Aspects of a prehistoric landscape in the Ivel Valley, north of Biggleswade

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SUMMARY

In 1974 cropmarks on aerial photographs of the eastern bank of the river Ivel to the north of Biggleswade were first characterised as a possible cursus. Recent fieldwork has not only confirmed the existence of this Neolithic monument but has also demonstrated that, at >750m, it is at least twice as long as previously suspected. The excavated part of the cursus was shown to have had two phases of construction. Evidence for earlier tree clearance and environmental conditions during the monument's lifetime was also recovered. The possible reasons behind the topographical setting of the cursus and its relationship to similar monuments in the Great Ouse river system are also considered.

In a pattern widely recognised across lowland Britain, the disused cursus subsequently became a focus for Bronze Age barrows. A cluster at the eastern end of the monument was mirrored by at least one at the western end. An Iron Age pit was also dug within the circuit of the cursus ditches.

INTRODUCTION

Between June and November 2004, Anglian Water Services commissioned Albion Archaeology to carry out a programme of archaeological work as part of their expansion of the Biggleswade Sewage Treatment Works. It comprised evaluation followed by a small scale open area excavation and watching brief to mitigate the impact of the development. All work was carried in accordance with project designs prepared by Albion Archaeology (2004a, 2004b), in response to briefs issued by the County Archaeological Officer of Bedfordshire County Council (BCC 2004a, 2004b). The project archive will be deposited with Bedford Museum, under accession number 2004:54.

SITE LOCATION AND DESCRIPTION

The *c*. 0.7ha development site lay approximately 1.5km north of Biggleswade, and *c*. 500m east of the river Ivel (Fig. 1). It was centred on grid reference TL 1897 4666, at a height of *c*. 25m OD. The generally flat, arable land was bordered by further farmland to the south and east, by the existing sewage works to the north and by the east coast mainline railway to the west. The underlying geological strata are river valley gravels.

ARCHAEOLOGICAL BACKGROUND AND THE SIGNIFICANCE OF THE RECENT INVESTIGATIONS

The development site lay in a landscape rich in archaeological remains dating from the Palaeolithic period onwards (BCC 2004a). The Historic Environment Record (HER) lists several cropmark sites (of probable prehistoric and Roman date) within the immediate vicinity (Fig. 1). These include a ring ditch (HER10138), assumed to represent a Bronze Age barrow, on the western edge of the development site itself. A combination of aerial photographic analysis and trial trenching (Albion Archaeology 2004c) demonstrated that

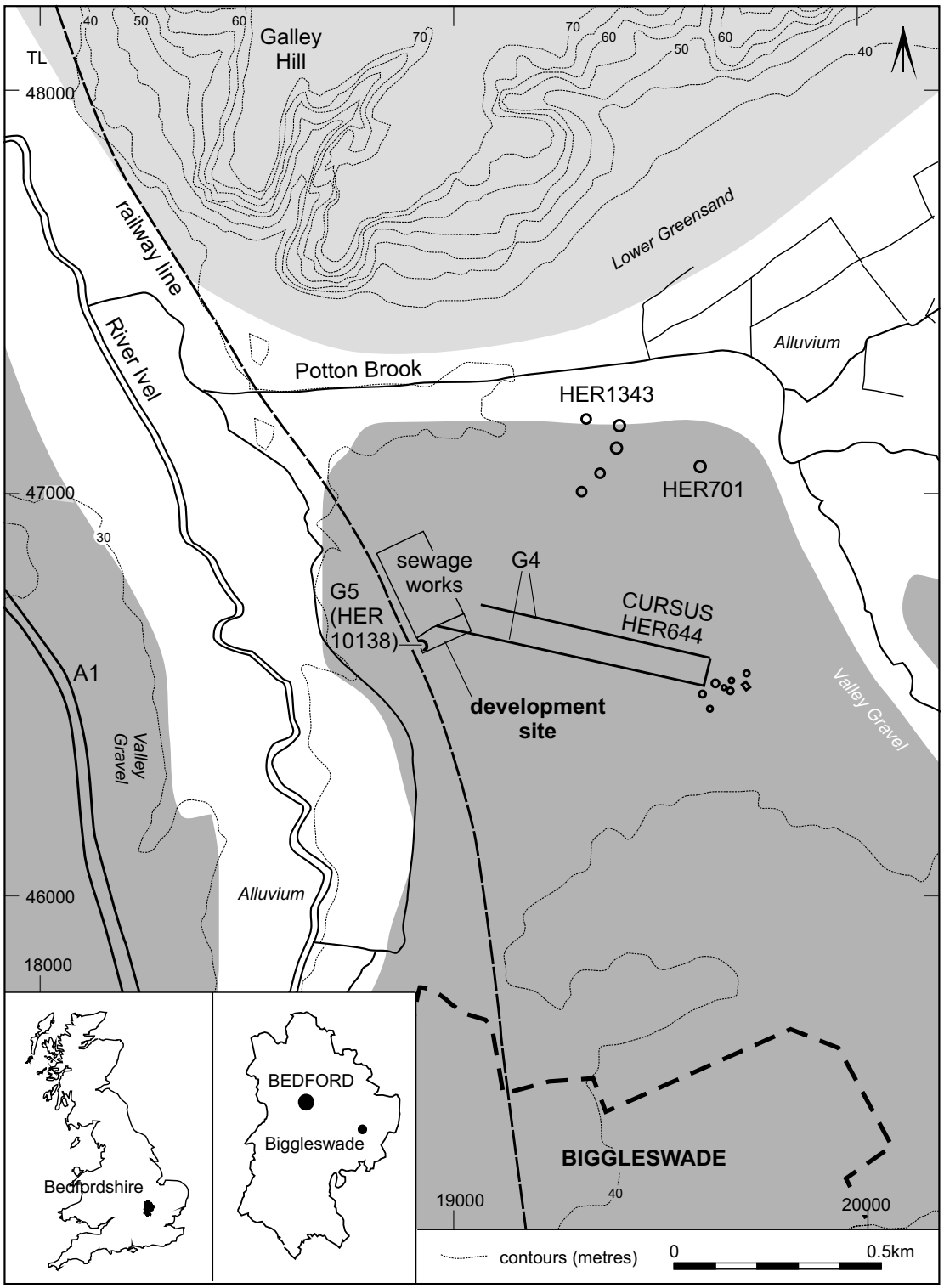

Figure 1: Site location, topography and geology

part of the barrow survived within the development site, despite truncation by modern sewage pipes and the railway. The latter is also thought to have destroyed the Baldock–Sandy–Godmanchester Roman road which ran along the eastern side of the Ivel valley (Simco 1984).

