Manor Farm, Old Wolverton, Milton Keynes - Phase 1

Strip, map and sample

CAU

CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE

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Report No. 844

August 2008

CONTENTS

*A strip, map and sample exercise was undertaken by Cambridge Archaeological Unit at Manor Farm, Old Wolverton, Milton Keynes between July 2007 and March 2008 (*SP 808 422*). The work was carried out in advance of mineral extraction. The mineral was overlain by c. 2m alluvial deposits, archaeological activity was exposed sealed beneath, within and overlying the alluvial deposits. Activity sealed beneath the alluvial dates to the Mesolithic/Neolithic, ditches/channels cutting the alluvial were post medieval, whilst Saxon dates were obtained from posts driven through the mid/upper alluvial layers. Several undated features, linears and post holes/pits were identified within the mid/lower alluvial deposits.*

Introduction

Between July 2007 and March 2008 a strip, map and sample exercise was carried out at Manor Farm, Old Wolverton, Milton Keynes by Cambridge Archaeological Unit (CAU). The work was commissioned by Phoenix Consulting on behalf of Hanson Aggregates, who were given planning permission for the development of a floodplain forest following proposed mineral extraction. The work covered by this report represents the archaeology encountered during Phase 1 of the development, which included the creation of a processing plant, stocking area and fresh water and silt lagoons over a total area of c. 50 hectares.

Site Location and Geology

The development area is situated on the southern floodplain of the River Great Ouse and is centred on SP 808 422. The northern extent of the entire length of the site is bounded by the River Great Ouse whilst the smaller Back Brook tributary constitutes the southern boundary. A stretch of the Grand Union Canal bounds the site to the west and the eastern extent is limited by the mainline 'London to Birmingham' railway of which the nearby Wolverton station marks the exact halfway point. The area is made up of four pasture fields, each occupying the floodplain between 61m OD and 62m OD. The development area is encircled by a public footpath and occasional tree-belts and pollarded trees which form a boundary to the fields. South of Back Brook tributary the land rises up steeply to a prominent scarp at c.75m OD. At its peak sits Manor Farm which overlooks the entire floodplain towards the settlements of Haversham and Cosgrove. The underlying geology comprises 1st Terrace river gravels under alluvial clays, bordering an outcrop of Blisworth Limestone that forms the steep scarp to the south. Phase 1 was located at the easternmost end of the development area (Figure 1), formed the narrowest quarried area and lay immediately adjacent to the join of Back Brook and the River Great Ouse.

Archaeological and Historical Background

A comprehensive account of the history and archaeology of the whole of the quarry is in the desk-based assessment, which formed part of the initial specifications (Richmond 2006) and does not require replication here. However, the following points are pertinent to the archaeological strip, map and sample exercise carried out in the Phase 1 site area:

Although the landscape surrounding the development area has yielded numerous finds from the Mesolithic (c.10,000 – 3,500 BC) through to the present day, there are very few sites and monuments within the whole development area and even fewer that relate directly to the Phase 1 excavation area.

Three SMR entries are recorded along Back Brook tributary that demarcates the southern periphery of the development area. The first is an isolated find of a worked, cylindrical limestone fragment, believed to potentially be a medieval fishing weight,

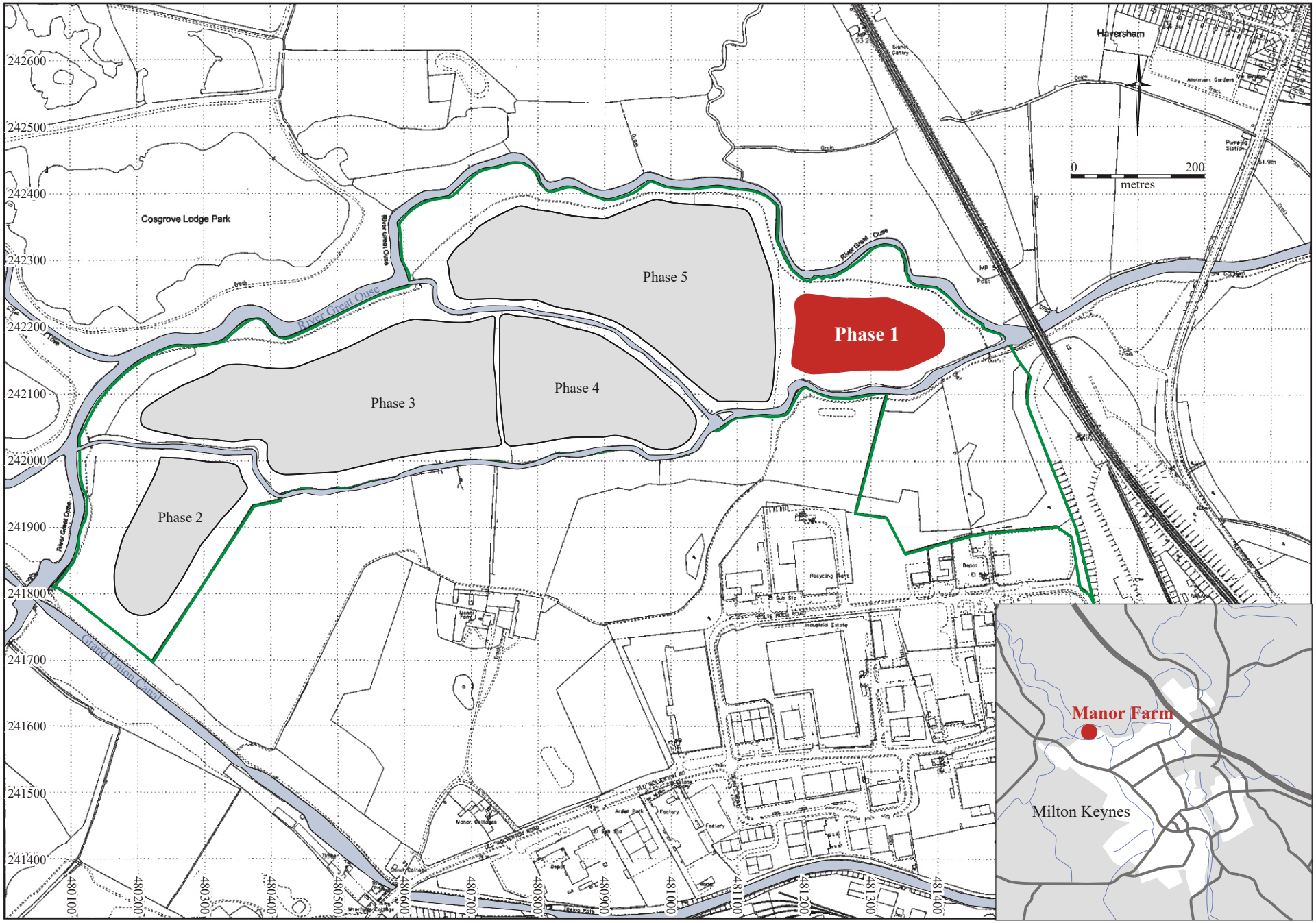

Figure 1. Location map

found during river dredging adjacent to the Phase 1 excavation area (SMR 2922, NGR SP480730 242000). Further similar pieces of limestone, each centrally pierced, were also found upstream. According to a deed dated to the 20th April 1465, there is an alleged site of a 15th century water mill along the Back Brook tributary. Traces of a building, also said to have been a mill, were recorded on Back Brook at the bottom of Grange Field in 1860. Two further buildings were recorded on the 1813 OS map in this approximate location. In 1979 a medieval grit stone quern fragment was found in the field due south of the Back Brook, which is thought to be related to the possible mill. The relationship is unclear between these mill buildings and the farm estate centred on the Manor Farm buildings and adjacent earthworks, which are thought to have Saxon origins. The whole limestone escarpment to the south of the development area has been designated as a Scheduled Ancient Monument (SAM 1360901 and 02).

According to the Wolverton Draft Plan of c.1804, the development area originally consisted of at least eight fields, most of which were formed by the criss-crossing effect of the small tributaries of the River Ouse.

