouched pieces aside from microliths, alongside evidence for the manufacture of microliths in the form of micro-burins, might suggest that much of the flint derives from relatively brief episodes of activity involving re-tooling/repair of tools rather than more sustained 'domestic' occupation of the kind which would produce a more diverse range of artefacts (cf. Mellars 1976; Myers 1987).

Late Neolithic

A.3.61 As noted above, the material recovered from the Late Neolithic pits represents the most significant aspect of the lithic assemblage from the site. Most of this material came from pits associated with Grooved Ware pottery and is typical of Grooved Ware associated assemblages from elsewhere in the region. In the wider context of Eastern England, Cambridgeshire now boasts a particularly rich record of Grooved Ware pit sites, most of which either come from the western fen-edge, on the lower reaches of the Ouse and Nene (Evans and Knight 2004; Pollard 1998; Pryor 1978; Evans et al 2009; 2016), or from the 'chalk-lands' of south Cambridgeshire (Gilmour *in prep*, Gilmour and Clarke *forthcoming*; Hinman 2001). In technological and typological terms all of the flint assemblages from these sites are very similar, but there is some evidence, which is deserving of more detailed study, for significant differences in the composition of assemblages from different sites. This is most clearly seen in differences in the scale of assemblages, with the fenland sites typically producing much smaller assemblages than their counterparts from southern Cambridgeshire, often with a much higher proportion of retouched/utilised tools. This pattern seems likely to relate to regional scale trends in the organisation of the acquisition of raw materials; in particular, the transport of flint derived from sources on the chalk across the region, partly in the form of finished tools/blanks or partly prepared cores (see Brown 1996; Edmonds et al 1999; Billington 2016b; Bishop 2012). This pattern is evidenced by assemblages with relatively large numbers of tools and little evidence for the earlier stages of core reduction or profligate use of raw materials at sites located at distance from the chalk; whilst those closer to source, including the assemblage considered here, have more evidence for large scale knapping, including all stages of core reduction.

A.3.62 Whilst these patterns hint at important patterns in the manner in which raw materials were acquired and managed across the region, it remains the case that the character and composition of the retouched tool assemblages across the county, and more widely across Eastern England, are very similar, with a dominance of scrapers (often large and finely made) together with large numbers of serrated and edge retouched pieces, evidence for the presence of polished flint axes (in the form of flakes from reworked axe-heads) and, usually, a small number of arrowheads and other rarer or idiosyncratic forms (see also Garrow 2006; Healy 1984). These tools, and the large

number of flakes which can invariably be demonstrated or assumed to have been utilised in an unretouched state, hint at a range of domestic type activities such as butchery, plant processing, craft activities and hunting. The pattern of deposition seen at Melbourn is also a familiar one, with the assemblages from pits probably representing material gathered from middens and surface scatters deposited alongside pottery and other domestic 'refuse' into cut features (see Garrow 2006).

Early Bronze Age

A.3.63 In contrast to the Late Neolithic, the flint assemblage provides little demonstrable evidence for Early Bronze Age activity. The only diagnostic flintwork of this date recovered from a secure context is the plano-convex knife accompanying the inhumation burial from Barrow 2. Aside from this piece, the flintwork from the ring ditches appeared to be dominated by flintwork of Later Neolithic date, and there was no clear evidence for any material likely to be broadly contemporary with the construction and use of either this monument or of Barrow 1. Evidence for Early Bronze Age activity is equally sparse among the flintwork recovered from the natural hollows and other features across the site, although a barbed and tanged arrowhead was recovered from natural hollow **613**. Although a proportion of the generalised flake-based material recovered from the hollows and from later features is likely to date to this period, the relatively high proportion of demonstrably Later Neolithic flintwork and a dearth of characteristically Early Bronze Age forms (such as thumbnail scrapers and invasively retouched knives) suggests that any such component is probably a minor one.

Middle Bronze Age

A.3.64 Despite the clear evidence for Middle Bronze Age activity, including structures indicative of settlement, very little worked flint could be confidentially associated with this phase, but a small quantity of material within the ditches making up the enclosures is consistent with a Middle Bronze Age date. Although there are some notable exceptions (e.g. Herne 1991; Bishop, in Phillips and Mortimer 2012), such small and thinly distributed flint assemblages are typical of those recovered from Middle Bronze Age sites across the region, even when accompanied by abundant evidence for settlement in the form of structures and large assemblages of pottery (e.g. Pickstone and Mortimer 2011; Rees 2017). In large part this appears to reflect the sporadic and less habitual use of flint during this period as metal tools became more common, and flint working became less important in both practical and social terms (Ford et al 1984; Herne 1991; McLaren 2010).

Flint Catalogue

Context	Cut	TP	Sample	small find no.	Context type	Chip	Shatter/core fragment	Flakes	Blades/bladelets	Flake from polished axe-head	Microburin	Core	Scraper	Serrate	Microlith	Edge retouched	Fabricator/borer?	Plano convex knife	Rod?	Fabricator	Truncated blade	Piercer	Burin	Arrowhead/blank	Polsihed axe-head fragment	Misc' retouched	Total worked	BF count	BF weight
1					Topsoil			1																			**1**		
2					Subsoil			4																			**4**		
17	345	111			Hollow			1																			**1**		
24	24				Natural			1	1																		**2**		
45	48				Pit			1														1					**2**		
51	70	70			Hollow	9	1	26	4																		**40**		
52	70	70			Hollow	13		9																			**22**	2	1.6
53	70	70			Hollow	21		11																			**32**		
54	112	112			Hollow			4	1											1							**6**		
55	112	112	3		Hollow	1		3																			**4**	1	1.3
55	112	112			Hollow	4		28	8		3																**43**		
56	112	112	4		Hollow			1	1		1																**3**		
56	112	112			Hollow	11		16	3																		**30**		
57	70	70			Hollow	28		17																			**45**		
58					Layer			1	2				1														**4**		
68	70	70			Hollow	14	2	19	3			1															**39**		
69	70	70			Hollow	6		8	1																		**15**		
71	70	70			Hollow	2		3	1																		**6**		
79				10	Topsoil																				1		**1**		
94	93				Buried soil			5	1																		**6**		
114	113				Hollow		1																				**1**		
115	113				Hollow	1		1																			**2**		
126	125				Pit				1																		**1**		
131	130	130			Hollow	2		4	1							1											**8**		
132	130	130			Hollow			4																			**4**		
133	130	130			Hollow			2																			**2**		
147	613	146			Hollow	1		4								1								1			**7**		
150	146	146			Hollow			1																			**1**		
151	146	146			Hollow				1																		**1**		
156	155		25		Ditch	2		2																			**4**		
176	175		23		Pit			3																			**3**		
176	175				Pit			5																			**5**		
180	179		24		Natural	3		1	1						1												**6**		
181					Subsoil			1																			**1**		
204	201				Natural			1																			**1**		
210	1078			18	Ring ditch	1	1	7					1														**10**		
220	221				Hollow			4																			**4**		
223					Layer				1																		**1**		
302	301		1		Pit	3		1																			**4**		
303	301				Pit		1	10					3	1													**15**	1	8.3
303	301		2		Pit	7		8					1														**16**		
304	301				Pit		1	9																			**10**	2	69.9

Context	Cut	TP	Sample	small find no.	Context type	Chip	Shatter/core fragment	Flakes	Blades/bladelets	Flake from polished axe-head	Microburin	Core	Scraper	Serrate	Microlith	Edge retouched	Fabricator/borer?	Plano convex knife	Rod?	Fabricator	Truncated blade	Piercer	Burin	Arrowhead/blank	Polsihed axe-head fragment	Misc' retouched	Total worked	BF count	BF weight
304	301		3		Pit	2																					**2**		
324	320				Holloway			1																			**1**		
324.6	320				Holloway			2																			**2**		
325	345				Hollow			9	6														1				**16**	1	32.8
342.1	345	342			Hollow	3		16	4			1			1												**25**	6	33.5
342.2	345	342			Hollow	1		3	1																		**5**		
342.3	345	342			Hollow	1		13																			**14**		
342.5	345	342			Hollow	1	3	2																			**6**		
343.1	345	343			Hollow	1	2	6	3																		**12**	3	37.1
343.2	345	343			Hollow			2																			**2**		
343.3	345	343			Hollow			3	1						1												**5**	1	2.3
343.4	345	343			Hollow			3	1																		**4**		
343.5	345	343			Hollow			1																			**1**	5	58.8
343.6	345	343			Hollow			1																			**1**	1	16.4
343.7	345	343			Hollow			1																			**1**		
344.1	345	344			Hollow	2		19	2																		**23**	10	44.5
344.2	345	344			Hollow	1		7																			**8**	2	7.6
344.3	345	344			Hollow	3	1	11																			**15**	4	10.9
344.4	345	344			Hollow			5	1																		**6**		
344.5	345	344			Hollow			4	1																		**5**	1	1.4
344.6	345	344			Hollow		1	9				2															**12**	8	152.1
344.7	345	344			Hollow			1																			**1**		
355	354		5		Pit			1																			**1**		
356	354				Pit			2	2																		**4**	1	6.9
356	354		4		Pit	1		3	1																		**5**		
359	357				Hollow			1	1																		**2**		
360	357				Hollow			3	3			1															**7**	7	77.5
361	357				Hollow	3	5	40	3			1			1	1											**54**	40	362.3
362	357				Hollow			1	1																		**2**	1	11.3
369.1	345	369			Hollow			1																			**1**	12	252
369.2	345	369			Hollow		1	2	2																		**5**	6	43.6
369.3	345	369			Hollow			2																			**2**	4	17.9
369.4	345	369			Hollow			2																			**2**	3	24.3

Context	Cut	TP	Sample	small find no.	Context type	Chip	Shatter/core fragment	Flakes	Blades/bladelets	Flake from polished axe-head	Microburin	Core	Scraper	Serrate	Microlith	Edge retouched	Fabricator/borer?	Plano convex knife	Rod?	Fabricator	Truncated blade	Piercer	Burin	Arrowhead/blank	Polsihed axe-head fragment	Misc' retouched	Total worked	BF count	BF weight
369.5	345	369			Hollow				1																		**1**		
380					Headland			2																			**2**		
417	415				Ditch			4				2															**6**		
418	415				Ditch		2		1																		**3**		
426	425				Ditch			1																			**1**		
428	425				Ditch		14	13				1															**28**	3	109.3
431.6	357	431			Hollow			7	3																		**10**	2	21.6
431.7	357	431			Hollow		1	1																			**2**	3	37.6
432.6	357	432			Hollow		1	3																			**4**		
432.7	357	432			Hollow			1																			**1**		
435	433				Pit			2						1													**3**		
436.6	357	437			Hollow			1																			**1**	2	64
436.6	357	437	16		Hollow	15		7																			**22**	5	6.5
436.7	357	437	17		Hollow	1		1																			**2**		
437.8	357	437	18		Hollow	3	1																				**4**	7	8.9
440	438				Ditch			1																			**1**		
441	438				Ditch			3				1															**4**		
442	438				Ditch			2																			**2**		
469	470				Tree throw	1	3	13	4																		**21**		
473	471				Pit			1																			**1**		
477	474				Ditch			11								1											**12**		
490	489				Ditch			1	1																		**2**		
496	493				Ditch			2																			**2**		
507	506				Ditch			1																			**1**		
521	520				Pit			1																			**1**		
553	540				Pit	16	7	81	2			2	1		1												**110**	19	61.4
554	540				Pit	1		29	1				1														**32**		
569	568			24	Grave													1									**1**		
570	568				Grave	3		19																			**22**	5	80
575	572		12		Natural	6																					**6**		
576	572				Natural			19	1																		**20**		
578	577				Pit	5	3	36	1			5	6														**56**	5	62.3
578	577		14		Pit	27		4																			**31**		
579	577				Pit			5				1	1														**7**		
583	582				Pit			10	4				2			1											**17**	1	80.6
583	582		13		Pit	4		1																			**5**		
585	584				Pit			5																			**5**	1	9.3
591	590				Ditch	1																					**1**		
594	590				Ditch			3																			**3**		
600	595				Ditch			1																			**1**		
606	603				Ditch	3		4	1				1														**9**	2	42
610	609				Gully			1																			**1**		
640.2	613	640			Hollow								2														**2**		

Context	Cut	TP	Sample	small find no.	Context type	Chip	Shatter/core fragment	Flakes	Blades/bladelets	Flake from polished axe-head	Microburin	Core	Scraper	Serrate	Microlith	Edge retouched	Fabricator/borer?	Plano convex knife	Rod?	Fabricator	Truncated blade	Piercer	Burin	Arrowhead/blank	Polsihed axe-head fragment	Misc' retouched	Total worked	BF count	BF weight
640.3	613	640			Hollow			5																			**5**		
640.4	613	640			Hollow			1																			**1**		
640.4	613	640	21		Hollow	2		1																			**3**		
640.5	613	640			Hollow			2																			**2**		
646	613				Hollow			5																			**5**		
647	613				Hollow	3	1	14																			**18**		
651.3	648	651			Hollow			1																			**1**		
653	652				Cremation			1																			**1**		
654	652				Cremation			3																			**3**		
654	652		29		Cremation			1																			**1**		
655	652				Cremation		1	3																			**4**		
656	652		31		Cremation	6																					**6**		
660	659				Pit	19	27	252	5	1		8	8	2		1			1							1	**325**		
660	659		26		Pit	26		8																			**34**		
662	661				Pit			3																			**3**		
668	665				Pit		5	74	1	1			5	1		3								1		2	**93**	1	15.1
668	665		27		Pit	15		14																			**29**		
670	669				Pit			17	2			1	1	2													**23**		
670	669		36		Pit	8		1																			**9**		
671	669				Pit			7																			**7**		
671	669		37		Pit			2																			**2**		
672	669				Pit	2	2	48	6			2	1	1		1											**63**		
672	669		35		Pit	37		11																			**48**		
674	673				Pit			7																			**7**		
674	673		40		Pit	1																					**1**		
675	673				Pit			2								1											**3**		
675	673		39		Pit	3																					**3**		
676	673				Pit	1	6	87	1			4				1	1										**101**	5	44
676	673		38		Pit	18		3	3																		**24**		
686					Natural			1																			**1**		
687.1	679	687			Hollow			5																			**5**		
687.2	679	687			Hollow			2																			**2**		
687.3	679	687			Hollow			9						1													**10**	1	18.9
687.4	679	687			Hollow			8	1																		**9**		
687.5	679	687			Hollow			5	1																		**6**		
687.6	679	687			Hollow			6	1					1													**8**		
687.7	679	687	42		Hollow	2																					**2**		
689	688				Ring ditch			9						1													**10**	1	5.4
691	690				Natural?			1																			**1**	1	29.7
696.1	613	696			Hollow				2																		**2**		
696.2	613	696			Hollow			1																			**1**		

Context	Cut	TP	Sample	small find no.	Context type	Chip	Shatter/core fragment	Flakes	Blades/bladelets	Flake from polished axe-head	Microburin	Core	Scraper	Serrate	Microlith	Edge retouched	Fabricator/borer?	Plano convex knife	Rod?	Fabricator	Truncated blade	Piercer	Burin	Arrowhead/blank	Polsihed axe-head fragment	Misc' retouched	Total worked	BF count	BF weight
696.3	613	696			Hollow	2	2	3	1			1															**9**	3	13.7
696.4	613	696			Hollow			3					1														**4**	2	55.9
696.5	613	696			Hollow											1											**1**	3	11.3
696.6	613	696			Hollow			1																			**1**		
704	703				Ring ditch			6																			**6**		
704	703		41		Ring ditch	1																					**1**		
714	713				Ditch			2																			**2**		
723	720				Hollow			1	1																		**2**		
734.1	679	734			Hollow			9																			**9**		
734.2	679	734			Hollow			5	1																		**6**		
734.3	679	734			Hollow			11																			**11**		
734.4	679	734			Hollow			3	2																		**5**		
734.5	679	734			Hollow									1													**1**		
734.6	679	734			Hollow			1																			**1**		
734.7	679	734			Hollow			3																			**3**		
738	737				Ditch			1																			**1**		
742	741				Ditch			9	2			1															**12**	1	36.3
749	748				Ditch			1																			**1**		
754	752				Ring ditch	2		3																			**5**	1	9.8
754	752		48		Ring ditch	1		1																			**2**		
758	755				Ring ditch							1	1														**2**	1	25.1
759	720				Hollow				1																		**1**		
770	769				Ditch																						**0**	1	3.1
774	773				Ditch			1																			**1**		
777	775				Ring ditch		1	3																			**4**		
777	775		58		Ring ditch	2																					**2**		
780	778		59		Ring ditch	1		1																			**2**		
782	781				Hollow			2																			**2**		
801	801				Holloway																1						**1**		
820	817				Ditch			4	1																		**5**		
822	821				Ring ditch			5																			**5**	1	0.8
823	821				Ring ditch		1	3																			**4**		
825	824				Ring ditch	1		1																			**2**		
829	827				Ditch			2																			**2**		
831	830				Ditch		1																				**1**		
836	835				Ring ditch	1	1	7								1											**10**	2	15.1
842	839				Ditch		1																				**1**		
870	869				Pit			1																			**1**	1	2
870	869		87		Pit	1																					**1**		
872	871				Ditch		1	3				2															**6**		
886	884				Ditch								1	1													**2**		
915	908				Well		1	8	1				2														**12**		
915	908		95		Well	1		1																			**2**		
931	930		96		Posthole	1																					**1**		
933	932		97		Posthole	1		1																			**2**		

Context	Cut	TP	Sample	small find no.	Context type	Chip	Shatter/core fragment	Flakes	Blades/bladelets	Flake from polished axe-head	Microburin	Core	Scraper	Serrate	Microlith	Edge retouched	Fabricator/borer?	Plano convex knife	Rod?	Fabricator	Truncated blade	Piercer	Burin	Arrowhead/blank	Polsihed axe-head fragment	Misc' retouched	Total worked	BF count	BF weight
953	952				Posthole			2					1														**3**		
1036	1035				Posthole			1																			**1**	1	14.8
1075	1074				Ditch			4					1														**5**		
1079	1078				Ring ditch			1																			**1**		
1091	1078				Ring ditch				1																		**1**		
1094	1078				Ring ditch			1				1	1														**3**		
1100	1099				Posthole		1						1														**2**		
1100	1099		121		Posthole	1																					**1**		
1112	1111				Pit																						**0**	231	5376
1196	908				Well			2																			**2**		
1198	1167				Well			2																			**2**		
1202	1167				Well			2																			**2**		
1206	1167				Well			2																			**2**		
1208	1167				Well			1																			**1**		
1216	1167				Well			1																			**1**		
1221	1167				Well			15					2														**17**	3	10.4
1221	1167				Well			5																			**5**		
1227	1226				Pit								1														**1**		
1400	1399				Posthole			2																			**2**		
1400	1399		149		Posthole			1																			**1**		
1760	1759		175		Posthole	1																					**1**		
1857	1850				Ditch			2																			**2**	2	13.4
1944	1943		185		Posthole	2		1																			**3**		
1974	1973				Pit		3																				**3**		
1974	1973		188		Pit			1																			**1**		
1976	?				Pit			3																			**3**		
1982	1977				Well		1																				**1**		
1999	?				ditch			1	1																		**2**	2	36
2006	1220				Well				1																		**1**		
2016					Layer			1					1														**2**		
2018	2017				ditch			1																			**1**		

Context	Cut	TP	Sample	small find no.	Context type	Chip	Shatter/core fragment	Flakes	Blades/bladelets	Flake from polished axe-head	Microburin	Core	Scraper	Serrate	Microlith	Edge retouched	Fabricator/borer?	Plano convex knife	Rod?	Fabricator	Truncated blade	Piercer	Burin	Arrowhead/blank	Polsihed axe-head fragment	Misc' retouched	Total worked	BF count	BF weight
2027					pit		1									1											**2**		
2033	2030				Pit		5	339	21	4		1	13	9		4								4		1	**401**	2	19.7
2033	2030		199		Pit	64	3	32				1				1										1	**102**		
2035	2034				Pit			2																			**2**	17	184.7
2161	2160				Pit		2	1																			**3**		
99999					?							1															**1**		
		1						1																			**1**		
Unstratified								1	141																		**1**		

A.4 Worked and burnt stone

By Simon Timberlake

Introduction

A.4.1 A total of 16.21 kg (258 pieces) of burnt stone and 1.81 kg (13 pieces) of worked stone (i.e. saddle quern/rubber stone and lava quern) were recovered from this excavation. However, the burnt stone examined from here did not include a further 36.1 kg (122 pieces) of burnt stone recorded from a Middle Bronze Age hearth (Structure 1239).

