

Sutton Gault Irrigation Reservoir, Cambridgeshire

An Archaeological Excavation



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Summary

An archaeological excavation was undertaken by Cambridge Archaeological Unit (CAU) in advance of mineral extraction and irrigation reservoir extension at North Fen, Sutton Gault, Cambridgeshire (centred on TL 4045 8132). The excavation area comprised a 4.47ha site to the north of Long North Fen Drove, immediately to the south of the existing irrigation reservoir/quarry (Figure 1). The work was carried out between July and November 2010.

The site is located in the Cambridgeshire Fens and is situated on what is effectively a gravel 'island', surrounded by former fen. Excavations revealed a good level of preservation with complete buried soil horizons surviving across large parts of the site. Test pit sampling of the buried soil revealed the presence of five dense artefact scatters (buried soil 'sites') dating to the Late Mesolithic, Early Neolithic, Late Neolithic and Beaker periods. Of the archaeological features encountered, seven Early Neolithic pit clusters which produced rich assemblages of worked flint and Mildenhall pottery are perhaps of most significance. Other excavated features include a number of Early Bronze Age 'watering holes' and two - probably Collared Urn associated - ring ditches.

With the exception of post-medieval/modern remains no features or finds post-dating the Early Bronze Age were recovered, suggesting that the site was largely abandoned after this period and did not see significant activity again until post-medieval drainage.

The prehistoric remains are an important addition to the regional archaeological record. The presence of both cut archaeological features such as pits, which yielded substantial finds assemblages, in conjunction with extensive artefact scatters within the buried soil is particularly significant and has the potential to contribute to a number of ongoing debates, not least the character and 'dynamics of deposition' of earlier prehistoric settlement. The number of discrete 'sites' which would appear to represent separate episodes of activity each leaving their own signature on the landscape also has great potential in this regard for both the Neolithic and Early Bronze Age periods.

1.0 INTRODUCTION

An archaeological excavation was undertaken by Cambridge Archaeological Unit (CAU) in advance of mineral extraction and irrigation reservoir extension at North Fen, Sutton Gault, Cambridgeshire (centred on TL 4045 8132). The excavation area comprised a 4.47ha site to the north of Long North Fen Drove, immediately to the south of the existing irrigation reservoir/quarry (Figure 1). The work was carried out between July and November 2010.

The work followed a trial trench evaluation of the site carried out by Oxford Archaeology East in September 2009 (Rees 2010).

The project was commissioned by Darlington Bull Ltd. on behalf of P.J. Lee and Sons Ltd. Work was carried out in accordance with a project design specification (Beadsmoore 2010) produced by the CAU in response to a brief by Andy Thomas of Cambridgeshire Historic Environment Team (Thomas 2010).

1.1 Geology and topography

The site is located immediately to the north of Long North Fen Drove, some 2.5km to the north-west of Sutton Gault and approximately 5km to the south of Chatteris. It is situated at a height of between c.0m and c.1.5m OD on an area of higher ground c.1.4km across, formed by 1st and 2nd terrace river gravels. This gravel 'island' is surrounded by an area of former fen represented by a sequence of peat and 'fen clay' deposits. The underlying solid geology comprises Jurassic clay (BGS 1980).

The 2009 evaluation of the site (Rees 2010) also identified a raised sand ridge on the southern edge of the gravel island, which appeared to be a focus for archaeological activity and was potentially a significant landscape feature.

1.2 Environmental background

North Fen lies at the southern extent of the East Anglian Fenland, the largest area of former coastal wetland Britain (Waller 1994). As such, environmental factors – namely prehistoric marine incursion and subsequent fen development in low-lying areas – are key to understanding the character, date and location of archaeological remains at the site.

The environmental history and fen development of the area around North Fen have been investigated as part of the Fenland Project (Waller 1994) with particular emphasis on the area around Haddenham, to the south, where palaeo-environmental work has complimented extensive archaeological investigations (Evans and Hodder 2006).

Analysis of the sedimentary sequence at two sites along a former channel of the River Ouse – the course of which, in this area, corresponds approximately to the post-medieval drainage ditch known as Hammond's Eau – has provided a relatively

detailed account of the environmental history of the immediate area (Waller 1994). The results suggest that prior to the Neolithic the terraces adjacent to the River Ouse remained dry and were densely forested with species such as lime, oak and hazel present. Fenland environments such as alder carr were restricted to the areas along the channel itself. Forest clearance and cultivation of the terraces appears to have commenced by the Early Neolithic and continued in a largely dry environment until the Late Neolithic.

Around 4000 BP a major marine incursion, which rapidly spread inland at least as far as Haddenham over the next several hundred years, dramatically altered the environment leading to flooding of lower-lying areas and brackish conditions across much of the landscape (Waller 1994). This episode, represented in the sedimentary sequence by 'fen clay', effectively created a landscape of embayments and islands - of which North Fen is one - and resulted in the loss of large areas of previously cultivated land (as well as any remaining forest) which was replaced by fen carr, sedge fen and reed swamp environments. Although the marine influence gradually receded by the Middle Bronze Age, fen conditions persisted into the Late Bronze Age and Iron Age as a result of numerous freshwater flooding episodes.

1.3 Archaeological background

Prehistoric

The southern Cambridgeshire Fens is an area of known archaeological potential which has been found to be rich in prehistoric sites, many located at so-called 'fen-edge' locations. The area around North Fen in particular has been the subject of detailed archaeological investigation both as part of regional scale projects, such as The Fenland Project (Hall 1996), as well as more landscape focused projects such as the Haddenham (Evans and Hodder 2006) and Over Narrows projects (Evans forthcoming).

Fieldwalking survey and aerial photographic analysis conducted as part of the Fenland Project (Hall 1996) has identified a number of prehistoric sites in the area including seven which occupy the North Fen island. Scatters of worked flint and pottery sherds indicate the location of two Neolithic sites located on a 'tongue' of sandy soil on the west of the gravel island (Hall 1996, Sutton sites 1 and 2), while soilmarks and cropmarks are thought to represent the sites of five Bronze Age round barrows (*ibid.*, Sutton sites 3-7). Further sites are recorded to the north at Horseley Fen and Langwood Fen where surface finds scatters indicate the locations of three Neolithic sites and at least 15 possible Bronze Age round barrows along the southern fringe of Chatteris island (Hall 1992).

Since the work of the Fenland Project a number of major archaeological sites have been excavated in advance of gravel quarrying in the area around North Fen. To the south-west, excavations at Colne Fen have exposed a prehistoric landscape comprising Neolithic, Bronze Age and Iron Age settlement remains, as well as Bronze Age funerary monuments and field systems along the former fen edge to the south-east of Somersham (Evans forthcoming). Excavations at Block fen, to the north-east,

have revealed a similar array of Neolithic and Bronze Age features albeit on a smaller scale (Roberts and McConnell 2006).

Slightly further a field the major research excavations at Haddenham conducted by the University of Cambridge (Evans and Hodder 2006) have further highlighted the archaeological potential of the local fen environs. Investigations undertaken over seven years from 1981 to 1987, recorded significant prehistoric ritual and domestic sites located on river terraces along the former course of the River Ouse. Excavated sites include two major Neolithic monuments - a long barrow and a causewayed enclosure - as well as two Bronze Age round barrows and evidence of settlement activity dating from the Mesolithic through to the Iron Age. More recent work undertaken by the Cambridge Archaeological Unit at Needingworth Quarry (incorporating the Over and Barleycroft sites) has exposed significant prehistoric remains and continued the landscape-scale investigations initiated at Haddenham. Excavations conducted over a period of 15 years at Over and Barleycroft have revealed extensive settlement remains ranging in date from the Mesolithic to the Iron Age (eg. Evans and Vander Linden 2009a; 2009b) as well as Early Bronze Age barrow cemeteries (eg. Evans and Tabor 2010) and Middle Bronze Age field systems (eg. Evans and Tabor 2009). In addition, well preserved environmental sequences and extensive buried soil deposits have allowed a detailed reconstruction of the prehistoric fenland environment.

Roman – Medieval

No sites dating to the Roman or medieval periods occur in the immediate vicinity of the development area. While sites and findspots are recorded on the ‘uplands’ of Sutton and Chatteris – including the Roman site at Langwood to the north (Evans 1995) – as well as at Colne Fen and Haddenham, low-lying areas such as North Fen were uninhabitable fen during these periods.

Post-Medieval

Land reclamation during the post-medieval period led to the drainage of large areas of the Cambridgeshire Fens including the area around North Fen. Both Hammond’s Eau, to the south of the site and the Old and New Bedford Rivers, to the east were constructed during this period.

1.4 Previous work at North Fen

A number of phases of previous archaeological work have been undertaken in advance of the gravel quarrying at the North Fen site (Figure 1). One of the round barrows identified by the Fenland Project (Hall 1996, Sutton site 7), which fell within the quarry’s working area, was excavated by the Sutton Conservation Society between 2004 and 2007. The ploughed-out remains of the barrow, which was surrounded by a ring ditch, contained a primary cremation burial held within a Collared Urn and was radiocarbon dated to 1878-1670 cal BC (Connor 2009). Further evidence of prehistoric activity within the quarry was encountered during trial trench evaluation

(Last 1997) and subsequent open area excavation (Webley and Hiller 2009) to the north of the present site. A buried soil horizon was found to survive across much of the site and yielded assemblages of worked flint and pottery dating to the Late Neolithic and Early Bronze Age. In addition a watering hole containing a timber revetment was excavated and radiocarbon dated to 1951-1880 cal BC (Webley and Hiller 2009).

Trial trench evaluation undertaken in advance of the current work (Rees 2010) identified the potential for the survival of significant archaeological remains dating to a number of periods of prehistory. The recovery of finds from buried soil layers as well as features suggested episodic occupation of the site during the Late Mesolithic, the Late Neolithic and the Early Bronze Age. Features including pits, possible ditches and up to four possible ring ditches potentially indicated both settlement related and funerary or 'ritual' activity. While such features were found to concentrate on the sand ridge in the south of the development area, a large area of buried soil to the north was also considered to be of considerable archaeological potential.

2.0 METHODOLOGY

The site was stripped of topsoil using a 360° tracked excavator fitted with a toothless bucket operating under the supervision of an experienced archaeologist. In areas of preserved buried soil, additional machining comprising trenching and/or small open areas was also undertaken following buried soil sampling (see below) in order to ensure the buried soil horizons were not masking earlier features.

The site was located using an advanced Global Positioning System (GPS) with Ordnance Datum (OD) heights obtained. Potential archaeological features were planned at a scale of 1:50 and subsequently sample excavated. All potential features were hand excavated and archaeological finds were retained. Features which produced significant finds assemblages and all of the small prehistoric pits were 100% excavated and their fills sieved through a 5mm mesh. Environmental bulk soil samples were taken from selected features and buried soil deposits. A written record of archaeological features and *in situ* buried deposits was created using the CAU recording system (a modification of the MoLAS system) and sections were drawn at an appropriate scale.

2.1 Buried soil sampling

A buried soil horizon, surviving to varying degrees, was recorded over the majority of the excavation area. In order to assess the density of finds within the horizon an extensive programme of buried soil sampling was undertaken:

In the west of the site, the sampling programme initially comprised the excavation of 1x1m test pits laid-out on a 20m grid; a strategy designed to evaluate finds densities over a large area. Based on those results, further sampling was undertaken around test pits which produced five or more finds. These additional test pits were laid out on a 10m grid in order to 'home in' on finds scatters. Having identified areas of higher finds densities, a checkerboard pattern of alternate 1x1m test pits was excavated in

areas with finds densities equal to or above five finds per square (in these areas only the A horizon and upper B horizon was excavated having established that these layers consistently contained all of the finds).

The results of this preliminary intensive buried soil sampling (see below) - which showed finds densities to be very low in areas where the buried soil horizon was truncated - allowed the sampling over the remainder of the site to focus largely on areas of buried soil with an intact A and/or upper B horizon. Three north-south transects of test pits 20m apart were excavated in order to evaluate finds densities and record the buried soil profile over the entire area, however, intensive sampling was concentrated on patches of well-preserved buried soil, which often coincided with large numbers of surface finds. In these areas 'checkerboard' sampling was, once again, undertaken where finds densities were consistently equal to or above 5 per metre square.

Following the completion of the checkerboard sampling, 100% sampling of defined areas with very high finds densities was undertaken in four areas of the site in order to recover 'complete' finds assemblages.

3.0 RESEARCH AIMS

The aim of the excavation was to define the Neolithic and Bronze Age activity on the area of higher ground within the surrounding fen and to characterise the environment within which that activity was taking place.

More broadly, the excavation aims were;

- i) To determine the extent, character and date of the archaeological deposits and features revealed throughout the designated area.
- (ii) To determine, as far as possible, the origins, development, function, character and status of the site.
- (iii) To establish the stratigraphic sequence of the site, the date of the features and the 'occupation' horizons, and the nature of the activities carried out at the site during the phases of its occupation.
- (iv) To place the findings of the aims above in both regional and national research contexts.

4.0 RESULTS

Excavations at North Fen revealed buried soil artefact scatters and cut features ranging in date from the Late Mesolithic to the Early Bronze Age (Figure 2). With the exception of post-medieval/modern remains no features or finds post-dating the Early Bronze Age were recovered, suggesting that the 'island' was largely abandoned after this period and did not see significant activity again until post-medieval drainage.

The ‘archaeological horizon’ was sealed by up to 0.5m of topsoil. Little trace of any formerly overlying peat deposit was encountered - except in the top of large features – it evidently having been lost to deflation/ploughing. Whilst the preservation of the prehistoric land surface was generally good, with almost complete buried soil horizons surviving in areas, some truncation was evident with modern plough scars running across much of the site.

4.1 Buried soils

(see also French, below)

Buried soil horizons survived, to varying degrees, across the majority of the site (see Figures 3 and 4). A truncated buried soil comprising the lower half of a complete soil profile - the lower B and C horizons - was recorded across almost the entire site and represented the ‘archaeological horizon’ at which features were visible. More complete buried soil profiles, where surviving upper B and A horizons were also recorded, occurred over relatively large areas in the north of the site but were confined to ‘pockets’ on the sand ridge to the south. A deposit, provisionally identified during the 2009 evaluation (Rees 2010) as alluvial in origin, was misidentified and found to be buried soil (lower B/C horizon), which was slightly darker in colour than elsewhere on the site.

Extensive buried soil sampling comprising north-south transects of test pits across the site indicated that the lower buried soil profile - effectively a buried subsoil - contained very low densities of artefacts. As such, where only this survived the buried soil clearly had little archaeological potential. In contrast, where the more complete buried soil profile survived (upper B and A horizons), artefact densities were much higher and intensive test pit sampling in these areas identified five buried soil ‘sites’ comprising significant artefact scatters.

The identified sites yielded finds assemblages which were markedly different from each other in terms of artefact density and composition (see Table 1) and varied in date from the Later Mesolithic to the Beaker period.

Site	Pottery	Flint	Animal Bone	Burnt Clay	Burnt Flint	Burnt Stone	Total
I	406 (1052g)	203 (659g)	12 (26g)	1 (1g)	1 (1g)	4 (58g)	630 (1084g)
II	2 (2g)	266 (265g)	2 (1g)	-	2 (4g)	1 (46g)	273 (318g)
III	113 (267g)	2322 (3500g)	13 (10g)	1 (92g)	456 (1233g)	36 (541g)	2971 (5655g)
IV	-	568 (980g)	9 (3g)	-	36 (159g)	13 (226g)	626 (1368g)
V	43 (236g)	142 (414g)	19 (31g)	206 (1921g)	118 (528g)	53 (1443g)	581 (4568g)

Table 1: Buried soil sites, finds assemblage breakdown

Site I

The most extensive area of buried soil with a relatively intact and complete profile occurred in the far north-west of the site and extended beyond the limit of excavation to the north, east and west. A full buried soil profile was recorded with a depth of up to 0.5m and the vast majority of finds were recovered from the A horizon [319]. Although much of this area was found to have relatively low finds densities, a clear scatter of Early Neolithic flint and pottery (Site I) was located on the eastern edge of the excavation area. A finds density of above 5 per 1m square was recorded over an area of 7m by 4m, with highs of 40 artefacts per 1m square at the centre of the scatter. That a large proportion of the artefacts in the high density 1m squares were very small abraded pottery sherds - which may derive from far fewer larger sherds - should be taken into account, however, the finds densities are still significant. A total of 406 sherds of pottery - the vast majority dating to the Early Neolithic - were recovered from Site I (Knight, see below) as well as 212 worked flints including serrated pieces, a scraper and a leaf shaped arrowhead (Billington, see below). No features were associated with the buried soil scatter although finds from the scatter were found to have been incorporated into the fill of a tree throw (F.83) at the site.

Two test pits (test pits 74 and 108) *c.* 15m to the north of Site I yielded a total of 72 sherds of Beaker pottery all from the same vessel. Additional test pitting around these squares, which produced low finds densities, indicates that this most likely represents an isolated finds scatter derived from a single broken vessel or large sherd in the buried soil rather than a 'site'.

Site II

To the south-east of Site I, a Late Mesolithic flint scatter (Site II) was recorded in a swathe of buried soil, which extended beyond the limit of excavation to the north. Following the identification of the flint scatter as a surface spread of artefacts, test pit sampling was undertaken over an area of 5m square. The surviving buried soil profile measured *c.* 0.25m in depth and all of the finds were recovered from the A/upper B horizon [325]. Finds densities were consistently over 10 per 1m square with a high of 44 finds per 1m square in the centre of the scatter. Although including four microliths, the flint assemblage recovered is dominated by working waste probably resulting from the reduction of only two or three individual flint nodules (Billington, see below). Although totalling 266 pieces, the flint assemblage was largely made up of small chips and flake fragments. No features were associated with buried soil Site II.

Site III

By far the most extensive and rich of the buried soil artefact scatters, Site III was located on the sand ridge in the south of the site. Once again, the scatter was identifiable as a surface spread of artefacts although a richer, darker A horizon buried soil was also clearly discernable. The surviving buried soil profile measured *c.* 0.4m in depth with all of the finds recovered from the upper B and A horizons. The finds assemblage recovered was dominated by Late Neolithic worked flint (2322 pieces weighing 3500g). Two clear concentrations of material one to the north-west and one

to the south-east were recorded and at their most dense, in the north-west of the buried soil spread, finds densities reached 191 finds per 1m square. Retouched pieces within the flint assemblage included seven scrapers and six chisel arrowheads while a number of flakes clearly represent by-products of arrowhead production (see Billington, below). Quantities of other finds – with the exception of burnt flint (456 pieces) – were low; the pottery assemblage particularly is small given the overall size of the artefact scatter and largely comprised abraded sherds which are likely to be background material. The Site III assemblage does, however, contain the only Peterborough Ware pottery (two re-fitting sherds) from the North Fen site.

Five pits F.107, F.138, F.141, F.143, F.144 (discussed below) were recorded within, or close, to Site III as well as a possible hearth feature (F.126, see below). Two of the pits (F.107 and F.144) have been dated to the Early Neolithic and therefore appear unrelated to the main buried finds soil scatter, the remaining features are potentially related to Site III.

Site IV

To the east of Site III, Site IV comprised a comparatively small area of preserved buried soil. The buried soil profile appeared to be relatively truncated with a maximum depth of 0.2m and little surviving A horizon in evidence. Consequently the majority of the finds were recovered from the upper B horizon, on or very close to the machined surface. As with Site III, the finds assemblage was dominated by flint (568 pieces weighing 980g) with no pottery and few other finds. Finds densities were once again high with a highest density of 137 finds per 1m square. The flint assemblage displays technological traits suggestive of an earlier Neolithic date and is dominated by working waste. No features associated with Site IV were encountered.

Site V

Located in the south-east corner of the site, Site V occurred in a relatively extensive area of well preserved buried soil extending beyond the edge of excavation to the south. A complete buried soil profile was recorded with a maximum depth of 0.5m. Finds densities were generally lower than the flint rich Sites II and IV with a high of 49 finds per 1m square. The finds assemblage was dominated by burnt material – highly fired clay and burnt flint – although smaller amounts of pottery, flint and animal bone were also recovered. The presence of comparatively large amounts of fired clay/daub, of which a number of pieces showed evidence of moulding and/or wattle imprints is significant and the material is likely to derive from a structure (see Timberlake, below). The pottery and flint assemblages both contained chronologically diagnostic Beaker/Early Bronze Age pieces. One pit, F.166 (discussed below) is potentially associated with the buried soil scatter.

Surface finds

Surface finds were collected from across the site, largely from areas of truncated 'B horizon' buried soil, which were not subject to intensive test pitting. The distribution

of surface finds (see Figure 3) was closely related to areas of well preserved buried soil and the location of archaeological features. As such, the area around buried soil Site III and Early Neolithic pit clusters 2-6 (see below) was comparatively rich in surface finds. Conversely, in areas of truncated buried soil where features occurred more sparsely - in the north-east of the site, for example – surface finds were fewer. It is clear, therefore, that the distribution of surface finds does reflect areas of archaeological activity.

The amount of Beaker pottery recovered as surface finds from the far west and north-west of the site - as well the number of Beaker sherds recovered from tree throws in this part of the site - is also of note and suggests activity in this area despite the absence of contemporary cut features. Interestingly, with the exception of a high number of sherds from one vessel in Test Pits 74 and 108 (to the north of Site I), this activity was not reflected in the results of the buried soil test pit sampling. As a result no Beaker ‘sites’ were identified in this area.

4.2 Archaeological features

A total of 152 archaeological features ranging in date from the Early Neolithic to the Early Bronze Age were recorded (Figures 5 and 6). A further 24 recorded features were found to be of natural origin, largely tree throws.

Early Neolithic pits

A total of 36 Early Neolithic pits, occurring in six distinct clusters, were recorded on the sand ridge in the south of the excavation area (see Figure 7). Of these, 21 contained diagnostic Mildenhall style Early Neolithic pottery, while the remaining 15 have been ascribed to the Early Neolithic period based on their association with well dated pits. In addition to the well dated Early Neolithic pit clusters two isolated pits can also tentatively be dated to this period while an undated pit group (Cluster 7) has been ascribed a probable Early Neolithic date based on its close proximity and similarity to Clusters 2-6.

Cluster 1

Located in the west of the excavation area, slightly removed from the main concentration of Early Neolithic pits to the east, Cluster 1 comprised three pits (**F.16**, **F.17** and **F.18**). The pits were all sub-circular in shape with shallow profiles and each contained up to two relatively charcoal-rich fills. The only finds of note - 13 sherds of Mildenhall pottery - were recovered from pit F.16.

Pit	Pottery	Flint	Bone	Burnt Clay	Burnt Flint	Burnt Stone
F.16	13 (34g)	3 (1g)	-	-	-	-
F.17	-	1 (30g)	-	-	-	-
F.18	-	-	-	-	-	-

Table 2: Cluster 1 assemblage breakdown

Cluster 2

Located some 200m to the east of Cluster 1, the second pit group (Cluster 2) comprised three pits (**F.68**, **F.69** and **F.70**). Each contained a single fill and measured between 0.4m and 0.5m in diameter with a maximum depth of 0.15m. This was perhaps the least convincing of the pit clusters, given that only one of three features (F.68) contained any finds – Early Neolithic pottery and a single struck flint - nevertheless the three pits do form a convincing cluster.

Pit	Pottery	Flint	Bone	Burnt Clay	Burnt Flint	Burnt Stone
F.68	6 (14g)	1 (1g)	-	-	-	-
F.69	-	-	-	-	-	-
F.70	-	-	-	-	-	-

Table 3: Cluster 2 assemblage breakdown

Cluster 3

Pit Cluster 3 (see Figure 8) comprised 11 discrete pits (**Fs. 48-53**, **Fs. 55-58** and **F.79**). All of the pits were sub-circular or sub-oval with shallow profiles; the pit dimensions ranged from between 0.5m and 0.95m in diameter and between 0.05m and 0.34m in depth. Each pit contained a single fill, which consisted of a mid to dark silty sand fill with frequent charcoal inclusions. Seven of the pits yielded Mildenhall pottery, while six of the pits produced Early Neolithic flint assemblages; only four of the pits produced small amounts of fragmentary animal bone all of which was calcined. Pit F.49, which produced 111 sherds of Mildenhall pottery, is of particular note. Sherds from at least three different vessels were recovered - including approximately half of a bowl – as well as a sherd which was found to ‘re-fit’ with pottery from pit F.74 in Cluster 6, some 70m to the east.

Pit	Pottery	Flint	Bone	Burnt Clay	Burnt Flint	Burnt Stone
F.48	21 (194)	19 (36g)	6 (4g)	-	-	2 (84g)
F.49	111 (1036g)	28 (5g)	10 (6g)	-	1 (8g)	-
F.50	31 (138g)	78 (80g)	4 (2g)	-	3 (8g)	3 (294g)
F.51	44 (120g)	19 (18g)	-	-	-	2 (4g)
F.52	6 (10g)	-	2 (2g)	-	-	-
F.53	11 (36g)	10 (8g)	-	-	4 (2g)	-
F.55	1 (1g)	-	-	-	-	-
F.56	-	-	-	-	-	-
F.57	-	-	-	-	-	-
F.58	-	29 (48g)	-	-	10 (6g)	1 (1g)
F.79	-	-	-	-	-	-

Table 4: Cluster 3 assemblage breakdown

Cluster 4

To the south-east of Cluster 3, an almost linear arrangement of seven pits (**Fs. 117-120** and **Fs. 122-124**) formed Cluster 4. The pits were all sub-circular in plan and varied in size from between 0.3m and 1.05m in diameter by between 0.03m and 0.2m

in depth. All had a very shallow profile – having evidently been truncated by ploughing – and contained a single silty sand fill. Six of the pits contained Mildenhall pottery and three contained flint. Perhaps the most significant aspect of Cluster 4 was, however, an articulated piglet skeleton recovered from pit F.123 (see Figure 8). The presence and preservation of the animal bone – which was found alongside 36 sherds of Mildenhall pottery – was in marked contrast to the rest of the Early Neolithic pits on site, which contained either no animal bone or very small fragments of heavily burnt bone.