Another series of cropmarks (HER644), *c*. 500m east of the development site, had previously been characterised as a cluster of ring ditches at the eastern end of a large linear monument, possibly a cursus. Further aerial photographic analysis and trial trenching (Albion Archaeology 2004c) indicated that the monument (definitely a cursus) extended 400m further westwards than previously thought. Furthermore, one of its ditches crossed the centre of the development site, where a 33m section of it was investigated during the mitigation works.

The results of these investigations and their implications for our understanding of this important group of prehistoric monuments are discussed in this report. The relationship of the Biggleswade cursus to other similar monuments within the Great Ouse river system is also considered.

RESULTS OF THE INVESTIGATIONS

NEOLITHIC

Tree-throw hole G2

A number of amorphous features, containing deposits of silty sand, were cut into the river gravel terrace. The majority of these represent tree roots or animal burrows. However, one large tree-throw hole (Figs 2 and 3h), truncated by the cursus ditch, is of greater archaeological significance. Although no artefactual dating evidence was recovered, its stratigraphic relationship with the cursus suggests it marks the position of a tree that was cleared prior to construction of the monument.

Such features contribute to our understanding of changes in the landscape, caused by human activity. It is widely accepted that tree clearance became a major activity during the Neolithic period; prior to this, hunting and gathering were the predominant methods of procuring food, so clearing forests on a large scale served no practical purpose (Pollard 1997). Pollen cores taken around Britain have indicated that the major period of tree clearance took place around 3000 BC (Darvill 1987), as tree pollen levels declined significantly and consistently in the following centuries.

The cursus: cropmark evidence

The ditches of the cursus first appeared as a series of rectilinear cropmarks on aerial photographs taken in 1946 (NMR TL1946/1/3232; Cambridge AP, BBY 15–17). They were first recognised as a possible cursus in 1974 when the cropmark evidence was being entered onto the HER. They do not take the form of a continuous circuit, but rather a series of ditch lengths (from 20m to 180m) which together form a rectangular shape. Figure 1 depicts a schematic representation of the entire circuit, rather than an actual cropmark plot. It is likely that this discontinuous appearance is due to the limitations of aerial photography, rather than the true character of the monument. The sewage works and, probably, the railway were built over the cursus (Fig. 1), although the exact position of the west-north-west end of the monument is presently unknown. Its known, surviving length is *c*. 750m and it is *c*. 70m wide. It thus originally enclosed an area of at least 5.25ha.

The cursus occupied a localised area of almost imperceptibly higher ground between the river Ivel to the west and the Potton Brook to the east and north. This brook drains an area of former fen, occupying an embayment in the Greensand Ridge to the south-west of Potton. The confluence of the Potton Brook and the Ivel is *c*. 1km north of the known western limits of the cursus. The lower reaches of the brook, over a distance of *c*. 1.5km, appear to have been straightened. It then turns south-west towards the former fenland east of Biggleswade. At its nearest point the brook is just 400m from the eastern end of the cursus (Fig. 1).

The earlier cursus ditch G3: excavated evidence

Where the southern arm of the cursus crossed the development site, it consisted of two ditches on the same alignment. After the earlier ditch G3 had at least partially silted up (potentially, over a considerable period of time), it was cut by the later ditch G4 (Figs 2 and 3c). A 2.30m long section of ditch G3 was investigated. It was up to 0.98m deep and 1.70m wide, tapering towards the point of its intersection with ditch G4. It probably terminated here, although the actual terminal itself was destroyed by the later ditch.

The bottom of ditch G3 contained a 0.67m thick band of variegated sands and gravels, the result of weathering of the cursus in the first few years after its construction. The bulk of the ditch was filled by alternating deposits of silt and sand, which again appear to have been the result of natural