In the 1950's, a possible Bronze Age timber trackway, comprising loose stones on brushwood was exposed during gravel workings in Cosgrove Lodge Park approximately 1km to the north-west of Phase 1 of the development (Green and Maynard 1972). The trackway was concealed beneath 2m of alluvium, and was 30m long and 5m wide.

Geophysical survey and associated auger investigation by the University of Wales Lampeter Archaeological Services (Bates 2007) revealed that Phase 1 was likely to be the deepest of the proposed phase areas and suggests that the alluvial deposits in this area are at their thickest, with a deeper underlying geology that was subjected to perpetual and prolonged periods of flooding. In recent times the land in Phase 1 was utilised for both arable farming, with evidence of possible plough marks to the south away from the River Great Ouse and for pasture in the north next to the river, the two areas were separated by a modern hedge line.

Etymology

The scope of the development area allows a study of the wider landscape to be made in relation to both the physical representations of archaeology and occupational or land development as well as the place names or names of fields and major landscape features within the landscape. Etymological evidence is often overlooked in the investigation of place and the position of particular areas within a wider landscape, even though it can be an indicator of earlier perceptions of the landscape that may not have been recorded in any other medium; ownership as well as land use and value are also commonly expressed within the traditional place or feature names.

The most obviously prominent feature of the landscape of the overall development area of Manor Farm quarry is the River Great Ouse, a name generally accepted to have old or pre-Celtic origins potentially referring to 'water' (Walde & Pokorny 1959) However, Ouse also shares a similar sound to the Old English for 'muddy' or 'silty'; '*wase'* (modern English Ooze (Ayto & Crofton 2005)), the original meaning may potentially have been hijacked and re-modelled following observation of the

frequency of the flooding associated with the river by the later occupants. The Anglo-Saxon influence on the Etymology of the wider landscape of the development area is evident from the surrounding villages of Wolverton (Old English 'estate owned or associated with Wulfhere') and New Bradwell (built adjacent to original Bradwell; from Old English 'broad spring or stream').

The field names associated with the development area as well as land to the south, beyond Back Brook are also indicative of the perceived value and use of the land. 'Park Meadow' to the south of the Back Brook at the slope the limestone escarpment, is suggestive of open, frequently flooded pasture of limited and seasonal use as well as the extensive landscaping associated with the medieval and post-medieval owners of the limestone escarpment. The fields Upper Hey from Old English 'brushwood' or 'bushy' and Kent's Hook from Old English 'land on the inner side of a bend in the river' (possibly relating to a person or family name of Kent), both have names that relate to their geographical position and status. The fields of 'Linces' and 'Colts Holm' positioned within Phase 1 are also instructive; Colts Holm contains the element of the Old Norse 'Holmr' which was absorbed into Old English as 'Holm' meaning either 'low-lying ground adjacent to a stream or river' (Gelling 1974) or alternately 'dryer land within a marshy area' (Ayto & Crofton 2005), combined with an Old English male name of 'Cohlhede' or 'Coccede' indicating some form of ownership. Either interpretation of 'Holm' is indicative of frequently flooded land and again suggests a use more related to meadow or pasture than to cultivation. Conversely the adjacent field of 'Linces' potentially refers to a well ploughed and cultivated area, with 'Linchets' or raised cultivation terraces (Richmond 2006). Although the emphasis focused on the terraces suggests the majority of the landscape was devoid of cultivated land.

Overall the etymology of the places and features within the wider landscape and development area demonstrate an unsurprisingly strong Anglo-Saxon linguistic presence. The proximity of water, rivers, streams and commonly flooded seasonal pasture-land is prominent; a clustering of names not uncommonly associated with river valleys and flood planes and the settlements near to them.

Methodology

The strip, map and sample exercise was implemented at the start of Phase 1 as part of the continual exercise to be implemented throughout the development area; to monitor the removal of overburden and identify and record any archaeological activity present within the development area.

The site was excavated by a tracked 360° machine fitted with a toothless ditching bucket with topsoil and underlying deposits being removed under archaeological supervision. Any archaeological activity identified was excavated by hand; 50% of each discrete feature was sampled; whilst ditches were sampled in 1m sections. Recording followed a CAU modified MoLAS system (Spence 1990) in accordance with the outlined specifications (Richmond 2006). Numbers (fill), or [cut] were assigned to individual contexts and feature numbers, F. to stratigraphic events with sections drawn at 1:10 and base plans at 1:50. The photographic archive comprises black and white slides as well as digital images. A representative range of features

were bulk sampled. All work was carried out in strict accordance with statutory Health and Safety legislation and with the recommendations of SCAUM (Allen & Holt 2002). The site code was MOW 07.

Phase 1 Results

Phase 1 was located on the eastern limit of the development area close to the mainline London to Birmingham railway and bounded between the River Great Ouse to the north and the smaller Back Brook tributary to the south; the joining of the two water courses is located immediately to the east of Phase 1. Phase 1 comprised Area A, an independent freshwater lagoon to the west and Area B, a much larger silt lagoon to the east (Figure 2). A dark brown loosely compacted silty clay topsoil overlay all of Areas A and B, with a maximum thickness of 0.2m.

Area A

In the northern part of Area A, the natural gravels were reached at a depth of c.2m; the alluvial silty clay overburden deposits indicate frequent inundations. The upper 1-1.1m sediments were oxidised, whereas the lower, more concealed sediment was much darker grey silty clay. The upper deposits in the northern half of Area A contained scattered fragments of post medieval pottery, brick and glass.

A wide, deep, east west orientated palaeochannel was identified across the centre of Area A (Figure 3), below the alluvial, cutting through the natural gravels, steeply on the southern edge and less well defined to the north (see below). The deposits of the palaeochannel were completely removed by machine to the natural gravels to facilitate identification of any potential archaeological material. The high water table and proximity of Area A to the River Great Ouse made full excavation difficult although a full profile of the accumulation of the palaeochannel deposits was recorded and sampled.

Within the generally east-west aligned palaeochannel, the basal deposit was a dark grey to black organically rich silt layer containing frequent small fragments of degraded wood, hazelnut shell fragments as well as mollusc shell fragments (environmental sample <7>, Appendix 2 *below*). Several larger fragments of degraded driftwood were also contained within this fill which were not retained as they could not be securely provenanced. Two wooden posts (F. 12 and F. 17) were uncovered within the south part of these lower channel deposits. Posts, [21] and [31] were adjacent to each other both leaning at an angle of approximately 45° and both seemed to taper into a point towards the base. Given the unusual angle of the posts, it seems likely that they had been driven directly into the gravels through at least the lowest of the channel deposits, rather than being placed within a pre-dug post-hole. Unfortunately a direct stratigraphic relationship between the timbers and the upper layers of palaeochannel deposits and alluvium was impossible to determine. An organic deposit was visible as a layer around the post, probably representing decayed material from the post rather than backfill or deliberate post packing. It is possible that the formation and the weight of alluvium had dislodged the post from its original