Pit	Pottery	Flint	Bone	Burnt Clay	Burnt Flint	Burnt Stone
F.117	1 (8g)	-	-	-	-	-
F.118	16 (92g)	-	-	-	-	-
F.119	7 (34g)	1 (1g)	2 (1g)	-	-	-
F.120	6 (24g)	5 (24g)	-	-	-	-
F.122	12 (20g)	-	-	-	-	-
F.123	36 (64g)	32 (48g)	320 (406g)	-	-	2 (6g)
F.124	-	-	-	-	-	-

Table 5: Cluster 4 assemblage breakdown

Cluster 5

Located c.20m to the east of Cluster 4, Cluster 5 comprised eight pits (Fs. 37-43 and F.54). Once again, the pits were all sub-circular with a shallow profile and dimensions varying between 0.32m and 0.71m in diameter and by between 0.07m and 0.26m deep. The majority of the pits contained two fills - a buried soil derived primary fill overlain by a more midden-like secondary fill - although two of the pits (F.43 and F.54) contained a single fill. Early Neolithic Mildenhall pottery was recovered from four of the pits while seven of the pits yielded flint. Pit F.38 yielded both Early Neolithic and Beaker pottery sherds; such a chronologically mixed assemblage clearly suggests that one of the pottery types is either residual or intrusive material and this pit requires further consideration.

Pit	Pottery	Flint	Bone	Burnt Clay	Burnt Flint	Burnt Stone
F.37	-	5 (28g)	-	-	-	-
F.38	22 (42g)*	23 (90g)	-	-	1 (1g)	1 (6g)
F.39	-	2 (54g)	-	-	-	-
F.40	11 (9g)	17 (3g)	-	-	1 (1g)	-
F.41	-	6 (6g)	-	-	-	-
F.42	4 (6g)	-	-	-	-	-
F.43	21 (31g)	10 (32g)	-	-	-	1 (110g)
F.54	-	4 (4g)	1 (1g)	-	-	-

Table 6: Cluster 5 assemblage breakdown. * Includes both Early Neolithic and Beaker pottery sherds

Cluster 6

Cluster 6, located c.16m to the east of Cluster 5, produced the largest amount of pottery and flint out of any of the Early Neolithic pit clusters despite only comprising three pits. Pit F.67 produced only a few worked flints, however, pits F.66 and F.74 were rich in material culture. Pit F.66 contained 2 fills - a fine sandy primary fill,

overlain by silty secondary fill - and measured 0.8m in diameter by 0.2m deep, with a rounded profile. The pit yielded finds including, 80 sherds of Mildenhall style pottery, 67 worked flints and a worked stone ball (see Timberlake, below), which were almost entirely recovered from the secondary fill. Pit F.74 contained four fills, including a charcoal rich midden-like tertiary fill, which yielded the majority of the finds. The pit measured 0.76m across by 0.34m deep and was circular in plan with a rounded profile. It yielded by far the largest pottery assemblage of any of the pits on site; a total of 197 sherds (2038g) of Mildenhall pottery representing at least three vessels, including almost all of an S-profiled bowl. Other finds from pit F.74 included 77 worked flints and a small amount of calcined bone.

Pit	Pottery	Flint	Bone	Burnt Clay	Burnt Flint	Burnt Stone
F.66	80 (494g)	67 (134g)	5 (2g)	-	5 (8g)	5 (28g)
F.67	-	3 (4g)	-	-	-	2 (258g)
F.74	197 (2038g)	77 (151g)	34 (9g)	-	6 (6g)	6 (56g)

Table 7: Cluster 6 assemblage breakdown

Pits F.71 and F.72 were located *c.*6.5m to the south of pit F.67 and while these could be interpreted as being part of Cluster 6, they contained few finds and are not convincingly part of the same pit group. Pits F.71 and F.72 both contained a single fill and yielded just one braded sherd of Early Neolithic pottery and three worked flints between them.

Cluster 7

Cluster 7 comprised a group of seven pits (**Fs. 96-102**) some 30m to the east of Cluster 6. The dimensions of the pits ranged from between 0.52m and 1.13m in diameter and by between 0.08m and 0.18m in depth. All of the pits were sub-circular with shallow rounded profiles. In marked contrast to the other pit clusters, particularly Clusters 2 and 5, the pits yielded only one worked flint between them (from pit F.96), despite a number of them having charcoal-rich, midden-like fills.

Additional pits

A pair of probable Early Neolithic pits was recorded following the removal of the buried soil in the south of buried soil Site III. Pits **F.141** and **F.107** cannot be confidently dated but the presence of a single sherd of Early Neolithic pottery in pit F.107 suggests a possible date.

Three further pits contained a small quantity of Neolithic pottery. Located to the east of Cluster 7, pits **F.111** and **F.112** produced three (2g) and four (14g) pottery sherds respectively and seem likely to be Early Neolithic although the possibility that the sherds are residual and the features later - or even of natural origin - cannot be discounted. To the north of pit F.111, the third pit, **F.94**, produced a single sherd of Early Neolithic pottery.

Finally, pit **F.128** contained a medium sized assemblage of worked flint comprised largely of flakes. The assemblage is certainly Neolithic in date, however, the flakes appear to reflect later Neolithic technologies, rather than the Early Neolithic technologies seen in the majority of the pit assemblages. If pit F.128 is indeed Late Neolithic it is significant in that it is the only *feature* of this period so far identified at the site.

Beaker pits

Well-dated Beaker period features were comparatively few in number with only three pits containing diagnostic pottery.

Pit **F.35** occurred in relative isolation to the west of the Early Neolithic pit clusters. Circular and with a shallow rounded profile - having evidently been highly truncated by ploughing - the pit yielded 13 sherds of pottery and a considerable amount of burnt stone (528g).

Pit	Pottery	Flint	Bone	Burnt Clay	Burnt Flint	Burnt Stone
F.35	13 (12g)	1 (1g)	4 (1g)	-	2 (1g)	40 (528g)
F.148	5 (56g)	1 (2g)	-	-	-	-
F.149	94 (820g)	1 (6g)	-	-	-	1 (46g)

Table 8: Beaker pits assemblage breakdown

Pits **F.148** and **F.149** occurred as a pair, to the east of the Early Neolithic pit clusters. While pit F.148 was relatively small and shallow (diameter: 0.39m, depth: 0.06m), F.149 was more substantial (diameter: 0.64m, depth 0.31m) with almost vertical sides and a flat base. The pottery assemblages recovered from each pit also contrasted markedly, with pit F.148 producing just five Beaker sherds, whereas pit F.149 yielded 94 sherds of both rusticated Beaker and finer forms representing at least four vessels. Pit F.149 also produced a perforated/worked pebble.

Finally, pit **F.166**, which was located immediately adjacent to buried soil Site V and contained burnt flint, burnt stone and burnt clay, seems likely to be contemporary with the buried soil finds scatter and is therefore probably Beaker period.

Collared Urn features

Pits

Four pits located in the east of the site can be relatively confidently dated to the Collared Urn period based on finds assemblages. The pits (**F.125**, **F.154**, **F.156** and **F.172**) were generally much larger and deeper than the Early Neolithic and Beaker pits recorded on site, each also contained a more complex sequence of fills. Furthermore, the composition of the Collared Urn period finds assemblages was notably different from the earlier pits, with a much higher proportion of surviving animal bone (see Rajkovaca, below) and comparatively small quantities of pottery and flint (see Table 9).

Pit	Pottery	Flint	Bone	Burnt Clay	Burnt Flint	Burnt Stone
F.125	4 (32g)	10 (86g)	18 (236g)	-	-	3 (82g)
F.154	1 (234g)	-	56 (74g)	-	1 (26g)	-
F.156	8 (75g)	17 (118g)	38 (910g)	2 (178g)	-	-
F.172	1 (2g)	1 (16g)	50 (350g)	-	-	-

Table 9: Collared Urn pits assemblage breakdown

Pit F.125 was sub-circular in plan, with a steep-sided profile ‘under-cutting’ at the base – suggesting the feature at some point held water. It measured 1.02m in diameter by 0.8m deep and contained eight fills; a primary deposit comprising a peaty fill with frequent fragments of burnt and unburnt wood, was overlain by a sequence of silty sand fills with frequent charcoal inclusions. The pit produced four fragments of Collared Urn pottery, ten worked flints and 18 fragments of animal bone.

Approximately 17m to the south-east of F.125, pit F.156 was a substantial feature measuring 3m in diameter by up to 1.15m deep. It had a relatively steep profile, which was once again steeply ‘under-cutting’ at the base and contained a complex sequence of 24 fills. The fills comprised a sequence of ‘silting’ layers – possibly formed under wet or ‘reduced’ conditions – as well as ‘slumped’ gravel and sand deposits, and a rich midden-like fill close to the top of the sequence. Finds recovered – largely from the midden-like fill – included sherds of Collard Urn pottery, worked flint and animal bone as well as the degraded remains of a piece of timber (see Bamforth below).

Pit F.154, was sub-circular in plan and once again displayed the characteristic ‘under-cutting’ profile. It measured 1.5m in diameter by 0.8m deep and contained a sequence of 11 gravelly sand and silty sand fills, which yielded 56 fragments of animal bone and a near complete accessory vessel or cup found close to the base of the pit. The vessel was crudely made and was of a type commonly found in association with Collared Urn burial contexts (see Knight, below). It is perhaps unusual, therefore, that the ‘accessory vessel’ was recovered from an otherwise unremarkable feature, which was clearly not a burial.

Pit F.172 has also been assigned a Collared Urn date, although diagnostic material recovered was limited to a single pottery sherd. The pit measured 1.65m in diameter by 0.85m deep and was sub-circular with a steep, ‘under-cutting’ profile. It contained seven fills comprising primary ‘slumped’ layers, overlain by silting layers and capped by a sandy silt deposit with peat banding. The pit yielded a comparatively large animal bone assemblage, which included 12 cow ribs which, although not articulated, were possibly from the same animal.

Pennanular ditch F.44

A small pennanular gully (see Figure 9), with an internal diameter of up to 3m and a north-west facing ‘entrance’, was recorded to the east of Early Neolithic pit Cluster 5. The gully was irregular in form with a variable width of between 0.32m and 0.74m and a depth of between 0.07m and 0.27m. A single greyish silty sand fill with moderate charcoal inclusions yielded a finds assemblage comprising pottery sherds,

flint and burnt flint. The worked flint assemblage was broadly comparable with the material from the Collared Urn pits and was predominantly made up of waste flakes although a small sub-circular scraper was also recovered. The pottery was all Early Bronze Age and included re-fitting sherds of part of the rim of a Collared Urn vessel, which was found *in situ*, having evidently been placed rim-down in the top of the gully. The rim had been truncated by both machining and ploughing and it seems likely that it was all that was left of a complete inverted vessel placed within the gully. No cremated bone was found in association with the pot but given that inverted Collared Urn cremations are relatively common – the primary cremation of the SUT 7 round barrow to the north of the site (Conner 2009), for example – it is possible that the sherds are the truncated remains of a cremation urn. No other features were associated with the pennanular gully that would suggest a domestic context – although that it is a very small structure cannot be ruled out – and it appears most likely that the feature is some kind of miniature ring ditch/barrow monument.

Early Bronze Age features

An additional group of features produced only limited finds assemblages, which are not sufficiently diagnostic to more closely date individual features. However, based on the limited finds recovered and the feature type, a generic Early Bronze Age date has been assigned. As such the features are interpreted as being contemporary with either the Beaker or Collared Urn period occupation of the site.

Pits

Two pits, which were initially thought to be part of Early Neolithic pit clusters, in fact date to the Early Bronze Age. Pit **F.36** (Cluster 5) and **F.47** (Cluster 3) both appeared similar in form to the Early Neolithic pits, being sub-circular in plan and with shallow bowl-shaped profiles, however, each produced sherds of Early Bronze Age pottery.

Pit	Pottery	Flint	Bone	Burnt Clay	Burnt Flint	Burnt Stone
F.36	6 (12g)	2 (4g)	12 (6g)	-	-	-
F.47	3 (8g)	13 (28g)	-	-	-	1 (1g)
F.59	11 (14g)	5 (18g)	-	-	-	-
F.127	3 (2g)	1 (2g)	-	-	-	-

Table 10: Early Bronze Age pits, assemblage breakdown

Two further pits contained Early Bronze Age assemblages. Pit **F.59** was located adjacent to a surface spread of burnt stone and flint (Context 569) and yielded Early Bronze Age pottery and a small assemblage of flint. Pit **F.127** was located in the vicinity of other Early Bronze Age features (Beaker pits F.148 and F.149, and Collared Urn pits F.125 and F.126) as well as possible Late Neolithic pit F.128. It contained a small assemblage of Early Bronze Age pottery and flint.

‘Watering holes’

A group of large pits in the eastern half of the excavation area have been preliminarily identified as watering holes or wells (see Figure 10). A number of the pits bore a striking resemblance to an Early Bronze Age watering hole – complete with surviving timber revetment – recorded immediately to the north of the site during Oxford Archaeology’s 2004/2005 excavations (Webley and Hiller 2009).

Feature No.	Length (m)	Width (m)	Depth (m)	‘Re-cuts’	Finds
F.108	8.2	6.5	1.25	F.116	Animal bone, flint, worked wood
F.121	5.42	5.34	0.82	-	Animal bone, flint, pottery
F.147	5.95	5.45	0.98	F.146, F.151	Animal bone, human bone, flint,
F.175	4.29	3.44	0.83	-	-
F.177	3.7	3.5	1.92	-	-
F.185	9.8	9	1.12	Fs.129-136	Flint

Table 11: Watering holes, dimensions and finds assemblages

The dimensions and finds assemblages of the six watering holes are shown in Table 11. Watering holes **F.108**, **F.121**, **F.147**, **F.175** and **F.185** all had a maximum depth of around one metre, with at least one side of the pit being relatively shallow – presumably to allow access and egress. In contrast watering hole **F.177**, which is perhaps better described as a ‘well’, was almost 2m deep with steep edges on all sides. All of the watering holes contained a sequence of fills, comprising interleaving layers of silty sand and silty gravels, together with slumped deposits, reflecting a rapid in-filling of the features. All of the pits, with the exception of **F.177**, were also capped by a peaty upper fill.

The use and potentially longevity of the watering holes was also variable, while three of the pits were relatively simple, ‘single use’ features, watering holes **F.108**, **F.147** and **F.185**, had all been ‘re-cut’. **F.185**, for example, comprised a sequence of separate pits, presumably representing a continuous process of re-excavation of the watering hole, which evidently filled up relatively quickly. A number of other ‘re-cuts’ - **F.151** in watering hole **F.147** for example - may well reflect the construction of revetments (as seen in ‘Waterhole 1295’ excavated in 2004/2005 (Webley and Hiller 2009)), that have since decayed and no trace of which remains.

All of the watering holes, contained few finds, indeed **F.175** and **F.177** contained no finds at all (see Table 11). The majority of these finds – certainly the worked flint and one abraded sherd of Neolithic pottery – appear to have been incidentally incorporated into the features. While this means that the finds cannot be used to accurately date the features, the high proportion of Early Bronze Age flint– added to the fact that no remains post-dating the Early Bronze Age were recorded on site – suggests that the watering holes date broadly to this period. Additional finds include a number of trimmed branches and a felled timber from **F.108** representing material deliberately deposited or cleared into watering hole, and the proximal half of a human tibia, which was recovered from the primary fill of **F.147**.

Ring ditch F.178

A complete ring ditch/gully with an internal diameter of *c.*8.5m, was located in the south-east of the excavation area (Figure 11). The ring ditch was more regular in form than pennanular gully F.44, being relatively circular in plan and with a U-shaped profile measuring between 0.35m and 0.62m wide by 0.13m and 0.24m deep. The circuit of the ditch contained up to three silty sand fills, usually comprising a dark brown/black, charcoal rich fill interleaved with frequent lenses/layers of yellow/orange sand, apparently representing ‘washed-in’ material. This laminated fill suggests the ring ditch probably silted up relatively rapidly. The various fills produced a limited finds assemblage comprising worked flint, burnt flint, burnt stone and pot sherds as well as a few small fragments of calcined animal bone and shell. While the flint is not chronological diagnostic, the pottery has been identified as Early Neolithic and is almost certainly residual material. Indeed, given the nature of the ditch fills, there is a good chance that most of the finds recovered from F.128 are residual and reflect activity in the vicinity rather than relating directly to the ring ditch. No associated features were encountered. The ring ditch has been assigned an Early Bronze Age date based solely on its form – which has possible Early or Middle Bronze Age parallels – and the fact that no activity post dating the Early Bronze Age was recorded on site. As with pennanular gully F.44 the form of the feature suggests the remains of a ring ditch/barrow although there is no evidence to confirm this.

Post-medieval and modern features

Post-medieval and modern features were planned but remained unexcavated and were not recorded in detail. Four ditches are interpreted as relatively recent field boundaries while a series of narrow ditches in the west of the excavation area are thought to be associated with drainage or agricultural practices. Likewise, a series of pit alignments in the west of the excavation area are of a type commonly recorded in the locale, which despite their recent origin are not fully understood, however, they are almost certainly once again associated with agriculture or drainage. Finally, a large strip quarry bisected the site in the east of the excavation area. A series of trenches were machine excavated through the quarry and it was found to be a maximum of 1.1m deep – surprising given that gravel deposits extended considerably deeper than this. Local knowledge indicates that the quarry was excavated around the time of World War II in order to provide gravel for road improvement at a time when the land was being intensively farmed as part of the war effort. The quarries are thought to be of limited depth because the gravel was taken away from the site by horse and cart.

Tree throws

Tree throws were abundant across the excavation area and a number of the tree throws in the far west of the excavation area were sample excavated in order to assess whether they were being ‘utilised’ (see eg. Evans et al 1999). A number of tree throws were also recorded in other areas of the site where sample excavation was required to confirm their natural origin. The vast majority of the tree throws contained few finds all of which were residual. Nevertheless, a few interesting finds – a fine Late Neolithic scraper from F.76 and two re-fitting flakes from F.12, for example – were

recovered from these features. The one tree throw that contained a significant finds assemblage was F.142, which was located at the core of the Site III buried soil flint scatter. The tree throw contained 49 flints, including a chisel arrowhead and retouched flakes. All of the flint is thought to be buried soil derived having been incorporated into the tree throw, when the tree fell (thus indicating that the tree itself was either contemporary with or post dated the deposition of the flint scatter).

Undated Features

A total of 38 pits, produced no finds or non-diagnostic artefacts and are consequently presently undated. The pits are likely to be associated with either the Early Neolithic or Late Neolithic/Early Bronze Age activity recorded at the site.

At least two small areas of scorching on the surface of the buried soil appear to represent undated hearth/fire sites. **F.15** comprised a sub-circular patch of orange scorched buried soil 0.65m in diameter and penetrating the buried soil to a depth of up to 0.9m. It was located in the far west of the excavation area; only one other feature, an undated pit, was located in close proximity. **F.126** was an irregular patch of scorched buried soil associated with two small spreads of charcoal rich buried soil, which was located 'within' buried soil Site III and is potentially contemporary. The scorched area measured 0.8m across and penetrated the buried soil to a depth of up to 0.9m. One other potential 'hearth' related site was located just to the north of buried soil Site I. **F.32** comprised a sub-circular patch of fine ashy sandy silt with frequent flecks and small fragments of charcoal – no evidence of scorching was recorded.

4.3 Discussion

The archaeological evidence recorded at the Sutton Gault Irrigation reservoir site (North Fen) indicates at least five broad periods of activity; the Late Mesolithic, Early Neolithic, Late Neolithic, Beaker period and Early Bronze Age. Interestingly, the character of the archaeological remains was somewhat different to the predictions made on the basis of the results of the archaeological evaluation (Rees 2010). Although largely clustering on the sand ridge as expected, the distribution of archaeological features was less dense than predicted. Many of the potential features – including all of the linear ditches and the majority of the pits - identified during the evaluation proving to be natural in origin (largely tree throws) and the finds recovered from them residual. Rather, evidence of prehistoric occupation was more dispersed, albeit with clear zones of activity, and largely comprised pits and artefact scatters within the buried soil (See Figure 12).

Late Mesolithic activity

Evidence for Mesolithic activity was found across the site in the form of flint surface finds however, the flint scatter recorded at buried soil Site II is the only '*in situ*' evidence. Although a relatively dense scatter - 266 flints recovered from an area of only 25 square metres - the flint probably derives from the working of only two or three individual nodules and therefore, represents comparatively limited activity.

Certainly the scale of activity is far from the intensive Mesolithic ‘occupation’ seen on the Godwin Ridge at Over Quarry (Evans and Vander Linden 2009) and the evidence surely reflects a more transient presence within the landscape.

Neolithic activity

The Early Neolithic pit clusters and buried soil sites (Sites I and IV) represent probably the most significant aspect of the North Fen site. The pits, which occurred in seven clusters, produced impressive finds assemblages largely comprising pottery, flint and burnt flint/stone but also including animal bone and worked stone. As such they are an important addition to a growing corpus of Early Neolithic pit sites in East Anglia including such sites as Kilverstone (Garrow et al 2005) and Barleycroft Paddocks (Evans and Knight 1997), which is located c.12km to the south-west of North Fen.

Since the first identification of such ‘pit sites’ at Hurst Fen in Suffolk (Clark et al 1960) there has been much debate as to the function of the pits and the processes of deposition at work. It is now accepted that - in the absence of recorded contemporary structures - these sites are the primary evidence for Early Neolithic occupation in the region and are key to understating the temporality and context of Early Neolithic occupation. Recent studies, most notably the detailed analysis of the Kilverstone pit clusters and their artefact assemblages (see Garrow et al 2005), have suggested that the clusters are the result of non-permanent occupation resulting from ‘visitations’ of varying lengths as reflected by the size and complexity of individual pit clusters and the artefact assemblages they contain. The pits themselves, it is argued, were dug specifically for the deposition of the cultural material within them, rather than being defunct storage pits (*ibid*). The North Fen pit clusters present a great opportunity to reappraise such interpretations in the light of a new data set. The pottery and flint assemblages particularly should be compared to the Kilverstone assemblages in order to determine whether the same ‘dynamics of deposition’ are present.

It is in the light of such attempts to characterise Early Neolithic occupation that the importance of the North Fen buried soil scatters becomes apparent. The artefact scatters reflect a different process of deposition to the pit clusters and must surely represent a ‘different’ form of occupation or activity. Furthermore the artefact assemblages from the two Early Neolithic buried soil scatters, Site I and Site IV, are markedly different from each other and also appear to reflect different types of activity. Site I appears quite ‘domestic’ in character and not dissimilar to the pit assemblages in terms of the flint types present (see Billington, below) and the pottery recovered. While the presence of potentially associated pits beyond the limit of excavation to the east cannot be ruled out, it would appear that this represents settlement without pits. In contrast, only two flint ‘tools’ and no pottery were found at Site IV, which almost entirely comprised working waste. Clearly, this reflects different, possibly task-related activity to the ‘settlement’ activity reflected by the pit clusters and Site I. How the North Fen buried soil artefact scatters relate to each other, and to the pit clusters, particularly in terms of temporality and ‘function’ should be one of the major themes of the analysis phase of work.

Many of the same pit cluster vs. surface scatter themes are also relevant with regard to buried soil Site III, a flint scatter comprising almost entirely of flint and the only Late Neolithic evidence encountered during the excavation. The absence of any contemporary pits or significant quantities of pottery in the landscape – although a small quantity of Grooved Ware was recovered from buried soil immediately to the north of the present site (Webley and Hiller 2009) – is significant and the flint scatter clearly reflects occupation or activity of a different nature to the well known Grooved Ware pit sites of the region (see eg. the Over Narrows, Evans and Tabor 2008 and 2010). The high proportion of arrowheads in the Site III assemblage, which also contains good evidence for the on-site manufacture of arrowheads strongly suggests specialist task-related activity potentially associated with a visiting hunting party.

Beaker and Early Bronze Age activity

Although the Early Bronze Age finds assemblages recovered from the site were small in comparison to the Neolithic assemblages, the evidence does nevertheless hint at significant activity at North Fen. For the Beaker period, while pits such as F.149 provide good evidence of occupation, potentially of more significance is the material recovered from buried soil Site V, which included large amounts of burnt daub. The burnt daub, some of which contained probable wattle imprints, and was clearly associated with finds dating to the Beaker period, must surely derive from a nearby structure. The exact site of such a structure remains unknown - no postholes or other structural 'imprints' were found at the location and the quantities of daub were not sufficient to suggest an *in situ* structure burnt to the ground - but it seems highly likely to have been in the near vicinity and suggests 'permanent' occupation of the North Fen 'island' during the Beaker period.

Many of the features in the east of the excavation appear to represent Early Bronze Age/Collared Urn activity. The fact that they largely occupy the slightly higher ground above the 0m OD contour is notable and may suggest that rising water tables were becoming an important determining factor during this period. Also, there is a clear difference between the character of the Early Bronze Age remains and those from the preceding periods, which may reflect a change in land use and the nature of occupation. In contrast to the small pits and surface scatters of the Neolithic and Beaker periods the Early Bronze Age is represented by large pits, many of which are perhaps best interpreted as watering holes. If many of the large pits are indeed watering holes or wells – which, their similarity to 'watering hole 1295' from Oxford Archaeology's site to the north suggests (Webley and Hiller 2009) – then they potentially reflect a more organised and intensively used landscape with grazing of livestock the main concern. Whether this was accompanied by permanent settlement at the site is presently unclear. Pits F.125 and F.156 both contained midden-like fills yielding animal bone and Collared Urn pottery sherds, which does suggest some 'domestic' activity at the site. The scale of this settlement, is however, hard to determine especially given that Collared Urn settlement evidence is rare in eastern England and potentially may leave less of an imprint than, for example, the Early Neolithic pit clusters.