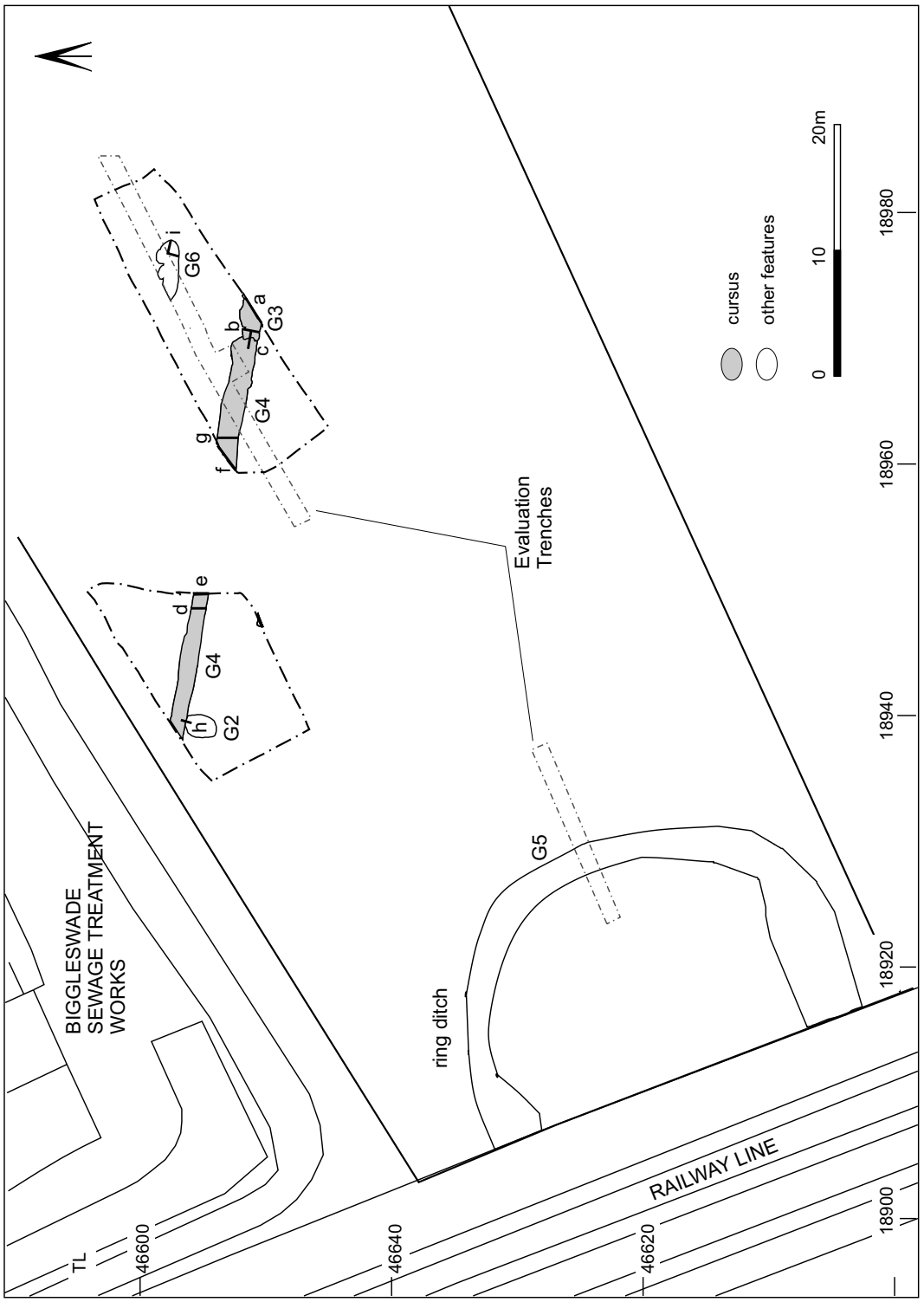

Figure 2: All features plan

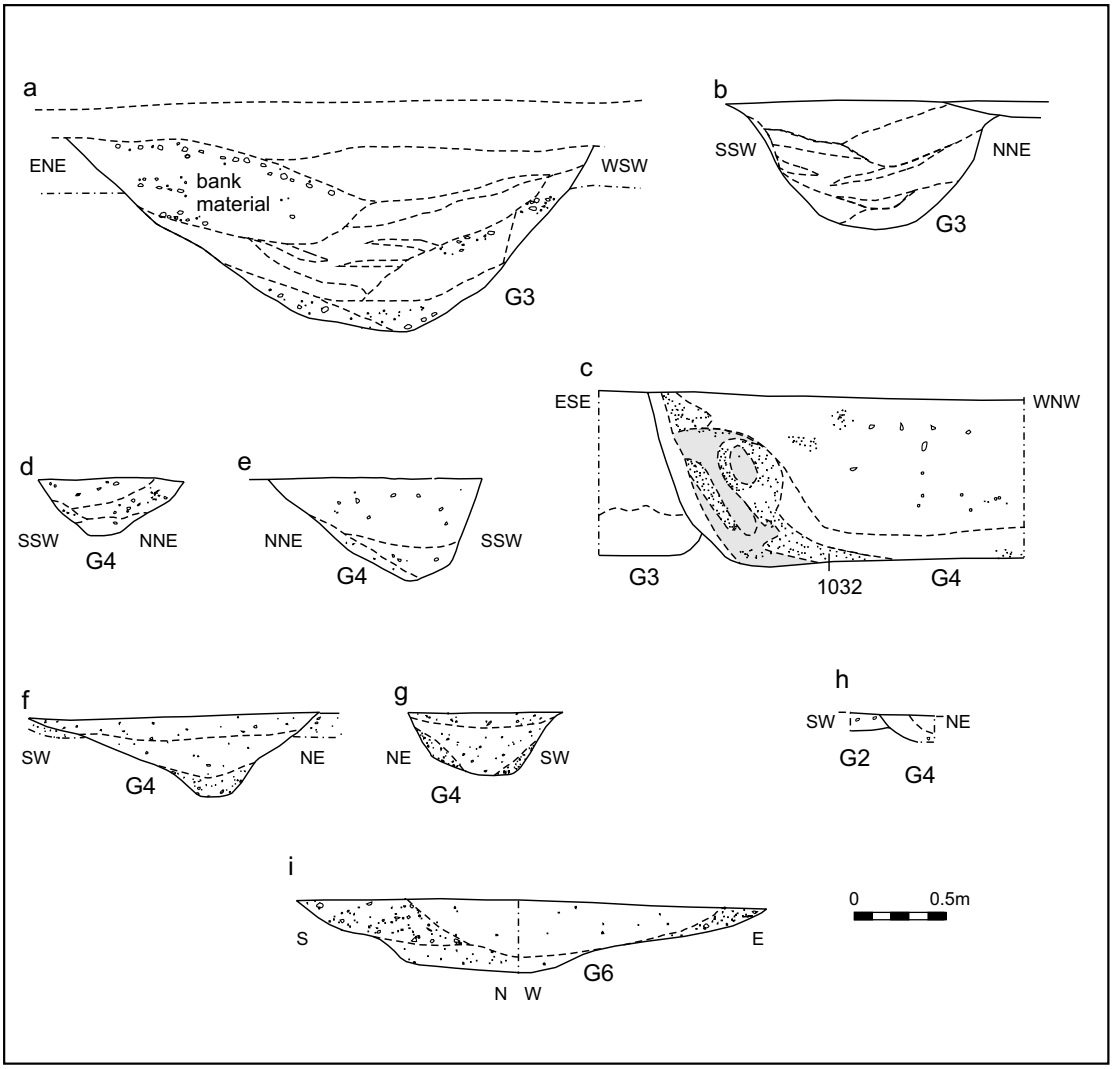

Figure 3: Selected section drawings

processes rather than deliberate backfilling. A relatively thick (0.45m), stonier deposit on the northern side of the ditch may have been derived from an internal bank (Fig. 3a). Such a bank would have accentuated the monumental appearance of the ditch and the cursus as a whole.

Despite extensive sampling, only a few cereal grains (with barley the only identifiable species), fragments of oak charcoal, and a single struck flint flake were recovered.

Significantly, the uppermost surviving deposit within ditch G3 was truncated by ditch G4 (Fig. 3c). Thus, although the original cursus ditch had become infilled to a depth of almost 1m (and possibly more), the monument itself was still clearly visible as a feature in the landscape which could be renewed and/or extended.

The later cursus ditch G4: excavated evidence

A 31m length of the stratigraphically later ditch G4 was revealed within the development site (Fig. 2). A series of segments, totalling *c*. 10m, were excavated across it. The ditch was 0.42m to 0.78m deep, 1.10m wide at its western end and 2.00m wide at its eastern terminal.