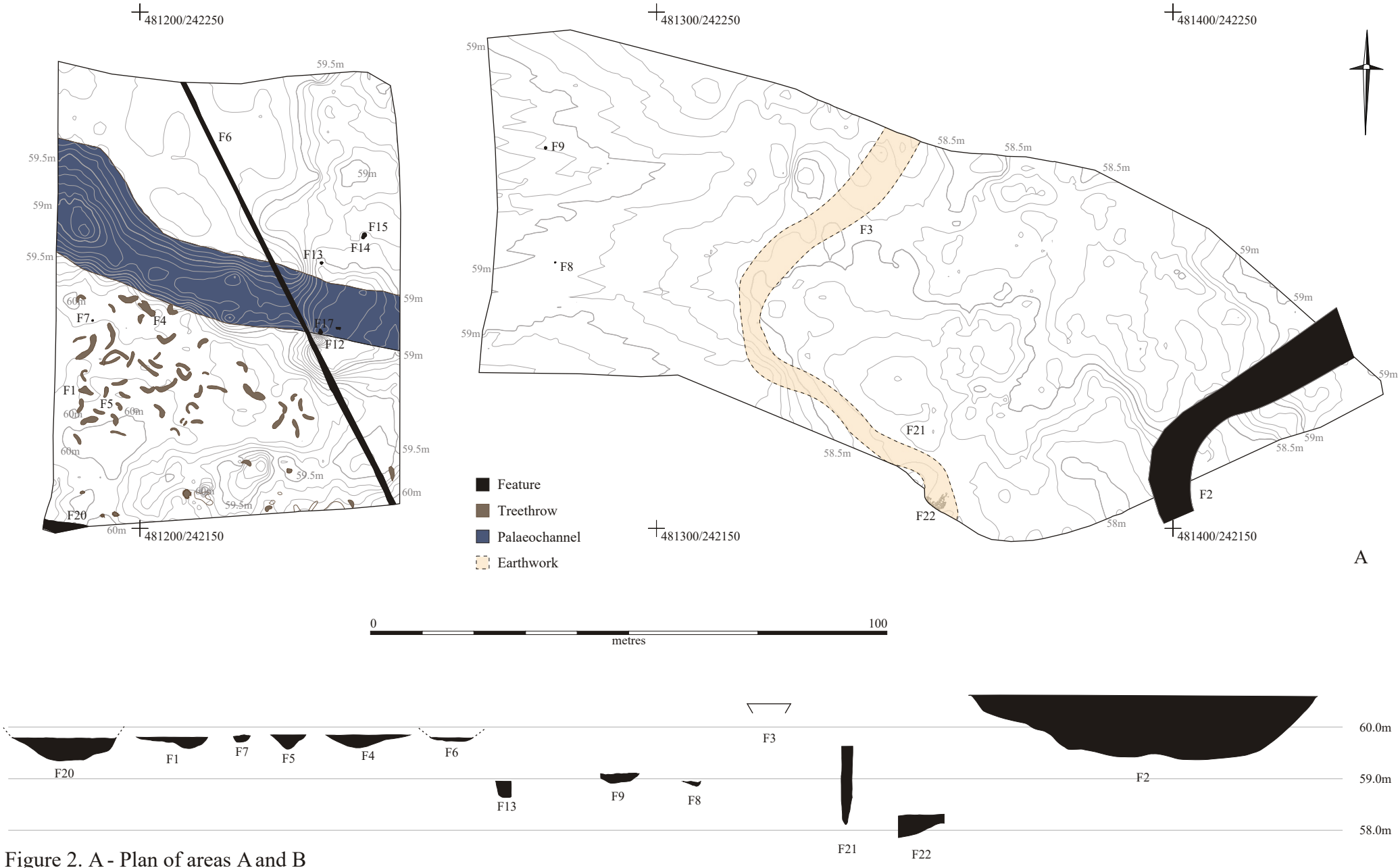

Figure 2. A - Plan of areas A and B
B - Schematic section showing relative elevations of features

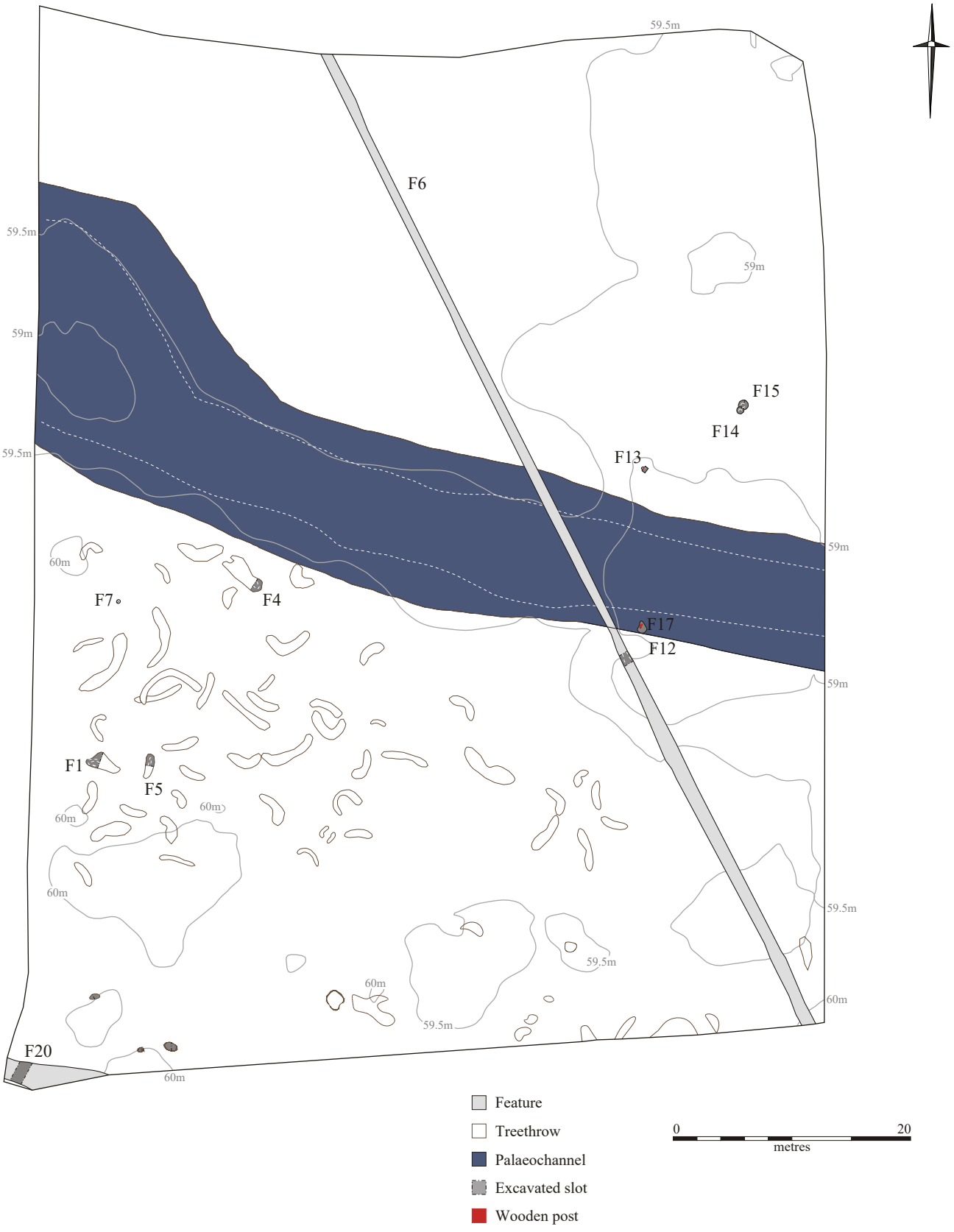

Figure 3. Area A plan

position. A third post hole (F. 13) was exposed in the natural gravels immediately to the north of the channel. The post was still inside the post hole, held securely in place with gravel and sand compacted around the base and with blue clay packing around the upper part of the post, the post [22] has a worked point and one clear hand hold and a second possible hand hold on either side (pers. comm. M. Taylor). Post F. 13 was sealed beneath the alluvial. Radiocarbon dating of posts F. 12 and F. 13 yielded dates of 4790 to 4500 Cal BC (95% probability) and 3960 to 3700 Cal BC (95% probability) respectively (conventional radiocarbon dates are in Table 1).

