Down the Line: Archaeological investigations on the route of the Cambridgeshire Guided Busway

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Between late 2006 and the middle of 2008 archaeological excavation was carried out at ten locations along the 18 kilometre route of the Cambridgeshire Guided Busway. Monitoring of groundworks was also carried out along the whole length as well as heritage railway recording of the track and at key locations. Archaeological remains were found at seven of the excavation locations as well as in one significant location during the monitoring programme. Three of these sites are dealt with in other publications; the remainder are reported on in this paper.

Two sites at Swavesey revealed evidence of Iron Age and Roman activity, extending the known area of occupation on the island at this date down to the fen-edge. The evidence suggests that this was a processing or redistribution location rather than dense settlement. At the Windmill site near Over remains of a similar period were found, but here there was clear evidence of settlement extending from the middle Iron Age through to around AD 70 when it is likely that the settlement focus shifted due to landscape reorganisation. At Arbury evidence was found indicating the presence of a substantial Roman building with finds of pottery, building material and coins.

The Cambridgeshire Guided Busway (CGB) has been constructed in large part on the trackway of the former Cambridge to St Ives railway. Work began in late 2006 and as part of the programme extensive archaeological work was undertaken by the Cambridge Archaeological Unit (CAU) in order to satisfy conditions placed on planning permission. The archaeological work was co-ordinated on behalf of the contractor BAM Nuttall by Steve Haynes of Arup (Archaeologist to the Design Joint Venture) and was monitored for Cambridgeshire County Council Archaeology Office by Andy Thomas, Senior Development Control Archaeologist.

Based on the results of desktop assessment (Arup 2003) and trenched evaluation (Collins and Dickens 2009), and reflecting a number of subsequent design changes, ten locations along the CGB route were eventually designated for mitigation by excavation or to be evaluated in order to determine mitigation. The fieldwork was carried out between October 2006 and July 2008, as sites were made available (Fig. 1). Specifically these were (from north to south):

- Swavesey in-track site (Jun/Jul 2008)
- Swavesey Kiss & Ride (Jan/Feb 2007)
- Landscape and Ecological Mitigation Area (LEM) C (Apr 2007)
- LEM D: The Windmill Site (Nov 2006 – Jan 2007)
- Longstanton Park & Ride (Oct/Nov 2006)
- LEM I (Apr 2007)
- Arbury Park (Sep/Oct 2007)
- Long Road Construction Site (Jan/Feb 2007)
- Addenbrooke's Link (Mar 2007)
- Shelford Road Construction Site (Feb/Mar 2007)

In addition to these 'set piece' sites, archaeological monitoring was carried out on the contractor's groundworks along the entire length of the busway, commencing in December 2006. This included:

- Monitoring of geotechnical test pits along the entire route
- Monitoring of ballast stripping
- Monitoring of haul road construction
- Monitoring of service diversions and replacements
- Monitoring of track groundworks (e.g. pad foundations)

During monitoring archaeological remains pre-dating the Post-Medieval period were observed at relatively few locations, the exception being at Arbury in-track (see below).

As the investigations progressed little or no archaeology was revealed at the LEM C, LEM I and Long Road Construction sites. Other than to record their inclusion in the project, these sites will not be dealt with further. Three other sites did have minor archaeology, but lie within the immediate vicinity of other ongoing large projects and are more properly dealt with there. These are the Longstanton Park and Ride, to be dealt with as part of the Northstowe investigations, the Addenbrooke's Link site, to be dealt with as part of the 2020 project, and the Shelford Road Construction compound, dealt with as part of the forthcoming Addenbrooke's Link Road Publication (Timberlake forthcoming).

The main focus of this paper are the four remaining sites: Swavesey in-track and Kiss & Ride; LEM D (the 'Windmill' Site) and Arbury Park and the Arbury in-track observations (Fig. 1). These are singled out

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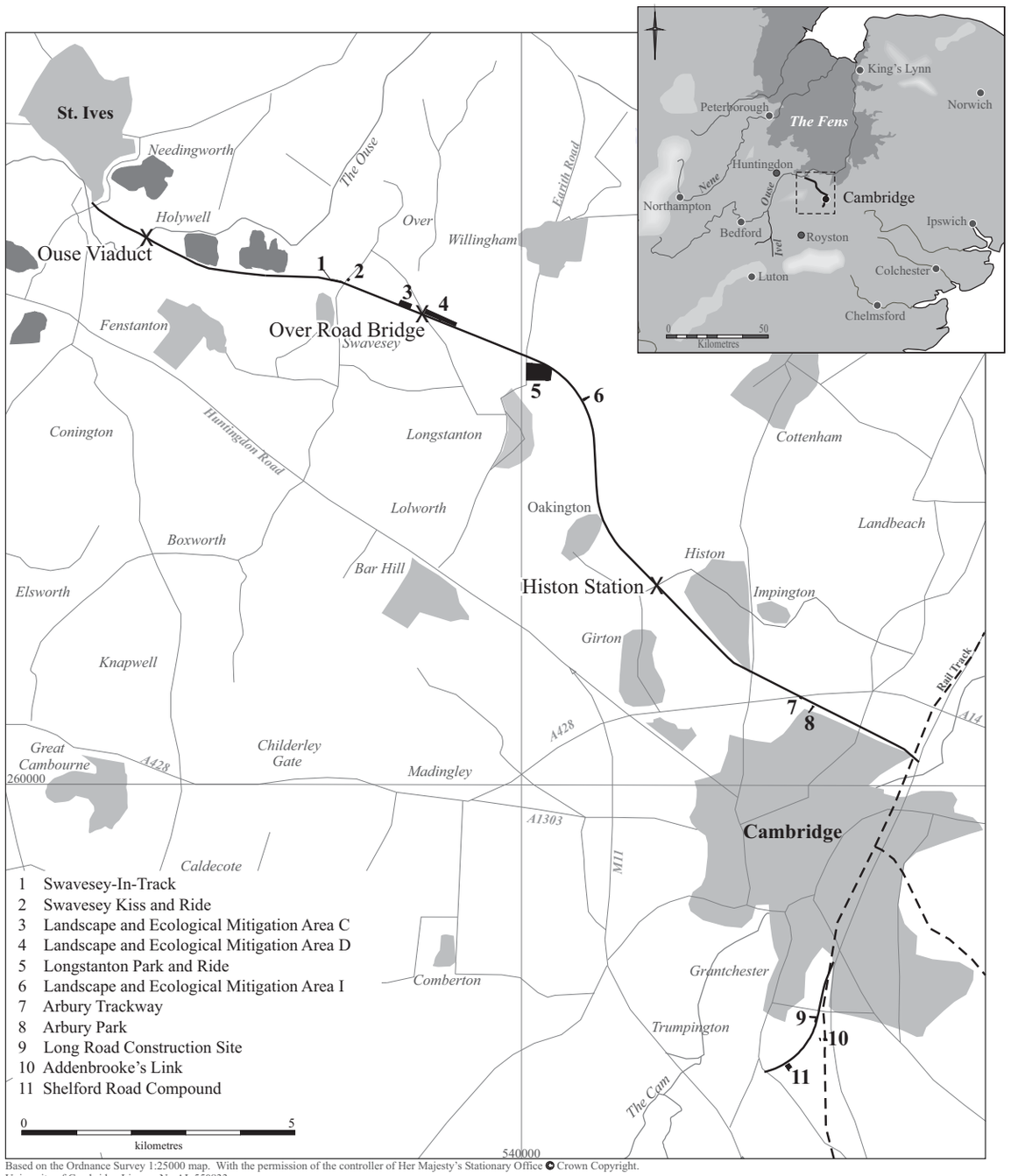

Figure 1. *Location of sites investigated along the Cambridgeshire Guided Busway.*

as important particularly in that, though none were large or definitive in their scope, they all add important new data to the study of the areas in which they occur.

Before dealing with these sites, however, it is also important to reflect upon the archaeology of the railway itself, the artificial construct across the landscape that is the only tangible link between these disparate locations.

The Eastern Counties Railway Company (which subsequently merged with Great Eastern Railway in 1862) opened the line between Cambridge and St Ives on 17th August 1847. There were intermediate stations at Histon, Oakington, Longstanton and Swavesey. The line was busy in the later nineteenth and early twentieth century, but passenger numbers were in significant decline by the 1950s. By the 1960s eighty trains a day were timetabled but as passenger traffic fell and coal freight from the north dried up this dwindled. Freight services from Histon

and Oakington ended on 19th April 1965 and from Swavesey and Longstanton a year later with the passenger service finally withdrawn in October 1970. The freight service remained open as far as Histon for seasonal deliveries of fruit to the Chivers factory, but this ended in 1983. A service to Fen Drayton continued until 1992 hauling aggregate for ARC, but even this had declined to once a week by the late 1980s. Following the end of commercial traffic on the line a few passenger charters ran until the late 1980s and in 1979 The Railway Development Society organised the first of the popular 'specials' from Swavesey to promote the reopening of the line. These continued until 1990. Although abandoned and overgrown for more than a decade the line was not formally closed until August 2, 2003.

The archaeological expression of the railway fell into two main categories: firstly the physical remains of the track and associated structures and secondly, evidence of the construction methods employed.

The most detailed recording, including structural survey, was carried out at three locations; Histon Station, Windmill Bridge on Over Road and at the Ouse Viaduct near St Ives. Between these locations the record is primarily photographic, recording, in effect, the state of the railway line immediately prior to its removal (Dickens 2007, 2010).

In general terms, very little other than the track itself survived, and that only between Milton Road in Cambridge and Holywell Ferry Road End near St Ives. Most of the lineside furniture had been removed or had 'disappeared' in the intervening years leaving only a handful of signal lights and a buffer between Swavesey and Holywell Ferry Road End, and a lineside hut between Arbury and Histon. The track reflected the constantly developing nature of railway hardware with a mixture of the generally older bullhead rail and generally more recent flat-bottomed rail distributed along the entire length. Twenty-two different chair types were identified (the means by which the rails are fixed to the sleepers), although some of these were specialized types associated with points. Wooden and several types of concrete sleeper were in use, both being observed in association with both rail types.

The Cambridge to St Ives line has long had a reputation as something of an experimental location, and some evidence of this survived. According to *www.disused-stations.org.uk* this was the location of the first serious test of continuous welded rail, with this section still *in situ* on part of the long curve around Oakington Airfield. Also here was first tested the multiple aspect or traffic light signalling system, though no physical trace of this survived, and experimental rolling stock were run here during the changeover from steam to diesel (*http://www.disused-stations.org.uk/l/long_stanton/index.shtml*).

The three recorded structures noted above are not dealt with here in any great detail, as this is recorded in the archive (Dickens 2007, 2010); however, the results for Histon Station, surveyed in July 2007, are worth noting in a little more detail as it does reflect the early development of, and in a sense hopes for this branch line, which never quite came to fruition. All the stations between Histon and Swavesey are superficially similar at their earliest and least developed state. At Histon six phases of development were identified (Fig. 2):

Phase 1: The Crossing House *c.* 1847
Phase 2: Addition of the north–south wing *c.* 1870
Phase 3: Addition of the Waiting Room *c.* 1880s
Phase 4: Addition of the kitchen/toilet extension *c.* 1880s
Phase 5: Addition of the "Station Master's Office" *c.* 1890s
Phase 6: Addition of the Canopy between 1911 and 1914.

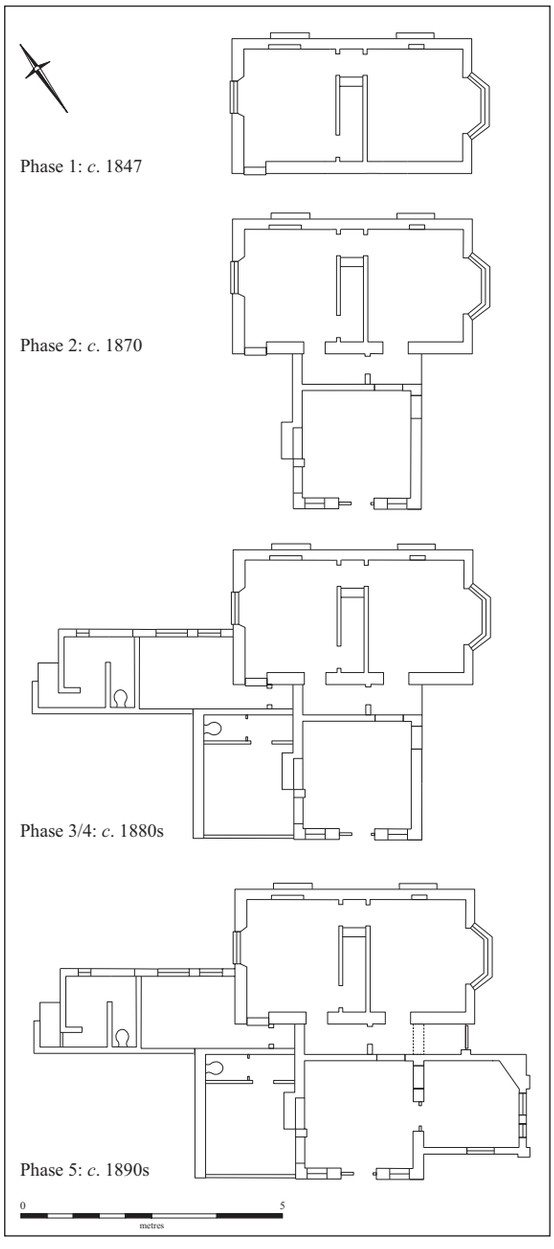

Figure 2. *Histon Station: Main Station Development Phases.*

The earliest structure at Histon is a central four-roomed house, presumably built around the opening of the line in 1847 (Fig. 3). Some evidence observed during the works suggests that originally this station had a low platform rather than the later raised one. The engineer for the line was M.A. Borthwick and given the similarity between the early station buildings at Histon, Oakington and Longstanton, it is likely that they were part of the original design, possibly by Borthwick himself. The success of the line in the later nineteenth century was presumably the prompt for the development and expansion of the station, but it was all over before the First World War. The expansion and decline of the station at Histon reflects the story of the line as a whole, but also more specifically, the relationship between the railway, the station and the Chivers' factory which developed alongside it. The peak of both, with the station served by two goods yards as well as the Chivers' siding, appears to have been in the early part of the twentieth century, with the station buildings reaching their maximum extent shortly before that at the end of the nineteenth century. The gradual development of the station complex is evidence that the line at its height was not quite that envisaged at the beginning by the company or the engineer, but it is also interesting to note the superficial similarity of the "developed" stations at Oakington, Longstanton and Swavesey. In each case the early buildings are the twins of that at Histon. Although all subsequently expand to a T-shape the added wings are all different to each other and to the Histon building, and it does appear that whereas the original concept was a single vision, the subsequent development was a much more locally influenced affair.

Histon Station was originally intended for demolition. Following a local campaign this decision was reversed and the building still stands, although now missing the canopy and platforms.

Windmill Bridge

The brick bridge on Over Road (bridge no: 2260) was a 'skew bridge' in that it continued the line of the road crossing over the railway and was set at an oblique angle to the track below rather than at right angles to it. In this case the bridge is oblique to the track by 49 degrees (Dickens 2010).

The bridge had three arches, the track running beneath the central one (Fig. 4). The arches were built using the 'English' or 'helicoidal' system (adopted widely for railway bridges) in which the bed-joints are laid parallel to one another and perpendicular to the direction of the bridge (Simmons and Biddle 1997, 47). The lower structure was constructed from yellow bricks with seven courses of dark engineering bricks picking out the details on the string line below the parapet. Below this string line the structure was faced with bright red brick extending about halfway across the two outer arches on the east side and somewhat further on the west. This was clearly a later addition, the facing itself subsequently repaired on more than one occasion. The yellow bricks carried through the arches with the exception of the southernmost arch where the eastern third was covered in the same red brick as the later facing. The roadside parapet was constructed in pale orange brick (weathered to a dull brown) with a coping of engineering bricks. When exposed in demolition these bricks had only slight frogs, if at all, and appeared to be quite roughly made and not of the best quality.

Examination of the bridge suggests that the yellow brick build is the earliest, with later repairs and replacements. It is unclear whether the parapet is part of the original build or a later replacement/addition. The bridge was demolished in late 2007.

Figure 3. *Histon Station: Main Station Buildings South Facing Elevation.*

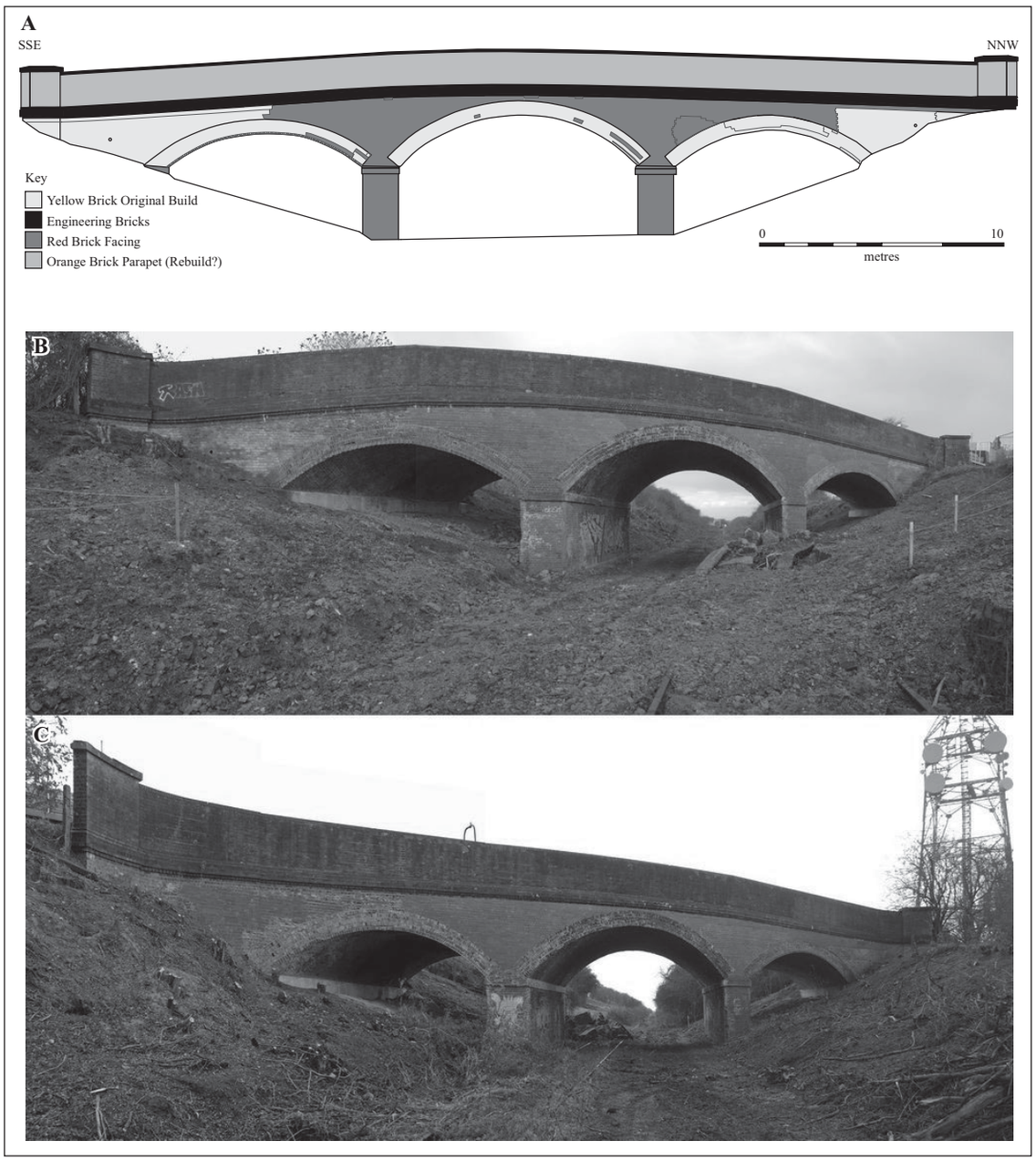

Figure 4. *Windmill Bridge, Over Road: A. east facing elevation with brick types; B. east facing elevation; C. west facing elevation.*

River Great Ouse Viaduct

The viaduct near St Ives (bridge no: 2272) consisted of two wrought iron spans side by side across the river with a series of flood spans extending either side (Fig. 5). The northern flood spans were still *in situ*, the southern ones having been removed previously (Dickens 2010). The iron structures were supported on a series of 21 brick piers, eleven on the east bank, ten on the west. Although similar in construction style, the two river spans differed in detail, the southerly (the "Down" line, i.e. to St Ives) being somewhat slighter than the northerly one (the "Up" line, i.e. to London via Cambridge).