Burnt stone

A.4.2 The largest amount (by weight) of the burnt stone collected came from fill 1112 (posthole 1111, a shallow pit against the internal post of a MBA roundhouse Structure 1095 filled with 5.7 kg (84 pieces) burnt stone and almost 5 kg of burnt flint and charcoal), whilst another 4 kg (102 pieces) came from fill 2033 (pit **2030,** a Late Neolithic pit), a further 2 kg (4 pieces) from fill 1069 (a Middle Bronze Age pit **1067**), some 1.2 kg (19 pieces) from fill 668 (of Late Neolithic pit **665**), and 1.51 kg (4 pieces) from fill 583 (of Late Neolithic pit **582**).

Worked stone

A.4.3 The worked stone included a single large piece of flat cobble slab saddlequern weighing 1.32 kg from context 2161 (pit **2160**, Middle Bronze Age), whilst a faceted pebble that may have been used opportunistically as a rubber stone came from context 583 (pit **582**). Additionally there was some highly fragmentary lava quern weighing 0.095 kg recovered from a single possibly Roman feature (beam slot **363** fill 366), whilst another 0.069 kg (x6 pieces) of quern was found re-deposited within the fill (486) of a probable post-medieval ditch (**485**).

Methodology

A.4.4 All of the stone was looked at using an illuminated x10 magnifying lens. A dropper bottle containing dilute hydrochloric acid was used to confirm the presence or absence of carbonate.

Burnt stone

Description

A.4.5 Burnt stone was recovered from features of three different periods; c. 7.5 kg of this was primarily associated with the Late Neolithic (within the fills of pits), less than 0.02 kg with the Early Bronze Age within the ditch fills of a barrow (almost certainly re-deposited Neolithic stone), whilst 46 kg of burnt stone of a slightly different character came from a range of Middle Bronze Age features which included pits, in particular two hearth pits – associated with four-post Structure 1239 and the interior of roundhouse Structure 1095. The full catalogue is given in Table 24.

A.4.6 Differences between the two main types (Late Neolithic and Middle Bronze Age) of burnt stone are principally recognisable through the fragmentation size of the heat-fractured pieces; the Neolithic being on the whole smaller (i.e. average 20-50 mm in diameter) than those of the Middle Bronze Age (i.e. 40-80mm in diameter). However, in terms of the petrology of the source rocks (most of which consist of glacial erratic cobbles collected from the flint gravels) there is very little difference between them, with exotic pebbles such as the denser dolerites plus a distinctive diorite occurring within both. Nevertheless, highly fragmented pieces of Bunter metaquartzite cobbles were only found within the Neolithic burnt stone (from pit **2030**). This suggests, on the whole, the use of a common resource of stone collected from the same fluvio-glacial gravels, and also a similar regard to preferential selection of stone over flint, and perhaps denser rocks over lighter ones. Almost certainly this is due to the much greater heat-retention properties of the former with respect to its effectiveness in heating/boiling water and in cooking.

Discussion

A.4.7 The smaller fragment size of the Neolithic stone collected at Melbourn most probably indicates its re-use (i.e. its recycling for the purposes of re-firing and for boiling water in pits and/or cooking clamps). For example, there is some evidence within the Cambridge area for the evolution of much smaller and more efficient individualistic-type cooking pits from the Neolithic/Bronze Age to the Early Iron Age, with Middle Bronze Age cooking/boiling pits often consisting of a hearth pit (full of stone) next to a similar but empty basin used for boiling water for cooking (see Addenbrookes: Timberlake 2007; Timberlake in Tabor 2015; Broom, Bedfordshire: Timberlake in Slater 2008; Barleycroft, Over: Timberlake in Evans and Tabor 2012; Trumpington, Cambridge: Timberlake in Patten 2012 and Evans et al. 2018 (forthcoming)). A cooking feature may thus be the explanation for the pit hearth **1239** with its associated four-post shelter, unless of course the latter was intended as a means to dry or to parch grain. The use of larger and more intact cobbles for the purposes of heating/cooking is generally more typical of the Middle Bronze Age – Early Iron Age, and the later stone from Melbourn more closely resembles the stone found at Clay Farm, Addenbrookes and elsewhere (Timberlake 2007).

A.4.8 Meanwhile the presence of large amounts of small-size cracked and burnt stone within the fills of the Neolithic pits suggests that the latter were more likely used as places to dispose of the stone, or to store it for re-use, rather than for the cooking itself. In general, already-fired and cracked burnt stone is much more easily re-cycled than newly-collected stone, the latter often containing a good deal of internal moisture which first needs to be driven off in order to heat these up to boiling temperature. This has been shown on several occasions by means of practical experimentation (Timberlake pers.com.). In all likelihood this Neolithic stone was associated with the use of burnt stone mounds, where stone cobbles and flint were heated up for use in communal cooking which took place within a centrally located water-filled boiling pit. There are numerous examples of such features at riverside locations close to Cambridge (such as at Babraham (see Timberlake & Armour 2006)) and along the margins of the fens (e.g. Fairstead, King's Lynn (Beadsmoore 2005)).

A.4.9 In almost all cases burnt stone is synonymous with settlement and habitation and with prehistoric domestic activity. Often it can be a useful material find with which to help interpret sites in the absence of other artefacts.

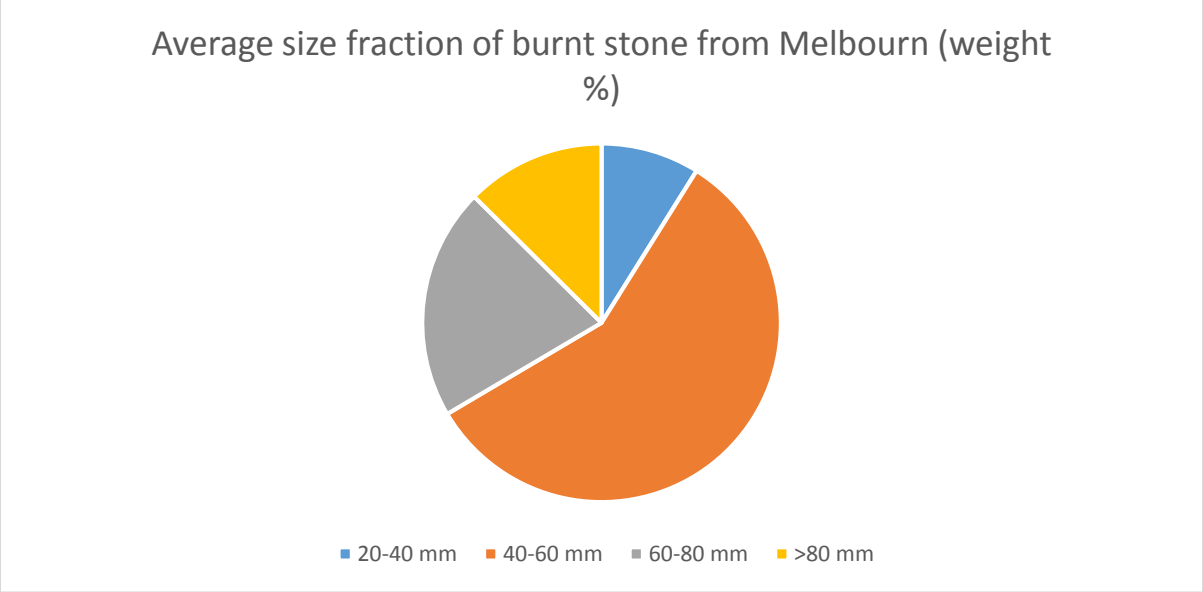

Chart 1: Size fractions of burnt and re-cycled burnt stone (NB most of the stone of average size 20-40mm is Late Neolithic in date)

Context	Count	Weight (kg)	Dimension (mm)	Geology	Comments
304	7	0.068	15-35	diorite(x5) + quartz porphyry + sstn	small frags (av size 20mm) NB diorite as (751) + (1112)
553	8	0.984	20-110	hard micac sstn (x2) + micac sstn w tr fossil (x3) + greensand (x2) + sstn	heavily burnt (red) and cracked
578	3	0.059	25-40	hard micac sstn	cracked frags
583 (a)	1	0.323	80	calcareous sandstone	x1 faceted surface: rubber stone? >WS
583(b)	20	1.187	15-90	soft micac sstn(x6) + hard micac sstn(x3) + sst(x2) + soft sstn + fissile micac sstn + sstn pebble + microdiorite + altered dolerite(x4) + lmstn	v burnt + cracked: evidence for re-fitting pieces of 3-4 cobbles (in situ.?) Av size 40-50mm
668	19	1.223	10-95	dolerite + hard sstn pebble(x3) + fissile micac sstn(x2) + soft micac sstn(x9) + limestone(x3)	v. burnt + cracked with assoc fragments of at least 3 cobbles (av size 50mm)

Context	Count	Weight (kg)	Dimension (mm)	Geology	Comments
751	1	0.016	25	diorite	NB same as (304)
823	1	0.01	25	soft med g sstn	
1069	4	1.997	70-130	calcareous sstn(x2) + sstn + Millstone Grit (Carbonif)? + gneiss	burnt + cracked (average size 85mm)
1112 (a)	28	3.323	20-110	quartz porphyry(x3) + diorite(x2) + fine dolerite(x4) + calcar sstn(x2) + micac sstn(x8) + pale sstn(x2) + BF(calcined)	burnt + cracked with minimum of x5 fragmented cobbles (av size 70 mm)
1112(b)	56	2.375	10-60	quartz porphyry(x4) + diorite(x3) + dolerite(x5) + migmatised granodiorite + micac sstn + greensand + stn	fragments of 3-4 similar broken-up pebbles (av size cracked frag = 40mm) Only x1 complete pebble
1205	1	0.007	25	sstn	
1481	4	0.573	40-70	calcareous sstn (x3) + lmstn	cracked cobbles
1974	3	0.05	20-35	BF (calcined) + unburnt flint sponge fos	
2033 (a)	58	2.809	15-80	diorite + dolerite(x4) + Bunter metaquartzite cobble(x5) + hard micac sstn(x2) + fissile micac sstn + greensand + sstn	burnt + cracked with minimum of x5 fragmented cobbles (av size frag of 45 mm)
2033 (b)	44	1.203	20-60	dolerite(x7) + Bunter metaquartzite + Estuarine Ser sstn(x2) + micac qtz sstn + micac sstn(x15) + sstn calcar sstn	burnt + cracked with minimum of x3 fragmented cobbles (av size frag of 40 mm)

Table 24: Catalogue of burnt stone from New Road, Melbourn

Worked stone

Description

A.4.10 Of key interest amongst the assemblage of burnt stone recovered from the Middle Bronze Age features is the small slab saddlequern made from a local flat sarsen-type erratic cobble. Resembling many pre-Early Iron Age and post-Neolithic querns this possesses a perfectly flat grinding surface which shows evidence of centrally-located polish/wear in contrast to many of the later Iron Age 'keel-type' saddlequerns which exhibit both rotational and directional polish across their side rims and edges. However, in many respects this Middle Bronze Age quern is much closer in form to the Early Iron Age type than to the smaller Early Bronze Age type quern/ grindstones we sometimes find on domestic settlements in the region (see Timberlake in Tabor et al. 2015, 70). It is possible that the other missing (pieces) of this quern are still present, but un-recognizable amongst the fragments of burnt stone found within nearby features. In common with Iron Age saddlequern, this worn or broken Bronze Age quern was then re-cycled for use as burnt stone for the purposes of domestic cooking or water-heating.

A.4.11 The possible rubbing stone from context 583 of Late Neolithic pit **582** appears to be small and little-used, yet this might have functioned as the companion to a small grind stone or saddlequern. It is difficult to be certain of its identity as such, yet one side of this has been ground quite flat over an area of c.16cm^2.

A.4.12 As might be expected, the small fragments of lava quern from this site are only to be found within Roman and later (i.e. postmedieval) features. The presence of this quern within the latter is perhaps due to the very residual nature of this material, and the fact that it is easy to recognize. The largest of the fragments present within these contexts are only barely diagnostic, yet they would appear to be from the rim edges (i.e. the most residual fraction of the querns) of an upper stone in each case, with the

quern from context 486 being the largest (estimated diameter c.360mm) but also the thinnest and most worn at around 28mm thick. These characteristics clearly identify both querns as being Roman, with that from context (366), inside a Roman beam slot, probably being from an *in situ*. accidental deposit. All of this fragmentary quern had been burnt.

Context	Feature	Feature date/ type	Nos. frag	Wt. (kg)	Dimensions (mm)	Geology	Origin	Traces of working	Category/ notes
366	363	Roman beam slot	3	96	(1) 45x50x45 (2+3) 15 mm	basaltic lava	Mayen	rim of worn stone – weathered/ burnt	U/S frag? from Roman rotary hndmill
486 *	485	PM ditch	6	69	(1) 35x40x28 (2) 20x20x23	basaltic lava	Mayen	rim of worn stone – weathered/ burnt	frag U/S of Rom hand mill (est. 360 mm diam)
583a *	582	LN pit	1	0.32	80x80x40	white calc. sstn	glacial erratic	area polish on one side? 50x40mm	small rubber stone for unknown qn?
2161 * [1]	2160	MBA pit	1	1.32	155x135x50	micac. qtz sstn	glacial erratic	flat grind surface with central area polish (90x70 mm)	MBA slab saddlequern (60% surviv) : burnt (BS)
									* = retain, [1] = draw

Table 25: Catalogue of worked stone

Discussion

A.4.13 Somewhat surprisingly, given the intensity of Middle Bronze Age landscapes with their field systems and association of settlement and accompanying palaeo-environmental evidence for grain production within the Cambridge region (see Tabor et al. 2016) there is very little evidence of any querns. This contrasts with the picture for the Iron Age in which discarded saddlequern, oftentimes recycled domestically as burnt stone for the purposes of cooking, is commonplace. At Barleycroft for instance, fragments of discarded saddlequern make up 20% of the very abundant burnt stone assemblage (see Timberlake in Evans & Tabor 2012). Given the abundance of burnt stone and predilection to recycling one might expect the same of the Middle Bronze Age, but this is not the case. This is unusual therefore in that it follows both the style and pattern of the Early-Middle Iron Age.

A.4.14 The Roman trade in lava quern across the North Sea and its import into Roman Britain takes place at the end of the 1st century AD following the preference of the Roman military to carry and use lightweight handmills for the grinding of grain (Watts 2002). However, a growing civilian use and therefore demand for these querns in preference to the more difficult to make and less readily available puddingstone and other beehive-types led to a thriving industry and the import of both finished and unfinished lava blanks for handmills and millstones into the Roman ports of London, Colchester and York from where these were finished and distributed across England, with some of the highest incidence of use in East Anglia. Most of the quarries for these were to be found in the lava field at Mayen in the Eifel region of Germany, where blanks were made and shipped from Andernach on the Rhine to the North Sea, and from there southwards to France and westwards to Britain. The Roman industry continued till at

least the beginning of the 3rd century AD, but from the end of the 2nd century home-made gritstone querns and millstones superseded the production and use of these lava querns in England. The presence at Melbourn of Roman lava quern within a context where it appears to be already old and discarded implies a late (2nd-3rd century AD) date for this, although clearly pottery dating for such a feature would confirm this. The absence of better-preserved examples of such quern is unusual, and in some respects these fragments once again resemble the sort of residual late Roman quern fragments we so often find within Earl Angl-Saxon settlement features.

Statement of potential

A.4.15 The current assessment and discussion is sufficient for inclusion within the grey literature report.

Recommendations for further work

A.4.16 A publication level drawing of the Middle Bronze Age saddlequern which also depicts the area of wear (polish) would be useful. There is no need for any other illustration or analysis of this material.

Recommendations for disposal

A.4.17 All of the burnt stone may be disposed of, and just the saddlequern (2161), possible rubber stone (583) and one of the fragments of lava quern (486) 1 be retained for the finds archive.

A.5 Glass

by Mary Andrews

Summary

A.5.1 One opaque light blue glass annular bead was retrieved from the fill (689) of inner barrow ditch **688** in Area C.

Methodology

A.5.2 The bead was retrieved from the >2mm residue of bulk sample 32 and examined under a binocular microscope. The bead was cleaned with a 50:50 acetone and water solution and perforation cleaned with a cocktail stick.

Description

A.5.3 The bead measures approx. 2mm in diameter with a fine <1mm perforation.

Discussion

A.5.4 Due to the prevalence of blue glass in bead making during the Iron Age to Modern periods 400BC-1900AD dating a single blue bead is problematic (Guido 1978; Guido *et al* 1999). Bronze Age glass beads from Britain have been known in barrow and burial contexts e.g. at Wilsford, Wiltshire (Henderson 1988) however there are at present few examples and none known of this type. In comparison, the bead compares most strongly with the 2mm 'seed' bead type from the Anglo-Saxon cemetery sites such as Hatherdene Close, Cherry Hinton (CHER ECB4258) and North-west Ely (CHER ECB4948). It is therefore more likely to be an intrusive item.

Statement of Potential

A.5.5 The single bead has little potential to contribute to the understanding of the site, particularly as it is a potentially intrusive item.

Recommendation

A.5.6 The bead is well preserved so no further conservation action is required.

A.6 Ceramic Building Material

By Ted Levermore

Introduction

A.6.1 Archaeological work recovered 11 fragments, 345kg, of ceramic building material (CBM). This assemblage comprised mostly tile fragments which could only be attributed broadly to the medieval to post-medieval periods. A single fragment of brick, possibly a fireplace brick was also recovered. This material was heavily abraded and largely non-diagnostic.

Methodology

A.6.2 The assemblage was quantified by context, fabric and form and counted and weighed to the nearest whole gram. Width, length and thickness were recorded where possible. Woodforde (1976) and McComish (2015) formed the basis of reference material for identification and dating. Ryan (1996) was consulted for the Essex and East Anglian brick forms, fabric descriptions and suggested date ranges. The quantified data and fabric descriptions are presented on an Excel spreadsheet held with the site archive.

Results of Analysis

Fabrics

A.6.3 Three fabrics were recorded from this small assemblage. The fabrics recorded were all typical CBM recipes, with preferences towards large and unsorted inclusions in the earlier forms and refined fabrics for the later post-medieval and early modern material. Full fabric descriptions can be found with the site archive.

Assemblage

A.6.4 The ceramic building material was collected from Areas B and C from Period 3 (Roman) and 5 (Post-medieval) features.

Area B

Period 3 (Roman)

A.6.5 Probable beamslot **363**, produced two heavily abraded fragments of CBM. A flat tile fragment (18g) in an orange sandy fabric with fine to coarse quartz and grog/clay pellet inclusions. It is ½ inch thick which suggests it is probably medieval to post-medieval in date. The second fragment was a very small piece of undiagnostic material (1g; in a purplish sandy fabric). It is probably a later form, i.e. post-medieval to modern.