Variations in profile, from V-shaped to concave (Fig. 3d–g), are interpreted as the result of the sides of the ditch collapsing where it had been dug through relatively loose sand and gravel. Its original profile would have been more uniformly

V-shaped. This collapse led to the build up of 0.18m of silty sand in the bottom of the ditch. Sampling of this material produced sparse charred plant remains: barley grains, leguminous weed seeds and possible fragments of emmer wheat. The presence of uncharred seeds suggests modern contamination of these deposits, probably as a result of root action or animal burrowing. A single rodent tooth was also recovered.

The variegated upper fills of sandy silt were probably the result of weathering and infilling over a considerable timespan. This suggests that the cursus ditch was not deliberately backfilled when the monument went out of use. Sampling of these deposits produced relatively large (for this site) amounts of charred material, particularly from the ditch terminal. Barley is the commonest of the cereal grains. A wheat grain and a rachis fragment, some straw node fragments and tubers of onion couch grass are also present. Oak charcoal is abundant, although the presence of modern contaminants (fragments of coal) again suggests that not all of this material is prehistoric in date.

The reason for the concentration of charred material in the terminal of ditch G4 remains obscure. The temptation to see it as a special deposit, indicative of ritual activity, should be tempered on this occasion. Charcoal would be produced by a fire used for any purpose, and charcoal fragments, along with many other light items, may simply have become trapped in the terminal of a ditch having travelled unhindered along its length.

Bronze Age

Several circular cropmarks (Fig. 1) were identified from aerial photographs held by the HER. The majority were adjacent to the east-south-east end of the cursus and are likely to be the remains of deliberately positioned Bronze Age barrows. Interestingly, all of the putative barrows are located outside the disused cursus, suggesting that it retained both a physical presence and a residual respect in the minds of the barrow builders.

One of the circular cropmarks (G5, Fig. 2) lay within the development site. It was located during the trial trenching and shown to survive as a *c*. 1.7m wide ditch with a diameter of *c*. 30m. It was determined that the monument could be preserved within the proposed development and so, to avoid unnecessary damage, no hand excavation was undertaken.

Iron Age

A single east–west aligned, elongated pit G6 (Figs 2 and 3i) was identified immediately north of the cursus ditches G3 and G4. It was 4.2m long, 1.2m wide and up to 0.75m deep. Its basal fills produced four abraded fragments (weighing 2g) of a grog-tempered, late Iron Age pot. Sparse charred remains (including cereal grains, the only fragment of hazelnut shell from the site and hawthorn charcoal) and a single, heat-affected, unworked flint were also recovered.

Interestingly, the pit is located within the cursus monument and has a similar orientation to it. Was it excavated deliberately on this alignment in order to emulate the remnant earthwork still present at that time or is its orientation merely coincidental?

DISCUSSION

The Neolithic Cursus

The morphology and development of the Biggleswade cursus

The Biggleswade cursus was 70m wide and at least 750m long. Its full extent to the west is obscured by the sewage treatment works and the railway. It is, however, possible that it continued westwards onto the Ivel floodplain where its terminus may be concealed beneath alluvium, deposited from the late Roman period onwards (Dawson 1994, 129). Whatever its original length, it is the *only* convincing example of a cursus monument within Bedfordshire, despite claims that have been made for a number of other sites.

The often cited cropmarks of three linear monuments (perhaps better characterised as mortuary enclosures) to the north of Octagon Farm in the Cardington/Cople monument complex, are significantly smaller in size than the Biggleswade cursus. The largest was 60m wide and 175m long. Two evaluation trenches sampled the monument; its ditches were 1.6m wide and between 0.5m and 0.7m deep (BCAS 1995). Eynesbury, downstream on the Great Ouse at St Neots, provides a better parallel. There, the larger of two cursus monuments was 77m wide and 316m long. The ditches which defined this monument were 2.0m to 2.6m wide and between 0.5m and 0.8m deep (Ellis 2004, 6).

Cursuses are frequently associated with other Neolithic monuments, such as long barrows and

various forms of enclosures, in so-called monument complexes. Unusually, there are, at present, no other known Neolithic monuments in the vicinity of the Biggleswade cursus. The nearest is a possible Neolithic oval barrow, associated with a cluster of ring ditches, *c*. 1.5km to the north-west on the west bank of the Ivel (HER 1495). It is, however, feasible that some of the ring ditches associated with the cursus may be Neolithic rather than Bronze Age in date.

Within the development site, the southern arm of the cursus was shown to have had two phases of construction. Two separate ditch lengths, each with a terminus, were identified. The pattern of silting within them clearly demonstrates that a considerable period of time (certainly years, perhaps decades, possibly even centuries) elapsed between the excavation of the first and the second ditch. This suggests that the cursus was extended towards the river during the Neolithic period or that it was partially re-dug as a series of discontinuous ditch lengths.

The character of the deposits within both ditches suggests that the cursus was left to become infilled as a result of natural weathering and erosion. This may suggest that it was abandoned for considerable periods of time or that, more likely, the existence of an earthwork bank and a partially infilled ditch adequately served the purposes of its users.

Worked and unworked flint represent the only possible remains of Neolithic material culture recovered from the cursus. The assemblage is of poor quality flint: five worked flakes (6g) and four unworked, heat-affected pieces (23g). Most of the material came from the sieved residues of soil samples. Edge damage on the flakes suggests that they were only incorporated accidentally into the cursus ditches, long after they were discarded elsewhere. Such a paucity of artefacts is not uncommon on cursus sites, where the ditches were seemingly never used for the large-scale deposition of material (Barclay and Bayliss 1999, 20).

Charred plant remains from the cursus provide more direct, if limited, evidence for the Neolithic domestic economy. Sparse cereal remains include grains of barley and emmer wheat, chaff and straw, together with a few weed seeds. These are likely to represent remains associated with the preparation and consumption of cereals in the vicinity of the cursus.

The setting of the Biggleswade cursus

The terraces of the Ivel valley, north of Biggleswade, have long been settled and exploited, as demonstrated by the prehistoric, Roman, Anglo-Saxon and medieval remains found during gravel extraction on the western bank of the river (Dawson and Maull 1996; Albion Archaeology 2004d). The cursus lies on these same gravel terraces, albeit on the opposite bank of the river.