Unlike some of the more spectacular and graceful viaducts of the period, the Ouse crossing was a utilitarian structure, the river bridge sections rather reminiscent of World War I tank construction. The side sections were formed from riveted wrought iron plates joined across the width with short girders and braced beneath with criss-cross straps. The different style of the two spans suggests they were not entirely contemporary, but as the brick piers were rebuilt in the 1920s (based on the archive drawings) there

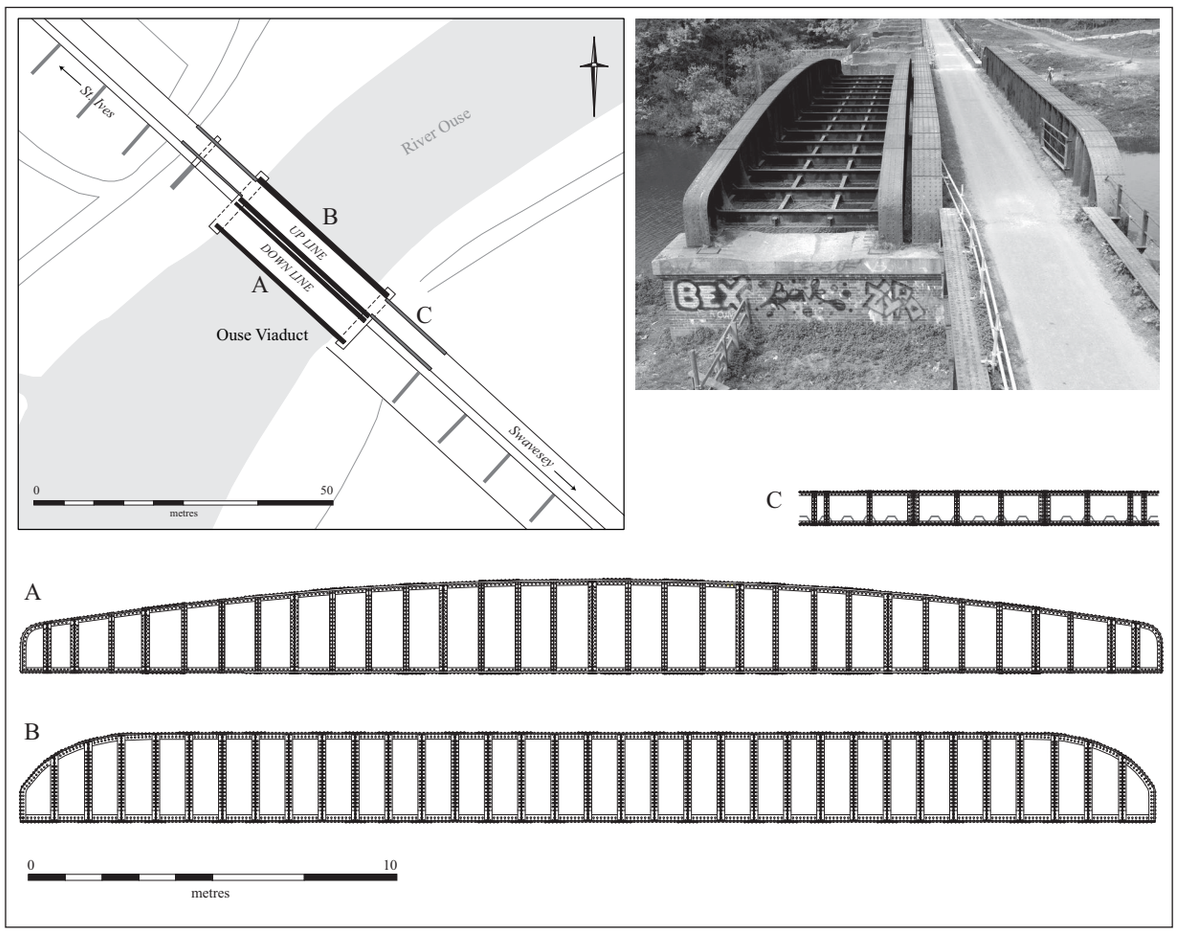

Figure 5. *Great Ouse Viaduct: A. south facing elevation (external) of south river span; B. north facing elevation (external) of north river span; C. general elevation (internal) of flood spans on north track.*

was no indication from them as to which might be the earlier. On the inside of the south parapet of the southern span was the scar of a maker's plate. Based on comparison of the shape it is likely that the bridge was made by either Westwood Baillie & Co, a London based marine engineering company who branched out into bridge building, or Westwood & Co, which continued the business after 1883. Westwood Baillie & Co. was founded in 1856 so the southern river span cannot date to earlier than that – some nine years after the railway was opened. Westwood Baillie patented a corrugated flooring system for bridges in 1875, the system used in the flood spans extending either side of the northern river span. This would tend to suggest the southern bridge probably dates to before 1875 as it does not incorporate this development. The corrugated floor system produced very light spans of up to 100 feet (30.5m) in length, easily wide enough to span the Ouse at this point. Whilst not provable on the available evidence it seems at least likely that the solid, heavily girdered northern river span (on which no maker's plate could be seen) belongs to the earliest days of this line whilst the much more lightly constructed southern span is at least a decade later in date and perhaps more. The flood spans either side of the northern bridge must be later replacements as they cannot date earlier than 1875. Their manufacture was probably by Westwood & Co, Westwood & Baillie's successor which was still in existence in the 1960s and which made parts of other river bridges on associated branch lines, including that at Godmanchester in 1894 (image 82/4/4A in a 1970 survey of the Cambridge to St Ives line by the Industrial Archaeology Society archived in the Cambridgeshire Collection).

The archive papers made available by the Guided Bus Contractor contain one interesting, though sadly undated, drawing which refers to a proposal for the "Proposed reconstruction of Br. No. 2272 […] between Swavesey and St. Ives using superstructure of Br. 2292 […] between Bluntisham and Earith". The St Ives to Ely branch line was fully opened on 10th May 1878 (Paye 1982, 12). The line was never very popular and was closed to passengers in 1931. Among the river crossings constructed was a viaduct over the Ouse about halfway between Bluntisham and Earith. Westwood & Baillie were not involved, the iron girder construction being left to Messrs. Cochrane, about whom no more is known. The girder construction used appar-

ently required several concrete filled iron cylinders in the waterway, which the Westwood & Baillie system would have avoided. The construction was fraught with difficulties and delays, but was eventually completed. Paye refers to the viaduct as "the most substantial item of civil engineering on the branch […] used as a landmark by RAF crews approaching Mepal or Somersham during and after World War Two" (*ibid*, 23). The section of the line including the viaduct was closed completely in 1958 and the line lifted within a year. This presumably dates the reuse of the span sections at St Ives to about that time. The Earith viaduct had 16 skew spans, which had to be straightened and shortened for reuse at St Ives. Nineteen were required so three new ones had to be made, the drawings for which also survive in the archive. Again these are clearly not on the Westwood Baillie model. As the northern line spans are of the Westwood Baillie type the replacement spans must have been used on the southern down line side. They were removed at some point after the closure of the line leaving only the empty brick piers. The Ouse Viaduct was demolished in mid 2007.

The Archaeological Sites

Swavesey

The village of Swavesey lies on the fen-edge approximately 10 miles northwest of Cambridge and is located primarily upon two First Terrace gravel islands, with that to the north being smaller than the southern. The islands rise to an approximate high of 15m OD, with the 4m OD contour correlating generally to the fen-edge prior to drainage during the Medieval and Post-Medieval periods (Cambridgeshire County Council 2001). Both the sites (Swavesey in-track, centred at NGR 536265/269496; and the Kiss & Ride site centred at NGR 536468/269512) were located on the northern periphery of the north gravel island at a height varying between 3.8m and 5.1m OD (Fig. 6).

Swavesey has seen a number of archaeological investigations over the years (Cessford and Mackay 2004; Cooper and Kenney 2001; Cooper and Spoerry 1997; Evans 1990; Roberts 1998; Spoerry 1996; Whittaker 2001, Willis *et al.* 2008), and its history from the Saxo-Norman period onwards is also well documented, (Elrington 1989). Less well understood are aspects of the earlier history, particularly on the peripheral areas of the island. Prior to the Guided Busway investigations the only pre-Iron Age activity noted within the immediate vicinity was a low density scatter of worked Neolithic flint recovered at Blackhorse Lane, sufficient only to suggest the landscape was not being densely utilised at this time. The earliest known settlement in Swavesey, also located at Blackhorse Lane, was dated to the Late Iron Age/Early Roman period, and included an Early Roman kiln (Evans 1990) and at least two further kilns of the Late Iron Age/Early Roman period (Willis *et al.* 2008). No evidence for later Roman occupation has been identified to date within the village itself; however, a recent evaluation some 400m to the northwest discovered relatively dense Romano-British activity in the form of a droveway and accompanying enclosure ditches (Murrell 2007). This evaluation indicated the presence of an extensive area of agriculture attached to a significant rural dwelling/settlement dated to the later Roman period. The only other known Romano-British finds recovered within the vicinity are some pottery and quern stone fragments found *c.* 500m to the west of the village (Cambridgeshire Historic Environment Record (CHER) 3481), and a quantity of pottery discovered during drainage works on the Swavesey Drain on Mare Fen, just north of the village and some 200m northwest of the Kiss & Ride site (Evans 1990).

Archaeological evidence suggests that Swavesey village has been continuously occupied since Saxo-Norman times, and St Andrew's, the parish church, is known to have its origins in the Late Saxon period (Taylor 1998, 85). A Benedictine priory was built around the church grounds by 1086, the surviving earthworks of which can still be seen. These lie 100m southwest of the Kiss and Ride site and abut the southern edge of the in-track site. Domesday Book documents that at this time the population of the village was 65, however by the end of the 13th Century it is recorded as having grown to '212 holdings', equating to an estimated population of 1000 (Ravensdale 1984). The manor, located on the site of the current Manor Farm and some 150m to the south of the Kiss and Ride site, changed hands several times within this time span, but it was under the Zouche family that Swavesey saw much of its growth. The building of a canal (known within the Fens as a 'lode') from the River Ouse to the market place and establishment of a quayside or 'hithe', together with the granting of a market and fair by Henry III in 1244 led to Swavesey becoming a locally important economic centre. Archaeological evidence shows both herring and marine shellfish were processed here in commercial quantities for use throughout the area (Spoerry 2005).

The construction date for the castle at Swavesey is unknown; however, it is acknowledged that a castle existed or had existed by 1476, because by then the area around 'Castle Mound' was known as the castell croft (Hall 1996). The presence of a castle demonstrates that Swavesey had grown sufficiently to become strategically and economically important enough to warrant it. Suggested dates and reasons for its construction are: campaign of Ely in 1070–71, the baronial unrest (or Anarchy period) of the 1140s (Elrington 1989; Ravensdale 1984) or the troubles in the late 13th century when the uprisings of Simon de Montfort led to the raiding of villages along the fen-edge (Taylor 1998). More recent interpretations, however, tend to place the castle's construction within the Anarchy period of the mid twelfth century (Spoerry 2005).

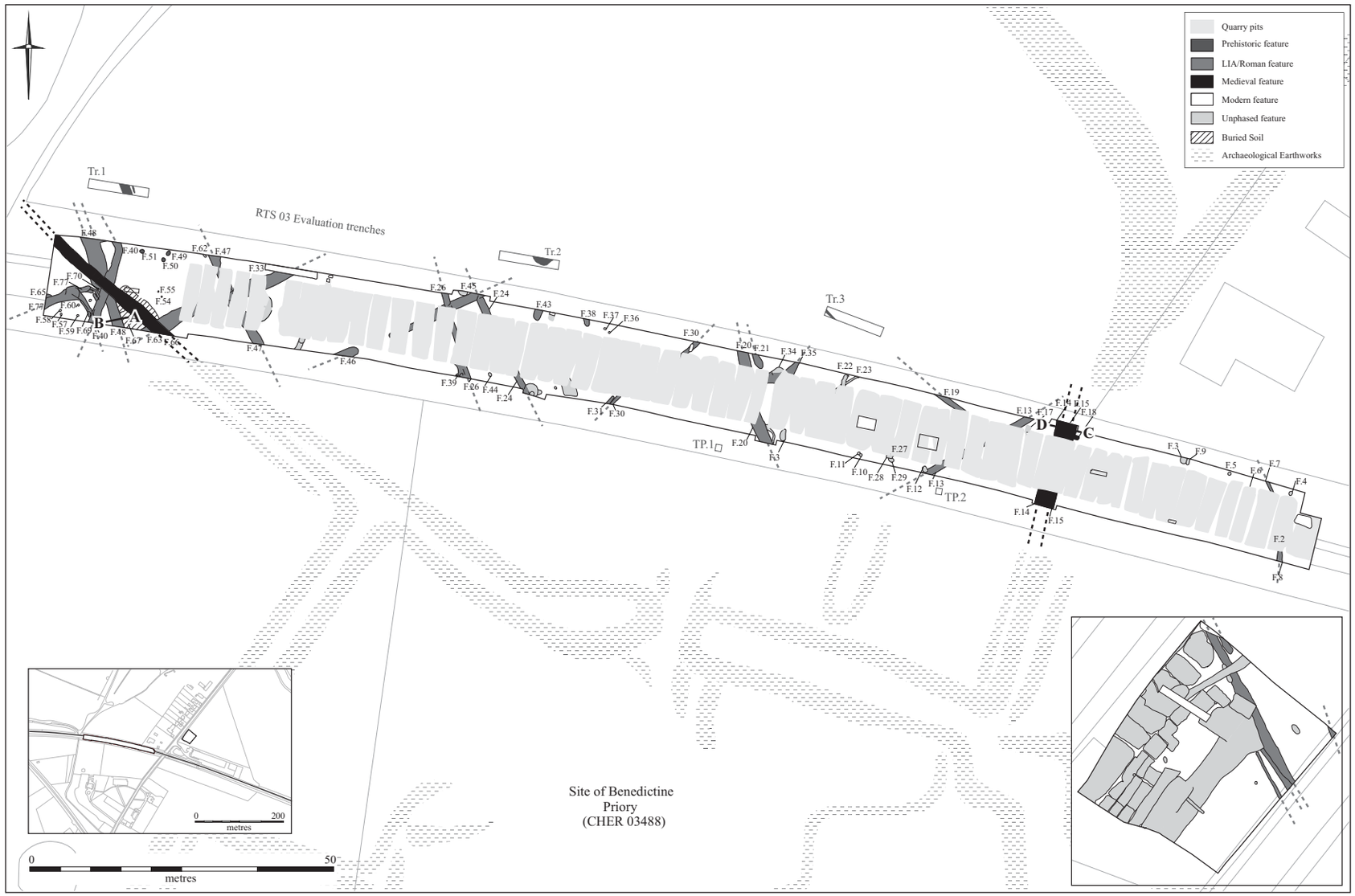

Figure 6. *Location of Swavesey sites.*

The construction of the railway in the 1840s led to the infilling of parts of the lode, leaving a pond adjacent to what is now Station Road and another one at Market Street. Swavesey's waterborne trade was still such, however, that it was considered necessary to build the New Dock, which abuts the western edge of the in-track site. The actual route of the lode into the centre of the village is not precisely known and it has been theorised that an off-shoot of it may have led to the Benedictine Priory, possibly crossing the in-track site, and may still be visible today as an earthwork (Cambridgeshire County Council 2001).

There are also several dated and undated sites listed on the Cambridgeshire Historic Environment Record (CHER) that bear some relevance to these two sites and their potential for archaeology. CHER 08897, some 200m southeast of the level crossing that divides the two sites, is purported to be the location of Swavesey Manor and its associated structures. CHER 09128 which lies directly adjacent to the northern edge of excavation for the in-track site was identified through aerial photography and seemingly consists of possible enclosures and trackways that have been tentatively dated to the Medieval period and linked to the Benedictine Priory.

The investigations

Four principal phases of activity were identified across the two sites: prehistoric, Late Iron Age/Early Roman, Medieval/early Post-Medieval and Post-Medieval/modern. All four were recorded on the in-track site, but only Late Iron Age/Early Roman and Post-Medieval on the Kiss and Ride Site.

Contributions from the several specialists have been incorporated into the text, however the most significant reports (Late Iron Age and Roman pottery, faunal remains and macro-environmental) are presented in full later in the report).

Additional specialist contributions are from: Mark Knight (prehistoric pottery), Lawrence Billington (flint) and Simon Timberlake (pollen and worked stone).

Prehistoric

In the assessment report three pits (F.49, F.50 and F.51) were tentatively assigned to the Neolithic (Collins and Dickens 2009, 19). Subsequent re-evaluation of the environmental remains together with radiocarbon dating indicates that they are unlikely to be quite this early. The pottery recovered from one of the pits (13 fragments weighing 18g – Mean Sherd Weight (MSW) 1.4g) was made up entirely of plain body sherds with a corky or vacuous appearance and without original surfaces (Knight in Collins and Dickens 2009, 32). This small assemblage could represent the degraded remains of an Early Neolithic bowl, a Grooved Ware (Clacton sub-style) vessel or a Deverel-Rimbury Urn. All that can be said with any confidence is that the sherds are prehistoric and probably belong to the Neolithic or Bronze Age.

Despite the date of the pottery, however, the same pit produced a good assemblage of plant remains more comparable to other Romano-British samples across the site than to an earlier period. Accelerator Mass Spectrometry (AMS) radiocarbon dates were obtained from two oat caryopses (the dry seed-like fruit produced by cereal grasses), a single wheat/barley grain (*Triticum/Hordeum* sp, the only cereal grain present) and a wild grass seed. The oats dated to the Middle Bronze Age (Cal BC 1530 to 1410; Beta - 281362) and the other seeds to the mid to late Roman period (Cal AD 130 to 350; Beta - 281361). Oats are known to have been cultivated in the Iron Age and, though this would be a rare find for the Bronze Age, wild varieties were probably brought in relatively early from the continent as contaminants of cereal crops (Greig 1991). The mid-late Roman date is more unexpected as the pottery finds elsewhere on the site point to a Late Iron Age/Early Roman date for most activity (see below). The pit was very shallow (0.33m deep) and it is not unusual for small later ecofacts to contaminate the upper fills of earlier features. Without any additional evidence for a mid-late Roman presence on this site these assemblages must be interpreted with caution, bearing in mind the possibility of later intrusive macro-remains.

Regardless of the later dates suggested for the features, one pit and other areas of the site did produce a background level of flint indicative of earlier activity in the vicinity. An assemblage of 32 worked flints (173g) and three burnt unworked flint chunks (65g) were recovered from the in-track site. The assemblage provides good evidence for Mesolithic/earlier Neolithic activity taking place in the area, visible only in the form of residual lithic material incorporated into later features.

The unretouched flakes consist mostly of hard hammer struck pieces of irregular morphology, which are typical of flake-based industries of the later Neolithic and Bronze Age. Two blades from a later ditch together with several flakes with carefully trimmed platforms from the surface of the site and an undated posthole are suggestive of Mesolithic or earlier Neolithic activity. A core rejuvenation flake from one of the possible earlier pits is strongly suggestive of dedicated blade production and also indicates Mesolithic or earlier Neolithic flintworking. A multiplatform flake core was recovered from a small undated pit. This piece had been carefully reduced and rotated until no further removals could be made. The efficient use of raw material evidenced by this core and the quality of flaking could indicate a Neolithic date for this piece.

The retouched elements of the assemblage contain an unusually high density of generally rare tool types in the form of two piercers and two notched blades. All four of these pieces were manufactured on blade or narrow flake blanks, and their forms are strongly suggestive of later Mesolithic or earlier Neolithic technologies. Their appearance in a small assemblage such as this, unassociated with more common tools such as scrapers, might suggest a discrete episode of non-residential, specialised activity.

Late Iron Age/Early Roman

On the in-track site, features attributed to this period included a series of 16 ditches, most of which were either on a northeast-southwest or northwest-southeast orientation (Fig. 7 upper shows the section of one of these). Three probable ditch termini, again orientated northeast-southwest or northwest-southeast, a curving ditch, four pits and a possible beam slot were also found. Grouped towards the southwest corner of site was a series of five curving gullies and gully segments, all of which were truncated by the same ditch. Also present were six postholes and two stakeholes adjacent to each other. The postholes were primarily grouped in the southwest corner of site and potentially represented part of a structure. This was, however, difficult to determine definitively due to their proximity to the edge of the excavation area.

At the Kiss and Ride site the Late Iron Age/Early Roman activity identified was concentrated towards the northeast end of site and centred on a northwest-southeast orientated ditch which had several re-cuts, and a parallel gully. In the far northeast corner a possible second Roman ditch, was identified, and, although only partially exposed, appeared to be parallel to the first. These two ditches had a gap of approximately 9m between them.

The total of pottery from both sites was 81 sherds of Late Iron Age and Roman date. A variety of vessel fabrics were recorded (see Table 1), the most commonly occurring being the sandy greywares, which are typical of a Roman assemblage. Reduced sandy wares were also well represented. Most of the fabrics are likely to have been locally produced. Pottery kilns are known from work at Blackhorse Lane some 730m to the south (Willis *et al.* 2008) and with a peak at *c.* AD 50–70 the Swavesey in-track site would have been contemporary with this, although occupation probably continued beyond the production period of the kilns. The exceptions to the local material were two imported South Gaulish Samian sherds.