Whatever the scale and character of the Early Bronze Age/Collared Urn settlement, the features are the first firm evidence of occupation that is potentially contemporary

with the numerous barrows identified on the North Fen 'island' and on the southern fringes of Chatteris 'island' (Hall 1992 and 1996). The identification of two further ring ditches within the excavation area is further evidence of the monumental aspect of the Early Bronze Age landscape. Both features are somewhat unusual, being rather small in comparison to the large majority of barrows/ring ditches, and neither were associated with interments of any form. However, given the surface truncation of the site it is certainly possible that surface cremations - such as those recorded at the Over Low Grounds barrow cemetery - have been lost to ploughing and similar 'small scale' monuments are known from the region (see eg. Fengate where the 1990 Catswater excavations revealed a similar feature located within a possible henge monument (Pryor 2001) and the primary barrow phases in the Low Grounds Barrow Cemetery at Over (Evans and Tabor 2010).

Site economy and land use

Although the site's faunal and environmental assemblages are somewhat limited they provide a general sense of economy and land use during the major periods of occupation.

For the Early Neolithic and Beaker periods faunal remains were scarce, with the exception to the rule being the complete piglet skeleton in pit Early Neolithic F.123, which is potentially a significant find. Elsewhere bone from Neolithic and Beaker contexts was virtually non-existent apart from a few burnt fragments. The absence of bone in these contexts has been assumed to be a preservation issue although why the complete piglet skeleton survived in excellent condition is intriguing and a radiocarbon date is certainly required to confirm its date. If Early Neolithic, the piglet skeleton would not only be a rare example of articulated animal bone dated to this period but also suggests the rearing of pigs on site and therefore a degree of 'permanence' to the occupation. In terms of the environment, the plant macrofossil assemblage indicates the exploitation of wild resources (charred hazelnuts shells) as well as cultivation evidenced by cereal grains.

Animal bone is better represented in the Early Bronze Age features, indeed given the correlation between animal bone preservation and date it is tempting to date the majority of features with comparatively well-preserved animal bone (with the obvious exception of F.123) to the Early Bronze Age or later. Pig and sheep bone is present within the assemblage, which is dominated by cattle - the norm for Early Bronze Age sites in the region. Interestingly, few fish bones were recovered, despite the extensive sieving of buried soil and feature fills. This contrasts with the results of recent excavations on the Godwin and Marlow Ridges at Over (Evans and Vander Linden 2009b, 2009c; Evans and Tabor 2011) but perhaps says more about how 'different' from the norm the large fish bone assemblages from Over are than anything else. Plant macrofossil remains and pollen from Early Bronze Age features, mainly the watering holes, indicates that the surrounding landscape was rough grassland - supporting the interpretation that livestock grazing was the dominant land use - with only limited evidence of cultivation and little sign of significant settlement activity in the vicinity.

Landscape and environment

Although extensive environmental investigations – such as those undertaken at Over/Needingworth Quarry – did not form part of the investigations at Sutton Gault Irrigation Reservoir, the results of the excavation still have the potential to further our understanding of how prehistoric populations dealt with the changing fenland environment. Analysis of the site chronology alongside the current environmental models proposed for the area (Waller 1994 and Boreham in Evans and Vander Linden 2009a) should be an integral part of the further analysis and a major consideration in interpreting the site.

At the most basic interpretive level the presence or absence of archaeological remains during a given period is in itself informative. The fact that no remains post-dating the Early Bronze Age were recorded at the site is certainly significant – the absence of a Middle Bronze Age field system, a feature so common in the locale being particularly notable - and suggests that following this period the site was uninhabitable due to rising water tables and fen formation. Whether ground conditions were too wet or the land just became too inaccessible due to surrounding fen is perhaps a moot point although the presence of peat in the top of the large watering holes, thought to be Early Bronze Age, suggests the former. Certainly the date of the watering holes is key to understanding the site chronology and the timescale of environmental change and one or more of these features require carbon dating. The extent to which the limited Late Neolithic activity is potentially a reaction to the effect of the Late Neolithic ‘fen clay’ marine incursion should also be considered.

4.4 Statement of potential

The archaeological remains recorded at Sutton Gault are an important addition to the regional archaeological record. The presence of both ‘cut’ archaeological features such as pits, which yielded significant finds assemblages, in conjunction with extensive finds scatters within the buried soil is particularly significant and has the potential to contribute to a number of ongoing debates, not least the character and ‘dynamics of deposition’ of earlier prehistoric settlement. The number of discrete ‘sites’ which would appear to represent separate episodes of activity each leaving their own signature on the landscape also has great potential in this regard for both the Neolithic and Early Bronze Age periods.

Together with other local prehistoric sites such as Haddenham and Over/Barleycroft, the North Fen site forms part of a nationally important prehistoric landscape. When considered alongside such sites - on a landscape scale - the remains take on increased significance and have great potential in furthering our understanding of the prehistory of the Cambridgeshire Fens. Furthermore, the situation of the North Fen site, as an ‘island’ within ‘deep fen’ to the south of the Chatteris land mass, is important, being different from the majority of ‘fen edge’ locations which have been previously excavated. As ever, when dealing with fenland sites, understanding how the archaeological remains relate to the changing prehistoric fenland environment should be a major objective of the further analysis.

5.0 REVISED RESEARCH AIMS

- to refine the chronology of the prehistoric occupation of the site and identify when the area was potentially ‘abandoned’. A series of radiocarbon dates from selected features will be required.
- to characterise the site’s buried soils and determine the buried soil type and its land-use signatures. Also to compare the results with the soil micromorphological study for the adjacent quarry area as well as with other comparable/contemporary fenland buried soil data in the vicinity.
- to characterise and fully analyse the finds assemblages from the Early Neolithic buried soil scatters and pits. The pottery, flint and animal bone assemblages in particular each hold their own significance. The pottery and flint assemblages require full analysis, while the presence of complete, articulated remains, such as the piglet in pit F.123, in Early Neolithic contexts is extremely rare and this should be radiocarbon dated.
- to compare the finds assemblages from the Early Neolithic buried soil scatters with those from the pits and to potentially identify the types of activity they represent.
- to consider and further understand the nature of the Beaker activity at the site. More specifically, to investigate the evidence for the potential Beaker structure. The remains of Beaker period structures are relatively rare and usually comprise only sub-surface remains such as postholes, the burnt daub assemblage is, therefore, important and requires full analysis.
- to further characterise the Collared Urn/Early Bronze Age settlement and its relationship with the numerous monuments identified on the North Fen island.
- to place the site in its regional context and to consider the site alongside other fenland sites in the vicinity, most notably Haddenham and Over/Barleycroft.

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6.0 SPECIALIST STUDIES

Flint – Lawrence Billington

A total of 4727 (10,846g) worked flints and 1519 (3157g) unworked burnt flints were recovered from the site (Table 12). The majority of the assemblage was recovered from the buried soil deposits sampled during the excavation, mostly from test pits excavated through the buried soil but also collected as surface finds. A smaller but significant assemblage was recovered from the fills of cut features, over half of which derived from earlier Neolithic pit clusters. The assemblage was subject to a rapid assessment with an emphasis on dating the major assemblages and assessing their potential for further work in terms of more detailed analysis.

	Features	Buried soil	Totals
worked flint no.	843	3884	4727
<i>worked flint weight (g)</i>	<i>2478</i>	<i>8368</i>	<i>10846</i>
burnt unworked flint no.	829	690	1519
<i>burnt unworked flintweight (g)</i>	<i>737</i>	<i>2420</i>	<i>3157</i>

Table 12. Quantification of the lithic assemblage.

The flint recovered from the site reflects activity from the Mesolithic to the Early Bronze Age. The lack of post Early Bronze Age pottery from the site is paralleled by the lithic assemblage with a notable lack of worked flint technologically characteristic of later prehistoric activity. The extensive use of sieving during the excavations has resulted in excellent recovery of chips and small flake fragments, this must be kept in mind when considering the numbers of worked flint as these small waste pieces are generally underrepresented on comparative sites from the region which have been less rigorously sampled.

The assemblage is generally in good, fresh, condition, reflecting its retrieval from protected deposits (buried soils or feature fills) patination is relatively common and although also occurring on later material appears to have some chronological significance as almost all of the diagnostically Mesolithic material is heavily patinated. The raw material across the assemblage as a whole is varied but a broad distinction can be drawn between a majority of secondary, derived, flint probably largely from local gravel sources and smaller quantities of high quality chalk flint brought to the site from primary sources elsewhere in the wider region.

Buried soil deposits

The majority of the lithic assemblage is derived from buried soil deposits on the site, retrieved by test pitting and surface collection. Rather than deriving from a continuous spread of buried soil the vast majority of the flint was recovered from five relatively discreet areas of buried soil, Sites I-V. The lithic assemblages from individual areas of buried soil were remarkably homogenous, appearing to represent coherent assemblages belonging to a single period. These assemblages therefore have much greater interpretative potential than the palimpsests that are generally encountered in buried soil assemblages in the region, allowing for a much closer grained analysis of the activities and processes that led to the formation of each scatter. The assemblages

from sites I-V are quantified alongside the surface finds and other test pits in Table 13.

Buried soils	Site I	Site II	Site III	Site IV	Site V	other test pits	surface finds	total
worked flint no.	203	266	2322	568	142	100	265	3866
<i>worked flint weight (g)</i>	<i>659</i>	<i>265</i>	<i>3500</i>	<i>980</i>	<i>414</i>	<i>220</i>	<i>2294</i>	8332
burnt unworked flint no.	1	2	456	36	118	27	24	664
<i>burnt unworked flint weight (g)</i>	<i>6</i>	<i>4</i>	<i>1233</i>	<i>159</i>	<i>523</i>	<i>273</i>	<i>190</i>	2388
no. of test pits	33	13	156	25	47	52	n/a	326
mean worked flint per test pit	6.1	20.5	14.9	22.7	3	1.9	n/a	

Table 13. Lithic assemblages from buried soil deposits.

Site I (Early Neolithic)

The assemblage from site I occurs in lower densities than for most of the other lithic scatters although highs of 35-40 flints per test pit were encountered in the core of the scatter. The flints form a coherent assemblage of earlier Neolithic flintwork associated with Mildenhall pottery. Chips and small fragments are relatively poorly represented, reflected in the mean weight of the flints at 3.2g. This, together with an absence of cores, suggests that less working of flint was taking place in the immediate vicinity of the scatter when compared to some of the other assemblages. Blade based material characteristic of earlier Neolithic technologies is common and many of the flakes and blades show signs of utilisation. Retouched forms include several serrated pieces, a scraper and a leaf shaped arrowhead, a tool inventory closely comparable with other earlier Neolithic sites in the region (Garrow 2006: chapter 3). The assemblage seems to reflect the residue of domestic activity including tool use and flint working and in composition is very similar to the material from the earlier Neolithic pit clusters, discussed below.

Site II (Mesolithic)

This scatter is both the densest and most spatially discreet of all the test pit assemblages. This is reflected in the coherence of the assemblage, in terms of raw material, patination and technological traits. The presence of four microliths together with ubiquitous evidence for a specialised blade based reduction strategy clearly indicates its Late Mesolithic date. The assemblage is dominated by flint working waste, including large numbers of small chips and flake fragments, this is reflected in the low mean weight of the flints at just 1g. Two well worked out blade cores are present as well as some cortical pieces representing the initial working out of cores. What appears to be missing from the assemblage are the large numbers of the fine secondary and tertiary blade removals that would have been produced from the spent cores and it seems possible that most of these were taken away from the site. The coherence of the assemblage and similarities of cortex suggest relatively few reduction sequences are represented, and most of the material could be derived from the reduction of two or three nodules. The potential for refitting is limited by missing elements in the reduction sequence but a single co-join was found during the assessment phase.

The only retouched tools present are the four microliths mentioned above. One was of scalene triangle form whilst the other three were broken fragments, probably deriving from small obliquely blunted or backed pieces. Although a few of the unretouched flakes and blades show traces of use the dearth of other tools such as scrapers and serrated pieces is notable. Variation in the 'balance' of tool forms in Mesolithic assemblages has long been taken as evidence for task specific sites related to a highly mobile settlement pattern (see Mellars 1976, Conneller 2005). The tight spatial distribution and distinctive makeup of the assemblage suggests it may derive from a short lived episode during which time several cores were worked to exhaustion and composite tools were repaired whilst the fine blade products produced from the cores appear to have been taken away.

Site III (Late Neolithic)

A total of 2322 worked flints were recovered from Site II, making it by far the largest scatter and comprising almost half of the total assemblage of worked flint from the site. Average densities per test pit are high (see Table 13) with test pits from the core of the scatter producing up to 191 flints. In

common with most of the other scatters a large proportion of the assemblage is made up of chips and small flake fragments derived from core trimming and preparation. Alongside these are flakes of varied morphology. Blades are almost entirely absent and where present are likely to be earlier in date than the bulk of the scatter assemblage. Flakes are generally hard hammer struck from plain platforms and are relatively thick and broad, reflecting a casual approach to core reduction. Alongside this generalised flake material are removals showing evidence for a more systematic approach to flake production, often with the carefully faceted striking platforms and multi-directional dorsal scars characteristic of working discoidal, levallois type, cores. This flake production strategy is characteristic of later Neolithic flint working (see Saville 1981: 6-7). Grooved Ware associated assemblages in particular are often highly distinctive due to the presence of these discoidal core products.

The retouched component of the assemblage also strongly indicates a later Neolithic date for the bulk of the assemblage. Six chisel arrowheads were recovered along with seven large scrapers, several of which are made on large flakes worked from discoidal cores. Two fabricators and a coarsely serrated flake were also recovered. These artefacts are typical of the forms recovered from Grooved Ware associated assemblages in the region. Despite the presence of these tools the proportion of retouched pieces is actually very low, later Neolithic pit sites in the area often have a retouched component of 10% or more (Garrow 2006: chapter 5). This suggests that the working of flint, rather than tool use, is the primary activity represented by the assemblage, also well attested by the numerous small waste fragments and chips. However nothing like complete reduction sequences are present. Occasional large secondary and tertiary flakes attest to the working of large discoidal cores of high quality raw material but the few cores present are generally expediently worked cores on local gravel flint. It seems possible that much of the high quality chalk flint was brought to the site in the form of roughed out cores and whilst they were worked on site, they were rarely exhausted and discarded. Some of the finer tools such as the scrapers could have been brought to the site as finished tools. Particularly notable is the presence of at least three proximal segments of fine broad levallois type flakes that represent the by-product of transverse arrowhead production. These have been identified in later Neolithic assemblages elsewhere in the region (Beadsmoore 2009: 166) and together with the six chisel arrowheads recovered suggests that the production and use of transverse arrowheads was an important activity at the site.

The composition of this scatter suggests a site where only certain aspects of flint working and use were taking place. The working of already partially prepared cores from primary chalk sources appears to have been important, alongside the use of more local gravel flint for more expedient flake production. Tool use evidently occurred but perhaps less intensively than at many contemporary pit sites. The composition of the retouched assemblage is revealing with an unusually high proportion of arrowheads and good evidence for arrowhead manufacture. All this evidence suggests somewhat specialised activity taking place at the site; one part of a relatively mobile settlement pattern into which the procurement, working and use of flint was embedded.

Site IV (Early Neolithic)

Although the assemblage from Site IV displays technological traits suggestive of an earlier Neolithic date in composition it is markedly different to the assemblage from Site I and from the pit clusters. The density of flint was high and is dominated by working waste including several blade/narrow flake cores, many chips and small waste flakes together with occasional fine narrow flakes and blades. The only retouched tools comprise a small expediently produced end scraper and a serrated blade although several of the other flakes display traces of utilisation. Compared to the earlier Neolithic material from [319] flint working appears to be better represented with correspondingly poorer evidence for domestic/settlement activity such as tool use. It may be no coincidence that this scatter, unlike [319], was not associated with any pottery. The refitting potential of the assemblage appeared relatively good although none were found in the assessment and the partial, checkerboard, excavation of the scatter will hinder any attempt at extensive refitting.

Site V (Early Bronze Age)

The lithic assemblage from this area occurred at relatively low densities. The assemblage is dominated by small hard hammer flakes of varied morphology together with distinctive retouched tools including three small scrapers and a barbed and tanged arrowhead, all characteristic of Early Bronze Age assemblages. A high proportion (approximately 20%) is burnt and unworked burnt flint is much more common in this assemblage than in the earlier scatters (see Table 13), resonating with previous

observations of the frequency of burnt flint/stone in Bronze Age assemblages when compared to Mesolithic and Neolithic sites (Edmonds et al 1999: 70). As a whole the assemblage compares well with the material recovered from the Early Bronze Age cut features and shows a similar emphasis on tool use together with evidence for expedient flake based core reduction.

Burnt flint/stone scatter [569]

Although just 19 worked flints were recovered from this deposit a large quantity of burnt flint (60 pieces, 450g) was collected together with 746g of burnt stone. The worked flint is largely undiagnostic and much is burnt, but is consistent with a later Neolithic/Early Bronze Age date. In light of the above comments on the frequency of burnt flint in Bronze Age assemblages it seems probable that this scatter relates to Early Bronze Age activity.

Surface finds

The surface finds include material dating to all the periods identified in the buried soil test pitting. Diagnostic pieces include a Mesolithic backed blade, a leaf shaped arrowhead, Neolithic scrapers and a fine barbed and tanged arrowhead. Assessment of the assemblage suggests that many of the surface finds can be closely related to areas of excavated buried soil or features. Several scrapers and retouched flakes consistent with later Neolithic technologies were recovered from next to buried soil [334] whilst surface finds grouped around several of the early Neolithic pit clusters include blades and narrow flakes comparable to the feature assemblages. More tentatively, a fine barbed and tanged arrowhead was found in close proximity to watering hole F. 108. These possible connections would repay closer analysis.

Feature assemblages

The assemblage of worked flint from the features is small in comparison with the material recovered from the buried soil deposits. The material is important, however, having come from well-dated, secure contexts and in representing a different mode of deposition (and potentially of occupation) to the surface scatters.

Early Neolithic Pit Clusters

Six early Neolithic pit clusters were identified during the excavation, with the exception of Cluster 7, all were associated with Mildenhall style pottery. The assemblages from the clusters are quantified in Table 14. This table includes the mean number of worked flint per pit in each cluster, often this figure is misleading as the variation between individual pits within clusters was considerable. The lithic assemblages from individual clusters generally formed coherent assemblages whilst, as discussed below, there are subtle but significant differences between the clusters.

Pit cluster	1	2	3	4	5	6	total
worked flint no.	7	201	38	80	187	1	514
<i>worked flint weight (g)</i>	32	224	73	223	324	1	877
burnt unworked flint no.	0	18	0	3	11	0	32
<i>burnt unworked flint weight (g)</i>	0	24	0	3	14	0	41
no. of pits	3	12	7	9	6	11	48
mean worked flint per pit	2.3	16.8	5.4	8.9	31.2	n/a	

Table 14. Lithic assemblages from Early Neolithic pit clusters

Cluster 1

Although Cluster 1 produced just seven worked flints, several are fine blade like pieces typical of earlier Neolithic technologies.

Cluster 3

Cluster 3 contained the largest worked flint assemblage of any of the pit clusters. Raw materials are varied but all are of good quality with some dark flint retaining a thick unabraded cortex suggestive of a primary flint source. A single exhausted core and numerous chips and fragments attest to the working of cores and whilst no formal tool forms are present utilised and retouched flakes and blades are common.

Cluster 4

The bulk of the flint from this cluster was contained in one pit, F.123. Raw materials were comparable to Cluster 3 and there is a clear emphasis on the production and use of narrow flakes and blades. Tools included two serrated flakes and an end scraper as well as utilised flakes and blades. No cores were recovered but flint working is well represented by numerous chips and fragments.

Cluster 5

Cluster 5 contained 80 worked flints, mostly deriving from two pits F.38 and F.40. Raw materials were varied and included some possible chalk flint. In common with Cluster 4 the only tools were utilised pieces, a serrated flake and an end scraper. Carefully worked blade based removals as well as waste flakes and chips are common but no cores were recovered.

Cluster 6

A relatively large assemblage of flint was recovered from this cluster, almost all derived from two pits, F.66 and F.74. Notably more gravel-derived flint was present in this cluster, especially honey/amber coloured material. In common with the other clusters, utilised pieces and a serrated flake were present but no scrapers were recovered and two leaf shaped arrowheads were present.

The lithic assemblages from the Early Neolithic pit clusters are characteristic of earlier Neolithic material, formal tools are relatively rare in comparison with later (later Neolithic/Early Bronze Age) assemblages and there is a strong emphasis on the production and use of blades and narrow flakes. None of the clusters contain anything like complete reduction sequences but there is still potential for refitting. There are subtle differences in the material between clusters in terms of raw material and assemblage composition which would emerge more clearly from detailed analysis. Superficially, the assemblages support the interpretation that such pits clusters represent distinct episodes of inhabitation (see Garrow 2006, Garrow et al 2005). Importantly, the pit cluster assemblage compares well with the material from buried soil Site I, also associated with Mildenhall pottery, but shows a marked difference in composition and character to the broadly contemporary assemblage from buried soil Site IV.

Beaker and Early Bronze Age features

Small worked flint assemblages were recovered from several pits containing Beaker, Collared Urn or generic Early Bronze Age pottery (Table 15). The Beaker and 'Early Bronze Age' pits contained small numbers of hard hammer struck waste flakes consistent with late Neolithic/Early Bronze Age flake based technology. Beaker pit F.149 contained a burnt fragment of a retouched tool, probably a scraper, but this was the only tool from these features.

Two of the Collared Urn associated pits contained somewhat larger assemblages of worked flint. These were typical of Early Bronze Age technologies, comprising flake-based removals derived from an opportunistic, casual, approach to core reduction. F.

156 also contained three small irregular flake cores. Tools consisted of three scrapers, two expediently produced but one with the fine invasive retouch characteristic of some Early Bronze Age implements.

Feature No.	35	148	149	125	156	172	59	127
Associated pottery	Beaker			Collared Urn			EBA	
worked flint no.	1	1	6	10	36	1	5	1
<i>worked flint weight (g)</i>	1	2	18	86	125	16	18	2
burnt unworked flint no.	0	2	0	0	1	0	0	0
<i>burnt unworked flint weight (g)</i>	0	1	0	0	1	0	0	0

Table 15. The lithic assemblages from Beaker and Early Bronze Age features.

Watering Holes

Small assemblages of worked flint were recovered from several of the watering holes. No more than eight worked flints were recovered from any of these features and this appears to represent material incidentally incorporated into the feature fills from surface material. However, a high proportion of the diagnostic pieces are Early Bronze Age - a thumbnail scraper was recovered from F.108, for example - and these may reflect activity broadly contemporary with the use of the features.

Penannular gully F .44

The assemblage from F.44 (Table 16) is broadly comparable with the material from the Collared Urn pits and from buried soil area [340]. Small hard hammer waste flakes predominate and a single small multiplatform flake core was recovered. A neat sub circular scraper was the only tool. The assemblage is not particularly coherent and probably derives from surface material incorporated into the feature. Clearly residual blade based material is also present in small quantities.

Feature No.	44	178
worked flint no.	25	34
<i>worked flint weight (g)</i>	97	31
burnt unworked flint no.	1	15
<i>burnt unworked flint weight (g)</i>	6	29

Table 16. The lithic assemblages from penannular gully F. 44 and ring ditch F. 178

Ring Ditch F. 178

The lithic assemblage from F.178 is extremely disparate, consisting of small fragments, chips and occasional undiagnostic flakes. A high percentage of the worked flint is burnt and a relatively large amount of unworked burnt flint was also recovered from the feature.

Discussion and Statement of Potential

This assessment has broadly characterised the nature of the lithic assemblage recovered from the excavations. Clearly, the importance of the assemblages makes

further detailed analysis necessary. In conclusion, the following key areas of research potential are highlighted.

- The recovery of lithic assemblages from buried soils representing relatively discreet episodes of activity from the late Mesolithic through to the Early Bronze Age is of considerable importance in a region where lithic assemblages from surface deposits are invariably of mixed chronological attribution. The recovery of a large late Neolithic assemblage un-associated with either pottery or cut features is of particular interest and may signal landscape occupation of a rather different nature to those represented by the well known Grooved Ware pit sites of the region (see Garrow 2006: chapter 5).
- Although the recovery of substantial earlier Neolithic assemblages from several pit clusters is of interest in itself, the juxtaposition of this material with assemblages derived from buried soil deposits is of special importance. The dynamics of deposition and the implications for settlement patterns in this period has been the topic of significant research at both a regional and national level for some time (see Healy 1987, Thomas 1999: chapter 2, Garrow 2006). Such discussions have generally concentrated on the analysis of pit sites, the contrasting contexts of deposition at Sutton Gault therefore provide an excellent opportunity to contribute to such debates.
- The assemblage from Sutton Gault form a significant addition to a wealth of lithic assemblages recovered from the lower Ouse valley (notably from large-scale excavations at Haddenham, Barleycroft and Over). As a whole, this growing resource offers great potential for the study of long-term patterns of procurement, manufacture, use and deposition of flint tools at a landscape scale.

Prehistoric pottery – Mark Knight

Types: Mildenhall 1219; Peterborough Ware 5; Beaker 220; Collared Urn 23; EBA 79

The assemblage comprised 1589 sherds of prehistoric pottery weighing 7868g (MSW 4.9g). The bulk of the material came from features, although test-pitting of the buried soil also produced a large number of fragments; a small collection of surface finds made up the remainder of the assemblage. Potsherds recovered from features were generally larger and less abraded/weathered than those from test-pits. Feature sherds were present in all contexts and included 70 rims, 3 base fragments and 131 decorated pieces. The apparent imbalance of base fragments to rim fragments reflected the early character of the assemblage as the vast majority of the sherds (79.1%) belonged to 4th millennia BC round bottomed or hemispherical forms. The predominant fabric type was hard with abundant burnt flint (Fabric 1). Other fabrics present were characterised by their principal inclusions/opening materials: Fabric 2 *Grog*; Fabric 3 *Quartz Sand/Flint*; Fabric 4 *'lost' Shell*. Within this context fabric types 1, 3 and 4 are understood as being ostensibly Early Neolithic and fabric type 2 as Early Bronze Age.