Period 5 (Post-medieval)

A.6.6 The hollow way, master number **320**, produced a single fragment of 1½ inch brick (58g). It was made in a yellow-grey silty fabric with few inclusions. One face is heavily sooted, with some reduction within the core, and the other is roughly finished. The fragment is very abraded so no other aspect of its original form is clear. Judging by the sooting, it may have been a 'clinker-type' brick (Ryan 1996; Smith 2001) used as a firebrick or part of a fireplace. Ditch **350** produced an undiagnostic fragment (1g) of CBM made in an orange sandy fabric. No date could be assigned.

Area C

Period 5 (Post-medieval)

A.6.7 Pit **584** generated six fragments of a peg tile (265g). These were made in a soft sandy orange fabric, similar to the fabrics found in Area B. The tile was finely sanded on its base and edges with a wiped upper surface. The remnant peghole was squared. Although the fabric is reminiscent of an earlier date, i.e. Roman, the form and thickness (1/2 inch) suggest it is probably medieval or post-medieval in date.

Discussion

A.6.8 The material recovered from Areas B and C is heavily abraded and fragmentary. There is little that can be drawn from the presence of this material, it is likely to have been brought to the site – or moved around the site – by agricultural processes. It represents little more than background noise in the archaeological landscape.

Statement of Potential

A.6.9 The assemblage is of little archaeological significance.

Recommendations for Further Work

A.6.10 This material has been fully recorded. It should be considered for discard.

A.7 Fired Clay

Introduction

A.7.1 Archaeological work recovered 5 fragments, 70g, of fired clay. This assemblage comprised amorphous pieces with no discernible features. Three fragments of a chalky baked clay were recovered from a Neolithic pit; they show evidence of only light heat exposure. Generally, this material was heavily abraded and non-diagnostic.

Methodology

A.7.2 The assemblage was quantified by context, fabric and form and counted and weighed to the nearest whole gram. Width, length and thickness were recorded where possible. The quantified data and fabric descriptions are presented on an Excel spreadsheet held with the site archive.

Results of Analysis

Fabrics

A.7.3 Three fabrics were recorded from this small assemblage. All fabrics could be considered as deriving from local clays with little to no paste preparation. Full fabric descriptions can be found with the site archive.

Period 1.1 (Early Neolithic)

A.7.4 Contexts 369.1 from hollow **354** produced a single fragment (3g) of amorphous fired clay, made in a dense sandy clay with scant calcareous flecks.

A.7.5 Context 342.1 from the same hollow produced a small silty blob of fired clay (1g). It was yellow-orange with no visible inclusions and severely abraded.

Period 1.2 (Late Neolithic)

A.7.6 Neolithic Pit **540** (fills 553 and 554), produced three fragments (66g) of lightly fired or baked clay. This silty clay contained poorly sorted fine to coarse rounded calcareous pellets. The fragments each were whitish-grey with a darkened grey surface. The fragments were rounded and abraded and so the original form could not be identified. It may be that these fragments were daub or some other covering, which had little heat exposure during its use-life.

Discussion

A.7.7 The material recovered is heavily abraded and fragmentary. There is very little that can be drawn from the assemblage in sum or individually.

Statement of Potential

A.7.8 The assemblage is of little archaeological significance.

Recommendations for Further Work

A.7.9 This material has been fully recorded. It should be considered for discard.

Appendix B ENVIRONMENTAL ASSESSMENTS

B.1 Human skeletal remains

By Natasha Dodwell

Introduction

B.1.1 An Early Bronze Age unurned cremation deposit (Pit **652**) was identified in Area B and, an immature tightly flexed Early Bronze Age burial, skeleton 659 (grave **568**), was recorded within Barrow 2 in Area C. This juvenile was buried on their right side, in a shallow grave holding a plano-convex flint knife in their right hand. In addition, disarticulated human bone was recovered from Early Neolithic natural hollow contexts (fills 651.3 and 651.4 of hollow **648**).

Methodology

B.1.2 Excavation, processing and analysis of the cremation was carried out in accordance with published guidelines (Brickley and McKinley 2004). All soil from the feature was collected and wet sieved. The residues were separated into three fractions; >10mm, 5-10mm and 2-5mm and, in line with Oxford Archaeology burials guidelines only a fraction (one quarter) of the 2-5mm residue, was sorted. The total bone weight presented here for the 2-5mm fraction has been extrapolated from this representative sample (* in Table 26).

B.1.3 A skeletal inventory was compiled for the immature, crouched inhumation. Cortical bone preservation was recorded using the scale devised by McKinley (Brickley and McKinley 2004,16 fig. 16) and the age of the individual was determined by the stage of epiphyseal union, diaphysis length (methods summarised in Schaefer *et al* 2009) and the stage of dental development and eruption (Ubelaker 1989).

Preservation of the Material

B.1.4 The pit containing cremated bone (**652**) was 0.28m deep; although rare small fragments of bone were visible on the surface of the feature the concentration of bone at the base of the pit (653) suggests that almost all of the bone originally deposited was excavated and analysed.

B.1.5 The immature flexed Early Bronze Age skeleton is 75% complete; the skull is fragmentary, the dentition is present, the thorax is poorly preserved/absent and, although many of the loose epiphyses are missing, the long bone diaphyses are complete. The cortical is extremely eroded, grade 5 masking any putative pathological changes.

Results

Cremation Burial 652

B.1.6 A total of 875 g of cremated bone was recovered from cut **652** (Table 26). The majority of the bone, 716g, was recovered from a concentration at the base/centre of the pit, 653 which could suggest that it was originally contained within an organic container, such as a bag or basket.

Context	Largest frag (mm)	Weight (g) >10mm	Weight (g) 5-10mm	*Weight (g) <5mm	Total weight (g)	comments
653	59.43	333	225	158	716	Concentration of bone in pit
654	44.61	35	25	5	60	Includes poorly fired femur shaft
655	49.32	59	0	0	59	Includes poorly fired femur shaft
656	19.33	7g	33g	0	40	
Total		**434**	**283**	**158**	**875**	

*Table 26: Weight of human bone and degree of fragmentation from cremation pit **652***

B.1.7 Based on the general size and robustness of the fragments and the lack of duplicated elements the cremated bones derive from a single adult.

B.1.8 The vast majority of fragments are limb shafts; only two fragments of skull, three teeth and three phalanges were identified. Whilst the missing elements could have been truncated, it is more likely that deliberate selection/exclusion of body parts occurred either during collection from the pyre site or prior to burial. The weight of bone collected also suggests that only a proportion of the body was interred; experiments in modern crematoria have shown that the weight range of cremated bone >2mm from an adult cremation is c.1000-2400g, with an average of c.1650g (McKinley 1993).

B.1.9 The largest bone fragment was 59.43mm and the majority of fragments were recovered from the >10mm fraction. This is typical of cremation burials of this period.

B.1.10 Whilst the majority of the fragments were a buff white colour, indicative of complete oxidisation and high pyre temperatures (>800◦ C) fragments of femur shaft were hardly burnt, being a light tan/brown colour with patches of black charring. The colour of cremated bone reflects the temperature to which that bone has been exposed and this will vary depending on the duration of the cremation process and the extent to which a bone is shielded from direct exposure to heat, either by thick layers of soft tissue or by its position on the pyre (Walker *et al* 2008). The femoral diaphysis/thigh is covered by a large amount of soft tissue and is one of the last parts of the skeleton to be exposed to direct heat (Symes et al 2008 figs. 2.7 and 2.8); it is also possible that the position of the body on the pyre (possibly tightly crouched) and/or over-enthusiastic tending of the pyre may have meant that that the upper leg lay away from, or fell away from direct heat.

B.1.11 A sample of the cremated bone was dated to 2141-1945 cal BC (95.4%) (SUERC-78748).

*Inhumation Burial **568***

B.1.12 Long bone lengths and the stage of epiphyseal union give an age at death of between 8-11 years for the immature Early Bronze Age inhumation. This corresponds with the age at death determined by the stage of dental development and eruption which is 10 years±30months.

B.1.13 Bone from the skeleton was dated to 1922-1742 cal BC (94.3%) (SUERC-78747).

Disarticulated Remains

B.1.14 Disarticulated human bone was recovered from a periglacial hollow and a Middle Bronze Age Well and osteological details are summarised in the Table 27 and described

in more detail below. There was insufficient collagen to provide dates for the bones from hollow **648**.

Context	Cut	Feature type	Element	Cortical bone erosion grade
651.3	**648**	Hollow	Adult parietal and mandible	3-4
651.4	**648**	Hollow	Adult occipital bone, forearm shaft	3-4
912??	**908**	Well	Left adult humerus shaft	2-3

Table 27: Disarticulated Human Remains

B.1.15 A single fragment of adult parietal (30x20mm, 3g) was recovered from fill 651.3 in Hollow **648**. In addition, a fragment of mandible (34mm x 8mm, 1g) with some evidence of tooth sockets was recovered.

B.1.16 Seven refitting fragments of adult occipital bone measuring approximately 62.75mm x 46.5mm once refitted were recovered from the 4th spit of the hollow, 651.4. The portion of the skull (18g) is the superior part of the occipital with parts of both the left and right occipital suture. The cortical bone has patches of iron staining and is etched by insects/rootlets on both sides (ecto and endocranial). The refitting breaks are fresh and ancient. In addition to the skull fragment, several small scraps of unidentifiable limb shaft were recovered (4g). The longest measured 32.50mm but the rest were far smaller. The thickness of the cortical bone suggests that they derive from the forearm.

B.1.17 The bones from hollow **648** represent a minimum of one individual, potentially a disturbed inhumation, washed in to the hollow.

B.1.18 A left adult humerus shaft, measuring 254mm and, exhibiting ancient post mortem breaks at both the proximal and distal ends was recovered from 912, a Middle Bronze Age well (**908**).

Recommendations for further work

B.1.19 No further work needs to be undertaken on the bones themselves, all have been fully recorded. However, the burials and the disarticulated human bone need to be discussed with reference to contemporary features within the site and the archaeology of the surrounding landscape.

B.2 Animal bone

By Hayley Foster

Introduction and Methodology

B.2.1 The assemblage was of a medium size, 46.24kg of bone from hand collection and 1.0kg from environmental samples, 18kg of which were identifiable to element and species. The number of recordable fragments totalled 444 from hand collection and 28 fragments from environmental samples. Material was recovered via hand-collection and from environmental samples. Animal bone was recovered from a variety of features including pits, ditches, wells and hollows. The species represented includes cattle (*Bos taurus*), sheep/goat (*Ovis/Capra*), horse (*Equus caballus*), pig (*Sus scrofa*), dog (*Canis familiaris*), roe deer (*Capreolus capreolus*), red deer (*Cervus elaphus*), crane (*Gruidae*), elk (*Alces alces*), frog (*Anura sp.),* and vole (*Microtus arvalis*). Animal bone was recovered from phases belonging to the Neolithic (1.1 and 1.2), Bronze Age (2.1, 2.2), 7th-8th Century (4) and Post-Medieval (5).

B.2.2 The method used to quantify this assemblage was based on that used for Knowth by McCormick and Murray (2007) which was modified from Albarella and Davis (1996).

B.2.3 Identification of the faunal remains was carried out at Oxford Archaeology East. References to Hillson (1992), Schmid (1972), von den Driesch (1976) and Cohen & Serjeantson (1996) were used where needed for identification purposes.

Results of Analysis

Period 1.1: Earlier Neolithic

B.2.4 The assemblage is in poor-moderate condition with high levels of fragmentation. The material, particularly from the earlier contexts exhibited severe surface weathering.

B.2.5 The faunal material from the hollow deposits from the Early to Middle Neolithic (phase 1.1) were of particular interest as several cattle remains almost certainly belonged to wild cattle. These bone fragments were noticeably larger and more robust whereas other cattle remains were typical in size to those belonging to domestic cattle. Red deer and roe deer were represented exclusively by antler fragments. There was no evidence of butchery on the antler fragments, however it appears tines were snapped off in some instances. One red deer antler fragment was shed and then recovered, as was the roe deer antler. All the remains from this phase were in a poor condition, showing signs of severe weathering, indicating the likelihood that remains were left on the surface for a period of time before burial. Cattle elements consisted predominantly of elements belonging to the head and feet, which would be consistent with disposal of butchery waste. There was limited ageing data for any of the specimens recovered from this phase, only a cattle mandible aged to 40-50 months of age at death. The majority of long bones contained fused epiphyses except for an unfused distal cattle humerus, indicating an animal less than 12-18 months of age at death.

Species	NISP	NISP%	MNI	MNI%
Cattle	41	73.2	3	42.9
Aurochs	5	8.9	1	14.3
Roe Deer	1	1.8	1	14.3
Red Deer	4	7.1	1	14.3
Pig	5	8.9	1	14.3
Total	**56**	**100**	**7**	**100**

Table 28: Number of identifiable fragments from hand-collection from Period 1.1: Earlier Neolithic

Species	NISP
Frog	1
Vole	1
Sheep/goat	1
Total	**3**

Table 29: Number of identifiable fragments from environmental samples from Period 1.1: Earlier Neolithic

Period 1.2: Later Neolithic

B.2.6 The faunal material from the later Neolithic came exclusively from Grooved Wear pits. Much like the previous phase group, there were fragments of cattle that could be categorised as aurochs due to their larger size. Pit **577**, contained radii belonging to wild cattle and domestic cattle. Antler belonging to roe deer, red deer and elk were

recovered from this pit group. The elk antler fragment came from pit **665**, along with the roe deer antler fragments. The roe deer antler fragments were shed and collected**.** The red deer antler recovered from pits **2030** and **582**, included a large piece of antler beam and a piece that has been shed and several tines snapped off. Pig remains from pit **665**, may potentially belong to wild boar as they also appear large and robust. Ageing data indicates pigs ranged in ages from 7 months to over 30 months of age at death according to dental wear and epiphyseal fusion data. Three cattle (one of which is aurochs) proximal femora contained unfused epiphyses indicating specimens less than 3.5 years of age at death.

Species	NISP	NISP%	MNI	MNI%
Cattle	65	48.1	4	33.3
Aurochs	5	3.7	1	8.3
Red Deer	4	3.0	1	8.3
Elk	1	0.7	1	8.3
Roe Deer	2	1.5	1	8.3
Sheep/Goat	1	0.7	1	8.3
Pig	57	42.2	3	25.0
Total	**135**	**100**	**12**	**100**

Table 30: Number of identifiable fragments from hand-collection from Period 1.2: Later Neolithic

Species	NISP
Sheep/Goat	3
Cattle	4
Pig	3
Total	**10**

Table 31: Number of identifiable fragments from environmental samples from Period 1.2: Later Neolithic

Period 2 Bronze Age Well assemblages

B.2.7 Animal bone was recovered from well/waterhole **908**. Cattle remains consisted of the greatest number of elements from the fill of well **908**. The element representation reveals that the majority of the elements recovered from this feature are cranial and foot elements. However, there was still a small presence of scapulae, radii, tibiae, humeri, pelves and metapodia. An unfused sheep/goat pelvis was recovered indicating an animal less that 6-10 months, and a cattle unfused tibia, indicating an animal less than 24-30 months of age, were found in this phase. One sheep/goat mandible could be assessed for ageing which aged as adult. The bone was in fair to good condition, a noticeably better condition than the early dated material. There was a single sheep/goat fragment from environmental samples from this phase.

Species	NISP	NISP%	MNI	MNI%
Cattle	32	69.6	3	42.9
Sheep/Goat	8	17.4	2	28.6
Pig	1	2.2	1	14.3
Dog	5	10.9	1	14.3
Total	**46**	**100**	**7**	**100**

*Table 32: Number of identifiable fragments from hand-collection from Bronze Age Well **908***

B.2.8 Well **1977** was radiocarbon dated to the Middle Bronze Age (refinement of phasing relative to well **908** is pending forthcoming radiocarbon dates). It produced the

greatest amount of faunal material from the Bronze Age features. This pit again contained more cattle than any other species. Dog made up 21 fragments yet remains likely belong to one individual animal that was discarded in this pit. Element representation indicates that for cattle mainly cranial and foot elements (including metapodia) were recovered. Cattle ageing data shows a presence of animals 2.5 year to 4 years of age at time of death. Fusion data indicates the presence of younger cattle, less than 1-1.5 years of age. Three sheep/goat distal metatarsals contained unfused epiphyses indicating a presence of animals less than 18-28 months of age.

Species	NISP	NISP%	MNI	MNI%
Cattle	44	58.7	4	40
Horse	2	2.7	1	25
Red Deer	2	2.7	1	25
Sheep/Goat	4	5.3	2	50
Pig	2	2.7	1	25
Dog	21	28	1	25
Total	**75**	**100**	**10**	**100**

*Table 33: Number of identifiable fragments from Middle Bronze Age Well/pit **1977***

Period 2 Bronze Age: Other wells and pits

B.2.9 Table 34, below, depicts the other Bronze Age wells: **1197**, **1167**/**1220** (recut); and pits: **1973**, **2026**, **471** and **835** (not including pit **1888**, which will be looked at separately). Cattle remains dominated the fills of all the pits. Cattle remains were dominated by head and foot elements, suggesting primary butchery waste, however there was a presence of front and rear limb bones recovered. Ageing data reveals the presence of cattle less than a year of age up to over 4 years of age. A single tarso-metatarsus belonging to a crane was recovered from well **1167**.

Species	NISP	NISP%	MNI	MNI%
Cattle	40	67.8	2	28.6
Sheep/Goat	11	18.6	1	14.3
Bird (crane)	1	1.7	1	14.3
Red Deer	1	1.7	1	14.3
Pig	3	5.1	1	14.3
Dog	3	5.1	1	14.3
Total	**59**	**100**	**7**	**100**

Table 34: Number of identifiable fragments from Bronze Age pits and wells

B.2.10 Pit **1888** contained only cattle remains, except one fragment of sheep/goat from hand-collection. The bone was in good condition and fragmentation was moderate. All long bone fragments contained fused epiphyses except one unfused proximal tibia, indicating an animal aged 24-30 months at death.

Species	NISP	NISP%	MNI	MNI%
Cattle	38	97.4	4	80
Sheep/Goat	1	2.6	1	20
Total	**39**	**100**	**5**	**100**

*Table 35: Number of identifiable fragments from hand collection from pit **1888***

Species	NISP
Cattle	1
Frog	1
Total	**2**

*Table 36: Number of identifiable fragments from environmental samples from pit **1888***

Period 2 Bronze Age Ditches

B.2.11 Bronze Age ditches include those dating to Period 2.2 (Enclosure ditch **817**, slots **899**, **871**, **1074**, **1563**, **1975**) and to Period 2.1: Early Bronze Age (Barrow 2, slots **835** and **752**). All remains were cranial elements, except two cattle humeri. One sheep/goat mandibular third molar could be identified as mature for ageing purposes.

Species	NISP	NISP%	MNI	MNI%
Cattle	8	57.1	1	25
Sheep/Goat	4	28.6	1	25
Pig	1	7.1	1	25
Dog	1	7.1	1	25
Total	14	100	4	100

Table 8: Number of identifiable fragments from Bronze Age ditches.

Period 4: 7th-8th Century

B.2.12 There was a single fragment from the 7th-8th Century AD, which was a cattle humerus from ditch **891** and four fragments of frog from well **1484**.

Period 5: Post-medieval

B.2.13 The post-medieval bone mainly consists of juvenile pig remains, from posthole **811**. The remains are in good condition with low fragmentation.

Species	NISP	NISP%	MNI	MNI%
Cattle	4	20	1	25
Horse	2	10	1	25
Sheep/Goat	2	10	1	25
Pig	12	60	1	25
Total	**20**	**100**	**4**	**100**

Table 37: Number of identifiable fragments from post-medieval features.