The assemblage primarily dates to the Late Iron Age/Early Roman period, with no evidence of activity after early/mid second century AD. The assemblage included Late Iron Age pottery occurring alongside 'Romanising' and Early Roman material. In Cambridgeshire this is not uncommon (Anderson in Evans and Knight 2008) and there is evidence of pottery made in the Late Iron Age tradition continuing beyond the Roman conquest and the introduction of 'Romanised' pottery. This therefore suggests the site peaked around *c.* AD 50–70, although occupation may have gone on until the early/mid second century

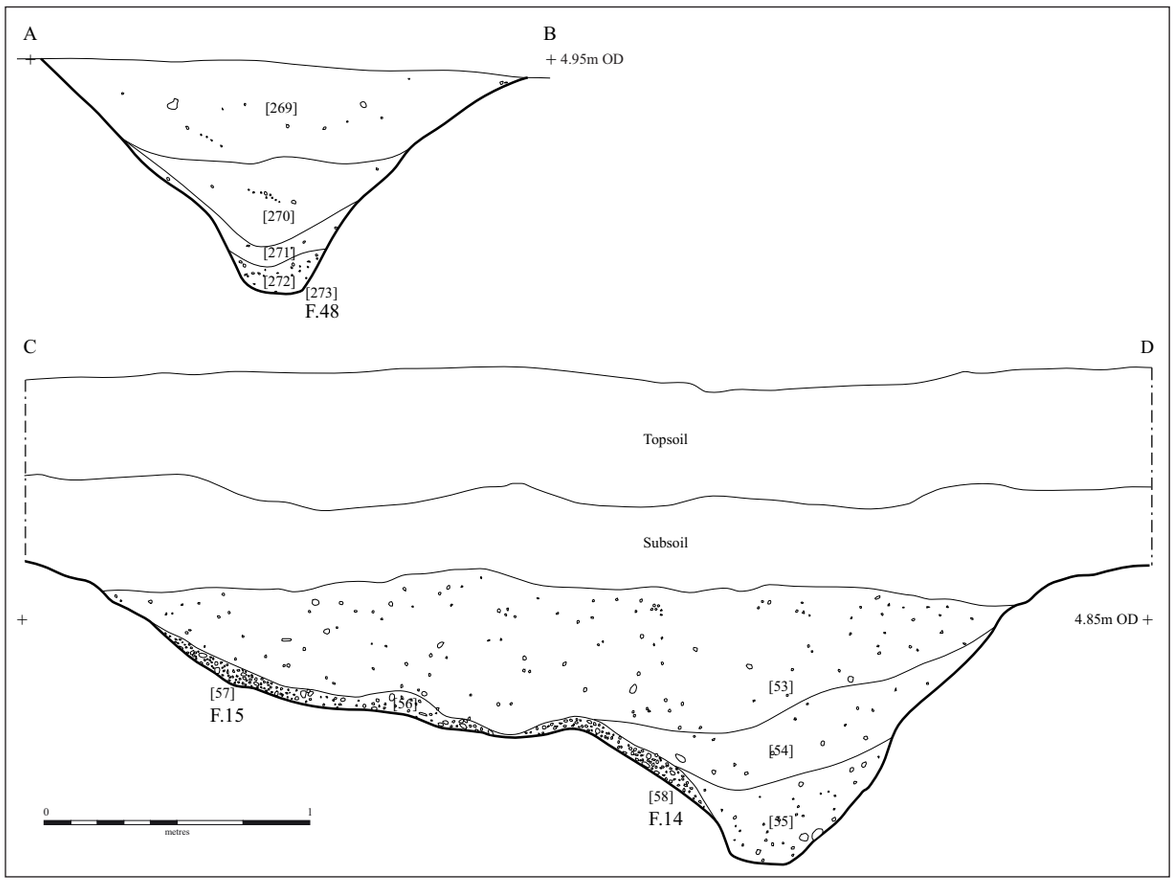

Figure 7. *Swavesey Feature sections: A–B north facing section Iron Age ditch F.48; C–D south facing section of medieval ditch F.14.*

Fabric	No. of sherds	Wt (g)
Black-slipped ware	3	48
Buff sandy ware	1	6
Coarse sandy greyware	44	459
Grog-tempered ware	6	109
Oxidised sandy ware	3	18
Reduced sandy ware	20	179
South Gaulish Samian	2	21
Whiteware	3	51
TOTAL	**82**	**891**

Table 1. *Swavesey Sites: all pottery by fabric.*

AD. The pottery is typical of a small rural site, with a small range of vessel forms present (largely due to the condition of the assemblage). The presence of the two Samian sherds implies that the site had access to wider trade networks, although the majority of the pottery is likely to have come from the immediate local area.

A rim fragment of what is probably the lower stone of a rotary hand quern, probably of an original diameter of approximately 380–400mm was found in a posthole on the in-track site. The original thickness would have been *c.* 40–50mm. The facies of this is a characteristically medium-coarse grained sandstone with both white and pink feldspar and some small clasts of rounded quartz pebble (<5mm), yet not obviously conglomeratic. The grinding surface of the quern is moderately worn. The likely history of this is that it was broken up after becoming too worn and thin for re-dressing, and may have been burnt during this process. The quern is made from Millstone Grit, probably of Southern Pennine origin. This quern stone appears to be quite typical of first–third century Roman sites in Cambridgeshire. The use of rotary querns appears to be dominant even in these rural contexts with common usage of stones such as Millstone Grit imported along road routes from the production sites in the Southern Pennines (Roman to Early Medieval quern stone quarries have been identified in North Derbyshire and South Yorkshire such as at Hathersage and Wharnecliffe Edge (Peacock 1998)).

Ten bulk soil samples from nine of the Late Iron Age/ Early Romano-British features on the in-track site were processed for plant remains, all of which were preserved through carbonisation. The two samples from the Kiss and Ride site were very poor with nothing from one and only four wild seeds from the other. These have not been included in the analysis. Quantities of cereal grains, chaff and wild plant seeds varied greatly between samples, but the types present remained consistent. Cereal types that could be identified with certainty through chaff were hulled six-row barley, spelt wheat, bread wheat and a little rye. Spelt was by far the dominant crop but the low presence of other cereals could indicate that types were not restricted to specific fields. Straight barley grains appeared more numerous than twisted ones, suggesting that two-row barley may also be present. Emmer wheat may have been grown, though probably as a persistent contaminant of spelt from earlier periods rather than an intentional crop. Oat caryopses were noted but, with the absence of floret bases, could not be confirmed as being wild or domestics. Other crops and herbs were not found. The samples appear to represent a specific spelt processing by-product and probably do not, therefore, provide an accurate representation of the original importance of various crops.

Two soil columns were taken for assessment of pollen, one from Early Iron Age pit/well (F.32) and one from the possible Late Iron Age/Early Roman enclosure ditch (F.48). Four sub-samples from F.32 and three from F.48 were prepared and examined. The samples were found to contain very little pollen (<20 grains each), and of the few grains that could be identified most were very poorly preserved. None of these could be identified to species level. The main reason for the poor preservation is the relatively high pH of the chalky/marly soils across the site.

In the faunal record cattle and cattle-sized specimens dominated the assemblage with other species being under-represented. Of the non-food domesticates, horse and dog are present and a single bird specimen was identified as domestic goose. A juvenile pig humerus sawn through the bone shaft was the only specimen showing signs of butchery. The small cattle-dominated faunal assemblage recovered from the two sites did not yield sufficient data to warrant detailed discussions about the economy; however, the quantity and range of species from such a small area appears to indicate the presence of a nearby rural settlement with relatively well developed agricultural practices.

Medieval/Post-Medieval

Four features were dated to this period at the in-track site, all ditches. Two, F.14 and F.15, were parallel to each other on a north-south alignment and shared a capping fill which meant no relationship could be determined (Fig. 7, lower; Plate 3B). These ditches extend into and are visible as an earthwork in the field directly to the south of the site. The most probable interpretation is that they are related to the remains of the Benedictine Priory located within this field. The other two ditches were also parallel to each other, but on a northwest-southeast alignment. These two features were also visible as an earthwork in the field to the south and again were probably also associated with the Priory (Plate 3A).

All four ditches were probably still visible as earthworks prior to the construction of the railway and were almost certainly backfilled as part of the construction process, as evidenced in ditches F.14 and F.15 by the topsoil derived backfill that constituted the upper fills and capping layer contained mid nineteenth century finds in the form of decorated tobacco pipe, pottery, brick and tile. The only finds recovered from the lower fills, which consisted of natural silting and weathering, were animal bones.

At the Kiss and Ride site a series of quarry pits

were orientated northeast-southwest, the same alignment as Over Road. All of the quarry pits excavated were very similar in size and profile, generally being rectangular in shape with very steep or near vertical sides leading to a flat base. Very few finds were recovered from any of the these, although sufficient dating evidence was retrieved to place this activity within the 1800s.

Railway related activity
Most of the 200m length of the in-track site was dominated by a succession of rectangular quarry pits that truncated much of the site, leaving around 2m clear on either side, where most of the earlier archaeology was observed. The relatively uniform nature of the pit fills and the lack of finds suggest that after sand and gravel had been extracted from the pits they were backfilled quite rapidly. The extracted sand and gravel was used to form a layer of compacted sub-ballast beneath the ballast layer on which rails and sleepers were placed. Other railway related features included a series of substantial telegraph postholes located on the northern side of the line. A record was made of the base of the former signal box, and an unsuccessful attempt made to locate the footings of the crossing keeper's cottage at Middle Fen Crossing some 200m west of the main excavation area.

Specialist Reports

Late Iron Age and Roman Pottery
Katie Anderson

General Methodology
All pottery was examined and details of fabric, form, EVE (estimated vessel equivalent), decoration, usewear and date, were recorded with any other information deemed significant. Vessel fabrics were recorded using the CAU fabric codes, as were vessel forms for Romano-British material. Middle/Late Iron Age forms were based on Thompson (1982) form codes. Sherds which could be refitted, or were clearly from a single vessel were recorded in one record, with a note made about the number of refitting sherds. If sherds from different contexts could be refitted, or were deemed to be from the same vessel, a note was made besides each entry.

Results
The two assemblages yielded a total of 81 sherds of Late Iron Age and Roman pottery, weighing 885g and representing 0.99 EVEs. Because of the close proximity of the two sites, the data have been combined.

The number of vessel forms was limited (three compared to six at Blackhorse Lane) which is largely due to the size and condition of the assemblage (Table 2). Jars were well represented (43% of all sherds, 94% of identifiable sherds), although only a minimum of five vessels were recorded, comprising two necked, beaded rim jars, two everted rim jars and one flat-topped beaded rim jar. By contrast the assemblage from the Blackhorse Lane kiln site was dominated by bowls (48.6%) with jars at only 11.0% (based on rim sherds; Willis *et al.* 2008, 64). The remaining diagnostic sherds comprised a sherd from a South Gaulish Dragendorff 18/31 dish (Webster 1996, 23) and a whiteware flagon.

Form	No. of sherds	Wt(g)
Dish	1	6
Flagon	1	33
Jar	35	479
Non-diagnostic	45	373
TOTAL	**82**	**891**

Table 2. *Swavesey Sites: all pottery by form.*

Most features contained fewer than ten sherds, with the exception of three features. Enclosure ditch F.33 contained the largest quantity of pottery, with 22 sherds (270g). This included the two Samian sherds, the flagon handle and a minimum of three coarseware jars. The pottery from this feature dated from the mid first to second century AD, and included some Late Iron Age/Early Roman material and some Early Roman pottery.

Ditch F.48, which is part of the same enclosure, contained 20 sherds (166g). The pottery was primarily Late Iron Age/Early Roman in date, and included several grog-tempered and reduced-sandy sherds. There were a small number of sherds which could only be dated Romano-British, although given the nature of the assemblage an Early Roman date seems most likely.

Well F.76 contained 20 sherds weighing 185g, including 18 sherds from a single vessel, a sandy greyware jar with a combed band of decoration, dating to the Early Roman period.

Faunal Remains
Vida Rajkovača

General Methodology
The zooarchaeological investigations at all sites followed the system implemented by Bournemouth University with all identifiable elements recorded (NISP: Number of Identifiable Specimens) and diagnostic zoning (amended from Dobney and Reilly 1988) used to calculate MNE (Minimum Number of Elements) from which MNI (Minimum Number of Individuals) was derived. Identification of the assemblage was undertaken with the aid of Schmid (1972), Hillson (1999) and reference material from the Cambridge Archaeological Unit reference collection. Most, but not all, caprine (sheep or goat) bones are difficult to identify to species however, it was possible to identify a selective set of elements as sheep or goat (expressed as sheep/goat) from the assemblages, using the criteria of Boessneck (1969) and Halstead (Halstead *et al.* 2002). Unidentifiable fragments were assigned to general size categories where possible. This information is presented in order to provide a complete fragment count.

Ageing of the assemblages employed both mandibular tooth wear (Grant 1982; Payne 1973) and fusion of proximal and distal epiphyses (Silver 1969). Where possible, the measurements have been taken (Von den Driesch 1976). Taphonomic criteria including indications of butchery, pathology, gnawing activity and surface modifications as a result of weathering were also recorded when evident.

Results
The total of 25 excavated contexts at Swavesey produced a small faunal assemblage amounting to 68 assessable fragments (3995g). The majority of the faunal remains came from ditches and gullies with a small number being recovered from pits (Table 3). The state of preservation was quite poor,

with the bone being affected by post-depositional fragmentation, weathering and surface erosion. The absence of gnawing marks in the assemblage is indicative of quick deposition of the material. A juvenile pig humerus sawn at an oblique angle through the bone shaft was the only specimen showing signs of butchery. The sawing of this element suggesting, perhaps, that bone working was practiced on site.

Feature	NISP	NISP%
Ditches	53	78
Gullies	10	15
Pit/Wells	5	7
TOTAL	**68**	**100**

Table 3. *Swavesey Sites: distribution of animal bone by feature type (NISP – Number of Identified Specimens).*

Six badger elements were recovered from ditch F.19 and are likely to belong to the same animal. In addition, a possible fox specimen was found in gully F.71, initially identified as dog. Measurements were taken of the two complete horse elements: humerus and a metacarpal both giving similar withers height estimates of 13.3 to 14.1 hands or pony-sized individuals (Table 4).

Taxon	NISP	NISP%	MNI
Cow	25	54	1
Sheep/goat	1	2	1
Pig	4	8	1
Horse	6	13	1
Dog*	4	8	1
Domestic goose	1	2	1
Badger	6	13	1
Total identified to species	**47**	**100**	**.**
Cattle-sized	13	.	.
Sheep-sized	8	.	.
TOTAL	**68**	**.**	**.**

Table 4. *Swavesey Sites: Number of Identified Specimens (NISP) and Minimum Number of Individuals (MNI); *includes possible fox specimen.*

Cattle seem to be the most commonly exploited animal both for meat and for traction on arable land, and the near absence of sheep/goat is not surprising when the topographical setting, in a low-lying wet area, is taken into consideration. The notable prevalence of cattle over other domesticates clearly indicates particular environmental or socio-economic factors favouring cattle over sheep husbandry. All conclusions, however, are based on a small sample and should be taken with caution.

Plant Remains
Anne de Vareilles

General Methodology
Bulk soil samples were floated using a modified version of the Siraf flotation machine (Williams 1973). Flots were collected in 300µm aperture meshes and analysed dry under a low power binocular microscope (6x–40x). Identifications were made using the George Pitt-Rivers Laboratory reference collection, University of Cambridge. >4mm fractions of the heavy residues were sorted by eye and all ecofacts and artefacts recorded. Nomenclature follows Zohary and Hopf (2000) for cereals and Stace (1997) for all other flora.

Results
Ten bulk soil samples from nine Late Iron Age/Early Romano-British features and one sample from a small prehistoric pit F.51 were processed for plant remains, all of which were preserved through carbonisation. Quantities of cereal grains, chaff and wild plant seeds varied greatly between samples, but the representation of taxa remained constant. Cereal types that could be identified with certainty through chaff were hulled six-row barley (*Hordeum vulgare* subsp. *vulgare*), spelt wheat (*Triticum spelta*), free-threshing hexaploid wheat (*Triticum aestivum* sl. – bread wheat) and a little rye (*Secale cereale*). Spelt was by far the dominant crop, but the low presence of other cereals could indicate that types were not restricted to specific fields. Straight barley grains appeared more numerous than twisted ones, suggesting that two-row barley (*H. vulgare* subsp. *distichum*) may also be present. Emmer wheat (*Triticum dicoccum*) may have grown, though probably as a persistent contaminant of spelt from earlier periods rather than an intentional crop. Oat (*Avena* sp.) caryopses were noted but, with the absence of floret bases, could not be confirmed as wild or domestics. Other crops and herbs were not found. The samples appear to represent a specific spelt processing by-product and probably do not, therefore, provide an accurate representation of the original importance of various crops. Barley, rye and bread wheat are likely to have grown as individual crops, but are poorly represented here, only occurring as contaminants of spelt. It is worth noting, however, that spelt processing waste is repeatedly found on Late Iron Age/Early Roman sites in and round Cambridge where other crops only appear to occur as contaminants.

The wild plant seeds can all be classified as arable weeds. Of the estimated 30 weed types, a few species occurred in abundance throughout most of the samples; oraches (*Atriplex* sp.), scentless mayweed (*Tripleurospermum inodorum*) and grain-sized wild grass seeds always outnumbered other species. Smaller grasses, goosefoots (*Chenopodium* spp.), docks (*Rumex* spp.), knotgrasses (*Polygonum aviculare* and *Fallopia convolvulus*) and brassicas (wild cabbage – *Brassica/Sinapis* sp, wild radish – *Raphanus raphanistrum*, black mustard – *Brassica nigra* may have been used as flavouring) were frequent. Clover and/or medics (*Medicago/Trifolium* sp.), red bartsia (*Odontites vernus*) and corncockle (*Agrostemma githago*) were present in one or two samples.

The two samples from the Kiss and Ride site were the least productive with nothing from Roman ditch F.26 and just four wild seeds from ditch F.5. These have been excluded from the comparison in Fig. 8. Concentrating on the in-track area, ditches F.47 and F.20 accumulated only the occasional residual surface finds of charcoal, grains and wild seeds. Ditch F.35 contained a mix of barley, glume-wheat and free-threshing wheat grains, but no chaff and only one wild plant seed, whereas ditch F.25 had no grains but two glume-wheat glume bases and 26 arable weed seeds, 12 of which are scentless mayweed. Where the remains from ditch F.35 represent accidental losses during cooking or consumption, those from ditch F.25 are a by-product from a specific stage of crop-processing where seeds were positively removed over chaff – perhaps during a phase of sieving prior to pounding during which the hulled grain is released from its chaff. Four other samples contained grains, chaff and weed seeds, but all showed highest concentrations of chaff, followed by arable weed seeds and finally grain. Waste seen in F.25 was mixed

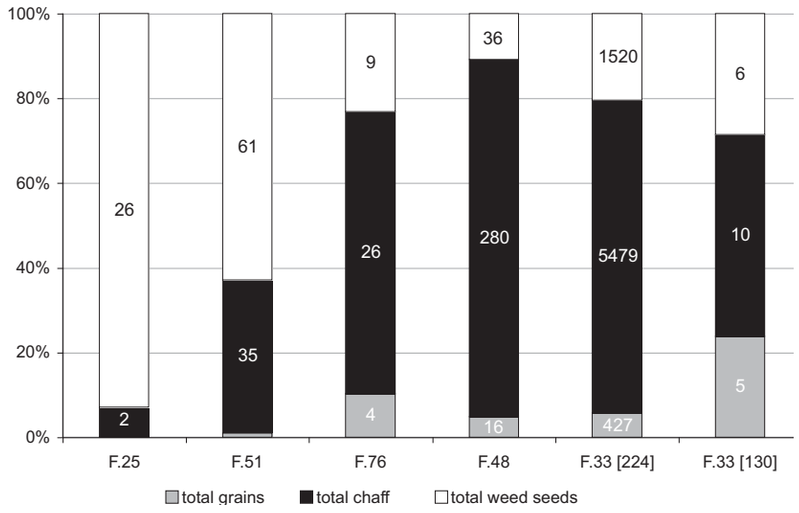

Figure 8. *Swavesey Sites: proportions of grain, chaff and seeds.*

with by-products from further final stages of crop cleaning (see below). Context [337] in the probable well F.76 was not waterlogged, but contained some charred plant remains in similar proportions to enclosure ditches F.33 and F.48. Although the well did not contain an intentional discard of burnt crop-processing waste (four grains, 26 elements of chaff and nine seeds), it is likely that such activities occurred nearby.

The relationship between ditches F.48 and F.33 could not be ascertained due to the limits of the open excavation area; however, it is likely that the two formed one rectilinear enclosure. Ditch F.33 was sampled in two locations which, though of practically equal soil volume, produced different results. Fig. 8 shows that despite containing similar proportions of grains, chaff and seeds absolute counts varied significantly. Whereas the plant remains from F.33 [130] are probably a haphazard accumulation of locally produced debris, the same burnt waste was intentionally discarded into the ditch during the formation of F.33 context [224]. A rich assemblage abounding in spelt wheat chaff was also recovered from F.48.

Of the 5400 glume bases found in ditch F.33, 3181, or 59%, could be identified as spelt wheat. Preservation of the remainder precluded identification beyond spelt/emmer or glume-wheat. Definite emmer chaff was not recovered. Another portion of the same flot was analysed at the assessment stage and revealed a little rye chaff and grain, confirming the presence of this cereal. Though not unheard of in prehistoric contexts, in East Anglia rye is almost always found in Romano-British layers. Rye chaff occurred in similarly low numbers to barley chaff despite barley grains being nine to ten times more common than those of rye. Free-threshing wheat, certainly of the hexaploid variety, is another cereal more usually associated with late Roman/Saxon sites (Greig 1991; Murphy 1997), yet it was found in small quantities in both F.33 and F.35. Rye and hexaploid free-threshing wheat were found in phase III (AD 270–410+) contexts at Vicar's Farm (Lucas and Whittaker 2001; Evans forthcoming *b*), which is fitting with a gradual diversification of crops during the Roman period (M K Jones 1984). Although one cannot exclude the possibility of intrusive later Romano-British remains, finds from ditches F.33 and F.35 are not the only examples of Early Roman introductions around Cambridge; indeed free-threshing wheat was found in Late Iron Age/Early Roman contexts at Papworth (Patten forthcoming) and the Hutchison site (Evans *et al.* 2008), and free-threshing wheat along with rye were found in Conquest period contexts at Castle Street, Cambridge (Evans and Ten Harkel 2010). Other species which mark the adoption of Roman crop and agricultural tools are stinking chamomile (*Anthemis cotula*) and corncockle. The latter was a weed introduced along with new cereal types. It was found in F.33 and could be further evidence of an Early Roman influence upon the local agricultural system. Stinking chamomile is an indicator of clay soils and its rise as an arable weed across Southern Britain during the Roman period is a sign that heavy mouldboard ploughs superseded the ard, thereby allowing agriculture to expand onto clay soils (MK Jones 1981, 1984, 1991). The complete absence of stinking chamomile could indicate that though new cereals were being experimented with, earlier tilling methods and tools were still in use. One sedge (*Carex* sp.) and many dock (*Rumex* spp.) seeds add to the evidence against deep ploughing since, like other perennials, they are very sensitive to deep ploughing. Field pennycress (*Thlaspi arvense*), of which a single seed was found, is described as 'possibly native' (Clapham *et al.* 1987; Stace 1997) and may have been introduced along with corncockle.

