# Salvage investigations within a Romano-British settlement and cemetery at Kempston Box End, Bedfordshire

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*SUMMARY*

*In 2000 and 2004, Albion Archaeology undertook archaeological investigations at Box End quarry, Kempston, Bedfordshire. Trackways, a ditched enclosure system, settlement-type features and an inhumation cemetery were revealed — part of the known extensive Romano-British settlement centred on Kempston Church End. The results of the fieldwork are described and then discussed within the context of the larger settlement, adding significantly to our understanding of the origins, extent, layout, development and status of the settlement.*

## INTRODUCTION

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### Site location (Fig. 1)

In 2000 and 2004 respectively, Albion Archaeology (formerly Bedfordshire County Archaeology Service) undertook an evaluation and subsequent salvage investigation at Box End quarry, Kempston. The quarry, subsequently Box End Park watersports centre, was located between Kempston Box End and Kempston Church End, *c*. 3.5km to the west of Bedford and immediately west of the River Great Ouse, lying entirely within its floodplain. The solid geology comprises Jurassic strata, including Oxford Clay, which is overlain by sands and gravel. The 1,800m$^2$ area subject to salvage investigation was centred on TL 0134 4821.

### Archaeological background (Fig. 2)

The quarry is situated within an area of known archaeological remains, recorded in the Bedfordshire Historic Environment Record (HER). It is on the northern edge of an extensive Roman settlement (HER 162), which was partially investigated in 1991 and 1992 in advance of the construction of the Southern Orbital Sewer (Dawson 2004). Of particular relevance to the quarry are Romano-British ditches and large pits that were found *c*. 20m to the east (Dawson 2004, 191 and fig. 5.96), and human bones found in an area stripped of topsoil *c*. 35m to the south (Dawson 2004, 195). Linear crop-marks suggestive of boundaries and trackways have been observed in the field immediately west of the quarry (HER 13976).

To the east of the River Great Ouse, within the area known as the Biddenham Loop, extensive settlement and funerary remains are known from the Neolithic period onwards. In particular, there was considerable settlement activity during the Roman period.

### Planning background

An application for mineral extraction and subsequent restoration of the site was accompanied by the results of an archaeological field evaluation undertaken by Bedfordshire County Archaeology Service (BCAS 2000). Following refusal and an appeal, permission was granted. Unfortunately, despite the site's clear archaeological potential and the County Archaeological Officer's (CAO) recommendation that a further programme of archaeological investigation was required, only an access condition was put on the permission.

Quarrying operations commenced in 2004. It is believed that earthmoving had been underway for several weeks before a member of the public reported the discovery of human bones to the police and to the CAO. At a site meeting on 28th April, attended by the landowner, quarry operator, CAO and an Albion Archaeology representative, a large number of archaeological features were visible in the south-west part of the quarry where the gravel had been exposed but not yet extracted. Many of the visible features contained scattered human bones and were clearly graves. Extraction works were temporarily halted and the CAO agreed to provide funds for a 3-day salvage investigation by BCAS. At the end of this period both parties agreed to a 2-day extension. The work was carried out between 4th and 12th May 2004.

### Archaeological investigations

*Evaluation*

The evaluation comprised geophysical survey and trial trenching/test pitting. Its extent was restricted by the presence of deep alluvium (in practical terms difficult to penetrate) and the Southern Orbital Sewer (the construction of which was likely to have destroyed any archaeological remains within its easement, or at least made their detection more difficult). Accordingly, the evaluation targeted land where alluvial deposits were less

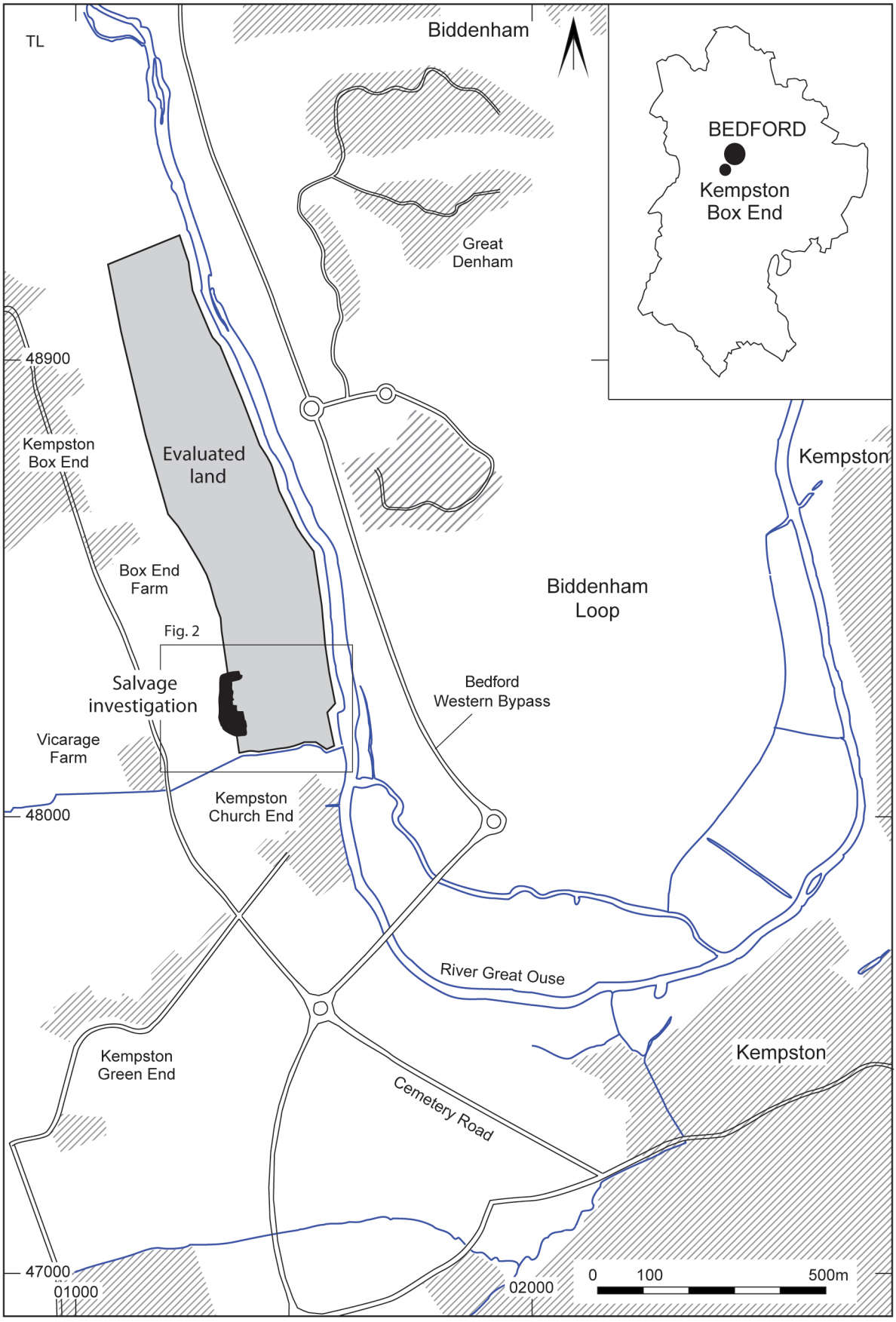


Figure 1: Location of evaluated land and salvage investigation area

than 1m deep and where crop-marks or other archaeological remains were already known.

The evaluation demonstrated the existence of former channels of the River Great Ouse within the extraction area. Only their upper levels were examined, but boreholes, previously dug to assess the mineral reserve, indicated the presence of a western and eastern channel. These are likely to have formed during the late glacial

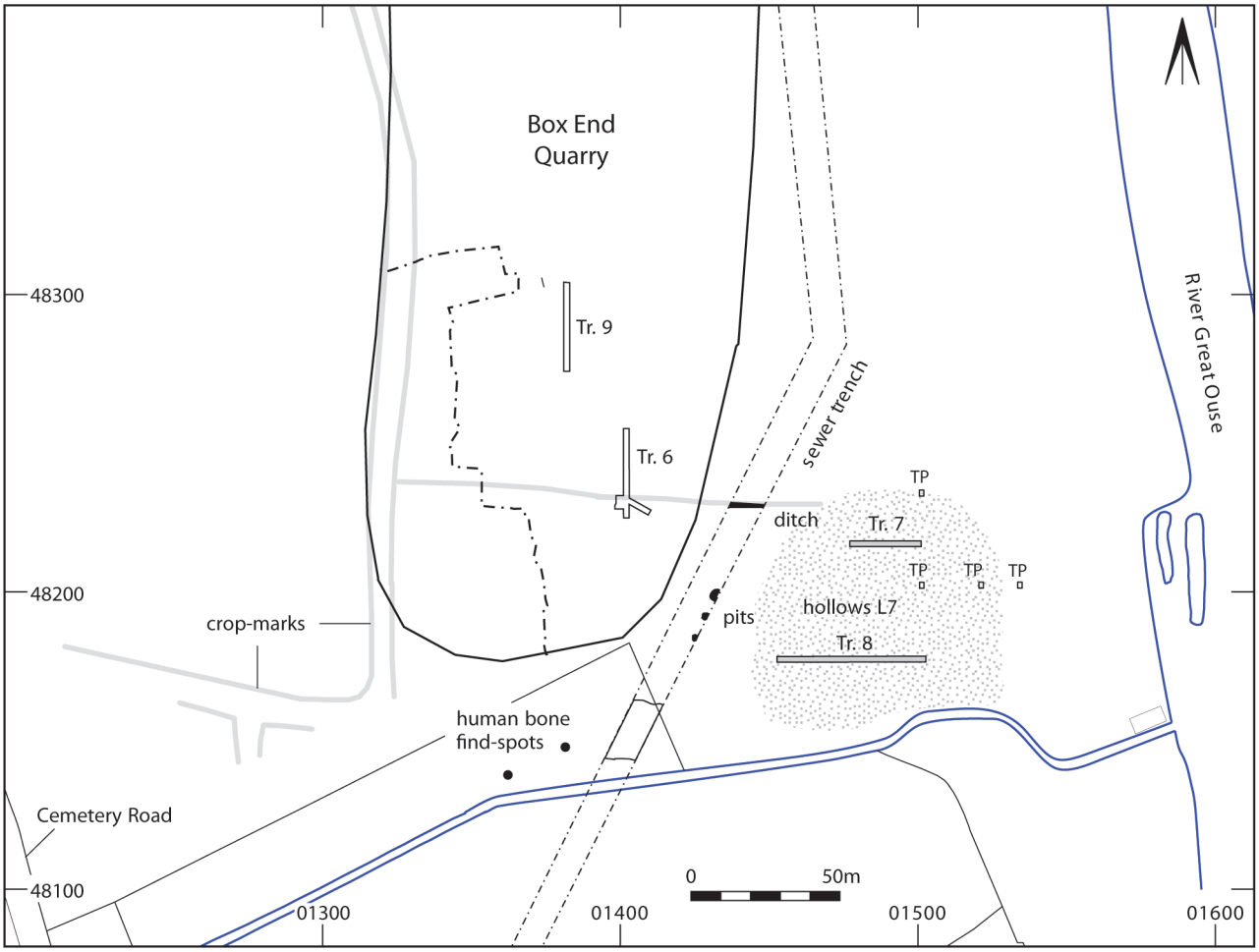


Figure 2: Archaeological evidence in the vicinity of the salvage investigation area

period (Mark Robinson pers. comm.). Pollen recovered during the Southern Orbital Sewer investigations from organic and peat deposits probably within the eastern channel were attributed to the period from, or just prior to, 10000BP until *c*. 8500BP (Scaife 2004, 281).

The earliest direct evidence for human activity comprised residual worked flints, likely to be Neolithic or Bronze Age in date. The southernmost three trenches produced Romano-British features/deposits and artefacts, indicative of boundaries, graves and the dumping of material (Fig. 2). It is unclear if the dumped material in Trenches 7 and 8 was part of a deliberate attempt to level natural undulations in the ground surface (probably over a former river channel) or whether that area simply represented a convenient place in which to dispose of rubbish. The graves were subject to sufficient hand excavation to demonstrate the presence of articulated human remains but were otherwise left in-situ.

*Salvage investigation*

Site conditions

The salvage investigation was limited to the south-west corner of the quarry (Fig. 1). Site conditions can, at best, be described as poor. Machining had generally ceased at the top of the gravel, but the surface was extremely uneven, obscured by loose soil in places and with deeper, water-filled undulations (Pl. 1). All features that were identified had been truncated by the machining to varying degrees, and it is likely that others had been removed altogether. This variation in survival needs to be borne in mind when considering the all-features plan (Fig. 3) and other plans in this article: for example, undue weight should not be placed on the absence of smaller features in certain parts of the investigation area.

Fieldwork methodology

The fieldwork methodology was a compromise between the funding and time available, and understanding the surviving archaeological remains (Plates 2–3). Other than graves or grave-type features, only atypical features and a sample of different types of features in different spatial locations were excavated, with these restricted to features which appeared to be largely undisturbed by quarrying operations. Although a full pre-excavation plan was produced, post-excavation plans and section drawings were restricted to scaled sketches on gridded paper on the reverse of context sheets, with the addition of vertical photographs of graves whenever possible. No OD heights were measured, and metal artefacts were recorded only by context number, not 3-dimensionally. Furthermore, no ecofactual sampling was undertaken.

*Post-excavation analysis*

The following structural hierarchy was defined during analysis:

- S (*Sub-group*) numbers: only used in this report for graves
- G (*Group*) numbers: interpretative entities, *e.g.* a building, oven/furnace, ditch lengths, concentration of pits *etc*.

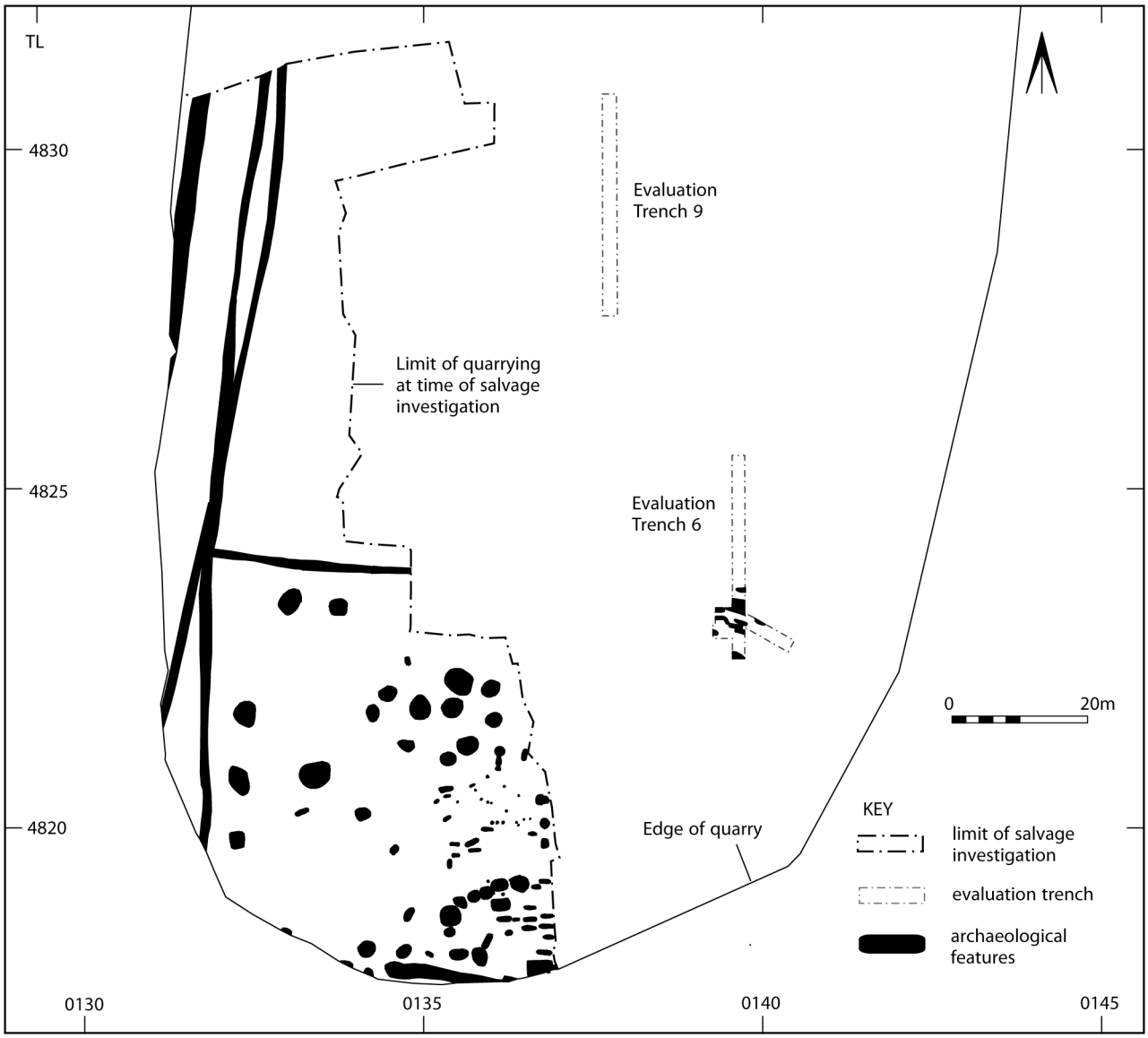


Figure 3: Plan of all features identified within the salvage investigation area

- L (*Land-use area*) numbers: collection of broadly contemporary and spatially coherent G numbers, *e.g.* trackway, enclosure, activity focus *etc*.
- Phases: broad, chronological divisions, *e.g.* late Iron Age/early Roman, Saxon *etc*.

The methodologies employed for analysis of the artefacts and ecofacts are described in their relevant sections.

### Structure and terminology in this report

Following this introductory section, the site narrative presents the results of the investigations within a phased chronological framework. This is subdivided by Land-use area (L prefix) and Group (G prefix).

In addition to describing the archaeological features, the site narrative summarises key artefactual and ecofactual evidence, which is then presented separately in more detail. The report concludes with a discussion of the results of the investigations. Appendices contain more technical data on the pottery and funerary remains.

## RESULTS OF THE INVESTIGATIONS

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### Phase 1: Early Romano-British enclosure system (Fig. 4)

An enclosure system L1 was established during the early Romano-British period. Based on both the Southern Orbital Sewer and Box End investigations, it covered at least 1.5ha. Two large enclosures were identified to the east of a north–south aligned boundary that may have been part of a trackway, although this can only be conclusively demonstrated during Phase 2. The northern enclosure contained no internal features and is, therefore, likely to have been a field. By contrast, the southern enclosure contained a large number of pits (L4) and a well and possible kiln (L6). Similar large pits were observed *c*. 50m to the east during the watching brief associated with construction of the Southern Orbital Sewer (Fig. 2).

These Phase 1 features produced 975 sherds (30.3kg) of pottery. It survived in good condition, with an average sherd weight of 31g, and was largely unabraded. The assemblage comprises vessels characteristic of the late

Plate 1: Ground conditions once machining had been stopped in the cemetery area

Plate 2: Archaeological investigations under way

'Belgic' Iron Age and the 1st to late 2nd centuries AD. The presence of the former might suggest that the settlement had pre-Conquest origins, although the earlier pottery forms may simply have continued in use alongside the earliest Romanised vessels. Most of the samian ware from the pits is Flavian or Trajanic, and many of the pits may well date from this period (AD79–117). The three other recovered artefacts (toiletry spoon, iron knife and glass vessel fragment) also fit with a late 1st/early 2nd-century date.

A total of 231 animal bone fragments were recovered from this phase, mainly from pits L4. Species identified were cattle, sheep/goat, horse, pig and dog (Table 6).

*Ditched enclosure system L1*

The rectilinear enclosure system L1 comprised parts of two large enclosures within the Box End investigations. To the west they were defined by north–south boundary ditch G11, which had previously been observed as a linear crop-mark continuing to the north and south of the salvage investigation area; their eastern boundary was not located. The absence of features to the west of ditch G11 could indicate that it marked the eastern side of a trackway. Enclosure ditches G6 and G10 were perpendicular to the north–south ditch and were *c*. 60m apart. Both were only observed for *c*. 18m within the salvage investigation area, but G10 at least is known from other evidence to


Plate 3: Archaeological recording in progress

have extended for at least 150m. A 5m wide gap in ditch G6 suggests an access point from an adjacent enclosure to the south of the salvage investigation area.

The excavated ditch segments produced *c*. 6kg of pottery, including samian ware, and a small quantity of animal bone — the majority from the secondary fills of ditch G10. A possible dog burial was identified in ditch G11.

*Enclosure ditch G6*
Ditch G6 defined the southern limit of the southern enclosure, and was 2m wide and 0.55m deep (Fig. 5: n).

*Enclosure ditch G10*
Ditch G10 formed the east–west division between the two enclosures. Where truncated by the quarrying operations it was less than 1.2m wide and *c*. 0.25m deep (Fig. 5: b), although in Trench 6 it was 2.5m wide and at least 0.55m deep (Fig. 5: c).

*Boundary ditch G11*
Ditch G11 was visible for *c*. 115m within the salvage investigation area, but crop-mark evidence suggests that it was over 270m long. The ditch was 0.8–1.4m wide and 0.5m deep (Fig. 5: a). A pair of mandibles from an old dog and a pair of ulnae, probably from the same animal, were found within the ditch. These may represent a disturbed dog burial, as evidenced by the presence of gnawing damage on one of the ulnae.

## *Pits L4*

The southern enclosure contained forty-two pits, including a possible one (G31) identified in Trench 6. Most were large, *c*. 1.5–4m in diameter but less than 1m deep, and had steep sides and fairly flat bases (Plates 4–5). Those within the salvage investigation area have mostly been assigned, largely on spatial grounds, to six main groups G7, G19, G20, G21, G22/23 G24. The majority of the pits were located in two clusters — G19 to the north-east, and G7 and G22/23 to the south-east. Four of the pits were truncated by Phase 2 graves.

Most of the excavated pits contained a sequence of primary, secondary and tertiary fills, indicating that they filled up gradually over time. Approximately 24kg of pottery was recovered from the pits (nearly 80% of the Phase 1 assemblage). A few late 'Belgic' Iron Age sherds were recovered from the primary fills, but these were always associated with Romanised forms. The majority of the pottery was derived from secondary and tertiary fills, which also produced moderate quantities of animal bone, smaller quantities of fired clay, slag, a nail, a Roman toiletry spoon (RA 3) and an early Roman iron knife (RA 7).

*Pits G7*
G7 comprised an alignment of five pits, adjacent to and parallel with enclosure ditch G6. A sixth pit was not in this alignment but appeared to be situated within the southern entranceway, suggesting that it may have been later in date. In general, the pits were either oval or circular in plan and 1–3m in diameter. The one excavated pit was *c*. 0.9m deep (Fig. 5: m).

*Pits G19*
These eleven pits were concentrated in an area c. 15m by 20m in extent. Overall, they varied from oval to circular in plan and were 1.5–4.5m wide. The three excavated examples were 0.25–0.7m deep, with steep sides (Fig. 5: d and e). At least one appeared to have been used for periodic waste disposal: its fills included several lenses of dark, charcoal-rich material, separated by bands of redeposited gravel. One pit yielded a nail and a toiletry spoon (RA3) of a type found elsewhere in 2nd-century deposits.

*Pits G20*
These two large, sub-circular pits, *c*. 3.5m in diameter, had suffered severe machine truncation and were not excavated by hand.

*Pits G21*
Six unexcavated pits G21 were located in the western part of the enclosure. Three in a north–south row to the east of boundary ditch G11 were either sub-circular or sub-square in plan, measuring 2.8–4m long and 2.5–3.5m wide; the other three were sub-circular and measured 1.5–4.5m in diameter.

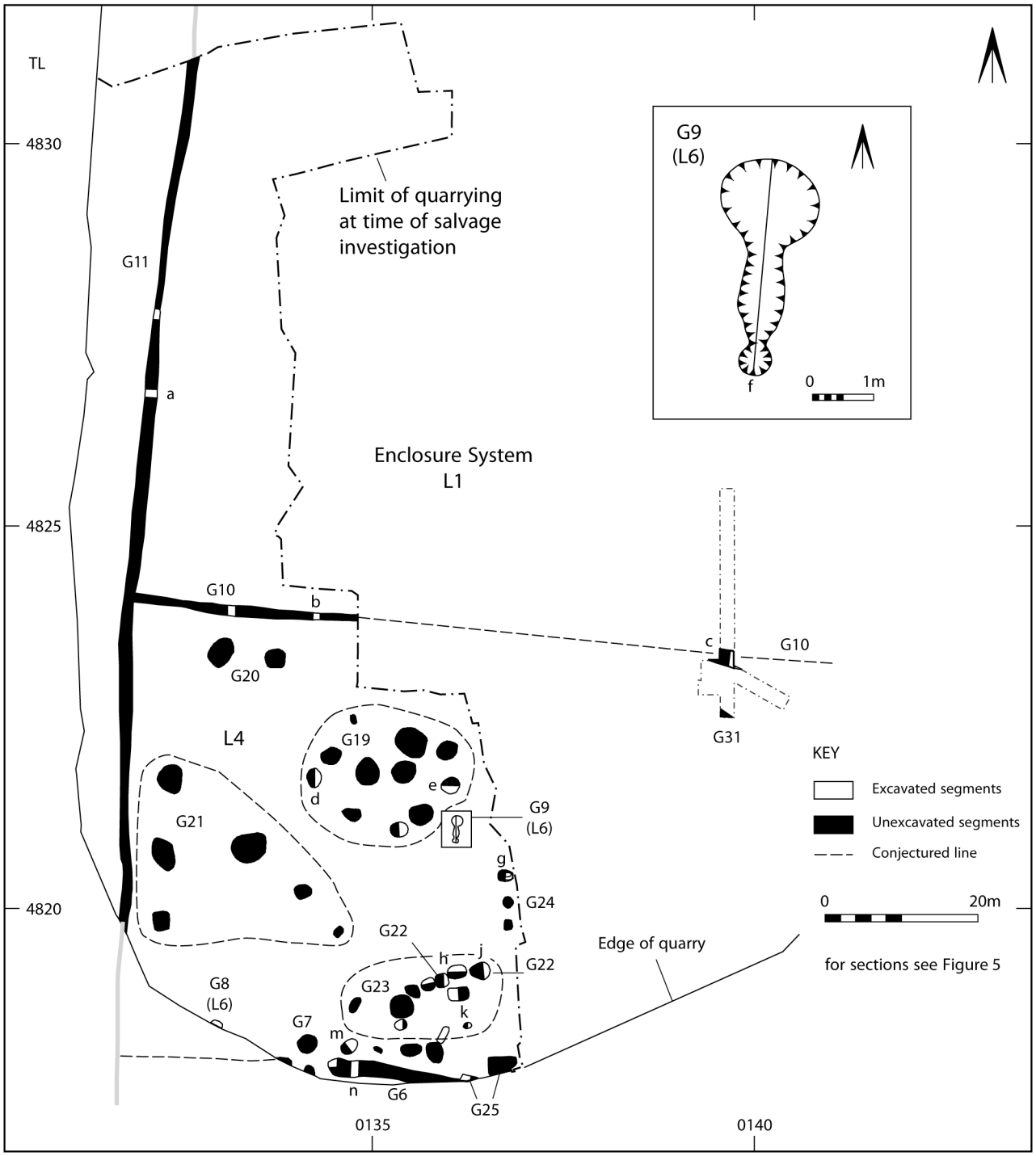



Figure 4: Phase 1: early Romano-British overall plan with inset for possible kiln G9

*Pits G22/G23*
Eleven pits G22/G23 (eight excavated and three unexcavated) were clustered in an area *c*. 8m by 20m to the north of alignment G7. Two were truncated by Phase 2 graves (Fig. 5: h and j) and were assigned to G22. The pits were *c*. 1–3m in diameter and 0.3–1m deep, with steep sides and flat bases (Fig. 5: h, j and k). One yielded an iron knife (RA7) of early Roman form.