One of the difficulties in considering the reasons behind the cursus builders' selection of this particular location for their monument is the lack of information about the Neolithic riverine environment. At present, the cursus is *c*. 500m east of the Ivel and *c*. 600m south of the confluence of the Potton Brook and the Ivel. However, the form of the present-day river channel is due, in part, to attempts in the second half of the 18th century to make it navigable (Cook 1990). Earlier, albeit undated, channels have been identified during quarrying on the western bank (Dawson and Maull 1996, 60; Albion Archaeology 2005). It is unknown whether or not similar features existed on the eastern bank, although the presence of a small watercourse running parallel to the main river channel suggests that this is a possibility. At the very least, the Neolithic river is likely to have had a much more braided appearance than its present-day successor. Similarly, the dead straight alignment of the lower reaches of the Potton Brook is clearly a relatively modern development, again possibly associated with the creation of the Ivel Navigation. The precise form and location of this watercourse in the Neolithic period are unknown.

What can be inferred is that the cursus must have been surrounded by water on three sides: the river to the west and low-lying fen to the north and east. The latter is now drained by the Potton Brook and its tributaries but its former, not inconsiderable extent can be gauged from the distribution of present-day place names, such as Fen Farm, Millhouse Fen and Dunton Fen. This location offers a tremendous contrast to Galley Hill, a *c*. 60m OD high promontory defining one side of the breach in the Greensand Ridge created by the Ivel, and located just 1km north of the cursus (Fig. 1). The monumental landscape focussed around the cursus would perhaps have been best viewed from this location. This natural topography would undoubtedly have been a fundamental factor in determining the siting of the cursus.

In this region and beyond, rivers represented the major communication routes in prehistoric societies. People and goods could be moved longer distances more easily on water than on land.

Rivers had great religious significance and were also important as valuable sources of drinking water for humans and animals, food (fish and wild fowl) and raw materials (reeds used in house construction). Clearly, the correlation between the location of cursus monuments and river valleys (Fig. 4) is not accidental.

During the Neolithic period there was another reason why river valleys became especially important: cattle. At Eynesbury the faunal and charred plant remains allude to an economy in which cattle played a pivotal role. Cereal crops, wild plant foods and wild sources of meat (roe and red deer) were present. However, the importance of pastoralism was exemplified by the presence of cattle bone within ceremonial and ritual contexts (Ellis 2004, 87). A similar pattern has also been demonstrated during recent research into sites in the Thames Valley (Barclay and Hey 1999, 71). Cattle predominate when compared to wild sources of meat, and the absence of charred plant remains suggest that arable production came far behind cattle-rearing in the food economy.

The river valleys of the Great Ouse catchment provided ideal grazing land and fresh drinking water, which are so important for domesticated cattle. The pastoral communities which moved repeatedly through these valleys in an annual cycle would quite naturally have chosen them as the location in which to construct their sacred spaces/monuments, of which the cursuses are the largest.

What impact did the cursus builders have on the landscape and ecology of the river valleys?

The visual impact of the large, ditched monuments they were creating must have been a major factor in the minds of the cursus builders. However, such an impact could not have been achieved without extensive tree clearance, effected either by direct human felling or more indirectly, possibly accidentally, as a result of over-grazing by domesticated animals. Livestock can feed on saplings and the lower branches and leaves of trees, interrupting natural woodland regeneration. Over several consecutive years, this process can completely remove large areas of woodland. It is highly likely that the cattle-dependant Neolithic economy not only contributed to the removal of primary woodland but also ensured that open grasslands were maintained (Campbell 1983, 145).

Possible physical evidence for this process was found during the recent excavation work on the Biggleswade cursus. An infilled tree-throw hole (Fig. 2, G2) was subsequently truncated by the southern cursus ditch. This stratigraphic relationship provides useful physical evidence that the cursus was constructed in a tree-cleared landscape. Similar evidence of Neolithic tree clearance was also noted at the Eynesbury monumental complex, including the re-burial of the base of a tree trunk in a pit (Ellis 2004, 104). Further afield, in the Thames Valley, a direct link between cursus construction and tree clearance has also been identified (Barclay and Hey 1999, 71). During excavation of the Drayton cursus, located on gravel slopes near a major river, a series of tree-throw holes were recorded. These were formed prior to the construction of the cursus and again demonstrate deliberate tree clearance ahead of monument construction.

Analysis of molluscan remains, charred plant remains and charcoal also confirms the idea that the Drayton cursus was created in open grassland, previously cleared of primary oak woodland. The evidence from the Biggleswade cursus, albeit on a much smaller scale, supports a similar conclusion. Oak was the only identified species of charcoal in soil samples taken from the ditches of the cursus. Analysis of these fragments has demonstrated they were derived from very quickly grown wood, with wide rings, suggesting it could have been from mature trees. The presence of charred onion couch grass tubers also suggests that the local landscape included ungrazed grassland, abandoned pasture or arable land.

What purpose did the cursus serve?

Most current research sees cursus monuments as key elements of a sacred landscape. For example, Tilley's (1999) phenomenological study of the landscape around the Dorset cursus concluded that the area was not settled but, rather, was visited periodically by people who used the cursus as a processional route along which the bones of recently dead individuals and/or ancestors were moved. The route of the cursus took in key points in the landscape as part of this ritual journey. Last (1999) also suggests a link between this monument type and the practice of human procession through a specific landscape. He notes the geographical connection to rivers and suggests the cursus may be an artificial reference to the river, designed to connect the natural world with the cultural world.

Others have suggested that the cursus served a dual role, as a sacred site and political boundary

marker. A cattle-based economy is land hungry, as livestock needs to be regularly moved to new pasture. Transhumant pastoralists do not create permanent settlement sites. However, as the seasons change, they do move in a predictable, repeated pattern, from which, it is suggested, tribal territories evolve. Malim (2000, 81) points to the even distribution, at roughly 6km intervals, of prehistoric monumental complexes along the Great Ouse. He suggests that the cursus monuments were constructed on the edge of tribal territories, the river forming a natural boundary and the cursus a man-made, artificial one.

The Biggleswade cursus fits neatly into this dual role model. Its physical setting within a watery landscape at the foot of the Galley Hill promontory marks it out as an archetypal sacred site. It also lies at the southern limit of the distribution of cursus monuments within the Great Ouse catchment (Fig. 4) and it is tempting to postulate that it was associated with a group of pastoralists moving around the Ivel valley and the surrounding uplands. The fact that the Ivel also gave its name to another tribal grouping, the *Gifle*, who are recorded as occupying the valley in the 7th century AD, is probably best regarded as no more than an intriguing coincidence.