Only burnt cereal processing waste was found (Fig. 8). Those where the largest category consisted of chaff represent the later stages of processing during which glume bases, previously separated from the grain by pounding and/or parching, would be removed (Hillman 1984; G. Jones 1984). The weed seeds consisted mainly of small, free and heavy seeds and grain-sized seeds such as corncockle and large grass caryopses. The former category would be removed with the chaff during sieving, whilst the larger seeds, better 'camouflaged' within the grain, would have to be picked out at the final stage (G Jones 1984). It is also during these stages that small cereal tail grains, also present in the samples, are lost.

Rich, informative samples were found in this small strip of excavation, and although much can be said about the site's agricultural regime and crop husbandry, one should remember that only part of a potentially larger and far more complex site has been exposed. The remains show a specific by-product of the later stages of spelt processing waste

which appears concentrated in the enclosure delineated by ditches F.33 and F.48. The Kiss and Ride site and nearby Covells Drain (Murrell 2007) are comparatively poor in archaeobotanical remains suggesting that the aforementioned enclosure may have been the focus for post-storage spelt processing. It remains possible, however, that rather than being a centre for economic activities, the enclosure supported specific practices which required crop processing waste for its fuel. No evidence was found for earlier stages of processing which may have occurred outside the excavated area. The presence of various cereal types within a spelt dominated crop suggest that barley, rye and free-threshing wheat were also used and probably grown alongside spelt. These crops appear to have been sown in the immediate area of the site, above the wetter soils in the vicinity. A crop rotation system is envisaged whereby herds could have been left to graze and fertilise fallow land. It is possible that certain areas were unsuitable for herds as some soils appear to have been more nutrient rich than others.

Spelt, the most common cereal in the region's Iron Age, remained so until well into the Roman period. New introductions from the continent only became commonplace in the third century when they are often associated with the use of new technologies that enabled agriculture to expand onto heavy soils in order to increase production in a growing market economy (Grieg 1991; MK Jones 1984, 1991). Results from Swavesey in-track, albeit difficult to interpret because of the restricted excavation area and the possibility of contamination by later remains, fit within growing evidence for earlier Roman influences upon the agricultural system (see above). The data suggests that new cereals and their associated weeds were quickly included into the local admixture of crops. Conversely, Iron Age technology, namely use of the ard, appears to have persisted beyond the introduction of new crops and other trends in material culture. Few bones and pottery sherds, all of Late Iron Age/Early Roman date, were recovered from this area suggesting that if this area was settled in was only short-lived (see below). Rather than an inhabited area this site could be interpreted as an agricultural centre run by or for an adjacent settlement. Whilst its use may have peaked during the Late Iron Age/Early Roman, the mid-late Roman AMS date and the layout of the overlapping ditches suggest it may have been a focus for agricultural activity over several centuries.

Radiocarbon Dates
Beta Analytic

AMS dates were obtained from two oat caryopses, a wheat/barley grain (*Triticum/Hordeum* sp.) and a wild grass seed all from pit F.51. The results are shown in Table 5.

Discussion

Other than the poorly defined earlier aspect shown by flint and the earlier pottery associated with the three pits, the later impact of the Benedictine Priory and, more significantly the railway, the main period of activity at both sites is Late Iron Age/Early Roman in date, and this seems to have ended by about AD 70. This is slightly complicated by the later Roman date from the oat caryopses, but there is not sufficient data to resolve this apparent contradiction at this time.

Given the physical limitations of both sites it is difficult to determine with precision the nature of the activities represented; however it is likely that the ditches represent part of a field system on the fen-edge associated with the agricultural practices of a rural settlement. The relative lack of finds from these features supports the view that they were at some distance from a settlement centre. The number of ditches present and the instances of intercutting between them and between ditches and other features indicates a certain longevity to the activities taking place. Although there is a greater density of features at the west end of the in-track site indicating a concentration of activity, the orthogonal nature of the other ditches suggests a deliberate organisation of the land running down to the fen-edge. Whether this should be seen as fields or enclosures is difficult to determine based on the exposure, but the arrangement indicates that they cannot all be entirely contemporary. The main ditch orientation at the Kiss and Ride site parallels that of the in-track site with the possibility of a 9m wide track clipping across the northeast corner. Though the quantities of material were small, there is enough to confirm that this is part of the same landscape arrangement seen on the larger site.

Based on the pottery there is no evidence of activity at either of the Swavesey sites after early/mid sec-

Sample Data	**Measured Radiocarbon Age**	**13C/12C Ratio (delta 13C)**	**Conventional Radiocarbon Age(*)**
Beta - 281361	1770 +/- 40 bp	-24.6 o/oo	1780 +/- 40 bp
Sample: Swavesey in-track F.51 *Triticum/Hordeum* sp. Analysis: AMS-standard delivery Material/pretreatment: (charred material): acid/alkali/acid			
2 sigma calibration:	Cal AD 130 to 350 (cal bp 1820 to 1600)		
beta - 281362	3140 +/- 40 bp	-21.6 o/oo	3200 +/- 40 bp
Sample: Swavesey in-track F.51 *Avena* sp. Analysis: AMS-standard delivery			
2 sigma calibration:	Cal bc 1530 to 1410 (cal bp 3480 to 3360)		

Table 5. *Swavesey in-track site: Report of Radiocarbon Dating Analyses. * Dates are reported as RCYBP (radiocarbon years before present (bp), 'present' = 1950).*

ond century AD. In contrast with the Windmill Site at Swavesey (see below) there is not only Late Iron Age pottery occurring alongside 'Romanising', but also true Romanised pottery. The quantities recovered at Swavesey were very small (81 sherds compared to 891 at the smaller Windmill site). The indication is that the Swavesey site was not domestic in nature, since a much greater volume of material culture would be expected if that were the case. This interpretation is supported by both the faunal and environmental evidence. For the animal bone the small cattle-dominated faunal assemblage recovered from the two Swavesey sites did not yield sufficient data to warrant discussions about the site's economy; there is evidence, however, of the presence of nearby settlement with relatively well developed agricultural practices. Cattle seem to be the most commonly exploited animal both for meat and for traction on arable land. The near absence of sheep/goat is not surprising, if the topographical position is taken into consideration. In these lower lying wetter areas the prevalence of cattle over other domesticates supports the presence of factors favouring cattle to sheep husbandry, amongst which would be environmental conditions.

A broad interpretation of the activity at the Swavesey sites would be that they lie outside the area of any intensive settlement, but are related to it, as a focus for agricultural activity, perhaps secondary processing or storage or perhaps providing the fuel for a separate and unidentified activity. The location, close to the fen-edge, may indicate a collection point of sorts, perhaps where the products of several processes were gathered together, either for redistribution or to provide the raw material for further processing.

Although the nature of the material excavated, and the necessary physical restrictions of the site itself, do not allow for more detailed or thorough interpretation, it has allowed for a significant expansion of the area of Swavesey's north island occupied in the Late Iron Age/Early Roman period, right up to its northern edge. The site was selected for excavation because of the presence of the Priory earthworks and yet that turned out to be a very minor element of the area's history.

The 'Windmill' Site
Landscape and Ecological Mitigation Area (LEM) D

The Landscape and Ecological Mitigation Area (LEM) D site (henceforth the 'Windmill' site), centred on NGR 538128/268857, is located approximately midway between the villages of Longstanton and Over on land off Gravel Bridge Road (Fig. 9). It is bordered by open farmland to the north and east, the route of the Guided Busway to the south and Gravel Bridge road to the west. The site slopes upwards from the northwest end from 12.8m OD to a maximum height of 15.3m OD before sloping downwards to the southeast end at 11.6m OD. The investigation revealed a varied geology across the site, with the northwest end being generally yellowish sandy Boulder Clay with patches of Third Terrace river gravels. Moving southeast, this rapidly changed to blue grey Ampthill Clay, before becoming glacial gravels as the site sloped upwards. Towards the base of the slope at the southeast end of site the geology once again reverts to blue grey Ampthill Clay (British Geological Survey 1975).

Prior to this investigation very little was known about the archaeological potential of the immediate area. A Guided Busway evaluation 200m to the southwest (Cessford and Mackay 2004, 11–13) and the excavation of Landscape and Ecological Mitigation Area C 300m to the northwest (Collins and Dickens 2009, 49–51) revealed almost no archaeology beyond some background Post-Medieval activity. Slightly further afield, however, some 1.2 kilometres northeast of the site, excavations during the 1960s at Cold Harbour Farm near Over had revealed evidence of fairly substantial Late Iron Age and Roman rural settlement, including a Roman pottery kiln (Hall 1996).

Other possible sites within the vicinity were also identified from cropmarks during the Fenland Project and included two conjoined rectangular enclosures (CHER 11133) some 2–300m to the northwest, tentatively dated either Iron Age or Roman based on their form (Hall 1996). These sites have not otherwise been investigated.

It is also not known to what extent archaeological remains were compromised by the 1840s construction of the railway cutting bordering the southwest edge of the Windmill site. A watching brief for the Guided Busway, carried out along the stretch of line immediately east of the cutting (about 500m east of this site), however, revealed the partial remains of an Early–Middle Iron Age pot (M. Brudenell pers. comm.) which had a small quantity of cremated bone associated with it, indicating the presence of at least later prehistoric activity in the environs of the site. Only one gramme of buff white, well calcined bone was recovered in association with the sherds. The cremated bone fragments were small, the largest being 14mm and were unidentifiable as either human or animal (N. Dodwell pers. comm.).

Adjacent to the northwest edge of site is the Grade II listed Over Windmill dated to *c.* 1840 and restored to working order in the late 1960s.

The Investigations

As the Windmill site was not covered by the initial evaluation phase, a trenching phase was carried out first. Geophysical survey appeared to show a circular structure neighbouring the windmill, suggesting perhaps that a precursor to the current mill may have existed. The geophysics results also highlighted several possible linear features grouped towards the western half of the site, and a series of amorphous looking possible features on the summit of the slope towards the middle of site, but very little else (Collins and Dickens 2009, fig. 15).

The 20 trenches were partly positioned to test potential features identified through the geophysical

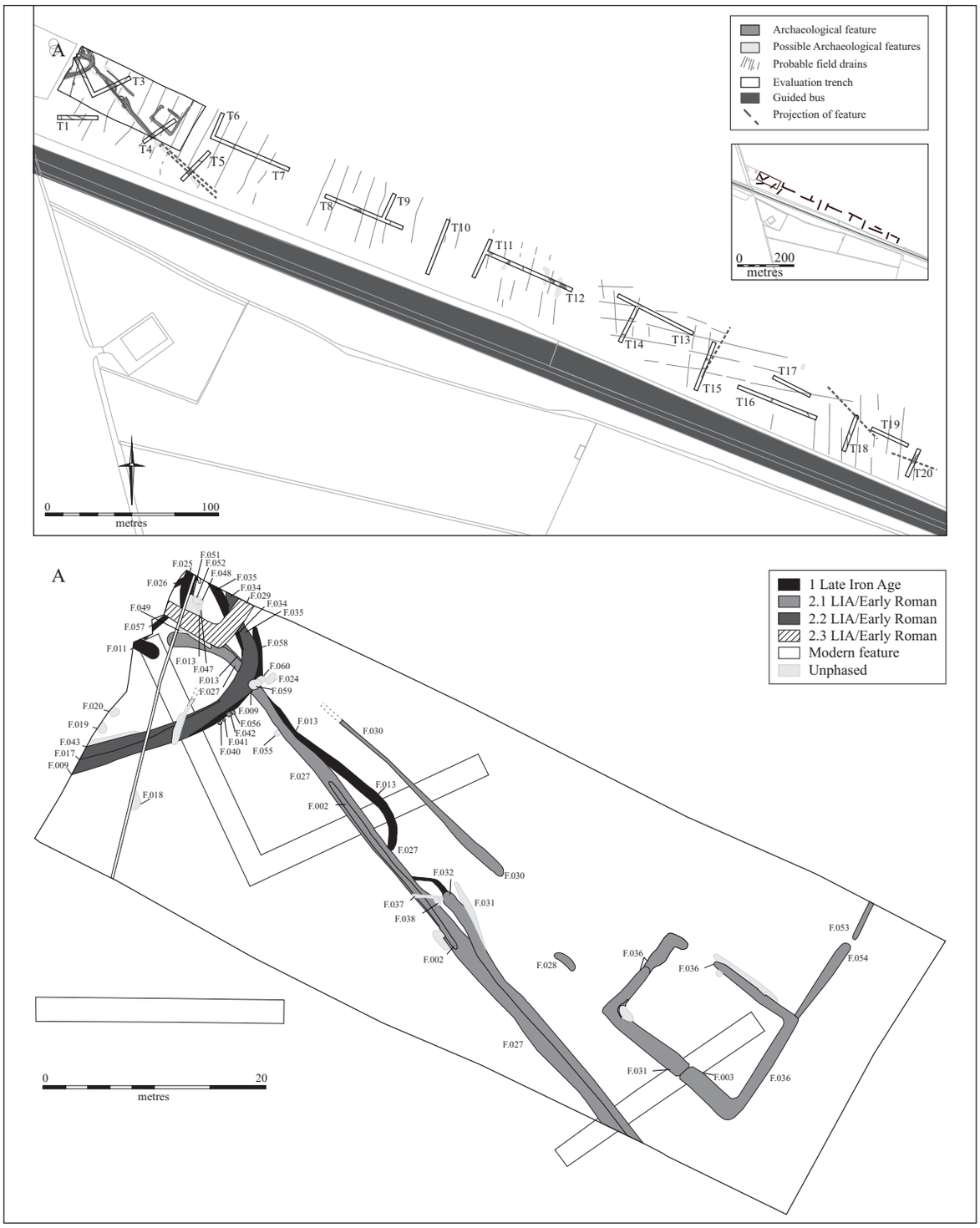

Figure 9. *Windmill Site: Excavation and trench locations.*

survey and partly to test apparent blanks. Ten of these trenches contained archaeology, most significantly 11 ditches recorded in trenches at the northwest end of site, with most of these yielding quantities of pottery, dated Late Iron Age/Early Roman, and faunal remains. The trenches in the central part of the site revealed a series of intercutting Post-Medieval quarry pits and those towards the southeast revealed four small ditches, yielding Roman pottery and animal bone, a small pit dated Late Iron Age and a Post-Medieval ditch.

Based on these results it was determined that an

area approximately 80m by 30m at the western end of the site should be examined by open area excavation. The area excavated was on a slight slope rising upwards from a height of 12.7m OD along the northwest edge to 13.8m OD in the northeast corner. A significant amount of archaeology was revealed, mostly dating to the Late Iron Age/Early Roman period but with elements of Early – Middle Iron Age as well.

Contributions from the several specialists have been incorporated into the text, however, the most significant reports (prehistoric pottery, late Iron Age and Roman pottery and faunal remains) are presented in full later in the report.

Additional specialist contributions are from: Anne de Vareilles (plant remains), Lawrence Billington (flint), Simon Timberlake (slag and worked stone) and Natasha Dodwell (Human bone).

Earlier Prehistory

There was very little indication of earlier activity, with only 11 flints recovered from later features across the whole site, suggesting only a background usage of the area during that time.

The worked flint assemblage was dominated by unretouched waste flakes. These represent a simple flake based industry concerned with the expedient removal, by hard hammer, of flakes of varied morphology demonstrating a lack of concern over core maintenance or platform preparation. Two cores amplify the attributes seen in the flakes. Both are irregular, multiplatform flake cores with numerous knapping errors in the form of incipient cones of percussion, crushed platforms and hinged flake scars. Little attempt has been made to work consistently from a dominant platform with flakes being opportunistically removed from any potential platform. The technological traits of the flakes suggest a later prehistoric date; they are typical of the undiagnostic elements of flint working throughout prehistory from the later Neolithic onwards; however, the lack of flaking control and anticipation evidenced in the cores suggest a later Bronze Age date for these pieces at least. A single retouched tool, an end scraper, was recovered. An expedient product made on an irregular flake, this piece is not strongly diagnostic, but the character and quality of the retouch suggests a Neolithic or Early Bronze Age date.

The earliest datable ceramics from the Windmill site were residual sherds of late Early Iron Age pottery recovered from later ditches and gullies (Fig. 10.1, 10.2). The pottery included several finger-tipped rims sherds, a round bodied bowl with everted rim and an ovoid jar with finger-tipped rim and shoulder. Some of the fabric types observed continue to be used into the Late Iron Age, particularly the plain shelly wares (see below). Similar late Early Iron Age material has been found at Rhee Lakeside South, Earith (Brudenell 2007) and Knobbs Farm, Somersham (Brudenell 2008). Both of these assemblages have been dated on typological grounds to the Early–Middle Iron Age transition around the fourth century BC. The early pottery from the Windmill site is probably broadly contemporary with these assemblages, and shares fabrics and forms of decorative treatment in common. Given the presence of these Early Iron Age sherds in several ditches also yielding Late Iron Age pottery, it is possible that there were earlier features along these axes, which were disturbed during later boundary construction.

Late Iron Age/Early Roman

Based on pottery finds and stratigraphic relationships the archaeology divides into two main phases of activity, the second with three sub-phases.

Phase 1, the features of which contained only Iron Age Pottery, consisted of a small number of ditches and gullies. Two curving ditches, orientated northwest-southeast formed a possible entrance. To the west were several short lengths of ditch, most of which were truncated by later features, so their full extent was unclear.

In Phase 2.1 the line of the earlier curving ditches was superseded by a much more substantial ditch, which removed the possible entrance. This ditch was recut at least once. Amongst the features north of this boundary was a small rectangular enclosure, F.36, with an internal area measuring 13.5m by 8.5m (approx 115m^2) and an entranceway measuring 3m wide. Among the few finds recovered were Late Iron Age/Early Roman pottery, including 32 sherds from a single vessel (see below), faunal remains and fragments of lava quern. The enclosure appears to have been originally dug in segments, with two obvious terminals closely abutting each other along the southwest side. At some stage the northeast edge and the western corner were recut. Apart from a single posthole lying slightly to the southeast of the entranceway no internal features were identified.

In Phase 2.2 the line of the main boundary ditch was breached by a substantial ditch, again with several recuts, curving from a northeast-southwest orientation to a northwest-southeast one, disappearing into the west and north baulks. Generally, the archaeology grew progressively denser towards the northwest corner of the site suggesting that the focus of settlement was probably located just beyond the site boundary in this direction. Indeed, it is likely the Over Windmill is situated on top of substantial earlier archaeological remains. The curving ditch contained significant quantities of domestic rubbish suggesting it was used as a dump after it fell out of use.

In Phase 2.3 a ditch with a 90-degree angled corner cut through the main boundaries of Phases 2.1 and 2.2 and again contained Late Iron Age/Early Roman pottery, as well as some Romanising sherds. Its form suggests this ditch is the corner of an enclosure and could represent a settlement boundary, although this could not be demonstrated conclusively within the confines of the excavated area.

A fairly substantial assemblage of Late Iron Age and Early Roman pottery was recovered from the Windmill site, totalling 891 sherds of pottery (9409g) and representing 6.3 EVEs (see Fig. 10.3, 10.4, 10.5, 10.6). A total of 29 features contained pottery in vary-

ing quantities. Most of the Late Iron Age sherds, dating between *c.* 350 BC – AD 50, cannot be closely dated within this bracket, and unhelpfully no wheel made or cordoned sherds were recovered; however, the presence of a vertically combed sherd from the Phase 1 curved ditch is important in this context, as this form of surface treatment is characteristic of Late Iron Age coarseware pottery dating from *c.* 50 BC – AD 50. The ditches that cut it must therefore post-date 50 BC, making them both of Late Iron Age date rather than transitional.

The Roman wares consisted of sandy greywares, whitewares and buffwares, with some grog-tempered vessels. There were no Roman sherds identified from known sources and a complete absence of imported Samian or amphora. This dearth is likely to reflect the period of occupation, with the site appearing to have gone into decline by the mid/later first century AD, before the Roman period (in terms of ceramics) had fully emerged. In many ways the most interesting element of this assemblage is its date, which although suggesting occupation was relatively short-lived, does put the date of occupation at around the time of the Roman Conquest. The pottery dates to *c.* 350 BC – AD 69, although, given that handmade wares occurred alongside wheel-thrown 'Romanising' wares, as well as a lack of established Roman wares, a more precise date of AD 0–60 is suggested. After the Conquest, it was some time before changes to indigenous pottery could be seen in this area of East Anglia. Often the only evidence of contact with the Roman world during this early period is the presence of imported wares, namely Samian wares and amphorae, both of which are absent from this assemblage.