Summary

B.2.14 There were a small number of taphonomic changes present in the form of butchery, burning and gnawing. The degree of weathering mentioned above, is severe in the earliest Neolithic phases, reflecting the potentially residual nature of the material, in colluvial fills. Butchery was noted on three identifiable fragments and on several large mammal rib fragments.

B.2.15 At Melbourn, domestic mammals were the mainstay of the food economy, with cattle remains being the most well represented species. Pigs were also well represented in Periods 1.1 (Earlier Neolithic) and 5 (Post-medieval).

B.2.16 This assemblage has the expected range of domestic animals present for the time periods and highlights their exploitation, mostly for meat, which is apparent from the trends in the age of slaughter. The exploitation of wild species such as aurochs and deer is of particular significance as it provides evidence that the practices of hunting and craftworking were carried out.

Statement of Potential

B.2.17 The faunal assemblage from Melbourn is significant due the frequency of wild species present. The amount of aurochs remains recovered would be considered a 'significant concentration' for Cambridgeshire. The fragment of elk antler is also noteworthy as the literature suggests that elk remains have not been recovered from Cambridgeshire faunal assemblages and were previously thought to be extinct in southern Britain by the Late Neolithic.

B.2.18 As the assemblage contains consecutive phases of occupation with an ample amount of faunal data, it would provide a good deal of insight into the human-animal interaction and understanding into the life and landscape of the area particularly during the Neolithic and Bronze Age periods.

Recommendations for Further Work

Description	Performed by	Days
Take measurements and complete full recording	Hayley Foster	2.0
Writing of report	Hayley Foster	2.5

Retention, Dispersal and Display

B.2.19 It is recommended that the assemblage be retained as it can add to the regional picture of diet and husbandry practices in Cambridgeshire. The Neolithic remains, specifically the elk antler and aurochs remains are particularly of interest as they are rare finds for the region.

B.3 Environmental Samples

Introduction

B.3.1 Approximately 200 bulk samples were taken from features within the excavated areas A, B and C. Samples were taken for the recovery of plant, pollen and mollusc remains through bulk, series and monolith samples. The purpose of this assessment is to determine whether plant remains are present, their mode of preservation and whether they are of interpretable value with regard to domestic, agricultural and industrial activities, diet, economy and rubbish disposal.

Methodology

B.3.2 The samples were processed by tank flotation using modified Siraff-type equipment for the recovery of preserved plant remains, dating evidence and any other artefactual evidence that might be present. The floating component (flot) of the samples was collected in a 0.3mm nylon mesh and the residue was washed through 10mm, 5mm, 2mm and a 0.5mm sieve. A magnet was dragged through each residue fraction for the recovery of magnetic residues prior to sorting for artefacts. Any artefacts present were noted and reintegrated with the hand-excavated finds.

B.3.3 The dried flots were subsequently sorted using a binocular microscope at magnifications up to x 60 and an abbreviated list of the recorded remains are presented in Tables 1- 8. Identification of plant remains is with reference to the Digital Seed Atlas of the Netherlands (Cappers et al. 2006) and the authors' own reference collection. Nomenclature is according to Zohary and Hopf (2000) for cereals and Stace

(2010) for other plants. Carbonized seeds and grains, by the process of burning and burial, become blackened and often distort and fragment leading to difficulty in identification. Plant remains have been identified to species where possible. The identification of cereals has been based on the characteristic morphology of the grains and chaff as described by Jacomet (2006).

Quantification

B.3.4 For the purpose of this assessment, items such as seeds and cereal grains have been scanned and recorded qualitatively according to the following categories:

= 1-5, ## = 6-25, ### = 26-100, #### = 100+ specimens

B.3.5 Items that cannot be easily quantified such as charcoal and molluscs have been scored for abundance

+ = rare, ++ = moderate, +++ = abundant

Results

B.3.6 Preservation of plant remains is poor with only occasional exceptions where carbonised remains are present. Charcoal volumes are low. Snail shells are frequent in all of the samples with moderate to good preservation.

Undated deposits

B.3.7 Occasional charred plant remains were recovered from samples from undated features in Area C. A fragment of pea was also recovered from fill 719 of pit **715**.

B.3.8 Charcoal is notably absent from all samples.

Sample	Context	Cut	Area	Feature Type	% context sampled	Area	Volume processed (L)	Flot Volume (ml)	Flot comments	Pottery	Small mammal bones	Large mammal bones
93	907	906	A	Pit/natural feature	<20	A	12	5		0	0	0
190	1969	1888	A	Pit (RC date forthcoming)	25	A	20	130		0	#	#
44	719	715	C	Pit	<25	C	12	2	fragment of pea	0	0	0
43	731	730	C	Pit	<25	C	14	6		0	0	0

Table 38: Environmental samples from undated deposits

Period 1.1: Earlier Neolithic

B.3.9 Samples taken from natural hollows **345** and **572** did not contain any preserved remains. Occasional charred grains, mostly as single specimens, were recovered from natural hollows **357** and **613.** Single specimens of a wheat (*Triticum* sp.) grain, a pea and a bean (Fabaceae) were present in natural hollow **648**. The provenance of single items is tenuous and they could possibly be modern intrusions.

Sample	Context	Cut	Area	Feature Type	Volume processed	Flot Volume (ml)	Cereals	Hazelnut shell	Charcoal	Flot comments	Pottery	Small mammal	Large mammal	Marine molluscs	Burnt flint	Worked flint	Flint debitage
50	761	345	B	Natural hollow	1	2	0	0	0		0	0	0	0	0	0	0
51	761	345	B	Natural hollow	1	2	0	0	0		0	0	0	0	0	0	0
52	762	345	B	Natural hollow	1	2	0	0	0		0	0	0	0	0	0	0
53	762	345	B	Natural hollow	1	2	0	0	0		0	0	0	0	0	0	0
54	763	345	B	Natural hollow	1	5	0	0	0		0	0	0	0	0	0	0
55	763	345	B	Natural hollow	1	1	0	0	0		0	0	0	0	0	0	0
18	436	357	B	Natural Hollow	22	2	#	0	0	2 x indet grain	0	##	##	##	0	0	0
17	436	357	B	Natural Hollow	32	1	0	0	0		#	0	#	0	0	0	#
16	436	357	B	Natural Hollow	33	1	#	0	0	indet grain fragment	#	#	#	0	0	0	##
11	576	572	B	Natural Hollow	16	10	0	0	0		#	0	#	0	0	0	0
12	575	572	B	Natural Hollow	17	20	0	0	+		0	0	##	0	0	0	##
63	696	613	B	Natural hollow	1	2	0	0	0		0	0	0	0	0	0	0
64	696	613	B	Natural hollow	1	1	#	0	+	1 x wheat grain	#	0	#	0	0	0	0
65	696	613	B	Natural hollow	1	3	0	0	0		0	0	+	0	0	0	0
66	696	613	B	Natural hollow	1	5	0	0	+		0	0	0	0	0	0	0
67	696	613	B	Natural hollow	1	1	0	0	0		0	0	0	0	0	0	0
68	696	613	B	Natural hollow	1	1	0	0	0		0	0	0	0	0	0	0
23	640	613	B	Natural Hollow	8	4	0	0	0		0	#	0	0	0	0	0
22	640	613	B	Natural Hollow	16	10	0	0	0		0	0	#	0	0	0	0
24	640	613	B	Natural Hollow	16	5	0	0	0		0	0	0	0	0	0	0
21	640	613	B	Natural Hollow	17	3	0	0	+		#	#	#	0	0	#	0
76	649	648	C	Natural hollow	20	2	0	0	0		0	0	#	0	0	0	0
77	649	648	C	Natural hollow	15	2	0	0	0		0	0	#	0	0	0	0
78	650	648	C	Natural hollow	15	2	0	0	0	1 x pea	0	0	##	0	0	0	0
79	650	648	C	Natural hollow	30	2	0	0	0	1 x bean fragment	0	0	0	0	0	0	0
80	790	648	C	Natural hollow	-	C	2	1	0	1 x wheat grain	#	0	##	0	0	0	#

Sample	Context	Cut	Area	Feature Type	Volume processed	Flot Volume (ml)	Cereals	Hazelnut shell	Charcoal	Flot comments	Pottery	Small mammal	Large mammal	Marine molluscs	Burnt flint	Worked flint	Flint debitage
198	1984	1493	A	Natural hollow	8	5	#	0	0	1 x wheat grain	0	0	#	0	0	0	0

Table 39: Environmental samples from Period 1.1: Earlier Neolithic

Period 1.2: Early-Middle to Late Neolithic

B.3.10 Samples were taken from pit fills within Areas A, B and C. Most of the pits contained burnt flint and charcoal was evident in some of the fills as evidence of the burning of wood. Charcoal has not been well-preserved and volumes are low so the potential for species identification is poor.

B.3.11 Fill 384 of early-Middle Neolithic pit **383** contains 21 wheat grains that are most probably emmer wheat. Charred hazelnut shells occur in five Late Neolithic pits and are most common in pit **540** in Area B, although the fragments of shells do not represent more than a few nuts.

B.3.12 Samples taken from pit **301** produced occasional charred grains of wheat along with charred hazelnut (*Corylus avellana*) shell. The residues contained burnt and worked flints, animal bone and fragments of pottery. Hazelnuts would have been an important wild food resource in the Neolithic period and their burnt shells are frequently recovered from Neolithic pits. The shells are the product of consumption that, if burnt, survives well in archaeological deposits which partly explains their frequent recovery (Jones 2000, 80). It is probable that the shells were discarded into a fire that had subsequently been swept up and deposited in the pit although the charcoal content of the samples is low. It is also possible that they were a deliberate ritual inclusion. The charred wheat grains are too poorly preserved for identification to species. Einkorn (*T. monococcum*) and emmer (*T. dicoccum*) were the first wheat varieties to be cultivated in Britain. The recovery of these grains together with charred hazelnuts suggests they are contemporary.

Sample	Context	Cut	Area	% context sampled	Volume processed	Flot Volume (ml)	Cereals	Hazelnut shell	Charcoal	Flot comments	Pottery	Small mammal	Large mammal	Burnt flint	Flint debitage
1	302	301	B	<40	10	2	#	#	+	2 x wheat grains, 1 x indet grain	0	0	#	0	#
3	304	301	B	<50	16	12	0	0	0		##	0	#	#	#
2	303	301	B	50	18	2	#	##	+	1 x wheat grain	0	#	#	#	#
199	2033	2030	A	15	18	40	0	0	++		##	#	##	#	###
4	356	354	B	>25	8	1	0	0	+		0	0	0	0	#
5	355	354	B	>25	16	2	0	0	0		0	0	0	0	#
6	384	383	B	100	17	15	#	#	0	21 x wheat grains, 1 x indet grain	#	0	0	0	0

Sample	Context	Cut	Area	% context sampled	Volume processed (L)	Flot Volume (ml)	Cereals	Hazelnut shell	Charcoal	Flot comments	Pottery	Small mammal bone	Large mammal bone	Burnt flint	Flint debitage
7	435	433	B	50	14	5	0	0	0		+	0	0	0	0
25	554	540	B	<5%	18	10	0	##	0		0	0	+	0	0
14	578	577	C	<10%	16	20	0	#	+		#	#	#	0	###
13	583	582	C	50%	18	14	0	0	+		0	0	#	0	#
26	660	659	C	30%	6	4	0	0	+		0	0	++	0	###
27	668	665	C	30%	20	45	0	#	+		0	0	#	0	###
36	670	669	C	50%	9	2	0	0	0		0	0	0	0	##
37	671	669	C	50%	10	10	0	0	0		0	0	0	#	#
35	672	669	C	50%	17	5	0	0	+		0	0	#	0	##
38	676	673	C	50%	9	4	0	#	+		0	0	0	0	###
39	675	673	C	50%	9	2	0	0	0		0	0	0	0	#
40	674	673	C	50%	9	4	0	0	0		0	0	0	0	#

Table 40: Environmental samples from Period 1.2

Period 2.1: Early Bronze Age

B.3.13 Human skeletal remains were recovered (in addition to the hand excavated bone) from samples from grave **568** and cremation **652** in Area C.

B.3.14 Charred plant remains were present in cremation 652 include two sloe (*Prunus spinosa*) stones and a single indeterminate cereal grain. Charcoal was absent from the cremation deposits suggesting that the calcined bone had been carefully picked out of the pyre although the presence of the burnt sloe stones indicates that charred plant remains were also collected and it is possible the charcoal hasn't been preserved while the tougher sloe stones have.

B.3.15 Neither of the barrows contain preserved plant remains other than sparse charcoal from Barrow 2 in Area C. A 2mm blue translucent glass 'seed' bead was recovered from the residue of fill 689 from the inner ditch (**688**) of Barrow 2

Sample	Context	Cut	Area	Feature type	Volume processed (L)	Flot Volume (ml)	Cereals	Hazelnut shell	Sloe stones	Charcoal	Flot comments	Pottery	Human skeletal remains	Burnt flint	Flint debitage
110	1079	1078	A	Barrow 1 ditch	10		0	0	0	0		#	0	0	0
114	1086	1085	A	Barrow 1 ditch	9	2	0	0	0	0		0	0	0	0
116	1090	1089	A	Barrow 1 ditch	9	2	0	0	0	0		0	0	0	0
118	1093	1092	A	Barrow 1 ditch	9	15	0	0	0	0		0	0	0	0
10	569	568	C	Grave, burial 569	5	6	0	0	0	0		0	++	0	0

Sample	Context	Cut	Area	Feature type	Volume processed (L)	Flot Volume (ml)	Cereals	Hazelnut shell	Sloe stones	Charcoal	Flot comments	Pottery	Human skeletal remains	Burnt flint	Flint debitage
9	569	568	C	Grave, burial 569	8	5	0	0	0	0		0	++	0	0
28	653	652	C	Cremation	4	2	0	0	0	0		0	+++	0	0
29	654	652	C	Cremation	8	2	0	0	0	0		0	++	0	#
30	655	652	C	Cremation	8	1	#	#	0	0	1 x indet grain	0	++	0	0
31	656	652	C	Cremation	8	5	0	0	#	0	2 x charred sloe stones	0	++	0	#
32	689	688	C	Barrow 2 inner ditch	19	30	0	0	0	0		0	0	#	0
41	704	703	c	Barrow 2 outer ditch	18	10	0	0	0	0		0	0	0	#
47	753	752	c	Barrow 2 inner ditch	20	40	0	0	0	0		0	0	0	0
48	754	752	c	Barrow 2 inner ditch	20	20	0	0	0	0		0	0	0	#
49	756	755	c	Barrow 2 outer ditch	18	45	0	0	0	0		0	0	0	0
58	777	775	C	Barrow 2 inner ditch	20	15	0	0	0	+		0	0	0	#
59	780	778	C	Barrow 2 outer ditch	19	5	0	0	0	0		0	0	0	#
84	836	835	C	Barrow 2 outer ditch	4	15	0	0	0	+		0	0	0	0

Table 41: Environmental samples from Period 2.1

Period 2.2: Middle Bronze Age

B.3.16 Period 2.2 samples are all from Area A. Samples from features associated with roundhouses are mostly devoid of preserved plant remains other than two charred cereal grains from a possible hearth (**1111**) within roundhouse Structure 1095.

B.3.17 The only significant preserved plant remains are from well/watering hole **908**. Samples were taken from five of the fills with well-preserved charred remains most abundant in middle fills 1196 (Sample 129) and 911 (Sample 94). The assemblages from both fills is very similar and is likely to represent the same depositional event. Charred wheat grains are frequent with occasional barley (*Hordeum vulgare*) grains. Cereal chaff is absent. Charred seeds are frequent and include wetland plants such as sedges (*Carex* spp.) and rushes (*Juncus* sp.) in addition to seeds of plants that represent either pasture including ribwort plantain (*Plantago lanceolata*), grasses (Poaceae), knotgrass (*Polygonum aviculare*), poppy (*Papaver* sp.), clover/medick (*Trifolium/Medicago* sp.), tubers (cf. *Arrhenatherum elatius* subsp. *bulbosus*), goosefoots (*Chenopodium* sp.) and seeds of weeds that may have been growing amongst the wheat crop such as bromes (*Bromus* sp.) and black bindweed (*Fallopia convolvulus*).

B.3.18 The only other deposit from Period 2.2 to produce charred plant remains was pit **1973** from Area A which contained three charred cereal grains.

Sample	Context	Cut	Function	Feature Type	Volume processed (L)	Flot Volume (ml)	Cereals	Weed Seeds	Wetland Plants	Charcoal	Flot comments	Pottery	Small mammal bones
87	870	869	BA irregular pit	Pit/ natural	9	1	#	0	0	0	1 x wheat grain	0	0
88	878	877	BA irregular pit	Pit/ post hole	7	1	0	0	0	0		0	0
89	890	889	BA irregular pit	Pit	9	30	0	0	0	0		0	0
130	1197	908	Well/watering hole	Well	7	30	#	0	0	+	1 x barley, 1 x indet grain	0	0
129	1196	908	Well/watering hole	Well	8	20	###	####	###	+	hulled wheat, numerous charred seeds and sedges, calcified poppy seeds	#	0
94	911	908	Well/watering hole	Well	14	30	##	##	##	++	Hulled wheat, sedges, weed seeds. Charred roots, stems and tubers	#	0
95	915	908	Well/watering hole	Well	17	35	##	0	0	++	spelt wheat	#	##
154	910	908	Well/watering hole	Well	<1	1	0	0	0	0		0	0
155	1197	908	Well/watering hole	Well	<1	1	0	0	0	0		0	0
156	1196	908	Well/watering hole	Well	<1	1	0	0	0	+		0	0
157	911	908	Well/watering hole	Well	<1	1	##	0	0	+	7 x indet grain	#	0
158	912	908	Well/watering hole	Well	<1	1	0	0	0	0		0	0
159	912	908	Well/watering hole	Well	<1	1	#	#	0	+	1 x indet grain, charred tuber, charred seeds	0	0
160	915	908	Well/watering hole	Well	<1	1	0	0	0	0		0	#

Sample	Context	Cut	Function	Feature Type	Volume processed (L)	Flot Volume (ml)	Cereals	Weed Seeds	Wetland Plants	Charcoal	Flot comments	Pottery	Small mammal bones
96	931	930	Roundhouse 930	Post hole	10	5	0	0	0	0		0	0
97	933	932	Roundhouse 930	Post hole	9	10	#	0	0	0	fragment of barley grain	0	0
98	935	934	Roundhouse 930	Post hole	15	30	0	0	0	0		0	0
100	953	952	Roundhouse 952	Post hole	8	1	0	0	0	0		0	0
101	968	967	Roundhouse 952	Post hole	4	1	0	0	0	0		0	0
102	977	977	Roundhouse 971	Post hole	10	10	0	0	0	0		0	0
104	986	985	Roundhouse 971	Post hole	5		0	0	0	0		+	0
103	985	985	Roundhouse 971	Post hole	6	1	0	0	0	0		0	0
105	1002	1001	Post line 995	Post hole	7	10	0	0	0	0		0	0
106	1018	1017	Post line 995	Post hole	5	5	0	0	0	0		0	0
107	1048	1047	Post line 995	Post hole	8		0	0	0	0		0	0
108	1058	1057	Post line 995	Post hole	6	5	0	0	0	0		0	0
109	1068	1067	Associated with line 995	Pit	10		0	0	0	0		0	0
122	1098	1097	Roundhouse 1095	Post hole	9	20	0	0	0	0		0	0
121	1100	1099	Roundhouse 1095	Post hole	10	30	0	0	0	0		#	0
120	1112	1111	Roundhouse 1095	Hearth?	18	30	#	0	0	+	1 x wheat grain, 1 x indet grain	0	0
123	1116	1116	Roundhouse 1115	Post hole	4	6	0	0	0	0		0	0
124	1118	1118	Roundhouse 1115	Post hole	9	1	0	0	0	0		0	0
125	1136	1135	Roundhouse 1129	Post hole	9	20	0	0	0	0		0	0
126	1148	1147	Roundhouse 1143	Post hole	8	3	0	0	0	0		0	0
127	1154	1153	Roundhouse 1143	Post hole	16	60	0	0	0	0		0	0
128	1158	1157	Roundhouse 1143	Post hole	18	15	0	0	0	0		0	0
136	1202	1167	Well/watering hole	Pit	8	5	0	0	0	0		0	0
152	1198	1167	Well/watering hole	Well	8	2	0	0	0	0		0	0