Feature/context	**Conventional radiocarbon age**	**2 Sigma calibrated result (95% probability)**
F. 12 [21]	5790 ± 60 BP	4790 to 4500 Cal BC
F. 13 [22]	5030 ± 50 BP	3960 to 3700 Cal BC
F. 21 [44]	1320 ± 60 BP	620 to 810 Cal AD

Table 1 – Radiocarbon Ages

A layer of mid brown moderately compacted silty, sandy gravel formed the interface between gravels and alluvium along the rising southern edge of the palaeochannel, not identified elsewhere within Phase 1; a deposit that could have been related to the formation of a buried soil horizon or residual deposit from an innudatory event. The disparity in heights between the northern and southern sides of the palaeochannel corresponded well with the overall rise in the gravels from a deeper channel formed by the current River Great Ouse to the limestone escarpment to the south; the rise is truncated by the shallower, east-west orientated palaeochannel to form a raised island or terrace. The gravel island contained evidence of human activity; fourteen tree-throws and root-bowls were exposed, three (F. 1, F. 4 and F. 5) were excavated and recorded as a representative sample. F. 1 was 2.76m long, 1.38m wide and 0.19m deep; the fill [1] was dark grey-brown silty clay with occasional charcoal flecks (environmental sample <1>) and a potentially Late Mesolithic/ Early Neolithic flint. F. 4 measured 1.6m wide and 0.25m deep whilst F. 5 was 0.7m wide and 0.3m deep, both were filled with dark grey charcoal flecked silty clay comparable to F. 1 and did not contain any flint or other material culture.

To the north of the palaeochannel, clean orange natural gravels were uncovered in which a number of natural silty hollows were identified and excavated, they contained no material culture or charcoal. Two shallow intercutting post holes (F. 14 and F. 15), contained similar fills of dark mottled brown/grey silty clay with very occasional charcoal flecking and neither yielded any evidence of in situ posts nor any material culture, and consequently cannot be definitely associated with the other posts within the area.

Evidence of archaeological activity was also identifiable within the alluvial sequence; a short length of a west north-west orientated narrow linear feature (F. 20) was identified within the south westerly corner of the stripped Area A, cutting into the uppermost gravels of the gravel island as well as truncating the lowermost alluvial deposits. Only four metres of ditch F. 20 was exposed, with steeply rounded sides to a depth of 0.45m below the gravel surface. Three fills of silty clays of varying degrees of compaction were identified from within the ditch which was sealed by 1.2m of alluvial clays. No finds were recovered and the loose yellowish grey sandy silty basal fill was a probable wind blown deposit marking the start of a gradual natural backfill

F13

F22

Figure 4. Photos of post F13 (Area A) and limestone rubble F22 (Area B)

of greyish brown silty clays, suggesting that the feature was left open for a prolonged period, probably utilised as a boundary or drainage ditch across the gravel island parallel to the palaeochannel. Although the depth of alluvium sealing the ditch suggests a certain degree of antiquity, a complete absence of material culture did not allow F. 20 to be dated.

Additional features identified within the upper alluvial deposits include a northwest to southeast aligned ditch (F. 6), which cut through the upper alluvial deposits. The cut [11] was very shallow (0.07m in depth), with concaved sides and base. A single fill [10] was identified, a firmly compacted mid to dark mottled grey-brown silty clay with occasional small angular stones and occasional charcoal flecks. Although F. 6 was not identified prior to the removal of topsoil, it's height within the alluvium suggests it is likely to have been a modern field drain drawing standing water to both the Back Brook and the River.

Area B

The majority of Area B comprised numerous paleochannels, with several small areas of 'clean' orange gravels in a limited area of rising ground within the southern limit of the exposed area. Within the darker gravels, the minerals and calcium from the alluvium had leached, a process commonly associated with deep alluvium waterlogged over prolonged periods of time (Martin Bates, University of Lampeter *pers comm*). The western area of Area B revealed two features that truncated a c. 0.3m thick deposit of silt alluvium overlying the gravels (F. 8 and F. 9) (Figure 5). F. 8 was a shallow, sub-ovaloid depression, probably a rooting hollow, containing frequent charcoal, burnt stones and a Late Mesolithic/earlier Neolithic retouched and worn flint blade within a dark grey/black silty clay fill [14]. Whilst F. 9 was a round pit, with steeply sloping sides to an irregular rounded base [16]. The dark grey/black silty clay fill [15] contained several rounded, definitely burnt stones, worked and burned flints and occasional charcoal flecks (Environmental sample <4>).

Along the southern edge of Area B, a concentrated layer of loose, angular and sub-angular limestone rubble (F. 22) of varying size and shape was exposed below the alluvial deposits during machining. The spread of rubble was within a matrix of loosely compacted, mid grey-brown silty clay and sat immediately upon a layer of peaty silts [48], which contained occasional rotten wood debris; none of which were worked, and were probably naturally incorporated into the silty peat as it formed. This deposit was resting on a thin deposit of alluvial clay, a maximum of 0.6m in depth. Below the alluvium, the natural gravels rose up towards Back Brook to the south, offering the possibility that the rubble was constructed from the edge of the gravel island that led down into the same palaeochannel identified within Area A. F. 22. No material culture was recovered from the rubble, matrix or silty-peat and alluvium below it, and the organic component of [48] was unsuitable for radiocarbon dating as it was likely to have been water bourn and thus of an undeterminable provenance. The limestone rubble surface was sealed by approximately 0.8m of alluvium.

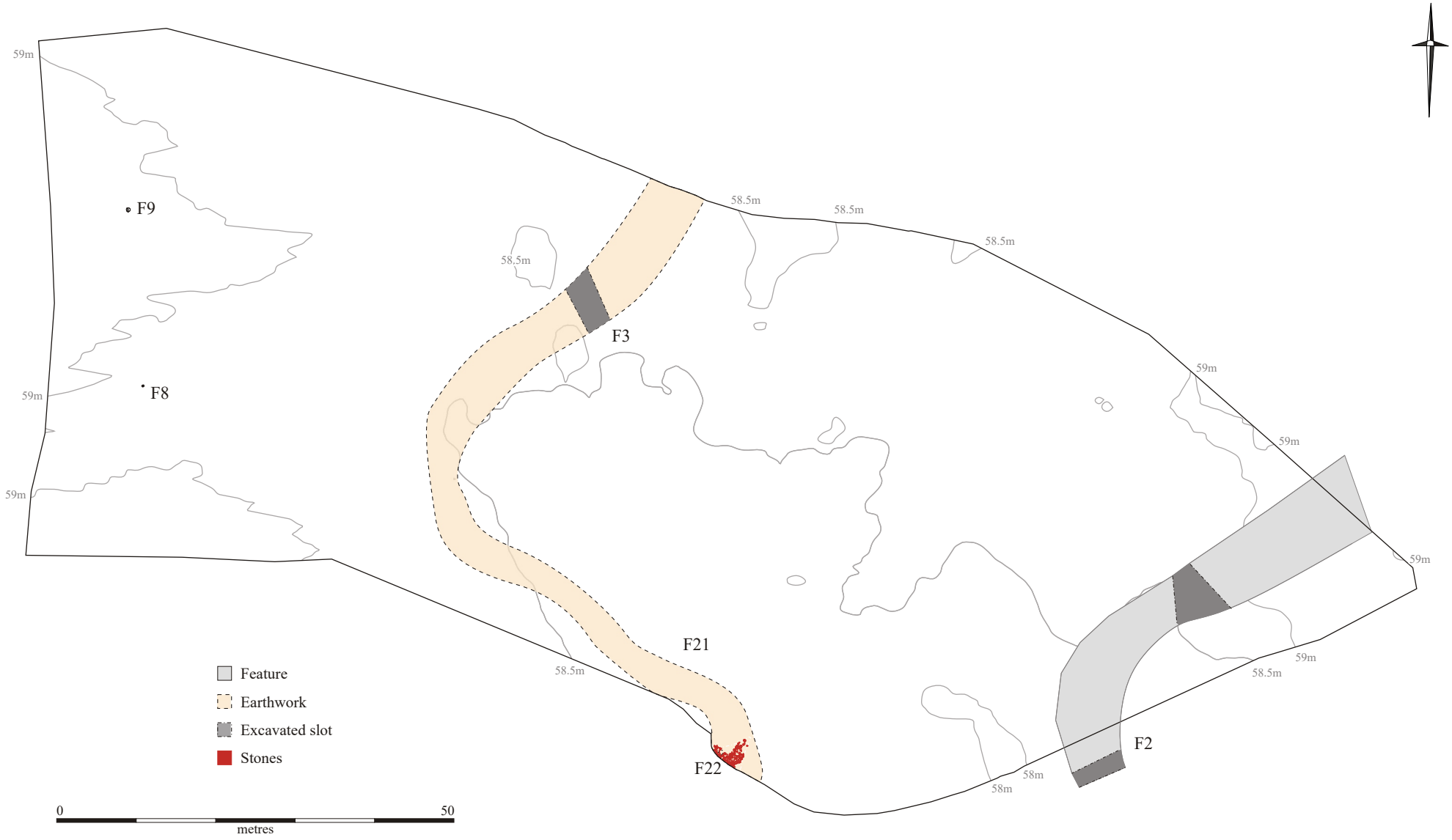

Figure 5. Area B plan

Two wooden posts, F. 21 [44] and [45] were found near to the layer of limestone rubble; however, no direct stratigraphic relationship existed between the features. The posts were higher in the alluvial; no cut was visible, suggesting that they had been driven into at least part of the deposit. Post F. 21 was radiocarbon dated, yielding results of 620 to 810 Cal AD (95% probability) (conventional radiocarbon dates are in Table 1).