*Pits G24*
Three pits G24, spaced *c*. 2m apart, were located centrally within the enclosure on the eastern edge of the salvage investigation area. They were *c*. 5m in diameter and appeared to form a north–south alignment. The excavated example was 0.8m deep (Fig. 5: g) and was truncated by a Phase 2 grave.

*Pits G25*
Two large, rectangular pits were located 1.5m apart from each other in the southern part of the enclosure, against the limit of excavation. The easternmost pit was truncated by a later grave. They were at least 2m long but both continued beyond the limit of excavation. The western pit was 1m deep with vertical sides and a flat base.

*Probable pit G31*
A probable pit G31 was located within Trench 6, *c*. 30m to the east of the salvage investigation area. It was at least 1.4m in diameter, had steep sides and was over 0.5m deep. Its fills were similar to those in the other pits in L4, and produced a similar finds assemblage, including an iron buckle frame (RA 4).

## *Settlement-type activity L6*

The other evidence for activity within the area defined by enclosure L4 comprised well G8 and a possible kiln G9, which produced small quantities of Romano-British pottery and animal bone. The only other artefact of note was

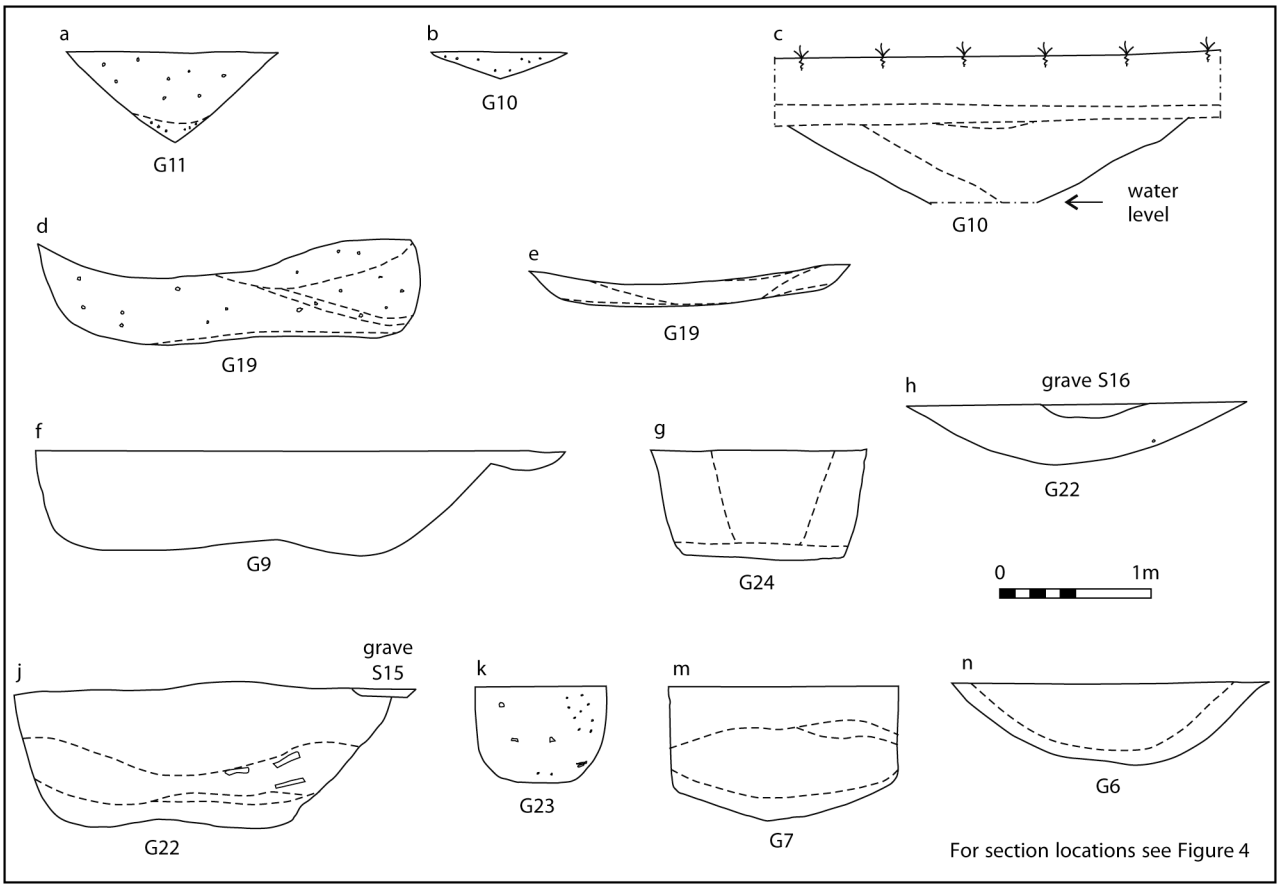



Figure 5: Phase 1: early Romano-British — selected sections

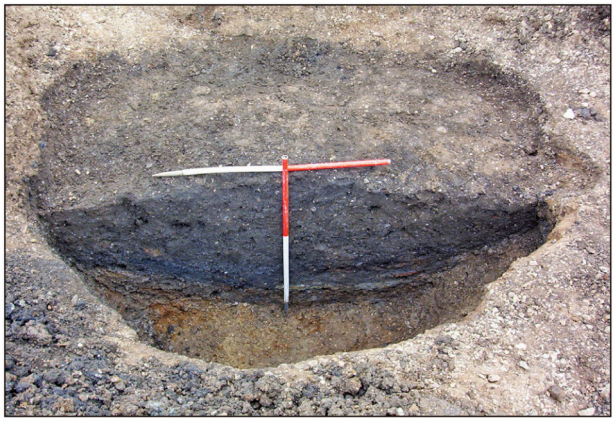


Plate 4: Half-sectioned pit G22 (L4) after removal of grave S15. Scales 1m

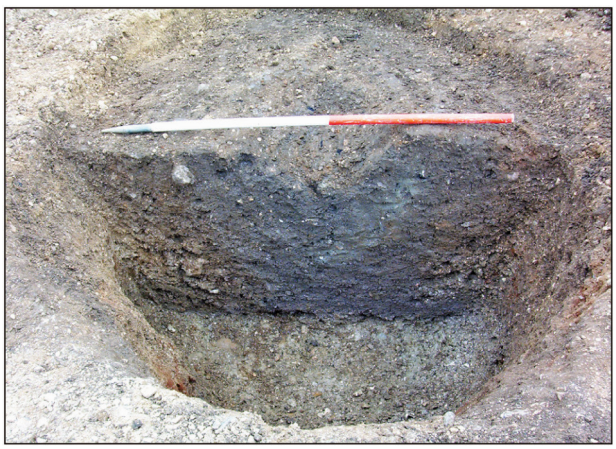


Plate 5: Half-sectioned pit G24 (L4). Scale 1m

Plate 6: Possible kiln G9, looking north. Scale 1m

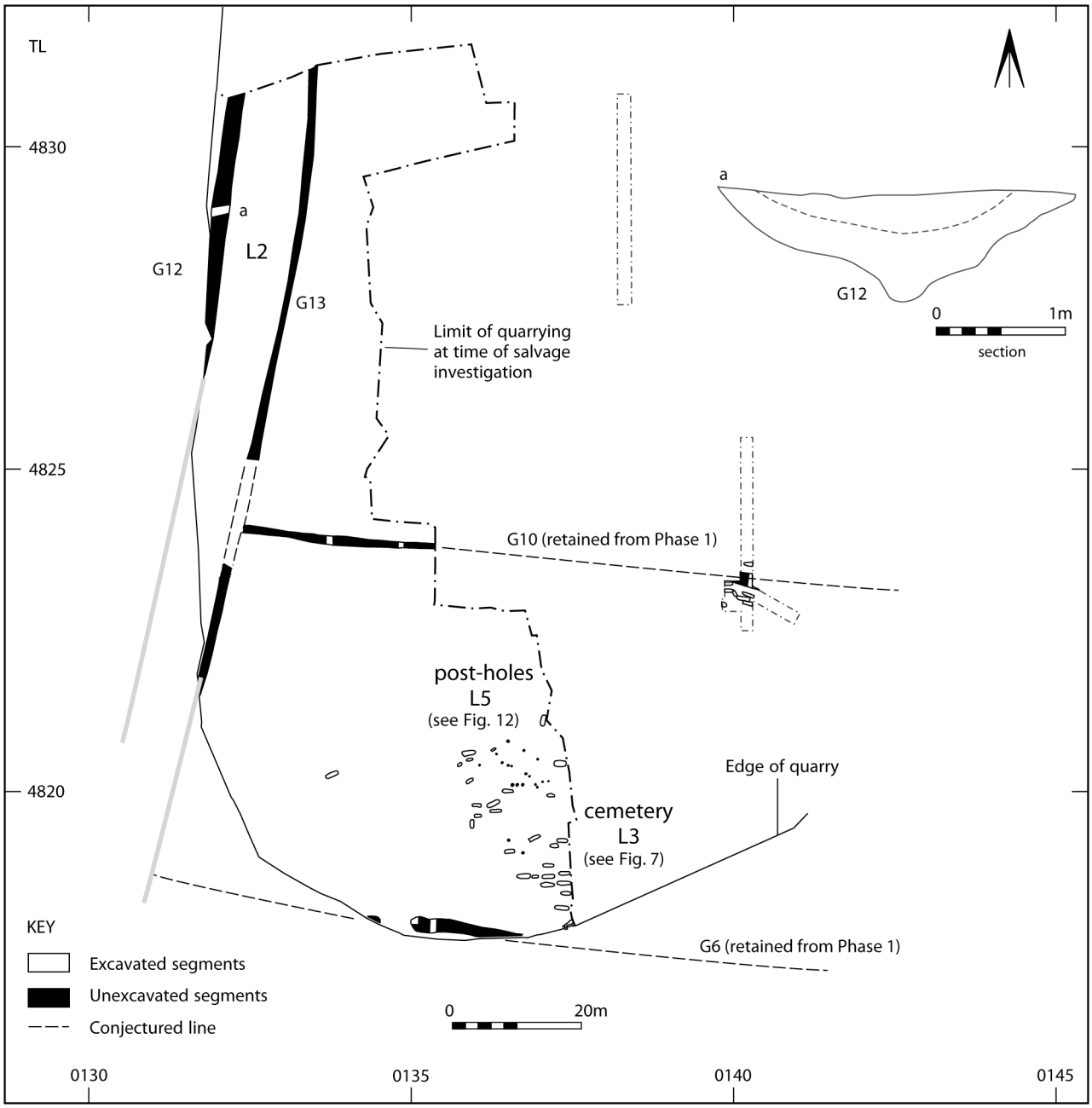



Figure 6: Phase 2: later Romano-British overall plan with ditch G12 section

a fragment of glass vessel (RA 7), dating to the later 1st century or the first half of the 2nd century.

*Well G8*

Well G8 was located in the south-west corner of the enclosure, only partly within the salvage investigation area. The well shaft comprised coursed limestone slabs, 0.15–0.35m in size and bonded with dark grey-blue clay. It was constructed within a pit of at least 1.5m diameter, which was filled with a mixture of gravel, clay and occasional smaller fragments of limestone.

*Possible kiln G9*

A possible kiln G9 was located on the edge of L4 pit-group G19. Its figure-of-eight shape in plan is characteristic of a kiln, but no *in-situ* lining or charcoal-rich fills were present (Pl. 6). It was 3.5m long and aligned north–south. The wider end of the probable chamber lay to the north, measuring 1.6m in diameter and 0.6m deep. The probable stokehole was *c*. 0.8m wide and less than 0.1m deep (Fig. 5: f).

The shape of this feature suggests that it was a kiln, but the absence of any evidence for it use suggests that it was perhaps unfinished. It produced a small, mixed pottery assemblage and a fragment of early Roman vessel glass.

## Phase 2: Later Romano-British enclosure system and cemetery (Fig. 6)

The Phase 1 enclosure system remained in use, but the earlier north–south boundary was replaced by two parallel ditches, *c*. 10m apart, which clearly defined trackway L2. The boundaries of the Phase 1 enclosures were unchanged, although the southern one was occupied by cemetery L3.

Trenches 7 and 8, *c*. 100m east of the salvage investigation area, contained extensive dark deposits L7 that were rich in Romano-British occupation debris. They probably filled undulations in the ground associated with former river channels. It is uncertain if they represent deliberate ground levelling or just rubbish dumped in convenient hollows.

Phase 2 features produced only 159 pottery sherds (2.8kg). The average sherd weight of 17g is almost half

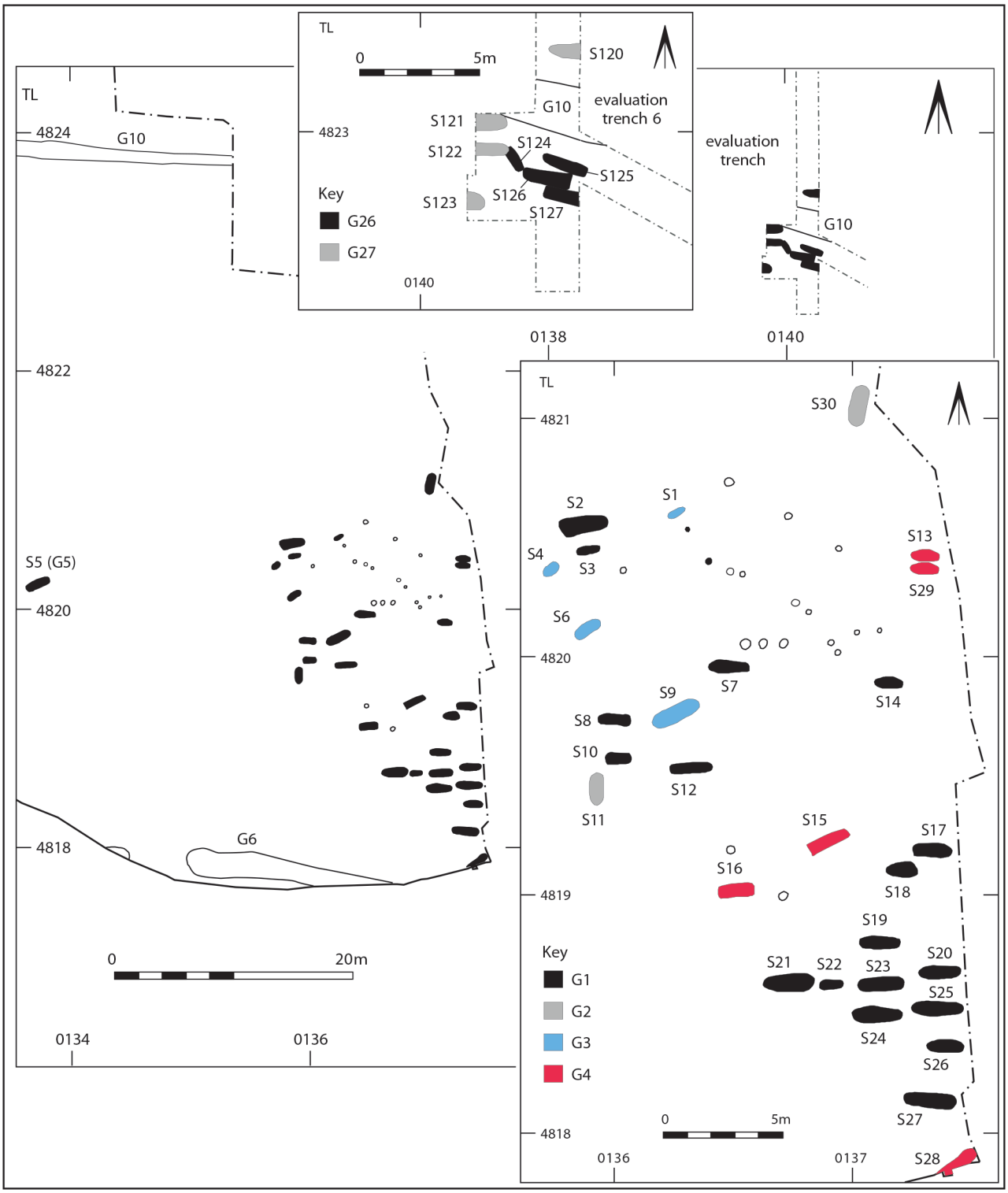



Figure 7: Cemetery L3 with insets for grave groups

that of the Phase 1 assemblage, although the material survives in comparably good condition and is relatively unabraded. Only fifty-nine fragments of animal bone were recovered — mostly human remains from the cemetery, but including one example which is thought to represent grave goods. Sheep/goat, cattle, pig, dog, horse and frog were all recorded (Table 4).

*Trackway L2*

Parallel ditches G12 and G13 defined a north–south trackway that was 10m wide and visible for *c*. 100m within the salvage investigation area. Both correspond to linear crop-marks observed for *c*. 130m to the north and *c*. 40m to the south of this area. The ditch fills produced a small quantity of Romano-British pottery and animal bone.

*Ditch G12*

The western ditch G12 was 3.25m wide and 0.9m deep, with an irregular, V-shaped profile (Fig. 6: a).

*Ditch G13*

Eastern ditch G13 was 1m wide but was unexcavated.

Plate 7: Grave S25 (G1) under investigation, with grave S23 partially visible to the left. Looking north

*Cemetery L3 (Figs 7–11 and Table 1)*

Cemetery L3 was established within the pre-existing Phase 1 southern enclosure. In total, thirty-eight graves were identified: thirty within the salvage investigation area; and a further eight (left unexcavated) within Trench 6, *c*. 35m to the north-east. Five of the graves truncated earlier pits assigned to L4, which is the primary reason for assuming that the entire cemetery is later Romano-British in date. The most reliable other dating evidence derives from the burial in grave S13 which was accompanied by a coin (RA5) dated to the third quarter of the 4th century.

All the graves within the salvage investigation area had been horizontally truncated by quarrying operations: rarely more than 0.1m of the grave fill survived. In the most severe cases only the very base of the grave could be identified, but twenty-six survived sufficiently to contain human remains (Pl. 7).

A variety of different alignments and positions of graves were identified within the cemetery. The majority of the graves (G1) were aligned east–west and appear to have been laid out in rows. A small number were on quite different alignments: two were aligned north–south (G2); and four NE–SW (G3). A single NE–SW grave G5 was located *c*. 20m west of the main grave groups. The five graves that truncated the upper fills of Phase 1 pits were assigned to G4 to distinguish them during analysis; three of these were aligned east–west and two NE–SW.

The majority of the burials were in an extended, supine position. The presence of nails, nail stains and coffin stains in eight graves suggests the use of coffins. In addition, grave S17 contained an iron fitting (RA9), which may have come from a coffin or a small box / casket. Two other graves contained grave goods — knife RA6 and coin RA5 in grave S13, and an animal skull in grave S30.

A mixed assemblage of *c*. 1.4kg of late 'Belgic' Iron Age and fully Romanised pottery was recovered from the backfill of the graves. Some of this material is likely to be derived from the earlier pits truncated by graves G4.

The precise layout and function of post-hole structure L5 is uncertain. However, its occupation of a piece of land that was devoid of graves suggests that it may have been contemporary with the cemetery.

Grave group G1

Eighteen graves aligned east–west were identified (Table 1); their layout suggests that the majority were in rows. Only eleven contained human remains. Skull position could be determined in only eight cases — seven to the west, and one to the east. In graves S23 and S25, the bodies had their arms extended but flexed inwards at the elbows, so that the hands lay across the pelvis.

Graves S23, S25 and S27 contained nails, suggesting the use of coffins. The small, decorative iron fitting in grave S17 (RA9) may have been part of a coffin or a small box / casket. Three flat limestone blocks in the approximate position of the skull were found in S17. With the possible exception of RA9, no grave goods were associated with these burials.

Grave group G2

Two peripheral graves S11 and S30, aligned north–south, were located 18m apart to the west and north of the main concentration of graves. Only S11 contained human bone — a few skull fragments at the north end of the grave (Fig. 9). Grave S30 was unusual: it was 0.2m deep, suggesting minimal machine truncation, but did not contain any human bone. However, a relatively complete dog skull was found on the base of the grave (Fig. 11).

| Grave Group | Grave | Grave alignment | Skeleton | Bone quantity | Coffin evidence | Age | Head position (*skull in situ) | Grave goods |
|---|---|---|---|---|---|---|---|---|
| G1 | S2 | E–W | HS134 | some | – | adult | W* | – |
| | S3 | E–W | – | – | – | – | – | – |
| | S7 | E–W | HS158 | few | – | adult | – | – |
| | S8 | E–W | – | – | – | – | – | – |
| | S10 | E–W | HS138 | some | – | juvenile | W | – |
| | S12 | E–W | HS173 | few | – | adult | W* | – |
| | S14 | E–W | HS178 | few | – | juvenile | – | – |
| | S17 | E–W | HS126 | some | fitting RA9 | adult | W* | fitting RA9 |
| | S18 | E–W | – | – | – | – | – | – |
| | S19 | E–W | HS122 | few | – | juvenile | – | – |
| | S20 | E–W | – | – | – | – | – | – |
| | S21 | E–W | – | – | – | – | – | – |
| | S22 | E–W | HS154 | – | – | adult | – | – |
| | S23 | E–W | HS118 | most | 5 nails | adult | N* | – |
| | S24 | E–W | HS114 | few | – | adult | W | – |
| | S25 | E–W | HS102 | most | 15 nails | adult | W* | – |
| | S26 | E–W | – | – | – | – | – | – |
| | S27 | E–W | HS110 | some | 1 nail | adult | E* | – |
| G2 | S11 | N–S | HS142 | few | – | adult | N* | – |
| | S30 | N–S | – | – | – | – | – | dog skull |
| G3 | S1 | NE–SW | HS130 | few | – | – | – | – |
| | S4 | NE–SW | – | – | – | – | – | – |
| | S6 | NE–SW | – | – | – | – | – | – |
| | S9 | NE–SW | HS146 | most | 6 nails | adult | SW* | – |
| | | | HS146a | some | | foetal | | |
| G4 | S13 | E–W | HS182 | most | 1 nail, 4 nail stains, coffin stain | juvenile | W* | coin RA5 knife RA6 |
| | | | HS182a | few | – | adult | – | – |
| | S15 | NE–SW | HS150 | some | – | adult | W | – |
| | S16 | E–W | HS170 | most | 1 nail | adult | W* | – |
| | S28 | NE–SW | HS166 | some | – | adult | SW | – |
| | | | HS166a | few | – | neonate/foetus | – | – |
| | S29 | E–W | HS106 | most | 1 nail stain | adult | W | – |
| G5 | S5 | NE–SW | HS199 | most | 5 nails | adult | SW* | – |
| G26 | S124 | NW–SE | – | unknown | – | – | – | not fully exc. |
| | S125 | WNW–ESE | HS618/636 | most | – | adult | W* | not fully exc. |
| | S126 | WNW–ESE | HS615 | most | – | – | W* | not fully exc. |
| | S127 | WNW–ESE | – | some | – | – | – | not fully exc. |
| G27 | S120 | E–W | HS621 | most | – | – | W* | not fully exc. |
| | S121 | E–W | – | unknown | – | – | – | not fully exc. |
| | S122 | E–W | HS624 | some | – | – | Poss. decapitation | not fully exc. |
| | S123 | E–W | – | unknown | – | – | – | not fully exc. |

Table 1: Summary of graves

Grave group G3

Four graves aligned NE–SW were identified in the north-western part of the cemetery (Table 1). Grave S9 contained an almost complete skeleton with the skull to the south-west (Fig. 9), and the hands placed over the pelvis. The bones of a mid-term foetus were also present. The presence of three nails at each end of the grave suggest the individual had been buried in a coffin.

Grave group G4

These graves have been grouped together simply because they were the only ones which had been cut into the Phase 1 pits (Fig. 5: h and j). Graves S13, S16 and S29 were aligned east–west and are, therefore, comparable to graves G1. Graves S16 and S28 were aligned NE–SW, as were graves G3.