Sample	Context	Cut	Function	Feature Type	Volume processed (L)	Flot Volume (ml)	Cereals	Weed Seeds	Wetland Plants	Charcoal	Flot comments	Pottery	Small mammal bones
153	1198	1167	Well/watering hole	Well	<1	1	#	0	0	0	1 x indet grain	0	0
132	1188	1187	Post line 1179	Post hole	8	10	#	0	0	0	1 x barley grain	0	0
131	1190	1189	Post line 1179	Post hole	10	6	0	0	0	0		#	0
197	2007	1220	Well/watering hole	Pit/well	7	1	0	0	0	0		0	0
194	1221	1220	Well/watering hole	Pit/well	8	10	0	0	0	0		0	0
133	1227	1226	Pit line 1223	Post hole	9	30	0	0	0	0		0	0
134	1230	1229	Pit line 1223	Pit	8	1	0	0	0	0		0	0
138	1244	1239	Hearth pit/structure	Pit	10	30	0	0	0	0		0	0
139	1265	1264	Structure/corral?	Post hole	7	3	0	0	0	0		0	0
140	1281	1280	Structure/corral?	Post hole	8	0	0	0	0	0		0	0
141	1289	1288	Post line 1286	Post hole	4	2	0	0	0	0		0	0
142	1333	1332	Post line 1286	Post hole	14	4	0	0	0	0		0	0
143	1347	1346	Post line 1286	Post hole	6	2	0	0	0	0		0	0
144	1361	1360	Roundhouse 1360	Post hole	10	5	0	0	0	0		0	0
145	1365	1364	Roundhouse 1360	Post hole	8	20	0	0	0	0		0	0
146	1371	1370	Roundhouse 1360	Post hole	9	45	0	0	0	0		0	0
147	1375	1374	Roundhouse 1360	Post hole	9	1	0	0	0	+		0	0
148	1389	1388	Natural? Associated with RH 1360	Pit	9	20	#	0	0	0	1 x wheat grain	0	0
149	1400	1399	Possible structure 1397	Post hole	20	30	0	0	0	+		0	0
150	1408	1407	Roundhouse 1407	Post hole	9	2	0	0	0	0		#	0
151	1481	1479	Pit near well 908	Pit	8	15	0	0	0	0		0	0
164	1529	1528	Post line 1522	Post hole	9	5	0	0	0	0		0	0
165	1559	1558	Post line 1522	Post hole	7	10	0	0	0	0		0	0
166	1606	1605	Post line 1593	Post hole	8		0	0	0	0		0	0
167	1638	1637	Posthole associated with line 1593	Post hole	9	1	0	#	0	0	1 x charred bindweed seed	0	0

Sample	Context	Cut	Function	Feature Type	Volume processed (L)	Flot Volume (ml)	Cereals	Weed Seeds	Wetland Plants	Charcoal	Flot comments	Pottery	Small mammal bones
168	1672	1671	Roundhouse 1858	Post hole	9	10	0	0	0	0		0	0
169	1680	1679	Post line 1593	Post hole	9	10	0	0	0	0		0	0
177	1722	1721	?Treethrow associated with line 1593	Pit	10	10	0	0	0	0		0	0
173	1734	1733	Post line 1733	Post hole	<1	<1	0	0	0	0		0	0
174	1754	1753	Post line 1733	Post hole	8	10	0	0	0	0		0	0
175	1760	1759	Post line 1733	Post hole	13	10	0	0	0	0		0	0
176	1774	1773	Post line 1773	Post hole	1	1	0	0	0	0		0	0
170	1798	1797	Post line 1789	Post hole	6	5	0	0	0	0		0	0
171	1800	1799	Post line 1773	Post hole	5	5	0	0	0	0		0	0
112	1802	1801	Post line 1789	Barrow ditch	9	1	0	0	0	0		0	0
172	1828	1827	Associated with Post line 1823	Post hole	3	3	0	0	0	0		0	+NR
178	1867	1866	Roundhouse 1858	Post hole	9	5	0	0	0	0		0	0
179	1875	1874	Roundhouse 1858	Post hole	10	1	0	0	0	0		0	0
180	1883	1882	Roundhouse 1858	Post hole	7	5	0	0	0	0		0	0
187	1900	1899	Post line 1891	Post hole	4	5	0	0	0	0		0	0
182	1912	1911	Post line 1905	Post hole	6	2	0	0	0	0		0	0
183	1920	1919	Post line 1917	Post hole	4	1	0	0	0	0		0	0
184	1942	1941	Post line 1927	Post hole	4	1	0	0	0	0		0	0
185	1944	1943	Post line 1927	Post hole	8	1	0	0	0	0		#	0
188	1974	1973	Pit	Pit	10	10	#	0	0	0		#	0
191	1998	1997	Pit associated with (?) drove 1905	Pit	9	20	0	0	0	0		#	0

Table 42: Environmental samples from Period 2.2

Period 2.2: Middle Bronze Age ditches

B.3.19 Samples from Period 2.2 ditch deposits in Areas A and B are devoid of preserved remains with the single exception of fill 1999 of enclosure ditch **817** (slot **1977**) which contains occasional charred grains of wheat and barley.

Sample	Context	Slot	Ditch	Area	Function	Volume processed (L)	Flot Volume (ml)	Cereals	Flot comments	Pottery
83	834	832	817	A	MBA Ditched Enclosure	18	20	0		0
90	872	871	817	A	MBA Ditched Enclosure	12	40	0		#
92	900	899	817	A	MBA Ditched Enclosure	8	15	0		0
91	900	899	817	A	MBA Ditched Enclosure	9	10	0		0
189	1999	1975	817	A	MBA Ditched Enclosure	10	5	##	2 x barley, 3 x wheat, 4 x indet grain	0
193	1979	1977	1977	A	Undated stepped well/pit	18	10	0		0
8	441	438	415	B	Boundary ditch	17	8	0		0
15	591	590	415	B	Boundary ditch	17	10	0		0

Table 43: Environmental samples from Period 2.2 ditches

Period 4: 7th to 8th Century

B.3.20 Samples taken from Period 4 deposits do not contain preserved plant remains.

Sample	Context	Slot	Master	Phase	Trench	Feature Type	Volume processed (L)	Flot Volume (ml)	Pottery
186	1852	1850	857	4.1	A	Ditch	8	20	0
181	1889	1484	1484	4.2	A	Well	8	1	0
85	860	857	857	4.1	C	Ditch	30	30	#
86	861	857	857	4.1	C	Ditch	2	1	0

Table 44: Environmental samples from Period 4

Period 5: Post-Medieval

B.3.21 Samples from Period 5 deposits in Areas B and C do not contain preserved plant remains.

Sample	Context	Slot	Master	Trench	Function	Feature Type	Volume processed (L)	Flot Volume (ml)
19	612	611	498	B	Gully cutting road ditches	Ditch	17	4
20	585	584	584	C	Undated pit in barrow, post-med?	Plt	8	1

Table 45: Environmental samples from Period 5

Discussion

B.3.22 Despite extensive sampling, preservation of plant remains from all areas of this site are extremely poor. Charred hazelnut shells and occasional grains have been recovered from the earliest phases of activity but the low density and diversity suggests that their inclusion in pit deposits was not a deliberate act of deposition of, for example, hearth waste. It is possible that the soils are not conducive to preservation of charred remains as charcoal volumes are unusually low.

B.3.23 Waterlogged plant remains have not been preserved but well **908** contained an interesting assemblage of charred plant remains that appear to have grown and been collected and burnt locally prior to deposition in a feature once its original function has ceased, probably due to drying out.

Statement of potential

B.3.24 Further study of the assemblages from well **908** is recommended to identify a few other species present and to quantify the remains. The assessment of pollen (Appendix B.4) from these deposits also indicates a local environment of wet pasture and the combined information from both proxies will contribute to the goals of Regional Research Frameworks relevant to this area.

Methods statement

8.1.1 The full volume of Samples 94 and 129 (well **908**) have already been processed.

Recommendations for further work

B.3.25 Full identification and quantification of the assemblages from Samples 94 and 129 (well **908**).

Retention, dispersal and display

B.3.26 The sample residues have been sorted and discarded. The flots will be retained with the project archive.

Task list

Description	Performed by	Days
Flot sorting	Assistant Archaeobotanist	1
Identification and quantification of plant remains	Archaeobotanist	0.5 days
Tabulation and inclusion in final report	Archaeobotanist	1 day

B.4 Pollen

By Mairead Rutherford

Introduction

B.4.1 Five sub-samples from New Road, Melbourn, Cambridge, were submitted by OA East, for pollen assessment. The sub-samples include four from a waterhole or well **908** as

well as a single sub-sample from well/pit **1220**. The features are in the centre of a Bronze Age settlement site.

Sample Number	Context Number	Feature
161	*1198*	Well 908
162	*910*	Well 908
162	*1196*	Well 908
163	*912*	Well 908
197	*2007*	Well 1220

Table 46: Sub-samples assessed for pollen

Methodology

B.4.2 The samples were prepared using a standard chemical procedure (method B of Berglund and Ralska-Jasiewiczowa 1986), using HCl, NaOH, sieving, HF, and Erdtman's acetolysis, to remove carbonates, humic acids, particles > 170 microns, silicates, and cellulose, respectively. The sample was then stained with safranin, dehydrated in tertiary butyl alcohol, and the residues mounted in 2000cs silicone oil. Slides were examined at a magnification of 400x by ten equally-spaced traverses across two slides to reduce the possible effects of differential dispersal on the slides (Brooks and Thomas 1967) or until at least 100 total land pollen grains were counted. Pollen identification was made following the keys of Moore et al (1991), Faegri and Iversen (1989), and a small modern reference collection. Plant nomenclature follows Stace (2010). The preservation of the pollen was noted and an assessment was made of the potential for further analysis. Fungal spore and other non-pollen palynomorph identification and interpretation followed van Geel (1978).

Results

B.4.3 The raw counts are presented in Table 47 (below). The contexts for well 908 are listed in chronological sequence from left to right, representing secondary fills.

Sample		161	162	162	163	197
Context		1198	910	1196	912	2007
Well cut		908	908	908	908	1220
Preservation		Mixed	Mixed	Mixed	Mixed	Mixed
Potential		No	No	No	No	Possible
Trees/Shrubs						
Alnus	Alder	2	1	2		
Corylus avellana-type	Hazel-type		2			4
Fraxinus	Ash		2			
Hedera	Ivy	1				
Pinus	Pine					1
Tilia	Lime			1		
Quercus	Oak					1
Crops						
Cerealia	Cereal-type					1
Herbs						
Amaranthaceae	Goosefoot family					3
Apiaceae	Carrot family					2
Caryophyllaceae	Pink family			1		1
Cirsium-type	Thistles					2
Cyperaceae	Sedges	3	1			1
Fabaceae	Pea family			1		
Mentha-type	Mints		1			
Persicaria maculosa	Redshank	1				
Plantago lanceolata	Ribwort plantain	3	4		1	5

Sample		161	162	162	163	197
Plantago spp.	Plantains	2				3
Poaceae	Grass Family	1	6		1	23
Ranunculaceae	Buttercup family					1
Rosaceae	Rose family					1
Sanguisorba-type	Burnets	1			1	2
Succisa pratensis	Devil's bit scabious			1		
Taraxacum-type	Dandelion-type	17	13	5	3	23
	Indeterminate herbs		1		1	3
Ferns						
Pteridium	Bracken					2
Pteropsida	Monolete ferns	1	2			1
	Total pollen counted	32	33	11	7	80
	Number of rows	10	10	10	10	10
Aquatics						
Nymphaea alba	White water-lilies	1				
Broken grains		1		1		
Concealed grains		2				
Crumpled grains			6	1	2	2
Microscopic charcoal		+		++	+	++
Fungal spores						
Glomus HdV-207		1				
Sordaria HdV-55A/B			1			
HdV-128		16	3			2

Table 47: Raw pollen counts

Well 908

B.4.4 All four sub-samples contained some pollen. The deeper contexts 1198 and 910 contained relatively commonly occurring pollen of dandelion-type (*Taraxacum*-type) with grasses (*Poaceae*), sedges (*Cyperaceae*) and ribwort plantain (*Plantago lanceolata*) also recorded. Rare pollen of other herbs included occurrences of burnets (*Sanguisorba*-type) and mints (*Mentha*-type). Tree pollen was rare also but included occurrences of alder (*Alnus*), hazel-type (*Corylus avellana*-type), ash (*Fraxinus*) and ivy (*Hedera*). Fern spores were rarely encountered, those present are referable to monolete ferns (*Pteropsida*). A single water-lily pollen was present in context 1198. Non-pollen palynomorphs included a single occurrence of *Glomus* (HdV-207) in context 1198 and of *Sordaria* (HdV-55A/B) in context 910. Of interest is the presence of several specimens of NPP HdV-128 in the deepest context, 1198.

B.4.5 The upper two sub-samples comprised sparser pollen assemblages, with occurrences of herbs and rare tree pollen. The taxa are largely similar to those outlined above but, from context 1196, pollen of both the pinks family (*Caryophyllaceae*) and devil's bit scabious (*Succisa pratensis*) were also present. An increase in microcharcoal was noted within the sub-sample from context 1196.

B.4.6 Interpretation: The counts are very low and therefore any interpretation must be treated with caution. The available data from the deepest context 1198 suggest that the well probably retained some water during this time. This is based on the relatively common occurrence of NPP HdV-128, a microfossil known to occur in shallow, fresh water (van Geel 1978) as well as the presence of pollen of an aquatic plant, white water-lily, known from lakes, ponds, dykes (Stace 2010). The surrounding vegetation would appear to have been quite open, with sedges, grasses, mints, ribwort plantain, burnets and dandelion-type - all of which are characteristic of damp places and/or

waste or disturbed ground (ibid). There is further (but sparse) evidence for disturbed ground, possibly linked to soil erosion, based on recovery of the fungal spore, Glomus (HdV-207) (van Geel 1978). It is feasible that the ground around the well could have been used for pasturing animals. Regionally, there is evidence for the presence of some trees, including alder (on damper ground) as well as ash and hazel-type.

B.4.7 The upper contexts do not contain sufficient pollen to suggest any confident interpretation. Of note is the increased incidence of micro-charcoal in the sub-sample from context 1196, perhaps indicative of the product of fires (either local or regional) being cast in the well.

Well 1220

B.4.8 A single sub-sample from this feature contained a reasonably good and diverse pollen assemblage. The pollen is dominated by herbs, of which grasses and dandelion-types are the most common. Pollen of ribwort plantain, goosefoot family (*Amaranthaceae*/*Chenopodiaceae*, a large group containing plants such as fat-hen, many-seeded goosefoot and good-king-henry), carrot family (*Apiaceae*, another large group including plants such as pennyworts, sweet cicely and water-parsnips) and thistles (*Cirsium*-type) are also well represented. A possible cereal-type pollen has been recorded, however, the dimensions of cereal-types overlap with those of wild grasses, therefore the indentification cannot be certain (Andersen 1979). Tree and shrub pollen comprise mainly hazel-type, although single grains of pine (*Pinus*) and oak (*Quercus*) are also present. Spores of monolete ferns and bracken (*Pteridium*) are present in low numbers. Micro-charcoal particles are commonly recorded.

B.4.9 The pollen data suggest an open, grassy landscape surrounding the well. Plants of damp meadows and/or waste or rough ground such as dandelion-types, thistles and ribwort plantain may suggest the land was used for grazing (the relatively common occurrence of ribwort plantain has been linked to grazing levels (Tipping 2002)). It is possible that cereal-type pollen, and certain pollen of the goosefoot and carrot families, may provide support for potential arable land in the vicinity - additional support for this may be present from assessment of waterlogged plant or charred plant remains. Another possibility is that the products of domestic activity (for example, cooking) may have been deposited in the well. Micro-charcoal particles may also have been cast into the well following possible domestic fires; however micro-charcoal could have been sourced regionally as well as locally. Rare tree and shrub pollen suggests hazel-type scrub or woodland at some distance as well as potentially mixed stands of pine and oak. Hazel-type produces large quantities of pollen, therefore more would have been expected on the pollen slide, had the shrub been growing adjacent to the well /pit.

Statement of Potential

B.4.10 No further work is suggested for the pollen sequence through well **908**. However, it may be possible to look in greater detail at the sub-sample from well **1220**, along with any further suitable sub-samples that may be available from this feature, to clarify and improve our understanding of land use, both regionally and locally, surrounding the well.

Recommendation for further work

Description	Performed by	Days
Processing of additional samples	Mairead Rutherford	1.0
Assessment/analysis of up to 8 further samples	Mairead Rutherford	2
Writing of report	Mairead Rutherford	1

B.5 Shell

By Carole Fletcher

Introduction

B.5.1 A total of four fragments of shell were collected by hand during the evaluation. The shell does not appear to be fossilised and the two larger shell fragments recovered have tentatively been identified as freshwater mussels. The shell is moderately well preserved and does not appear to have been deliberately broken or crushed.

Methodology

B.5.2 The shells were weighed and recorded by species where possible, with complete or near-complete right and left valves noted, where identification could be made, and the information recorded in the body of this report.

Assemblage

B.5.3 Two shell fragments (0.001kg) were recovered from pit **540**. The fragments re-fit and are from part of the edge of a shell, although the fragments are too small to be certain of the position on the shell edge. The fragments are also too small to be certain of species identification, however, they do *not* appear to be fragments of marine Oyster (*Ostrea edulis*).

B.5.4 Two larger shell fragments (0.009kg) were recovered from pit **2030**. These fragments have tentatively been identified as freshwater mussels, however, further specialist work would be required to establish if they are Swan Mussel (*Anodonta cygnea*), found in large ponds, lakes and slow-moving water, or Pearl Mussel (*Margaritifer margaritifer*), which live in fast flowing water.

Discussion

B.5.5 The shells recovered may represent food waste, however, the shells may also be raw material for use as an inclusion in pottery. The shells were recovered alongside Neolithic Grooved ware and shell is a very common inclusion in Grooved ware (Cleal, Cooper and Williams 1994, 445). Cleal *et al*, indicate the preference for shell temper is irrespective of local sources of marine shell, shell-bearing clays, or rock with fossil shell (*ibid*). Although shell identified in Neolithic Grooved ware, as discussed by Cleal *et al*, appears to be marine in origin, it is possible that freshwater shells could be used if no other shell was available.

B.5.6 While the shells are not closely datable in themselves, they may be dated by their association with pottery or other material also recovered from the features.

Statement of Potential

B.5.7 Though very small, the shell assemblage is rare and has the potential to inform our knowledge of Late Neolithic consumption and transport of marine and fresh water resources both as food and as temper in Grooved Ware pottery.

Recommendation

B.5.8 Full specialist identification of the shells is recommended.

Retention, dispersal and display

B.5.9 The assemblage should be retained.

B.6 Molluscs

By Sam Corke

Introduction

B.6.1 The purpose of this assessment is to determine whether molluscs are present, their degree of preservation and whether they are of interpretable value regarding habitat and as proxies for environmental change.

B.6.2 Fifty-seven samples were selected from a variety of representative features, with the aim of providing a general overview of the snails from the site.