The faunal assemblage recovered from the Windmill Site comprised 154 assessable specimens weighing 4824g. Dating of the assemblage was based on data obtained from the pottery analysis, placing most of this material into the Late Iron Age/ Early Roman period. The majority came from linear and en-

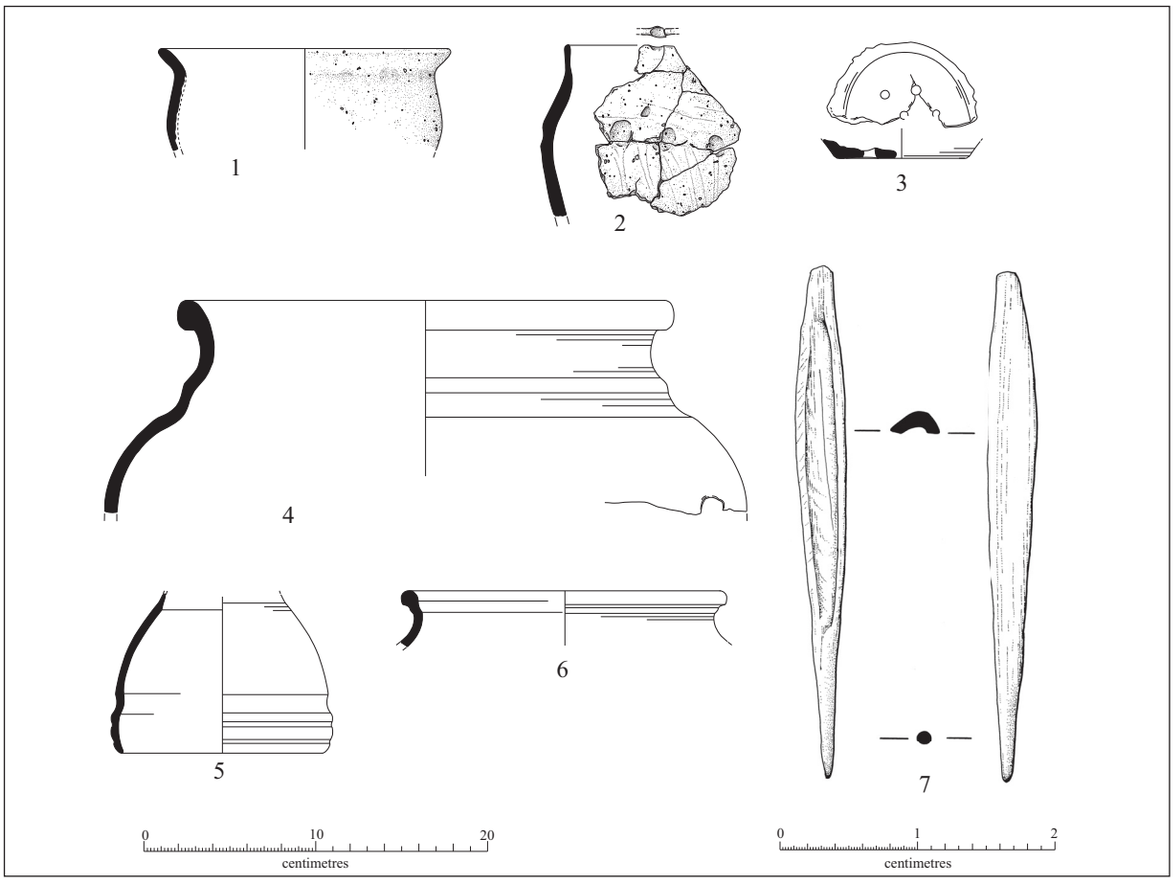

Figure 10. *Windmill site finds.*
1. Round bodied bowl with everted rim. Early Iron Age
2. Ovoid bodied jar with short upright neck, decorated with finger-tip impressions on the rim-top and shoulder. Early Iron Age
3. Perforated base, probably from a strainer. Late Iron Age
4. Grog- and sand-tempered jar, with a cordon on the rim. Late Iron Age/Early Roman.
5. Sandy lid with grooves and cordons on the neck. Late Iron Age/Early Roman.
6. Grog-tempered beaded rim jar. Late Iron Age/Early Roman.
7. Awl made from the limb shaft of a medium sized mammal. Late Iron Age/Early Roman

closure ditches situated in the northwest corner of the excavated area. Two features, the substantial Phase 2.2 ditch (F.9) and the corner of the Phase 2.3 possible enclosure ditch (F.29), contained relatively high quantities of animal bone accounting for *c.* 40% of the assemblage. Cattle numbers were slightly higher within the NISP count (Number of Identified Specimens), whereas sheep/goat accounted for more individual animals on site, followed by horse, pig and dog. Wild fauna were absent from the assemblage. In addition to butchery evidence, a piece of worked bone was also recovered, fashioned into an awl from the limb shaft of a medium sized mammal (Fig. 10.7). This was found in the Phase 2.2 curving boundary ditch.

Twelve bulk soil samples retrieved on site were floated and analysed. All the archaeobotanical remains observed were carbonised showing no signs of past wet or waterlogged deposits. Charcoal was present in all samples, but in low concentrations representative of a general scatter over an inhabited/used area. The majority of the cereal remains and wild plant seeds were found in two samples from the northwest corner of the site, one from the Phase 2.1 curving ditch and one from the Phase 2.2 enclosure ditch. A single unidentified seed was found in the late recut in the Phase 2.1 boundary ditch in the centre of the site, whilst the six samples from the southeast corner revealed two elements of glume-wheat chaff (*Triticum* sp. and *Triticum spelta* L. glume bases), and four wild grass seeds (*Phleum* sp.). Three further glume-wheat glume bases and a wild grass seed were found in a feature in Trench 15 to the southeast of the main open area. A further feature in Trench 5, also outside the main site area, had nothing but a tiny scatter of fine charcoal.

The Phase 2.2 enclosure ditch contained four whole grains of hulled barley (*Hordeum vulgare* sensu lato) and spelt wheat, and 11 grain fragments. Six glume-wheat glume bases (three of spelt) and a straw node were also found. The 16 wild plant seeds are predominantly wild grasses and probably represent arable weeds. The Phase 2.3 enclosure ditch had no wild plant seeds, but five pieces of glume-wheat chaff, two glume-wheat grains and six grain fragments.

Though quantities of plant remains are too low to interpret the agricultural economy, proportions of chaff and weeds to grain suggest spelt and barley processing occurred nearby. The scale of processing, whether for personal consumption, community or wider markets, is unknown. Charcoal and small fragments of pottery and animal bones found in the sample residues attest to a range of activities. The distribution of plant remains fits within the general pattern of pottery and bone finds which shows a denser concentration of activities in the northwest corner of the excavated area.

Several fragments of lava quern were recovered from the site including a tiny piece with a right-angled corner, which suggests that it is the edge of a fragmented rotary quern. More substantial was a slab of worked gritstone (130mm x 70mm x 33–40mm thick), probably part of a rotary quernstone. The slightly convex surface is pitted, suggestive of the original pick-end dressing across the top of the upper stone, the grinding surface underneath being very slightly concave and typical of rotary querns. No ridging (dressed grinding ridges) can be seen, yet at the same time this surface doesn't seem to be that well worn. In this instance no estimate could be made of the diameter of the stone from the surviving worked surfaces, though typically querns of this thickness (40mm) might be anything up to 500mm – 700mm wide. The medium–coarse gritstone lithology with pink orthoclase and large sub-angular glassy quartz grains is very typical of the Millstone Grit (Upper Carboniferous) sandstones quarried during the Roman period at classic Derbyshire (Pennine) sites of Roman–Medieval millstone production such as near Hathersage and Wharnecliffe Edge. Hand-turned millstones were being quarried here and distributed through Southern Britain by the first century AD (Peacock 1998).

The Phase 2.2 boundary ditch produced four slag smithing lumps probably associated with the secondary smithing of iron. The two larger pieces are heavy and slightly magnetic suggesting the loss of iron to the slag during the forging of an iron object in the furnace. At least two of the pieces show evidence of an attached baked red clay hearth lining. These are likely to be Roman or possibly Late Iron Age in date. Also from the surface of the same ditch were eight pieces of quite friable and very cindery slag, conceivably associated with ironworking. As it has a bleached 'pumice-like' appearance the slag may well have suffered from post-depositional processes such as leaching.

The Phase 1 gully in the northwest corner of the site produced a small fragment of an adult left human pelvis. The fragment exhibits pathological changes to the surviving part of the acetabulum (hip socket) which are suggestive of tuberculosis or septic arthritis; several sharp edged, erosive, scalloped-shaped hollows penetrate the trabecular bone and the socket itself is almost flattened with the cortical bone being polished/eburnated and exhibiting porosity. Published reports of tuberculosis in the Roman period are relatively uncommon although several probable cases have recently been identified in the region (Evans *et al.* 2008, 54; Evans *et al.* 2009, 209–10; Lyons and Roberts in prep.).

Specialist Reports

Prehistoric pottery
Matthew Brudenell

124 sherds (1018g) of handmade later prehistoric pottery dating from the end of the Early Iron Age (*c.* 500–350 BC) through to the Late Iron Age (*c.* 50 BC – AD 50) were recovered from the excavations. The pottery was recovered from a total of 15 contexts, relating to 11 separate features (Table 6).

Fabrics

Group S, Shell (54 sherds, 381g, 37% of assemblage by weight)

S1: Moderate to common, coarse and very coarse poorly sorted shell (11 sherds, 122g)

S2: Sparse coarse and very coarse poorly sorted shell (4 sherds, 22g)
S3: Moderate to common medium and coarse shell (6 sherds, 22g)
S4: Moderate fine and medium well sorted (9 sherds, 40g)
S5: Rare medium and coarse shell (8 sherds, 59g)
S6: Abundant coarse and very coarse shell (1 sherd, 6g)
SQ1: Moderate to common, coarse and very coarse poorly sorted shell in a dense sandy clay matrix (4 sherds, 28g)
SFCH1: Moderate coarse shell, sparse medium and coarse crushed flint and sparse coarse chalk (6 sherds, 76g)
S: Small sherds with shell inclusions (5 sherds, 7g)

Group CH, Chalk (1 sherd, 7g, 1% of assemblage by weight)
CH1: Moderate to common, coarse and very coarse poorly sorted chalk, with rare coarse flint and shell

Group F, Flint (13 sherds, 115g, 11% of assemblage by weight)
F1: Common medium and coarse flint (2 sherds, 8g)
FQ1: Moderate medium and coarse flint in a dense sandy clay matrix (7 sherds, 95g)
FQ2: Moderate to common fine and medium crushed flint in a dense sandy clay matrix (3 sherds, 12g)

Group G, Grog (42 sherds, 350g, 34% of assemblage by weight)
G1: Common to abundant coarse grog, with very rare medium chalk (1 sherd, 19g)
G2: Moderate to common coarse grog, with rare medium chalk and rare shell (1 sherd, 4g)
G3: Common medium and coarse grog (2 sherds, 46g)
GQ1: Sparse medium and coarse grog, and very rare coarse flint in a dense sandy clay matrix (29 sherds, 171g)
GQ2: Moderate medium grog, and very rare coarse flint in a fine sandy clay matrix (4 sherds, 34g)
GFQ1: Sparse very coarse grog and sparse medium and coarse flint in a dense sandy clay matrix (5 sherds, 76g)

Group Q, Sand (14 sherds, 165g, 16% of assemblage by weight)
Q1: Dense quartz-sand (5 sherds, 124g)
Q2: Sparse sand (1 sherd, 3g)
QF1: Dense quartz-sand with rare medium or coarse flint (5 sherds, 31g)
QVE1: Sparse sand with moderate linear voids from burnt out vegetable matter (1 sherd, 5g)
Q: Small sherds in a sandy fabric (2 sherds, 2g)

The assemblage was dominated by small abraded body sherds with a mean sherd weight (MSW) of 8.2g. Overall, 72% of the sherds were classified as small (measuring under 4cm in size), 27% were classified as medium (measuring between 4–8cm in size) and 1% were classified as large (measuring over 8cm in size). A further 17g of pottery crumbs were noted in the assemblage, but are not commented upon in this report. These comprised sherds weighing under 1g.

Based on the total number of different rims and bases identified, the assemblage contained fragments of a minimum of 14 vessels (9 different rims, 5 different bases) with a combine estimated vessel equivalent (EVE) of 1.45. Only two of these vessels were sufficiently intact to assign to form. As a result, the dating of the pottery in this assemblage is primarily based on the character of the fabrics and their comparison to larger groups from the surrounding region.

Feature assemblages

Phase 1

Ditch Terminus/Pit F.11
F.11, context [032] yielded a single undiagnostic sherd (1g) of prehistoric pottery in fabric S.

Ditch F.12, Trench 15
Ditch F.12 yielded four sherds of pottery (13g). These were recovered from contexts [035] (two sherds, 3g), and [036] (two sherds 10g). The pottery from context [035] was comprised of residual sherds in fabric F.1 which are of Late Bronze Age or Early Iron Age date (*c.* 1100–350 BC). Those in context [036] were in fabric S1 and probably date to the Middle/Late Iron Age (*c.* 350 BC – AD 50).

Ditch F.13
Ditch F.13 yielded 10 sherds of pottery (198g). These were recovered from context [040] (seven sherds, 41g) and context [210] (three sherds, 157g). The pottery from context [040] consisted of sherds in fabric S5 and included a base and a single Scored Ware sherd (12g). Context [210] yielded a large combed sherd in fabric Q1 (113g), and sherds in fabrics S (3g) and G3 (41g). The combed sherd is typical of the Late Iron Age, dating to c. 50 BC – AD 50. This range also overlaps with the later currency of Scored Wares.

Pit F.33
Pit F.33, context [033] yielded 6 plain body sherds

Phase	Feature	No. of Sherds	Wt. (g)	MSW (g)	No. of Vessels	Fabrics present
1	11	1	1	1	-	S
1	12	4	13	3.3	-	S1, F1
1	13	10	198	19.8	1	G3, Q1, S, S5
1	33	6	18	3	-	Q1-2, QVE1, S1, SQ1
1	35	5	37	7.4	-	GQ1-2
2	4	1	37	37	-	FQ1
2.1	2	59	519	8.8	12	CH1, FQ1-2, G1-2, GFQ1, GQ1, Q, QG1, S, S1-5, SFCH1
2.1	27	23	135	5.9	1	GQ1, Q, S, S1, S6, SQ1
2.1	32	6	25	4.2	-	Q1, S3-4
2.1	37	7	27	3.9	-	QF1, S3
2.2	9	2	8	4	-	Q1, G3
	TOTAL	**124**	**1018**	**8.2**	**14**	

Table 6. *Windmill Site – Prehistoric pottery assemblage breakdown by feature/phase. MSW – Mean Sherd Weight.*

(18g) in fabrics Q1 (one sherd, 2g), Q2 (one sherd, 3g), S1 (two sherds, 4g), SQ1 (one sherd, 4g) and QVE (sherd 1.5g). A Late Iron Age date (*c.* 350 BC – AD 50) is appropriate for fabrics of this character.

Ditch F.35

Ditch F.35, context [035] yielded five plain body sherds (37g) in fabrics G1 (one sherd, 3g) and G2 (four sherds, 34g). The character of the fabrics implies a Late Iron Age date for this material (*c.* 50 BC – AD 50).

Phase 2.1

Ditch F.2

Ditch F.2 yielded the largest single assemblage from the site totalling 59 sherds (519g). The pottery was recovered from contexts [005] (34 sherds, 340g) and [220] (25 sherds, 179g). Sherds belonging to all the major fabric groups were represented. Shell fabrics of Group S dominated the assemblage, accounting for 48% of the pottery by weight. This was followed by Group G grog fabrics (33%), Group F flint fabrics (14%), Group Q sand fabrics (3%), and Group CH chalk fabrics (1%).

Despite this ditch being stratigraphically late in the boundary sequence, the pottery recovered from the slots included a number of sherds which date to the end of the Early Iron Age, c. 500–350 BC. These included the partial profile of a round bodied bowl with everted rim in fabric GFQ1 (3 sherds, 33g), and two different rim sherds with finger-tip impressed rim tops in fabrics S5 (18g) and QF1 (7g). A rim with a finger-tip impressed neck in fabric S2 (4g) is also likely to date to the fifth or fourth century BC, as are 17 other sherds (159g) in fabrics FQ1–2, QF1 and FSCH. Most other sherds from the ditch cannot be closely dated. Many of the grog-tempered fabrics are likely to be of Late Iron Age date, though there were no wheel-made, corded or combed sherds present in this assemblage, neither were there any Scored Ware sherds characteristic of the Middle/Late Iron Age (350 BC – AD 50). That said, the shell-tempered fabrics present are entirely typical of this period. In addition, the two different perforated bases in fabrics GFQ1 (2 sherds, 43g) and G1 (19g) are best paralleled in Late Iron Age assemblages. The perforations on these bases were made prior to firing suggesting that the vessels originally functioned as strainers.

Ditch F.27

Ditch F.27 yielded 23 sherds of pottery (135g). With the exception of a single body sherd from context [216] (5g, fabric S6), all the pottery was recovered from context [085] (22 sherds, 130g). This contained sherds in fabrics GQ1 (14 sherds, 94g), S1 (two sherds, 9g), S (two sherds, 2g), SQ1 (three sherds, 24g), and Q (one sherd, 1g). Sherds belonging to fabric Group S and Q are likely to be of Late Iron Age date (*c.* 350 BC – AD 50); however, those in GQ1 are probably of late Early Iron Age date (*c.* 500–350 BC), contemporary to those from Ditch F.2. All appear to belong to the same vessel, and included seven refitting sherds which created the partial profile of an ovoid bodied jar with a short upright neck. The jar was decorated with finger-tip impressions on the rim-top and shoulder, which is fairly typical of Early Iron Age ceramics.

Ditch F.32

Ditch F.32 yielded six plain body sherds (25g) from context [120] in fabrics Q1 (two sherds, 6g), S3 (one sherd, 3g) and S4 (three sherds, 16g). The character of the fabrics suggests a Late Iron Age date for this material (*c.* 350 BC – AD 50).

Gully F.37

Gully F.37, context [125] yielded seven plain body sherds (27g) in fabrics QF1 (one sherd, 16g) and S3 (four sherds, 11g). The sherd in fabric QF1 is likely to be of Early Iron Age date, and is probably residual. The other shell tempered sherds cannot be closely dated, though they probably belong to the Late Iron Age (*c.* 350 BC – AD 50).

Phase 2.2

Ditch F.17

Ditch F.17, context [034] yielded two undiagnostic sherds in fabric Q1 (3g) and G1 (5g). The sherds cannot be closely dated, through the fabrics are more typical of the Late Iron Age.

Phase 2 outside open area

Ditch F.4, Trench 20

Ditch F.4, context [010] yielded a single shoulder sherd in fabric FQ1 (37g). The fabric of this sherd is more typical of the Early rather than Late Iron Age, though it may be residual. The feature also produced pottery of Late Iron Age/Early Roman date (see below).

The earliest datable ceramics from the Windmill Site were residual sherds of late Early Iron Age pottery recovered from ditches F.2 and F.27, together with body sherds from gully F.37 and ditch F.12. The pottery from F.2 and F.27 included several finger-tipped rims sherds, a round bodied bowl with everted rim and an ovoid jar with finger-tipped rim and shoulder. This early material occurred in a variety of fabric groups with flint, sand, grog and shell inclusions (fabrics F1, FQ1–2, QF1, FSCH, S2, S5, GQ1). Some of these fabric types continue to be used into the later Iron Age, particularly the plain shelly wares. Late Early Iron Age pottery similar to that recovered from this site has been found at Rhee Lakeside South, Earith (Brudenell 2007) and Knobbs Farm, Somersham (Brudenell 2008). Both have been dated on typological grounds to the Early–Middle Iron Age transition around the fourth century BC; the Rhee Lakeside South assemblage being associated with two AMS radiocarbon dates of 400–200 cal. BC (95% confidence, Beta-229352; 2260 ± 40 BP) and 400–210 cal. BC (95% confidence, Beta-229353; 2250 ± 40 BP). The early pottery from the Windmill Site is probably broadly contemporary with these assemblages, and shares fabrics and forms of decorative treatment in common. Given the presence of these Early Iron Age sherds in ditches yielding Late Iron Age pottery, it is possible that there were earlier features along the axis of F.27 and F.2 which were disturbed during boundary construction.

The remaining later prehistoric pottery from the site dates to the Late Iron Age between *c.* 350 BC – AD 50. Most of these sherds cannot be closely dated within this bracket, and unhelpfully no wheel made or cordoned sherds were recovered; however, the presence of a vertically combed sherd from F.13 is important in this context, as this form of surface treatment is characteristic of Late Iron Age coarseware pottery dating from *c.* 50 BC – AD 50. More significantly, F.13 is early in the boundary sequence and pre-dates the construction of F.27, F.2 and F.32. These ditches must therefore post-date 50 BC, making them of Late Iron Age date. On this basis we may therefore postulate that most of the site's ceramics

belong to the Late Iron Age, which would also fit with the relatively high proportion of grog-tempered pottery sherds: a fabric typical of this period. A late date may also explain the paucity of Scored Ware sherds in this assemblage.

Late Iron Age and Roman Pottery
Katie Anderson

The assemblage comprised 891 sherds that were generally small in size, with a mean weight of 10.5g. The pottery dates to the Late Iron Age to Early Roman period, possibly reflecting a fairly short period of occupation, and contained handmade, wheel-turned and wheel-thrown vessels. Handmade wares were often recovered alongside wheel-turned wares and in some cases Romanising vessels. Wheel-turned vessels (vessels which are only finished on a wheel) were the most commonly occurring within the assemblage, representing 48% of all identifiable vessels. This is probably a reflection of the date of the assemblage, since this technique was primarily used in the Late Pre-Roman Iron Age (LPRIA), before wheel-throwing became the dominant technique in the Roman period.

Vessels made in the Iron Age handmade tradition are present, although in smaller quantities (19%) than vessels made using a wheel. This is a pattern seen in many Late Iron Age assemblages (Brudenell pers. comm.), with handmade vessels continuing to be used alongside wheel-turned and wheel-thrown vessels, into the mid first century AD.
A variety of fabrics were present in this assemblage, and although none can be sourced, it can be assumed that most were procured locally, as is the nature of pottery production during this period (Table 7). Grog- and sand-tempered sherds were the most frequently occurring fabric types, with a small number of sherds containing shell or crushed flint. There is some consistency in the fabrics, suggesting the same sources were exploited, although more detailed fabric analysis would be necessary to determine whether or not this was the case. The dominance of sandy wares is expected for a site of this date from this area of Cambridgeshire.