All five graves contained partial skeletons; where identified, the skulls were either to the west or south-west. The arms of the individual in grave S13 had been folded across the abdomen, while in S16 the hands had been placed over the pelvis (Fig. 9). Grave S28, at the southern limit of the salvage investigation area, contained an adult skeleton along with a full-term neonate/foetus (Fig. 10). A skull found on the very edge of the area appeared as if it could have been in grave S28, but the position of the legs casts doubt over whether it was really part of the same individual (see Fig. 10).

Although grave S29 (containing an adult female HS106) was recorded on site as cutting grave S13 (containing a juvenile HS182), it is possible that they represent the double burial of two associated individuals — only one other case of intercutting graves (G26 and G27) was identified. HS182 was largely intact and a coffin stain was present, suggesting that the grave had not been significantly disturbed in antiquity, while bones from a possibly female adult (recorded as HS182a, but presumably from HS106) were identified during analysis of the grave S13 bone assemblage.

Graves S13, S16 and S29 produced evidence for coffins in the form of nails or nail stains. Grave S13 also featured vertical limestone blocks on either side of the skeleton, adjacent to the coffin stain (Fig. 9). It contained grave goods in the form of a Roman knife (RA6) and a late 4th-century coin (RA5), situated next to the upper right leg. In addition, a flint side scraper (RA8) was recovered from grave S13. This scraper is likely to have been residual, but it may be significant that one of only a handful of pieces of worked flint found at the site derived from one of only two graves that conclusively contained grave goods.

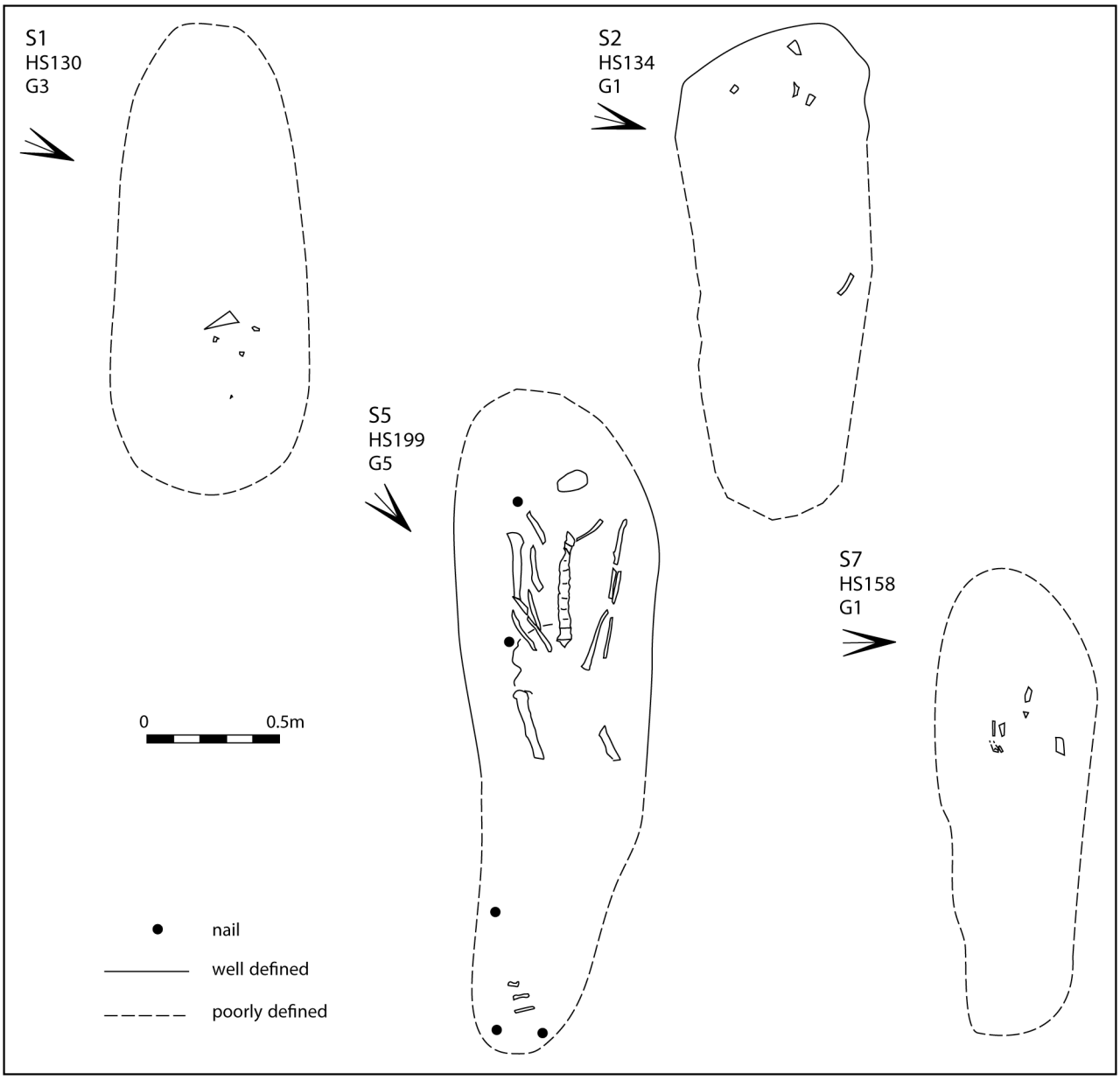



Figure 8: Detailed plans for graves S1, S2, S5 and S7

Grave group G5

A single NE–SW aligned grave S5 was situated in an apparently isolated position *c*. 18m west of the main grave groups (Fig. 7). It contained an extended skeleton with the skull to the south-west. The right hand was positioned on top of the pelvis, with the left hand below (Fig. 8). The presence of five nails around the edge of the skeleton suggests that the individual had been buried in a coffin.

Grave group G26

In evaluation trench 6, *c*. 45m to the north-west of the main cemetery, graves S124, S125, S126 and S127 lay adjacent to each other, immediately south of enclosure ditch G10 (Fig. 7). Graves S125, S126 and S127 were aligned WNW–ESE, possibly parallel to ditch G10; grave S124 was aligned NW–SE. Although all four features were characteristically grave-shaped, articulated bone was only revealed conclusively in graves S125 and S126 (Fig. 11).In addition, human bone was found during machining: it was all recorded as HS636 because it was uncertain which grave it derived from, but it is likely to have been associated with grave S125, which was the only one that had clearly been disturbed.

Grave group G27

Four further graves (S120, S121, S122 and S123) were identified in evaluation trench 6 (Fig. 7). Hand excavation was again restricted to attempting to demonstrate the presence of articulated human bone: this was successful for graves S120 and S122 but inconclusive for graves S121 and S123.

All four graves were aligned east–west, similar to those in grave group G1. S120 was the only one located to the north of ditch G10, although grave S121 was so close to the ditch that it probably cut its upper fill**.** Grave S122 appeared to truncate grave S124 (G26), one of only two such occurrences within the entire cemetery. The skull in grave S122 was next to the left knee (Fig. 11), possibly suggesting either decapitation or the inclusion of disturbed bone.

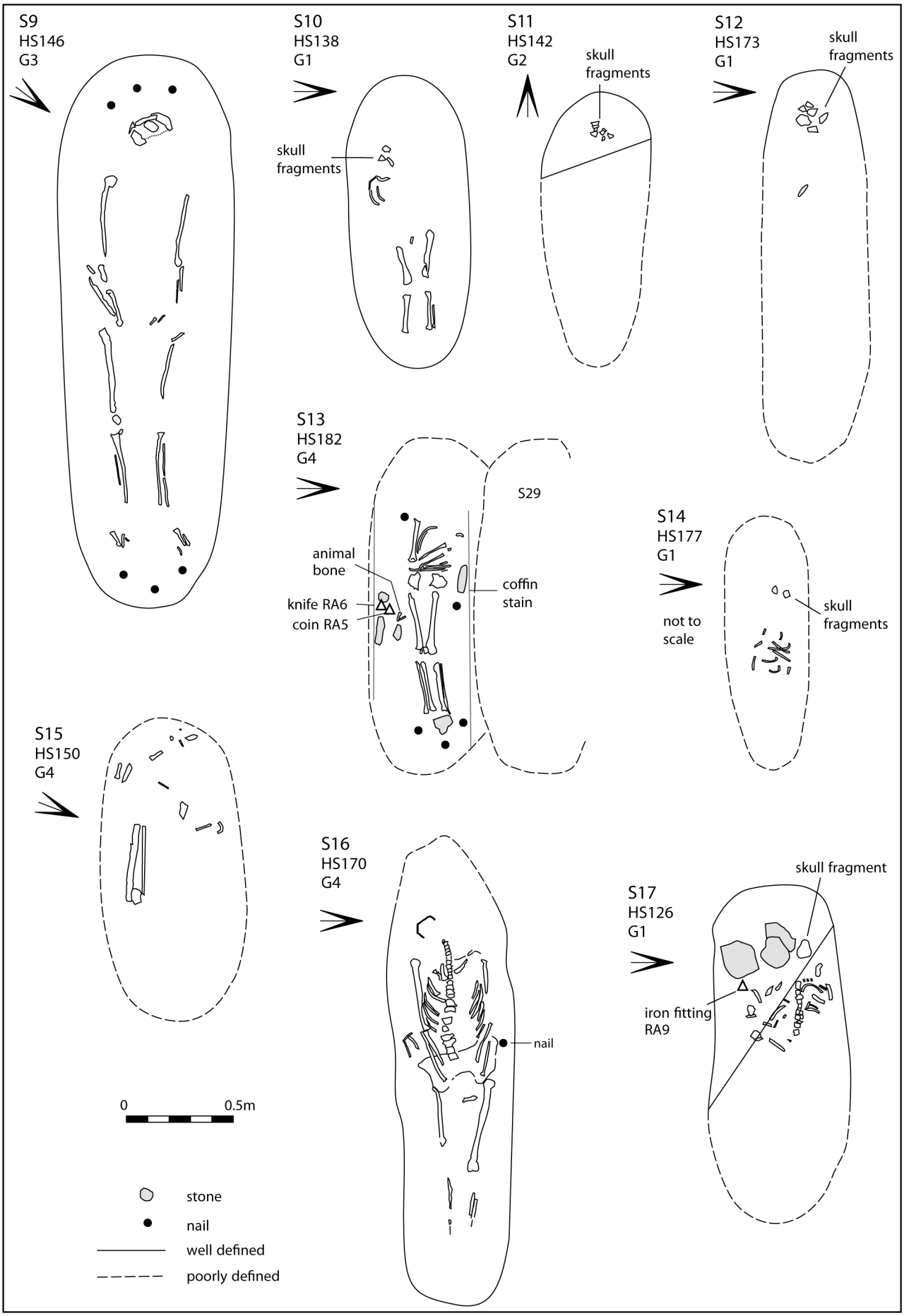



Figure 9: Detailed plans for graves S9– S17

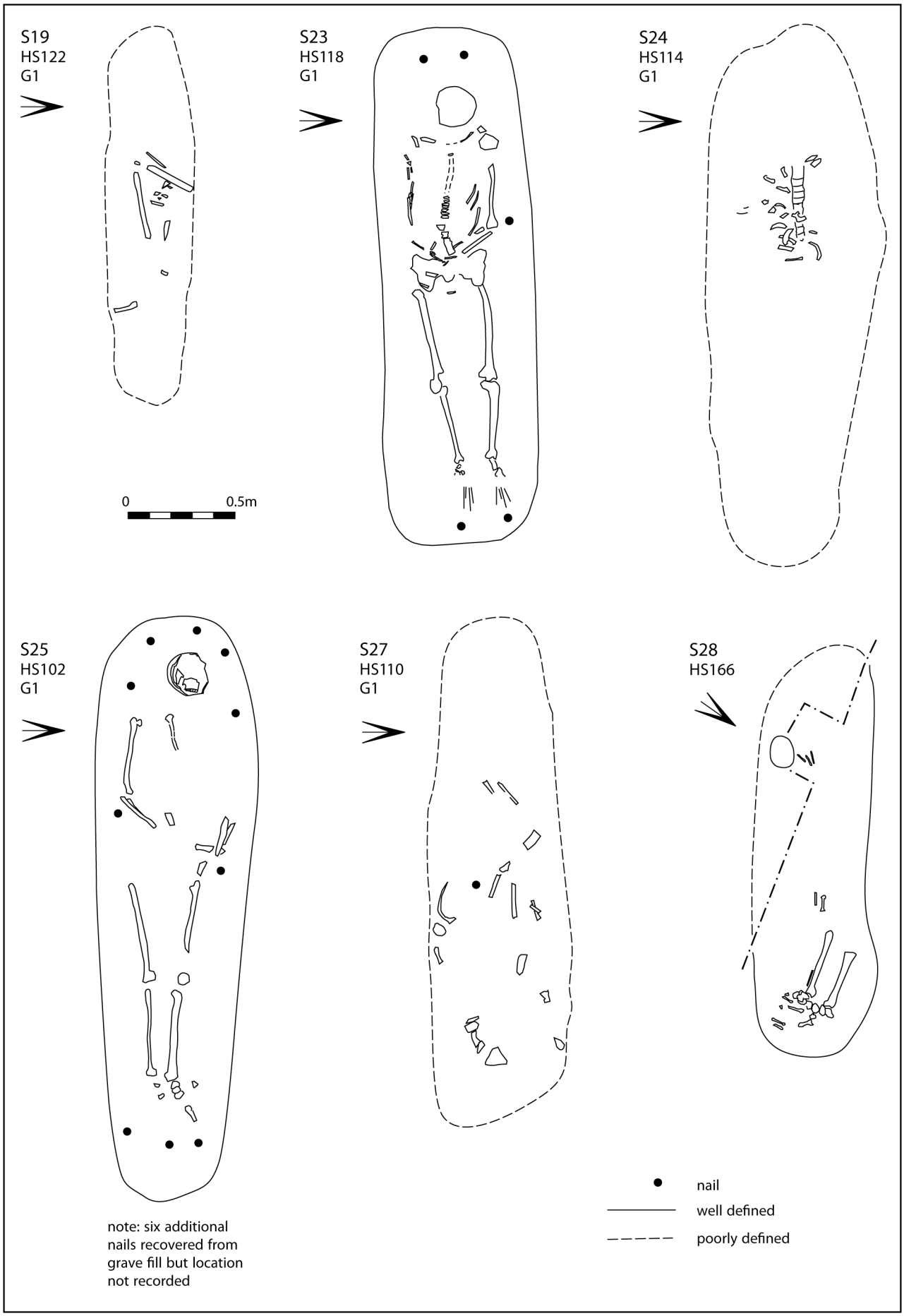



Figure 10: Detailed plans for graves S19, S23, S24, 25, S27 and S28

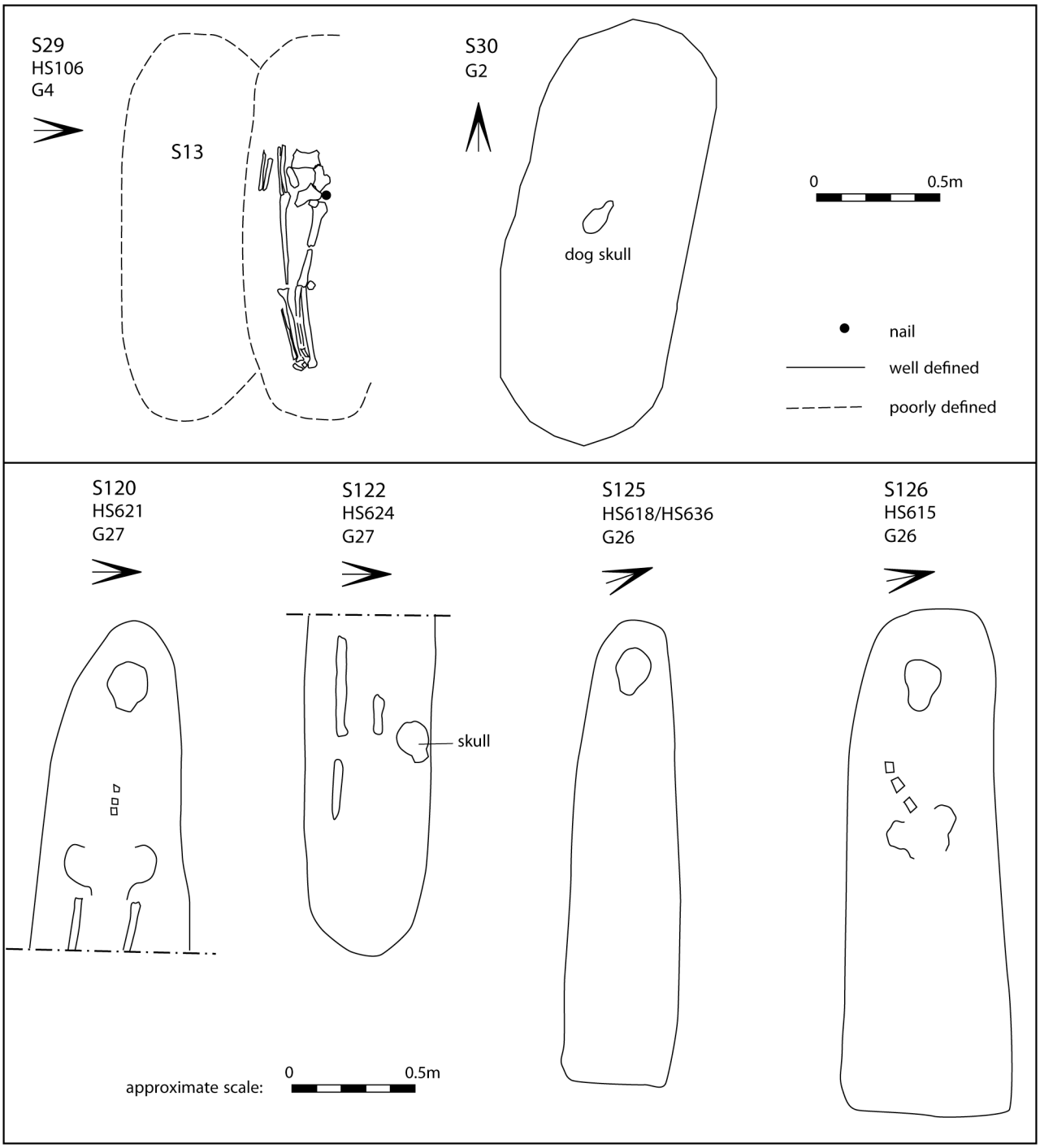



Figure 11: Detailed plans for graves S29 and S30 (excavated) and S120, S122, S125 and S126 (unexcavated)

*Structures L5 (Fig. 12)*

Nineteen post-holes were concentrated in a *c*. 9m by 9m area in the vicinity of the main grave groups, only four of which were excavated. Although short alignments can be detected, their purpose is uncertain. They occupied a space devoid of graves, suggesting that they may have been contemporary with the cemetery, but demonstrating that they were not grave markers. No definite wall lines were identified, but the spatial arrangement of the post-holes suggests that they represent parts of a number of structures.

*Post-holes G14*

Two unexcavated post-holes were found 2.9m apart to the south of the main group of post-holes, adjacent to grave S16. They were *c*. 0.25m in diameter and may have formed a two-post structure.

*Post-holes G15*

Five unexcavated post-holes may have formed the northern corner of a square or rectangular structure. They were *c*. 2.5m apart and 0.2–0.3m in diameter.

*Post-holes G16*

These three adjacent post-holes were *c*. 0.5m apart and 0.2–0.3m in diameter. The only excavated post-hole was 0.1m deep.

*Post-holes G17*

Three pairs of post-holes that may have formed individual two-post structures were located within a 3m area. They were spaced 0.3–0.7m apart and were *c*. 0.2m in diameter; the three excavated examples were 50mm deep.

*Post-holes G18*

These three unexcavated post-holes were aligned east–west, at intervals of *c*. 0.3m. They were 0.2–0.3m in diameter.

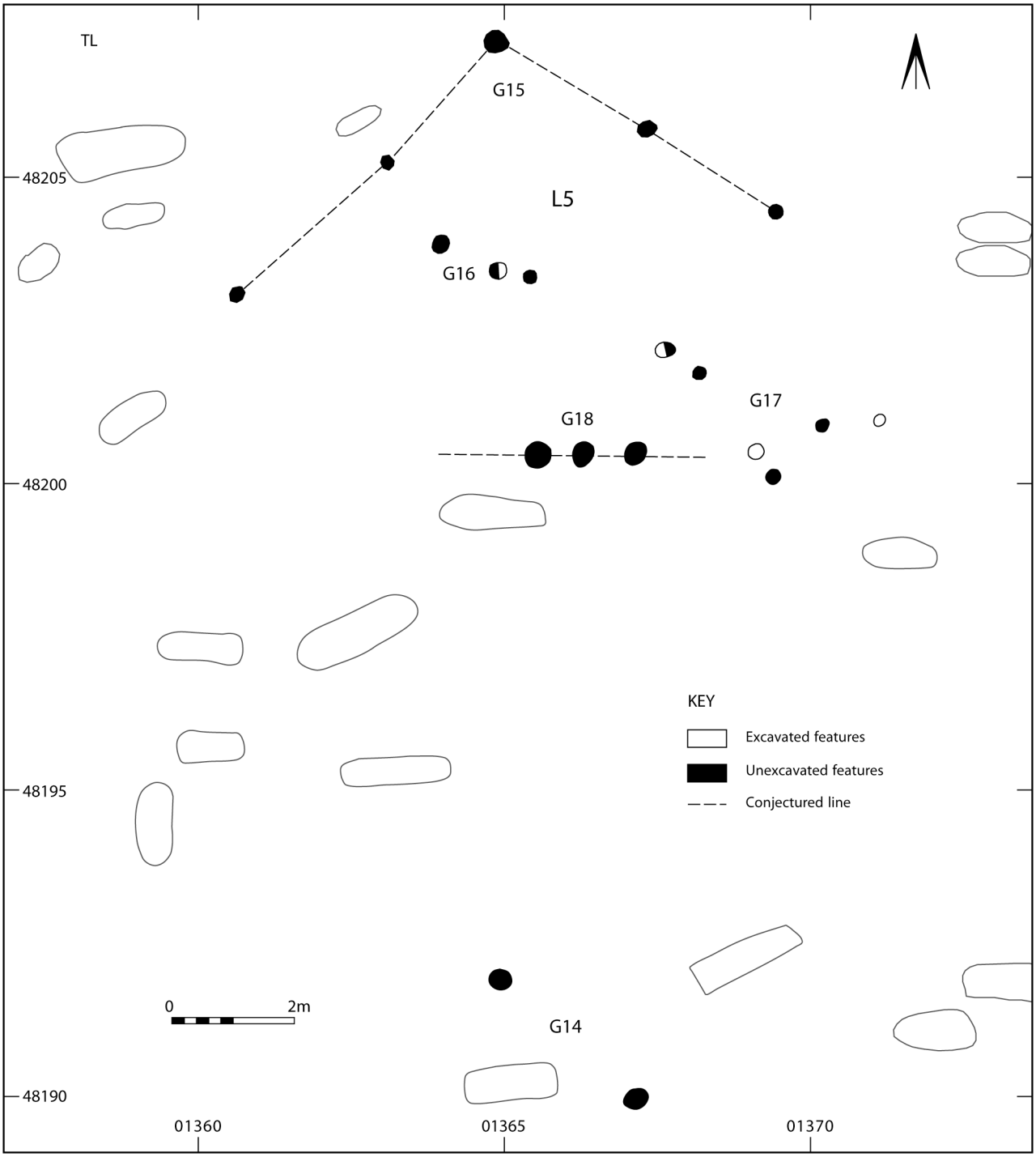



Figure 12: Plan of post-holes structures L5

*Hollows L7 (Fig. 2)*

A dark soil G28, rich in occupation debris, was identified in test pits and evaluation trenches *c*. 100m to the east of the salvage investigation area, within the present-day floodplain of the River Great Ouse. Machine excavation demonstrated that it overlay lighter-coloured alluvial clays which contained no Romano-British material. The presence of alluvial clays below these deposits, and specifically the absence of gravel, suggests that they may have been situated within a former river channel or floodplain zone. It is uncertain if they were deliberately deposited to level the ground or whether the hollows simply represented a convenient place for the disposal of rubbish.

Deposit G28 comprised a 0.1–0.15m thick, dark grey, clay silt which became darker with depth. It contained carbonised plant remains typical of the Romano-British period and molluscs suggestive of wet conditions (ecofact samples 1 and 2). Fragments of limestone, charcoal flecks, a small quantity of animal bone and oyster shell, and *c*. 1kg of Romano-British pottery were recovered. The latest pottery that can be firmly dates is a single sherd of 2nd- to mid-3rd-century amphora. A small coin (eRA1) and a piece of lead waste (eRA2) were also recovered from the evaluation.

### Phase 3: Late/post-Romano-British

A layer of silty alluvial clays G29 (L8) was found below the topsoil during the evaluation. Within the trenches to the south it sealed the Romano-British features and deposits. It was *c*. 0.5m thick in the area of the hollows L7 but was thinner in the trenches further away from the present-day river. Where subject to hand excavation within evaluation trenches 6, 7 and 8, it produced a small assemblage of pottery including late 'Belgic' Iron Age and Roman types. Two late Roman sherds from Oxfordshire represent the latest firmly dated pottery.

### Phase 4: Modern

A small number of linear features, mainly land drains, truncated the late/post-Romano-British alluvial clays. Beneath the topsoil in evaluation trenches 7 and 8 was a mixed deposit of clay, sand and gravel that is likely to reflect disturbance associated with construction of the Southern Orbital Sewer. All unstratified artefacts were assigned to G30 (L9).

## CERAMICS

Jackie Wells (incorporating samian report by Felicity Wild)

### Introduction and methodology

An assemblage comprising 1,211 pottery sherds was recovered, representing 618 vessels and weighing 36.4kg. Approximately 9% (by weight) of this material derives from the overburden and has not been discussed further, except that which is of intrinsic interest.