A Bronze Age Monumental Landscape

The physical remains of part of a ring ditch within the development site and a cluster of circular cropmarks at the eastern end of the cursus suggest the presence of at least eight Bronze Age barrows. Their arrangement, all immediately outside and to the south of the cursus, is striking. It is clear that the cursus was still a visible earthwork when the barrows were constructed and that the monument was still respected by the barrow builders. A further cluster of probable barrows, 400m north of the cursus near the Potton Brook, is also visible on aerial photographs (Fig. 1, HER 1343 and HER 701).

Such continuance of a sacred monumental landscape from the Neolithic to the Bronze Age has several parallels within the Great Ouse catchment (Malim 2000). For example, the phenomenon has been demonstrated by fieldwork at Cardington/Cople, Eynesbury and Rectory Farm Brampton (Cambridgeshire). At Stonea, Buckden-Diddington and Fenstanton (all in Cambridgeshire) aerial photographs show possible cursus monuments associated with round barrows. Significantly, all these sites are located in the counties of Cambridgeshire and Bedfordshire where the Great Ouse valley is wider and the topography of gradually sloping valley sides is similar. In contrast, further west into Buckinghamshire (where there is a relative paucity of such sites) the upper reaches of the river and its valley sides are significantly narrower. Although the Ivel is only a tributary, it shares the defining topographic characteristics of the middle reaches of the main river and demonstrates a similar longevity of sacred space during the early prehistoric period.

Iron Age

A single elongated pit dating to the Iron Age was recorded within the development site. It contained a small quantity of pottery, burnt stones and charred plant remains. The function and significance of Iron Age pits has been much debated (Hill 1995). However, there is no indication that the material in this pit represents a deliberately placed deposit. It is more likely to represent debris from nearby settlement activity.

More significant is the pit's position within, and broadly parallel to, the cursus. It has been suggested that in the Thames valley the cattle-focussed economy of the Neolithic continued to be practised right through to the Iron Age. The seasonal movements through the landscape, the favoured grazing lands, and the sacred spaces may, in some cases, have endured (Barclay and Hey 1999, 71). The digging of this pit within the Biggleswade cursus may mean that even in the Iron Age this location was still considered special.

Project Strategy

A combination of techniques were employed in order to identify, target and sample any potential archaeological remains within the development site. The following paragraphs are intended to serve as a brief commentary on the adopted approach and to suggest additional means of investigation which might be considered in the future.

In this instance, aerial photography was very useful in developing an understanding of the cursus. Digital rectification allowed a connection to be made between previously unplotted cropmarks within the development site and cropmarks to the east of the site which had been sketch-plotted and

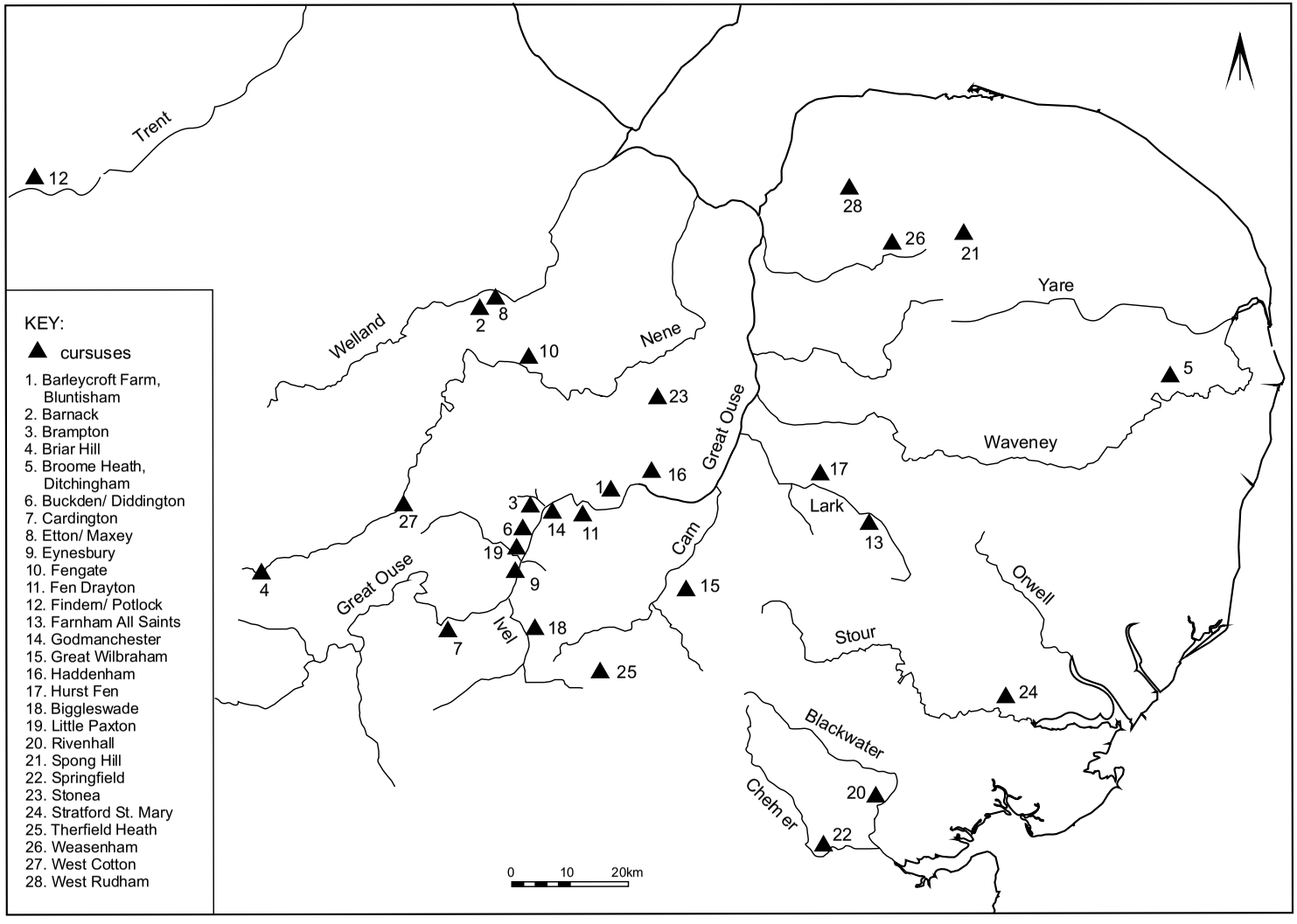

Figure 4: Distribution of cursuses in the eastern region (after Last 1999, fig. 8.1). Additions made by Albion: Kempston Cursus has been removed from map, Biggleswade cursus and River Ivel added)

recorded in the HER. The relatively small amount of intrusive fieldwork which followed confirmed this connection and helped to put a major prehistoric monument "on the map". Before the project took place it had been virtually ignored in the two most recent considerations of prehistoric monuments in the Great Ouse valley (Malim 2000, 81 and fig 8.2) and eastern England (Last 1999, fig 8.1).