The Roman wares consisted of sandy greywares, whitewares and buffwares, with some grog-tempered vessels. There were no Roman sherds from known sources and a complete absence of imported Samian wares or amphorae. This dearth is likely to reflect the period of occupation, with the site appearing to have gone into decline by the mid/later first century AD, before the Roman period (in terms of ceramics) had fully emerged.

A minimum of 53 different vessels were identified within the assemblage, with seven vessel forms represented (see Table 8). Jars were the most commonly occurring vessel form, which is typical of rural assemblages of this date. Within this group several different forms were present, including plain everted rim jars, storage jars and tall, plain everted rim jars with offset necks. There were also several examples of Romanizing/Early Roman beaded rim jars. Rim diameters varied from 14cm to 32cm highlighting a variety of uses for the vessels, supported by the evidence of heavy sooting on two of the vessels, interior limescale on a third and one jar with a perforation under the rim, which appears to be pre-firing and was possibly used to suspend the vessel. The same vessel also had a post-firing perforation on the body, which may have been a repair hole. Thirteen of the jars had been burnished to varying degrees, with five vessels with rilling and three combed.

Fabric	No. of sherds	Wt (g)
Buff sandy	2	10
Coarse sandy	50	312
Coarse sandy greyware	22	178
Fine sandy	5	47
Grog	10	88
Grog and flint	5	38
Grog and sand	291	3884
Grog and shell	14	191
Roman whiteware	16	43
Sand	86	696
Sand and calcareous	18	234
Sand and flint	142	1444
Sand and iron	91	1220
Sand and mica	72	630
Sand and shell	46	290
Shell	21	104
TOTAL	**891**	**9409**

Table 7. *Windmill Site: Iron Age and Roman pottery sherds by fabric.*

Form	No. of sherds	Wt (g)
Platter	3	106
Beaker	1	1
Bowl	10	213
Cup	8	60
Jar	151	3353
Jar/bowl	50	486
Lid	34	238
Unknown	634	4952
TOTAL	**891**	**9409**

Table 8. *Windmill Site: Iron Age and Roman pottery sherds by vessel form.*

Four different fineware vessels were identified, comprising two carinated cups, one of which had two thin cordons, a small beaded rim beaker and a platter, which was a copy of a Gallo-Belgic Cam. 12 form (Tyers 1996, 162). All of these vessels are likely to have been locally produced as copies.
In order to put this site into its regional context, it is important to consider how the ceramic record from other local sites might demonstrate whether this apparent pattern of 'late adoption' of Roman ceramics is typical of the region. Figure 11 shows the ratio of handmade versus wheel-made vessels (wheel-turned and wheel-thrown combined), for five Late Iron Age/Early Roman assemblages from Cambridgeshire. It demonstrates that this assemblage has a relatively low percentage of handmade vessels, although it is almost identical to another Guided Busway site at Shelford Road Compound (Timberlake forthcoming). Perhaps the most likely explanation for this is the date of the site, and this supports a view that although occupation was relatively intensive (given the quantity of material recovered), it was short lived.

A number of large evaluations have taken place locally, particularly in and around Longstanton, approximately 1.6 kilometres to the south of this site (Evans *et al.* 2006). The work uncovered a series of Late Iron Age and Roman settlements, with comparable assemblages. In terms of composition, sand and shell-tempered wares dominate all of the contemporary assemblages, and the range of forms within

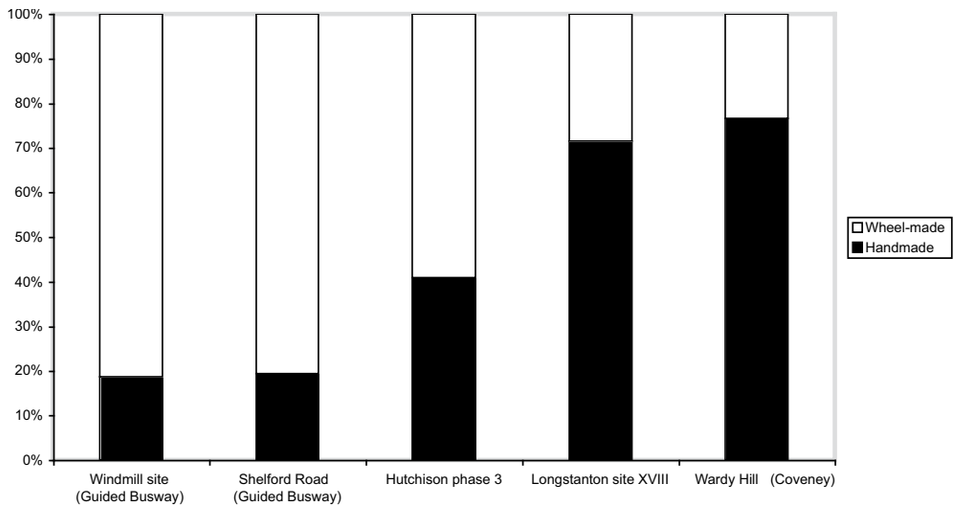

Figure 11. *Relative proportions of handmade and wheel-made vessels from five Late Iron Age/Early Roman sites in Cambridgeshire (based on sherd count).*

both assemblages was limited, with open, globular forms being the most common (Brudenell in Evans *et al.* 2006). On a small number of sites there was also the occurrence of handmade vessels alongside wheel-turned and wheel-thrown vessels, supporting a view that the adoption of new ceramics types was slow and that while new types might be added to the repertoire, the old styles were still being made and used. The example from one Longstanton site, however, (site XVIII, Brudenell 2006), showed a much higher percentage of handmade vessels, which perhaps suggests this particular site was occupied slightly earlier than the Windmill site.

Approximately eight kilometres northeast of this site, a much larger transitional period assemblage was recovered at Wardy Hill, Ely (Evans 2003). Although this site has a longer overall chronology than the Windmill site, the pottery from the transition period phase has many shared characteristics; most notable is the presence of handmade vessels alongside wheel-turned vessels. Fabrics are also similar with sand and shell temper dominating. The major difference with the two sites is the ratio of handmade wares to wheel-made wares, with the Wardy Hill assemblage producing a much higher percentage of handmade vessels (see Fig. 11). As with Longstanton site XVIII, this therefore implies the Wardy Hill assemblage is earlier than the Windmill site.

A further contemporary assemblage was recovered from another guided Busway site, south of Cambridge (the Shelford Road Compound see Anderson in Collins and Dickens 2009; Timberlake forthcoming). This assemblage contained only half the quantity of pottery as the Windmill site (341 sherds, 2791g), but had many of the same vessel forms, with jars dominating, a small number of simple bowl forms and very little else. The handmade component of the Shelford Road Compound assemblage is almost identical to that of the Windmill site, both representing *c.* 20% handmade versus *c.* 80% wheel-made. In terms of fabrics however, these sites differ quite significantly. The Windmill site assemblage contained a large number of shell-tempered wares in contrast with Shelford Road Compound (Anderson in Collins and Dickens 2009), which had no shell-tempered wares. This suggests that much of the pottery industry was very localised during this period, with shell-tempered wares only featuring on sites north of Cambridge.

In contrast to these two sites is the Hutchison site next to Addenbrooke's Hospital, Cambridge (Evans *et al.* 2008), which produced a large assemblage spanning the Late prehistoric and Early Roman periods. Phase 3 (50 BC – AD 50) was chosen for comparison. This site produced a larger percentage of handmade vessels (see Fig. 11) than either the Windmill or Shelford Road Compound sites. The latter located only about one kilometre southwest of the Hutchison site. This therefore might refine the dating of these sites and supports a view that both represented a relatively short period of occupation.

The Windmill site assemblage has much to offer in terms of understanding the Late Iron Age and Early Roman transition in northern Cambridgeshire, providing an important glimpse into the immediate pre and post-Conquest periods. The prominence of wheel-made vessels along with the lack of true 'Roman' pottery implies that occupation could have been just a few generations, with a date of AD 20–60 tentatively put forward. It is therefore sufficient to give an insight into the transition period and is of importance in a wider, regional analysis of the Late Iron Age and Early Roman transition.

The site's inhabitants seem to have been slow to adopt new styles and types of pottery, even though it is likely that these types of vessels had started to appear in the local market. That the site fits more easily into Late Iron Age traditions is supported by the faunal remains, which also suggest Iron Age rather than Roman traditions of animal husbandry (Rajkovača this report).

The finds assemblages reflect a small, rural settlement, which had yet to become fully Romanised, although it is as yet unclear, as to whether this site was part of a larger settlement which continued beyond the conquest period, or else was totally abandoned and relocated as a result of Romanization. Certainly, the evidence from this site and others, in particular the Shelford Road Compound, suggest that the uptake of 'Romanised' ways of life did not immediately proceed following the Roman conquest. These assemblages also support the view that there was a strong correlation between sites adopting new material culture etc. and the de-

velopment of true 'Romanised' sites, which in some cases involved moving away from the old Iron Age sites, to start new Roman ones.

Faunal Remains
Vida Rajkovača

The assemblage comprised 154 assessable specimens weighing 4824g. The majority of the assemblage was hand-collected with a small portion being recovered from the sieving of bulk soil samples.

The state of preservation ranged from poor to quite good. Out of 46 contexts, the bone from 21 was recorded as quite poor or poorly preserved with many demonstrating a high degree of bone surface modification and weathering. The actual numbers corresponding to this show that out of 154 assessable fragments, 55 (36%) were poorly preserved. Butchery and gnawing were rare, being observed on one and seven specimens respectively.

The quantity of animal bone decreased to the southwest end of the site, the small Phase 2.1 enclosure (F.36) producing only bone specimens, two of which were identified to species. The overall paucity of finds within this enclosure and its position in corner point of a potential field boundary some distance away from the settlement might suggest this enclosure was used for livestock.

Of 31 specimens identified as cow, 20 were loose teeth and mandibular elements. A similar pattern was observed within the sheep/goat cohort, where loose teeth and mandibles accounted for *c.* 50% of the identified specimens (Table 9).

Taxon	NISP	NISP%	MNI
Cow	31	44	2
Sheep/goat	29	41	3
Horse	7	10	1
Pig	3	4	1
Dog	1	1	1
Total identified to species	**71**	**100**	**.**
Cattle-sized	44	.	.
Sheep-sized	39	.	.
Total	**154**	**.**	**.**

Table 9. *Windmill Site: Number of Identified Specimens (NISP) and Minimum Number of Individuals (MNI).*

Five ageable specimens were recorded, four of which were sheep/goat mandibles. All four specimens gave a different age at death: 6–12 months, 1–2 years, 2–3 years and 6–8 years. A single cow mandible was aged as an old adult. It is clear that some animals were maintained into maturity for their secondary products such as milk, wool and traction.

Although the Windmill site faunal record showed a slightly higher count of cattle, very much a characteristic of a Romanised settlement, other recognised traits of a Roman economy such as an increasing consumption of chicken and a higher percentage of pigs (King 1991) are absent. This might suggest that the husbandry strategies in use remained deeply rooted in the native Iron Age tradition. Alternatively, the higher cattle numbers could be due to the fact that precise animal exploitation strategies are shaped to fit regional variations in microclimate and topography.

Pigs do not form a large proportion of the bones on Late Iron Age sites generally, and the large percentage of pig bones at the Late Iron Age/Early Roman Puckeridge-Braughing site in Hertfordshire is uncharacteristic of other samples (see below, Fifield 1988, 150). The relatively small pig cohort at the Windmill site could simply reflect a lack of extensive woodland for pannage, a response, perhaps, to the demand for cultivated land by farmers to support a growing population, a situation where cattle would have had added importance as working animals on arable land.

The prevalent view that (Late) Iron Age agriculture followed a pattern of intensive sheep husbandry does not seem appropriate in this region where cattle are the most commonly found species. Two exemptions to this rule are at Castle Street, Cambridge, and at Puckeridge-Braughing, Hertfordshire, (Table 10) with their livestock husbandry most likely being modified to fit the environmental and social circumstances of the time. In addition, one of the most important Late Iron Age/Early Roman transitional assemblages, that recovered from Wardy Hill near Ely, also produced a predominant sheep cohort; however, as the faunal record originated from more than one phase of occupation and it has not been quantified by phase, it is difficult to assess relative importance of species for the period for this particular site (Evans 2003).

In conclusion Late Iron Age/Early Roman communities living in this area appeared to have practiced a mixed economy resulting in a rather conservative and restricted diet, with cattle being the mainstay. This pattern clearly demonstrates how important it is to take regional variations, both environmental and cultural in character, into account.

Discussion

The discovery of the Windmill site adds a previously unknown 'dot' on the Late Iron Age/Early Roman map of this part of Cambridgeshire, information on which has expanded hugely in the last few years thanks to work on projects such as Longstanton/Northstowe (Evans *et al.* 2008), Cambourne (Wright *et*

	NISP %			Date	
	Cow	Sheep/goat	Pig		
Longstanton Windmill Site (154)	49	46	5	LIA/ER	this publication
Addenbrooke's 2020 (141)	55	41	4	LIA/ER	Rajkovača 2010a
Hutchison Site, Addenbrooke's (155)	59	37	4	LIA/ER	Swaysland 2008
Summersfield Site,Papworth Everard (395)	56	37	7	LIA/ER	Rajkovača forthcoming *a*
Haddon, Peterborough (100)	46	45	9	LIA/ER	Baxter 2003
Castle Street, Cambridge (240)	28	58	14	LIA/ER	Rajkovača 2010b
Puckeridge-Braughing, Hertfordshire (7260)	31	36	33	Early Roman	Fifield 1988

Table 10. *Percentage of cattle, sheep/goat and pig on Late Iron Age/Early Roman (LIA/ER) sites from the region (sample size in brackets).*

al. 2009) and the recent evaluation work along the A14 (Patten *et al.* 2010). Although the exposure was too small to define with precision the nature, or indeed size, of the site, it does appear to broadly conform to what is known of similar sites in the area. There is evidence of continuity from the later Iron Age into the Conquest and Early Roman period, with an indicated end date of activity around AD 70. This puts the site amongst that group with a clear pre-Flavian cessation of activity.

What this site does contribute to is the ongoing debate on the nature of Romanization in Cambridgeshire, particularly as expressed in the ceramic component. Development of a single model of change is "hindered by variability in the ceramic record and the difference in assemblage compositions displayed between different areas, different sites and different social contexts" (Anderson forthcoming). Changes to the composition of pottery assemblages and the speed of adoption of new types vary considerably from one part of the county to another, with evidence from some sites indicating that the transition to fully Romanized assemblages was a drawn out process which in some places did not even begin until the early Flavian period (*ibid*.). The Windmill site lies at neither end of that trend. Adoption appears slow but is clearly occurring (80% of the assemblage is wheel-turned or thrown) perhaps in a limited market with no evidence of imported or specialist wares; a settlement with its roots placed firmly in the Late Iron Age tradition. The faunal record also reflects this pattern. There are some characteristics of Romanization, specifically a slightly higher cattle NISP, but other indicators are absent. This is a mixed economy, conservative, and again with its roots seemingly in the Late Iron Age past rather than a Roman future.

The Windmill site fits best into a model of later Iron Age settlement origins seen at other more prestigious fenland locations such as Stonea (Jackson and Potter 1996) and Wardy Hill (Evans 2003) contrasting with others established post-Conquest such as Langdale Hale, Earith (Evans forthcoming *a*). The latter tend to have assemblages of true Romanized wares with no Late Iron Age antecedents whereas by contrast fen communities in the Late Iron Age used a limited range of wheel-turned vessels with assemblages still dominated by handmade wares (Anderson forthcoming). Again, the Windmill site with its 20% of handmade wares, as with the faunal record, falls at neither extreme of the range.

The specific landscape context of the Windmill site is harder to determine. It is likely that the apparent abandonment of the settlement around AD 70 was as a result of reorganisation in that landscape, a pattern seen elsewhere, most recently in the ongoing work in the Addenbrooke's landscape (Evans *et al.* 2008, Newman *et al.* 2010). A handful of other sites are known in the vicinity of the Windmill site, but there has been little systematic investigation (Fig. 12). Cold Harbour Farm, about 1400m to the northeast, was partly excavated by W.G. Simpson in the 1960s, but not published. This work revealed evidence for fairly substantial Late Iron Age and Roman rural settlement, including the presence of Roman pottery kilns after which a local ware has been named (Hall 1996). This site was first recognised in the 1880s when Babington records that Roman coins, mostly Constantinian (fourth century) were discovered in a metal box probably a little to the west of the area investigated by Simpson (Babington 1883, 82). During the investigations in the 1960s the earliest levels produced hand-made and wheel-made pottery 'from the Belgic tradition' (Phillips 1970: 189). Another part of the site produced late first/early second century pottery while surface finds of colour coated wares indicated the site was in use until the fourth century (Hall 1996, 150). This would suggest that the Cold Harbour Farm site, whilst originating in a period similar to that of the Windmill site, continued on much longer to become a truly Romanized settlement.

Situated a little closer to the Windmill site are three locations recorded by David Hall during fieldwalking for the Fenland Project in 1980 (Hall 1996, 151). Over sites S8, S9 and S11 lie 650 to 900m east of the Windmill site and include dark occupation areas with colour-coated and Samian wares, grey wares and tile. At site S11 further kilns were recorded (though not apparently excavated) that appear to be associated with those at Cold Harbour Farm, certainly producing similar wares. Presumably these find spots are associated with the cropmarks that extend between them (Fig. 12). Closest to the Windmill site is Hall's site OVE S10. Here was found occupation debris with grey, shelly and colour-coated wares together with a piece of tile. Rectangular enclosures were noted in cropmarks immediately adjacent to the finds site. Although a detailed breakdown of the finds is not provided the description suggests a Roman rather than Iron Age site, perhaps, at only 500m to the north this is a candidate for a relocated Windmill site population. More recently an evaluation on the Over industrial estate, some 100m west of S10, revealed a number of deposits and features dating to the Roman period. Features were identified in the north of the area representing at least two phases of activity interrupted by an episode of flooding thought to date to the second century. The pottery assemblage suggested settlement in the vicinity, whilst abundant remains of charred seeds and other plant remains provide evidence that primary crop processing was undertaken on or near the site (House 2009). This is likely to be a continuation of Hall's previously identified S10 site and suggests a potentially extensive area of settlement.

The small exposure at the Windmill site has revealed part of a settlement originating in the Iron Age and ending by AD 70. It belongs to the Fenland region type of site, rather than that of South Cambridgeshire (Anderson forthcoming), its end indicating both landscape and population in a state of change.

Arbury

Two sites were investigated at Arbury (Fig. 13): Arbury Park was an open area excavation comprising *c.* 0.18 hectares located just to the north of Kings Hedges Road, Cambridge, and some 150m west of Cambridge Regional College, NGR 545485/261814. The site was situated on Third Terrace river gravels with patches of clay at a height varying slightly between 11.8m and 12.0m OD. Arbury in-track was part of the watching brief that monitored the length of the Guided Busway route during dismantling of the railway and the subsequent groundworks. It was located along the line of the former railway some 220m northwest of the Arbury Park site centred on NGR 545287/261993. It was bordered by Impington Lake to the southwest, a copse of trees to the northeast and fields to the northeast. The site was approximately 262m^2 in area and situated on Third Terrace river gravels with patches of clay, at a height varying slightly from 12.5m OD at the northwest end to 12m OD at the southeast end.

In summary, other known archaeological sites within the area include the substantial circular Iron Age earthwork of Arbury Camp, some 800m to the west (Evans and Knight 2002, 2005, 2008), and the considerable Roman remains known to exist within the present day Arbury and King's Hedges wards. These include a Roman villa centred on Kings Hedges primary school some 300m to the south with associated enclosure ditches and field systems (Lisboa 1995). Furthermore, just 15m east, and on the opposite side of the projected line of the Roman road 'Akeman Street', an archaeological evaluation uncovered a series of Roman pits, containing a significant amount of pottery, and a metalled surface which was believed to be part of the road surface (Evans 1991). Of most significance for the Arbury Park site is the projected line of 'Akeman Street' itself, the predicted course of which takes it within 5m of the northeast corner of the site.