The topsoil in Area B was initially removed, prior to the excavation of the overburden, revealing a curvilinear ditch (F. 2) in the south eastern corner of the site. The ditch was oriented north-east to south-west before turning to a generally southerly alignment; the feature appeared to conjoin Back Brook and the River Great Ouse. Two slots were machine excavated through the channel, which revealed that the ditch had been cut through the upper levels of alluvial deposits. The channel, 45m in total exposed length was a maximum of 6.7m wide, and a maximum of 1.25m deep, with generally straight steeply sloping sides and an uneven rounded base. The fills of F. 2 suggested it had been purposely backfilled with a large quantity of brick rubble and orange brown silty clay deposits. In the uppermost fill, a cast iron boundary marker with Wolverton-Haversham written on either side was found suggesting a date within the last century for the ditch's decommissioning. The ditch is documented on OS maps from the 1850's, 1880's and 1890's. The truncation of the upper layers of alluvium by a pre mid nineteenth century ditch does suggest a certain degree of antiquity for the alluvial deposits.

A post medieval earthwork, F. 3 was also identified centrally within Area B, following a similar alignment to F. 2, F. 3 was visible as an almost completely backfilled ditch with ploughed out bank on its western side. A slot was machine excavated through the ditch F. 3, which was quite shallow and cut through the upper alluvial deposits, and is likely to be of a post medieval if not modern date.

Discussion

Although the location of both Area A and Area B within Phase 1 close to the current course of the River Great Ouse created logistical difficulties during monitoring, removal of the overburden above the gravels revealed the distinct contrast between the ground surface of the modern River Ouse floodplain and the undulating surface of the gravels. Tree throws were exposed on the higher gravels in Area A, which were sealed by the alluvial, one of the tree throws contained potentially Late Mesolithic/earlier Neolithic flint, whilst charcoal was present in others. The alluvial overburden itself was of a considerable depth throughout the whole of Phase 1, which confirmed the results of the geophysical and auger surveys carried out by the University of Wales, Lampeter (Bates 2007), which indicated that the alluvial deposits within Phase 1 were the deepest throughout the entire development area. The geotechnical surveys also suggest that the current course of the river is either centrally placed within the bed of a much wider channel or that the river has drifted north.

The palaeochannel exposed in Area A corresponded with the deepest alluvial deposits present in the northern part of the Phase 1 area. From this deep area, the gravels rose gradually to the west towards the unstripped part of the development area. Evidence of numerous channels associated with a wider and less contained river basin was

identified truncating the gravels, including one deep enough to have a sequence of silty, organic rich basal fills. The palaeoenvironmental data retrieved from the deepest channel hinted at nearby human occupation; small quantities of burned clay and fragments of burned and worked flints were recovered as well as elder seeds and nettle pollen, both types of plant that prefer previously cleared, nutrient-enriched soils and today are often found by human settlements (Appendix 2 *below*).

The identification of burned flint within the basal fills of the main palaeochannel in Phase 1 corresponds with the finds of burned flint and potentially Late Mesolithic/ earlier Neolithic flint from a feature on the higher gravel island within the network of paleochannels in both Areas A and B. The presence of charcoal and burned clay particles within both the tree throws and palaeochannel deposits (Appendix 2) suggests nearby human activity (hearths, wood burning etc). Although material was only recovered from two tree throws (F. 1 and F. 8), it potentially provides evidence that the higher, drier wooded ground, near to a river was utilised during the Late Mesolithic/earlier Neolithic. Comparable flints from tree throws have been identified within Phase 3 area of the development, which also contain a similar residue of pollen, burned flint and clay particles (CAU report *forthcoming*).

The predominance of trees and the forested terrain of Mesolithic and early Neolithic Britain is well acknowledged. Whilst rivers like the River Great Ouse and its many tributaries would have been both a transport route and a source of economic resources during early prehistory (Dawson 2000). The open, less forested areas near to a river channel or wider river system, like the landscape identified beneath the overburden in Phase 1, would probably have been have been attractive and readily exploited by the nearby population. The indications for burning provided by the burnt flint and the burnt clay, and food processing by the hazelnut shells provides evidence for occupation, albeit potentially transitory, on the higher ground near the palaeochannel.

Occupational detritus from the Mesolithic/ Neolithic is frequently found in tree throws and the discussion of deliberate/ accidental deposition of such waste continues (Evans et al 1999). Tree throws investigated at multi-period sites such as Fengate, at Hinxton on the Cam (Mortimer and Evans 1996) and Barleycroft on the Great Ouse (Evans and Knight 1997) revealed substantial quantities of Mesolithic/ Neolithic flint as well as charcoal, evidence of nearby fires and early Neolithic pottery. The features were dated to the early fourth millennium BC (Evans et al 1999) and it was suggested that they represented evidence of primary forest clearance and the earliest permanent semi-permanent settlement of the investigated areas. The lack of pottery recovered from Phase 1 at Manor Farm, which mirrors the assemblages found within sites identified along the central and upper reaches of the Great Ouse and its tributaries (Dawson 2000) suggests that the activity is more likely to be Late Mesolithic than earlier Neolithic. However, only very limited material was recovered from Phase 1 at Manor Farm. The two posts exposed in, and just to the north of the palaeochannel produced radiocarbon dates of 4790 to 4500 Cal BC (95% probability) and 3960 to 3700 Cal BC (95% probability), suggesting that they could be broadly contemporary with the material recovered from the tree throws and the palaeochannel.

The limited character of the earliest archaeological activity identified in Phase 1 offers a glimpse of the early utilisation of the landscape. Larger quantities of tree throws

have been exposed in Phase 3, which will potentially allow the early occupation of the landscape to be fleshed out.

Features within the Phase 1 area other than the palaeochannel and tree-throws were difficult to date without C14 dating. The posts identified embedded within the basal deposits of and adjacent to the large palaeochannel in Area A may have been remnants of an early prehistoric trackway or causeway allowing better access across or into the wet ground. However the fragmentary and often disarticulated nature of the timbers themselves, especially of those within the palaeochannel, raise the possibility that some were washed in from upstream and were in fact not associated with the more convincing F. 13 that had clearly been driven into the gravels. F. 13, the largest of the timbers, also showed the best signs of working. The post gradual tapered towards the base, whilst a complete, yet eroded recess potentially representing a mortise was on one side. Although broken, the opposite side showed what could be a second handhold/mortise. The purpose this timber played is likely to be structural and potentially associated with the timbers within the basal fills of the palaeochannel. Radiocarbon dating on a sample of wood from the post supplied a C14 dates of 4790 to 4500 Cal BC (95% probability) for F. 12 and 3960 to 3700 Cal BC (95% probability) for F. 13 (conventional radiocarbon dates are in Table 1).