Because a low density of charred plant remains was anticipated, a comparatively large volume of soil (569 litres) was floated, relative to the small size of the investigation area. However, the poor results (Appendix 1) and the ubiquity of intrusive, modern material within the cursus ditches must call into doubt the merits of this approach. A better strategy might be:

i) to hand-excavate and sample a small number of key segments, *e.g.* terminals or changes in alignment, and then
ii) to machine-excavate the remaining ditch fill with a view to revealing and sampling localised, placed deposits which might produce higher densities of genuinely Neolithic artefactual or ecofactual remains.

This approach might also have a better chance of producing material suitable for radiocarbon dating. In the latter's absence, optically stimulated luminescence, as used at Eynesbury (Ellis 2004, 61–62), is likely to represent the best alternative scientific dating technique.

CONCLUSIONS

The complex of prehistoric ritual monuments in the Ivel valley to the north of Biggleswade is a good example of a regionally, and nationally, recognisable landscape-type. At its heart is the Biggleswade cursus, the only such monument within Bedfordshire to have been examined in an open area excavation, using modern archaeological techniques. Indeed, it is argued above that the Biggleswade cursus is the only known cursus within Bedfordshire. Its sheer size and the clustering of later barrows on its periphery mark it out as a classic cursus. By contrast, even the largest of the three monuments within Cardington/Cople complex is probably better classified as a long mortuary enclosure. Similarly, the excavator of the two large rectangular enclosures at Eynesbury (in Cambridgeshire) acknowledged that their classification as cursuses was not entirely unequivocal (Ellis 2004, 6). Admittedly, this distinction is somewhat academic because all are within a broad tradition of linear Neolithic monuments. On the other hand, however, it does serve to highlight the distinctiveness and importance of the Biggleswade cursus.

The siting of the Biggleswade cursus is partly a reflection of purely local topography: water on three sides and a Greensand promontory to the north. However, there are also wider reasons for this choice of location. A link has been made in this region, and elsewhere, between transhumant pastoralists, with a cattle-based economy, and the clearance of large swathes of woodland to create open grassland more suitable for grazing. In tandem with this economically driven landscape change, arose the opportunity to create large, visually impressive monuments in river valleys like the Great Ouse. The cursus monuments may have functioned as territorial markers. They may have provided processional ways, used for funerary rites, or perhaps as a means for visiting sacred places within a landscape familiar to their builders. Our understanding of their use, or uses, is still at an early stage of development.

The effect of the presence of cursus monuments within the landscape was long-lived. The Biggleswade cursus attracted Bronze Age barrow builders. To date, no barrows have been identified *within* the monument, perhaps indicating that its internal sacred space also endured.

The recent fieldwork on the Biggleswade cursus has only touched on a tiny part of the archaeological potential of this prehistoric monumental landscape. Future work could address such questions as:

Where is the western end of the cursus and what is its total length?

Are there other Neolithic monuments in the vicinity of the cursus?

If the cursus does extend west of the railway, will its potential to preserve organic material increase as it nears the present-day course of the Ivel?

Is there widespread evidence for tree clearance contemporary with the creation of the cursus?

When was the cursus built and how long was it in use for?

Does the interior of the cursus contain contemporary features that might help to elucidate its function?

Can we learn more about the local topographic setting of the cursus and the later monuments, particularly the riverine environment?

Are the later monuments next to the cursus different in any way to those clustered to the north?

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The site was visited and monitored at key stages by Lesley-Ann Mather, Bedfordshire County Council's Archaeological Officer. Specialist advice was given by Dr Pete Murphy, English Heritage Regional Science Advisor, who also visited the site.

Finally, Anglian Water Services should be applauded for amending their building plans in order to avoid unnecessary damage to the remains of Bronze Age barrow HER 10138. The remains of this monument will be preserved for the foreseeable future within the confines of the extended sewage treatment works.

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APPENDIX 1: CHARRED PLANT REMAINS AND CHARCOAL (TECHNICAL DETAIL)

CHARRED PLANT REMAINS: ANGELA MONCKTON, UNIVERSITY OF LEICESTER ARCHAEOLOGICAL SERVICES

Introduction

Samples were taken for the recovery of charred plant remains which can provide information on diet, agriculture and other activities on archaeological sites. The features sampled included the Neolithic cursus ditches and an Iron Age pit. The recovery of charred plant remains from Neolithic deposits is a priority because of their rarity. It was hoped that such remains might contribute to the evidence for activities at cursus monuments, and also provide material for radiocarbon dating.

Methodology

A total of eleven large bulk samples were processed and submitted for assessment. Ten samples were from the Neolithic cursus and one from an Iron Age pit (Table 1).

Processing

Samples were wet sieved using a 0.5mm or 1mm mesh with flotation into a 0.3mm mesh sieve. The residues were air dried and the fraction over 5.6mm sorted for all finds, then discarded. The fine fractions of the residue were reserved for analysis. The flotation fraction (flot) was air dried and packed carefully in self-seal polythene bags. This work was carried out by Albion Archaeology.

Assessment

The flots were all sorted using a x10–x30 stereo microscope and the plant remains were removed to glass specimen tubes. Selected residues were examined for the presence of charred plant remains and nothing except a trace of charcoal was found. This showed that recovery by flotation had been good and that processing had been carried out efficiently. The plant remains were identified, counted and listed (Table 1). The plant names follow Stace (1991).