	Number	Weight (g)	MSW (g)
<i>Feature</i>	862 (54.2%)	5899 (75.0%)	6.8
<i>Test-pit</i>	692 (43.5%)	1763 (22.4%)	2.5
<i>Surface Find</i>	35 (2.3%)	206 (2.6%)	5.8
<i>Totals:</i>	1589	7868	

Table 17: Assemblage breakdown by means of recovery.

As suggested by the rim to base ratio the dominant form was bowl or bag-shaped and belonged to the Early Neolithic Mildenhall Bowl tradition (Clark et al. 1960). Beaker, Collared Urn and generic Early Bronze Age (EBA) sherds were also present (as characterised by cord or comb decoration and/or grog-rich fabrics). A few small pieces of a possible Peterborough Ware vessel completed the range of identifiable prehistoric pottery.

	Mildenhall	Peterborough Ware	Beaker	Collared Urn	EBA
<i>Feature</i>	688	0	125	17	32
<i>Test-pit</i>	542	5	94	1	34
<i>Surface Finds</i>	7	0	1	5	13
<i>Totals:</i>	1237	5	220	23	79

Table 18: Sherd count by type and by means of recovery.

Mildenhall

The Mildenhall assemblage included the remnants of both plain and decorated bowls that had neutral and closed forms and mostly ‘simple’ or S-shaped profiles as well as some finer carinated examples. Rim types such as simple, expanded, externally thickened and out-turned were present. Decoration included rows of impressed dots on shoulder zones (F.124, TP 21 and TP 61) and incised diagonal lines on rims or the inside of vessels just below the lip (F.74, TP 59 and TP 99). A single horizontal strap-lug was located in F.124. Almost all of the sherds showed evidence of burnishing and many had applied slips (internal and external).

Two main fabric types were identified (Fabric 1 and Fabric 2) and these were found together in features and test-pits. The distribution of fabric type varied, so for instance, pottery from Pit Cluster 3 was almost exclusively made of Fabric 1 whilst Pit Cluster 6 contained about 50% Fabric 1 and 50% Fabric 2. By number, the Mildenhall component of the assemblage occurred in roughly equal numbers between features (688 sherds) and test pits (542 sherds), by weight however, the difference was more marked suggesting very different depositional histories. Where features produced 4550g of the total Mildenhall assemblage, test-pits produced only 1446g, and consequently the mean sherd weight for features (6.6g) was over twice that recorded for test-pits (2.7g). A very large proportion of the Mildenhall pottery came from just two groups of pits: Pit Clusters 2 and 5. Representing 72% of the total number and 89.5% of the total weight these two clusters were situated about 70m apart on site but were connected by pottery from the same vessel. A refitting rim sherd from F.49 and F.74 linked these two spatially discrete groups of pits.

Cluster	Number	Weight	MSW
2 (F.49)	225 (111)	1535g (1036g)	6.8g (9.3g)
5 (F.74)	277 (197)	2538g (2038g)	9.3g (10.3g)
<i>Total:</i>	502 (308)	4073g (3074g)	8.1g (10.0g)

Table 19: Principal Clusters and principal pits

The ‘related’ pits F.49 (Cluster 3) and F.74 (Cluster 6) also produced the two largest assemblages of pottery and as such stood out as exemplar pit types. F.49 contained the remains or fragments of at least three different vessels (which included approximately half of a simple bowl with a slight externally thickened rim (dia: 20cm) and approximately a third of an exaggerated S-profiled bowl with an out-turned rim (dia: 28cm)). F.74 also yielded parts of at least three different vessels (the best part of a large S-profiled bowl with a flattened out-turned rim decorated with diagonal slashes along its top (dia: 28cm), nearly half of a simple cup with a simple rounded rim (dia: 11cm) and a rim fragment of a medium sized shouldered bowl).

Peterborough Ware

Two refitting rim sherds decorated with an impressed herring-bone design from TP229 represented possible fragments of Peterborough Ware. The decoration occurred across the top of an exaggerated T-shaped rim.

Beaker

The Beaker pottery can be divided into two categories: ‘odd’ sherds or coherent assemblages. The first of these categories consisted of individual sherds found generally as singular test-pit or surface find pieces. Most of these pieces were abraded but each retained distinctive Beaker-type decoration (comb-impressed, incised lines, rustication etc.). The second group comprised feature assemblages (F.149 - 94 sherds weighing 820g) or discrete test-pit collections made up of sherds from the same vessel (TP74 - 20 sherds weighing 28g) and 108 (52 sherds weighing 98g). F.149 produced fragments from at least four different vessels including rusticated forms with finger-pinched decoration and finer incised lozenge-zoned vessels. A single vessel decorated all-over with small fingernail impressions was represented by 72 sherds recovered from Test-pits 74 and 108 collectively.

Collared Urn

As with the Beaker assemblage, much of the Collared Urn pottery consisted of single distinctive pieces with ‘obvious’ Collared Urn attributes (twisted cord impressed decoration, collars, internally bevelled rims; F.125, F.148, F.172 and TP 32). F.154 produced a near complete accessory vessel or cup of a type found commonly in association with Collared Urn burial contexts (Longworth 1984). The cup measured 7cm tall and had a base and mouth diameter of about 9cm. It was straight sided and had a simple rounded rim. The overall appearance was of a crudely made ‘finger-pot’ that had been ‘re-fired’ and lost part of its rim.

Early Bronze Age

The category incorporated all of the ‘soapy’ grog-tempered pieces that did not have obvious Beaker, Collared Urn or funerary vessel attributes and as such represents a generic group.

Discussion

Two things stand out in particular about this collection of prehistoric pottery, firstly the impressive Mildenhall assemblage and secondly, the apparent absence of any pottery dating to after the Early Bronze Age.

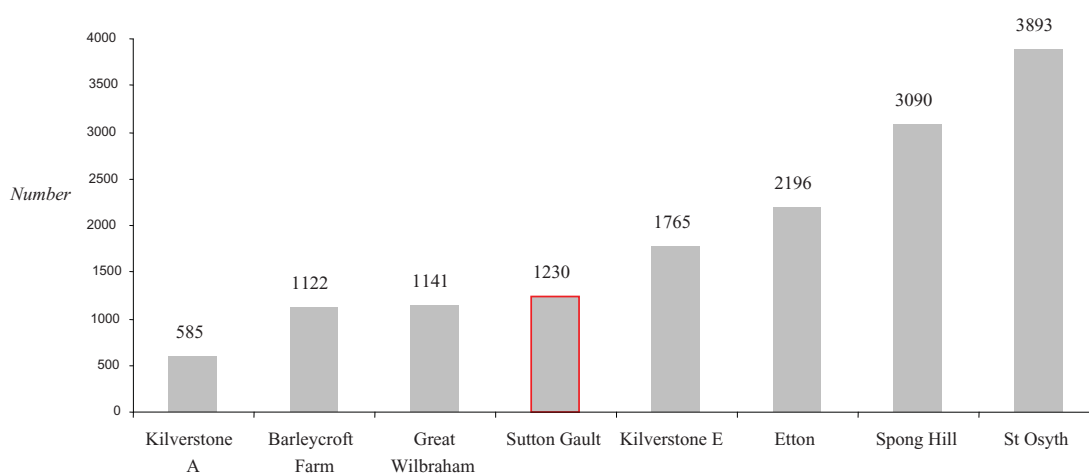


Chart 1: Scale of assemblage – Mildenhall pottery in East Anglia (number of sherds).

By regional standards, the Mildenhall assemblage is medium sized and therefore represents an important addition to the existing corpus. As a pit site its assemblage sits somewhere between Kilverstone E, Norfolk (Knight 2006) and Barleycroft Farm, Cambridgeshire (Evans & Knight 1998) which is appropriate as these two sites stand as direct contextual equivalents. As Ouse Valley settlements, the Sutton Gault and Barleycroft Farm pit sites were very similar as both consisted of about 25 pits situated within a spread of about 100m.

The refit between two different pit clusters illustrates the potential for further refits between different parts of the site and possibly between features and the buried soil. Further refitting work might add an extra dimension to the depositional history of the site and allow comparison with the occupation dynamics revealed at Kilverstone (Garrow, Beadsmoore and Knight 2005) and Etton (Beadsmoore, Garrow and Knight 2010)

Worked Stone – *Simon Timberlake*

<137> F.66 [669] 982g. A large worked stone ball, which was recovered from an Early Neolithic pit and was fashioned from a spherical cobble of orthoquartzitic sandstone. This hand-held implement is covered over two thirds of its surface by grinding facets, whilst around one whole side of its circumference it has been used as

a hammerstone. The sequence of use was first as a rubbing stone, probably in conjunction with a saddlequern (for grinding grain?), and secondly as a small hammerstone for very light crushing or grinding. It is an interesting implement worthy of drawing and further recording; an important artefact associated with such an early assemblage.

<199> F.125 [814] 98g. A small fragment of burnt and fractured worked stone (a cobble or slab) recovered from an Early Bronze Age/Collared Urn pit. Where broken this revealed a cut-away section of a cylindrically cut hole, approx 20mm wide and 40mm+ deep, sub-circular in x-section, except at the top where this was polygonal in shape. The steeply inclined rather than vertical nature of this cylindrical hole is unusual and rather difficult to explain. The type of grinding/smoothing of the exposed interior surface of the hole suggests that this might have been ground out or even scraped out using the end of a metal tool. Possibly this was used for the sharpening of a narrow blade. Yet another interesting possibility (given the type of patina present) is that this is part of a stone mould associated with metalworking. This justifies further examination.

<230> F.149 [896] 68g. One half of a broken partially-perforated pebble of micaceous sandstone (80mm long by 20mm thick) found within a Beaker period pit. The ground hour-glass shaped perforation on the upper (slightly convex) surface is approx 30mm wide and 11mm deep. The base of this tablet-shaped pebble appears to have been ground flat, although this couldn't be determined with any certainty. The original function of this is quite uncertain, although given the thinness and fairly soft nature of the rock it is unlikely that this was ever intended as a shaft-hole implement. The stone is burnt, which perhaps explains the splitting into two of the rock.

<777> TP 345 [340] 30g. A small fragment of worked stone was identified from amongst the assemblage of burnt stone recovered from buried soil Site V. This was a very small fragment consisting of a finely worked slab of fine grained green sandstone/siltstone with a rounded rectangular x-section some 22mm thick. This may be part of a whetstone.

<973> SF 77 174g. A fine grained quartzitic sandstone pebble sourced from the local gravel, which has been used as a small hammerstone, at its narrowest end. A small facet is visible on the hammer end suggesting use for quite a precise crushing function. It is possible this could have been used for crushing burnt bone against stone.

<1164> SF 271 114g. A small elongated pebble of Bunter metaquartzite almost certainly picked up from the underlying terrace gravels. There is a slight bruising of the pointed end suggesting casual, opportunistic, and possibly a once-only use of this as a small hammerstone. The use of this as a convenient hammer follows its scorching, perhaps accidentally, in a hearth.

Recommendations

Further analysis of the worked stone assemblage is required. The worked stone ball from Early Neolithic pit F.66 and the two 'perforated' stones (from F.149 and F.125) particularly, require drawing and further examination.

Fired Clay – *Simon Timberlake*

Some 2.29 kg of burnt clay was recovered from the site which included a scatter of 1.92 kg from a Beaker period buried soil (Site V). The fabric of the latter consisted of a pale marly clay thinly tempered with an angular to rounded white flint grit (some of it crushed flint and some waterworn) and just the occasional fibrous organic. Some of the pieces showed evidence for small wood or charcoal inclusions (since burnt out). One possible source of the clay used could be the Chalky Boulder Clay, another being the marly clays at the base of the (Nordelph) Peat. Of some interest were the poorly preserved imprints of the sides of sticks, the curvature of the largest of these suggesting small upright posts or stakes for hut walling of at least 10cm diameter, the majority of the remainder of these (where discernable) being 3-5cm or less, some of them clearly split. Some of the less weathered pieces of burnt clay (daub) would appear once to have been lumps of clay pushed into the intersices between the woven wattle panel – on some of these the angle of the stick joins could still be distinguished, and potentially therefore, it might be possible to say something further from this about the nature of hut construction. For example, one of the largest and best preserved lumps of burnt clay (in <841>) showed evidence of its moulding - in this case suggesting the presence of a square corner (to a doorway or wall?). A number of pieces of daub also appeared to have been moulded into balls or blocks and highly fired – one possible explanation for this being that they were lumps of waste clay jettisoned into the fire. In general the mixture of fire reddening (oxidation) and fire blackening (reduction) coloration on these clay fragments, and the range of degrees of firing from partial baking to severe fusing, implies that rather than being burnt *in situ*. (as upstanding structures), the pieces of daub and wooden walling had instead been broken up and thrown onto a large fire. A very large wood fire would explain the melting and partial vitrification of some of these pieces, which may have dropped into the central hottest part where they appear to have reached temperatures (probably) well in excess of 900°C. There is no real evidence for any of these pieces of burnt clay being hearth lining, however, on just one piece (Context [340], Catalogue No. <801>) there were traces of a residue worthy of further analysis.

The burnt clay recovered from F.154 and F.156 – both Early Bronze Age/Collared Urn pits - appears quite different. The clay fabric is denser and contains some larger pieces (>10mm diameter) of burnt flint (rather than the flint gravel), more organic (fibrous) inclusions, and some rather smaller and more ‘twiggy’ fragments of wattle.

Recommendations

Given the lack of regional knowledge of the nature of Beaker period settlement structures, some further analysis of the burnt clay assemblage from context [340] (buried soil Site V) is justified, if only to try and gain some further understanding of the above ground surface construction of these wattle and daub walls.

Burnt Stone – *Simon Timberlake*

A rapid assessment was undertaken of almost 12kg of burnt stone, the majority, but not all of this, from Beaker – Early Bronze Age features and contexts. Most of the stone came from scatters associated with Beaker buried soil Site V. No significant

differences were noted in the size or lithic composition of burnt stone between Neolithic and Beaker/ Early Bronze Age features. Over 95% of the burnt stone was composed of sandstone or quartzite, most of these identifiable pebbles. Of the remainder, some 3-4% were igneous rocks (dolerite and felsite/ quartz porphyry). This proportion of sandstone/quartzite to igneous is very typical of Bronze Age burnt stone assemblages, and by and large this reflects the ratio of sedimentary rocks to igneous rocks as small glacial erratics within the re-worked flint gravel of the Cambridgeshire river terraces, No intact cobbles larger than 100mm were seen within the assemblage; the size of burnt and fractured stone was for the most part 50mm or less in diameter. This is fairly typical of burnt stone assemblages examined associated with burnt stone mounds and other associated communal cooking features.

Recommendations

The burnt stone assemblage – particularly its distribution – should be considered when undertaking further analysis of the site and the other finds assemblages. However, little further work is required on the assemblage itself.

Worked bone - *Vida Rajkovača*

<195>; F.125; [813]; length (incomplete) 79.1mm; width (proximal end) 12.7mm

A fragment of a worked bone object was recovered from Collared Urn pit F.125. The object was fashioned from an unidentified large mammal limb bone fragment with the cancellous bone visible on one side. Although the distal/ working end is missing, it could be suggested that this object represents a bone point or gauge. The proximal end is rounded and slightly polished and it is tapering towards the distal/working end.

Preserved Wood – *Michael Bamforth (L-P Archaeology)*

This document aims to assess the potential of the waterlogged wood assemblage in terms of woodworking technology, woodland reconstruction, decay analysis, species identification, dendrochronology and conservation and retention.

A total of four discreet items were recorded during archaeological excavations undertaken at Sutton Gault, Cambridgeshire, under site code SGT10. A single visit was made to the site on 15th September 2010, by Mike Bamforth of L – P : Archaeology, to record the waterlogged wood assemblage. Wooden material was recovered from several different contexts:

Watering Hole F.108

This large pit (Figure 13) has been interpreted as a watering hole and is thought to date to the Early Bronze Age. Three items were recorded: forked roundwood (wood-001), a smaller forked item (wood-002), and a third forked item (wood-003). Several pieces of unworked brushwood were encountered in this feature, but were not recorded.

This Early Bronze Age pit contained sherds of Collared Urn pottery. The primary fill contained a possible plank (wood-004) (Figure 13). This item was recorded by CAU field staff.

This document has been produced in accordance with English Heritage guidelines for the treatment of waterlogged wood (Bunning 2010) and recommendations made by the Society of Museum Archaeologists (1993) for the retention of waterlogged wood. All discreetly numbered items and those displaying evidence of modification or woodland management were recorded individually using the L - P : Archaeology pro forma 'wood recording sheet' which is based on the sheet developed by the Fenland Archaeological Trust for the post excavation recording of waterlogged wood. All records were then entered into a database. Bulk collections or samples of natural wood were assessed as a whole. Every effort was made to refit broken or fragmented items. However, due to the nature of the material, the possibility remains that some discreet yet broken items may have been processed as their constituent parts as opposed to as a whole. The metric data were taken with hand tools including rulers and tapes, the toolmarks were measured using a profile gauge. The system of categorisation and interrogation developed by Taylor (1998 & 2001) has been adopted within this report. Joints and fixings are described in accordance with the Museum of London archaeological site manual (Spence 1994). Items identifiable to species by morphological traits visible with a hand lens (oak, *Quercus* sp.) were noted. Other items were sub-sampled to allow later identification to taxa via microscopic identification as necessary.

Condition of material

The condition scale developed by the Humber Wetlands Project (Van de Noort, Ellis, Taylor & Weir 1995 Table 15.1), will be used throughout this report (Table 1). The condition scale is based primarily on the clarity of surface data. Material is allocated a score dependent on the types of analysis that can be carried out, given the state of preservation. The condition score reflects the possibility of a given type of analysis but does not take in to account the suitability of the item for a given process.

Table 20: Condition scale

CONDITION SCORE	MUSEUM CONSERVATION	TECHNOLOGY ANALYSIS	WOODLAND MANAGEMENT	DENDRO-CHRONOLOGY	SPECIES IDENTIFICATION
5 excellent	+	+	+	+	+
4 good	-	+	+	+	+
3 moderate	-	+/-	+	+	+
2 poor	-	+/-	+/-	+/-	+
1 very poor	-	-	-	-	+/-
0 non-viable	-	-	-	-	-

If preservation varies within a discreet item, the section that is best preserved is considered when assigning the item a condition score. Items that were set vertically in the ground often display relatively better preservation lower down and a relatively poorer preservation higher up.

Using the above condition scale, all the material scores a 3 or below. This describes an assemblage that is in a poor to moderate condition.

Table 21: Condition of material

CONDITION SCORE	FREQUENCY	% OF ASSEMBLAGE
5	0	0.0
4	0	0.0
3	2	50.0
2	1	25.0
1	1	25.0
0	0	0.0

Range and Variation

A limited range of material was recorded from this site. The three items of roundwood were all recovered from watering hole F.108. Several pieces of unworked roundwood were also present in this feature, but were not recorded. The single item of timber recovered from pit F.156 is classed as such due to its large size (Table 3).

Table 22: Categories of material

CATEGORY	FREQUENCY	% OF ASSEMBLAGE
artefact	0	0.0
roundwood	3	75.0
timber	1	25.0
debris	0	0.0
<i>total</i>	<i>4</i>	<i>100.0</i>

Roundwood

Wood (001): F.108 within contexts (869), (866) and (867)

This triple forked piece of roundwood scored a 3 for condition (table 1) and has yet to be identified to species. Bark, sapwood and heartwood were all present. This item measured 2380mm, with the main stem having a maximum diameter of 140 x 125mm. The proximal end has been trimmed from two directions, possibly representing a felling scar. Of the three distal ends resulting from the forking, two are broken and one extended into the baulk. There is a trimmed side branch just below the fork. There is also a halving lap on the main stem, 1320mm from the proximal end. This joint is square cut, 130mm wide and 25mm deep. The nature of the woodworking at the proximal end, the central pith and the forking at the distal end all suggest that this is the trunk and crown of a small tree, as opposed to a limb from a larger tree. The joint in this item has no apparent function. The tool facets are small (c.40mm across) and concave. This is more suggestive of a socketed axe, dating to the Middle or Late Bronze Age date, as opposed to a flat axe, as would be expected of the suggested Early Bronze Age date (Sands 1997).

Wood (002) F.108 within context (869)

This 'Y' shaped piece of oak roundwood scored a 3 for condition (table 1). Bark, sapwood and heartwood were all present. The item measured 1120mm and the main stem had a maximum diameter of 65mm. No evidence of woodworking was noted.

Wood (003) F.108 within context (869)

This 'Y' shaped piece of roundwood scored a 2 for condition (table 1) and has yet to be identified to species. Bark, sapwood and heartwood were all present. The item measured 1090mm and the main stem had a maximum diameter of 80mm. The proximal end had been trimmed from two directions.

Timber

Wood (004) F.156

This badly degraded timber scored a 1 for condition (table 1) and has yet to be identified to species. The item was lying bark face down in the bottom of pit F.156. The bark itself survived, although it is unclear if any sapwood was present in the inner surface of the bark. The timber was somewhat bowed upwards at the ends and downwards in the middle. The poor condition of this item, on the very edge of complete degradation, precludes any interpretation of the conversion. The bark sheet may have been converted by deliberate woodworking. However, it could just be an artefact of a poor preservation environment, with the woody material having degraded away whilst the more robust bark survives. The item measured 1100mm in length, had a maximum width of 350mm and a thickness that varied between 1-3mm.

Statement of Potential

This document aims to assess the potential of the waterlogged wood assemblage in terms of woodworking technology, woodland reconstruction, decay analysis, species identification, dendrochronology and conservation and retention. There is not sufficient material to address the issue of woodland reconstruction. Decay analysis is not advised as the author is not aware of any ongoing discussion of the preservation of waterlogged wood in the locale. None of the oak material has sufficient growth rings to be suitable for dendrochronology. None of the material is of sufficient interest to warrant conservation and retention. Similarly, the woodworking technology is not of sufficient interest to warrant further analysis.

It is not unusual to recover assemblages of worked wood from watering holes and deeper pits from the Bronze Age in this area. Often these take the form of collapsed or intact linings or revetments (Pryor and Bamforth 2010; Bamforth 2009). In other cases, the material seems to be detritus that has built up after the features have gone out of use. The latter scenario seems most likely in this case for watering hole F.108, as the material does not seem to represent a collapsed lining or revetment. In the case of pit F.156, it seems possible that the large timber had been placed in the bottom of the pit to facilitate access. However, given the poor condition of the timber, this is a very tentative interpretation.

Recommendations

It is suggested that, for the sake of completeness, the non-oak material is identified to taxa, however, no further analysis is advised. It is suggested that the species identifications are added to this document as an addendum, and that this document is then submitted along with the site archive.

Once removed from an anoxic burial environment, waterlogged wooden remains will begin to breakdown and decay. It is therefore essential that provision for additional recording work and conservation take place as soon as possible. Therefore, it is

advised that the suggested programme of species identification be carried out within one year of the excavation of the material.

Miscellaneous finds – Simon Timberlake

A fragment from burnt stone scatter [569] has the appearance of a metallurgical slag. The rather light weight of this glassy material suggests a low iron or other metal content. However, given its context within a ‘burnt’ deposit it seems likely that this is an unintentional by-product rather than a metallurgical product.

Four small fragments of carbonaceous cinder were extracted from the >4mm fraction of the bulk environmental sample from Collared Urn Pit F.154.

Single fragments of mussel shell were extracted from the bulk environmental samples from Early Bronze Age pit F.154 and undated ring ditch F.178.

Human Bone – Natasha Dodwell

The proximal half of an adult right tibia (103g), broken post-mortem, was recovered from the primary fill of watering hole F.147.

Faunal remains - Vida Rajkovača

Excavations resulted in the recovery of a small faunal assemblage totalling 466 assessable specimens and weighing 3896g (Table 23). The faunal material was recovered from cut features and test pits dug through the buried soil, as well as from the heavy residues from bulk soil samples. This report will outline the results of the zooarchaeological analysis and assess the potential for further investigations. Based on the chronology of the material, several sub-sets were created in order to study the site’s faunal record. Although this is a small assemblage, it does reflect some interesting patterns which will be highlighted below.

	Hand-recovered material						
	<i>Faunal remains from cut features</i>						
	E Neo	BK	CU	EBA	UD	Total	
Context count	15	1	6	4	8	34	
Fragment count	52	4	49	11	26	142	
	<i>Faunal remains from the buried soil</i>						
	Site I	Site II	Site III	Site IV	Site V	Total	
Context count	1	1	1	1	1	5	Total weight
Fragment count	1	8	2	9	18	38	3770g
	Material from the heavy-residues						
	E Neo	BK	CU	EBA	UD	Total	
Context count	4	1	3	2	3	13	Total weight
Fragment count	154	8	72	39	13	286	126g

Table 23. Context and fragment count for all faunal remains by phase (E Neo- Early Neolithic; BK- Beaker; CU- Collared Urn; EBA- Early Bronze Age; UD- Undated)

Methodology

The zooarchaeological investigation followed the system implemented by Bournemouth University with all identifiable elements recorded (NISP: Number of Identifiable Specimens) and diagnostic zoning (amended from Dobney & Reilly 1988) used to calculate MNE (Minimum Number of Elements) from which MNI (Minimum Number of Individuals) was derived. Identification of the assemblage was undertaken with the aid of Schmid (1972), Hillson (1999) and reference material from the Cambridge Archaeological Unit, Cambridge. Most, but not all, caprine bones are difficult to identify to species; however, it was possible to identify a single specimen as sheep from the assemblage, using the criteria of Boessneck (1969). Unidentifiable fragments were assigned to general size categories where possible. This information is presented in order to provide a complete fragment count. Ageing of the assemblage employed both mandibular tooth wear (Grant 1982; Payne 1973) and fusion of proximal and distal epiphyses (Silver 1969). Sexing using morphological characteristics was only undertaken for pig canines based on their size, shape and root morphology (Schmid 1972: 80-81). Taphonomic criteria including indications of butchery, pathology, gnawing activity and surface modifications as a result of weathering were also recorded when evident.