The placing of timbers within and around areas of wet, marshy or flowing water in prehistory is known from archaeological examples, including wooden platforms built on wooden piles over still or flowing water, such as at Must Farm, Peterborough (Knight, *forthcoming*), Crouch Site 1, South Woodham Ferrers, Essex (Buckley 1992). The platforms were potentially used for fishing, habitation or ritual purposes. Timber used to bridge waterlogged or open areas of water in prehistory is also known from archaeological examples; the timber track ways in the Flag Fen basin being the most widely known (Pryor 1991) and at Vauxhall Bridge on the Thames (Denison 1999). Such structures are commonly identified from multiple sets of upright timbers/ postholes forming several phases of use and repair and often demonstrate missing timbers either deliberately or accidentally removed. It is feasible that the timbers identified within and on either side of the Phase One palaeochannel are representative of many more timber posts lost since their insertion. Alternatively, the timbers may only ever have been isolated posts adjacent to, and just within the palaeochannel.

Two of the possible posts were within the basal fills of the palaeochannel, samples from which suggest an environment of slow-moving water (Appendix 2), whilst the more alluvial upper fills, are suggestive of a more powerful, yet intermittent current with the associated risk of flooding. The limestone rubble layer F. 22 at the southern side of Area B was within the alluvial sequence, resting upon a 0.6m thick layer of alluvium. The dating of this alluvial accumulation and the layer within it is, however, problematical due to the absence of datable material culture or viably datable organic material from both the alluvium and the layer. F. 22 could be the fragmentary remains of a platform or trackway, comparable to a trackway excavated during gravel quarrying at Cosgrove Lodge Park (Green and Maynard 1972) that was suggested to be Bronze Age in date and was constructed of rough limestone blocks set onto a brushwood base 5m in width and 30m in length. Alternatively, the limestone rubble layer exposed at Manor Farm could also have been a more casual attempt to consolidate wet ground at the edge of a channel.

The sealing of features by different layers of alluvium, as well as features cut into the alluvial deposits at varies depths provides a general relative chronology of features on the site illustrated in a schematic section in Figure 2 B. The tree throws and posts within and adjacent to the palaeochannel were the earliest features identified within Phase 1 Area A, sealed by the alluvial. F. 8, F. 9 and F. 22 were at a comparable height to the early Area A features, but within deeper alluvial deposits in Area B, suggesting that they are potentially later. The charcoal rich pit, F.9 was on a layer within the alluvial 0.3m above the 'natural', whilst the possible 'trackway'/ 'platform' F22 was on 0.6m of accumulated deposit. Posts F. 21 and F. 22 had been driven through at least part of the alluvial overburden and were much higher, suggesting that they were later; supported by the 620 to 810 Cal AD (95% probability) radiocarbon date obtained from the post. Finally, the large landscape features that cut through the alluvial from the surface, including the channel and ditches, were post medieval.

Conclusion

The Strip-map and sample exercise undertaken during Phase 1 of the Manor Farm (MOW 07) quarry project identified several distinct phases of natural and archaeological development of the area. The earliest, comprising the remnants of an older wider palaeochannel of the current course of the Great Ouse River and a second, narrower, shallower, yet still substantial second course of the river flowing roughly adjacent to the main channel. Potentially broadly contemporary with the paleochannels were a collection of tree-throws, one of which contained just one potentially Late Mesolithic/earlier Neolithic flint as well as occupation related remains. The post adjacent to the palaeochannel and the possible posts within the lower palaeochannel fills are potentially broadly contemporary with the tree throws. The pre alluvial landscape appears to have been dominated by palaeochannels with limited, transient occupation and activity, potentially focused on fires and food processing.

Although the accumulation of alluvial in Area B altered the landscape, traces of archaeological activity are still discernible. The charcoal rich pit at 0.3m above the natural within the alluvial suggests that landscape was periodically rather than constantly wet. The limestone rubble layer identified 0.6m above the natural appears to be an effort to consolidate a wet surface possible on the edge of a gravel terrace and palaeochannel, resting on a thicker deposit of alluvium and demonstrating the continued and probably increasing levels of inundation from the river system.

Higher up within the alluvial sequence, two isolated posts were exposed extending into the upper alluvial deposits that yielded a radiocarbon date of 620 to 810 Cal AD (95% probability), suggesting that by the Saxon period, a large quantity of alluvial had accumulated. Several post medieval ditches and channels were identified cutting through the upper alluvial deposits. The Phase One strip, map and sample exercise revealed a small glimpse of both the environmental and archaeological changes within the great Ouse floodplain and indicates how much further occupational sequences may be observed throughout the remainder of the development area.

Appendix 1

Feature Descriptions, Phase One, Areas A & B

F. 1 *Area A*. Irregular shaped tree-throw. Length 2.76m; width 1.38m; depth 0.19m. Fill [1] mid to dark mottled greyish brown silty clay with rare charcoal flecking and small stone inclusions. Mesolithic worked flint. Environmental sample <1>.

F. 2 *Area A* NW-SE ditch curving to NE-SW. Exposed Length 92m, width 6.7m; depth 1.25m. Cut [7] moderately steeply sloping sides to an uneven, rounded base. Basal fill [6] dark orangey brown silty clay with rare stone inclusions containing no material culture. Secondary fill [5], mid to dark orange brown silty clay with occasional blue clay mottling and rare flint nodule/ natural flint inclusions. Brick fragments found. [4] bright orange silty clay with frequent unworked flint and small gravels and no material culture. [3] dark orange brown clay with bluish-grey mottling and rare stone inclusions as well as occasional brick fragments found. Upper fill [2] dark greyish brown gritty silty clay containing brick, iron and a cast iron boundary marker.

F. 3 *Area B*. Earthwork. NE-SW curving to NW-SE. Low bank (maximum 0.25m above surrounding land) identified within topsoil. Maximum exposed length 98m.

F. 4 *Area A* Irregular, oval tree-throw. Width 1.6m; depth 0.25m. Fill [8] dark grey silty clay with occasional small gravels and charcoal flecking.

F. 5 *Area A* Irregular shaped tree-throw. Width 0.7m; depth 0.3m. Fill [9] dark grey silty clay with rare small gravel inclusions and occasional charcoal flecking.

F. 6 *Area A* NW-SE ditch. Length: 97m. Width 0.82m Depth 0.07m. Cut [11] very shallow, concave sides to a rounded base. Fill [10] firm mid to dark mottled grey brown clay with small stones and rare charcoal flecking.

F. 7 *Area A* Posthole. Cut [13]. Sub-Circular. Diameter 0.33. Depth 0.13m. Fill [12], dark brown, moderately compacted slightly silty clay; occasional small angular stone inclusions.

F. 8 *Area B* Small pit/ Rooting hollow. Length 0.38m; width 0.3m; depth 0.07m. Fill [14] moist black/dark grey silty clay with rare charcoal flecking. Burnt stone and worked flint.

F. 9 *Area B* Sub-square pit. Width 0.74m; depth 0.14m. cut [16] near vertical sides to a relatively flat base. Fill [15] moderately firm black/dark grey slightly silty clay with occasional charcoal flecking, burnt stone and flint. Environmental Sample <4>.

F. 12 *Area A* Post. [21] Length 0.4-0.5m. Diameter0.2-0.3m wide. Driven through basal fill of Palaeochannel. (Sent for C14 dating).

F. 13 *Area A* Posthole and Post. Circular. Cut [26] Diameter 0.29m; depth 0.31m. Cut [26] straight steep to near vertical sides and a flat base. Post [22], Diameter 0.18m, Length 0.28m, circular and tapered at the base. Indentation in one side possibly of a

mortise, while indication of second within broken side (Sent for C14 dating). Fills around post: Upper fill [23] well compacted blue sticky sterile clay. Basal fills: [24] compacted mid yellowish brown gravel. [25] compacted yellow gravel.

F. 14 *Area A*. Natural

F. 15 *Area A*. Posthole. Circular. Diameter 0.4m. Depth 0.11m. Cut [30] moderately sloping concave sides to a rounded base. Fill [29] mid to dark mottled brown grey silty clay with small stone inclusions and rare charcoal flecking.