The pottery was examined by context; fabric types and form codes were identified in accordance with the Bedfordshire Ceramic Type Series (Appendix 1). Quantification was by minimum vessel and sherd count, and weight. Sherds belonging to the same vessel, but deriving from separate contexts, were quantified as one. The condition of the pottery from each deposit was noted and attributes such as decoration, manufacture, levels of abrasion and evidence of function (residues, sooting and wear marks *etc*.) were recorded.

Selected pottery is illustrated in Figures 13–16. All examples are from Phase 1 deposits except P23, which is from Phase 2. Standard drawing conventions have been used, with vessels shown at one quarter size (except illustration 22 which is at 1:8), external view on the right and internal view on the left. Handmade vessels are illustrated with hatched sections and wheel-thrown vessels with solid sections. The pie diagram accompanying each illustration indicates the proportion of the vessel recovered.

Ceramic building material comprises eleven pieces of Roman roof tile and brick (1.6kg). The assemblage was quantified by fragment count and weight, and any measurable dimensions were recorded. All examples are shell-tempered and likely to derive from a similar source to the shelly building material recovered from the Southern Orbital Sewer excavations to the south (Wells 2004, 503).

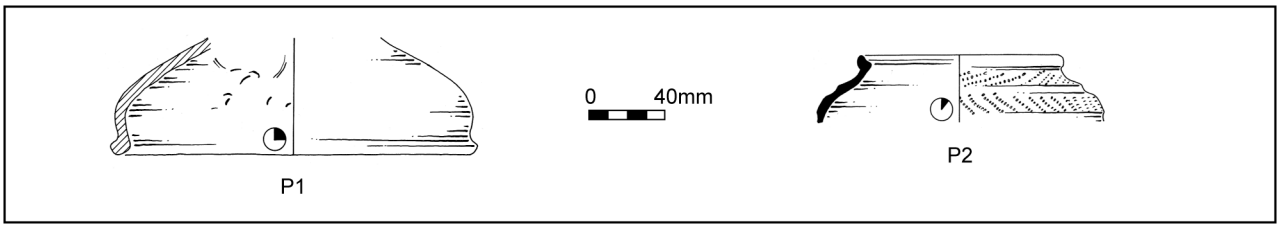
### Discussion by provenance

*Phase 1: Early Romano-British enclosure system*

Phase 1 features yielded 975 sherds, representing 431 vessels (30.3kg) and constituting 83% (by weight) of the total pottery assemblage (Table 2). Although the degree of fragmentation is high, indicated by a low vessel to sherd ratio of 1:2, the pottery survives in good condition, with an average sherd weight of 31g, and is largely unabraded. This suggests that much of the material occurs in its primary context, close to areas where the pottery was used. A range of late 'Belgic' Iron Age and early Roman wares were identified in some deposits. Although the majority of the former are likely to be residual, their unabraded condition may indicate some degree of continued use alongside the earliest Romanised vessels.

Late 'Belgic' Iron Age types (Fig. 13: P1–2)

Fragments of ninety-five vessels with a late Iron Age form were recovered (157 sherds; 3.4kg), 45% of which comprise shell-tempered sherds (fabrics F07 and F05), and 31% grog-tempered (fabrics F06A/B/C). Mixed grog and sandy fabric F09 constitutes the remainder. All are likely to be of local origin: a number of kilns producing shelly vessels during the mid-1st century AD are known in north Bedfordshire, *e.g*. Biddenham Loop (Luke 2008), Stagsden (Dawson 2000), Harrold (Brown 1994) and Bromham (Tilson 1973), although suggested provenance for other fabrics remains unclear. Most of the pottery comprises wheel-thrown vessels in fabric types F06A/B and F09. Handmade coarse-ware vessels mainly occur in fabric types F07, F05 and F06C, and generally represent the largest vessels in the assemblage (storage jars and cooking pots). Diagnostic vessel forms constitute 12% of the pottery and comprise mainly jars of varying sizes, including everted-rim (types B1-1 and C2-3; after Thompson 1982) and lid-seated (type C5-1) examples, as




| Illust No. | Ware | Common name | Description | G no. | L no. |
|---|---|---|---|---|---|
| P1 | F06B | Medium grog | Lid | 19.1 | 4.1 |
| P2 | F09 | Sand and grog | Lid-seated jar with comb-impressed decoration | 19.3 | 4.3 |

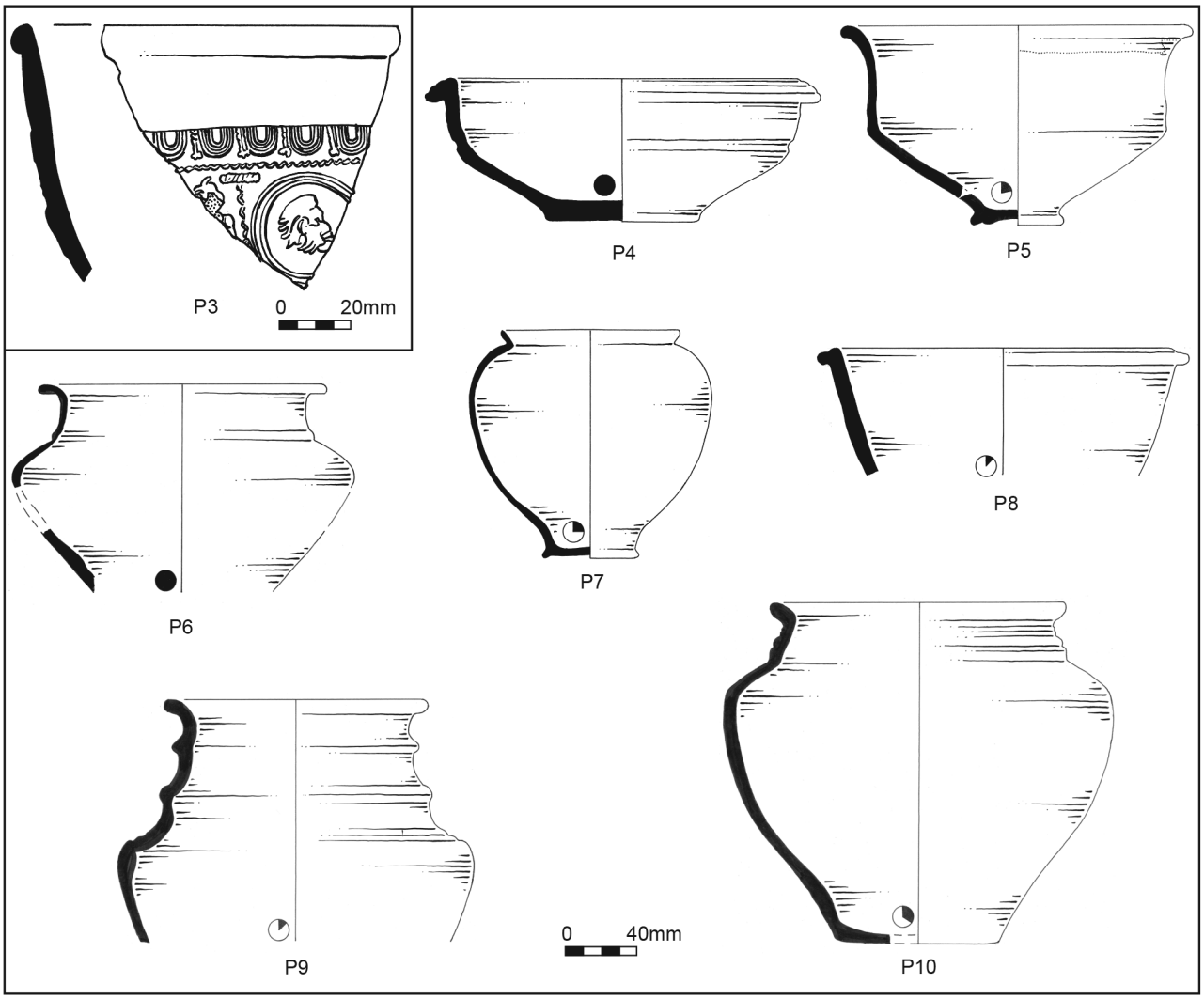
Figure 13: Selected pottery: P1–P2

well as large 'storage' vessels (type C6). Other forms are lids (type L1) and a single platter (type G1). Several grog-tempered examples are oxidised, possibly in an attempt to replicate oxidised Gaulish imports. Decorative elements are combed motifs and burnishing.

Roman types (Figs 14–16)

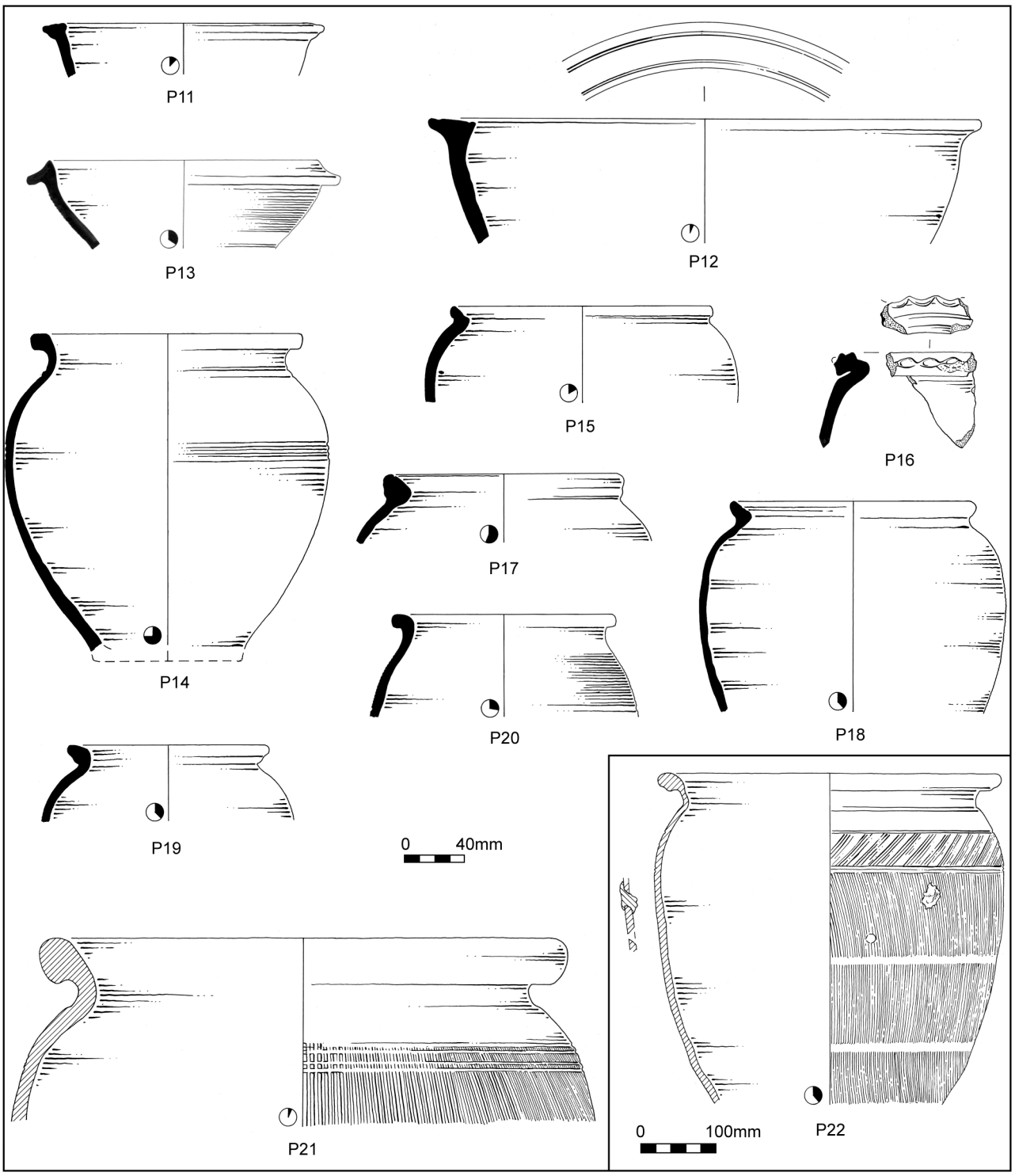
Most of the Roman pottery is datable to the 1st–late 2nd centuries and comprises 820 sherds, representing 336 vessels (26.9kg). The small quantities of later Roman vessels are considered intrusive. The assemblage is closely comparable to pottery recovered from the Southern Orbital Sewer excavations (Parminter 2004, 495) and, although only a relatively small assemblage, broadly reflects the general composition of Romano-British rural sites in the Great Ouse Valley. It suggests relatively low socio-economic status, with pottery mainly deriving from local sources and predominantly comprising jars for storage and cooking. The small quantities of imported fabric types, however, indicate wider-ranging contacts and a certain degree of higher-status consumption.

The assemblage comprises a range of fabric types, most of which are of local origin. Shelly coarse ware R13 dominates, constituting 76% (by weight), followed by sand-tempered grey wares in the generic fabric group R06, which total 12%. Most of the shelly wares are recognisable products of the Harrold kilns (Brown 1994), a substantial and long-lived industry operating throughout the entire Roman period. Grey wares are known to have been produced at a series of sites south-east of Bedford, notably at Mile Road (Dring 1971); other kilns have been identified at Cardington and Eastcotts (Simco 1984; BCAS 1995). A proportion of the grey ware from the site may have derived from one or more of these sources, although thin-section analysis would be required to confirm this.



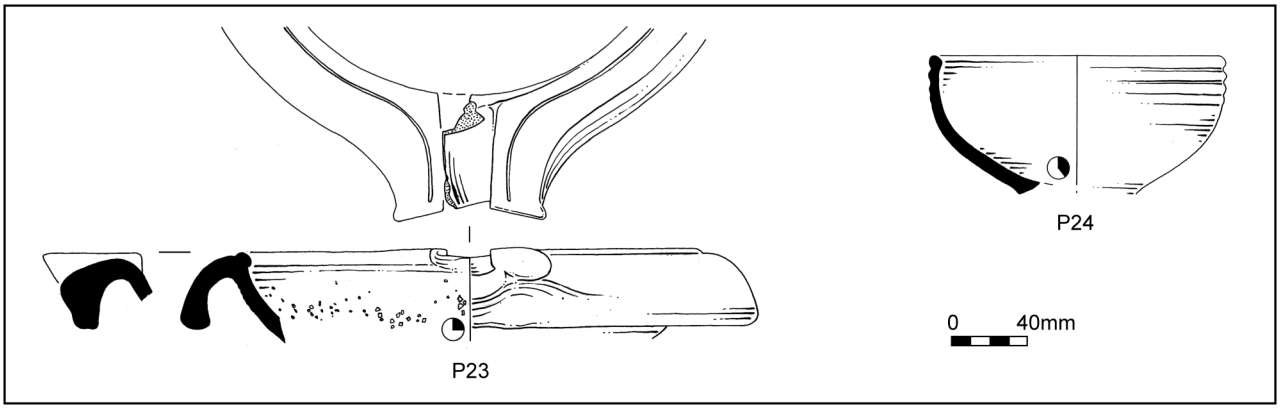

| Illust No. | Ware | Common name | Description | G no. | L no. |
|---|---|---|---|---|---|
| P3 | R01A | Central Gaulish samian ware | Bowl (form 37) in style of potter X.5 | 7.2 | 4.2 |
| P4 | R03B | Gritty white ware | Reeded-rim bowl | 25.1 | 4.3 |
| P5 | R05D | Oxidised sandy (white slipped) | Carinated bowl | 19.2 | 4.2 |
| P6 | R06C | Fine grey ware | Cordoned jar | 23.1 | 4.1 |
| P7 | R06D | Micaceous grey ware | Wide-mouthed jar | 22.3 | 4.3 |
| P8 | R06D | Micaceous grey ware | Flanged bowl | 9.1 | 6.1 |
| P9 | R06E | Calcareous grey ware | Cordoned jar | 22.2/3 | 4.2/3 |
| P10 | R06F | Grog and sand grey ware | Cordoned jar | 22.3 | 4.3 |

Figure 14: Selected pottery: P3–P10




| Illust No. | Ware | Common name | Description | G no. | L no. |
|---|---|---|---|---|---|
| P11 | R13 | Shelly ware | Bowl | 10.2 | 1.2 |
| P12 | R13 | Shelly ware | Flanged bowl | 10.2 | 1.2 |
| P13 | R13 | Shelly ware | Bowl with decorated rim | 9.1 | 6.1 |
| P14 | R13 | Shelly ware | Wide-mouthed jar | 25.1 | 4.3 |
| P15 | R13 | Shelly ware | Lid-seated vessel | 10.2 | 1.2 |
| P16 | R13 | Shelly ware | Vessel with thumbed decoration | 19.2 | 4.2 |
| P17 | R13 | Shelly ware | Lid-seated vessel | 10.2 | 1.2 |
| P18 | R13 | Shelly ware | Lid-seated jar | 10.2 | 1.2 |
| P19 | R13 | Shelly ware | Wide-mouthed vessel | 10.2 | 1.2 |
| P20 | R13 | Shelly ware | Rilled vessel | 10.2 | 1.2 |
| P21 | R13 | Shelly ware | Large jar with combed decoration | 19.3 | 4.3 |
| P22 | R13 | Shelly ware | Jar with combed decoration and in situ lead repair | 23.1 | 4.1 |

Figure 15: Selected pottery: P11–P22




| Illust No. | Ware | Common name | Description | G no. | L no. |
|---|---|---|---|---|---|
| P23 | R11E | Oxfordshire mortarium (white) | Type M3 mortarium | 4 (S16) | 3 |
| P24 | R28 | Gritty calcareous | Cordoned bowl | 23.1 | 4.1 |

Figure 16: Selected pottery: P23–P24

| Land-use area | Description | Group | Group type | Vessel:Sherd no. | Weight (g) |
|---|---|---|---|---|---|
| 1 | Ditched enclosure system | 10 | Enclosure ditch | 103:233 | 5,854 |
| | | 11 | Boundary ditch | 6:6 | 184 |
| 4 | Pits | 7 | Six pits | 70:144 | 4,227 |
| | | 19 | Eleven pits | 82:182 | 5,239 |
| | | 21 | Six pits | 11:11 | 378 |
| | | 22 | Two pits | 82:175 | 5,437 |
| | | 23 | Nine pits | 52:157 | 5,692 |
| | | 24 | Three pits | 6:6 | 302 |
| | | 25 | Two pits | 10:50 | 2,660 |
| 6 | Settlement-type activity | 8 | Well | 2:2 | 25 |
| | | 9 | Putative kiln | 7:9 | 315 |
| **Total** | | | | **431:975** | **30,313** |

Table 2: Provenance of the Phase 1 pottery

Smaller quantities of reduced (R07B/C and R14) and oxidised (R05A/C/D, R10A/B, R17 and R28) sand-tempered wares, as well as regional and continental imports, constitute the remainder of the assemblage. Regional imports account for 5% and include: white ware from the Verulamium (St Albans) industries (R03A/B/D andR18A); pink grogged vessels (R09B), paralleled from sites in Milton Keynes (Marney 1989, 175) and Hertfordshire (Neal *et. al.* 1990); small quantities of material from Oxfordshire (R11A/D) and Hadham, Hertfordshire (R22A); and mica-gilded ware (R02) of uncertain source. Continental imports are represented by Central and South Gaulish samian ware, which constitute less than 1% of the Phase 1 assemblage.

A range of vessel forms associated with the storage, preparation and consumption of food and drink are represented. The diagnostic assemblage is dominated by jars of varying sizes, which account for 81% and range in diameter from 120mm to 340mm. Jars are cordoned, narrow-necked and neckless, and have plain, everted, triangular, rolled and bead rims. Lid-seated and large storage jars occur exclusively in shelly fabric R13. Bowls constitute 13% of the assemblage, and range in diameter from 160mm to 300mm, with shelly examples generally falling at the larger end of the range. The deliberate modification of pottery is demonstrated by the rim sherd of a shelly jar which has been sawn to create a straight edge (a second example, also in shelly fabric R13, derived from the ploughsoil). Bowls have plain, everted, flanged, reeded and lid-seated rims. One intrusive Oxford colour-coated example is an imitation samian Form 38. Decoration is rare, but comprises rilling, horizontal and vertical combing, rouletting, barbotine, wavy incised lines, burnishing, fingertip impressions, and slipping. A number of shelly vessels are sooted, suggesting a preference for the use of this type for cooking pots. Less prevalent vessel forms are plain-rim beakers, lids, plain-necked flagons, and single examples of a poppy-head beaker and carinated bowl.

Samian ware comprises twenty-nine sherds, representing seventeen vessels (261g), and is predominantly of Flavian or Trajanic date (AD79–117) and of South Gaulish origin. Six Central Gaulish sherds are datable to the Hadrianic to early Antonine periods. South Gaulish forms are 15/17, 18, 27, 35 and 37 (D1, Appendix 2) and Central Gaulish forms are 27, 31, 36 and 37 (D2 and D3, the latter illustrated in Fig. 14: P3). Two stamps of the South Gaulish potters Felix i and Ponteius were identified (respectively S1 and S2; see Appendix 2). One vessel rim retains a rivet hole, indicating that samian may have been difficult to obtain and was, therefore, carefully curated.

Ditched enclosure system L1

Enclosure system L1 accounted for 20% of the Phase 1 assemblage (239 sherds (6kg), representing 109 vessels), the majority associated with the secondary fills of enclosure ditch G10. The pottery is dominated by a range of utilitarian vessels (jars, bowls and a single beaker) in shell-tempered (Fig. 15: P11, P12, P15 and P17–20) and

sand-tempered fabrics, supplemented by 2nd-century white wares (reeded-rim bowls) from the Verulamium industry, and a pink-grogged sherd, likely to derive from Buckinghamshire. Samian ware comprises a Central Gaulish form 31 repaired rim fragment of Antonine date, and a South Gaulish bowl or cup, datable to *c*. AD79–117.

Pits L4

Pits L4 yielded 725 sherds, representing 313 vessels (23.9kg), totalling 79% of the total Phase 1 assemblage. There was no particular variation between the distribution of different vessel forms or fabrics recovered from the L4 pits and L1 ditches, although the pits contained a greater number of large storage vessels. Most of the assemblage from the pits comprises Romanised wares (mainly from the 1st–2nd century), occurring alongside late 'Belgic' Iron Age grog-, sand- and shell-tempered vessels. Locally produced Roman shell- and sand-tempered coarse wares predominate (jars, bowls and beakers), supplemented by small quantities of pottery from regional (Verulamium and Oxfordshire) and continental sources. Deposits contain sizeable proportions of single vessels, including a reed-rim bowl (Fig. 14: P4), carinated bowl (Fig. 14: P5), cordoned jar (Fig. 14: P10) and repaired storage vessel (Fig. 15: P22), the last weighing over 4.3kg.

Of the fifteen samian vessels recovered from L4, eleven are South Gaulish and probably Flavian in date. Of the four Central Gaulish pieces, one is probably in the fabric of Les Martres-de-Veyre, and none is likely to date significantly later than the Hadrianic period (AD117–138). They include two examples of form 37 (D2 and D3). The only sherd deriving from a primary deposit in pit group G23 is of form 15/17 or 18, datable to AD69–96 at the latest.

Five pieces of a large, handmade, shell-tempered brick (1.1kg), measuring 55mm in thickness, derived from the main fills of pits G22.

Structures L6

Eleven sherds (340g), constituting 1% of the Phase 1 assemblage, derived from well G8 and possible kiln G9. Most of the pottery comprises sand- and shell-tempered coarse wares. Vessel forms are flanged bowls, a lid and a presumably intrusive Oxford colour-coated form C51 bowl (after Young 1977), the last datable to AD240–400+ and deriving from G9.

*Phase 2: Later Romano-British enclosure system and cemetery*

Phase 2 features yielded 159 sherds representing 125 vessels (2.8kg), and constituting 8% (by weight) of the total pottery assemblage (Table 3). In common with the Phase 1 assemblage, the material is highly fragmented, with a low vessel to sherd ratio of 1:1. The average sherd weight of 17g for the Phase 2 pottery is almost half that of the Phase 1 material, although the assemblage survives in comparably good condition and is relatively unabraded. Most deposits contain a range of late 'Belgic' Iron Age and Roman wares in similar proportions to those observed in Phase 1, with Roman pottery constituting 89% of the Phase 1 and 88% of the Phase 2 assemblages respectively.

Twenty-five vessels (thirty sherds) are datable to the late Iron Age, and occur in a range of grog- (F06A/B/C), shell- (F05 and F07) and sand/grog-tempered (F09) fabrics, characteristic of the period. Diagnostic elements are a partial foot-ring base and an everted-rim fragment. A narrow-necked jar is the only recognisable vessel form.

The Roman assemblage comprises 129 sherds, representing 100 vessels (2.4kg), and is similar in composition to the Phase 1 material. Shelly ware R13 continues to dominate, although constituting only 40%, followed by sand-tempered grey wares (group R06), which total 10%. Locally manufactured, reduced (types R07B and R14) and oxidised (R05A and R17) sand-tempered wares, and small quantities of regional and continental imports constitute the remainder of the assemblage. The proportion of regional imports is greater than in Phase 1, and includes pottery from the Verulamium industries (R03B), Oxfordshire (R11 and R11C/D/E/F) and the Nene Valley (R12B). Continental imports constitute approximately 2% of the Phase 2 pottery and are represented by Central Gaulish samian ware, and a single sherd of amphora (R19A) from the Roman province of Baetica in southern Spain.

Most of the assemblage comprises undiagnostic body sherds; classifiable forms are mainly fine and coarse jars (vessel wall thickness ranges from 5mm to 15mm), with smaller quantities of bowls, dishes, beakers and mortaria. No decorated sherds occur. Samian ware comprises nine sherds (45g), each from a different vessel of Hadrianic to Antonine date (AD117–192) and of Central Gaulish origin. Forms are 27, 33 and Curle 15 or 23. One dish sherd is burnt.