Preservation

Bone preservation showed a great level of variation by period. Overall the assemblage demonstrated quite poor to poor preservation, with high quantities of calcined unidentifiable bone recovered from the Early Neolithic features. Canid gnawing was observed on *c.* 4%, which is low and is indicative of quick deposition of the material. Surface bone erosion and weathering were recorded on *c.* 34% of the material, mostly from later features. Despite poor preservation, the majority of identifiable bone specimens came from features with associated Collared Urn and Early Bronze Age pottery. A portion of the assemblage was covered in thick iron concretions. Butchery was noted on ten specimens (*c.* 7%) all of which were recovered from later (Early Bronze Age) features.

The buried soil assemblages

A total of 38 assessable fragments (*c.* 27% of the hand-recovered material) were recovered from test pits dug through the buried soil, of which 31 were unidentifiable calcined bone fragments assigned to size-categories or identified as mammal bone fragments. Five specimens identified as cow were loose teeth and enamel fragments. Faunal material from the two Early Neolithic (Sites I and VI) and one Late Neolithic (Site III) scatter was calcined and mostly unidentifiable, which is in keeping with the results from the cut features of the same date (see below). Similar to the findings from the lithic assemblage (see Billington, above); animal bone recovered from Site V is likely to be Early Bronze Age in date, based on the level of preservation.

Taxon	<i>Site I</i>	<i>Site III</i>	<i>Site IV</i>	<i>Site V</i>	<i>Other</i>
Cow	1	.	.	4	.
Cattle-sized	.	.	.	2	.
Sheep-sized	.	7	9	10	.
Mammal n.f.i.	.	1	.	2	2
Total	1	8	9	18	2

Table 24. Number of Identified Specimens for species and size-categories from the buried soil scatters; the abbreviation n.f.i. denotes the specimen which was not further identified

Feature assemblages

Early Neolithic pits

The majority of the faunal material (39 specimens/ 75%) dated to the Early Neolithic was made up of calcined unidentifiable bone crumbs. In addition to the calcined bone, three loose pig teeth were charred. The very few bone specimens of this date which were assigned to species level and were not burnt or calcined were the complete piglet skeleton from F.123 (Cluster 5) as well as a few cattle loose teeth.

Cluster 3

Four Early Neolithic pits were excavated within this cluster, producing the total of 11 assessable specimens (Table 25) all of which were calcined unidentifiable limb bone fragments assigned to size-category.

Cluster 4

Two features within this cluster produced only three specimens, one of which was a complete articulated skeleton counted as one specimen (Table 25). F.119 yielded calcined fragments of sheep/goat metatarsal and an unidentified sheep-sized limb bone fragment. F.123 contained an interesting deposit of a well preserved complete female piglet skeleton aged *c.*4-7 weeks. Given that the great majority of the Early Neolithic faunal remains were calcined bone crumbs; the well preserved complete infant pig skeleton is problematic and should be taken with caution.

Cluster 6

Similar to the material recovered from Cluster 3, features F.66 and F.74 contained faunal material which was either charred and identifiable (three loose pig teeth) or unidentifiable calcined crumbs of bone, some of which were possible to assign to a size-category (Table 25).

Taxon	Cluster 3 (F.48, 49, 50, 52)			Cluster 4 (F.119, 123)			Cluster 6 (F.66, 74)		
	NISP	NISP%	MNI	NISP	NISP%	MNI	NISP	NISP%	MNI
Cow	.	.	.	.	.	.	.	.	.
Sheep/Goat	.	.	.	1	50	1	.	.	.
Sheep	.	.	.	.	.	.	.	.	.
Pig	.	.	.	1*	50	1	3	100	1
Cattle-sized	1	.	.	.	.	.	1	.	.
Sheep-sized	10	.	.	1	.	.	19	.	.
Mammal n.f.i.	.	.	.	.	.	.	5	.	.
Total	11	.	.	3	100	.	28	100	.

Table 25. Number of Identified Specimens and Minimum Number of Individuals per cluster for all species; the abbreviation n.f.i. denotes the specimen which was not further identified

Other Early Neolithic pits

Of the 'non-cluster' Early Neolithic pits only F.107 produced a small amount of calcined bone.

Beaker and Early Bronze Age features

A single pit (F.35) containing four unidentifiable calcined mammal bone crumbs (Table 26) was the only Beaker period feature to contain animal bone.

Six contexts with associated Collared Urn pottery produced 49 assessable specimens, of which 29 (59.2%) were assigned to species level (Table 26). Unlike the Early Neolithic faunal material, this sub-set contained only one calcined bone. Pit F.156 contained an interesting deposit of three pig mandibles all of which were of different age at death (4-6 months, 7-14 months and 17-21 months). This indicates that there is a minimum of three individual animals within this feature. Another ageable mandible was recovered, identified as cow and giving the age at death of 6-8 months. Similar to these two features, F.172 also contained an important find. This was another associated bone group and it was part of a cow axial skeleton. Twelve cow ribs were not found in articulation and were therefore quantified as 12 different specimens, albeit it is possible that these ribs were part of the same animal.

Four further contexts with associated Early Bronze Age pottery yielded 11 assessable specimens, of which six were identified as cow, sheep/goat and pig (Table 26). Butchery was noted on three specimens and the action performed was bone splitting for marrow removal.

Taxon	Phase								
	Beaker			Collared Urn			Early Bronze Age		
	NISP	NISP%	MNI	NISP	NISP%	MNI	NISP	NISP%	MNI
Cow	.	.	.	17	58.6	1	2	33.3	1
Sheep/Goat	.	.	.	8	27.6	1	3	50	1
Sheep	.	.	.	1	3.5	1	.	.	.
Pig	.	.	.	3	10.3	3	1	16.7	1
Cattle-sized	.	.	.	3	.	.	2	.	.
Sheep-sized	.	.	.	17	.	.	3	.	.
Mammal n.f.i.	4	.	.	.	.	.	.	.	.
Total	4	.	.	49	100	.	11	100	.

Table 26. Number of Identified Specimens and Minimum Number of Individuals for the material from Beaker and Early Bronze Age features; the abbreviation n.f.i. denotes the specimen which was not further identified

Faunal material from undated contexts

Of 32 assessable specimens, only one was calcined and 16 (50%) were identified to species (Table 27). The scarcity of calcined material coupled with the relatively high proportion of elements being identified to species level would seem to suggest Collared Urn or Early Bronze Age date for the majority of the undated contexts. Cattle metacarpal recovered from pit F.182 was unfused proximally indicating that the animal died either as a foetus or neonate. The presence of foetal/neonate elements within this sub-set implies that the animals were being reared on site.

Taxon	Undated		
	NISP	NISP%	MNI
Cow	13	81.25	1
Sheep/Goat	2	12.5	1
Sheep	.	.	.
Pig	1	6.25	1
Cattle-sized	12	.	.
Sheep-sized	4	.	.
Mammal n.f.i.	.	.	.
Total	32	100	.

Table 27. Number of Identified Specimens and Minimum Number of Individuals for all species from the undated features; the abbreviation n.f.i. denotes the specimen which was not further identified

Faunal material from the heavy residues

Animal bone recovered from the bulk soil samples were subject to rapid assessment. These are quantified by phase in Table 23. Of 286 assessable fragments, 154 were recovered from the Early Neolithic features. Early Neolithic material was again mainly comprised of unidentifiable calcined bone fragments, with only four elements being identifiable to species. Similarly, Beaker material was calcined and very fragmentary. Faunal material from the features with associated Collared Urn and Early Bronze Age pottery was not burnt, yet it was highly fragmentary and eroded. Eight specimens were recorded as identifiable to species level and a further two were separated out as fish elements (recovered from F.156/ [963]).

Discussion

Although quantitatively insufficient for discussions about animal management, food procurement and deposition; this assemblage displayed several interesting patterns. The Early Neolithic faunal sub-set was dominated by unidentifiable calcined mammal bone fragments with a very few elements being identifiable to species. The very few specimens of the same date which were not burnt were loose teeth and a complete female pig skeleton aged to *c.*4-7 weeks recovered from F.123 showing a good state of preservation. The question remains as to how the fragile infant pig skeleton had survived, if the remainder of the Early Neolithic material was calcined and unidentifiable. Articulated faunal remains associated with Mildenhall pottery are if not entirely absent from the archaeological record, then very scarce and it is uncertain whether the pottery could be residual.

Unlike the Early Neolithic sub-set, although material from the features with associated Collared Urn pottery was again poorly preserved, it was possible to identify a selective suite of elements for the three main food species. Cow was the prevalent species, followed by sheep/goat and pig. Four specimens were crudely butchered using large blades and the actions performed include bone splitting for marrow. The Early Bronze Age sub-set showed a similar range of species. The prevalence of cattle on this site is in keeping with the results from the excavations at North Fen site, in the immediate vicinity (Strid 2009) and also with the majority of domestic assemblages from across the country. In addition, cattle are much less prone to foot rot than other domesticates and were therefore for that reason reared in this wet landscape.

Statement of potential

The assemblage does not have great potential in terms of variation in species representation, due to the high portion of the Early Neolithic assemblage being calcined and the later material being fragmented, heavily eroded and covered in concretions. It was possible, however, to establish the range of most common domesticates.

Although on its own the assemblage is of limited potential, the material should be considered alongside the contemporaneous assemblages recovered from other lower Ouse valley excavations (Haddenham, Barleycroft Farm and Over). A combined data set from all of these sites represents a great resource for studying long-term animal management and hunting strategies including fishing and fowling in this dynamic landscape.

Recommendations

Further work is required to place the Sutton Gault faunal remains in context, both in terms of the site itself and the wider prehistoric landscape. This should include comparison of the assemblage with the faunal remains recovered from other lower Ouse valley excavations at Haddenham, Barleycroft Farm and Over.

The problematic complete pig skeleton from F.123 found in association with 36 sherds of Mildenhall pottery should also be submitted for C14 dating

Assessment of bulk environmental samples – Val Fryer

Introduction and method statement

Samples for the retrieval of the plant macrofossil assemblages were taken from across the excavated area, and thirty were submitted for assessment. The samples were bulk floated by CAU and the flots were collected in a 300 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x 16 and the plant macrofossils and other remains noted are listed in Tables 28-32. Nomenclature within the tables follows Stace (1997). Charred, mineral replaced and waterlogged/de-watered macrofossils were recorded, with the latter two categories being denoted respectively within the tables by lower case 'm' and 'w' suffixes. A number of the assemblages also appeared to contain seeds, fruits and other remains, which were possibly intrusive within the features from which the samples were taken. These are denoted within the tables by a * suffix. Modern fibrous roots, seeds, arthropod remains and fungal sclerotia were also recorded.

Results

Cereal grains and seeds of common weeds, wetland/aquatic plants and tree/shrub species were recorded, mostly at a low to moderate density, within all but three of the assemblages studied. Preservation was generally quite good, although a number of the charred cereal grains were fragmentary and puffed and distorted, with the latter possibly occurring as a result of combustion at very high temperatures.

Both barley (*Hordeum* sp.) and wheat (*Triticum* sp.) grains were recorded, along with a number of other cereals, which were too poorly preserved for close identification. With the exception of one partly charred or 'scorched' grain from sample 39 (Early Bronze Age pit F125), all cereals were charred. Of the wheat grains, most were of an elongated 'drop' form typical of either emmer (*T. dicoccum*) or spelt (*T. spelta*). A possible asymmetrical lateral grain of six-row barley (*H. vulgare*) was recorded within the assemblage from sample 40 (Early Bronze Age pit F125). Cereal chaff was exceedingly scarce; spelt wheat glume bases were noted within the assemblage from sample 11 (Early Bronze Age penannular gully F44), but as the number recorded was very low, it is possible that all were intrusive within the context. However, if contemporary, these would constitute an early record of spelt within the East Anglian area. A single possible charred fragment of an indeterminate large legume (Fabaceae) was also noted within the assemblage from sample 11.

Charred weed seeds occurred very infrequently. Most were of grasses (Poaceae) or grassland herbs including brome (*Bromus* sp.), goosegrass (*Galium aparine*) and dock (*Rumex* sp.) although a small number of wetland plants, including sedge (*Carex* sp.) and spike-rush (*Eleocharis* sp.), were also recorded. Two possible flax (*Linum usitatissimum*) type seeds were noted within the assemblages from samples 21 (Late Neolithic pit F66) and 11. If contemporary, the latter are, again, early records of this plant within eastern England.

Waterlogged/de-watered seeds occurred more frequently, particularly within the assemblages from the Early Bronze Age pits and pit/tank/well fills (Tables 2 and 3). Grassland herbs were again predominant, although ruderal weeds and plants more commonly found on disturbed ground were also recorded. The taxa noted most frequently included orache (*Atriplex* sp.), fat hen (*Chenopodium album*), hemp-nettle (*Galeopsis* sp.), persicaria (*Persicaria maculosa/lapathifolia*), knotgrass (*Polygonum aviculare*), buttercup (*Ranunculus* sp.), chickweed (*Stellaria graminea*), stitchwort (*S. media*), dock and nettles (*Urtica dioica*). Wetland/aquatic species were particularly common within the pit/well/tank contexts, with taxa noted including club-rush (*Bolboschoenus/Schoenoplectus* sp.), sedge, gipsy-wort (*Lycopus europaeus*), blinks (*Montia fontana*) and celery-leaved crowfoot (*Ranunculus sceleratus*).

Charred hazel (*Corylus avellana*) nutshell fragments were present within all of the Later Neolithic pit fills (Table 1) and were also recorded elsewhere. Other tree/shrub macrofossils included charred hawthorn (*Crataegus monogyna*) and sloe (*Prunus spinosa*) fruit stones and waterlogged/de-watered apple/pear (*Malus/Pyrus* sp.) seeds, bramble (*Rubus* sect. *Glandulosus*) 'pips', birch (*Betula* sp.) fruits and elderberry (*Sambucus nigra*) seeds.

Charcoal/charred wood fragments were present within all but two assemblages, although rarely at a high density. Waterlogged root/stem fragments were common or abundant within the waterlogged/de-watered assemblages. Other plant macrofossil occurred less frequently, but did include wood, culm and leaf fragments, thorns, tubers and twigs.

Other remains were generally quite scarce. The fragments of black porous and tarry material and, possibly, the vitreous globules were all probable residues of the combustion of organic remains (including cereal grains and straw/grass) at very high temperatures. Other indicators of high temperature combustion included fragments of burnt or fired clay and splinters of heat-shattered stone. Arthropod remains were recorded within the waterlogged/de-watered assemblages along with Cladoceran ephippia (water-fleas), caddis larval cases and ostracods.

Discussion

For the purposes of this discussion the samples have been divided by date and context type.

The Early Neolithic pit fills (Table 28)

The five assemblages from the Early Neolithic pit fills are reasonably uniform in composition with all but one containing cereal grains along with hazelnut shell fragments and pieces of charcoal/charred wood. None are sufficiently large to be indicative of the primary deposition of refuse within the pits, and yet the uniformity of

composition appears to be more than fortuitous, possibly suggesting that the assemblages were deliberately compiled, possibly as part of a seasonal rite of cleansing. Similar results have been noted from other contemporary contexts within Norfolk, Suffolk and Cambridgeshire.

The Early Bronze Age pit fills (Table 29)

Of the three samples taken, two (39 and 40) from fills within pit F125 contain high densities of de-watered plant material along with a lower density of charred macrofossils, whilst the third (sample 10 from F36) contains little other than charcoal/charred wood. Assuming that the de-watered remains are contemporary with the feature from which the samples were taken, it would appear that the area surrounding pit F125 was largely grassed, although the presence of annual weeds probably suggests that some nearby land was either disturbed or under cultivation. As is common with many of the deeper features at Sutton Gault, pit F125 appears to have been at least seasonally wet at its base or margins. As charred remains other than cereals are rare, it is assumed that the grains within the assemblages are possibly derived from materials which were burnt during culinary preparation and then accidentally incorporated within the pit fills.

The Early Bronze Age pit/well/tank features (Table 30)

At the time of writing, the true nature of these features is not known and it is also unclear what proportion of the assemblages may consist of materials which are intrusive within the contexts from which the samples were taken. Similar assemblages have been noted from other contemporary features at, for example, Welland Bank Quarry, Lincolnshire (Fryer 1999), where it appeared that some pits probably functioned as sumps or water holes within an area with a naturally high water table. Of the ten assemblages from Sutton Gault, only four (samples 59, 60, 64 and 65), from fills within pits F154 and F156, contain charred cereals, and then only at a very low density. The composition of the de-watered assemblages from samples 46 (Pit F131) and 75 (Pit F147) appears to indicate that these features were situated within areas of rough, damp grassland although, as with the other contemporary pit fills (see above), it would appear that there was some disturbed ground in the near vicinity. However, it should be noted that this disturbance was possibly simply a result of the digging of the pits, as while segetal weed seeds are present, ruderal species predominate. The pits themselves were probably wet and muddy at their bases, with some evidence that they occasionally held water on a more permanent basis. There is also some evidence that the pits were either surrounded by or partially overgrown by trees, shrubs and rough scrub. Although charcoal/charred wood fragments are present, they are only abundant within the contexts which also contain charred grain, possibly suggesting that while some of these features may contain domestic detritus, others were entirely peripheral to any main focus of human activity.

The prehistoric buried soils (Table 31)

Test samples from a buried soil horizon were taken from across the excavated area and six were submitted for assessment. Charcoal/charred wood fragments are present throughout but, along with a small number of charred cereals and seeds, it is probably most likely that all are derived from scattered refuse or hearth waste. Sample 77

contains a moderate density of de-watered macrofossils, but as many appear to be extremely well preserved, it is assumed that a very high proportion (if not all) are reasonably modern in origin.

Other features (Table 32)

Of the six other samples taken only one, sample 11 from the fill of pen-annular gully F44, is of note. Although small, the assemblage does contain cereals, chaff, weed seeds and nutshell fragments, possibly suggesting that the remains are derived from a small quantity of domestic detritus or hearth waste, which was swept into the gully fill. The other assemblages contain insufficient material for accurate interpretation.

Conclusions and recommendations for further work

In summary, as is often typical with samples of Neolithic and Bronze Age date, the recovered assemblages are mostly very small (<0.1 litres in volume) and sparse. Charred macrofossils are present, but at a very low density, and although most are possibly derived from scattered refuse or wind blown detritus, the Late Neolithic pit assemblages may include materials which were deliberately placed within the feature fills. Some features appear to have been entirely peripheral to any focus of human activity. The de-watered assemblages are difficult to interpret, as many appear to contain an unknown quantity of later, intrusive remains. However, it would appear that the site was predominantly grassed during the Early Bronze Age period, although there is possibly some evidence for ground disturbance or minimal agriculture. The ground water level appears to have been high, with pits or sumps being dug to manage issues of water collection. These features were probably wet and muddy for most of the year, although there is evidence to suggest that some were at least semi-permanently water filled.

Although some of the de-watered assemblages do contain a sufficient density of macrofossils for quantification, further analysis of these remains would add little to the interpretation of the site or its component features. Therefore, no further work is recommended at this stage. However, analysis of the arthropod remains from the waterlogged contexts may provide additional data to that included within this assessment, and materials suitable for dating determinations are present if required.

Sample No.	3	14	18	21	29
Context No.	542	624	673	669	585
Feature No.	F16	F49	F74	F66	F38
Cereals					
<i>Hordeum</i> sp. (grains)		x			
<i>Triticum</i> sp. (grains) (spikelet base)			x	xx	
Cereal indet. (grains)	x	xcf	xfg	x	
Herbs					
<i>Linum usitatissimum</i> L.				xcf	
Tree/shrub macrofossils					
<i>Corylus avellana</i> L.	x	x	xx	xx	xcf
Other plant macrofossils					
Charcoal <2mm	xx	xx	xxx	xxx	xx
Charcoal >2mm	xx		xx	x	x
Charred root/stem			x		
Indet.seeds	x	x		x	
Other remains					
Black porous 'cokey' material	x	x	x	x	x
Bone				xb	
Burnt/fired clay	x				
Burnt stone	x		x		
Vitreous material				x	
Sample volume (litres)	11	28	20	25	15
Volume of flot (litres)	<0.1	<0.1	<0.1	<0.1	<0.1
% flot sorted	100%	100%	100%	100%	100%

Table 28: Plant macrofossils and other remains from Neolithic pit samples

Sample No.	10	39	40
Context No.	580	820	819
Feature No.	F36	F125	F125
Cereals			
<i>Hordeum</i> sp. (grains)		x xpc	xx
<i>H. vulgare</i> L. (asymmetrical lateral grain)			xcf
<i>Triticum</i> sp. (grains)		x	x
Cereal indet. (grains)		x	x
(rachis internode frag.)			x
Herbs			
<i>Chenopodium album</i> L.		xxw	xxw
Chenopodiaceae indet.		xw	
<i>Fallopia convolvulus</i> (L.)A.Love			xw
<i>Papaver dubium</i> L.			xcfw
<i>Persicaria maculosa/lapathifolia</i>		xw	xw
Large Poaceae indet.		x	x
<i>Ranunculus</i> sp.		xw	
<i>Rumex</i> sp.		x xw	xw
<i>Urtica dioica</i> L.		xw	xw
Wetland/aquatic plants			
<i>Bolboschoenus/Schoenoplectus</i> sp.		xw	
<i>Carex</i> sp.			xcf
<i>Eleocharis</i> sp.			xcf
<i>Lycopus europaeus</i> L.		xcfw	
Tree/shrub macrofossils			
<i>Corylus avellana</i> L.		xcf	
<i>Crateagus monogyna</i> Jaqu.	x		
<i>Malus/Pyrus</i> sp.		xw	
<i>Rubus</i> sect. <i>Glandulosus</i> Wimmer & Grab		xw	xw
Other plant macrofossils			
Charcoal <2mm	xxx	xxx	xxx
Charcoal >2mm	x	xx	xxx
Charcoal >5mm		x	xx
Charred root/stem			x
Waterlogged root/stem		xxx	x
Wood frags. <10mm		xx	
Indet.seeds		x	x
Indet.thorns (<i>Rosa</i> type)		xw	
Mollusc shells			
Marsh/freshwater slum species			
<i>Lymnaea</i> sp.			xcfb
Other remains			
Black porous 'cokey' material	x		
Compacted soil concretions		xxx	
Waterlogged arthropod remains		x	
Sample volume (litres)	5	15	5
Volume of flot (litres)	<0.1	0.5	<0.1
% flot sorted	100%	25%	100%

Table 29: Plant macrofossils and other remains from Early Bronze Age pit samples

Sample No.	42	46	59	60	64	65	66	68	75	76
Context No.	866	841	929	924	962	963	977	1008	906	1033
Feature No.	F108	F131	F154	F154	F156	F156	F156	F172	F147	F177
Cereals										
<i>Hordeum</i> sp. (grains)			x		x	xcf				
<i>Triticum</i> sp. (grains)						x				
Cereal indet. (grains)			x	x	xfg	x				
Indet.chaff										
Herbs										
Asteraceae indet.		xw							xw	
<i>Atriplex</i> sp.		xxw		xw	xw*		xxw		xxw	
<i>Carduus</i> sp.		xw							xw	
Caryophyllaceae indet.							xw			
<i>Chenopodium album</i> L.		xxw	xw*	xw*		xw*			xxxxw	
Chenopodiaceae indet.		xxw				xw*	xxw	xxw	xxw	
<i>Cirsium</i> sp.		xw								
Fabaceae indet.		xw								
<i>Fallopia convolvulus</i> (L.)A.Love								xw		
<i>Galeopsis</i> sp.	xw	xw					xw		xw	
<i>Hypericum</i> sp.		xw								
<i>Lamium</i> sp.							xw			
<i>Malva</i> sp.									xw	
<i>Papaver dubium</i> L.									xcfw	
<i>Persicaria maculosa/lapathifolia</i>		xw					xw		xxxw	
Small Poaceae indet.							xw		xw	
<i>P. lapathifolia</i> L.	xw	xw							xw	
<i>Polygonum aviculare</i> L.	xw	xw					xxw		xxxw	
<i>Potentilla</i> sp.									xw	
<i>Ranunculus</i> sp.		xxw					xw			
<i>R. acris/repens/bulbosus</i>	xw	xw					xw		xw	
<i>Rumex</i> sp.	xxw	xw	xw*	x xw			xxxxw	xw	xxw	
<i>Solanum</i> sp.		xw							xw	
<i>Sonchus asper</i> L.		xw								
<i>Stellaria</i> sp.				xw			xxw			
<i>S. graminea</i> L.		xw		xw			xw	xw	xw	
<i>S. media</i> (L.)Vill		xw	xw*	xw			xw	xw	xw	
<i>Torilis japonica</i> (DC) Hoult		xw								
<i>Urtica dioica</i> L.	xw	xw	xw*			xw*		xw	xw	
Wetland/aquatic plants										
<i>Alisma plantago-aquatica</i> L.								xw		
<i>Bolboschoenus/Schoenoplectus</i> sp.		xxw								
<i>Carex</i> sp.	xw	xxxxw	xw			x			xw	
<i>Juncus</i> sp.									xw	
<i>Lycopus europaeus</i> L.		xw							xw	
<i>Montia fontana</i> L.		xxw		xw					xw	
<i>Persicaria hydropiper</i> L.		xcfw							xcfw	
<i>Potamogeton</i> sp.		xw								
<i>Ranunculus sceleratus</i> L.		xw							xxw	
Tree/shrub macrofossils										
<i>Betula</i> sp.		xw	xw*	xw*	xw*	xw*				
<i>Corylus avellana</i> L.						x				
<i>Prunus</i> sp. (fruit/fruitstone frags.)						x		xcfw		
<i>P. spinosa</i> L.							xw		xcfw	
<i>Rubus</i> sect. <i>Glandulosus</i> Wimmer & Grab	xw	xw	xw			xw*	xw	xw	xw	
<i>Sambucus nigra</i> L.		xxw	x xw*	xw	xw*	xw*	xw	xxw	xw	
Other plant macrofossils										
Charcoal <2mm			xx	xx	xxxx	xxxx	x	x	x	xx
Charcoal >2mm			x	xx	xx	xxxx		x		
Charcoal >5mm			x			x	x			
Charcoal >10mm						x				
Charred root/stem			x	x		x				
Waterlogged root/stem	xxxx	xxxx	xxx*	x			xxx	xx	xxxx	
Mineral replaced root/stem			x	x						
Indet.culm nodes	xw									
Indet. leaf frags.										