F. 17 *Area A* Post [31] and Post Hole.

F. 18 *Area A* Natural

F. 19 *Area A* Natural

F. 20 *Area A*. Ditch. NW-SE. Exposed Length 4m. Width 2.03m. Depth 0.45m. Cut [43] gently sloping concave sides to a flat base. Fills [40] moderately compacted mid brown silty clay with occasional stones. [41] moderately compacted mid greyish brown silty clay with reddish mottled patches and occasional small stones. [42] loose yellowish grey sandy silt with frequent small gravels.

F. 21 *Area B*. Posthole, with Post [44]. Rounded. Length 1.5m. Diameter 0.23m. Fill of Posthole [46] dark brown, moderately compacted silty 'peat' (Environmental sample <8>, sent for C14 dating).

F. 22 *Area B.* Rubble platform/ trackway. NE-SW. Exposed length 4m. Width 3.8m. Depth c.0.4m. Compacted but not metalled, unworked limestone rubble blocks [47] deposited over [48], soft and moist dark greyish brown peaty alluvium with inclusions of horizontal and vertical root and brushwood matter, overlying [49], soft moist mid grey sandy silt with darker patches of peaty alluvium with frequent small rounded stone and shell inclusions overlying [50], light bluish grey silty clay with mottling of light whitish yellow silty clay and rare small angular stone inclusions.

Appendix 2:
The Environmental Bulk Samples from Manor Farm, Phase 1 (MOW07)
Rachel Ballantyne.

Methodology

Four samples were submitted for analysis; from tree throw F1 (<1>), shallow pit F9 (<4>), a palaeochannel base (<7>), and a peat deposit from around an in-situ timber F. 21 (<8>). The aim has been to recover economic remains linked to the artefact concentrations, describe associated palaeoenvironments, and identify items suitable for radiocarbon dating.

Three samples were flotation-sieved by Dan Britton using a modified version of the Siraf tank (Williams 1973) at Cambridge Archaeological Unit. Sample <7> from the palaeochannel was waterlogged, so a 1 litre sub-sample was collected for wet-sieving. The remainder of the 12 litre sample was flotation sieved by the author for the recovery of large items (e.g. nutshell) and associated artefactual remains. F. 21 [46] was not identified as waterlogged until after flotation, when its flot was then refrigerated as wet. Other flots (300µm) and heavy residues (>1mm) were dried prior to sorting by the author.

All flots and 1–4mm heavy residue have been sorted using a low-power binocular microscope (Leica MS5) with >4mm residue sorted by eye, and identifications made using the reference collections of the Pitt-Rivers Laboratory for Bioarchaeology, Department of Archaeology, University of Cambridge. Taxonomic references in this report follow Stace (1997) for plants and Beedham (1972) for molluscs. Raw data is presented in Table 1 at the end of the report.

Preservation

Very few charred plant remains are present, although their quality is good with limited distortion from charring. Other artefacts include burnt flint, burnt bone, unburnt bone, burnt clay and worked flint. Most of these items occur in very low quantities, often as very small fragments.

Good waterlogged remains have only been recovered from [46] F. 21, which includes fragile items such as insect exoskeletons and leaf fragments. In contrast, sample <7> from the palaeochannel is dominated by twigs and brushwood – this context may have had dry episodes during either its formation, or between burial and excavation. Good molluscan remains are also only present in [46] F. 21, suggesting that the alkaline water-table has contributed to their preservation.

Untransformed, intrusive, roots and seeds are rare. Seeds of silver birch (*Betula pendula*) are light and mobile, and could have entered F. 1 and F. during excavation; their presence renders ambiguous the one birch seed in waterlogged [46] F. 21, despite a waterlogged fragment of silver birch bark.

Sample <1> Tree-throw [1] F. 1

Charred plant remains include a hazelnut shell fragment (*Corylus avellana*) and one small seed of vetch/wild pea (*Vicia/Lathyrus* sp.). Both are edible wild seeds, although their economic use cannot be demonstrated from such limited remains.

There is a low quantity of fragmented charcoal, which includes shrub or herbaceous stem fragments, and tiny fragments of burnt clay and burnt flint.

Sample <4> Shallow pit [15] F. 9

There is a very low amount of highly fragmented charcoal with intrusive roots and numerous untransformed (probably recent) silver birch seeds. Many fragments of burnt flint, and one of animal bone, may be linked to human activity.

Sample <7> Palaeochannel Base.

Charred plant remains are few, with one tiny fragment of charcoal and one goosegrass (*Galium aparine*) seed that cannot be interpreted when alone. Burnt and unburnt bone fragments and very tiny fragments of worked flint and burnt flint further suggest human activity, although there may have been a hiatus between creation of this debris and its incorporation into the palaeochannel fill.

The context is rich in waterlogged twig and brushwood fragments, including two intact hazelnuts and further shell fragments. Seeds of elder (*Sambucus nigra*) and short-leaved lime (*Tilia cordata*) indicate other taxa that may have contributed to the brushwood. The wood includes pieces up to 2cm in diameter, and these could be identified by an appropriately skilled specialist. Other smaller plant items are less numerous and both insect remains and molluscs are absent, which may be linked to drying episodes during or after context formation.

The most abundant other seeds are of brambles (*Rubus* subgen. *RUBUS*) and hedge woundwort (*Stachys sylvatica*); both are common in shaded and semi-open places. Tasteless water-pepper (*Persicaria mitis*) is quite rare today, and favours damp shady places, including shallow water. Greater chickweed (*Stellaria neglecta*) is also found in damp shady places. Finally, evidence for semi-aquatic to aquatic conditions is provided by a few seeds of lesser spearwort (*Ranunculus flammula*), fine-leaved water-dropwort (*Oenanthe aquatica*) and pondweed (*Potamogeton* sp.).

Overall, this context represents a waterlogged place that was shaded, and probably close to woodland. The low density of artefactual remains suggests some human disturbance, as do two plant species – the elder noted previously, and nettles (*Urtica dioica*). Both plants thrive upon previously cleared, nutrient-enriched soils and today are often found by human settlements.

Sample <8> Peat deposit [46] by wooden post in F. 21

Evidence of human activity is limited, comprising of burnt clay fragments and two tiny pieces of charcoal and burnt flint; all are very small items that could be re-deposited The waterlogged assemblage is quite different to that from palaeochannel sample <7>, with good evidence from both the plant and mollusc remains for flowing water surrounded by open vegetation.

The plant assemblage is dominated by seeds of common club-rush (*Schonoplectus* c.f. *lacustris*) a sedge that can grow up to 3m in height, and forms stands upon silt-rich margins of rivers, lakes and ponds. The River Ouse in Bedfordshire is today one of only two places in Britain where this plant is still cut commercially for matting and weaving (Prendergast and Sanderson 2004). Many of the other seeds are of aquatic to

semi-aquatic plants, including crowfoots (*Ranunculus* subgen. *BATRACHIUM*), pondweeds (*Potamogeton* sp.), and greater water-parsnip (*Sium latifolium*).

The peaty deposit [46] represents silts accreting upon the margins of a larger, but slow-flowing, body of water; this interpretation is further supported by numerous mollusc shells of *Bithynia tentaculata*, *Bithynia leachi* and *Bathymophalus contortus.*

A smaller number of species represent wet open land, probably pasture, that would have bordered the waterway. Buttercups (*Ranuculus bulbosus/acris/repens*) and sedges (*Carex* spp.) are most abundant, with lesser amounts of a wide range of plants of similar ecology, including pale persicaria (*Persicaria lapathifolia*), gypsywort (*Lycopus europaeus*) and common spikerush (*Eleocharis palustris*). Of the very few terrestrial snails, *Carychium minimum/tridentatum* is found in well vegetated damp to wet places, and *Vallonia pulchella* in open, damp, lowland areas. A handful of plant seeds are of shady places and hedgerows, such as elder, bittersweet (*Solanum dulcamara*) and winter-cress (*Barbarea vulgaris*), but these do not appear to have been a significant component of the vegetation.