Trackway G12

Twenty-five sherds (195g) derived from the fills of trackway ditch G12, comprising locally manufactured coarse wares and four sherds from a Verulamium-region whiteware jar.

Cemetery L3

Twelve graves yielded a total of eighty-two sherds, representing seventy-two vessels (1.4kg). The pottery comprises a mixed and fragmented assemblage, with

| Land-use area | Description | Group | Graves | Vessel:Sherd no. | Weight (g) |
|---|---|---|---|---|---|
| 2 | Trackway | Ditch G12 | – | 6:25 | 195 |
| 3 | Cemetery | E–W graves G1 | S23, S25, S27 | 6:6 | 64 |
| | | N–S graves G2 | S30 | 1:1 | 6 |
| | | NE–SW graves G3 | S9 | 4:4 | 87 |
| | | Graves G4 | S13, S15, S16, S28, S29 | 50:60 | 1,149 |
| | | Isolated grave G5 | S5 | 10:10 | 93 |
| | | Graves G26 | S124 | 1:1 | 29 |
| 7 | Hollows | Hollows L28 | – | 47:52 | 1,141 |
| **Total** | | | | **125:159** | **2,764** |

Table 3: Provenance of the Phase 2 pottery

few diagnostic vessel forms. All derived from the graves' backfill and do not represent grave goods. Most of the L3 assemblage derived from graves within G4, which truncated the upper fills of several Phase 1 pits (G22), and it is likely that much of the pottery originated from these features. With the exception of single sherds of samian ware (form 27), Oxford parchment ware and Oxford colour coat, fabrics comprise locally produced shell- and sand-tempered Roman coarse wares, and a number of grog-tempered late Iron Age types, about which little comment can be made. The Oxford wares, as the latest datable elements, are mid-3rd century or later, suggesting that some graves were dug after this date.

Single shell-tempered fragments of imbrex and tegula/brick (total weight 365g) were recovered from the graves S13 and S28 (G4). The imbrex is 15mm thick, the tegula/brick 32mm.

Hollows L7

The deposits within hollows L7 produced fifty-two sherds, representing forty-seven vessels (1.1kg). Shell- and sand-tempered coarse wares predominate, supplemented by a small quantity of oxidised and colour-coated wares from Oxfordshire. Diagnostic coarse-ware vessel forms are everted, triangular and rolled-rim jars, and single examples of a flanged and flat-topped bowl. Continental imports comprise eight sherds of mid–late 2nd-century samian ware (forms 27, 33, Curle 15 or 23 and a fragment of heavy dish) and a sherd of Dressel 20 amphora, used for olive oil, which can be dated to the 2nd–mid-3rd century.

Abraded fragments were also recovered of three shell-tempered tegulae (146g), ranging in thickness from 14mm to 17mm.

*Phase 3: Late/post Romano-British*

Alluvial deposits G29 (L8) yielded a small, largely undiagnostic late Iron Age and Roman assemblage comprising twenty sherds (224g). Roman sand- and shell-tempered coarse wares constitute most of the pottery. Imported wares are represented by a Central Gaulish Form 33 cup, datable to AD138–192, and two oxidised late Roman sherds from Oxfordshire. The sherds are more fragmented than those deriving from cut features, with an average weight of only 11g, possibly consistent with their recovery from slowly accumulating deposits such as alluvium. A shell-tempered fragment of tegula with a partial flange (75g) was also recovered.

| Broad Term | Copper alloy | Iron | Lead | Glass | Flint |
|---|---|---|---|---|---|
| Box? | – | 1 (RA9) | – | – | – |
| Buckle | – | 1 (eRA4) | – | – | – |
| Coin | 3 (eRA1, RA2, RA5) | – | – | – | – |
| Knife | – | 2 (RA4, RA6) | – | – | – |
| Coffin nail | – | 44 | – | – | – |
| Ring | 1 (RA1) | – | – | – | – |
| Scraper | – | – | – | – | 1 |
| Toiletry | 1 (RA3) | – | – | – | – |
| Vessel | – | – | – | 1 (RA7) | – |
| Waste | – | – | 1 (eRA2) | – | – |
| **Total** | **5** | **48** | | **1** | **1** |

Table 4: Non-ceramic artefacts by material and type

## NON-CERAMIC ARTEFACTS

Holly Duncan

### Introduction and methodology

Fifty-six non-ceramic artefacts were recovered in total. These were assigned broad terms and catalogue descriptions. All of the ironwork was submitted for radiography (Lincolnshire Archives), as well as three copper alloy objects, one of which has received remedial conservation. Quantities of objects by material and artefact type are presented in Table 4.

### Provenance and chronology

Three of the pits assigned to L4 (Phase 1) contained metallic artefacts. One of the G19 pits yielded a toiletry spoon with bead-, double-reel and spool moulding (RA3) on the stem. Long-handled toiletry implements are not closely datable within the Roman period, but a close parallel for RA3 was found in 2nd-century deposits at Colchester (Crummy 1983, fig. 65: 1932). One of the G22 pits contained a Manning type 8 knife (RA4), comprising a solid handle with the blade back angled down from the handle (Manning 1985, 113). This type is uncommon and is thought to be an early Roman form. An iron buckle (eRA4) was found within pit G31 (L4) in evaluation trench 6.

The fill of possible kiln G9 (L6) yielded a small body sherd of translucent yellow-green glass, retaining a single vertical rib (RA7). The sherd may derive from a collared, globular ribbed jar or conical/globular jug (Cool and Price 1995, 106–07 and 120–121, also fig. 7.2: 733 and fig. 8.3: 874), probably dating to the later 1st to the first half of the 2nd century.

The remaining artefacts were found within eight graves of cemetery L3 (Phase 2). Seven graves yielded forty-four nails and grave S17 contained a possible fitting (Table 5). Grave S29 contained a ferrous stain suggestive of the presence of at least one nail. Disturbance of the burials prior to the salvage investigations probably resulted in an under-representation of the number of coffin nails per grave, which ranged from one to fifteen. Most of the nails retain mineral-preserved wood along the length of the shank.

Although all the nails possess flat heads of square to rectangular outline, there are two distinct sizes. Type A nails are more robust with thickened heads, complete lengths ranging from 100mm to 120mm. These closely resemble some of the coffin nails from Lankhills, Winchester (Clarke 1979, fig. 4). Type B nails are less robust and would be considered general purpose carpentry nails. Most of these nails, perhaps due to their less robust nature, are incomplete and so total length cannot be certain, although surviving shanks suggest that lengths would have been less than 100mm. The greater size of the Type A nails suggests that the coffin planks used in graves S9 and S25 were much thicker than in the other graves. Whether this is significant, *e.g.* a chronological difference or perhaps a status indicator, remains uncertain.

A small iron fitting (RA9), comprising two parallel narrow strips with a small tack perforating the upper strip, was recovered near the right shoulder of skeleton HS126 (S17, G1). Mineral-preserved wood appears to survive between the strips. Whether this formed a decorative

| Group | Grave | Nail | Ferrous stain | Nail type | Find spots |
|---|---|---|---|---|---|
| G1 | S17 | – | – | Fitting? RA9 | 1 right side |
| | S23 | 5 | – | Type B | 2 head; 2 feet; 1 left side |
| | S25 | 15 | – | Type A | 4 head; 3 feet; 1 left side; 1 right side |
| | S27 | 1 | – | Type B | disturbed |
| G3 | S9 | 6 | – | Type A | 3 head; 3 feet |
| G4 | S13 | 1 | 4 | Type B | 3 feet; 1 right side; 1 left side |
| | S16 | 1 | – | Type B | 1 left side |
| | S29 | – | 1 | – | 1 left side |
| G5 | S5 | 5 | – | Type B | 2 feet; 3 right side |

Table 5: Graves yielding nails, evidence of nails or iron fittings

fitting on a coffin, or represents the remains of a small box or casket, is unclear.

Only one grave yielded any metallic grave goods — a Manning type 13 knife (RA6) and a copper alloy coin of Gratian AD367–383 (RA5) were recovered from S13 (G4), which also contained a flint side scraper (RA 8). While this is likely to be residual, its occurrence within the only grave to contain grave goods is noteworthy, especially considering the general absence of worked flint from the investigations. The scraper has a semi-abrupt retouch along one side of the dorsal surface but is otherwise unexceptional.

The dump deposits G28 (L7) within evaluation trench 8 produced a small, unidentifiable Roman coin (eRA1) and a piece of lead waste (eRA2). Two further artefacts were recovered from the topsoil — a 4th-century coin (?Constantius II AD348–354) (RA2) and a cast copper alloy annular ring (RA1).

## ANIMAL BONE

Mark Maltby

### Introduction

With just 290 animal bone fragments recovered, the small size of the assemblage only allows general conclusions to be drawn about the species representation in the different periods. Animal bone from all phased contexts was recorded onto a database which, along with the assessment and final report, forms part of the project archive.

### Provenance

Most of the material derived from the early Romano-British enclosure system (Phase 1), although bone concentrations were not particularly high in any of the sampled features. The surface preservation of the bones was generally good. Gnawing was observed on twenty-eight of the identified elements, although generally the damage was slight, and ten bones were burnt. Within Phase 1, cattle are the most common species, closely followed by sheep/goat, horse and identical quantities of pig and dog (Table 6). In Phase 2 (later Roman-British) sheep/goat dominate, followed by cattle, with smaller quantities of pig, dog and horse. No bones of wild animals, birds or fish were identified. The overall assemblage is broadly comparable to the much larger one recovered from the sewer investigation to the south (Roberts 2004, 302–307).

| Species | Phase 1 | Phase 2 |
|---|---|---|
| Cattle | 47 (20.3%) | 7 (11.9%) |
| Sheep/goat | 37 (16.0%) | 20 (33.9%) |
| Pig | 10 (4.3%) | 3 (5.1%) |
| Horse | 14 (6.1%) | 1 (1.7%) |
| Dog | 10 (4.3%) | 2 (3.4%) |
| Frog | – | 1 (1.7%) |
| Unidentified bird | 1 (0.4%) | – |
| Unidentified mammal | 112 (48.5%) | 25 (42.4%) |
| **Total** | **231** | **59** |

Table 6: Animal species by phase (fragment count)

*Phase 1: Early Romano-British enclosure system*

Of the 231 animal bone fragments recovered, 118 were identified to species. Cattle (40%) and sheep/goat (30%) were the most commonly identified, although only sheep were positively identified in the latter. Other domestic mammals were represented in smaller numbers — horse (12%), dog (8%) and pig (8%). Cattle were well represented in the ditches of enclosure system L1 but were outnumbered by sheep/goat in pits L4. Dog and horse were also better represented in the ditches, while pig formed a greater proportion of the pit assemblage. These variations may be the result of variable deposition of bones in different areas of the site, combined with preservation factors.

Analysis of the elements represented shows that most parts of the body of the major species were represented. However, the absence of small bones such as the phalanges and tarsals and the low number of loose teeth for all species should be noted (Table 7). Six neck vertebrae from the same horse were recovered from a G22 pit (L4). A pair of mandibles of an old dog was found in ditch G11 (L1), which probably belonged to the same animal as a pair of ulnae found in the same deposit. It is therefore possible that they represent a burial; the presence of gnawing damage on one of the ulnae suggests it had been disturbed.

Butchery marks were recorded on eight bones. Six belong to cattle and consist of fine knife cuts (on a mandible, pelvis, metatarsal and thoracic vertebra) or superficial chop marks (on a pelvis and thoracic vertebra). Fine knife cuts on the medial and ventral surfaces of the mandible's diastema are quite unusual, and indicate the careful separation of the mandibles. A sheep mandible and femur both bear knife cuts associated with disarticulation. No butchery was observed on any of the horse bones; several of their limb bones are substantially complete, implying that horses, unlike cattle, were not routinely processed for their meat and marrow.

| | Phase 1 | | | | | Phase 2 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Bone element | Cattle | Sheep/goat | Pig | Horse | Dog | Cattle | Sheep/goat | Pig | Horse | Dog |
| Horn core | 3 | – | – | – | – | – | – | – | – | – |
| Skull fragment | 8 | 2 | – | – | 1 | 1 | – | 1 | – | 1 |
| Maxilla | 4 | 2 | – | – | – | 1 | 1 | – | – | – |
| Mandible | 5 | 8 | 4 | – | 2 | 1 | 2 | 1 | – | – |
| Loose teeth | 3 | 2 | – | – | – | – | 3 | – | 1 | – |
| Scapula | 3 | 2 | 1 | 1 | – | – | 3 | – | – | – |
| Humerus | – | 1 | 1 | 1 | 2 | – | 2 | – | – | – |
| Radius | 1 | 5 | – | 1 | – | 1 | – | – | – | – |
| Ulna | 2 | – | – | 1 | 2 | – | 1 | – | – | – |
| Pelvis | 7 | – | – | – | 1 | 2 | – | 1 | – | – |
| Femur | 1 | 2 | – | 1 | 1 | – | 1 | – | – | – |
| Tibia | 2 | 7 | 2 | – | – | 1 | 5 | – | – | – |
| Fibula | – | – | 1 | – | – | – | – | – | – | – |
| Metacarpal | – | 2 | – | 2 | – | – | – | – | – | – |
| Metatarsal | 3 | – | – | 1 | – | – | 2 | – | – | – |
| Lateral metapodial | – | – | 1 | – | – | – | – | – | – | – |
| Rib | 1 | 4 | – | – | 1 | – | – | – | – | – |
| Atlas | – | – | – | 1 | – | – | – | – | – | – |
| Axis | 2 | – | – | 1 | – | – | – | – | – | 1 |
| Cervical vertebra | – | – | – | 4 | – | – | – | – | – | – |
| Thoracic vertebra | 2 | – | – | – | – | – | – | – | – | – |
| **Total** | **47** | **37** | **10** | **14** | **10** | **7** | **20** | **3** | **1** | **2** |

Table 7: Mammal elements by phase (fragment count)

Ageing evidence is extremely limited. Epiphysial fusion data reveal the presence of both immature and mature cattle and sheep/goat; immature and subadult/adult pigs; and adult horses and dogs. Seven sheep/goat mandibles provide tooth ageing evidence, of which six are from immature sheep that still possessed deciduous premolars. These belonged to lambs killed in their first or second years. The other specimen is from a slightly older animal that probably died in its third year.

The small numbers of measurable bones from the identified species (von den Driesch 1976) indicate the presence of domestic stock of a size typical of contemporary sites in the region. The complete horse metatarsal belonged to a pony with a withers height of about 125cm (12 hands). The dog humerus is of a small, slender type, smaller than the animal represented by the mandible.

*Phase 2: Later Roman-British enclosure system and cemetery*

Thirty-three of the fifty-nine animal bone fragments recovered were identified to species. Sheep/goat (60%) were the most commonly identified, followed by cattle (21%). Other species were represented in smaller numbers — pig (9%), dog (6%), horse (3%) and frog (3%). The majority of the material was recovered from cemetery L3; it may have been redeposited, as some of the graves had been dug through earlier pits. This may explain why sheep/goat bones outnumber those of cattle.

The presence of gnawed, eroded and burnt bones also indicates that most of the bones were not structured depositions. One exception to this may be the relatively complete dog skull found at the base of the empty grave S30 (G2). The frog bone in S29 (G4) is likely to have belonged to an animal that fell into the grave and became trapped.

Butchery was noted on three bones: superficial chop marks on a cattle pelvis and a pig pelvis; and knife cuts on the shaft of a sheep/goat femur. Ageing and metrical data were too limited to add any significant information to the assemblage.

## ECOFACTUAL SAMPLES

Mark Robinson

Four ecofactual samples were taken during the evaluation, but none were taken during the salvage investigations. Low quantities of carbonised plant remains typical of the Romano-British period were present, including spelt wheat chaff and a variety of weeds. A small number of badly preserved mollusc shells were also recovered from deposit G28, a dump of occupation debris; these include *Trichia hispida* gp. and *Lymnaea truncatula*, which suggest wet, perhaps seasonally flooded ground conditions.

## HUMAN BONE

Teresa Hawtin

### Introduction and methodology

The human bone assemblage comprised a minimum of twenty-six individuals. The skeletons were examined for several criteria: state of preservation; demographic attributes including age and sex; normal metric and non-metric variation; and state of health. Due to the fragmentary nature of many of the skeletal remains, metric analysis was rarely possible. The levels of fragmentation and surface erosion of the bones also limited the identification of abnormal variations, such as pathological changes. Full results are given in Appendix 3.

### Age at death

The human remains were assigned to age categories whenever possible (Table 8). In juveniles, this was based on epiphyseal fusion (Scheuer and Black 2000) and tooth eruption (Ubelaker 1978). In adults, ageing was based on examinations of auricular surface morphology (Lovejoy *et al*. 1985; Buckberry and Chamberlain 2002), pubic symphysis morphology (Katz and Suchey 1986), cranial suture

| Skeleton | Age | Sex |
|---|---|---|
| HS102 | 24–30 years | male |
| HS106 | 17–19 years | female |
| HS110 | 50+ years | female |
| HS114 | adult | undeterminable |
| HS118 | 40+ years | male |
| HS122 | 12–18 years | undeterminable |
| HS126 | young adult | undeterminable |
| HS134 | adult | undeterminable |
| HS138 | 3–5 years | undeterminable |
| HS142 | adult | undeterminable |
| HS146 | 40–60 years | female |
| HS146a | mid-term foetus | undeterminable |
| HS150 | mid–old adult | undeterminable |
| HS154 | adult | undeterminable |
| HS158 | adult | undeterminable |
| HS166 | adult | undeterminable |
| HS166a | neonate/foetus 40–41 weeks | juvenile (undeterminable) |
| HS170 | 25–30 years | male |
| HS173 | adult | undeterminable |
| HS178 | 6–8 years | undeterminable |
| HS182 | 12–14 years | undeterminable |
| HS182a | adult | possible female |
| HS199 | 40–50 years | female |
| HS636 | 26–30 years | male |

Table 8: Demographic attributes of individuals

closure (Meindl and Lovejoy 1985), sternal rib end morphology (Schwartz 1995), or tooth wear (Miles 1962; Brothwell 1981), depending on which elements were available.

Most individuals could be assigned to an age category, although the ageing of individuals with fewer skeletal elements present is likely to have been less accurate. Ages ranged from foetal remains to older adults, with the majority being adults.

### Determination of sex

The skeletons were examined for sexually dimorphic characteristics (Table 8). This analysis was based on sexually dimorphic features of the skull and pelvis, such as the greater sciatic notch, mastoid process, mandible shape and overall robusticity (Schwartz 1995; Phenice 1969; Krogman and İşcan 1986; Ferembach *et al*. 1980; Loth and Henneberg 1996).

A large proportion of the individuals represented could not be assigned a sex, either because of the absence of suitable skeletal elements, or because they were juveniles and the sexually dimorphic characteristics were not yet developed. If the males and possible males are combined, and the females and possible females are combined, this gives a male: female ratio of 5:6. Most of the older adults are female, and most adults under 30 years are male.

### Pathological changes

The human remains were examined for any pathological or abnormal changes, although their high level of fragmentation is likely to have hindered the identification of some of these.

Several individuals exhibited age-related degenerative changes. HS118 displayed extensive joint degeneration, including severe wear of the right knee joint, in the form of grooving and eburnation of the bones with associated porosity. This individual also exhibited severe spinal joint disease (SJD), with extensive new bone growth, eburnation and porosity, and a marked curvature in the lower spine, indicating an injury. HS146 also displayed SJD, manifesting more severely on the right-hand side of the spine. This suggests that the degeneration was caused by repetitive stress on that side of the body, possibly through work-related lifting and/or bending.

Four individuals exhibited Schmorl's Nodes, which are thought to indicate intervertebral disk hernias and are frequently found in individuals over 45 years of age (Aufderheide and Rodríguez-Martín 2003: 97). HS199 had Schmorl's Nodes in the lower thoracic region (T9–12), which contained an unusual deposit with a white, pearl-like appearance. This deposit was confined to the area around the Schmorl's Nodes and was not seen elsewhere in the skeleton, so it is likely to have been a mineral deposit related to the intervertebral discs and the nucleus pulposus, the jelly-like substance within the discs.

Periostitis, which is indicative of trauma or low-grade infections of the overlying soft tissues and is commonly seen in the lower legs, was visible in five individuals. All five exhibited periostitis in the legs, which may have resulted from walking on rough ground. In addition, HS170 of a young adult male was also affected in both arms, including the clavicles, scapula, ulna, radius, humerus and metacarpals. This suggests more extensive trauma or infection and could be indicative of involvement in a fight or serious accident.

Three individuals exhibited fractured bones. HS138 had a fracture of the right fibula, and female HS146 displayed a healed fracture of one of the right ribs. Rib fractures, particularly those on the left side, are often caused by interpersonal violence and are more common on male skeletons, *e.g*. ten males as opposed to one female had at least one rib fracture in the cemetery within the Southern Orbital Sewer investigations (Boylston and Roberts 2004, 341). HS118 exhibited healed fractures of right metatarsals 2, 3 and 4, suggesting that a heavy load had been exerted on this part of the foot, perhaps the result of impact with a heavy object or a large animal standing on it. The fracture rate for all limb bones within the cemetery within the Southern Orbital Sewer investigations was considered to be 'quite high' (Boylston and Roberts 2004, 341 and 349), but due to the nature of the Box End assemblage no comparable figures could be ascertained.

HS118 exhibited new bone growth in the form of smooth bony nodules on numerous bones, including the ventral (inner) surfaces of various ribs, both os coxae (hip bones), left metatarsals 2 and 4, right femur, tibia and fibula, and the spinous processes of vertebrae C7 and T3. It is unclear what caused these new bone growths. Their smooth nature indicates that they were no longer actively forming, and their locations also suggest that they do not represent healed periostitis. It is possible that this individual was prone to new bone growth, or hyperostosis.

HS150 also exhibited extra bone deposition, in the form of irregular bony growths on various bones, including the fibulae, tibiae, metatarsals and right calcaneus. However, this is commonly seen in older adults and represents partial ossification of ligaments at their points of attachment to the bones.

### Musculoskeletal stress markers

The skeletons are too fragmentary for any meaningful analysis of musculoskeletal stress markers. However, the

more severe examples of stress indicators were recorded according to the guidelines set out by Hawkey and Merbs (1995). Several individuals were seen to have strong muscle attachments in the arms and legs, suggestive of repetitive manual labour.

### Dental pathologies

Dental pathologies, including ante-mortem tooth loss, caries, abscesses and periodontal disease, were recorded for each skeleton. Calculus and hypoplasia were recorded according to the stages illustrated by Knußmann (1988) and dental attrition was recorded after the system developed by Murphy (1959, reprinted in Smith 1984).

Seven of the individuals had either complete or partial dentition present. Six of these exhibited dental calculus, one of which was extremely severe (adult HS146). Two individuals had examples of dental caries and two displayed ante-mortem tooth loss (AMTL) accompanied by resorption of the tooth sockets, which is likely to be related to dental caries. One adult (HS110) had an abscess and periodontal disease, as well as calculus and caries, suggesting a low level of dental hygiene. The dentition in the cemetery within the Southern Orbital Sewer investigations 'was notable for the large number of cavities in the teeth which had led to many of them being lost prematurely' (Boylston and Roberts 2004, 349).

Six of the individuals exhibited a degree of linear enamel hypoplasia, an indication of episodes of childhood stress during the period when the enamel was forming. HS146 also displayed an unusual wear pattern on the labial (outer) surface of the mandibular right canine and first premolar. The adjacent teeth were worn on the lingual (inner) surface, suggesting that the wear on the outer surface was caused by an activity other than normal attrition (wear). Unfortunately the maxillary teeth were not present, so it was not possible to reach any further conclusions.

### Stature estimation

Due to the fragmentary nature of the skeletal remains, metric analysis was rarely possible. Bones were reconstructed wherever practicable, but measurements taken from reconstructed bones are considered to be less accurate, and the data presented here should be taken as an approximate guide only. No metric analysis of reconstructed skulls was attempted because of the increased likelihood of inaccuracy.

Stature has been estimated using the methods developed by Trotter (1970), and the femur/stature ratio calculation developed by Feldesman *et al*. (1990). All bones were measured according to the definitions given for each method and to the nearest millimetre. Where more than one complete long bone was present, the measurements deemed to produce the most accurate results were used to calculate stature. These are, in order of accuracy, femur + tibia, femur, fibula and tibia. Stature estimations obtained from measurements of the bones of the arms are considered the least accurate as the arms do not directly contribute to an individual's stature. The results obtained were then adjusted for age using the following formula: -(0.06 x (age in years – 30)).

Stature estimation was possible for seven adults, who ranged in height from 157cm to 173cm. Females were 157–166cm tall and males 161–173cm. These figures are all within the normal ranges seen in skeletal populations of this period (Roberts and Cox 2003, 142).

### Non-metric traits

The skeletons were assessed for thirty cranial and thirty post-cranial non-metric traits, after the work of Berry and Berry (1967) and Finnegan (1978) respectively. Most congenital conditions generally cause little or no effect to the individual during life. However, many of them are considered to be genetically inherited. Familial relationships can be proposed, but not proven unless DNA analysis is undertaken. Most of the non-metric traits identified in this population were relatively common, such as squatting facets, accessory, absence of, or unusual location of foramina, circumflex sulcus in the scapulae, and septal apertures of the distal humerus.

## DISCUSSION

Mike Luke, incorporating the conclusions and ideas of Holly Duncan, Teresa Hawtin, Mark Maltby, Tracy Preece, Mark Robinson and Jackie Wells

### Romano-British settlement

*Introduction*

The nature, layout and location of the Romano-British remains found at Box End quarry demonstrate that they were part of the larger settlement centred on the present-day hamlet of Kempston Church End. The following discussion places the Box End investigations into the context of the larger Kempston Church End settlement, briefly discussing other investigations within the settlement and, where appropriate, incorporating information from them. Further details and discussion of the wider settlement can be found in a forthcoming publication on the results of recent extensive excavations to the west of Bedford (Luke forthcoming).