Sample No.	42	46	59	60	64	65	66	68	75	76
Context No.	866	841	929	924	962	963	977	1008	906	1033
Feature No.	F108	F131	F154	F154	F156	F156	F156	F172	F147	F177
Indet.seeds		xw	xw xm			x		xw	xw	
Indet.thorns (<i>Rosa</i> type)		xw								
(<i>Prunus</i> type)	xxw									
Indet.tuber frag.						xcf				
Indet.twigs	xxw									
Wood frags.<10mm				xw	xw*	xw*	x			
Wood frags.>10mm		xxw							xw	
Other remains										
Bone				x	x	x		x		
Caddis larval cases									xw	
Cladoceran ephippia		xw			xw			xw		
Mineralised root channels			x	xx						
Mineralised soil concretions	xxx		x	xxx	x		x	x	x	
Ostracods		x							x	
Small mammal/amphibian bones		x								
Waterlogged arthropod remains		x	xx*	xxx*			xxx	xx	x	
Sample volume (litres)	14	28	17	14	14	20	12	16	14	14
Volume of flot (litres)	0.1	0.2	<0.1	<0.1	<0.1	0.2	0.1	<0.1	<0.1	<0.1
% flot sorted	100%	50%	100%	100%	100%	50%	100%	100%	100%	100%

Table 30: Plant macrofossils and other remains from possible 'well' feature samples

Sample No.	7	8	27	54	73	77
Context No.	319	319	319-321	334	340	341
Buried Soil Site No.	1	1	1	3	5	4
Cereals						
<i>Triticum</i> sp. (grains)				x		
Cereal indet. (grains)	x		x	x xxfg		
Herbs						
<i>Chenopodium album</i> L.						xxw*
Chenopodiaceae indet.						xxw*
<i>Galium aparine</i> L.			x	x		
<i>Hypericum</i> sp.						xw*
Small Poaceae indet.				x		
<i>Polygonum aviculare</i> L.						xxw*
<i>Rumex acetosella</i> L.				x		
<i>Sherardia arvensis</i> L.					x	
<i>Urtica dioica</i> L.						xw*
Wetland/aquatic plants						
<i>Carex</i> sp.						xw*
<i>Mentha</i> sp.						xw*
<i>Montia fontana</i> L.						xw*
<i>Ranunculus sceleratus</i> L.						xw*
Tree/shrub macrofossils						
<i>Corylus avellana</i> L.	x					
Other plant macrofossils						
Charcoal <2mm	xxx	xxx	xxx	xxx	x	x
Charcoal >2mm	xx	x	xx	xx		
Charred root/stem			x			
Waterlogged root/stem						xxw
Indet.seeds	x	x		x		
Other remains						
Black porous 'cokey' material	x	xx	x	xxx	x	
Mineralised concretions					x	
Vitreous material					x	
Waterlogged arthropod remains						x
Sample volume (litres)	46	42	18	27	30	15
Volume of flot (litres)	0.1	0.1	<0.1	<0.1	<0.1	<0.1
% flot sorted	100%	100%	100%	100%	100%	100%

Table 31: Plant macrofossils and other remains from buried soil samples

Sample No.	58	11	69	71	48	74
Context No.	896	602	1036	1055	881	980
Feature No.	F149	F44	F178	F178	F138	F166
Feature type	Pit	PG	RD	RD	Pit	Pit
Date	Beaker	EBA	?EBA	?EBA	Prehist.	Prehist.
Cereals and other food plants						
<i>Hordeum</i> sp. (grains)		x	x			
<i>Triticum</i> sp. (grains)		xcf				
<i>T. spelta</i> L. (glume bases)		x				
Cereal indet. (grains)	xcf	xf _g				
Large Fabaceae indet.		xcff _g				
Herbs						
<i>Bromus</i> sp.				x		
<i>Linum usitatissimum</i> L.		xcf				
Small Poaceae indet.		x	x			x
<i>Tripleurospermum inodorum</i> (L.)Schultz-Bip		x				
Wetland/aquatic plants						
<i>Carex</i> sp.			x			
Tree/shrub macrofossils						
<i>Corylus avellana</i> L.	xx	x				x
Other plant macrofossils						
Charcoal <2mm	xxxx	xxxx	x	xx	xx	x
Charcoal >2mm	xxxx	x		x	x	x
Charcoal >5mm	xx	x				
Charred root/stem		x	xx	x		
Indet.seeds			x	x		
Other remains						
Black porous 'cokey' material	x	x			x	x
Compacted soil concretions			xxxx	xxx		
Ferrous globule		x				
Vitreous material		x				x
Sample volume (litres)	13	26	13	20	24	35
Volume of flot (litres)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
% flot sorted	100%	100%	100%	100%	100%	100%

Table 32: Plant macrofossils and other remains from 'other' samples

Key to Tables: x = 1 – 10 specimens, xx = 11 – 50 specimens, xxx – 51 – 100 specimens, xxxx = 100+ specimens, cf = compare, fg = fragment, b = burnt, pc = part charred, w = waterlogged/de-watered, * = possibly including modern intrusive remains, m = mineral replaced, PG = penannular gully, RD = ring ditch, EBA = Early Bronze Age, Prehist = Prehistoric.

Pollen Analysis – Steve Boreham

Introduction

This report presents the results of assessment pollen analyses from five samples of sediment taken from watering hole F.108.

The watering hole feature was sampled for pollen analysis in the field with two 50cm monolith tins, which together covered a 90cm part of the sequence spanning five different contexts ([869], [866], [865], [864] and [862]). Monolith 34 at the base of the sequence was sampled at 14cm (context [869]) for pollen. Monolith 35 was sampled for pollen at 15cm (context [866]), 27cm (context [865]), 40cm (context [864]) and 48cm (context [862]).

The five samples of sediment from the monoliths were prepared using the standard hydrofluoric acid technique, and counted for pollen using a high-power stereo microscope. The percentage pollen data from these samples is presented in Table 33.

Pollen Analyses

The pollen concentrations encountered ranged between 36,810 and 96,907 grains per ml. There was some finely divided organic debris which made pollen counting difficult for some slides, but preservation of the fossil pollen grains (palynomorphs) was in general quite good. Assessment pollen counts were made from a single slide. The pollen sums achieved ranged between 84 and 129. Although these counts do not exceed the statistically desirable total of 300 pollen grains main sum, four exceeded a count of 100 grains. As a consequence caution must be employed during the interpretation of these results.

Monolith <34> context 869 - 14cm

The basal pollen sample from monolith 34 at 14cm was dominated by grass (Poaceae) pollen (44.5%), with a range of herbs including the disturbed ground indicator ribwort plantain (*Plantago lanceolata*) (10.0%), other plantains (*Plantago undif.*) (3.6%), members of the lettuce family (Asteraceae (Lactuceae)) (2.7%), sedges (Cyperaceae) (2.7%), and cereal pollen (2.7%). Arboreal taxa included hazel (*Corylus*) (8.2%), alder (*Alnus*) (2.7%), birch (*Betula*), pine (*Pinus*) and oak (*Quercus*) (all <1%). Fern spores together accounted for 10.9%, and obligate aquatic plants were represented by the fringing emergent bur-reed (*Sparganium*) (0.9%).

Monolith <35> context 866 – 15cm

The basal pollen sample from monolith 35 at 15cm was dominated by grass (Poaceae) pollen (39.6%), with a range of herbs including ribwort plantain (*Plantago lanceolata*) (9.4%), members of the pink family (Caryophyllaceae) (3.8%) and members of the fat hen family (Chenopodiaceae) (3.8%). Cereal pollen was present at 0.9%. Arboreal taxa included hazel (*Corylus*) (2.8%), alder (*Alnus*) (1.9%), birch (*Betula*), pine (*Pinus*) and juniper (*Juniperus*) (all <1%). Fern spores together accounted for 21.7%, and obligate aquatic plants were represented by bur-reed (*Sparganium*) (3.8%).

Sample	34	35	35	35	35
Context	869	866	865	864	862
	14cm	15cm	27cm	40cm	48cm
<i>Trees & Shrubs</i>					
Betula	0.9	0.9	0.0	0.0	0.8
Pinus	0.9	0.9	0.0	0.0	0.0
Quercus	0.9	0.0	0.0	0.0	0.0
Alnus	2.7	1.9	1.0	0.0	1.6
Corylus	8.2	2.8	15.4	4.8	4.7
Juniperus	0.0	0.9	1.0	0.0	0.0
<i>Herbs</i>					
Poaceae	44.5	39.6	40.4	48.8	29.5
Cereals	2.7	0.9	4.8	6.0	10.9
Cyperaceae	2.7	0.0	1.0	6.0	1.6
Asteraceae (Asteroidea/Cardueae) undif.	0.9	2.8	0.0	1.2	0.8
Asteraceae (Lactuceae) undif.	2.7	1.9	1.0	0.0	2.3
Artemisia type	0.0	0.0	0.0	1.2	0.0
Cirsium type	1.8	1.9	0.0	1.2	0.0
Caryophyllaceae	0.0	3.8	1.0	0.0	1.6
Chenopodiaceae	0.9	3.8	0.0	3.6	0.8
Brassicaceae	0.9	0.9	0.0	0.0	0.8
Lamiaceae	0.0	1.9	1.0	0.0	0.0
Fabaceae	0.9	0.0	0.0	0.0	0.0
Plantago undif.	3.6	2.8	3.8	2.4	4.7
Plantago lanceolata	10.0	9.4	11.5	8.3	12.4
Ranunculus type	1.8	1.9	1.0	0.0	3.1
Rumex	0.9	0.0	1.0	0.0	0.8
Thalictrum	0.0	0.0	0.0	0.0	1.6
Sanguisorba minor	0.0	0.0	1.0	0.0	0.0
Veronica type	0.9	0.0	0.0	0.0	0.0
Urtica type	0.0	0.0	0.0	0.0	0.8
Apiaceae undif.	1.8	0.0	0.0	1.2	1.6
Liliaceae	0.0	0.9	0.0	0.0	0.0
<i>Lower plants</i>					
Pteropsida (monolete) undif.	7.3	14.2	8.7	9.5	11.6
Pteropsida (trilete) undif.	3.6	7.5	6.7	6.0	9.3
<i>Aquatics</i>					
Sparganium type	0.9	3.8	1.0	2.4	9.3
<i>Sum</i>					
Sum trees	5.5	3.8	1.0	0.0	2.3
Sum shrubs	8.2	3.8	16.3	4.8	4.7
Sum herbs	77.3	72.6	67.3	79.8	72.9
Sum spores	10.9	21.7	15.4	15.5	20.9
<i>Main Sum</i>					
Main Sum	110	106	104	84	129
<i>Concentration (grains per ml)</i>					
Concentration (grains per ml)	37318	61933	78126	36810	96907

Table 33: Percentage Pollen Data from F.108

Monolith <35> context 865 – 27cm

The pollen sample from monolith 35 at 27cm was dominated by grass (Poaceae) pollen (40.4%), with a limited range of herbs including ribwort plantain (Plantago lanceolata) (11.5%), other plantains (Plantago undif.) (3.8%), and cereal pollen

(4.8%). Arboreal taxa included hazel (*Corylus*) (15.4%), alder (*Alnus*) and juniper (*Juniperus*) (both 1%). Fern spores together accounted for 15.4%, and obligate aquatic plants were represented by bur-reed (*Sparganium*) (1.0%).

Monolith <35> context 864 – 40cm

The pollen sample from monolith 35 at 40cm was again dominated by grass (*Poaceae*) pollen (48.8%), with a restricted range of herbs including ribwort plantain (*Plantago lanceolata*) (8.3%), members of the fat hen family (*Chenopodiaceae*) (3.6%), sedges (*Cyperaceae*) (6.0%) and cereal pollen (6.0%). The only arboreal taxon represented was hazel (*Corylus*) (4.8%). Fern spores together accounted for 15.5%, and obligate aquatic plants were represented by bur-reed (*Sparganium*) (2.4%).

Monolith <35> context 862 – 48cm

The upper pollen sample from monolith 35 at 48cm was dominated by grass (*Poaceae*) pollen (29.5%), with a range of herbs including ribwort plantain (*Plantago lanceolata*) (12.4%), other plantains (*Plantago undif.*) (4.7%), buttercup (*Ranunculus*) (3.1%) and cereal pollen (10.9%). Arboreal taxa included hazel (*Corylus*) (4.7%), alder (*Alnus*) (1.6%) and birch (*Betula*) (0.8%). Fern spores together accounted for 20.9%, and obligate aquatic plants were represented by bur-reed (*Sparganium*) (9.3%).

Discussion and Conclusion

The samples from this sequence are all rather alike in that they represent meadow and grassland communities, with hazel scrub or hedgerow nearby and abundant evidence for soil disturbance and arable activity. The elevated proportion of fern spores in some of these samples is a slight cause for concern in that it may suggest oxidative post-depositional modification of the pollen signal. However, there does not seem to have been a commensurate increase in robust pollen types such as the *Asteraceae*, which would be expected if microbial degradation of the pollen signal was in a more advanced state.

Taken as a whole, these pollen analyses show a post-clearance pollen signal, with a variety of habitats indicated including damp meadows, tall herb and riparian (bank-side) communities and hazel-dominated scrub or hedgerow. It must represent a mosaic landscape of pastoral and arable agriculture, with a few scattered trees. Soil disturbance and trampling or poaching is suggested by the relatively large proportions of ribwort plantain, and other members of the plantain family (for example *P. media/major*). As a watering hole sequence, there are curiously few indicators of open water, with bur-reed as the only obligate aquatic. The upper-most sample <35> 48cm was notable in that it had an increased proportion of bur-reed (9.3%), accompanied by elevated (10.9%) cereal pollen and ribwort plantain (12.4%), and the eutrophication indicator nettle (*Urtica*). In contrast, cereal pollen was lowest in sample <35> 15cm, suggesting less arable activity in the area immediately surrounding the feature at this time.

These pollen spectra are typical of assemblages from similar pits and watering holes. Whilst there are subtle variations between the pollen samples analysed, as always it is important not to over-interpret these assessment pollen counts.

Soil Micromorphology – Charles French

A site visit on July 26th 2010 revealed variable preservation of a buried soil. This was comprised of the base of what is left of the former organic A horizon, situated in the development area to the north of a sinuous sand bank (old roddon). To the north of the roddon, the buried soil thickened slightly by 10-20cm; this merged with a variably sandy/gravelly substrate (B/C) below. This is a B horizon, a greyish brown sandy-silt loam with oxidation mottling.

Dr Richard Macphail's note on the soils at the adjacent quarry site (Macphail in Webley and Hiller 2009) suggests that he observed a similar profile in the quarry area to the northeast. He assessed three soil profiles and observed that this buried soil profile was a brown earth soil. Interestingly it contains lots of micro-evidence for much burning in the immediate vicinity - so perhaps indicating a settlement was nearby - prior to thin peat development and alluviation.

Recommendations

Given the presence of dispersed prehistoric settlement associated with this buried soil, a further five buried soil sequences sampled by the CAU have been selected for micromorphological analysis (CAU sample numbers 22, 26, 31, 53 and 78) (after Murphy 1986).

The micromorphological analysis will aim to:

- determine the buried soil type and its land-use signatures
- compare this new data to the existing soil micromorphological study by Macphail for the adjacent quarry area
- compare these soil data sequences with comparable/contemporary fenland buried soil data in the vicinity.

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Appendix 1

Feature descriptions

Feature No.	Feature Type	Context No.	Context Type	Length (m)	Width (m)	Depth (m)	Selected Artefacts	Comments
1	Tree throw	500	Fill					
		501	Fill					
		502	Cut	2.5	0.67	0.44		
		517	Fill					
		518	Cut	N/A	N/A	N/A		
3	Post hole?	503	Fill					
		504	Cut	0.2	0.2	0.18		
4	Pit?	505	Fill					
		506	Cut	0.7	0.8	0.18		
5	Tree throw	507	Fill					
		508	Fill					
		509	Fill					
		510	Fill					
		511	Fill					
		512	Fill					
		513	Cut	N/A	N/A	0.25		
6	Post hole?	514	Fill					
		515	Cut	0.51	0.39	0.2		
7	Pit	525	Fill					
		526	Fill					
		527	Cut	0.8	0.75	0.12		
9	Tree throw	519	Fill					
		520	Cut	2.5	0.6	0.05		
10	Tree throw	521	Fill					
		522	Cut	0.8	0.5	0.2		
11	Irregular linear hollow	523	Fill					
		524	Cut	2.2	0.65	0.1		
12	Tree throw	528	Fill					
		529	Cut	N/A	1.1	0.31		
13	Tree throw	532	Fill					
		533	Fill					
		534	Cut	1.9	1.5	0.55		
14	Shallow pit/hollow	535	Fill					
		536	Cut	1	0.52	0.13		
15	Burnt/scorched patch	537	Layer					
		538	Layer					
		539	Layer	1.5	1.25	0.05		
16	Pit	542	Fill				Pottery	Early Neolithic, Pit Cluster 1
		543	Fill					
		544	Cut		0.54	0.26		
17	Pit	548	Fill					Pit Cluster 1
		549	Fill					
		550	Cut		0.6	0.2		
18	Pit	540	Fill					Pit Cluster 1
		541	Cut	0.5	0.5	0.07		

Feature No.	Feature Type	Context No.	Context Type	Length (m)	Width (m)	Depth (m)	Selected Artefacts	Comments		
		545	Fill							
19	Pit?	546	Fill							
		547	Cut	0.86	0.7	0.05				
		551	Fill							
20	Pit?	552	Cut	1.5	0.57	0.1				
		553	Fill				Pottery	Beaker		
21	Shallow hollow?	554	Cut	2.4	0.43	0.05				
		555	Fill							
22	Pit?	556	Cut	0.85	0.75	0.19				
		557	Fill							
23	Pit?	558	Cut	0.4	0.3	0.07				
		559	Fill				Pottery	Beaker		
24	Tree throw	560	Fill				Pottery	Beaker		
25	Tree throw	561	Fill				Pottery	Beaker		
26	Tree throw	562	Fill							
27	Modern pit	563	Cut	0.85	0.5	0.27				
		565	Fill							
28	Tree throw	566	Fill							
30	Pit	567	Cut	0.45	0.44	0.17				
		568	Fill							
31	Tree throw	570	Layer	0.8	0.7	0.03				
32	Burnt/ashy patch	571	Fill							
		572	Cut	0.65	0.63	0.08				
33	Pit	573	Fill							
		574	Cut	0.46	0.35	0.04				
34	Pit?	575	Fill				Pottery, burnt stone	Beaker		
		576	Cut	1.1	1.02	0.08				
35	Pit	577	Fill				Pottery	Early Bronze Age		
		578	Fill							
		579	Fill							
		580	Fill							
		581	Cut	0.57	0.55	0.15				
36	Pit	582	Fill				Flint	Pit Cluster 5		
		583	Fill							
		584	Cut	0.36	0.35	0.1				
37	Pit	585	Fill				Pottery, Flint	Early Neolithic / Beaker, Pit Cluster 5		
		586	Fill							
		587	Cut		0.71	0.1				
38	Pit	588	Fill							
		589	Fill							
		600	Fill							
39	Pit	601	Cut	0.52	0.5	0.08		Pit Cluster 5		
		596	Fill				Pottery	Early Neolithic, Pit Cluster 5		
		597	Fill							
598	Cut	0.5	0.48	0.26						
40	Pit	593	Fill							
		594	Fill							
		595	Cut	0.6	0.59	0.19		Pit Cluster 5		
41	Pit	590	Fill				Pottery	Early Neolithic, Pit Cluster 5		
		591	Fill							
		592	Cut	0.47	0.38	0.07				

Feature No.	Feature Type	Context No.	Context Type	Length (m)	Width (m)	Depth (m)	Selected Artefacts	Comments
43	Pit	588	Fill				Pottery, flint	Early Neolithic, Pit Cluster 5
		589	Cut	0.41	0.51	0.14		
44	Pennanular gully	602	Fill				Pottery, flint	Collared Urn
		603	Cut	N/A	0.34	0.07		
		604	Fill					
		605	Cut	N/A	0.33	0.09		
		606	Fill					
		607	Cut	N/A	0.57	0.2		
		608	Fill					
		609	Cut	N/A	0.5	0.21		
		610	Fill					
		611	Cut	N/A	0.73	0.25		
		786	Fill					
		787	Fill					
		788	Fill					
789	Fill							
45	Post hole?	612	Fill					
		613	Cut	0.35	0.25	0.42		
46	Tree throw	614	Fill					
		615	Cut	N/A	N/A	N/A		
47	Pit	616	Fill				Pottery, flint	Early Bronze Age
		617	Cut	0.55	0.5	0.15		
48	Pit	634	Fill				Pottery, flint	Early Neolithic, Pit Cluster 3
		635	Cut	0.95	0.8	0.18		
49	Pit	624	Fill				Pottery	Early Neolithic, Pit Cluster 3
		625	Cut	0.7	0.65	0.34		
50	Pit	620	Fill				Pottery, flint	Early Neolithic, Pit Cluster 3
		621	Cut	0.7	0.69	0.21		
51	Pit	622	Fill				Pottery, flint	Early Neolithic, Pit Cluster 3
		623	Cut	0.5	0.43	0.17		
52	Pit	648	Fill				Pottery	Early Neolithic, Pit Cluster 3
		649	Cut	0.6	0.6	0.2		
53	Pit	650	Fill				Pottery	Early Neolithic, Pit Cluster 3
		651	Cut	0.7	0.7	0.1		
54	Pit	618	Fill					Pit Cluster 5
		619	Cut	0.25	0.32	0.11		
55	Pit	626	Fill				Pottery	Early Neolithic, Pit Cluster 3
		627	Cut	0.85	0.6	0.1		
56	Pit	628	Fill					Pit Cluster 3
		629	Cut	0.5	0.35	0.05		
57	Pit	630	Fill					Pit Cluster 3
		631	Cut	0.55	0.4	0.05		
58	Pit	632	Fill				Flint	Early Neolithic, Pit Cluster 3
		633	Cut	0.5	0.4	0.05		
59	Pit	636	Fill				Pottery	Early Bronze Age
		637	Fill					
		638	Fill					
		639	Cut	0.75	0.7	0.24		
60	Pit?	640	Fill					
		641	Cut	0.62	0.61	0.1		
61	Tree throw	642	Cut	0.71	0.28	0.13		

Feature No.	Feature Type	Context No.	Context Type	Length (m)	Width (m)	Depth (m)	Selected Artefacts	Comments
		643	Fill					
62	Pit?	644	Cut	0.23	0.21	0.14		
		645	Fill					
63	Pit	646	Cut	0.31	0.29	0.04		
		647	Fill					
64	Ditch (Post Med.)	689	Fill					
		690	Fill					
		691	Fill					
		692	Fill					
		693	Fill					
		694	Fill					
		695	Cut		1.54	0.39		
65	Tree throw	696	Fill				Pottery	Early Neolithic
		697	Cut	1.4	1.21	0.45		
66	Pit	669	Fill				Pottery, flint	Early Neolithic, Pit Cluster 6
		670	Fill					
		671	Cut	0.8	0.68	0.2		
67	Pit	652	Fill				Flint	Pit Cluster 6
		653	Fill					
		654	Cut	0.73	0.64	0.19		
68	Small pit/posthole	655	Fill				Pottery	Early Neolithic, Pit Cluster 2
		656	Cut	0.45	0.25	0.1		
69	Small pit/posthole	657	Fill				Pottery	Pit Cluster 2
		658	Cut	0.4	0.2	0.1		
70	Pit?	659	Fill				Pottery	Pit Cluster 2
		660	Cut	0.5	0.4	0.15		
71	Pit?	661	Fill					
		662	Cut	0.44	0.44	0.15		
72	Pit?	663	Fill					
		664	Cut	0.8	0.69	0.18		
73	Plough scar?	665	Fill					
		666	Cut	0.65	0.37	0.06		
74	Pit	672	Fill				Pottery, Flint	Early Neolithic, Pit Cluster 6
		673	Fill					
		674	Fill					
		675	Fill					
		676	Cut	0.76	0.65	0.34		
75	Pit	667	Fill					
		668	Cut	0.25	0.25	0.1		
76	Tree throw	677	Fill					
		678	Cut	2.5	0.75	0.65		
77	Small pit/posthole	679	Fill					
		680	Cut	0.5	0.3	0.05		
79	Pit	683	Fill					Pit Cluster 3
		684	Cut	0.4	0.3	0.08		
81	Modern pit	687	Fill					
		688	Cut	0.78	0.6	0.13		
82	Pit	698	Fill					
		699	Cut	0.58	0.5	0.09		
83	Tree throw	700	Fill				Pottery	Early Neolithic
		701	Fill					