The Investigations

The Arbury Park site was stripped under controlled archaeological supervision, whereas the in-track site,

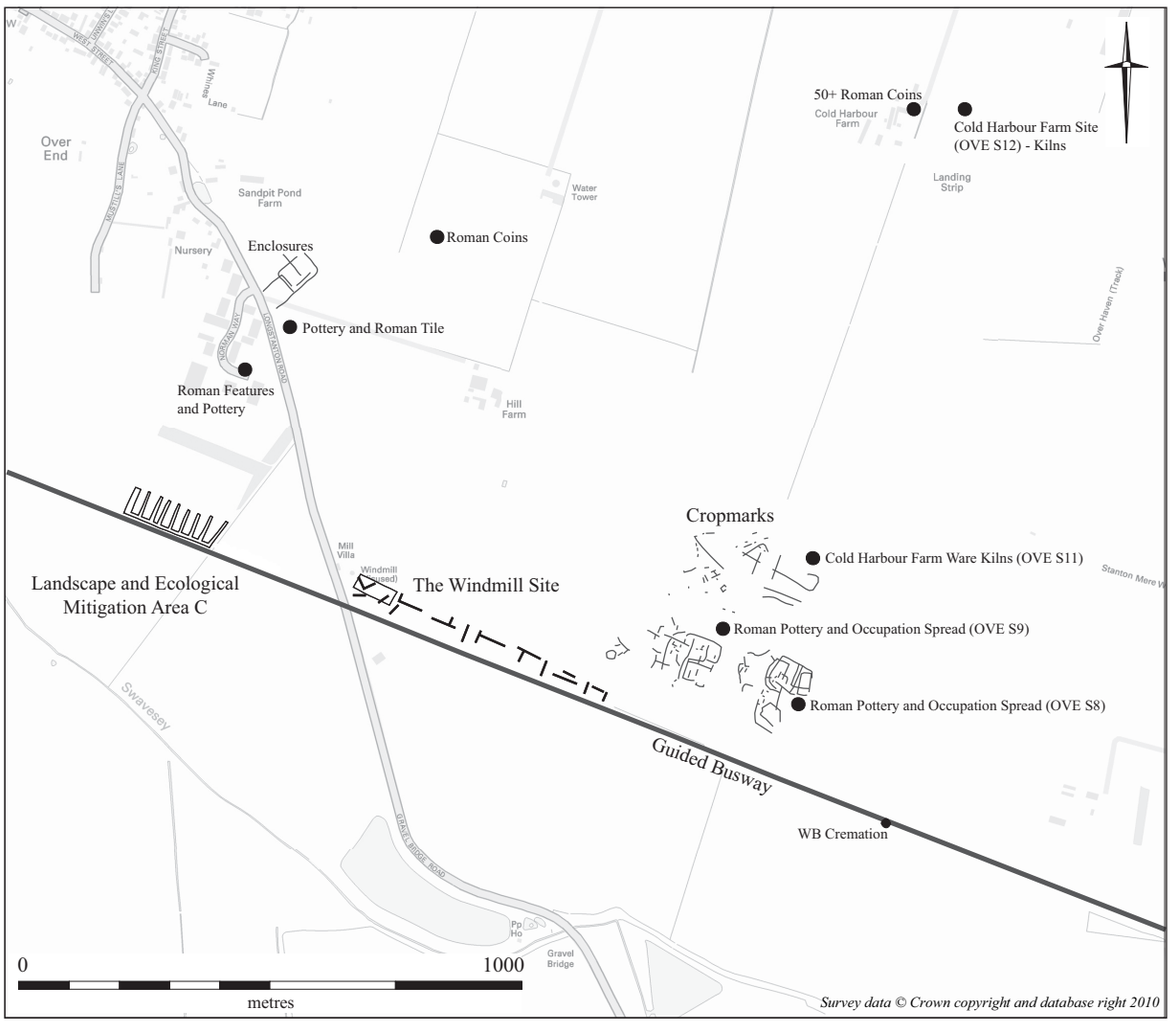

Figure 12. *Windmill Site: Known sites and finds in the wider area.*

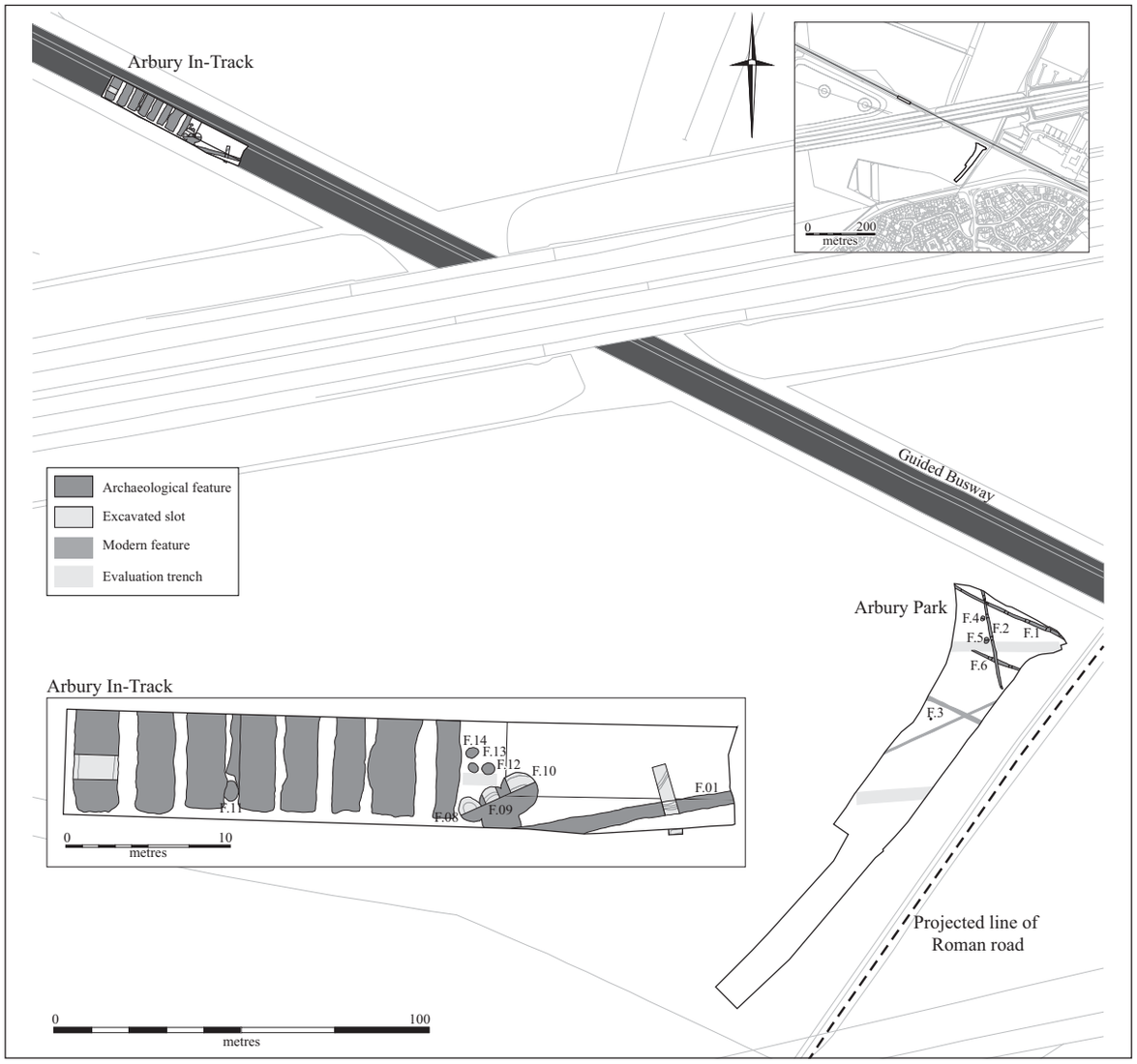

Figure 13. *Location of the Arbury Sites.*

although stripped with a toothless bucket, was observed under watching brief conditions, with excavation after significant remains had been identified.

Contributions from the several specialists have been incorporated into the text, however the most significant reports (Roman pottery and building material and faunal remains) are presented in full later in the report.

Additional specialist contributions are from: Anne de Vareilles (macro-environmental), Andy Hall (metalwork) and Simon Timberlake (shellfish).

All the finds and features from both sites dated to the Early Roman period.

Arbury In-Track Site

On the in-track site the Roman activity consisted of a fairly substantial northwest-southeast orientated ditch, F.1, with a further ditch, F.4 that was only visible in section and either terminated or, more likely, turned sharply. Another possible ditch, F.2, was only visible in section. As well as the ditches a series of pits and possible pits, F.3, F.5, and F.7–14 were present along with a probable quarry pit F.6. Two of these pits, F.3 and F.7, were very shallow and potentially natural hollows that had Roman material culture caught up within them, where as the others were quite substantial cut features, particularly F.8.

The majority of the finds recovered from this site came from ditch F.1, which contained significant quantities of pottery, tile, animal bone and shellfish, mainly concentrated in upper fills. The other features, however, also produced significant amounts of material, for instance F.8, which was part of a small pit cluster with F.9 and F.10, contained almost 70 sherds of Roman pottery, including several from an East Gaulish Samian dish. Six Roman coins, three from ditch F.1, including a quite rare second Century AD

silver *denarius*, two from pit F.3 and one from quarry pit F.6 were also recovered from the site.

A total of 574 sherds of Roman pottery, weighing 14,186g and representing 23.14 EVEs suggest that this location or its immediate vicinity saw intensive occupation. Detailed examination of the pottery assemblage identified material dating from the mid second century AD to the fourth century AD, although those vessels that could be more closely dated suggested a peak between the third–fourth centuries AD. A wide variety of fabrics were identified with coarsewares dominating the assemblage (Fig. 14.1–14.3). A variety of fineware fabrics were recorded, including local, non-local and imported wares. The assemblage contained a wide variety of vessel forms with jars the most common type but beakers and dishes were also well represented. Most of the main Roman vessel forms are present including jars, dishes, flagons, mortaria and bowls as well as some more unusual forms such as Castor box. The pottery suggests a peak in activity during the third/fourth century AD, as demonstrated by the relative lack of Samian and the presence of Hadham and Oxfordshire wares, and some Late Nene Valley colour-coated forms.

In addition to the pottery a large quantity of Roman tile totalling 163 pieces and weighing 17,174g was recovered from the site, along with 49 brick pieces weighing 1664g). All four major tile types were represented in varying quantities. *Tegula* were the most frequently occurring with *imbrex*, floor tiles and flue tiles, in comparison, poorly represented (Fig. 14.4, 14.5). The tile and brick represented in this assemblage suggest the presence of at least one Roman building, although there was no evidence of any building 'footprints' during the excavation.

Of the six Roman coins (one silver, five copper alloy) recovered from the in-track site four were *nummi* ranging from 11mm to 18mm in diameter. One depicting the Emperor Constantius II or *Constantius Gallus* was minted between AD 350–360, two, most probably of the Emperor Valentian I or *Valens* were minted during the period AD 360–380 (Fig. 14.7), the fourth is very worn however a diadem head dress is evident suggesting a fourth century date. The fifth

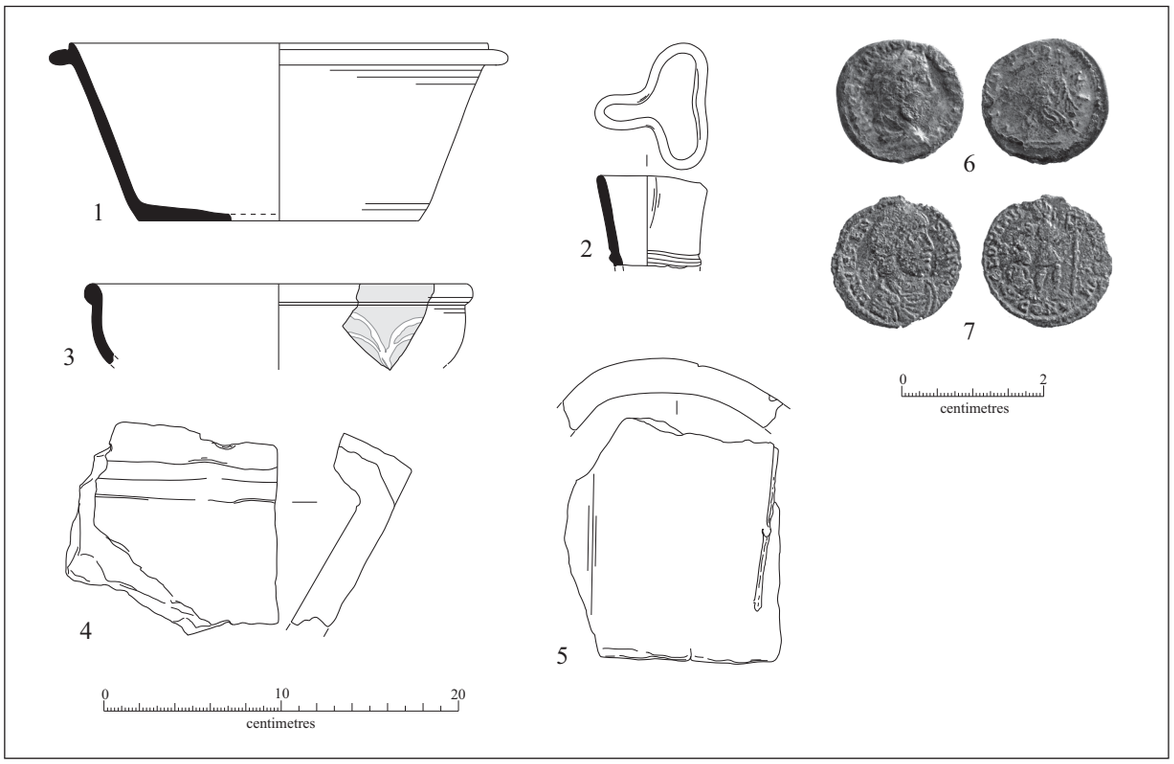

Figure 14: Arbury Finds
1. Coarse sandy greyware beaded, flanged bowl. 3rd-4th Century AD.
2. Nene Valley colour-coated pinched-mouth flagon. 3rd Century AD.
3. Nene Valley colour-coated beaded bowl with white painted arc decoration. 4th century AD.
4. Roman *tegula* (roof tile).
5. Roman *imbrex* (roof tile).
6. Silver *denarius*. The Emperor appears to have a laurel leaf head dress. The reverse shows a figure advancing holding items in both hands. The legend on the reverse reads VICT. PART. MAX. This could be a coin of Caracalla, 198-217AD, but it could also be a contemporary copy.
7. Copper alloy *nummus*. The reverse shows a standing figure holding a standard in the left hand whilst dragging a kneeling prisoner by the hair. The emperor is most likely Valentian I or *Valens*. Minted during the period 360-380 AD.

copper coin is in poor condition. The obverse portrait depicts a young Emperor with a radiate crown, but no beard, possibly *Tetricus II*. The reverse depicts a standing female figure. The coin dates to the second half of the third century AD.

The only non-copper coin is a silver *denarius* (Fig. 14.6). The poor condition makes this a difficult coin to identify. The Emperor appears to have a laurel leaf headdress and the reverse shows a figure advancing holding items in both hands. The legend on the reverse reads VICT. PART. MAX. This could be a coin of Caracalla, AD 198–217, but it could also be a contemporary copy.

Two copper alloy fragments were also recovered, a heavily corroded fragment of copper alloy sheet, in numerous pieces, and a short section of bent copper alloy rod of round section, measuring 12mm in length, possibly a fragment of a chain link or a brooch.

Some 3.76 kilogrammes of oyster shell (*Ostrea edulis*) was recovered from slots cut through several Roman ditches and other features sampled as part of this watching brief. All of the oysters recovered had evidently been prised open, consumed, and discarded, whilst some of the shell had been broken. A single broken valve of an edible mussel (*Mytilus edulis*) was found amongst the oyster shell from a ditch fill.

Arbury Park Site

The limited amount of archaeology identified during this excavation was restricted to the northeastern end of site, with no features being identified in the southwestern half. The archaeology consisted of two parallel ditches approximately 12.5m apart on a northwest by southeast axis, a third ditch on an almost north-south axis and two medium sized pits.

The three ditches had a similar profile of moderate to quite steeply sloping sides leading to a rounded base, and were all of a similar size. All three showed a paucity of finds, with a small amount of animal bone recovered from one and a single Roman pottery sherd dated second–fourth century AD recovered from another. One of the northwest-southeast parallel ditches cut the north-south ditch, which in turn cut the second of the parallel ditches. Both pits identified during this excavation were located along the southwest edge of ditch F.2 and neither contained any finds.

None of the environmental material from this site was subject to further study. The environmental samples generated small flots with only a scatter of charcoal (mostly <2mm across) and a few other plant remains including three cereal grain fragments and one wild plant seed from one ditch and one glume-wheat glume base from another.

Specialist Reports

Roman Pottery
Katie Anderson

The Arbury in-track assemblage (574 sherds) was characterised by relatively large sherds, which were generally unabraded, as is emphasised by the high mean weight of 24.7g, as well as the high EVEs count (23.14). This implies that the material was relatively 'fresh' when deposited, symptomatic of material not travelling far between breakage/discard and deposition. The assemblage broadly dates second–fourth century AD; however, the presence of a number of Late Roman pottery types suggests a third–fourth century AD date for the main phases of activity.

A wide variety of fabrics were identified within the assemblage (see Table 11). Of this coarseware fabrics dominated, representing 77% of the assemblage. Locally made, sandy coarsewares were the most commonly occurring fabric, including 67 Horningsea greyware sherds, although the majority of sherds within this category are unsourced. Shell-tempered wares, which are also likely to have been produced locally (e.g. at Earith) were well represented, totalling 45 sherds. A variety of fineware fabrics were recorded, including local, non-local and imported wares. Nene Valley colour-coated wares were the most common (49 sherds weighing 927g), with Hadham oxidised wares also well represented. There were two sherds of Oxfordshire red-slipped ware and two Pakenham colour-coated sherds. The imported wares comprised 11 East Gaulish Samian sherds (a maximum of three vessels), one Central Gaulish sherd and three Late Baetican amphora sherds, although it is unclear whether the latter are from a single vessel or not.

Fabric	No. of sherds	Wt (g)
Black-slipped	33	474
Buff sandy	1	2
Central Gaulish Samian	1	19
Colour Coat	17	155
Coarse sandy greyware	224	4781
East Gaulish Samian	11	162
Fine sandy greyware	9	195
Fine sandy oxidised	4	96
Hadham oxidised ware	26	245
Horningsea greyware	67	3994
Imitation BB	3	49
Late Baetican amphora	3	570
Micaceous GW	4	81
Nene Valley CC	49	927
Oxford red-slipped ware	2	7
Oxidised sandy ware	53	827
Pakenham CC	2	63
Red-slipped	1	14
Shell-tempered	45	796
White-slipped	10	69
Nene Valley whiteware	9	660
TOTAL	**574**	**14186**

Table 11. *Arbury in-track site: All pottery by fabric. BB, black burnished ware; GW, greyware; CC, colour-coated.*

The vessel fabrics represented in this assemblage broadly date second–fourth century AD; however, there are indications that a more specific date can be applied. For example, the very small quantity of Samian in the assemblage suggests that the site peaked in the third–fourth century AD, since if the peak had been during the second–third century AD, then a greater number of Samian vessels would have been expected. Even on small rural sites in Cambridgeshire, it is fairly typical that Samian accounts for up to 5% of an assemblage (Willis 1998). In this assemblage, it accounts

for just 2%. Given the nature of the assemblage it therefore seems most likely that the lack of Samian is a reflection of chronology rather than status/wealth. This is further supported by the presence of several Late Roman wares, including Oxfordshire red-slipped wares and Hadham red-slipped wares, which are known to have been third–fourth century AD in date.

The higher frequency of Nene Valley products is somewhat expected, given the date of the site and its relative proximity to the production centres. The same can be said of the Horningsea wares, which were produced within five kilometeres of the site. The wide variety of vessel fabrics identified is an indication that the site had access to wide trade networks.

The assemblage contained a wide variety of vessel forms (see Table 12). Jar sherds were the most common type (42% of all diagnostic sherds), but beakers and dishes were also well represented (each accounting for *c.*16% of all diagnostic sherds). Most of the main Roman vessel forms are represented in this assemblage, including jars, dishes, flagons, mortaria and bowls as well as some more unusual forms such as Castor box.

Form	No. of sherds	Wt (g)
Amphora	3	570
Beaker	36	349
Beaker/jar	2	7
Bowl	16	590
Castor box	4	56
Dish	35	844
Flagon	2	92
Jar	94	3794
Mortarium	12	717
Open	2	195
Storage jar	17	1445
Unknown	351	5527
TOTAL	**574**	**14186**

Table 12. *Arbury in-track site: All pottery by form.*

Given the nature of the excavation, there is not the usual opportunity to interrogate the data in terms of its deposition. One feature, however, lends itself to more detailed analysis. F.1, a northeast-southwest ditch, contained 57% of all of the pottery recovered, totalling 327 sherds, weighing 7906g and representing 11.73 EVEs. The material was recovered from several slots along the length of the ditch, from three different contexts; the upper fill [005] contained most of the material, totalling 221 sherds of pottery (5323g, 8.72 EVEs). The lower ditch fill [006] contained 92 sherds of pottery (2352g, 2.57 EVEs). Context [011] contained 14 sherds, weighing 231g (0.44 EVEs). As suggested by the mean weight of the pottery from this feature (24.2g), this included large and unabraded sherds, suggesting primary deposition. The pottery from F.1 has a date range from second–fourth century AD, although the bulk appears to be third–fourth century AD. There is no clear difference in date between the different contexts in the ditch, suggesting fairly rapid deposition.

The composition of the assemblage in terms of vessel forms is a good marker of both status and function. Following the methodology used by J Evans (2001), the Arbury Park assemblage was plotted against other sites in the area in order to compare the frequencies of bowls, dishes and beakers versus jars, a division not necessarily between coarsewares and finewares, but between cooking and serving vessels. For the purposes of this comparison, sites from all Roman periods have been used, primarily because there is little change in basic assemblage composition from the Early to the Late Roman period. For these four vessel types jars always feature prominently, and the other three types consistently occur. Contemporary Late Roman sites will, however, be highlighted for closer comparison. This method also allows for a more accurate comparison of sites, regardless of the size of the assemblage.

As is evident from Fig. 15 the assemblage from Arbury has the lowest percentage of jars and one of the highest percentages of beakers, bowls and dishes. The closest sites to Arbury in terms of assemblage composition were Cambourne (Seager-Smith 2009) and Orton Hall Farm (Mackreth 1996), both of which had more complex histories than many sites. It is suggested that Orton Hall Farm operated as an 'imperial estate' (Mackreth 1996), representing more than one household. Cambourne, on the other hand, appears to have been a series of farmsteads; however, its longevity, stretched across almost the entire Roman period, perhaps explaining why there was a greater variety of vessel forms present in the assemblage.