*Discovery and other investigations (Fig. 17)*

The existence of a Romano-British settlement in the vicinity of Kempston Church End has been known since the mid-19th century, following the recovery of mainly metal artefacts from the area (HER 162). The site was initially interpreted as a villa (Wood 1984, 24). The construction of the Southern Orbital Sewer during 1991–2 provided the first opportunity for a more detailed examination (Dawson 2004, 38–66 and 152–266). It should be noted that these investigations were instigated prior to PPG16, when developer-funded archaeology was still rare. Extensive topsoil stripping of a working corridor for the sewer was subject to a watching brief which led to the identification of extensive Romano-British remains. Two open-area excavations were undertaken within the working corridor, *c*. 130m and 380m to the south of the Box End investigations (Dawson 2004, fig. 5.70). At a later date, an intermittent watching brief was undertaken when the trench for the actual sewer pipe was dug. This led to the discovery of Romano-British ditches and pits (Dawson 2004, 191 and fig. 5.96), and probably contemporary human remains (Dawson 2004, 195), next to what would become Box End quarry.

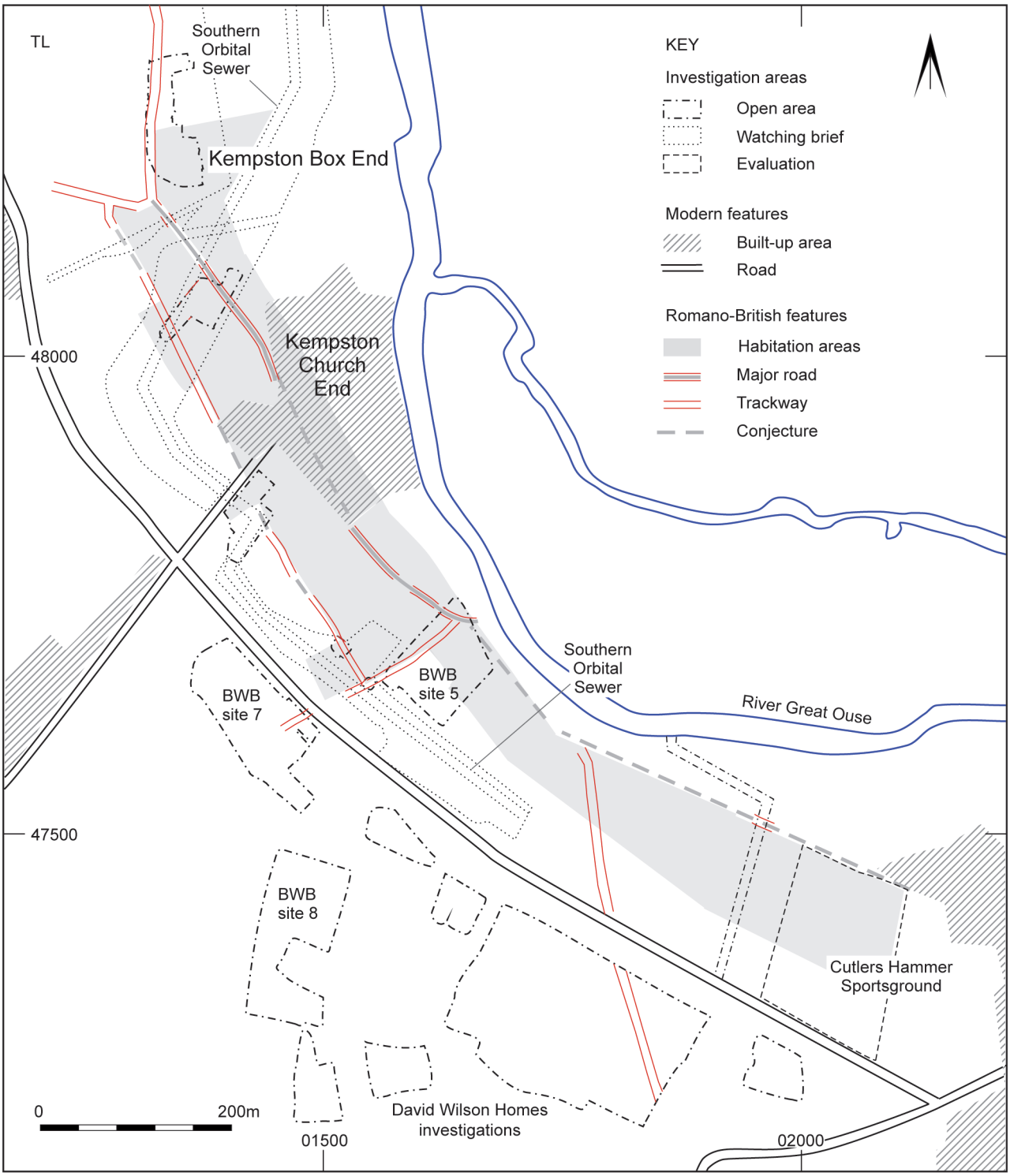



Figure 17: Location of all investigations within the settlement and its environs

An evaluation at Cutler Hammer Sports Ground, *c*. 1km to the south, located Romano-British ditched enclosures, interpreted as part of the same settlement (BCAS 1999, 35). In 2006, two years after the Box End investigations, an open-area excavation was undertaken in advance of the Bedford Western Bypass, *c*. 0.5km to the south (Fig. 17, BWB Site 5). This was the first investigation within the settlement that had been planned and programmed in advance of construction works, using a methodology and strategy determined by full evaluation. It provided extremely useful information on the origins, layout and development of the settlement in this area (Albion Archaeology 2008a, 49–50).

An indication of the contemporary landscape to the south-west of the settlement was provided by open-area excavations in advance of both the Bedford Western Bypass (Luke forthcoming; Albion Archaeology 2008a, 50–54) and the David Wilson Homes development (Albion Archaeology 2008c). Most significant in terms of the Roman road layout to the south was a pipe trench dug in 2009 immediately to the west of Cutler Hammer Sports Ground (Albion Archaeology 2010, 26).

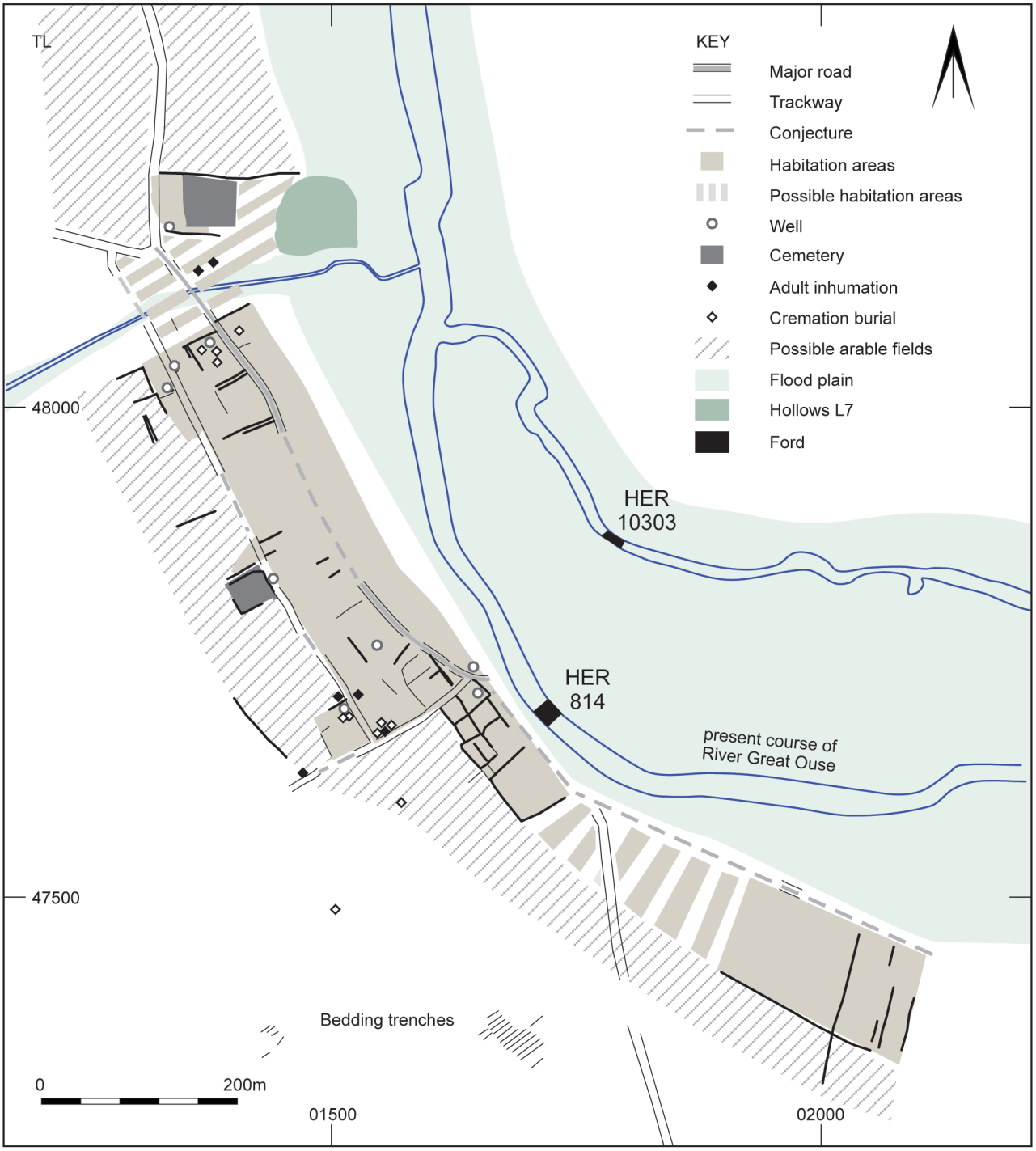



Figure 18: Overall interpretative plan of settlement

*Origins and development (Fig. 18)*

There is insufficient evidence from the Box End investigations to provide a precise date for the creation of the rectilinear enclosure system. However, a date in the late 1st century is possible and would be consistent with the dating evidence from the sewer investigations (Dawson 2004, 41). The latter also produced a small quantity of late 'Belgic' Iron Age pottery. Some was found in association with early Roman wares, but its presence may suggest occupation in the area before the enclosure system was established.

As far as can be determined, the enclosure system continued in use throughout the rest of the Romano-British period. This is consistent with the sewer investigations, where it was suggested that certain enclosures continued to be occupied in the early 4th century despite an overall decline in numbers (Dawson 2004, 48 and fig. 3.23). It is possible that even in its early form the north–south boundary within the Box End investigations defined a trackway, as it clearly did in the later Romano-British period. Its position would suggest that it was the continuation of L20 within the sewer investigations (Dawson 2004, fig. 3.17). Although described as 'track L20', it comprised a cambered metalled surface which was resurfaced on a number of occasions (Dawson 2004, 160, 179 and fig. 5.81). In the remainder of this article it is therefore described as a 'road', to distinguish it from the less substantial and less extensive trackways within the

settlement. The road is believed to have remained in use into the late 4th century (Dawson 2004, 52).

The cemetery established within the southern enclosure of the Box End investigations probably dates to the 3rd and 4th centuries. This is based on the fact that five graves were dug into pits believed to be of 1st- and 2nd-century date, while a single grave contained 4th-century artefacts. It would therefore have been contemporary with the cemetery found 400m to the south (Dawson 2004, 55–7).

No evidence for early–middle Saxon activity was recovered from the Box End investigations. However, some evidence for this period was found in the sewer (Dawson 2004, 61) and Bedford Western Bypass (Luke forthcoming) investigations, suggesting that not all of the Romano-British settlement was abandoned.

*Extent of the settlement (Fig. 18)*

The Romano-British remains within the Box End investigations represent the most northerly known evidence for the Kempston Church End settlement. East–west ditch G10 was clearly a major boundary because its course has been tracked for at least 160m, and probably extended as far as the Romano-British floodplain. Throughout the Romano-British period this boundary appears to have separated land to the south which was intensively settled, and land to the north which is devoid of evidence for any activity and is presumed to have been arable fields.

In contrast, the full extent of the settlement to the south of the sewer investigations is still unclear. Fairly dense Romano-British habitation was investigated adjacent to the major trackway within BWB Site 5 (Albion Archaeology 2008a, 49–50). Some 500m to the south-east, evaluation at Cutler Hammer Sports Ground located a contemporary ditched enclosure system (BCAS 1999). Although no trackways, buildings or large pits were identified, the quantity of domestic debris suggested that this was an area of habitation. The intervening land up to BWB Site 5 has not been investigated but is known to contain linear crop-marks and Roman artefacts. Therefore, the enclosures within Cutler Hammer Sports Ground are considered to be part of the Kempston Church End settlement (BCAS 1999, 35). Supporting evidence for this is provided by a pipe trench dug immediately to the west of the sports ground, which also located the continuation of the road (Albion Archaeology 2010, 66) found within the sewer investigations (Dawson 2004, 160, 179 and fig. 5.81).

The limit of the settlement to the east is presumed to be the edge of the Romano-British floodplain. Its location in the vicinity of the Box End investigations is probably defined by the terminus of the crop-mark of ditch G10 and the presence of refuse deposits in hollows sealed by alluvial clays. Although no definitive western settlement boundary has been identified, it can be postulated on the basis of the reduction in density of archaeological features within investigations in this area. It appears to have lain *c*. 50m west of the main western trackway at the north end of the settlement, and *c*. 40–100m west of the road at the south end. (Compare Figures 17 and 18 which show open-area excavations devoid of Romano-British settlement-type features.)

Assuming that the enclosure system within the Cutler Hammer Sports Ground was part of the settlement, its full extent would have been at least 17ha.

*Layout (Fig. 18)*

The layout of the enclosure system within the Box End investigations was similar to that found within the sewer investigations to the south — it was focussed around and articulated with a trackway. It was only possible to prove the existence of enclosures to the east of this trackway, even though most of the identified enclosures within the sewer investigations were found to the west of the road (Dawson 2004, fig. 5.75).

The land within the Box End investigations to the east of the trackway is low-lying and within the present floodplain of the River Great Ouse. Although the precise position of the river and its floodplain in the Roman period can only be surmised (see Fig. 18), this land is likely to have been subject to seasonal flooding, at the very least. It is probable that only the slightly higher ground, immediately east of the trackway, was suitable for habitation. Of course, this may have changed over time, which might explain why part of the enclosure was re-used as a cemetery. Crop-marks to the west of the Box End investigations suggest that two trackways met in this area.

To the south of the Box End investigations, the settlement 'was characterised by two roughly parallel trackways and a series of enclosures established in a grid-like pattern' (Dawson 2004, 41). As discussed above, the eastern trackway was the more substantial of the two, comprising a metalled surface on an *agger* with side ditches, and is best described as a road. Less substantial trackways or paths ran perpendicular to the main trackways. The majority of the evidence for habitation, *i.e*. buildings, wells, yards, pits, post-holes and finds concentrations, was found in the zone between the road aligned NW–SE and the trackway that ran parallel to it (Fig. 18).

Settlement layout further to the south was clarified by the BWB Site 5 investigations (Albion Archaeology 2008a, 49–50). Open-area excavation revealed a substantial trackway running SW–NE, linking the settlement's NW–SE road and parallel trackway, adjacent to a probable river crossing. Although this trackway had gone out of use by the early 3rd century, its alignment was perpetuated throughout the Romano-British period by a major boundary. To the north of it, the entire zone between the NW–SE road and parallel trackway was inhabited, while habitation to the south was confined to a narrower zone adjacent to the present-day River Great Ouse. The arrangement and position of enclosures to the south (Albion Archaeology 2008a, 49–50; BCAS 1999, 35) suggest that, even though the road appears to have curved towards the river, it probably continued alongside it. This was confirmed by a pipe trench dug in 2009 to the north-west of Cutler Hammer Sports Ground, where a metalled surface on an *agger* with side ditches was identified (Albion Archaeology 2010, 66).

A trackway running north–south, identified within the adjacent housing investigations (Albion Archaeology 2008c) and as crop-marks, appears to have joined the postulated line of the road. In some ways this replicates the arrangement of the two trackways at the northern end of the settlement adjacent to the Box End investigations.

*Components of the settlement*

In the earlier Romano-British period, the southern enclosure within the Box End investigations contained large pits, a stone-lined well and a possible unfinished kiln.

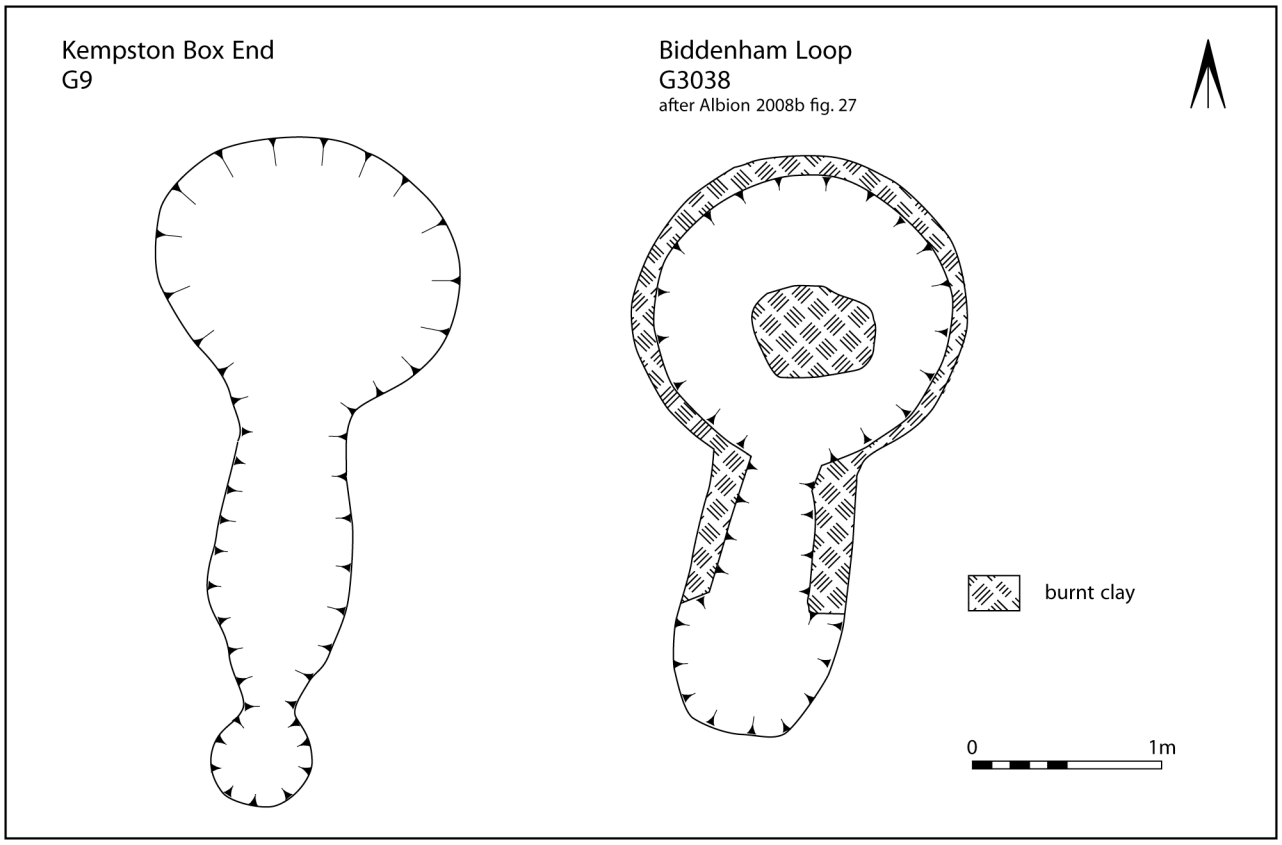



Figure 19: Comparative plans of kilns at Kempston Box End and the Biddenham Loop

Forty-two large pits were identified. As recorded, they were *c*. 1.5–4m in diameter and less than 1m deep, although all had been truncated by quarrying operations. Originally, they were probably similar in size to the large pits found in the sewer trench to the east — 3m in diameter and over 1.8m deep (Dawson 2004, 191 and fig. 5.96). The Box End pits were consistently steep-sided, at times almost vertical, and often had flat bases. Large pits with similar profiles were found within the Bedford Western Bypass investigations, some of which had been used as cesspits and held evidence for wooden linings (Albion Archaeology 2008a, 50). Pits of this kind could have served different functions. However, whether they were originally dug as cesspits or gravel quarries, or less likely as storage pits, it is clear that most were ultimately used for rubbish disposal.

Well G8 was located in the south-west corner of the southern enclosure. Its shaft lay within a large construction pit and was lined with coursed limestone slabs. It is similar to other wells found within the settlement, *e.g*. G4020 (Dawson 2004, 214, fig. 5.108) and G5044 (Albion Archaeology 2008b, 98). Nine have now been identified within the settlement, all within habitation areas (Fig. 18). Only G4020 has been fully excavated; it was 2.4m deep (Dawson 2004, 214).

Possible kiln G9 had a figure-of-eight shape in plan but contained no *in situ* lining/burning or charcoal-rich deposits. It was 3.5m long, aligned north–south and had a chamber at the north end, 1.6m in diameter and 0.6m deep. A closely comparable structure, albeit with an *in situ* lining was found at the southern end of the Biddenham Loop within BWB Site 3 (Fig. 19; Albion Archaeology 2008b, 66–7). Both kilns were situated on the periphery of their associated settlements in the vicinity of cemeteries. The presence of Oxford-ware pottery (dated to AD 240-400) in possible kiln G9 suggests it was late, but it is only possible to speculate that its construction was halted once the land had been allocated for use as a cemetery. No kilns or portable kiln furniture were found in the sewer investigations (Dawson 2004), but it was suggested that much of the pottery came from relatively local sources, *e.g*. the kilns at Harrold (Brown 1994), 'clearly reflecting the location of Kempston on the River Great Ouse' (Dawson 2004, 78).

The dark deposits of G28 that were rich in occupation debris were located within natural hollows, *c*. 100m to the east of the salvage investigations. It is uncertain if they were deposited in a deliberate attempt to level the ground or because the hollows offered a convenient place for rubbish disposal. The latter is perhaps more likely because no evidence for later activity was found, and they were located on low-lying land within the present floodplain of the River Great Ouse. It is possible that these deposits were once more extensive, with only those within the hollows surviving the erosional effects of flooding.

## Romano-British cemetery

*Introduction and possible extent (Fig. 20)*

Inhumation cemetery L3 was established within the pre-existing southern enclosure of L4. In total, thirty-eight graves were identified — thirty within the salvage investigation area and the remainder in evaluation trench 6. Given the position of the quarry edge at the time of the salvage investigations and the presence of graves in the evaluation trench, it is likely that quarrying operations had destroyed a considerable number of graves prior to

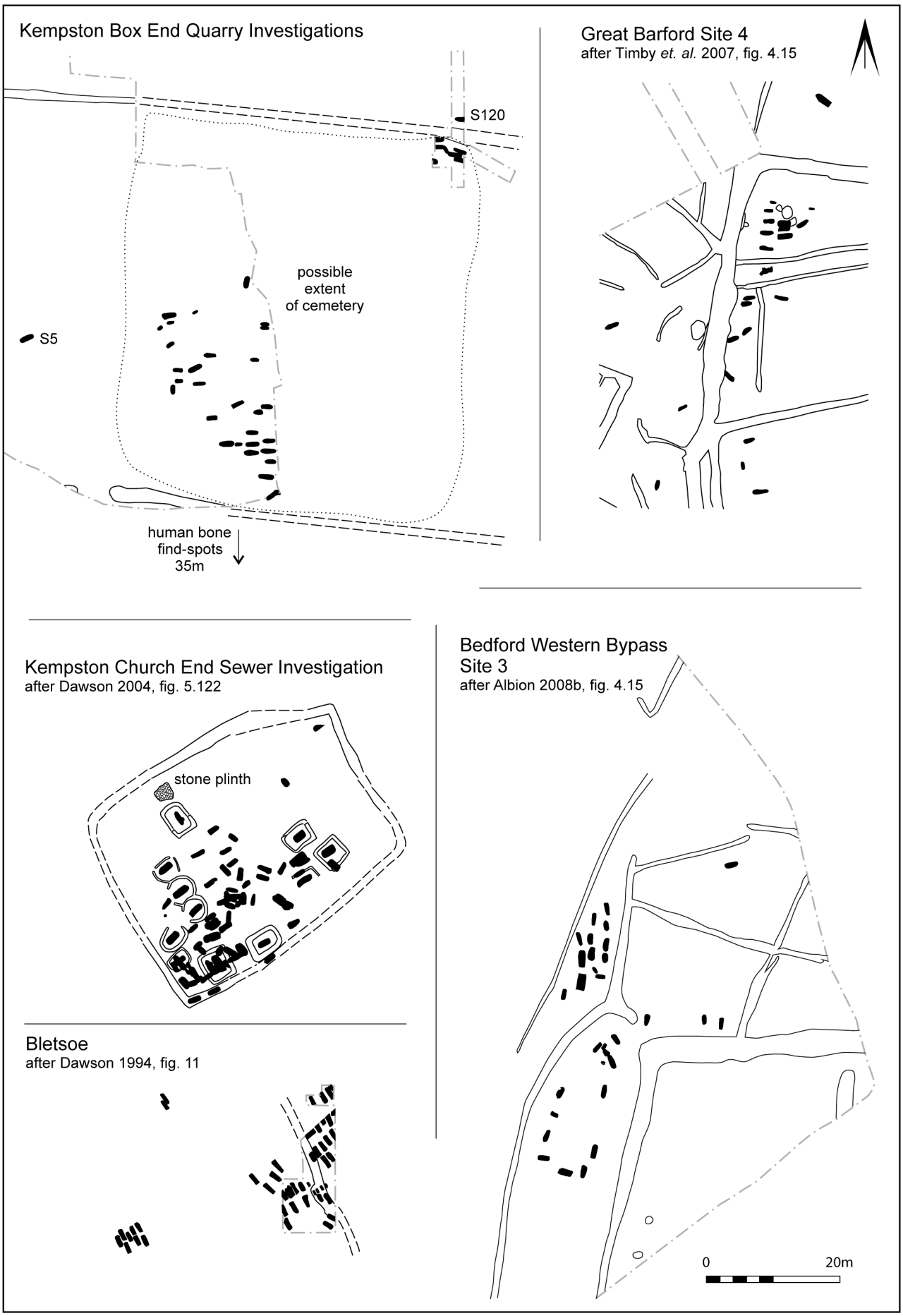



Figure 20: Comparative plans of rural cemeteries in vicinity

archaeological attendance. It is impossible to be precise, but even a conservative estimate would suggest that the cemetery originally contained around 100 graves. It may have been considerably larger if the human remains found *c*. 35m to the south during topsoil stripping for the sewer (Dawson 2004, 195) were part of the same cemetery (see Fig. 2). However, dispersed inhumation burials are known from other investigations within the settlement (Dawson 2004, 265; see below).