Methodology

B.6.3 Snail shells present in flots and residues from environmental bulk samples/series samples (see Appendix B.3 for methodology) were assessed rapidly for density and diversity. Identifications were made by examining shells using a binocular microscope and with reference to Evans (1972) and Kerney (1999). Due to the rapid nature of this assessment, identifications were taken to Genus level, unless a species level identification was deemed to be useful.

B.6.4 The Ecological groups described by Evans (1972, 194) are as follows

- Terrestrial
  - ‘Woodland’ or Shade Loving Species
  - Catholic Species
  - Open Country Species
- Marsh Species
- Freshwater Slum Species

Quantification

B.6.5 For this assessment, molluscs have been scored for abundance using the following categories:
x = rare, xx = moderate, xxx = frequent, xxxx = abundant, xxxxx = super abundant

Results

B.6.6 Snail shells principally belong to the ‘Open Country’ group, with species such as *Puppila muscorum* and *Vallonia* sp. being common across the majority of productive samples. Catholic species were limited, with *Cochlicopa* sp. being the only recognised

species. In certain samples, there was an abundance of *Cochlicopa* sp. but unlike the open country species, they are not widespread. Shade loving species are similar poorly represented, with the notable exception of *Discus rotundatus* which occurs in small quantities in many of the samples processed, with large quantities being present in occasional samples. Marsh species were limited to very rare *Lymnaea* sp. This mixture is common to the open chalkland environment present today, there appears to be little variation by phase, with perhaps more shale loving species represented in the Early Neolithic.

Sample	Context	Feature	Feature Type	Burrowing Species		Open Country			Catholic	Shade Loving				Marsh
				Ceciloides	*Pomiatas*	*Pupilla muscorum*	*Vallonia sp.*	*Hellicella itala*	*Cochlicopa sp.*	*Discus rotundatus*	*Planorbis sp.*	*Retinella*	*Clausilla sp.*	*Lymnaea sp.*
1	302	301	Late Neolithic pit	xxxx		xxx	xx			x				x
2	303	301	Late Neolithic pit	xxxx		xx	xx		xx	xx				
3	304	301	Late Neolithic pit	xxxx		xxx	xx		x	xx				
4	356	354	Pit	xx		x								
5	355	354	Pit	xx		xx								
6	384	383	Pit	xxxx		xxx	xx		xx	x				
7	435	433	Pit	xxxx		xxx	xxx		x	xxx				
8	441	438	Ditch	xx		xxx	xx			x	x			
9	SK569	568	Grave											
10	SK569	568	Grave	xx		xxx	x		xx	x				
11	576	572	Natural Hollow	x		xx	xx		x	xxx				
12	575	572	Natural Hollow	xx	x	x	xx	x	xxx	xxx			x	
13	583	582	Pit	xxxx		xx	xx							
14	578	577	Pit	xxx		xx	x							
15	591	590	Ditch	x		xx	x		x	x				
16	436.6	357	Natural Hollow	xx		xx	xxx			xx				
17	436.7	357	Natural Hollow	xx		xx	x			xx				
18	436.8	357	Natural Hollow	x		xx	xx		xx	xx				
19	612	611	Ditch	xx		x	x			x				
20	585	584	PIt	xx		x	x			x				
21	640.4	613	Natural Hollow	x		xx	xx		xxx	xx			x	
22	640.5	613	Natural Hollow	x		xxx	xxx		xxxx	xxx	x			

Sample	Context	Feature	Feature Type	Burrowing Species		Open Country			Catholic	Shade Loving				Marsh
				Ceciloides	*Pomiatas*	*Pupilla muscorum*	*Vallonia sp.*	*Hellicella itala*	*Cochlicopa sp.*	*Discus rotundatus*	*Planorbis sp.*	*Retinella*	*Clausilla sp.*	*Lymnaea sp.*
23	640.6	613	Natural Hollow			xx	xx		xxx	xx	xx		x	
24	640.7	613	Natural Hollow			x	xx		xxx	xx	xx		x	
25	554	540	Pit	xxx			xx	x		xx			x	
26	660	659	Pit	xxxx		xx				x				
27	668	665	Pit	xxx		xx	xx		xx	x				
28	653	652	Cremation	xx		x	x							
29	654	652	Cremation	xx		x	x		x					
30	655	652	Cremation	xx		x	x		x					
31	656	652	Cremation	xx		x	x	x	x	x		x		
32	689	688	Ditch			xx	x	xx		x		xx	x	
35	672	669	Late Neolithic pit	xxxx	x	xx			x					x
36	670	669	Pit	xxx		xx		x						
37	671	669	Pit	xxx		xx				x	x			
38	676	673	Pit	xxx		xx								
39	675	673	Pit	xxx		xx				x				
40	674	673	Pit	xxx		xx								
41	704	703	Ditch	xxx		xxx	xx			x				
42	687.7	679	Natural hollow	x		xx	xx	x	xxx		x			
43	731	730	Pit	xxxx			x			x				
44	719	715	Pit	xxx		xx	x							
47	753	752	Ditch	xx			xx	xx		xx			xx	
48	754	752	Ditch	xx		xxxx	xxx			xx		x		
49	756	755	Ditch	xx		xxx	x	x	x	x				
84	836	835	Ditch		xx		xx	x	xx	xx		xx		
93	907	906	Pit	xx		xx	xx		x	xx	x		x	
96	931	930	Post hole	xxx		xx	x							
97	933	932	Post hole	xxx		xx	x			x				
98	935	934	Post hole	xx		xx	x		x	x				
100	953	952	Post hole	xxx		xx	x					x		
101	968	967	Post hole	xx		xx	x		x					
102	977	976	Post hole	xxx		x	xx			x				
105	1002	1001	Post hole	xxx		xx	xx		x	xx				
120	1112	1111	Hearth?	xxx		xx		x	x					
121	1100	1099	Post hole	xxx		xx				x		x		
122	1098	1097	Post hole	xxx		xx		x						

Table 48: Molluscs assessed

Discussion

B.6.7 In general, variation between samples was within that expected, and broadly equivalent to what would be expected from a chalkland environment. However, the only marshland species recorded were both from Late Neolithic pits, being absent from the natural hollows and other features. This suggests they were brought in and may have been incorporated with other organic material that was not preserved (e.g. reeds, Rachel Fosberry, pers. comm.).

Statement of potential

B.6.8 The majority of the samples reflect the chalkland environment. It would be worth examining residues of the other Late Neolithic pits to see if they contain similarly imported species. No further work is recommended on the other samples.

Task List

Task	Days
Examine remaining Late Neolithic pit residues	0.5
Update existing report	0.5

B.7 Radiocarbon dating

Introduction

B.7.1 An initial selection of 11 radiocarbon samples was submitted in early 2018 (Table 49). An additional 11 samples have been submitted following processing of environmental samples and recording of the elk antler. The elk antler was first recorded photogrammetrically in addition to full measurement for faunal analysis due to its potential significance.

Results

B.7.2 Both samples (animal bone and human skeletal remains) from Period 1.1 natural hollows failed to contain sufficient collagen.

B.7.3 Early Bronze age dates were returned for the unurned cremation (**652**) and inhumation (Sk569 in grave 568 within Barrow 2). Well 1977 was proved to be Middle Bronze Age in date. The post-Roman enclosure ditch in the north of site returned a 7th-8th Century date, although this was from a secondary fill otherwise containing residual Roman pottery.

Period	Cut	Context	Feature	Lab Code	Radiocarbon age (years)	+/-	Calibrated Age
1.1	**651**	651.3	HSR from natural hollow		Insufficient collagen		
1.1	**345**	343.6	Natural hollow		Insufficient collagen		
1.2	**665**	668	Grooved Ware type pit	SUERC-78754	4181	35	2870-2889-2833calBC (22.1%) or 2819-2662calBC (71.3%)

Period	Cut	Context	Feature	Lab Code	Radiocarbon age (years)	+/-	Calibrated Age
1.2	**577**	578	Grooved Ware type pit	SUERC-78752	4110	35	2870-2802calBC (23.9%) or 2779-2572calBC (71.3%)
1.2	**577**	578	Grooved Ware type pit	SUERC-78753	4044	35	2668-2473calBC (91.2%)
2.1	**652**	653	Cremation deposit	SUERC-78748	3668	35	2141-1945calBC (95.4%)
2.1	**568**	Sk569	Inhumation in Barrow 2	SUERC-78747	3503	35	1922-1742calBC (94.3%)
2.2	**1977**	1981	Well 1977	SUERC-78756	3026	35	1399-1192calBC (92.1%)
2.2	**1977**	1982	Well 1977	SUERC-78757	3063	35	1413-1230calBC (93.4%)
4	**891**	895	Enclosure ditch 891	SUERC-78755	1337	35	642-724calAD (78.9%) or 739-768calAD (16.5%)

Table 49: Radiocarbon dates

B.7.4 In addition to the dates returned above, further organic material, including from processed bulk environmental samples, was submitted on 24th April 2018 to SUERC. Results are expected in early July 2018. These were selected to refine the chronology of individual well features. The roundhouse samples represent the only available material to date either the roundhouse postholes or the posthole alignments.

Period	Cut	Context	Item	Feature
1.2	**665**	668	Elk antler	Grooved ware pit
2.2?	**1888**	1969	Bone	?Bronze Age pit containing cattle skulls
2.2?	**1111**	1112	Charcoal	Roundhouse 1095 ?hearth-like feature, with burnt flint
2.2?	**1145**	1146	Bone	Roundhouse 1143 front posthole
2.2?	**899**	900	Bone	Corner slot of enclosure ditch **817** north
2.2?	**1167**	1215	Bone	Well **1167** base
2.2?	**1220**	2007	Bone	Well **1220** (recut of **1167**) primary fill
2.2?	**1220**	1221	Bone	Well **1220** (recut of **1167**) final disuse/silting
2.2?	**908**	1196	Barely grain	Well **915** secondary fill
2.2?	**908**	1196	Bone	Well **915** secondary fill
2.2?	**908**	915	Bone	Welll **915** final fill

Table 50: Additional radiocarbon samples submitted

Statement of Potential

B.7.5 Two failed samples suggest it is not worth attempting to date further material from the natural hollows, particularly given their mixed Late Mesolithic and Early Neolithic finds assemblages.

B.7.6 The dates returned have confirmed the suspected age of Grooved Ware pits and refined the chronology of the Early Bronze Age inhumation and cremation burials. The elk antler from a Grooved Ware pit has been submitted. It is likely that dating of the larger Bronze Age features on site will be refined when the additional samples produce results.

B.7.7 There was insufficient organic material from excavation and bulk environmental samples to attempt to date the posthole alignments and Barrow 1's ditch.

Further work

Description	Performed by	Days
Incorporate radiocarbon dates into site phasing	Stuart Ladd	0.5

B.8 Radiocarbon certificates

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RADIOCARBON DATING CERTIFICATE
10 April 2018

Laboratory Code	SUERC-78747 (GU47046)
Submitter	Zoe Ui Choileain Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
Site Reference	MELNER17
Context Reference	569
Material	Human Skeletal Remains: R. Fibula : HSR
$\delta^{13}C$ relative to VPDB	-21.2 ‰
$\delta^{15}N$ relative to air	10.5 ‰
C/N ratio (Molar)	3.3
Radiocarbon Age BP	3503 ± 35

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon 58(1) pp.9-23.*

For any queries relating to this certificate, the laboratory can be contacted at suerc-c14lab@glasgow.ac.uk.

Conventional age and calibration age ranges calculated by : E Dunbar

Checked and signed off by : P. Nayant

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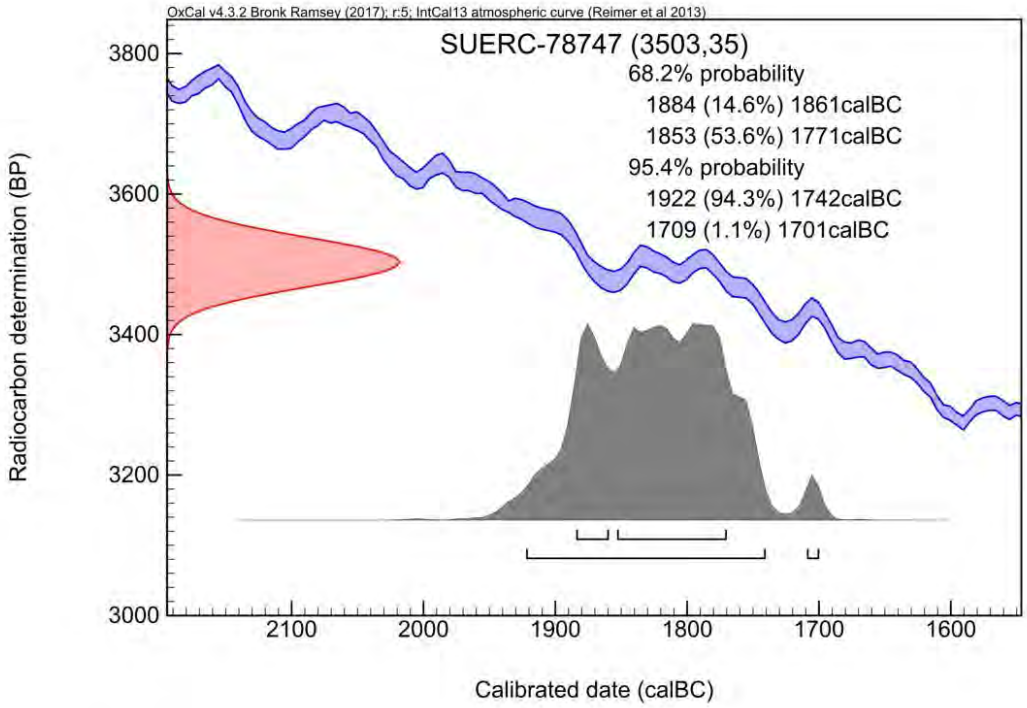

The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

The above date ranges have been calibrated using the IntCal13 atmospheric calibration curve.†

Please contact the laboratory if you wish to discuss this further.

* Bronk Ramsey (2009) *Radiocarbon 51(1) pp.337-60*
† Reimer et al. (2013) *Radiocarbon 55(4) pp.1869-87*

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RADIOCARBON DATING CERTIFICATE
10 April 2018

Laboratory Code	GU47047
Submitter	Zoe Ui Choileain Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
Site Reference	MELNER17
Context Reference	651.3
Material	Human Skeletal Remains: parietal : HSR
Result	Failed due to insufficient carbon.

N.B. Any questions directed to the laboratory should quote the GU coding given above.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon 58(1) pp.9-23.*

For any queries relating to this certificate, the laboratory can be contacted at suerc-c14lab@glasgow.ac.uk.

Checked and signed off by : P. Naysmith

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RADIOCARBON DATING CERTIFICATE
10 April 2018

Laboratory Code	SUERC-78748 (GU47048)
Submitter	Zoe Ui Choileain Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
Site Reference	MELNER17
Context Reference	653
Material	Cremated bone: long bone : HSR
$\delta^{13}C$ relative to VPDB	-24.2 ‰
Radiocarbon Age BP	3668 ± 35

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

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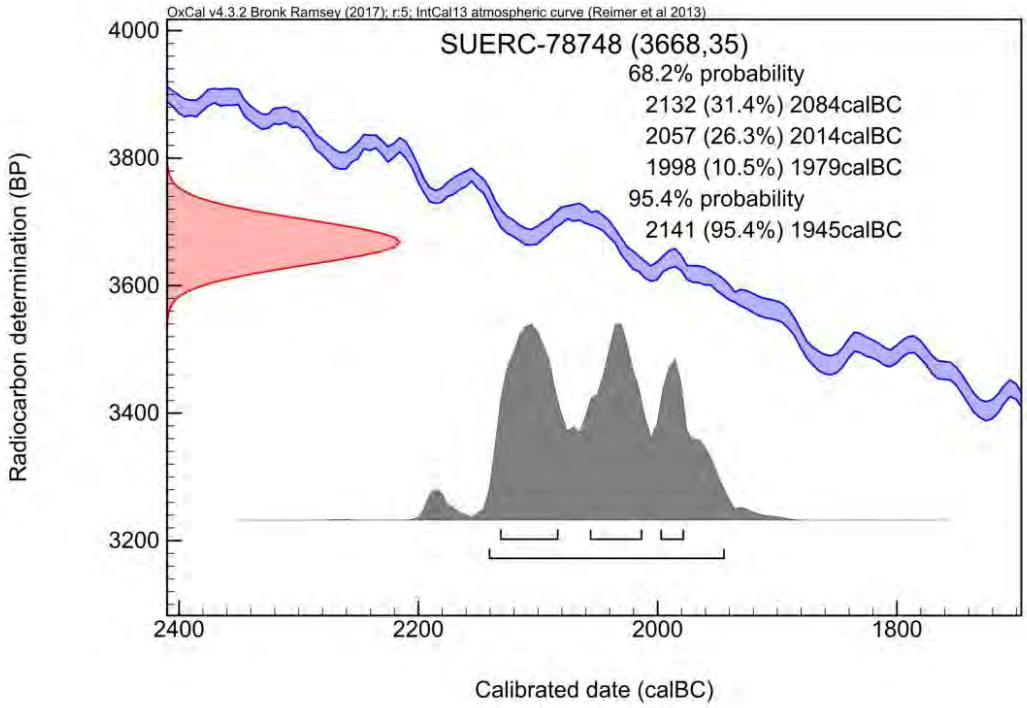
For any queries relating to this certificate, the laboratory can be contacted at suerc-c14lab@glasgow.ac.uk.

Conventional age and calibration age ranges calculated by : E Dunbar

Checked and signed off by : P. Naysmith



The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

The above date ranges have been calibrated using the IntCal13 atmospheric calibration curve.†

Please contact the laboratory if you wish to discuss this further.

* Bronk Ramsey (2009) *Radiocarbon 51(1) pp.337-60*
† Reimer et al. (2013) *Radiocarbon 55(4) pp.1869-87*

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RADIOCARBON DATING CERTIFICATE
10 April 2018

Laboratory Code	SUERC-78752 (GU47049)
Submitter	Zoe Ui Choileain Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
Site Reference	MELNER17
Context Reference	578
Material	Faunal Remains : Auroch
$\delta^{13}C$ relative to VPDB	-24.1 ‰
$\delta^{15}N$ relative to air	5.9 ‰
C/N ratio (Molar)	3.4
Radiocarbon Age BP	4110 ± 35

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

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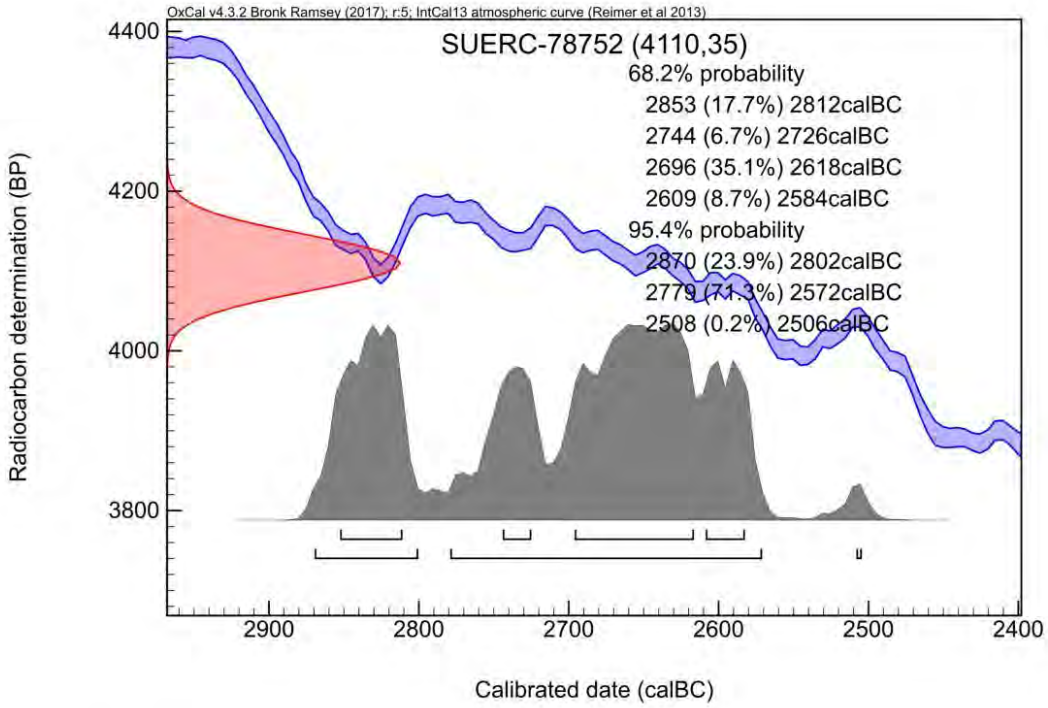
Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon 58(1) pp.9-23.*

For any queries relating to this certificate, the laboratory can be contacted at suerc-c14lab@glasgow.ac.uk.