Feature No.	Feature Type	Context No.	Context Type	Length (m)	Width (m)	Depth (m)	Selected Artefacts	Comments
84	Pit	702	Fill					
		703	Fill					
		704	Cut	0.6	0.86	0.24		
85	Pit	705	Fill					
		706	Cut	0.7	0.67	0.1		
86	Pit?	707	Fill					
		708	Cut	0.7	0.69	0.21		
87	Tree throw	709	Fill				Pottery	Early Neolithic
88	Pit?	710	Fill					
		711	Cut		0.38	0.16		
89	Pit	712	Fill					
		713	Cut	0.95	0.9	0.25		
90	Pit	714	Fill					
		715	Cut	1.05	0.55	0.15		
91	Pit	718	Fill					
		719	Fill					
		720	Fill					
		721	Cut	0.71	0.7	0.19		
92	Pit	722	Fill					
		723	Fill					
		724	Fill					
		725	Cut	0.72	0.7	0.27		
94	Pit	716	Fill				Pottery	Early Neolithic
		717	Cut	0.95	0.98	0.15		
95	Pit	733	Fill					
		734	Fill					
		735	Cut	1.13	0.65	0.18		
96	Pit	726	Fill					Pit Cluster 7
		727	Cut	0.6	0.58	0.09		
97	Pit	728	Fill					Pit Cluster 7
		729	Cut	0.71	0.7	0.12		
98	Pit	730	Fill					Pit Cluster 7
		731	Fill					
		732	Cut	0.68	0.48	0.12		
99	Pit	736	Fill					Pit Cluster 7
		737	Cut	0.8	0.7	0.12		
100	Pit	738	Fill					Pit Cluster 7
		739	Cut	0.95	0.9	0.18		
101	Pit	740	Fill					Pit Cluster 7
		741	Cut	0.9	0.7	0.08		
102	Pit	742	Fill					Pit Cluster 7
		743	Cut	0.52	0.48	0.08		
103	Pit	744	Fill					Pit Cluster 7
		745	Cut	0.45	0.3	0.11		
104	Pit	746	Fill					
		747	Cut	0.74	0.66	0.18		
105	Pit	748	Fill					
		749	Cut	1.35	1.16	0.34		
106	Pit	750	Fill					
		751	Fill					
		752	Fill					

Feature No.	Feature Type	Context No.	Context Type	Length (m)	Width (m)	Depth (m)	Selected Artefacts	Comments
		753	Fill					
		754	Fill					
		755	Cut	1.75	1.12	0.75		
107	Pit	756	Fill				Pottery	Early Neolithic
		757	Cut	0.65	0.6	0.17		
108	Pit	861	Fill				Flint, animal bone, preserved wood	Watering hole?
		862	Fill					
		863	Fill					
		864	Fill					
		865	Fill					
		866	Fill					
		867	Fill					
		868	Fill					
		869	Fill					
109	Pit	759	Fill					
		760	Cut	0.6	0.6	0.15		
110	Pit	761	Fill					
		762	Cut	1.1	1.1	0.18		
111	Pit	763	Fill				Pottery	Early Neolithic
		764	Cut	0.75	0.7	0.18		
112	Pit?	765	Fill				Pottery	Early Neolithic
		766	Cut	0.85	0.84	0.18		
113	Pit	767	Fill					
		768	Cut	0.4	0.4	0.1		
114	Pit	769	Fill					
		770	Cut	0.55	0.6	0.2		
115	Pit	771	Fill					
		772	Cut	0.5	0.45	0.17		
116	Pit	871	Fill					
		872	Fill					
		873	Fill					
		874	Fill					
		875	Fill					
		876	Fill					
		877	Cut		1.25	0.87		
117	Pit	773	Fill				Pottery	Early Neolithic, Pit Cluster 4
		774	Cut	0.45	0.4	0.03		
118	Pit	775	Fill				Pottery	Early Neolithic, Pit Cluster 4
		776	Cut	0.3	0.27	0.07		
119	Pit	777	Fill				Pottery	Early Neolithic, Pit Cluster 4
		778	Cut	0.5	0.6	0.18		
		812	Fill					
120	Pit	779	Fill				Pottery	Early Neolithic, Pit Cluster 4
		780	Cut	0.3	0.3	0.1		
121	Large pit	793	Fill				Pottery, flint, animal bone	Watering hole?
		794	Fill					
		795	Fill					
		796	Fill					
		797	Fill					
		798	Fill					

Feature No.	Feature Type	Context No.	Context Type	Length (m)	Width (m)	Depth (m)	Selected Artefacts	Comments
		799	Fill					
		800	Fill					
		801	Fill					
		802	Fill					
		803	Fill					
		804	Fill					
		805	Fill					
		806	Fill					
		807	Fill					
		808	Fill					
		809	Fill					
		810	Fill					
		811	Cut	5.4	5.3	0.85		
122	Pit	781	Fill				Pottery	Early Neolithic, Pit Cluster 4
		782	Cut	0.35	0.35	0.07		
123	Pit	790	Fill				Pottery, flint, animal bone	Early Neolithic, Pit Cluster 4
		791	Fill					
		792	Cut		0.6	0.12		
124	Pit	783	Fill				Pottery	Pit Cluster 4
		784	Cut	1.05	0.95	0.2		
125	Pit	813	Fill				Pottery, flint, bone	Collared Urn
		814	Fill					
		815	Fill					
		816	Fill					
		817	Fill					
		818	Fill					
		819	Fill					
		820	Fill					
		821	Cut	1.02	1	0.8		
		822	Fill					
126	Scorched patch/hearth	827	Layer	0.93	0.8	0.09		
		828	Layer					
		829	Layer					
127	Pit	823	Fill				Pottery	Early Bronze Age
		824	Cut	0.5	0.5	0.17		
128	Pit	825	Fill					
		826	Cut	1.26	0.6	0.21		
129	Pit	833	Fill					
		834	Fill					
		835	Fill					
		836	Cut	1.7	0.8	0.45		
130	Pit	837	Fill					
		838	Cut	0.86	0.8	0.65		
131	Pit	839	Fill					Watering hole?
		840	Fill					
		841	Fill					
		842	Fill					
		843	Cut	5.35	5.2	1.11		
132	Pit	844	Fill					Watering hole?
		845	Fill					
		846	Fill					

Feature No.	Feature Type	Context No.	Context Type	Length (m)	Width (m)	Depth (m)	Selected Artefacts	Comments	
		847	Cut	2.6	1ex	0.82			
133	Pit	848	Fill					Watering hole?	
		849	Fill						
		850	Cut	2.5ex	2.4	0.92			
		851	Fill						
134	Pit	852	Fill						
		853	Fill						
		854	Cut	1.9	1.8ex	0.78			
		855	Fill						
135	Pit	856	Fill						
		857	Cut	1.45	1.1	0.85			
		858	Fill						
136	Pit	859	Fill						
		860	Cut	2.4	1.7ex	0.7			
		878	Fill						
137	Linear hollow	879	Cut	4	1.35	0.1			
		880	Cut	0.55	0.48	0.26			
138	Pit	881	Fill						
		882	Fill						
139	Pit	883	Cut		0.75	0.15			
		884	Fill						
140	Pit	885	Cut		0.8	0.11			
		886	Cut	0.46	0.44	0.1			
141	Pit	887	Fill						
		889	Fill						
143	Pit	890	Cut	0.75	0.56	0.18			
		891	Fill						
144	Pit	892	Cut	0.5	0.35	0.16			
		893	Fill						
145	Tree throw								
146	Pit	910	Fill						
		911	Cut	0.52	0.22	0.28			
147	Pit	901	Fill				Flint, animal bone, human bone	Watering hole?	
		902	Fill						
		903	Fill						
		904	Fill						
		905	Fill						
		906	Fill						
		907	Fill						
		908	Fill						
148	Post hole / pit	909	Cut	5.95	5.45	0.98			
		894	Fill				Pottery		Beaker
149	Pit	895	Cut	0.39	0.38	0.06				Pottery	Beaker
		896	Fill						
		897	Fill						
150	Small pit/posthole	898	Cut	0.65	0.6	0.31			
		899	Fill						
151	Pit	900	Cut	0.15	0.15	0.11			
		912	Fill						
152	Small pit/posthole	913	Cut	0.23	0.28ex	0.26			
		920	Fill						
		921	Cut	0.85	0.78	0.28			

Feature No.	Feature Type	Context No.	Context Type	Length (m)	Width (m)	Depth (m)	Selected Artefacts	Comments
153	Small pit/posthole	922	Fill					
		923	Cut	0.49	0.36	0.12		
154	Pit	924	Fill				Pottery, animal bone	Early Bronze Age
		925	Fill					
		926	Fill					
		927	Cut		1.5	0.8		
		928	Fill					
156	Pit	929	Fill				Pottery, flint, animal bone	Collared Urn
		955	Fill					
		956	Fill					
		957	Fill					
		958	Fill					
		959	Fill					
		960	Fill					
		961	Fill					
		962	Fill					
		963	Fill					
		964	Fill					
		965	Fill					
		966	Fill					
		967	Fill					
		968	Fill					
		969	Fill					
		970	Fill					
		971	Fill					
		972	Fill					
		973	Fill					
974	Fill							
975	Fill							
976	Fill							
977	Fill							
978	Fill							
979	Cut	3	2.6	1.15				
157	Pit	930	Fill					
		931	Fill					
		932	Fill					
		933	Fill					
		934	Fill					
		935	Fill					
		936	Fill					
937	Cut		2.7	0.8				
158	Pit	938	Fill					
		939	Cut	0.65	0.5	0.35		
159	Pit?	940	Fill					
		941	Cut	0.9	0.6	0.1		
160	Small pit/posthole	942	Fill					
		943	Fill					
		944	Cut	0.2	0.35	0.25		
161	Pit	945	Fill					
		946	Fill					
		947	Cut	0.7	0.6	0.17		

Feature No.	Feature Type	Context No.	Context Type	Length (m)	Width (m)	Depth (m)	Selected Artefacts	Comments
162	Pit	948	Fill					
		949	Cut	0.49	0.46	0.24		
163	Pit	950	Fill					
		951	Fill					
		952	Cut	1.6	1.1	0.31		
164	Pit	953	Fill					
		954	Cut	0.72	0.7	0.12		
165	Pit	983	Fill					
		984	Fill					
		985	Fill					
		986	Fill					
		987	Fill					
		988	Fill					
		989	Fill					
		990	Fill					
166	Pit	991	Cut		1.3	0.7		
		980	Fill					
167	Tree throw	981	Cut	0.95	0.5	0.15		
		982	Fill					
168	Pit	992	Fill					
		993	Cut	0.36	0.36	0.07		
169	Pit	994	Fill					
		995	Cut	0.65	0.5	0.1		
170	Small pit/posthole	996	Fill					
		997	Cut	0.45	0.35	0.1		
171	Pit	998	Fill					
		999	Fill					
		1000	Cut	0.83	0.8	0.28		
172	Pit	1004	Fill				Pottery, animal bone	Collared Urn
		1005	Fill					
		1006	Fill					
		1007	Fill					
		1008	Fill					
		1009	Fill					
		1010	Fill					
		1011	Cut	1.65	1.57	0.85		
173	Pit	1001	Fill					
		1002	Fill					
		1003	Cut	1.4	1	0.5		
174	Pit	1012	Fill					
		1013	Fill					
		1014	Fill					
		1015	Cut	0.98	0.58	0.38		
175	Pit	1016	Fill					Watering hole?
		1017	Fill					
		1018	Fill					
		1019	Fill					
		1020	Fill					
		1021	Fill					
		1022	Fill					
1023	Fill							

Feature No.	Feature Type	Context No.	Context Type	Length (m)	Width (m)	Depth (m)	Selected Artefacts	Comments
		1024	Fill					
		1025	Fill					
		1026	Cut	4.29	3.44	0.83		
176	Pit?	1027	Fill					
		1028	Cut		1.02	0.43		
177	Pit	1029	Fill					Well feature?
		1030	Fill					
		1031	Fill					
		1032	Fill					
		1033	Fill					
		1034	Fill					
		1035	Cut	3.7	3.5	1.92		
178	Ring ditch	1036	Fill				Pottery, flint	Undated
		1037	Cut	N/A	0.4	0.2		
		1038	Fill					
		1039	Fill					
		1040	Cut		0.1(trunc)	0.2		
		1041	Fill					
		1042	Cut	N/A	0.56	0.21		
		1043	Fill					
		1044	Fill					
		1045	Cut	N/A	0.2(trunc)	0.2		
		1046	Fill					
		1050	Fill					
		1051	Cut	N/A	0.6	0.21		
		1052	Fill					
		1053	Fill					
		1054	Cut	N/A	0.57	0.23		
		1055	Fill					
		1056	Fill					
		1057	Cut	N/A	0.62	0.21		
		1058	Fill					
		1059	Cut	N/A	0.59	0.16		
		1060	Fill					
		1061	Cut	N/A	0.55	0.24		
1062	Fill							
1063	Fill							
1064	Cut	N/A	0.35	0.12				
1065	Fill							
1066	Cut	N/A	0.35	0.13				
1067	Fill							
1068	Cut	N/A	0.52	0.15				
1069	Fill							
179	Pit	1070	Fill					
		1071	Cut	2.5	1	0.45		
180	Pit	1072	Fill					
		1073	Cut	0.6	0.5	0.12		
181	Pit	1074	Fill					
		1075	Fill					

Feature No.	Feature Type	Context No.	Context Type	Length (m)	Width (m)	Depth (m)	Selected Artefacts	Comments
		1076	Fill					
		1077	Fill					
		1078	Fill					
		1079	Fill					
		1080	Fill					
		1081	Fill					
		1082	Cut		2.6	1.08		
182	Pit	1083	Fill					
		1084	Fill					
		1085	Fill					
		1086	Fill					
		1087	Cut		2.4	1.15		
183	Pit	1088	Fill					
		1089	Fill					
		1090	Cut	1.75	1.15	0.72		
184	Pit	1091	Fill					
		1092	Fill					
		1093	Cut	1.45	1.1	0.38		
185	Inter-cutting pit group	N/A	N/A	N/A	N/A	N/A		Feature group comprising ind. features F.129-136.
N/A	Dispersed patch of burnt stone frags	569						
N/A	Buried soil patch	758	Layer					