Conclusions

These four samples provide very limited evidence for human activities, and reveal two very different palaeoenvironments associated with water channel infilling. The charred plant remains, and associated worked flint, burnt flint, burnt clay, burnt bone and unburnt bone, suggest hearths and the processing of various materials. The one charred hazelnut shell might indicate their use for food, as was common across Mesolithic to Neolithic Britain (Greig 1991; Jones 2000).

Palaeochannel <7>, when infilling, was a waterlogged shady place probably surrounded by woodland with some human disturbance. In contrast, peat deposit [46] was once silt on the margins of slow-moving water surrounded by wet pasture. The two sample locations are moderately close to each other, suggesting that the differences in ecology may be due to their temporal separation.

Recommendations

No further work is required upon the plant and mollusc remains discussed here, although their results should be integrated with other phases of excavation at Manor Farm. The waterlogged remains would benefit from comparison with pollen sequences from the excavated area itself and the upper/middle Ouse Valley (e.g. Scaife 2000). Study of the entomological remains in [46] F21 would provide much more detailed information upon the local ecology, for example whether grazing animals or human settlements were nearby at that time.

Radiocarbon dating of the palaeochannel sequences would be best served by the waterlogged hazelnuts from basal sample <7> and the numerous waterlogged seeds of common club-rush from [46] F. 21. Charcoal from these water features is less appropriate as it could be re-deposited. The charred plant remains, particularly the hazelnut shell, in tree-throw [1] F. 1 would be most secure for dating human activity. Shallow pit [9] F. 15 has large amounts of intrusive recent plant items, and thus any material for radiocarbon dating could easily be contaminated.

Sample number		<1>	<4>	<7>	<8>
Context number		**[1]**	**[15]**	**?**	**[46]**
Feature number		F.1	F.9	?	F.21
Feature type		tree throw	tree throw	palaeochannel	peat by post
Sample volume/ litres		15 L.	10 L.	12 L.	6 L.
Fraction of flot sorted		1	1	1	0.5
Latin Name	**English Name / Mollusc habitat**				
CHARRED PLANT REMAINS					
Corylus avellana L. nutshell	hazelnut shell fragment	-			
small *Vicia/Lathyrus* sp. (<3mm)	vetch/wild pea	1			
Galium aparine L.	cleavers			1	
CHARCOAL					
overall volume of charcoal/ millilitres		< 1 ml.	< 1 ml.	< 1 ml.	< 1 ml.
large charcoal (>4mm)		-			
med. charcoal (2-4mm)		+		-	
small charcoal (<2mm)		++	+	-	-
- woody stems		+			
WATERLOGGED PLANT REMAINS					
large *Ranunculus bulbosus* L./*acris* L./*repens* L.	bulbous/meadow/creeping buttercup			-	+
Ranunculus flammula L.	lesser spearwort			-	
Ranunculus subgen. *BATRACHIUM* (DC.) A. Gray	crowfoots				+
Urtica dioica L.	stinging nettle			+	
c.f. *Betula* sp. bark	possible birch bark				-
Corylus avellana L. nutshell	hazelnut shell fragment			+	
Stellaria neglecta Weihe	greater chickweed			-	
Persicaria lapathifolia (L.) Gray	pale persicaria				-
Persicaria mitis (Schrank) Opiz ex Assenov	tasteless water-pepper			+	
Rumex sanguineus/ conglomeratus/ obstutifolius	small-seeded dock				-
Tilia cordata Mill.	small-leaved lime			-	
Viola sp.	violets			-	
Barbarea vulgaris W.T Aiton	winter-cress				-
Rubus Subgen. *RUBUS*	bramble			++	
Sium latifolium L.	greater water-parsnip				-
Oenanthe aquatica (L.) Poir.	fine-leaved water-dropwort			-	
Oenanthe sp.	water-dropworts				-
Apium nodiflorum (L.) Lag.	fool's water-cress				-
Torilis/Daucus sp.	hedge-parsley/wild carrot				-
small Apiaceae indet.	small Carrot Family seed				-
Solanum dulcamara L.	bittersweet				-
Stachys sylvatica L.	hedge woundwort			+	
Lamium sp.	dead-nettles				-
Lycopus europaeus L.	gypsywort				-
Sambucus nigra L.	elder			++	
Sonchus asper (L.) Hill	prickly sow-thistle				-
Potamogeton sp.	pondweeds			-	+
Eleocharis sp.	spike-rush				-
Schoenoplectus c.f. *lacustris* (L.) Palla	common club-rush				+++
oval flat *Carex* sp.	true sedge				-
medium-sized trigonous Carex sp.	true sedge				+
buds				++	
small twigs				+++	+
indet. wood fragments				++	
indet. leaf fragments					++
moss fragment				-	
INTRUSIVE BIOLOGICAL ITEMS					
Betula pendula Roth	silver birch	-	++		-
intrusive roots			+		
OTHER BIOLOGICAL ITEMS, EXCLUDING MOLLUSCS					
burnt bone fragments				+	
bone fragments			-	++	
small bone					+ fish & rodent
insect exoskeleton					++
OTHER ARTEFACTUAL ITEMS					
worked fint				-	
burnt flint		-	+++	-	-
burnt clay		-			+
MOLLUSCS					
Theodoxus fluviatilis (L.)	rivers, streams; usually on stones				-
Bithynia tentaculata (L.)	quiet rivers & still but large waters				++
Bithynia tentaculata (L.) operculum	quiet rivers & still but large waters				+++
Bithynia leachi (Sheppard)	quiet rivers & still but large waters				+
Valvata cristata (Müller)	slow, muddy water with vegetation				-
Lymnaea palustris (Müller)	marshy areas, ponds and ditches				-
Planorbis planorbis (L.)	ditches and ponds				-
Anisus leucostoma Millet	seasonal ponds and ditches				-
Gyraulus albus Müller	esp. oxygen-poor freshwater, in weeds				-
Bathymophalus contortus (L.)	weed in flowing/still waters				+
Acroloxus lacustris (L.)	on stems and leaf-undersides in slow water				-
Carychium tridentatum (Risso)/ *minimum* (Müller)	generally well vegetated; wet/damp				-
Vallonia pulchella (Müller)	damp lowland areas				-
Sphaeridae indet.	small freshwater bivalve				-

Table 2: Raw data from the environmental bulk samples from Phase 1 at Manor Farm (MOW07)

KEY: - 1 or 2 items, + less than 10 items, ++ 10 to 50 items, +++ greater than 50 items

Flint report
Emma Beadsmoore

A total of 163 (<699g) flints were recovered from the site, from four features, F. 1, F. 8, F. 9 and F. 21, listed by feature and type in Table ?. Only three of the flints recovered from the site are worked. F. 1 yielded a core fragment that is chronologically non-diagnostic. A Late Mesolithic/earlier Neolithic retouched and worn blade was recovered from F. 8, alongside 14 (39g) unworked burnt chunks. Whilst the remaining worked flint is a chronologically non-diagnostic chunk, found amongst 144 (538g) burnt chunks and chips in F. 9.

	Type				
Feature	chip/chunk	core fragment	retouched and worn blade	unworked burnt chunk	**totals**
1		1		1	2
8			1	14	15
9	1			144	145
21	1				1
Sub totals	2	1	1	159	163

Table 3 – Flint quantities and types

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Acknowledgements

The work was undertaken on behalf of Hanson Aggregates. Andy Richmond of Phoenix Consulting was the consultant, whilst Nick Crank of Milton Keynes Council Design and Conservation Team monitored the work. The archaeology was excavated and interpreted by Nick Armour, Marcus Brittain, Dan Britton, Matt Collins, Frankie Cox, Kathy Grant, Kerry Murrell, Nick Overton, Cat Ranson, Emma Rees, Dan Reynolds, Hayley Roberts, Adam Slater, Dave Strachan, Virginia Vargo and James Walker. The site was surveyed in by Donald Horne. Emma Beadsmoore was the project manager.