Conventional age and calibration age ranges calculated by : E Dunbar

Checked and signed off by : P. Nayant



The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

The above date ranges have been calibrated using the IntCal13 atmospheric calibration curve.†

Please contact the laboratory if you wish to discuss this further.

* Bronk Ramsey (2009) *Radiocarbon 51(1) pp.337-60*
† Reimer et al. (2013) *Radiocarbon 55(4) pp.1869-87*

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RADIOCARBON DATING CERTIFICATE
10 April 2018

Laboratory Code	SUERC-78753 (GU47050)
Submitter	Zoe Ui Choileain Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
Site Reference	MELNER17
Context Reference	578
Material	Faunal Remains : Cattle
$\delta^{13}C$ relative to VPDB	-22.2 ‰
$\delta^{15}N$ relative to air	6.7 ‰
C/N ratio (Molar)	3.4
Radiocarbon Age BP	4044 ± 35

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

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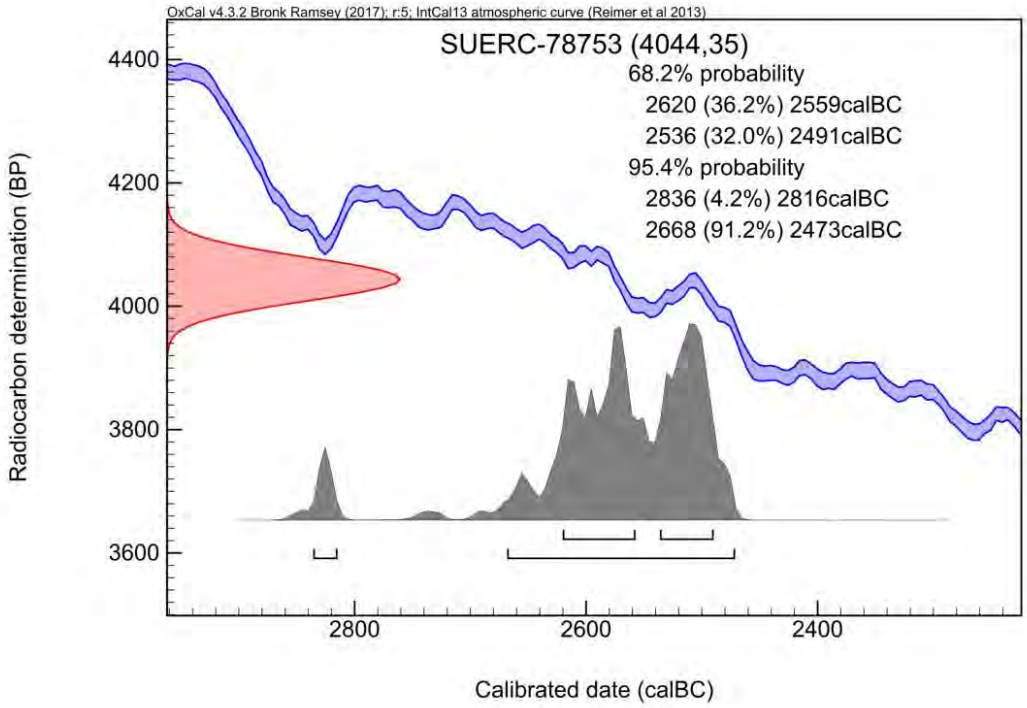
Conventional age and calibration age ranges calculated by : E Dunbar

Checked and signed off by : P. Naysmith



The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

The above date ranges have been calibrated using the IntCal13 atmospheric calibration curve.†

Please contact the laboratory if you wish to discuss this further.

* Bronk Ramsey (2009) *Radiocarbon 51(1) pp.337-60*
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RADIOCARBON DATING CERTIFICATE
10 April 2018

Laboratory Code	SUERC-78754 (GU47051)
Submitter	Zoe Ui Choileain Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
Site Reference	MELNER17
Context Reference	668
Material	Faunal Remains : Cattle
$\delta^{13}C$ relative to VPDB	-22.9 ‰
$\delta^{15}N$ relative to air	6.6 ‰
C/N ratio (Molar)	3.3
Radiocarbon Age BP	4181 ± 35

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

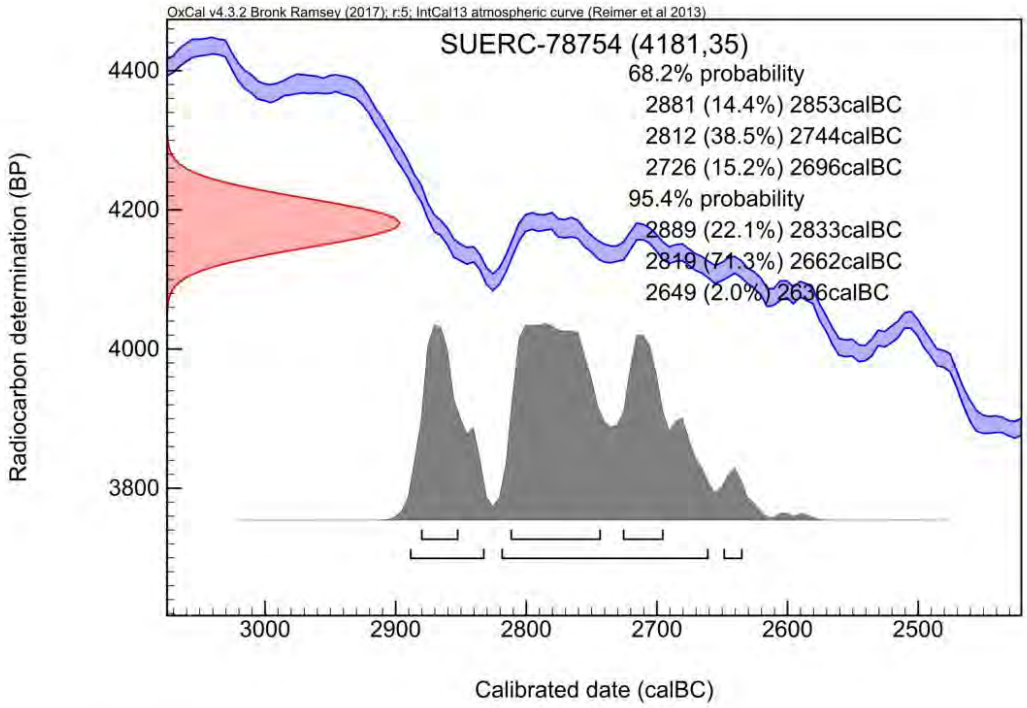
Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon 58(1) pp.9-23.*

For any queries relating to this certificate, the laboratory can be contacted at suerc-c14lab@glasgow.ac.uk.

Conventional age and calibration age ranges calculated by : E Dunbar

Checked and signed off by : P. Nayant



The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

The above date ranges have been calibrated using the IntCal13 atmospheric calibration curve.†

Please contact the laboratory if you wish to discuss this further.

* Bronk Ramsey (2009) *Radiocarbon 51(1) pp.337-60*
† Reimer et al. (2013) *Radiocarbon 55(4) pp.1869-87*

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RADIOCARBON DATING CERTIFICATE
10 April 2018

Laboratory Code	SUERC-78755 (GU47052)
Submitter	Zoe Ui Choileain Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
Site Reference	MELNER17
Context Reference	895
Material	Faunal Remains : Cattle
$\delta^{13}C$ relative to VPDB	-21.6 ‰
$\delta^{15}N$ relative to air	6.2 ‰
C/N ratio (Molar)	3.4
Radiocarbon Age BP	1337 ± 35

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

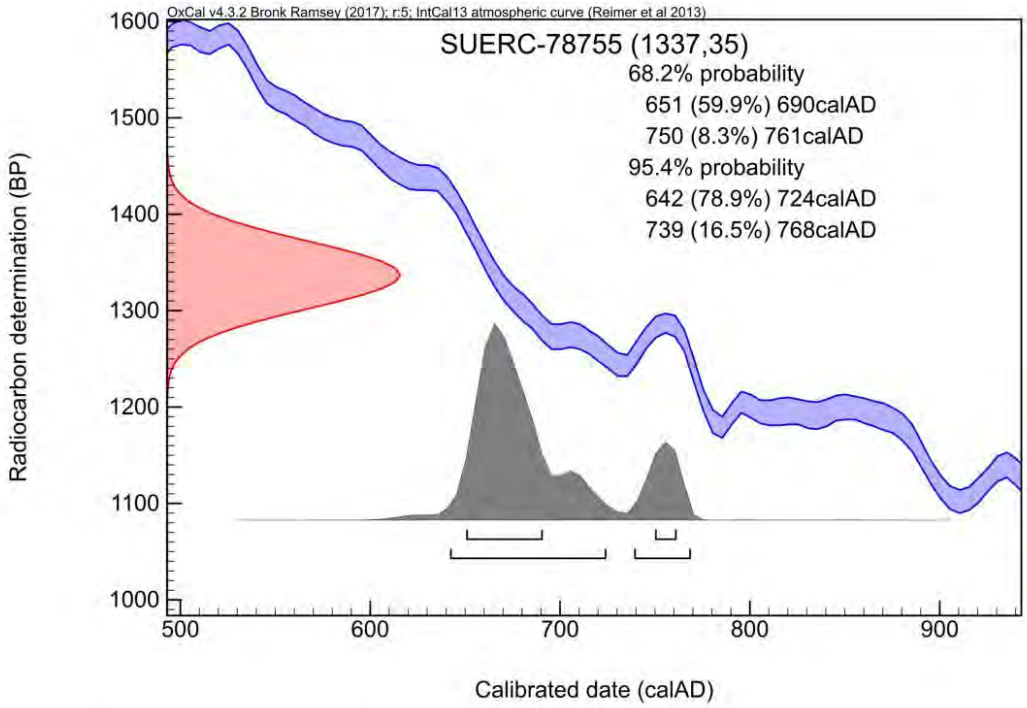
Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon 58(1) pp.9-23.*

For any queries relating to this certificate, the laboratory can be contacted at suerc-c14lab@glasgow.ac.uk.

Conventional age and calibration age ranges calculated by : E Dunbar

Checked and signed off by : P. Naysmith



The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

The above date ranges have been calibrated using the IntCal13 atmospheric calibration curve.†

Please contact the laboratory if you wish to discuss this further.

* Bronk Ramsey (2009) *Radiocarbon 51(1) pp.337-60*
† Reimer et al. (2013) *Radiocarbon 55(4) pp.1869-87*

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Director: Professor F M Stuart Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE
10 April 2018

Laboratory Code	SUERC-78756 (GU47053)
Submitter	Zoe Ui Choileain Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
Site Reference	MELNER17
Context Reference	1981
Material	Faunal Remains : Cattle
$\delta^{13}C$ relative to VPDB	-21.0 ‰
$\delta^{15}N$ relative to air	5.1 ‰
C/N ratio (Molar)	3.3
Radiocarbon Age BP	3026 ± 35

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

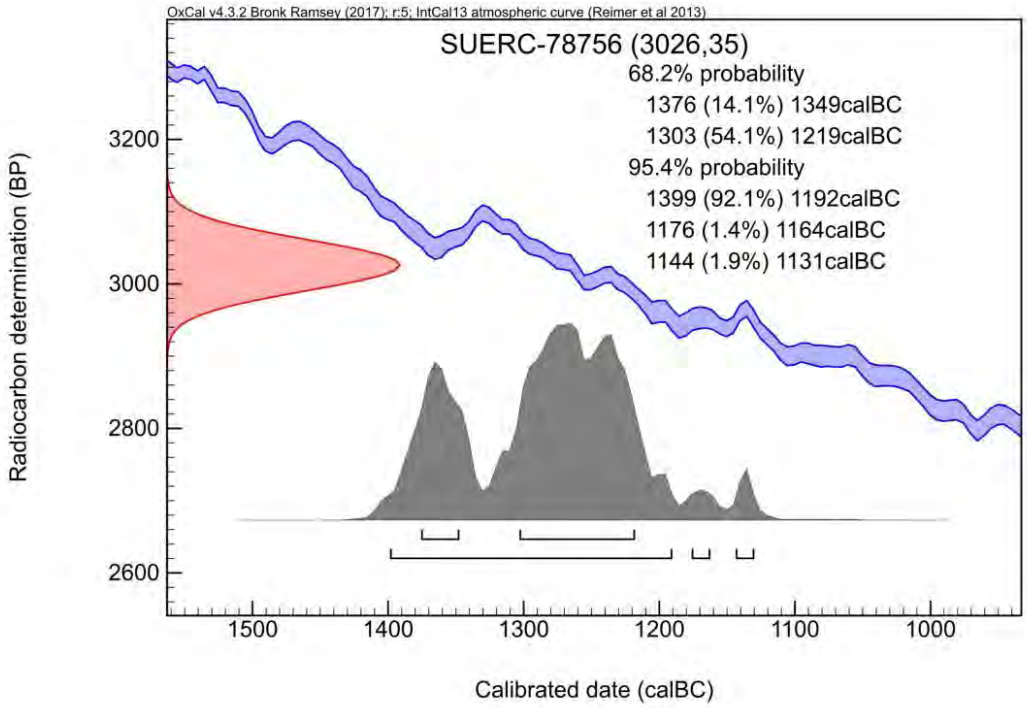
Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon 58(1) pp.9-23.*

For any queries relating to this certificate, the laboratory can be contacted at suerc-c14lab@glasgow.ac.uk.

Conventional age and calibration age ranges calculated by : E Dunbar

Checked and signed off by : P. Naysmith



The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

The above date ranges have been calibrated using the IntCal13 atmospheric calibration curve.†

Please contact the laboratory if you wish to discuss this further.

* Bronk Ramsey (2009) *Radiocarbon 51(1) pp.337-60*
† Reimer et al. (2013) *Radiocarbon 55(4) pp.1869-87*

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RADIOCARBON DATING CERTIFICATE
10 April 2018

Laboratory Code	SUERC-78757 (GU47054)
Submitter	Zoe Ui Choileain Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ
Site Reference	MELNER17
Context Reference	1982
Material	Faunal Remains : Cattle
$\delta^{13}C$ relative to VPDB	-21.7 ‰
$\delta^{15}N$ relative to air	5.6 ‰
C/N ratio (Molar)	3.4
Radiocarbon Age BP	3063 ± 35

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon 58(1) pp.9-23.*

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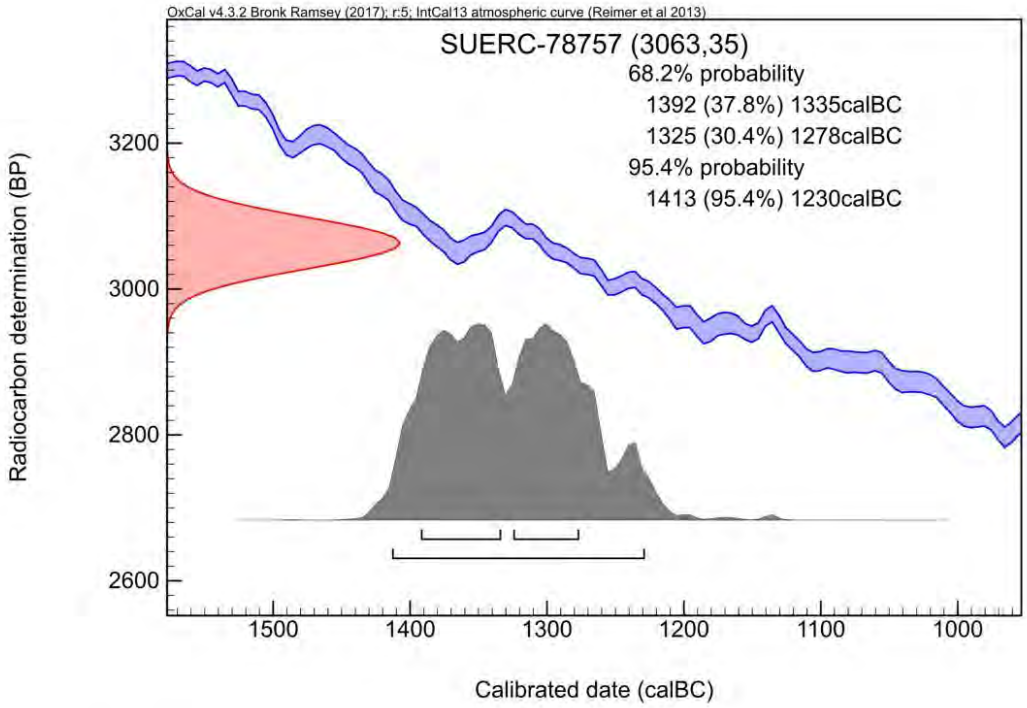
Conventional age and calibration age ranges calculated by : E Dunbar

Checked and signed off by : P. Naysmith



The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

The above date ranges have been calibrated using the IntCal13 atmospheric calibration curve.†

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Appendix C RISK LOG

C.1.1 The table below lists potential risks for the PX analysis work.