	Phase	Neo	Neo	Neo	Neo	Neo	Neo	Neo	Neo	Neo	Neo	IA
	Group	G3	G3	G3	G4	G4	G4	G4	G4	G4	G4	G6
	Sample	6	7	11	5	1	2	3	8	10	12	4
CEREAL GRAINS												
Triticum cf *dicoccum* Schubl.	Emmer wheat	—	—	—	2	—	1					
Triticum dicoccum/spelta	Glume wheat	—	—	—	—	—	—	—	—	—	—	1
Triticum free-threshing grain	Wheat	—	—	—	3	—	—	—	—	—	—	—
Triticum spp.	Wheat indet.	—	—	—	—	—	—	—	—	1	2	1
Hordeum vulgare L. grain	Barley	2	6	—	—	1	—	—	—	3	—	—
Hordeum sp. hulled grain	Barley, hulled	—	—	—	5	—	—	—	—	4	—	—
Cereal/Poaceae	Cereal/Grass	—	—	—	3	—	—	—	—	—	—	—
Cereal grains indet.	Cereal	1	2	3	7	—	1	—	—	5	1	1
CEREAL CHAFF												
Triticum cf *dicoccum* glume	Emmer glume	—	—	—	—	1	—	—	—	—	—	—
Triticum sp. rachis	Wheat chaff	—	—	—	1	—	—	—	—	1	—	—
Culm node large	Straw	—	—	—	—	—	—	—	—	2	—	2
OTHER PLANTS												
Corylus avellana L.	Hazel nut shell	—	—	—	—	—	—	—	—	—	—	1
Vicia/Lathyrus	Vetch/Vetchling	—	—	—	1	—	—	—	1cf	2	1cf	—
Vicia sp.	Vetch	—	—	—	6	—	—	—	—	—	—	1
Medicago/Trifolium type	Clover type	—	—	—	1	1	—	—	—	—	—	—
Poaceae (large)	Grasses, large	—	—	—	—	1	—	—	—	—	—	—
Arrhenatherum elatius (L) Beauv. Var bulbosum.-	Onion couch grass tuber	—	—	—	—	—	—	—	—	—	5	
Tubers indet.	Tubers	—	—	—	—	—	—	—	1?	5	3	—
Indeterminate seeds	Indet. seeds	—	—	—	5	—	—	—	—	6	3	—
Uncharred seeds	Uncharred seeds	+	+	—	+++	+	+	+	++	+	++	+
OTHER REMAINS												
Charcoal	Charcoal	+	+	—	+	+	—	—	+++	+++	+++	+
Charred fragments indet.	Charred frags	+	++	++	+	+	+	+	++	++	++	+
Snails	Snails	—	—	—	—	(1)	—	—	—	—	—	—
Small bones	Small bones	—	—	—	(1)	—	—	—	—	—	—	—
Total	items	3	8	3	34	4	2	0	2	29	15	7
Volume of sample	litres	22	50	40	200	40	40	20	7	100	50?	40
Volume of flot	mls	20	12	15	45	4	2	1	20	15	120	15
2mm Residue	litres	0.75	2.0	—	—	1.0	—	1.5	0.2	1.0	1.2	—

Key: + = present, ++ = moderate amount, +++ = abundant. glume. = glume base, ra = rachis segment. cf. = probable identification. Remains are seeds in the broad sense unless stated.
* Neo = Neolithic; IA = Iron Age

Table 1: Charred plant remains

Results

Charred plant remains were recovered from nine of the ten Neolithic samples as well as from the single Iron Age sample. However, these were all at low densities, up to only 0.3 items per litre of soil. The Neolithic samples contained cereal grains in small numbers including barley (*Hordeum vulgare*), some of a hulled form, occasional emmer grains (*Triticum dicoccum*) and other wheat grains including possibly free-threshing grains (*Triticum* free-threshing), which is a type similar to bread wheat. However, it is abraded and this could not be confirmed. Very few chaff fragments were recovered, including a glume possibly of emmer, and a couple of rachis fragments of wheat which are basal segments and could not be identified further. A few charred straw nodes were also recovered.

A small number of weed seeds were also present. These comprise mainly leguminous plants such as vetches (*Vicia* sp.). Such plants are typically associated with grassy vegetation and also grow as arable weeds. A few larger fragments were classified as vetches or vetchling (*Vicia*/*Lathyrus*) which grow in similar conditions; these may have been from edible legumes, but all are incomplete. One sample contained tubers of onion couch grass (*Arrhenatherum elatius*). This plant is typically grown on ungrazed grassland, abandoned pasture or arable land and when dry can be used for kindling (Moffett, Robinson and Straker 1989). It is known to be edible, although gathering and processing these coarse tubers for food does not explain their frequent presence in cremations and other prehistoric features (Moffett, Robinson and Straker 1989). Other tubers, possibly also of grasses are present. Charred material of an amorphous nature was found in some of the samples. Uncharred seeds of common field weeds are present and are numerous in one of the samples, suggesting modern intrusive material. The Iron Age sample contained relatively few remains, the most significant being a fragment of hazelnut shell (*Corylus avellana*), surprisingly the only fragment from the site.

Dating evidence combined with more examples of the surrounding vegetation is needed in order to augment our knowledge of the settlement patterns and economy of people living in this area during prehistory.

Charcoal

Gc Morgan, University Of Leicester

Results

The samples were identified and a record was made of their dimensions and apparent growth rates (Table 2). The diameter, in mm, is the estimated minimum size for the sample. The ring count is for those present, and the age is the estimated minimum.

Oak, *Quercus* spec., was the only identified species of wood charcoal in soil samples taken from the ditches of the cursus. Analysis of these fragments has demonstrated they were derived from very quickly grown wood, with wide rings, suggesting it could be from mature trees.

The presence of coal is interesting, although it may well be derived from local alluvial deposits or have been deliberately brought to the site. The presence of this material would cause problems for radiocarbon dating of charcoal or other material with which it had come into contact.

Ecofact Sample No	Group	Phase	Details	Identity	Dia	Rings	Estimated age
1	G4	Neolithic	300μm flot	Oak and coal fragments	5	5	5
2	G4	Neolithic	300μm flot	Seeds and insects			
3	G4	Neolithic	300μm flot	Seeds and insects			
4	G6	Iron age	flot	Miscellaneous fragments of charcoal, seeds and coal			
4	G6	Iron age	5.6mm	Hawthorn type	15	6	6
5	G4	Neolithic	flot	Miscellaneous fragments of charcoal, insects and coal			
6	G3	Neolithic	flot	Fragments of oak and coal			
7	G3	Neolithic	flot	Miscellaneous fragments of charcoal, insects and coal			
8	G4	Neolithic	charcoal fcrom flot	Fragments of oak, seeds, insects and coal			
10	G4	Neolithic	charcoal from flot	Oak	20+	5+	10+
10	G4	Neolithic	flot	Fragments of oak, seeds and coal			
11	G3	Neolithic	flot	Fragments of oak and coal			
12	G4	Neolithic	5.6mm	Oak	20+	5+	10+
12	G4	Neolithic	flot	Oak, mature wood	50+	6+	20+
12	G4	Neolithic	flot	Oak	60+	10+	30+

Table 2: Charcoal