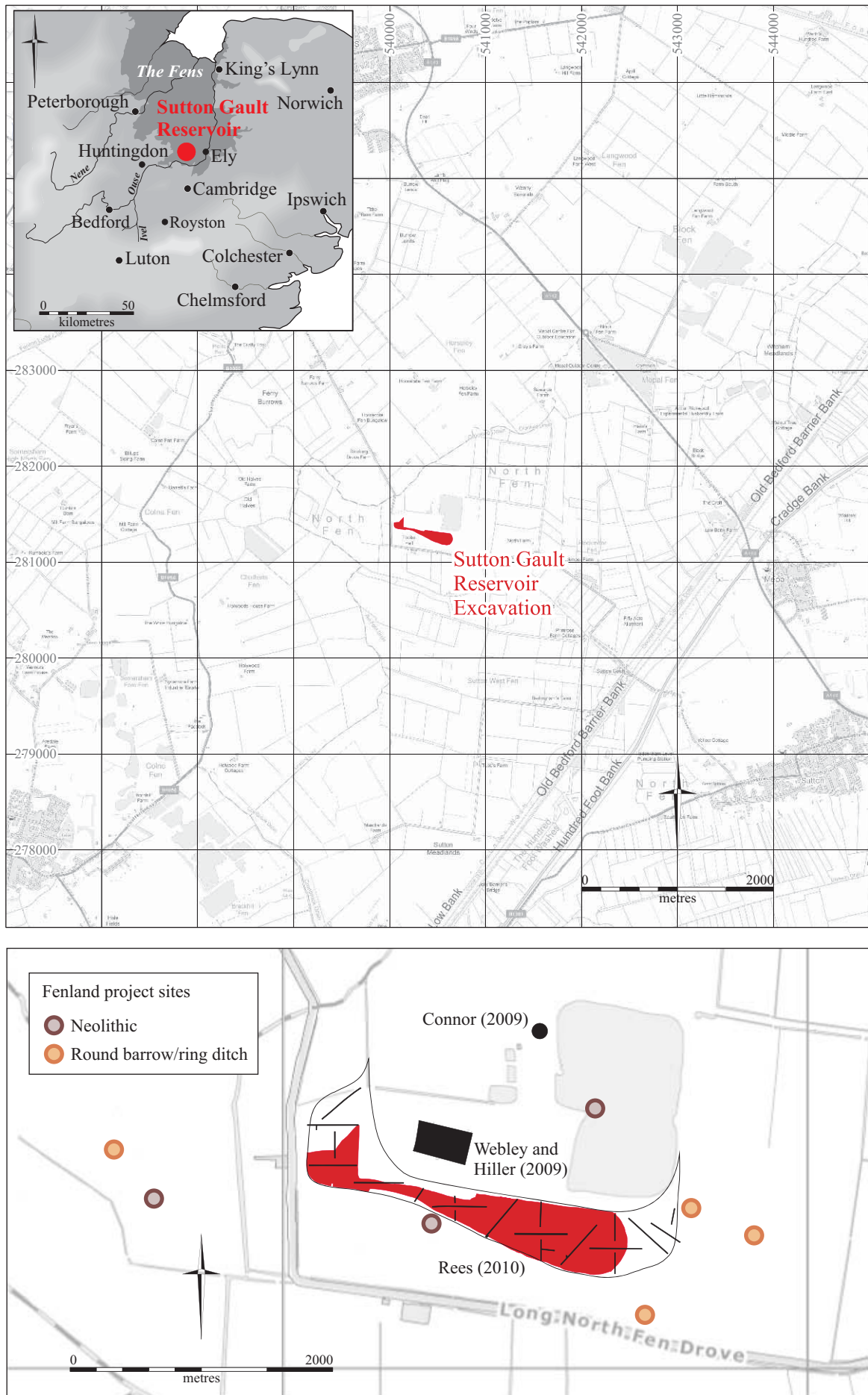


Figure 1. Location map and previous archaeological work in the area

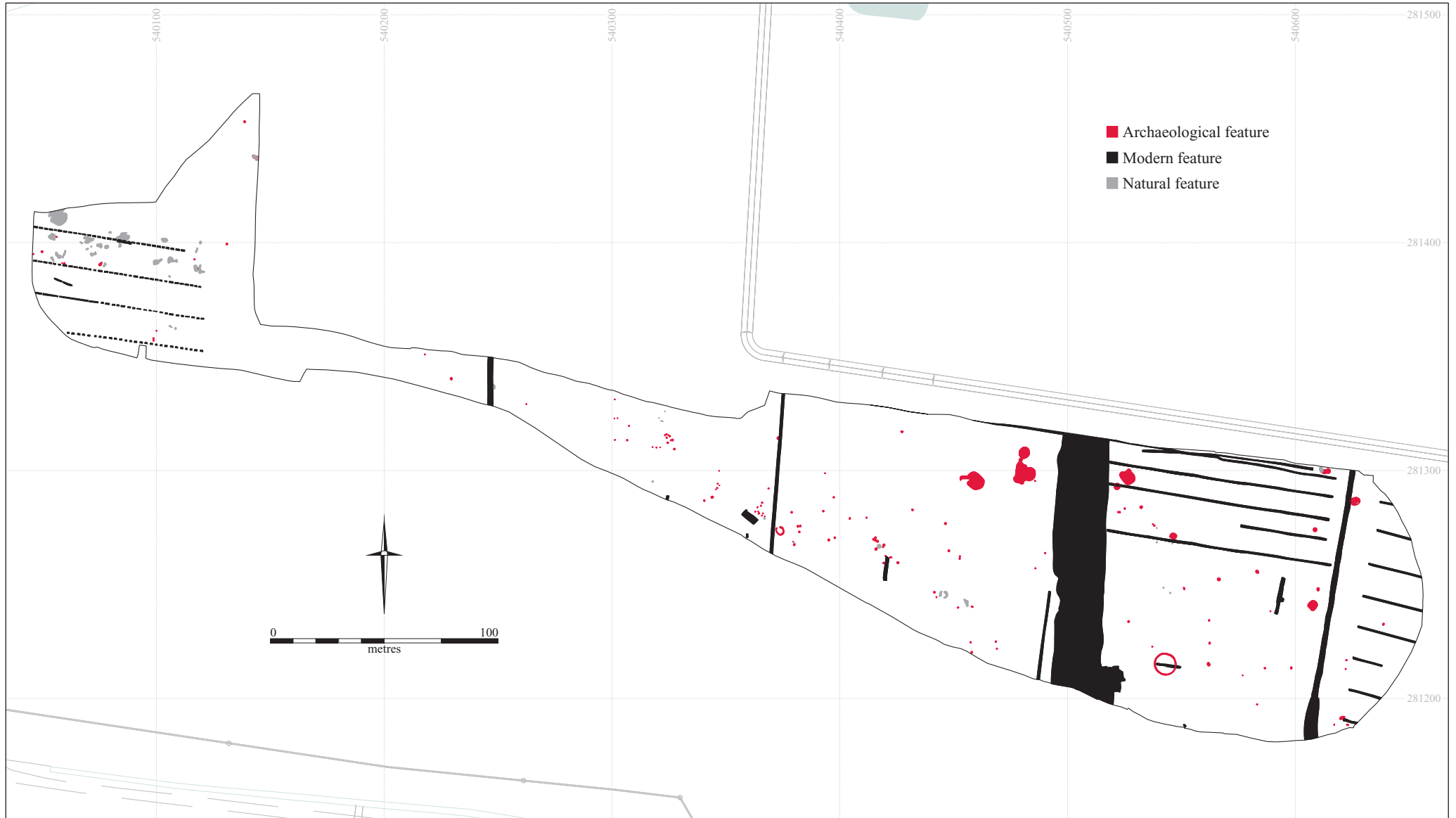


Figure 2. Site plan

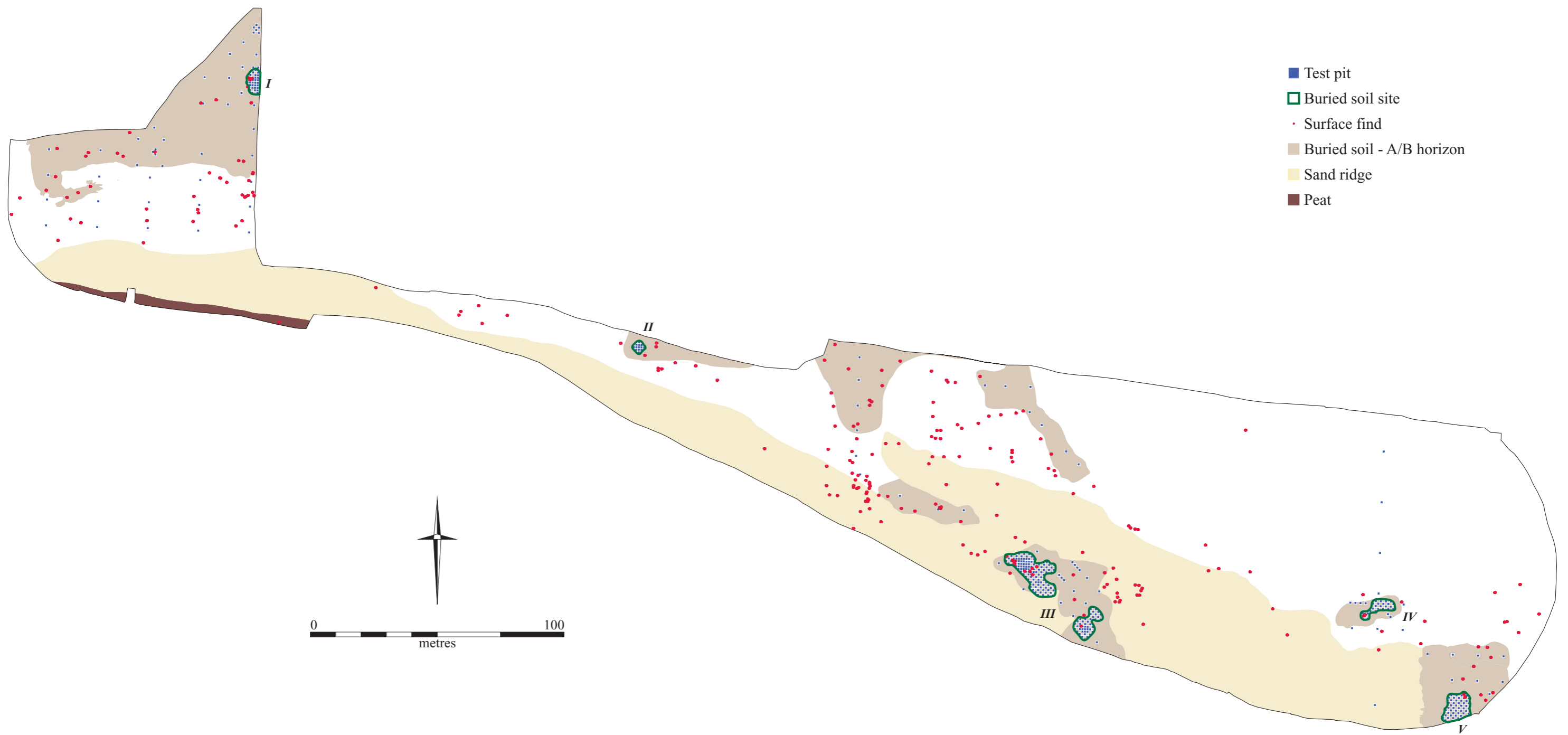


Figure 3. Buried soil sites and surface finds



Figure 4. Buried soil test pit sampling

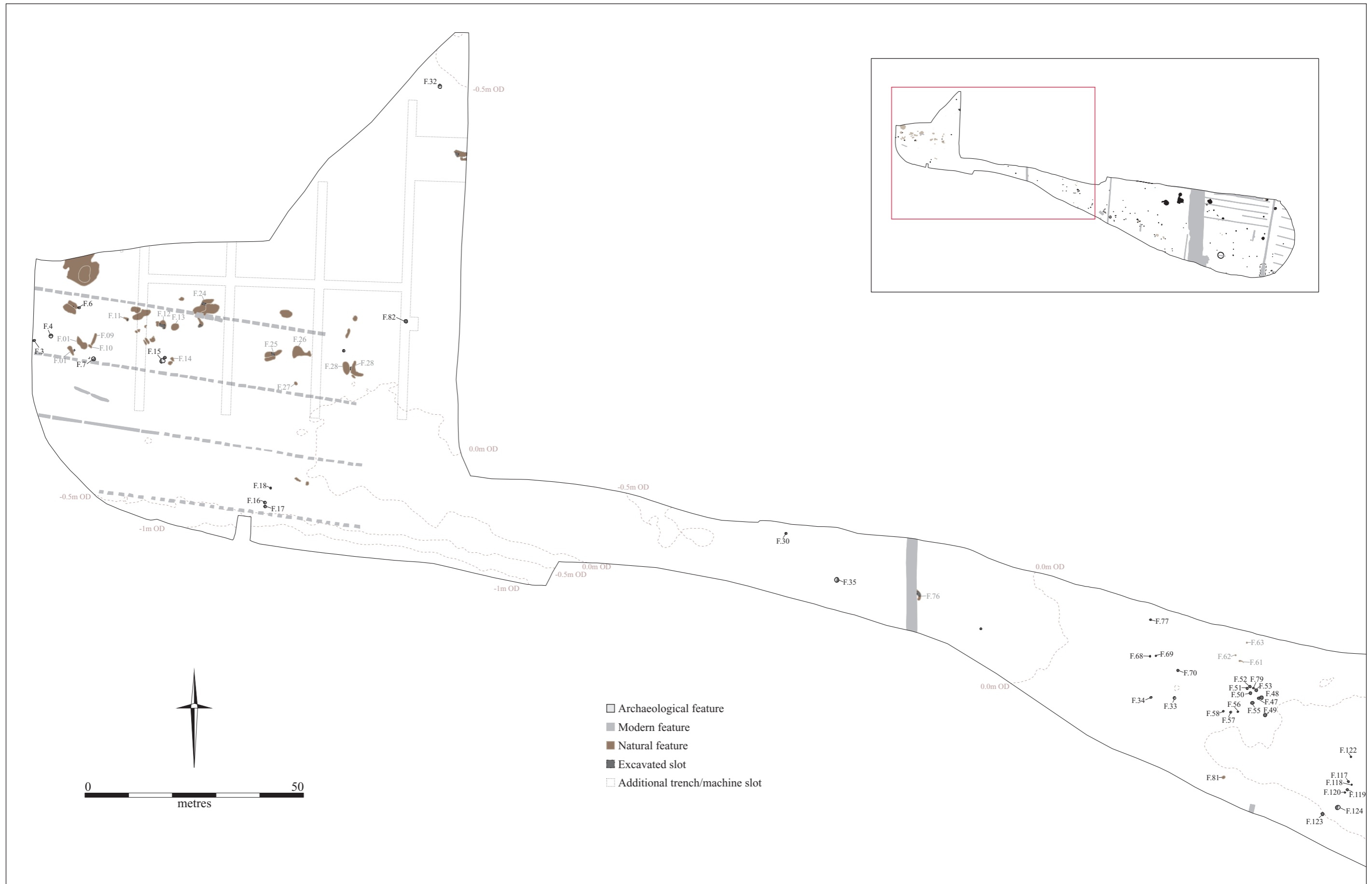


Figure 5. Archaeological, natural and modern features in Western half of site

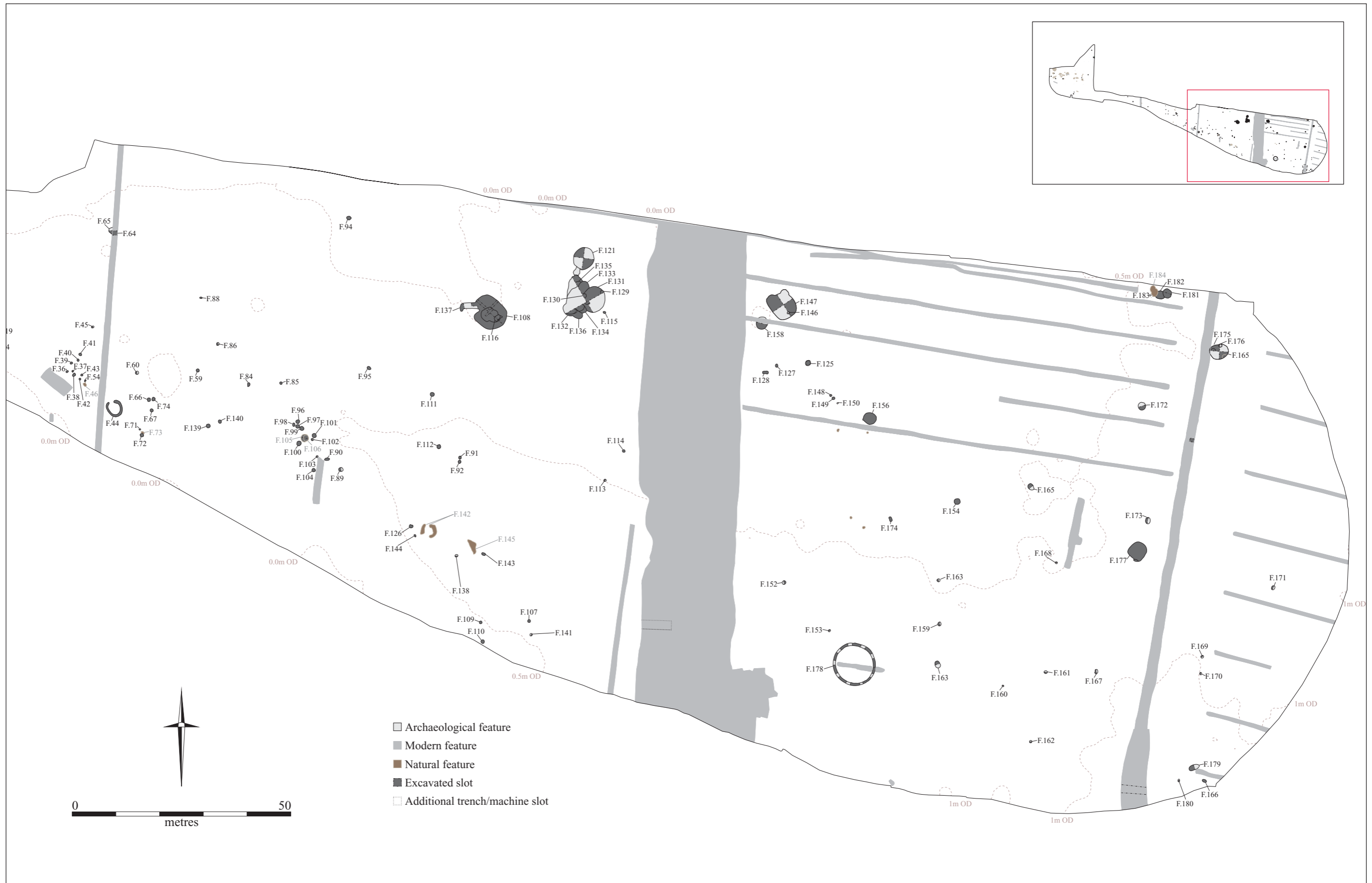


Figure 6. Archaeological, natural and modern features in Eastern half of site

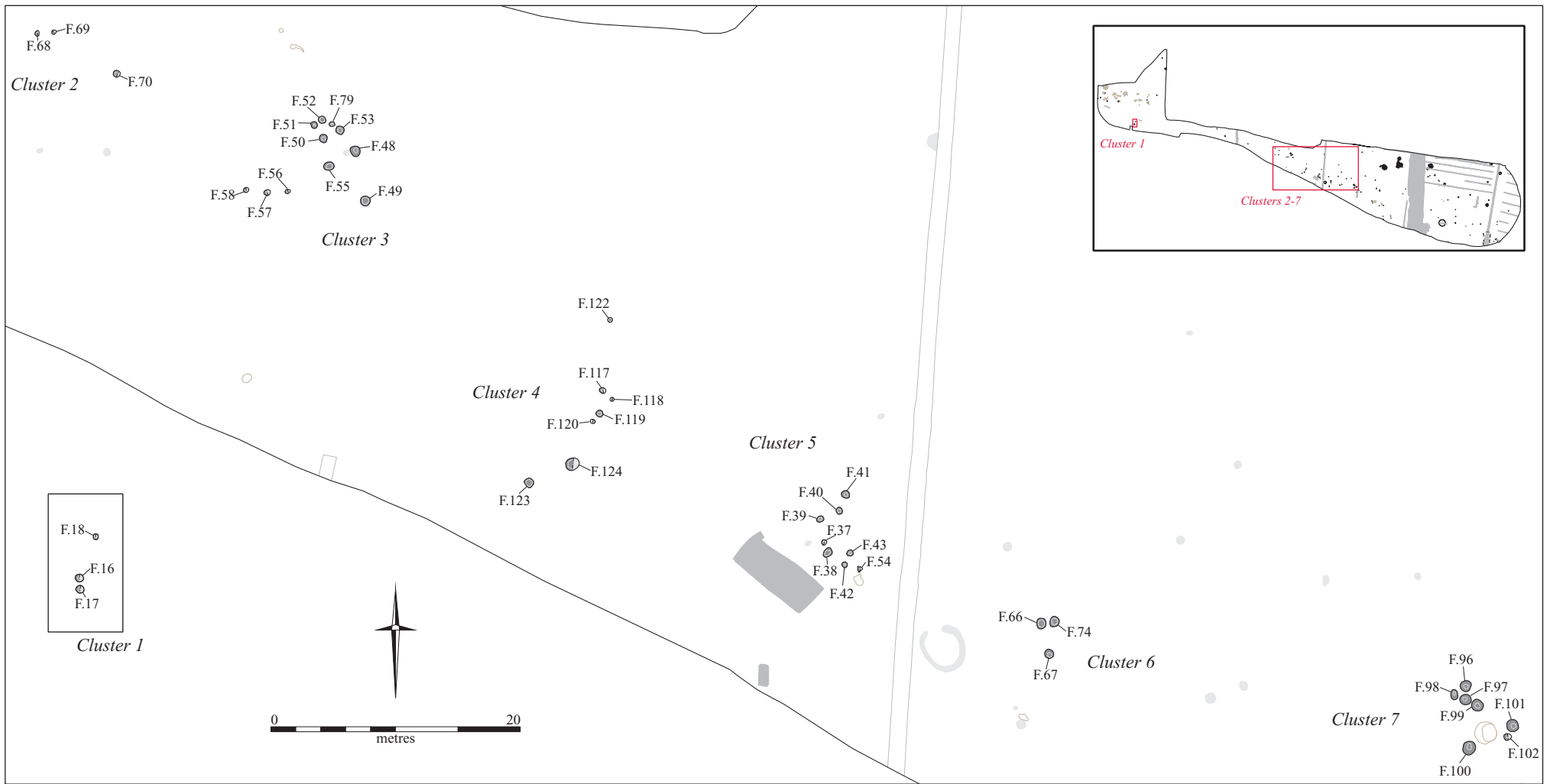


Figure 7. Early Neolithic pit clusters



Figure 8. Early Neolithic Features: Pit Cluster 3 (top) and F.123 (bottom)

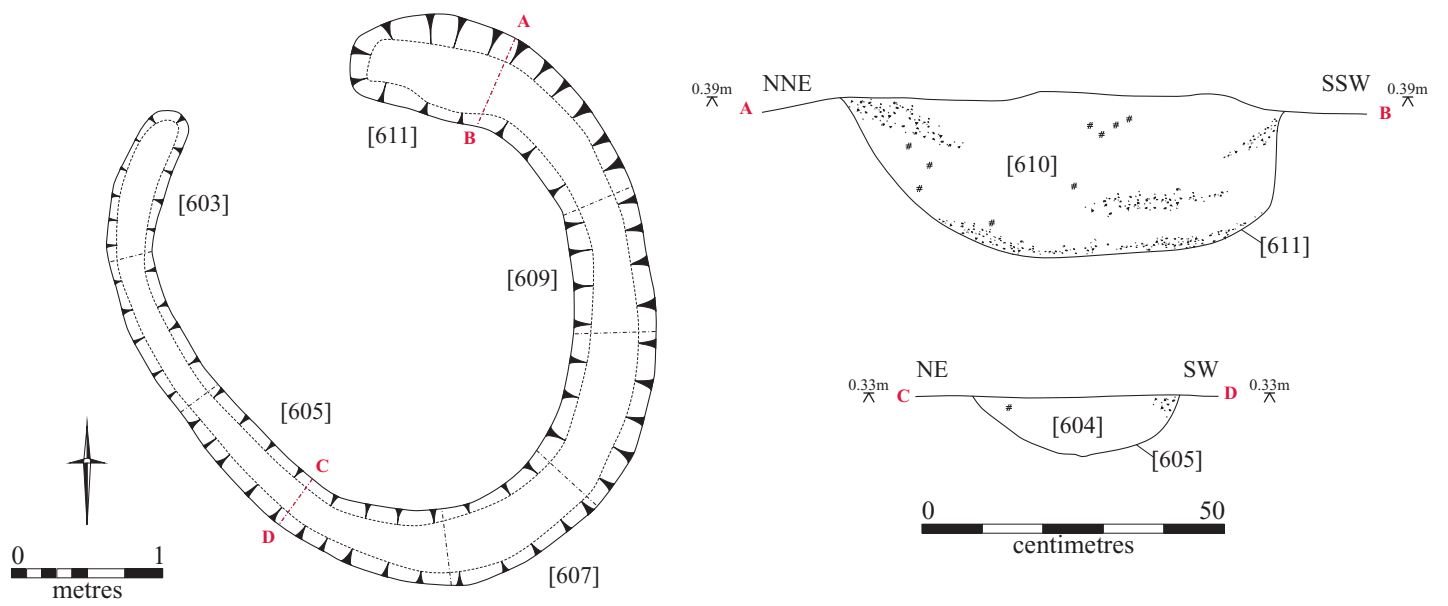


Figure 9. Pennanular gully, F.44

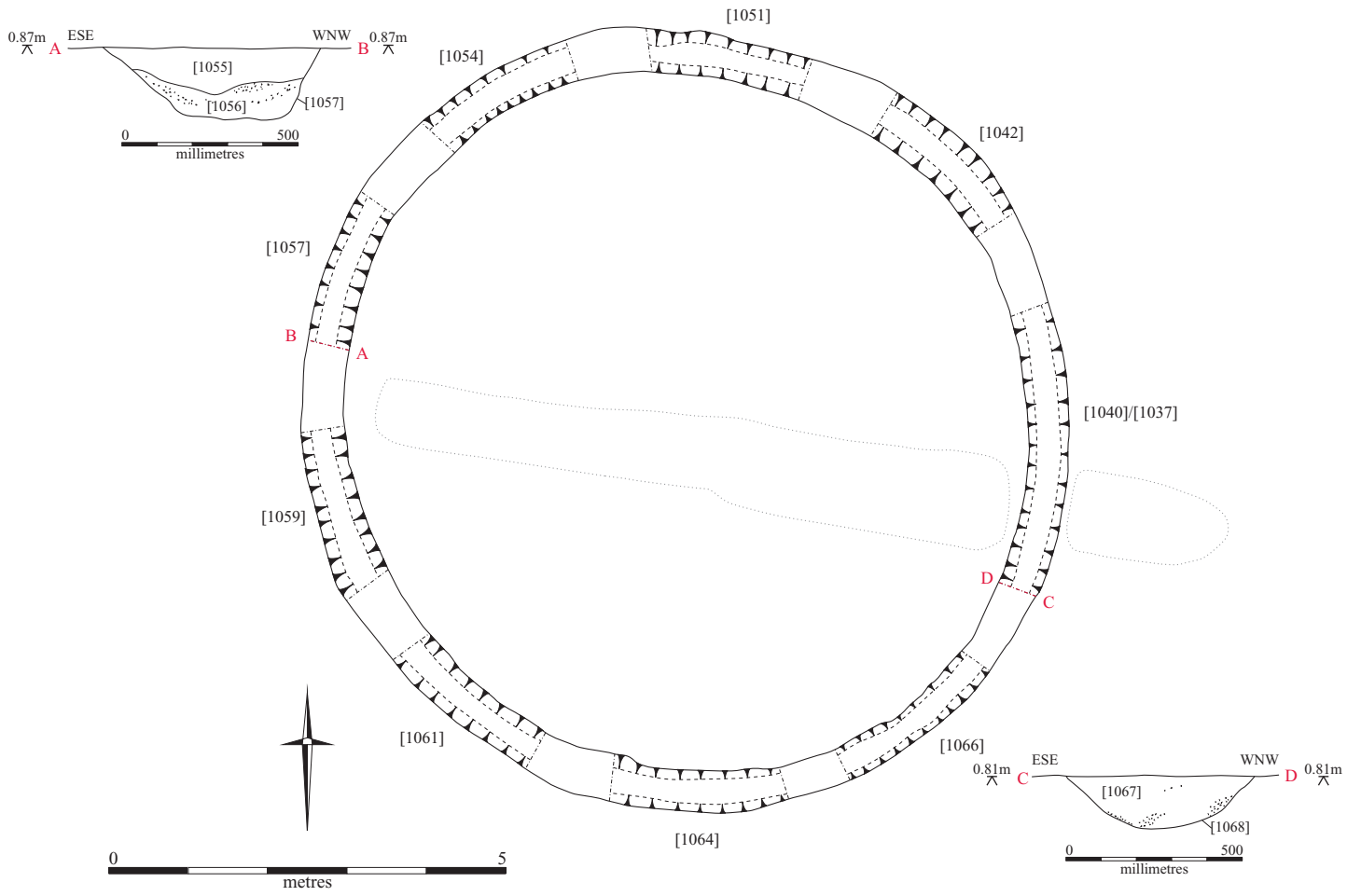


Figure 10. Ring ditch, F.178

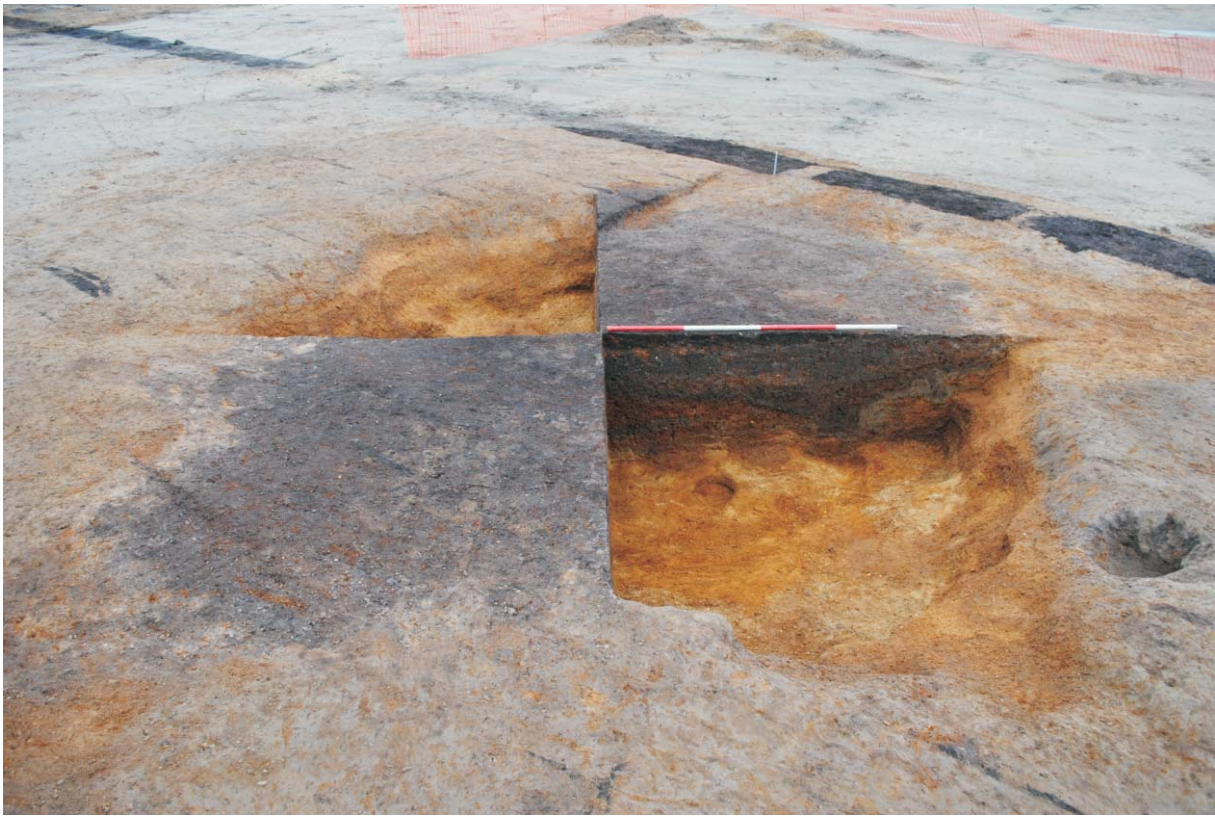


Figure 11. "Watering hole" features - F.147 (top) and F.108, F.121 and F.131 (bottom)



Figure 12. Preserved wood in "watering hole" features, F.108 (top) and F.156 (bottom)



Figure 13. Phase plan

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OASIS ID: cambridg3-108456

Project details

Project name	Sutton Gault Irrigation Reservoir, Cambridgeshire
Short description of the project	An archaeological excavation was undertaken by Cambridge Archaeological Unit (CAU) in advance of mineral extraction and irrigation reservoir extension at North Fen, Sutton Gault, Cambridgeshire (centred on TL 4045 8132). The excavation area comprised a 4.47ha site to the north of Long North Fen Drove, immediately to the south of the existing irrigation reservoir/quarry (Figure 1). The work was carried out between July and November 2010. The site is located in the Cambridgeshire Fens and is situated on what is effectively a gravel 'island', surrounded by former fen. Excavations revealed a good level of preservation with complete buried soil horizons surviving across large parts of the site. Test pit sampling of the buried soil revealed the presence of five dense artefact scatters (buried soil 'sites') dating to the Late Mesolithic, Early Neolithic, Late Neolithic and Beaker periods. Of the archaeological features encountered, seven Early Neolithic pit clusters which produced rich assemblages of worked flint and Mildenhall pottery are perhaps of most significance. Other excavated features include a number of Early Bronze Age 'watering holes' and two - probably Collared Urn associated - ring ditches.
Project dates	Start: 05-07-2010 End: 01-12-2010
Previous/future work	Yes / No
Any associated project reference codes	SGT10 - Sitecode
Any associated project reference codes	ECB 3405 - HER event no.
Type of project	Recording project
Site status	None
Current Land use	Cultivated Land 3 - Operations to a depth more than 0.25m
Monument type	ARTEFACT SCATTER Late Mesolithic
Monument type	ARTEFACT SCATTER Early Neolithic

Monument type	ARTEFACT SCATTER Late Neolithic
Monument type	ARTEFACT SCATTER Early Bronze Age
Monument type	PIT Early Neolithic
Monument type	PIT Early Bronze Age
Monument type	RING DITCH Early Bronze Age
Monument type	WATERHOLE Uncertain
Significant Finds	POT Early Neolithic
Significant Finds	POT Early Bronze Age
Significant Finds	LITHICS Late Mesolithic
Significant Finds	LITHICS Early Neolithic
Significant Finds	LITHICS Late Neolithic
Significant Finds	LITHICS Early Bronze Age
Significant Finds	DAUB Uncertain
Significant Finds	ANIMAL BONE Early Neolithic
Significant Finds	ANIMAL BONE Early Bronze Age
Investigation type	'Full excavation'
Prompt	Direction from Local Planning Authority - PPG16

Project location

Country	England
Site location	CAMBRIDGESHIRE EAST CAMBRIDGESHIRE SUTTON Sutton Gault Irrigation Reservoir
Postcode	CB6 2BQ
Study area	4.47 Hectares
Site coordinates	TL 4045 8132 52.4114269218 0.065166289025 52 24 41 N 000 03 54 E Point
Height OD / Depth	Min: 0m Max: 1.50m

Project creators

Name of Organisation	Cambridge Archaeological Unit
Project brief originator	Consultant
Project design originator	Emma Beadsmoore
Project director/ manager	Emma Beadsmoore
Project supervisor	Jonathan Tabor
Type of sponsor/ funding body	Developer
Name of sponsor/ funding body	P.J. Lee and Sons Ltd.

Project archives

Physical Archive recipient	Cambridge Archaeological Unit
Physical Archive ID	SGT10
Physical Contents	'Animal Bones','Ceramics','Environmental','Human Bones','Worked bone','Worked stone/lithics'
Digital Archive ID	SGT10
Digital Contents	'Animal Bones','Ceramics','Environmental','Human Bones','Survey','Wood','Worked bone','Worked stone/lithics'
Digital Media available	'Images raster / digital photography','Spreadsheets','Survey','Text'
Paper Archive ID	SGT10
Paper Contents	'Animal Bones','Ceramics','Environmental','Human Bones','Worked bone','Worked stone/lithics'
Paper Media available	'Context sheet','Drawing','Miscellaneous Material','Photograph','Plan','Report','Section','Survey ','Unpublished Text'

Project bibliography**1**

Publication type	Grey literature (unpublished document/manuscript)
Title	Sutton Gault Irrogation Reservoir. An Archaeological Excavation
Author(s)/Editor(s)	Tabor, J.L.
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