Though by no means conclusive, the comparison of assemblage composition between different sites in Cambridgeshire highlights Arbury as being different from other sites in the area, especially sites which were contemporary. Vicars Farm (Lucas and Whittaker 2001; Evans forthcoming *b*), Waterbeach (Ranson 2008; Tabor 2010) and Northwest Cambridge (Evans and Newman 2010) are the closest in distance to Arbury and represent three different types of site. Vicars Farm was a small settlement to the south of the Roman town of Cambridge and which spans most of the Roman period, although it appears to peak in the third–fourth century AD. Northwest Cambridge also saw a longer period of occupation (throughout the Roman period), with some evidence of high status activity, including ceramic building materials (CBM) and worked wood. The pottery assemblage, however, does not show the same composition as at Arbury, having a higher percentage of jars and far fewer beakers, bowls and dishes (it should be noted that Northwest Cambridge was an evaluation rather than an excavation and that therefore the evidence is somewhat restricted). Finally, the assemblage from Waterbeach comprised material from several large middens thought to be associated with a possible shrine. Despite these three examples representing a variety of site types, they all have very similar assemblage compositions, and contain much higher percentages of jars, and much fewer beakers, bowls and dishes than Arbury.

That Arbury had 'high' status, later Roman activity is not a new discovery and there are several archaeological sites in the vicinity of the in-track site, which demonstrate that it was located within a larger settled area (see main discussion below).

Without further work in the vicinity, interpreting the pottery assemblage is problematic. However, it is clear that this assemblage differs in composition to other local sites, especially those which are contemporary. The pottery demonstrates that the nature of occupation at the site was different from the rural/farmstead type sites, but also from sites with more specific functions including a possible shrine. With the lack of any definite 'Villa', perhaps the best analogy and closest fitting site in terms of date and more importantly function is Orton Hall Farm, which showed evidence for a range of activities including milling, brewing and animal management (Mackreth 1996).

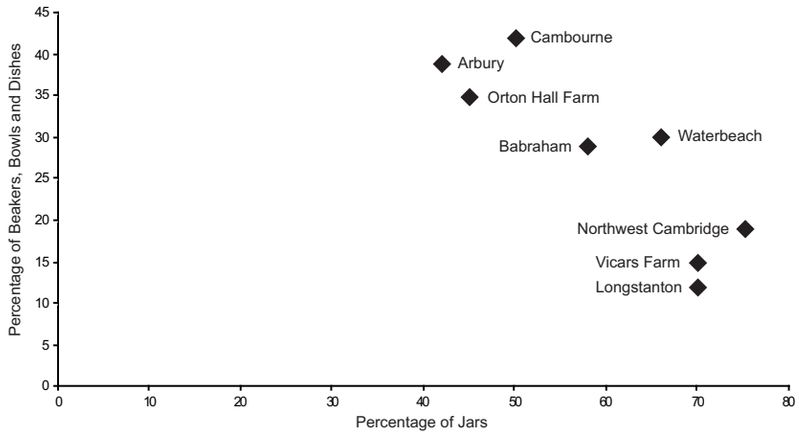

Figure 15. *Percentages of jars compared to beakers, bowls and dishes (based on sherd counts) from Roman sites in Cambridgeshire.*

Roman Building Material
Katie Anderson

A large amount of Roman tile totalling 163 pieces and weighing 17,174g was recovered from the site, along with 49 brick pieces (weighing 1664g). The tile assemblage comprised pieces of varying size with some very large, semi-complete tiles, to small fragments. The overall mean weight was relatively high at 105.4g. All four major tile types were represented in varying quantities (see Table 13). *Tegula* roof tiles were the most frequently occurring, totalling 31% of the assemblage. *Imbrex* roof tiles, floor tiles and flue tiles were, in comparison, poorly represented. Due to the condition of the assemblage, there was a large number of pieces which were non-diagnostic.

Type	No. of pieces	Wt (g)
Box Flue	4	303
Floor Tile	6	1966
Imbrex (roof tile)	11	1571
Tegula (roof tile)	51	10001
Non-diagnostic	91	3333
TOTAL	**163**	**17174**

Table 13. *Arbury in-track site: All Roman tile by form.*

The majority of the tile came from ditch F.1, totalling 119 pieces, weighing 12,091g and in particular, the upper fill of the ditch, context [005], which contained 93 pieces, weighing 10,524g. Within the ditch, 34 pieces of *tegula*, seven pieces of *imbrex*, six of floor tile and four of box-flue tile were identified.

Smaller quantities of tile were recovered from eight other contexts. Context [022], a pit/well, contained 18 pieces of tile, weighing 2764g, thus with a high mean weight of 153g. This included seven *tegula* and ten *imbrex* pieces, some of which were very large (Table 14).

The brick assemblage was primarily recovered from one feature (pit/ditch F.2, contained 47 pieces). It was relatively fragmented with a mean weight of 33g. Although dating of tile and brick is problematic, their association with the Roman pottery suggests a broad second–fourth century AD date, with a more specific third–fourth century AD date more likely.

The tile and brick represented in this assemblage indicate the presence of at least one Roman building, although there was no evidence of any *in situ* building footings during the excavation. The range of tile forms recovered, including the presence of a small number of box flue tiles and floor tiles alongside a higher number of roof tiles, may suggest a high status dwelling, such as a villa.

Context	No. of pieces	Wt (g)
5	93	10524
6	19	1179
11	7	388
16	6	529
18	3	394
20	3	121
22	18	2764
24	4	537
26	3	262
28	5	268
38	1	44
Surface	1	164
TOTAL	**163**	**17174**

Table 14. *Arbury in-track site: All Roman tile by feature.*

Faunal Remains
Vida Rajkovača

Excavations at the Arbury in-track site resulted in the recovery of 159 assessable bone specimens (weighing 9008g) of which 92 (58%) were identified to species. The faunal material was hand-collected and does not include any material from the sieving of bulk soil samples.

The state of preservation ranged from moderate to quite good with 98% of the assemblage demonstrating moderate preservation with minimal weather and surface exfoliation. Other taphonomic factors such as butchery and gnawing are rare, noted on a total of only 18 specimens.

The majority of the faunal material originated from the substantial ditch F.1 accounting for *c.* 75% of the assemblage. Ditch F.4 yielded 16 assessable specimens of which 12 were identified to species while Roman quarry pit F.6 contained three bone fragments. The remainder of the assemblage

came from pits amounting to a total of 21 bone fragments (Table 15).

Feature types	NISP	NISP%
Ditches	135	85
Pits	21	13
Quarry pits	3	2
Total	**159**	**100**

Table 15. *Arbury in-track site: Distribution of bone by feature type.*

A complete range of species identified is given in Table 16. Bones from domesticated species predominate accounting for 98% of all identified specimens. Sheep/goat are the most commonly found, with both sheep and goat being positively identified within the assemblage. The prevalence of sheep/goat is even greater when Minimum Number of Individuals (MNI) is taken into account, as they collectively make up a total of six individual animals on site. Cattle were of secondary importance, followed by pig, horse and dog. The remainder of the assemblage were two specimens identified as red deer and wild boar.

Taxon	NISP	NISP%	MNI
Cow	33	35.8	2
Sheep/goat	31	33.7	3
Sheep	3	3.3	2
Goat	2	2.2	1
Pig	9	10	3
Horse	6	6.5	1
Dog	6	6.5	1
Red deer	1	1	1
Wild boar	1	1	1
Total identified to species	**92**	**100**	
Cattle-sized	34	.	.
Sheep-sized	30	.	.
Bird n.f.i.	3	.	.
Total	**159**	**.**	

Table 16. *Arbury in-track site: Number of Identified Specimens (NISP) and Minimum Number of Individuals (MNI).*

Calculations of available meat indicate that the majority of consumed meat would have come from cattle. The importance of these calculations lies not so much in the absolute amount of meat available on the site, but rather on the relative importance of the meat producing species (Table 17). Calculations of available meat were based on the number of individuals identified. The identified individuals were grouped into age groups and carcass and dressed weights were estimated on the basis of figures quoted by Legge (1981, 99) with some adjustments to suit the age groups. Although the metrical data is insufficient to allow realistic calculations of the size and weight of the domestic species, it is possible to assess the relative meat output of each member of the domestic fauna.

The available age data for domestic species is insufficient for discussions about the site's economic practices; however, based on evidence derived from the mandibular toothwear, suggestions can be made regarding animal exploitation. Five sheep/goat mandibles were ageable, all showing different wear stages (2–6 months, 9–12 months, 1–2 years, 4–6 years and 6–8 years of age). Three pig mandibles, however, all gave the age at death at the end of their second year. A single cow mandible was aged as an old adult. Mandibular tooth wear for cattle and sheep/goat indicates that the animals were maintained into adulthood; however, two juvenile specimens are also present.

The scope of this study can be widened by plotting the relative frequency of the specimens of the main livestock species by NISP (see Table 18) on the triangular graph presented by King (1988, 54; Fig. 6.4). The slightly higher percentage of sheep/goat at 45%, followed by cattle at 42% and relatively low pig at 13% (the ratios of the three main species calculated out of 100%) placed the Arbury in-track assemblage within the polygon indicating un-Romanised settlements. Based on the arguments offered by King (1991, 18), the Arbury faunal record has on the one hand the characteristics of an un-Romanised settlement (a high sheep count), whilst, on the other hand displays some features of a villa economy (wild species and birds). Given the fact that hunted species are commonly interpreted as a sign of prosperity (*ibid.*), it could be suggested that the two wild specimens recovered from Arbury are an indication of an increased variety of meat in the diet.

In addition to mammal remains, a large quantity of oyster shell was recovered from the site, of which the majority came from substantial ditch on the south edge. It appears that all of the shell fish had been prised opened and consumed (see Timberlake in Collins and Dickens 2009). Shellfish was a popular delicacy in the Roman period, frequently found on a number of sites across Britain, especially those populated by the Roman Army (Davies 1971). D'Arms' study of the culinary practices in Roman upper-class convivia listed some of the foodstuffs consumed at banquets and these include notable quantities of fresh shellfish ('as many oysters as the guest desired') and 'haunches of venison and wild boar' (D'Arms 2004, 431).

	Age	Average weight (kg)	No. of Individuals	Total carcass weight	Total dressed weight
Cow	>4y	450	2	900	540*
Total			**2**	**900**	**540***
Sheep	<1y	10	2	20	12*
Goat	1-2y	17.5	1	17.5	10.5*
Sheep/goat	>2y	25	3	75	45*
Total			**6**	**112.5**	**67.5***
Pig	>18m	57	3	171	102.6**
Total			**3**	**171**	**102.6****

Table 17. *Arbury in-track site: Age structure of the domestic species and available meat. * indicates Total dressed weight is 60% of carcass weight; ** indicates Total dressed weight is 75% of carcass weight.*

	NISP %				
	Cow	**Sheep/goat**	**Pig**	**Date**	**Reference**
Arbury in-track site (159)	42	46	12	2nd-4th century	this publication
Stonea Grange (6530)	43	45	12	2nd-4th century	Stallibrass 1996
Puckeridge-Braughing (2264)	39	46	15	2nd-4th century	Fifield 1988
Haddon (846)	42	53	5	3rd-4th century	Baxter 2003
New Hall, Cambridge (813)	38	47	15	2nd-4th century	Yannouli 1996
Cambourne (4471)	57	39	4	2nd-4th century	Hamilton-Dyer 2009
Vicars Farm, Cambridge (1849)	72	24	4	3rd-4th century	Clarke forthcoming
Summersfield, Papworth Everard (654)	73	24	3	Romano-British	Rajkovača forthcoming
Orton Hall Farm (1661)	67	30	3	2nd-4th century	King 1996

Table 18. *Percentage of cattle, sheep/goat and pig on Romano-British sites from the region (sample size in brackets).*

As the other categories of finds recovered from the Arbury in-track site (pottery, building material and coins) showed the site was occupied throughout and towards the end of the Romano-British period, it is necessary to investigate the somewhat irregular economy pattern suggested by the faunal record. The collection of faunal remains from the site forms an interesting comparison with assemblages from other sites in the region, with the dominant sheep/goat cohort being particularly important. Despite King's arguments about high cattle numbers on Romanised sites, regional patterns of animal husbandry noted here seem to reflect a sheep-based economy. Although small the Arbury faunal record shows almost identical ratios of the main species as four comparable sites. This steadiness in percentages potentially highlights the importance of sheep in this area; however, cattle would have provided a solid contribution of meat even without being the most numerous species.

Some of the sites used in comparison represent local Iron Age farmsteads that continued into the Romano-British period with only minor changes in their economic practices (Puckeridge-Braughing, Haddon, New Hall and Cambourne). The slight prevalence of sheep on Romano-British sites in the region could imply that certain sites were less Romanised in dietary terms (Stonea Grange, Puckeridge-Braughing, Haddon, New Hall and Arbury in-track), while other sites followed the pattern of increasing Romanization towards the end of the Roman period (Cambourne, Vicar's Farm and Orton Hall Farm). King's emphasis on the prevalence of sheep at un-Romanised settlements appears to be an over-simplification that does not take into account regional factors (King 1996).

The site's later Roman component (third to fourth century AD; see Anderson above) puts even greater emphasis on the argument presented here, as the effects of Romanization in the form of higher cattle numbers should have been visible by the third century AD. An alternative explanation for the patterns observed here perhaps lies in the site's topographical position on Third Terrace river gravels with patches of clay at 12.5m OD (Collins and Dickens 2009). Given that sheep tend to occur in higher numbers on better-drained soils, while cattle numbers are higher on the riverside sites, the animal husbandry of sites at relatively high topographic positions could, therefore, be predicated on the existence of a sheep economy irrespective of whether or not the sites were Romanised in cultural terms.

Discussion

Discussion of the findings at Arbury, particularly those from the in-track site, need not be concerned with questions of period transition or change, as this is a site with its peak of activity during the third/fourth century AD. Determining the nature and status of the site, given the small exposure and recovered assemblages, however, is more problematic.

The Roman rural landscape to the north of Cambridge remains only partially understood. It is clear that it is a relatively 'busy' area in that, as noted above, there have been finds of a possible villa, other buildings, some of stone, stone coffin burials, earthworks, coins and pottery (Alexander *et al*. 1966, 1967, 1968, 1969, Frend 1955, 1956, 1959). The Roman road called Akeman Street runs through the area on a southwest–northeast alignment immediately adjacent to the Arbury Park site and about 285m east of the in-track site. Plotting the known Roman elements in this landscape, however, shows that most of it lies on the east side of Akeman Street (Fig. 16). To the west are finds of earthworks, kiln waste, coins and inhumations but, at least as far as the CHER record is concerned, no buildings. There are, however, elusive references to the possible presence of buildings. In his 1995 paper on the Arbury Iron Age ringwork some 900m to the southwest, Evans notes a description given by Professor McKenny Hughes in 1904 (Evans and Knight 2002, 26). Detailed reading of McKenny Hughes gives the following account:

> I learned also from Mr Unwin that when a drain was being cut across *the field south of the railway, and north-east of Arbury*, a thick wall built of bricks and large stones was crossed. These stones shown to me by Mr Unwin as similar to those of which the wall was constructed were fragments of oolite, chalk rock etc., out of the drift. The mortar was so strong that the workmen had much difficulty in cutting through it. The wall was about six feet in thickness and ran from south-east to north-west crossing the drain obliquely. It was only seen where the drain passed through, and, as it does not appear anywhere near the surface, there are no indications from which we can infer how far it ran either way.
> (Hughes 1907, 211–212, emphasis added)

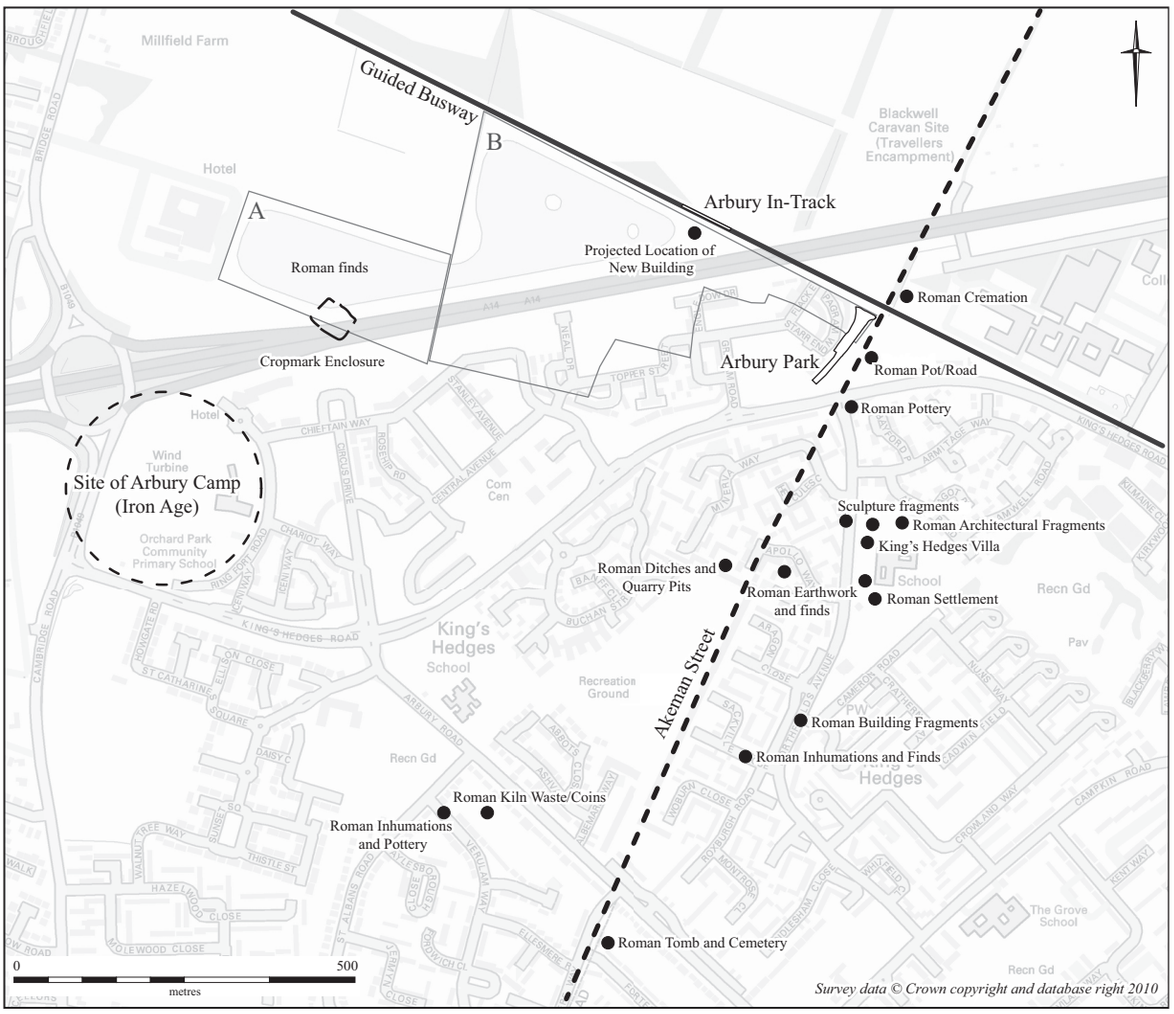

Figure 16. *Arbury Sites: Known sites and finds in the wider area. A: "the next field but one on the north, to the east of Cawcutts Farm",B: "the field south of the railway, and north-east of Arbury").*

He also refers to finds of Roman coins and pottery near to the ringwork most of which "were found in *the next field but one on the north, to the east of Cawcutts Farm*" (*ibid*, 211, emphasis added).

Examination of a pre A45/A14 map shows that "the field south of the railway, and north-east of Arbury" is the one now largely taken up by the north arm of Impington Lake, and "the next field but one on the north, to the east of Cawcutts Farm" is the field occupied by the southern arm of the same lake. The lake was created in 1977 during construction of the A45 (now A14) and unfortunately, no archaeological work was carried out at that time. The finds reports, the "wall" and Evans' reporting of a rectangular enclosure on the southern edge of the Cawcutts Farm field (Evans and Knight 2002, fig. 1) suggests that there is also a significant Roman component in the landscape west of Akeman Street. This is much enhanced by the discovery of the building debris, coins and pottery at the in-track site. Casual observation of the lake edges during low water levels in early 2008 showed that there is archaeological material evident in the 'shores', including pottery and tile (D. Webb pers. comm.). It is likely, therefore, that building remains survive beneath the small patch of woodland immediately to the south of the in-track site and around the eastern shore of the lake. The nature of such a building can at present only be hinted at, but the quantity of material from such a small area suggests it may have been substantial. The precise location of Mr Unwin's wall cannot now be determined, but it must be considered to be either part of the building indicated by the in-track site finds or a component of a larger complex of which the in-track site structure also forms a part.

The pattern of settlement east of Akeman Street demonstrates that, even with a villa present (the King's Hedges structure is interpreted as being a villa, although the 1995 excavations have not yet been published) there are other buildings, some substantial, in the vicinity as well. The pattern of British villas in the later part of the Roman period does vary, both regionally and through time. In some areas villas are

associated with what Millett describes as "villages" (though not by a Medieval definition). Catsgore in Somerset, for example, reached its peak in the third and fourth centuries when a group of 12 farms, each in their individual enclosures, were probably subject to a villa located some way away (Millett 1990: 208). Catsgore cannot provide a direct analogy for what is happening in a similar period near Cambridge, but does serve to demonstrate that a simplistic "Country House" model of the villa economy does not suffice.

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Plate 3. *Cambridgeshire Guided Busway Swavesey in-track site:*
A. looking southeast showing continuation of ditch F.48 as an earthwork;
B. looking south showing continuation of ditch F.14 as an earthwork.