No.	Description	Probability	Impact	Countermeasures	Estimated time/costs	Owner	Date updated
1	Specialists unable to deliver analysis report due to over running work programmes/ ill health/other problems	Medium	Variable	Most specialist assessments presented here are at or near full analysis. OA has access to a large pool of specialist knowledge (internal and external) which can be used if necessary.	Variable	Rm/MB, SL	June 2018
2	Non-delivery of full report due to field work pressures/ management pressure on co-authors	Medium	Medium-high	Liaise with OA management team	Variable	RM/MB. SL	June 2018

Table 51: Risk log

Appendix D HEALTH AND SAFETY

D.1.1 All OA post-excavation work will be carried out under relevant Health and Safety legislation, including the Health and Safety at Work Act (1974). A copy of the Health and Safety Policy can be supplied. The nature of the work means that the requirements of the following legislation are particularly relevant:

- Workplace (Health, Safety and Welfare) Regulations 1992 – offices and finds processing areas
- Manual Handling Operations Regulations (1992) – transport: bulk finds and samples
- Health and Safety (Display Screen Equipment) Regulations (1992) – use of computers for word-processing and database work
- COSSH (1988) – finds conservation and environmental processing/analysis

Appendix E OASIS REPORT FORM

Project Details

OASIS Number	oxfordar3-318575
Project Name	Land East of New Road, Melbourn, Cambridgeshire: Post-Excavation Assessment and Updated Project Design

Start of Fieldwork	31/07/2018	End of Fieldwork	22/12/2017
Previous Work	Yes	Future Work	No

Project Reference Codes

Site Code	ECB5153	Planning App. No.	S/2791/14
HER Number	ECB5153	Related Numbers	

Prompt	NPPF
Development Type	Residential and carehome
Place in Planning Process	After outline determination (eg. A a reserved matter)

Techniques used (tick all that apply)

☐	Aerial Photography – interpretation	☐	Grab-sampling	☒	Remote Operated Vehicle Survey
☐	Aerial Photography - new	☐	Gravity-core	☐	Sample Trenches
☐	Annotated Sketch	☐	Laser Scanning	☐	Survey/Recording of Fabric/Structure
☒	Augering	☒	Measured Survey	☐	Targeted Trenches
☐	Dendrochonological Survey	☒	Metal Detectors	☒	Test Pits
☐	Documentary Search	☐	Phosphate Survey	☐	Topographic Survey
☒	Environmental Sampling	☒	Photogrammetric Survey	☐	Vibro-core
☐	Fieldwalking	☒	Photographic Survey	☐	Visual Inspection (Initial Site Visit)
☐	Geophysical Survey	☐	Rectified Photography		

Monument	Period
Hollows	Late Mesolithic (- 7000 to - 4000)
Pits	Late Neolithic (- 3000 to - 2200)
Cremation burial	Early Bronze Age (- 2500 to - 1500)
Inhumation burial	Early Bronze Age (- 2500 to - 1500)
Wells	Middle Bronze Age (- 1600 to - 1000)
Ditches	Middle Bronze Age (- 1600 to - 1000)
Postholes	Middle Bronze Age (- 1600 to - 1000)
Beam slots	Roman (43 to 410)
Ditches	Early Medieval (410 to 1066)
Wells	Early Medieval (410 to 1066)
Ditches	Post Medieval (1540 to 1901)
Pit	Post Medieval (1540 to 1901)

Object	Period
Human skeletal remains	Neolithic (- 4000 to - 2200)
Human skeletal remains	Early Bronze Age (- 2500 to - 1500)
Freshwater shell	Late Neolithic (- 3000 to - 2200)
Pottery	Late Prehistoric (- 4000 to 43)
Flint	Late Prehistoric (- 4000 to 43)
Animal bone	Late Prehistoric (- 4000 to 43)
Stone	Late Prehistoric (- 4000 to 43)
Environmental residues/flots	Late Prehistoric (- 4000 to 43)
Pottery	Post Medieval (1540 to 1901)
Copper Alloy Brooch	Roman (43 to 410)
Iron objects	Post Medieval (1540 to 1901)
Ceramic building material	Post Medieval (1540 to 1901)
Glass bead	Uncertain

Project Location

County	Cambridgeshire
District	South Cambridgeshire
Parish	Melbourn
HER office	Cambridge
Size of Study Area	5.3ha
National Grid Ref	TL 390 440

Address (including Postcode)

Land East of New Road
Cambridge
SG8 6BY

Project Originators

Organisation	Oxford Archaeology East
Project Brief Originator	Kasia Gdaniec, CCC
Project Design Originator	Louise Bush (Oxford Archaeology East)
Project Manager	Richard Mortimer (Oxford Archaeology East)
Project Supervisor	Stuart Ladd (Oxford Archaeology East)

Project Archives

	Location	ID
Physical Archive (Finds)	CCC Stores	ECB5153
Digital Archive	OA East	MELNER17
Paper Archive	CCC Store	ECB5153

Physical Contents	Present?	Digital files associated with Finds	Paperwork associated with Finds
Animal Bones	☒	☒	☐
Ceramics	☒	☒	☐
Environmental	☒	☒	☐
Glass	☒	☒	☐
Human Remains	☒	☒	☒
Industrial	☐	☐	☐
Leather	☐	☐	☐
Metal	☒	☒	☐
Stratigraphic		☒	☐
Survey		☒	☐
Textiles	☐	☐	☐
Wood	☐	☐	☐
Worked Bone	☒	☒	☐
Worked Stone/Lithic	☒	☒	☐
None	☐	☐	☐
Other	☐	☐	☐

Digital Media		Paper Media	
Database	☒	Aerial Photos	☐
GIS	☒	Context Sheets	☒
Geophysics	☐	Correspondence	☐
Images (Digital photos)	☒	Diary	☐
Illustrations (Figures/Plates)	☐	Drawing	☒
Moving Image	☐	Manuscript	☐
Spreadsheets	☒	Map	☐
Survey	☒	Matrices	☐
Text	☒	Microfiche	☐
Virtual Reality	☐	Miscellaneous	☐
		Research/Notes	☐
		Photos (negatives/prints/slides)	☐
		Plans	☒
		Report	☒
		Sections	☒
		Survey	☐

Further Comments

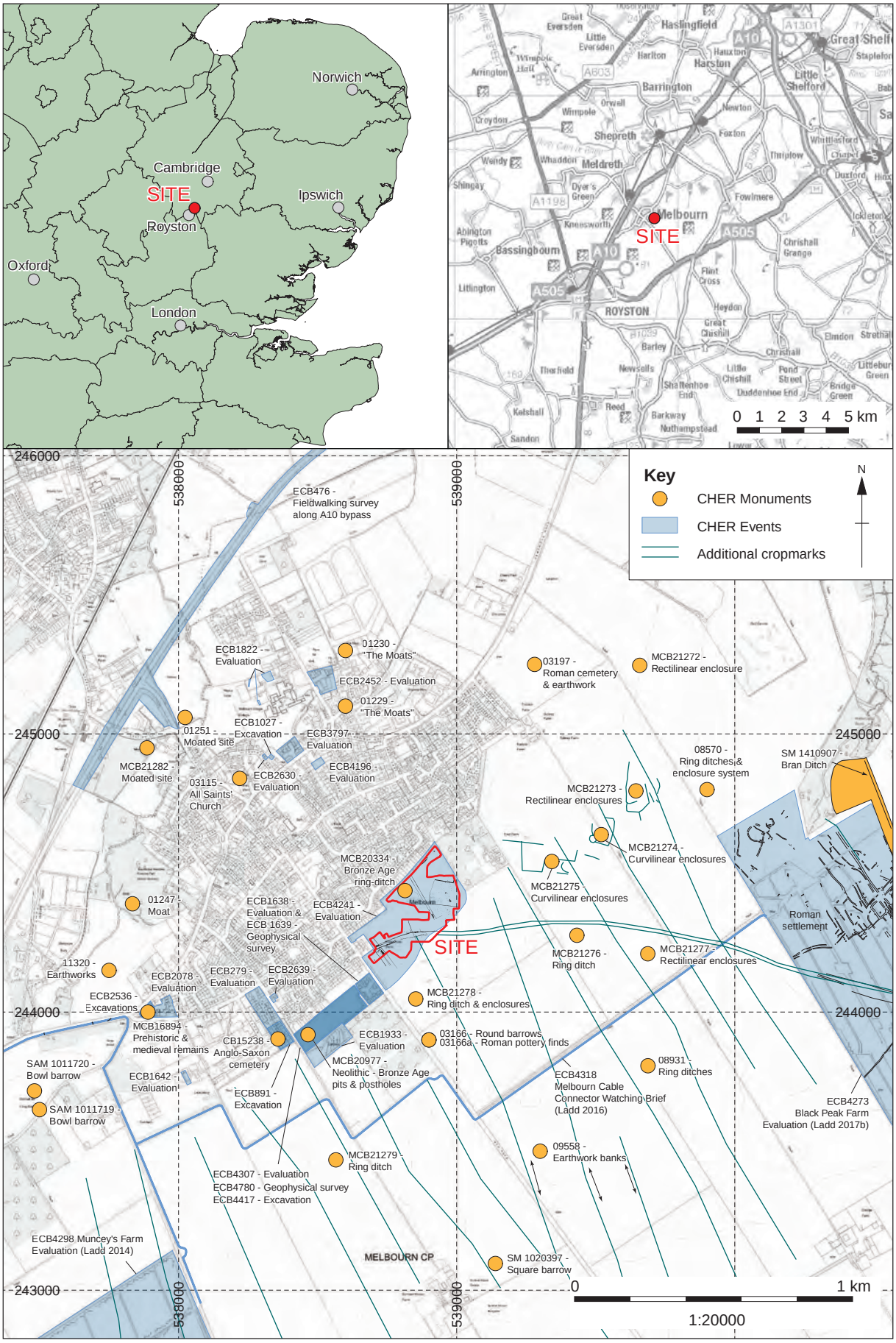

Figure 1: Site location excavation area (red) and selected CHER records.

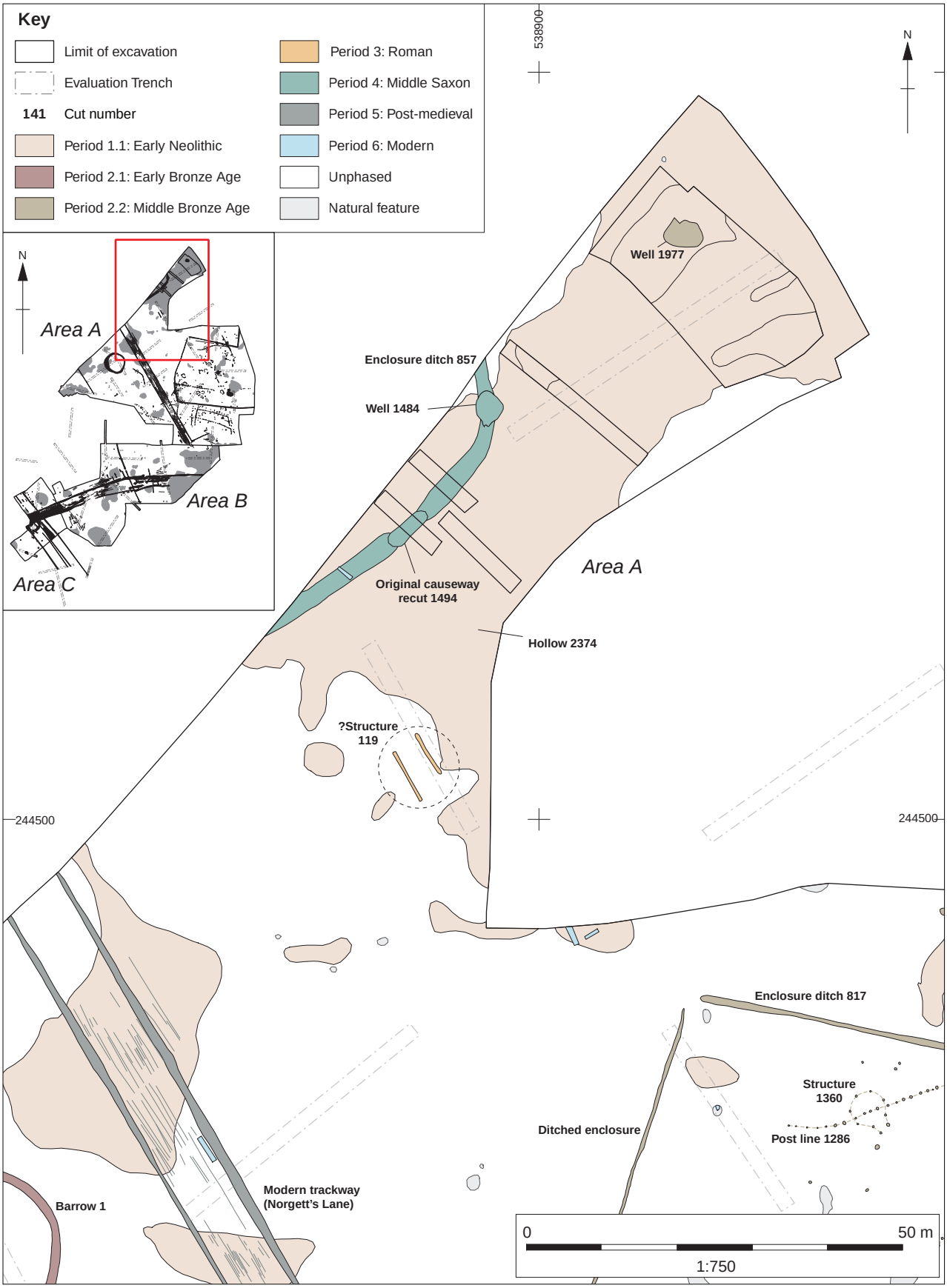

Figure 2: Area A (north) phase plan

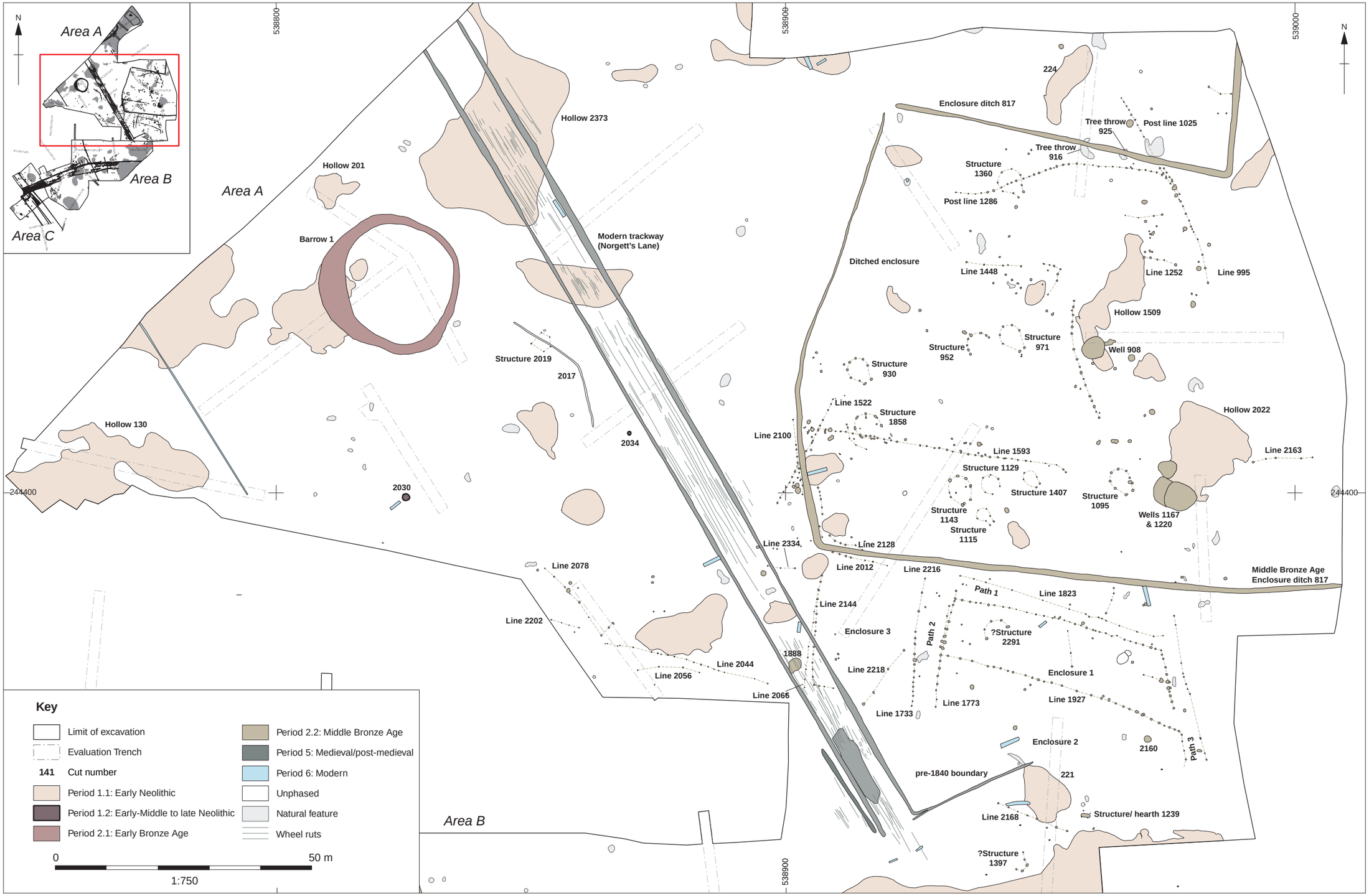

Figure 3: Area A (south) phase plan

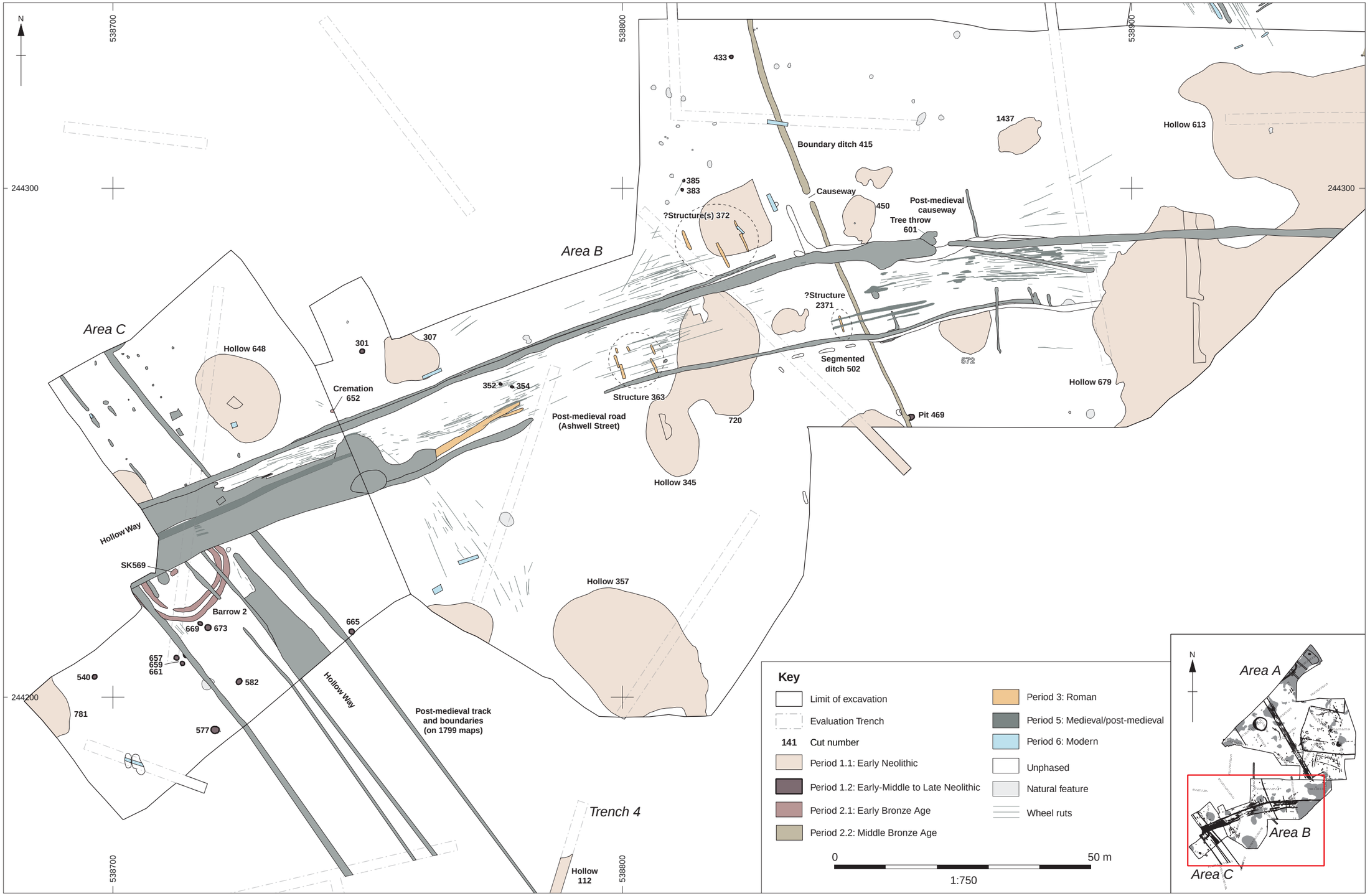

Figure 4: Areas B and C phase plan

Figure 5: Middle Bronze Age settlement (south) orthophotographic aerial view

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