Enclosure ditches G6 and G10 are presumed to have formed the main southern and northern boundaries of the cemetery. However, grave S120 was found just to the north of ditch G10 and, as indicated above, human remains were found to the south of ditch G6 during topsoil stripping for the sewer. Only grave S5 was found in the western part of the enclosure. If this is a genuine distribution, rather than the result of machine truncation, then the western limit of the cemetery may not have been archaeologically visible but could have lined up with the southern entrance into the enclosure. The eastern limit of the cemetery probably fell within evaluation trench 6 — no graves were observed in its eastern extension, and no graves were found to the east during the watching brief on the construction of the sewer.

*Dating*

Five graves were dug into Phase 1 pits, thereby postdating them. By extension, it has been assumed that this is the case for the cemetery as a whole. However, it may be significant that the majority of the identified graves were located in areas where there were no pits (Fig. 3). It is possible that some pit-digging was contemporary with the cemetery, as was noted within the sewer cemetery to the south (Dawson 2004, 55). It is equally possible that many more graves had been destroyed prior to archaeological attendance — most were no more than 0.1m deep — with the result that the actual distribution of graves within areas of pitting cannot now be determined.

Most of the graves did not contain grave goods or firmly dated artefacts. The most reliable dating evidence derives from grave S13, the coffin of which contained a coin, possibly of Gratian, dated to the third quarter of the 4th century. Although the pottery assemblage from the grave fills is mixed, it does contain Oxford wares dating to the mid-3rd century or later. It is therefore likely that burials were taking place in the 3rd century (the latter half?) and through much of the 4th century. This would make them contemporary with the settlement's other known cemetery, 400m to the south, where better preservation permitted the establishment of a more detailed sequence of burials (Dawson 2004, 55–7).

*Grave alignments and positions*

Most of the graves (twenty-five out of thirty-eight) were aligned east–west. Together with the absence of grave goods, this might be taken to indicate that they represent Christian burials. However, other factors are thought to have influenced the cemetery's internal organisation, in particular existing or remnant enclosure boundaries (Fig. 20) — as suggested at Bletsoe (Dawson 1994, 29), within the sewer cemetery (Dawson 2004, 55) and at Great Barford (Poole 2007, 156).

At Box End, three of the graves in evaluation trench 6 had been dug parallel to enclosure ditch G10. The remaining seven were on different alignments: two were aligned north–south (G2) and five NE–SW (G3 and G5). These graves were mainly located on the periphery of the cemetery (Fig. 7).

The positioning of some of the graves, particularly the closely spaced east–west graves to the south, suggests that they had been laid out in rows. It is also possible that the NE–SW graves G3 formed a row. The occurrence of rows of graves has also been observed at Bletsoe, Great Barford and BWB Site 3 (Fig. 20).

*Coffins*

Nine graves produced evidence for the presence of coffins, mostly in the form of actual nails or stains indicating their location. Grave S13 contained a coffin stain, while grave S17 contained an iron fitting that might have come from a coffin. On this basis, the Box End cemetery contained a higher percentage of coffined burials than the sewer cemetery, where only ten out of eighty-seven appear to have contained coffins.

Truncation of the graves by quarrying operations probably contributed to the relatively low number (1–15) of coffin nails per grave. By contrast, the largest number of nails found in a single sewer cemetery grave was thirty-five (Dawson 2004, 55). The nails were all flat-headed but of two different types: Type A, more robust, 100–120mm long, with thickened heads; and Type B, less robust and <100mm long. Although the data is incomplete, nails appear to have been concentrated around the head and feet, reflecting the number of timber joints in these locations. Some coffins were probably squared at both ends, *e.g*. grave S23 (Fig. 10); others were probably more polygonal at both ends, *e.g*. grave S9 (Fig. 9). A combination of the two styles may be apparent in grave S25 (Fig. 10). The shape of graves S125 and S126 — squared at the foot and more polygonal at the head — may also reflect the form of the coffin (Fig. 11).

There appears to be no pattern to the occurrence of coffins across the cemetery or within the different grave groups. most of the individuals interred within coffins were adults, with a fairly even mix of females and males. Interestingly, the juvenile accompanied by grave goods in grave S13 was a coffined burial.

*Stones within graves*

Graves S13 and S17 held stones which may have been deliberately placed. Grave S13 contained a small number of vertical limestone slabs on either side of the skeleton adjacent to, and apparently within, the area of coffin stain (Fig. 9). Three flat limestone slabs in the vicinity of the skull fragments in grave S17 may represent pillow stones (Fig. 9). Both graves contained evidence for coffins, albeit less convincing in the case of grave S17.

Twenty-five graves in the 4th-century cemetery at Bletsoe had limestone slabs placed around the body, forming a loose lining or packing (Dawson 1994, 29). Some featured a large number of stones, reminiscent of a cist-type burial, but others were similar to the arrangements of stones seen at the Box End cemetery.

*Grave goods*

Even if the possible box fitting from grave S17 is included, very few of the Box End burials were accompanied by grave goods. As with the small number of coffin nails, this may be partly the result of truncation. Only grave S13 contained artefacts clearly deposited as grave goods — an iron knife and a late 4th-century coin. They were close together by the hip; the coin may have originally

been in a purse and the knife suspended from a belt. Two graves contained animal bones suggestive of deliberate deposition.

Of the eighty-seven graves in the sewer cemetery, seventeen contained grave goods (Dawson 1994, 55). Only two were comparable to the accompanied burials at Box End. Inhumation 3963 contained an iron socketed knife (Wells *et al*. 2004, 390). Philpott notes that, although the inclusion of knives in graves is not common, it did form a consistent element of late Roman native practice and may have been continuing a rural tradition of the occasional burial of equipment (Philpott 1991, 176–7). Inhumation 3906 produced a coin of Gratian (Guest 2004, 394 and 408), although its position within the grave is not described (Dawson 2004, 239). The inclusion of coins in burials became more common in the 4th century, perhaps in response to the increase of coinage in circulation (Philpott 1991, 211). Throughout the Roman period, coins in graves 'most often occur in the mouth or in such a position that they may have fallen from the mouth on decomposition of the body' (Philpott 1991, 212). The position of the coin within grave S13 is therefore unusual — as is the combination of a knife and a coin.

Although small in quantity, the animal bones in grave S13 were found adjacent to the knife and coin and are therefore perhaps more likely to be grave goods than simply being residual. A dog skull was also placed on the base of the empty grave S30. Animal remains are quite common in Romano-British graves (Philpott 1991, 200). There were two examples, not from empty graves, in the cemetery within the Southern Orbital Sewer investigations— a partially articulated possible chicken in grave 3940, and a cow skull in grave 3946 (Dawson 2004, 57). The former, like the loose bones at Box End, is likely to represent a food offering. However, the cow skull, like the dog skull at Box End, may have a more symbolic meaning. One empty grave at Lankhills, Winchester contained two dog skeletons and was interpreted as a 'cenotaph' (Philpott 1991, 201). Apparent graves which do not contain human remains (despite conducive conditions for preservation) are relatively rare, but examples are known within the cemetery within the Southern Orbital Sewer investigations — grave G154 (Dawson 2004, 266) — and within the cemetery attached to the farmstead on BWB Site 3 at the southern end of the Biddenham Loop — S3027 (Albion Archaeology 2008a, 52; Albion Archaeology 2008b, 72–3).

*Body position*

The vast majority of the burials within the Box End cemetery can be described as extended supine. Although most of the burials in the sewer cemetery were also supine (Boylston and Roberts 2004, 322), there was a greater variety of positions, including prone, on the left side and crouched (Dawson 2004, 231–65). The position of the head was also more varied. The head typically lay to the west or south-west at Box End, but within the sewer cemetery there was no overall preference (Dawson 2004, figs 5.100, 5.111 and 5.116). A similar pattern was noted within the cemetery at Dunstable (Matthews 1981). The contemporary cemetery on BWB Site 3 contained thirty-one graves, mostly aligned north–south (Fig 20). In most cases, the burials were extended supine, although the head position was more variable (Albion Archaeology 2008b, 69–73). At Bletsoe, 10km to the north, the graves had a much more 'ordered' appearance. Most were aligned NW–SE, and the burials were generally supine with the head to the north (Dawson 1994, 29).

Hand and arm positions were not always identifiable within the Box End cemetery. Where the evidence survived, most burials had their hands on the lap/pelvis, *e.g*. S5, S9, S16 and S23, and were sometimes actually crossed. The arms of the individual within grave S13 were folded across the abdomen. Similar positions were recorded within the sewer cemetery (Dawson 2004, 231–65).

Grave S122, identified during the evaluation, was not excavated. However, the skull was observed next to the left knee, possibly suggesting decapitation. Twelve decapitated burials were identified in the sewer cemetery; in nearly all cases, the head was placed between the lower legs or at the feet (Boylston and Roberts 2004, 322 and 342–3). Therefore, although the actual position of the head within grave S122 is unusual, the practice of decapitation was quite common in the 4th century (Philpott 1991, 77–89). It was clearly a non-Christian practice, but there was nothing generic about the treatment of decapitated individuals to suggest that they were outcasts, as once thought. The practice was presumably associated with a particular cult, possibly one associated with the head, and appears mainly to have been a feature of rural cemeteries (Boylston and Roberts 2004, 348–9).

*Age and sex estimations*

All ages are represented within the Box End cemetery, from foetal through children and young adults to adults. Male, female and child/juvenile burials also occurred in broadly equal numbers. Most of the older adults were female, while those under 30 tended to be male, perhaps indicating that males were involved in more high-risk activities.

At Box End, eight of the thirty-eight graves contained child/juvenile burials, dispersed throughout the cemetery. At Bletsoe, five out of the fifty-six burials were children and they were confined to a discrete area (Dawson 1994). Grave S9 contained foetal bones, and the full-term foetal/neonate bones in grave S28 may suggest death during childbirth.

*Evidence for lifestyles of the individuals*

Several individuals showed evidence of heavy manual work, in the form of strong muscle attachments and joint degeneration, while all individuals over 40 years of age and one younger adult had degenerative joint changes. Periostitis — caused by excessive physical activity — occurred in five individuals, usually in the lower legs, and was present in all three of the teenagers identified. This may be indicative of the knocks received during activities such as ploughing. Three individuals exhibited healed breaks occurring separately to the fibula, adjacent toes (suggestive of the impact of a heavy object or large animal) and ribs (suggestive of interpersonal violence in this case to a female). Extensive active periostitis in a 25–30 year-old male suggests that he had been subjected to a severe trauma or infection recently before death.

Dental health was generally good, but all individuals with teeth present showed a degree of calculus and hypoplasia, the latter indicating periods of childhood illness or stress. The few incidences of caries, periodontal disease, abscess and ante-mortem tooth loss were confined to the individuals aged over 40 years.

Overall, this population appears to have been hard-working with a non-elite diet. The size and fragmentation of the assemblage means it cannot be compared in any significant detail to the large and well preserved skeletons within the sewer cemetery (Boylston and Roberts 2004). However, both are considered to represent an agricultural community, although 'considerable interpersonal violence' was noted within the sewer cemetery (Boylston and Roberts 2004, 350).

*Cemetery structures*

The function and date of post-hole structures L5 are difficult to determine. The available evidence suggests that they were contemporary with the cemetery, and, although they do not display any obvious layout in plan, they may have been part of funerary monuments or structures such as mausoleums or shrines. Funerary structures with stone foundations are sometimes found in urban cemeteries such as Poundbury, Dorchester (Woodward 1993, 233–5 and fig. 138) and therefore timber versions are quite likely to have existed, though they are seldom identified. Although no post-holes were found, an arrangement of graves within the cemetery on Bedford Western Bypass Site 3 appeared to respect a rectangular area that was devoid of features (Fig. 20): this may represent the site of a funerary structure (Albion Archaeology 2008b, 52).

A number of mid–late 4th-century graves within the sewer cemetery were 'enclosed in individual rectangular or penannular encircling ditches' (Fig. 20; Dawson 2004, 55 and fig. 5.116). Their absence from the Box End cemetery may represent deliberate choice by the deceased or their family, unless, of course, it is the result of machine truncation. The only other structure of note within the sewer cemetery was a limestone plinth (Dawson 2004, 227 and fig. 5.116). No comparable structure was found within the Box End cemetery, although it is uncertain if one would have survived the quarrying operations. At Southwark, a similar arrangement was interpreted as 'the base for either a funeral monument or a stone sarcophagus' (Mackinder 2000, 18).

*Dispersed, non-cemetery burials within the Kempston Church End settlement (Fig. 18)*

Up to twenty-three dispersed burials were found within the settlement area — twelve inhumation (Dawson 2004, 265; Albion Archaeology 2008, 101 and fig. 40) and eleven cremation burials (Dawson 2004, 231; Albion Archaeology 2008b, 101 and fig. 40). These include the remains of the two individuals found to the south of the Box End cemetery (Dawson 2004, 195); as discussed above, it is unclear whether or not these burials were part of the cemetery.

The two foci of cremation burials lay on the northern and south-western edges of the settlement. Care should be taken when interpreting their apparent distribution, which is influenced by the location of investigation areas. Nonetheless, it is noticeable that they were situated away from both of the inhumation cemeteries. The south-western concentration was only seen in small excavation areas but is in the vicinity of possible funerary structures (Dawson 2004, 42 and fig. 3.18); it may, therefore, have been part of a larger cremation cemetery.

None of the dispersed inhumations are firmly dated but it is presumed that they were broadly contemporary with the cemeteries. The eight foetal or infant burials (Dawson 2004, 265 and 251), not shown on Fig. 18, occurred within the habitation enclosures quite close to buildings in the northern part of the sewer investigations (Dawson 2004, figs 5.89, 5.91 and 5.107). It is striking that none of the adult inhumations (Fig. 18) were found in habitation areas within the sewer investigations or BWB Site 5 (see Fig. 17). Other than the two adults near the Box End cemetery, the only possible concentration was in the vicinity of the cremation burials on the south-western periphery of the settlement (see Dawson 2004, fig. 5.121). It is possible that this location was chosen because of its vicinity to the (presumably earlier) cremation burials and/or because it was adjacent to two trackways. The occurrence of burials towards the periphery of settlement areas was a common feature of contemporary rural settlements, *e.g.* the Marsh Leys farmsteads (Luke and Preece 2011, 158–9), Biddenham Loop (Luke 2008, 62) and Wavendon Gate, Milton Keynes (Williams *et al.* 1996, 80–2 and 89). Within roadside settlements it is quite common to find burials between the habitation zone and arable fields (Smith 1987, 119). Both the dispersed adult inhumations and the cemeteries within the Kempston Church End settlement would fit very neatly into this pattern.

## Environs of the settlement

Extensive investigations have taken place in the vicinity of the settlement on both the Kempston side of the River Great Ouse (see Fig. 17) and the Biddenham Loop side (Albion Archaeology 2008c; Luke 2008; Luke forthcoming). The settlement was located on the edge of the gravel terrace just above the floodplain, across which there was probably a useable route into the Biddenham Loop, in the summer at least (Luke 2008, 63). The precise location of such a river crossing has given rise to considerable speculation. The Viatores (1964, 281) and Bagshawe (1957) suggested the locations of two Roman fords — HER 814 and HER 10303 (Fig. 18), the first of which is still designated as a Scheduled Ancient Monument. Although the physical evidence for this supposed ford is almost certainly the remains of a 17th-century bridge (Wood 1984, 24–6), the settlement's road does appear to turn towards the river within Bedford Western Bypass Site 5, suggesting a crossing point in the vicinity (Albion Archaeology 2008b, fig. 35).

Several trackways from a variety of directions are known to have converged at the settlement. Two met at the settlement's northern edge; similarly, two met to the south, albeit within the probable habitation area. Most of the trackways were defined only by parallel ditches, but the eastern route within the settlement comprised a metalled surface on an *agger* with side ditches, and is therefore described in this article as a road. Wherever it has been investigated within the settlement, it had a curvilinear alignment rather than being straight like major roads. It is therefore unknown if it was anything more than a local routeway, serving the purposes of the inhabitants of the settlement and perhaps connecting it to nearby farmsteads.

A series of fields, defined in places by ditches, has been revealed by a variety of investigations on the western periphery of the settlement (Fig. 18; Albion Archaeology 2008a, 53). They probably represent arable land, exploiting the lighter, sandy gravel soils in this area; the sewer cemetery and some of the isolated burials were also located in this zone. The land to the north of boundary

G10 within the Box End investigations is also presumed to have been given over to arable cultivation.

Beyond the western zone of arable fields, no boundary ditches and few traces of any contemporary activity have been identified, despite extensive open-area excavation (Figs 17 and 18). What evidence there is includes a small number of isolated burials, a possible shrine (Albion Archaeology 2008a, 52–3) and two areas of parallel bedding trenches (Albion Archaeology 2008a, 53 and Albion Archaeology 2008c). Comparable remains, dug for vines or possibly fruit hedges, are known on other sites in the region, *e.g.* Cranfield, Bedfordshire (Albion Archaeology 2005) and Wollaston, Northamptonshire (Meadows 1996).

The absence of evidence for field boundaries to the south-west of the settlement is perhaps surprising. However, much of this land is capped by boulder clay and may have been wooded or used for communal pasture when the floodplain was inaccessible. Similar 'blank' zones between farmsteads, *c.* 200m wide, have also been identified on the Biddenham Loop (Luke 2008, 68).

The nearest known contemporary settlement on the Kempston side of the river lies *c.* 1.8km to the north at Moor End. It is believed to contain a 'substantial building or villa' due to the presence of 'stone footings, roof and floor tiles, and tessarae' (Simco 1984, 108). One or more Romano-British settlements are presumed to underlie modern Kempston to the east, as evidenced by the discovery of burials and coin hoards (Simco 1984, 107). By contrast, the land to the west of Kempston Church End contains very little evidence for contemporary settlement. However, this is probably due to an absence of fieldwork rather than reflecting the actual settlement distribution.

The Biddenham Loop contained at least six contemporary farmsteads, all in similar topographical positions to the Kempston Church End settlement (Luke 2008, 57). Four are shown on Figure 21. Trackways provided access through the farmsteads and could have been designed to facilitate the movement of livestock from the interior of the Loop to the floodplain. The southernmost Farmstead 10/14 may have been of higher status and, significantly, was nearest to the Kempston Church End settlement. It was located centrally within the Loop and has produced roof tile, flue tile and brick fragments, suggesting the presence of at least one substantial building (Luke 2008, 57). In addition, it appears to have been separated from the other farmsteads by an extensive east–west ditch, which may represent an estate boundary (Fig. 21). Two extensive trackways ran to the south of this boundary, the north–south one extending from the southern farmstead to the major boundary, where it stopped. This could support the suggestion that the southern Biddenham Loop was a single estate, and it is possible that much of its land was given over to producing arable crops for the Kempston Church End settlement.

Another extensive Romano-British landscape, surrounding farmsteads located on the Elstow Brook, has been identified at Marsh Leys, *c.* 2.5km to the south-east (Luke and Preece 2011, 168–70, figs 9.17 and 9.18).

## Overview of the evidence for the origins and 'status' of the settlement

Dawson has suggested that Kempston Church End may have been a 'planned settlement', with its 'metalled trackways, gridded layout and Roman-style structures', but he does not elaborate on its origins (Dawson 2004, 74; Dawson 2007, 73). The complex origins of settlements has been discussed by many authors, *e.g.* Hingley (1989, 25–9), Black (1995, 30–31) and, for roadside settlements, Smith (1987, 3–19).

It is as yet uncertain whether the Kempston Church End settlement was established on a major road, although if the road within the settlement continued to the walled small town of Irchester as often speculated, this is clearly possible. Irrespective of this there is sufficient evidence, such as its layout from the earliest phase of activity, to suggest that it was a planned settlement. With reference to roadside settlements in general, Black does not believe that economic conditions alone would actually have led to their creation (Black 1995, 15). Instead, he argues that, from the late 1st century, some were deliberately established and settlers encouraged, because such settlements often served the interests of the Roman government or relevant *civitas* authority. A similar influence is possible in the creation of the Kempston Church End settlement, not least because of its location centrally between Watling Street *c.* 15km to the west and the branch of Ermine Street that passes through Sandy *c.* 16km to the east.

The Kempston Church End settlement is now known to have covered at least 17ha, with at least two large cemeteries. The position of the cemeteries on the settlement's periphery and the apparent restriction on adult inhumation within the habitation zone suggest a level of control/order which is not characteristic of rural settlements. Within Bedfordshire, the settlement is more comparable to the better known roadside small towns of Sandy (Smith 1987, 213) and Dunstable (Smith 1987, 218), which were similar in size and layout and also had formal cemeteries.

The actual status of large Romano-British settlements is frequently debated. Terms such as *vicus* (Johnson 1975, 75–84), roadside settlement (Smith 1987, 1), small town (Burnham and Wacher 1990, 1) and local centre (Hingley 1989, 25) have all been proposed. Many of these terms have loaded meanings and, on the basis of current evidence, Kempston Church End is perhaps best described as a local centre. The concept of local centres serving as markets has been discussed by Hingley (1989, 111–20). Burnham and Wacher (1990, 44) argue that small towns would have offered a range of services and facilities for residents and travellers, while at the same time they would also have provided periodic or permanent markets for the surrounding countryside. They suggest that 10–12km was the maximum distance people would travel by foot to markets (halved for mounted pack animals). With this in mind, it is striking that the Kempston Box End settlement was *c.* 15km from the nearest known large Roman settlements/towns at Irchester, Sandy and Bow Brickhill.

It is likely that most of the settlement's occupants were farmers. However, Dawson has commented that some of the burials in the Southern Orbital Sewer cemetery hint at a 'military component' to the settlement, suggesting that it may have been either a formal veteran settlement or have numbered among its inhabitants men who had returned from military service (Dawson 2004, 76). The empty graves within both of the settlements' cemeteries may have been symbolically dug for individuals who had died while on military service and been buried elsewhere; this point is discussed in more detail in the forthcoming publication on recent excavations west of Bedford, along

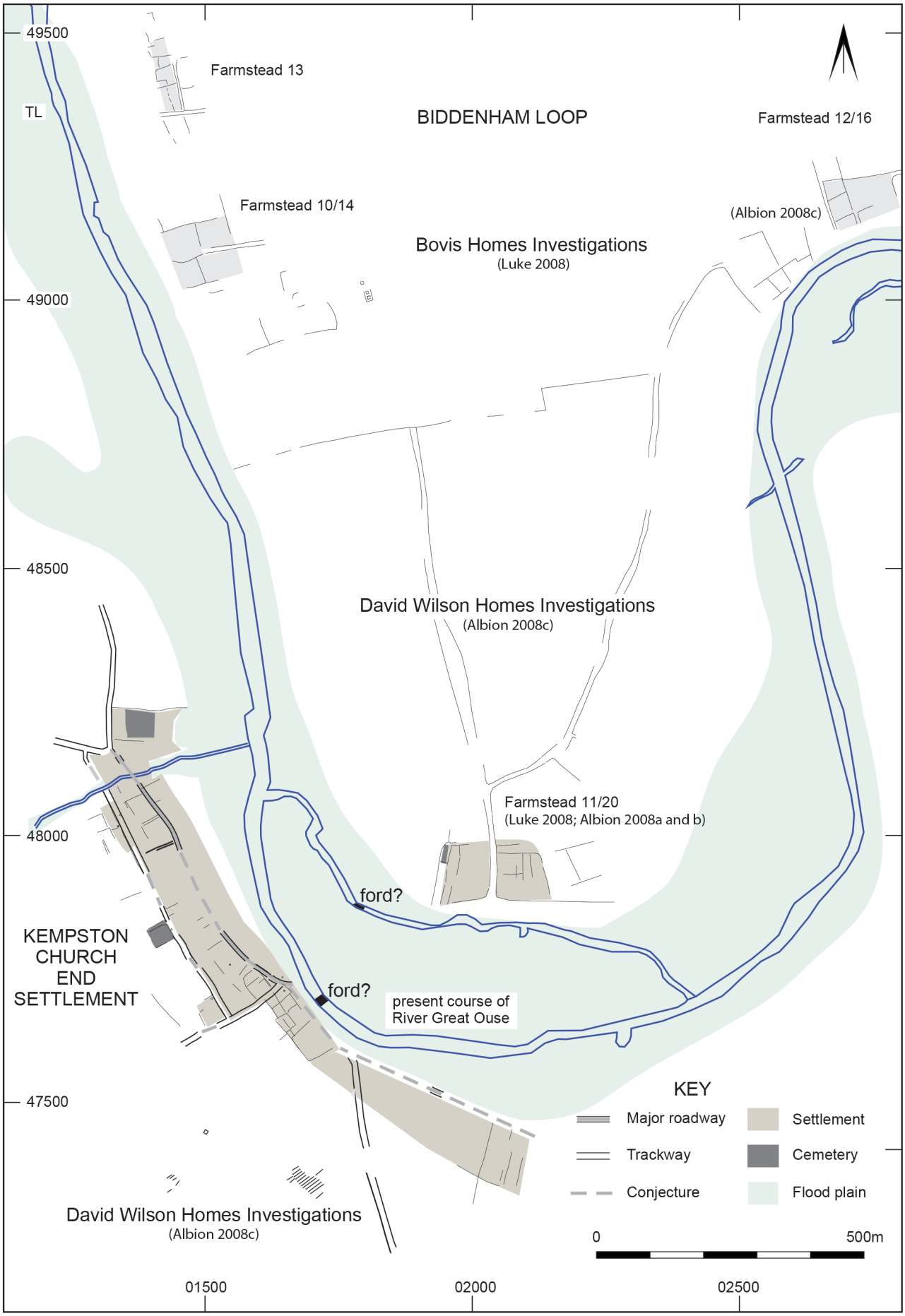



Figure 21: Environs of the settlement

with other evidence for the nature of the settlement and its inhabitants (Luke forthcoming).

## AFTERWORD

One of the important lessons of the Kempston Box End project is that even where significant archaeological remains are expected and proved to be present by evaluation, they can 'slip through' the planning process.

Although time and resources were limited, it has been possible, with the implementation of a clear strategy, a streamlined methodology and a lot of goodwill, to achieve the results reported on in this article. The site has significantly enhanced our understanding of a major Romano-British settlement and helped address one of the regional research priorities for this period, *e.g.* evidence for rural burials and cemeteries (Going 1997, 40).

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The archaeological work was managed by Mike Luke (Project Manager). Matt Edgeworth supervised the evaluation, with investigation and recording undertaken by Ian Beswick and Rob Edwards. Tracy Preece supervised the salvage investigations, assisted by Teresa Hawtin and Matt Smith. The latter three, in addition to their five days of paid work, also gave up their own time to work on the project, along with Richard Gregson, Adam Lee, Mike Luke, Lesley-Ann Mather, Dan Miller, Sarah Morton, Helen Parslow, James Pixley and Wayne Preece.

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## APPENDIX 1: CERAMIC TYPE SERIES

Jackie Wells

### a) Pottery

Pottery fabrics, based on surface appearance and major inclusion types, are summarised below (Table 9) by chronological period, using type codes and common names in accordance with the Bedfordshire Ceramic Type Series. This is currently maintained by Albion Archaeology, from whom detailed fabric descriptions are available. Published references are noted below. Bracketed numbers after each fabric code denote sherd numbers. No new fabric types were identified.

### b) Brick and tile

**Shell:** fairly coarse fabric, of variable texture, depending upon degree of firing. Colour ranges from orange-red to buff or grey, depending upon the extent of reduction. A grey core occasionally occurs, with or without buff margins. Characterised by abundant coarse shell inclusions, 2–4.5mm and frequent finely crushed shell, 0.3–0.7mm. The fabric is similar to that used for pottery vessels, though it generally contains coarser and larger inclusions. *Cf*. products of the Lodge Farm kilns, Harrold (Brown 1994).

## APPENDIX 2: SAMIAN WARE

Felicity C. Wild

The excavations produced forty-five sherds from thirty-three different vessels: fourteen (42%) in South Gaulish fabric, and nineteen (58%) in Central Gaulish fabric, of which one is probably in the fabric of Les Martres-de-Veyre. Excluding scraps of uncertain form, the forms are as follows:

**South Gaulish**: 37 (1), 27 (2), 35 (2), 15/17 (1), 18 (4), 15/17 or 18 (2), cup or bowl (1).

| Fabric code | | Common name | Reference |
|---|---|---|---|
| *Late Iron Age 'Belgic'* | | | |
| F05 | (53) | Grog and shell | Parminter and Slowikowski (2004, 443) |
| F06A | (6) | Fine grog | Parminter and Slowikowski (2004, 443) |
| F06B | (24) Fig. 15, 1 | Medium grog | Parminter and Slowikowski (2004, 443) |
| F06C | (38) | Coarse grog | Parminter and Slowikowski (2004, 443) |
| F07 | (29) | Shell | Parminter and Slowikowski (2004, 443) |
| F09 | (50) Fig. 15, 2 | Sand and grog | Parminter and Slowikowski (2004, 443) |
| *Roman* | | | |
| R01A | (20) Fig. 16, 3 | Central Gaulish samian ware | Tomber and Dore (1998, 30–32) |
| R01B | (25) | South Gaulish samian ware | Tomber and Dore (1998, 28–29) |
| R02 | (2) | Mica-gilded ware | Marney (1989, 185; fabric 34c) |
| R03A | (5) | Verulamium-region white ware | Tomber and Dore (1998, 154) |
| R03B | (16) Fig. 16, 4 | Gritty white ware | Marney (1989, 186; fabric 39) |
| R03D | (1) | White ware with fine shell | Parminter and Slowikowski (2004, 448) |
| R05A | (23) | Oxidised sandy ware | Wells (2008, 297) |
| R05C | (2) | Oxidised micaceous ware | Wells (2010, 234) |
| R05D | (11) Fig. 16, 5 | Oxidised sandy (white slipped) | Wells (2008, 297) |
| R06B | (16) | Coarse grey ware | Wells (2008, 297) |
| R06C | (48) Fig. 16, 6 | Fine grey ware | Wells (2008, 297) |
| R06D | (56) Fig. 16, 7 & 8 | Micaceous grey ware | Wells (2008, 297) |
| R06E | (37) Fig. 16, 9 | Calcareous grey ware | Wells (2008, 297) |
| R06F | (32) Fig. 16, 10 | Grog-and-sand grey ware | Parminter and Slowikowski (2004, 449) |
| R06H | (6) | White-slipped grey ware | Wells (2010, 234) |
| R06I | (3) | Black-slipped grey ware | Wells (2010, 234) |
| R07B | (19) | Sandy black ware | Wells (2008, 297) |
| R07C | (2) | Gritty black ware | Wells (2008, 297) |
| R09B | (1) | Pink grogged ware with shell | Parminter and Slowikowski (2004, 450) |
| R10A | (2) | Buff gritty ware | Wells (2008, 297) |
| R10B | (13) | Fine buff ware | Wells (2008, 298) |
| R11 | (5) | Oxfordshire oxidised ware | Young (1977, 185) |
| R11A | (3) | Oxfordshire white ware | Young (1977, 93) |
| R11C | (1) | Oxfordshire parchment ware | Young (1977, 81) |
| R11D | (6) | Oxfordshire colour-coated ware | Young (1977, 123) |
| R11E | (3) Fig. 18, 23 | Oxfordshire mortaria (white) | Young (1977, 56) |
| R11F | (4) | Oxfordshire mortaria (red) | Young (1977, 123) |
| R12B | (1) | Nene Valley colour-coated ware | Tomber and Dore (1998, 118) |
| R13 | (624) Fig. 17, 11-22 | Shelly ware | Brown (1994, 57–8) |
| R14 | (11) | Red-brown harsh sandy ware | Parminter and Slowikowski (2004, 452) |
| R17 | (3) | Smooth orange ware | Wells (2008, 298) |
| R18A | (14) | Pink gritty ware | Parminter and Slowikowski (2004, 453) |
| R19A | (1) | Dressel 20 amphorae | Tomber and Dore (1998, 84) |
| R22A | (1) | Hadham oxidised ware | Tomber and Dore (1998, 151) |
| R28 | (8) Fig. 18, 24 | Gritty calcareous | Parminter and Slowikowski (2004, 454) |

Note: single sherds of post-medieval and undatable / unidentified wares are described in the site archive.

Table 9: Ceramic Type Series

**Central Gaulish**: 37 (4), 27 (3), 33 (2), 36? (1, MdeV?), 31 (1), 79 (1), cup or bowl (1), heavy dish (1).

There are five decorated bowls, all of Form 37, of which four are Central Gaulish, and two potters' stamps. The earliest material is Neronian–early Flavian in date. There is one certain example of the mainly pre-Flavian form 15/17, and the stamp of Felix i (S1: see below) is dated to *c*. AD 55–70. There are, however, no examples of Form 29. Of the Central Gaulish material, most is Hadrianic or early Antonine, with few pieces (Forms 31 and 79) dating from the second, rather than the first, half of the 2nd century AD.

**Decorated ware**

Figure types are quoted from Oswald 1936–37 (O.), Central Gaulish decorative motifs from Rogers 1974 (Rogers).

**D1**. Form 37, South Gaulish, with a zone of animals in panels above a scroll with trilobed leaves, and leaftips in the lower concavities. A similar (though slightly smaller?) leaf is used on form 29 in an early Neronian group from La Nautique, Narbonne (Fiches *et al*. 1978, figs. 5.12 and 5.13), and an identical one in a similar scroll with leaftips occurs on an unpublished Flavian form 37 from Binchester (BIN 78 A913). The zonal decoration, similar in style to the decoration on form 29, is typical of the earliest examples of form 37, *c*. AD 70–90. (Phase 1, L4, G22)

**D2**. Form 37, Central Gaulish. Small fragment with poorly impressed decoration showing the ovolo (probably Rogers B14) used by X.13 and Sacer, with a wavy-line border. The type below it appears to be the snake on rock (O.2155) used by X.13 and Attianus. The only style to use all three features is that of X.13. The fabric (overfired?) is probably that of Lezoux rather than Les Martres-de-Veyre, suggesting a Hadrianic date, *c*. AD 120–130. (Phase 1, L4, G19)

**D3**. Form 37, Central Gaulish. Fig. 14: P3. The ovolo is Rogers B31, used by X.5 (Silvio II), who used wavy line borders, sometimes with an astragalus at the junction, as here (Stanfield and Simpson 1958, pl. 67.4, 6), rather than his more typical 'pine-cone'. The mask (O.1341), used by Libertus, is not recorded by Rogers as one of his types, though a similar medallion with a different mask occurs on his style (Stanfield and Simpson 1958, pl. 67.11). The type in the left hand panel is probably the Pan (O.717),

which occurs on a bowl in his style from Gresham Street, London (J. Bird, pers. comm.), *c*. AD 120–145. (Phase 1, L4, G7)

**D4**. Form 37, Central Gaulish. The ovolo (Rogers B35) and border of widely spaced beads were used by Rogers' potter X-6C, Catullus, as on a bowl from Lezoux (Rogers 1999, pl. 26.1) with mould signature CATVL[ beneath the decoration. This bowl also shows the same figure type, the satyr (O.622), as occurs in the right-hand panel, and a row of circles similar to the circle in the left-hand panel. The potter sometimes omitted the bead row beneath the ovolo, as here (Stanfield and Simpson 1958, pl. 74.1), *c*. AD 125–150. (Unstratified)

**D5**. Form 37, Central Gaulish. Tiny scrap, with part of a rosette in a medallion or scroll. Hadrianic – early Antonine. (Unstratified)

**Potters' Stamps** (identified by Brenda Dickinson)
**S1**. OFFEГIC on form 15/17 or 18: Felix i, Die 4b' (Polak 2000, pl. 17: P70). The original die (4b) gave OFFEГICI and may have been used at La Graufesenque, where he mainly worked. There is no evidence that 4b' was used there, but it is known to have been used at Le Rozier, *c*. AD 55–70. (Phase 1, L4, G7)

**S2**. OFPOИTEI on form 18: Ponteius of La Graufesenque, Die 1a (Polak 2000, pl. 9: F10), *c*. AD 70–90. (Phase 1, L4, G22)

## APPENDIX 3: GRAVE AND SKELETON CATALOGUE

Teresa Hawtin (human skeletons) and Tracy Preece (graves)

Key to abbreviations:

| | | | |
|---|---|---|---|
| / | Lost post-mortem | a | Abscess |
| r | Root only | c | Caries |
| x | Lost ante-mortem | h | Hypoplasia and grade, after Knußmann 1988 |
| e | Erupting | I | Impacted |
| np | Not present | ca | Calculus and grade (1 if not stated), after Knußmann 1988 |
| u | Not erupted | p | Periodontal disease |
| -- | Jaw not present | w | Attrition grade, after Murphy 1959 (reprinted in Smith 1984) |

**Grave S1 (HS130)**

| | |
|---|---|
| Group number: | 3 |
| Orientation: | NE–SW |
| Shape: | Oval |
| Dimensions: | 0.7m long, 0.3m wide, 0.05m deep |
| Grave goods: | None present |
| Burial type: | Unknown. Only a few fragments of disarticulated human bone were found. |
| Age: | Unknown |

**Grave S2 (HS134)**

| | |
|---|---|
| Group number: | 1 |
| Orientation: | East–west |
| Shape: | Sub-rectangular |
| Dimensions: | 1.85m long, 0.8m wide, 0.05m deep |
| Grave goods: | None present |
| Burial type: | Unknown. Skull at west end of grave |
| Age: | Adult |
| Preservation: | Fragmentation high, weathering grade 2–3 |
| Skeletal elements: | Fragment of skull, 10% clavicle, 5% scapula, one rib fragment, 5% fibula |
| Dentition: | None present |
| General pathology: | None identified |
| Non-metric traits: | None identified |
| Additional bones: | None identified |
| Bone measurements: | None possible |

**Grave S3**

| | |
|---|---|
| Group number: | 1 |
| Orientation: | East–west |
| Shape: | Oval |
| Dimensions: | 1.1m long, 0.55m wide, 0.05m deep |
| Grave goods: | None present |
| Burial type: | Unknown. No skeletal remains present |

**Grave S4**

| | |
|---|---|
| Group number: | 3 |
| Orientation: | NE–SW |
| Shape: | Oval |
| Dimensions: | 0.75m long, 0.4m wide, 0.05m deep |
| Grave goods: | None present |
| Burial type: | Unknown. No skeletal remains present |

**Grave S5 (HS199)**

| | |
|---|---|
| Group number: | 5 |
| Orientation: | NE–SW |
| Shape: | Sub-rectangular |

Dimensions: 2m long, 0.75m wide, 0.2m deep
Grave goods: None present
Burial type: Supine, extended skeleton with skull at the south-west end. Evidence for a coffin comprised 5 nails.
Age: Adult female, 40–50 years, stature c. 157cm
Preservation: Fragmentation low, weathering grade 2–3
Skeletal elements: Few skull fragments, manubrium, thoracic and lumbar vertebrae, 80% sacrum, most ribs represented, right arm almost complete, right clavicle, 50% right scapula, right trapezium, right metacarpals 2–5, 2 hand phalanges, 25% left scapula, 5% left ulna, 80% both os coxae, 50% both femora, 10% right fibula, right metatarsals 1–5.
Dentition: None present
General pathology: Degenerative joint disease: osteophytes and porosity on various rib heads, lipping on auricular surface of os coxae
Spinal joint disease (SJD): osteophytes (T2–T12), Schmorl's Nodes (T8–T12), eburnation (T3), porosity (T1–L5), ligamentous ossification on T12 right superior facet
Non-metric traits: Exostosis in trochanteric fossa (L and R femora), septal aperture (R humerus), accessory sacral facet (L and R), bridging of suprascapular notch (R scapula)
Additional bones: 1 animal bone fragment
Bone measurements: R radius 21.8cm, R ulna 23.6cm, R clavicle 14.1cm
Other: Smooth, white, 'Mother-of-Pearl'-like deposit in Schmorl's Nodes of thoracic vertebrae T9–T12

**Grave S6**
Group number: 3
Orientation: NE–SW
Shape: Sub-rectangular
Dimensions: 1.1m long, 0.4m wide, 0.05m deep
Grave goods: None present
Burial type: Unknown. No skeletal remains present

**Grave S7 (HS158)**
Group number: 1
Orientation: East–west
Shape: Sub-rectangular
Dimensions: 1.8m long, 0.4m wide, 0.1m deep
Grave goods: None present
Burial type: Unknown. Only a few fragments of articulated human bone were found.
Age: Adult
Preservation: Fragmentation high, weathering grade 1–2
Skeletal elements: Several tibia fragments, not sizeable
Dentition: None present
General pathology: None identified
Non-metric traits: None identified
Additional bones: None identified
Bone measurements: None possible

**Grave S8**
Group number: 1
Orientation: East–west
Shape: Sub-rectangular
Dimensions: 1.4m long, 0.45m wide, 0.05m deep
Grave goods: None present
Burial type: Unknown. No skeletal remains present

**Grave S9 (HS146 and HS146a)**
Group number: 3
Orientation: NE–SW
Shape: Sub-rectangular
Dimensions: 2.1m long, 0.65m wide, 0.2m deep
Grave goods: None present
Burial type: Supine, extended skeleton with skull at south-west end. Evidence for coffin in form of six coffin nails
Age: Female, 40–60 years, stature c. 166cm
Preservation: Fragmentation moderate, weathering grade 3 (4 on skull fragments)
Skeletal elements: Skull 50% complete — few facial elements, 90% mandible, C2–T12 vertebrae represented, most ribs represented, 50% right clavicle, 90% left clavicle, 25% right scapula, 75% left scapula, 50% right humerus, 75% right ulna, 90% right radius, 90% left humerus, 50% left radius and ulna, right scaphoid, 5 metacarpals, 4 hand phalanges, few fragments of os coxae, 50% right femur, 75% left femur, both patellae, 75% tibiae, 95% fibulae, right talus, cuboid, navicular and medial cuneiform, left calcaneus, navicular, cuboid and lateral cuneiform, all metatarsals. Inhumation 146a comprised a mid-term foetus of which only 50% of left tibia survived
Dentition:

| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | ca2 | | | | | |
| np | np | np | np | np | np | np | np | np | np | w7 | np | np | np | np | np |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| x | x | x | w7 | w5 | w4 | w6 | w6 | w6 | w6 | w4 | w3 | w4 | x | w7 | x |
| | | | ca | ca2 | ca2 | ca2 | ca2 | ca | ca2 | ca3 | ca4 | ca4 | | ca4 | |
| | | | r | h2 | h2 | | | | | | | c | | c | |

Wear on labial aspect of mandibular right canine and first premolar. Wear on lingual aspect of mandibular central incisors and right lateral incisor. Calculus on occlusal surface of mandibular right lateral incisor, 2nd premolar and 2nd molar

| | |
|---|---|
| General pathology: | Degenerative joint disease: eburnation on distal right radius and right scaphoid (articulation facet for radius), slight lipping on olecranon of right ulna, both clavicles, costal tuberosity — osteophytes and porosity, slight lipping on proximal articular surface of a mid-hand phalanx, slight periostitis, porosity and osteophytes on head of left humerus, porosity and osteophytes on various rib heads, possible healed fracture on unidentifiable right rib with periostitis and porosity, lipping and eburnation on odontoid process of C2 and right MT1 head, osteophytes, porosity and lipping of both patellae with ligamentous ossification on anterior surface of right patella, left MT1 and 2 articulate with each other, with osteophytes and porosity on articular facet |
| Spinal joint disease (SJD): | osteophytes (C2–T7, T9–T12), porosity (C2–T11), eburnation (C2, T3–T4, T6), Schmorl's Nodes (T10)<br>Non-metric traits: parietal foramen (L), precondylar tubercle (L and R occipital condyles of skull), exostosis in trochanteric fossa (R femur), acetabular crease (L), vastus fossa (L and R patellae), double anterior calcaneal facet (L) |
| Additional bones: | Foetal bone HS146a and 3 fragments of animal bone |
| Bone measurements: | R tibia 36.7cm (parallel to axis) |
| Other: | Left canine double rooted |

**Grave S10 (HS138)**

| | |
|---|---|
| Group number: | 1 |
| Orientation: | East–west |
| Shape: | Sub-rectangular |
| Dimensions: | 1.1m long, 0.5m wide, 0.1m deep |
| Grave goods: | None present |
| Burial type: | Supine, extended skeleton with skull at west end |
| Age: | Juvenile, 3–5 years, stature c. 85–89cm |
| Preservation: | Fragmentation low, weathering grade 2–3 |
| Skeletal elements: | 40% right clavicle, 25% right scapula, 6 right rib fragments, 75% both femora, 95% right tibia, 85% left tibia, 25% right fibula, 50% left fibula |
| Dentition: | None present |
| General pathology: | Right fibula mid-shaft greenstick fracture, possibly peri-mortem |
| Non-metric traits: | None identified |
| Additional bones: | None identified |
| Bone measurements: | L femur >15.5cm, L tibia 14.9cm, R tibia 14.7cm |
| Other: | No fused epiphyses. Left femur, strong musculoskeletal markers |

**Grave S11 (HS142)**

| | |
|---|---|
| Group number: | 2 |
| Orientation: | North–south |
| Shape: | Sub-rectangular |
| Dimensions: | 1.3m long, 0.45m wide, 0.1m deep |
| Grave goods: | None present |
| Burial type: | Skeleton with skull at north end |
| Age: | Adult |
| Preservation: | Fragmentation high, weathering grade 2 |
| Skeletal elements: | Few skull fragments, including occipital, right temporal and parietal |
| Dentition: | None present |
| General pathology: | None identified |
| Non-metric traits: | None identified |
| Additional bones: | None identified |
| Bone measurements: | None possible |

**Grave S12 (HS173)**

| | |
|---|---|
| Group number: | 1 |
| Orientation: | East–west |
| Shape: | Sub-rectangular |
| Dimensions: | 1.85m long, 0.5m wide, 0.05m deep |
| Grave goods: | None present |
| Burial type: | Supine, extended skeleton with skull at west end |
| Age: | Adult |
| Preservation: | Fragmentation high, weathering grade 2–3 |
| Skeletal elements: | Few skull fragments, 5% left scapula, one hand phalanx |
| Dentition: | None present |
| General pathology: | None identified |
| Non-metric traits: | None identified |
| Additional bones: | None identified |
| Bone measurements: | None possible |

**Grave S13 (HS182)**

| | |
|---|---|
| Group number: | 4 |
| Orientation: | East–west |
| Shape: | Sub-rectangular |
| Dimensions: | 1.95m long, 1m wide, 0.25m deep |
| Grave goods: | A knife (RA 6) and a coin (RA 5) were found near the upper right leg |
| Burial type: | Supine, extended skeleton with skull at west end. Evidence for coffin comprised a nail, and iron-coloured stains of four others that were found at the feet and right side of the skeleton. The grave may originally have been stone-lined, as blocks of limestone were found positioned on either side of the skeleton. These blocks measured 0.14m by 0.1m. |
| Age: | Juvenile, 12–14 years, stature c. 125–129m |
| Preservation: | Fragmentation low, weathering grade 2–3 |
| Skeletal elements: | Right arm largely complete (no epiphyses), few hand and wrist elements, left ulna and radius almost complete (no epiphyses), 8 right ribs, left 12th rib only, 75% manubrium, lumbar vertebrae, 3 thoracic vertebral arches, 3 sacral segments, coccyx, almost complete right ilium, ischium and pubis, largely complete left ilium and pubis, both legs complete with most epiphyses, left talus and calcaneus |

Dentition: None present
General pathology: Periostitis on right fibula, mid-shaft, lateral to anterior border. Possible lytic lesions on right femur, medial aspect of distal end and left tibia, posteromedial aspect of proximal end. Stress lesions on soleal lines of both tibiae. Irregular bony growths on left fibula, distal end, particularly on lateral side, including epiphysis
Non-metric traits: Double anterior calcaneal facet (L)
Additional bones: Adult bones — HS182a (see below) and several large fragments of animal bone
Bone measurements: Diaphyseal lengths. L femur 32.4cm (max) 32.1cm (bicondylar length), R femur 32.4cm (max) 31.9cm (bicondylar length), L tibia 26.4cm (parallel to axis), R tibia 25.9cm (parallel to axis), L fibula 25.6cm, R fibula 25.4cm
Other: Muscle attachment sites on femur well developed

**Grave S13 (HS182a)**
Group number: 4
Burial type: Found associated with HS182 and only identified during analysis
Age: Adult, possible female, stature c. 157cm
Preservation: Fragmentation low, weathering grade 3
Skeletal elements: Left arm, clavicle, partial scapula, metacarpals 1–4, right MC 1 and 5, right scaphoid, 10 hand phalanges, one 12th rib. May be part of adult HS106 within grave S29 which was partly dug through grave S13
Dentition: None present
General pathology: None identified

Non-metric traits: None identified
Bone measurements: L humerus 29.6cm, L radius 21.8cm, L clavicle >14.0cm.
Other: No visible degeneration, slight muscle attachments

**Grave S14 (HS178)**
Group number: 1
Orientation: East–west
Shape: Oval
Dimensions: 1.05m long, 0.6m wide, 0.05m deep
Grave goods: None present
Burial type: Uncertain because only a few fragments of articulated human bone were found, but skull fragments at west end
Age: Juvenile, 6–8 years
Preservation: Fragmentation moderate, weathering grade 2
Skeletal elements: Few skull fragments, 40% right humerus (no epiphysis), 40% right femur, few rib fragments
Dentition: None present
General pathology: None identified
Non-metric traits: None identified
Additional bones: None identified
Bone measurements: None possible
Other: Humerus distal epiphysis unfused, humerus and femur comparable in size to 6–8 year old child

**Grave S15 (HS150)**
Group number: 4
Orientation: NE–SW
Shape: Rectangular
Dimensions: 0.7m long, 0.55m wide, 0.15m deep
Grave goods: None present
Burial type: Unknown. Only a few fragments of articulated human bone were found.
Age: Mid–older adult
Preservation: Fragmentation moderate, weathering grade 2
Skeletal elements: 40% left femur, 75% left tibia, 90% left fibula, 25% right tibia, 20% right fibula, partial right calcaneus, right medial cuneiform, right MT1 and 3–5
Dentition: None present
General pathology: Left femur — lipping of distal condyles and bony growth on lateral condyle, irregular osteophytic growths and ligamentous ossification on both fibular shafts, right tibia lateral/posterior distal shaft and right calcaneus, osteophytes and porosity on right MT4 (articulation facets for lateral cuneiform, MT3, MT5 and cuboid) and right MT3 (facets for lateral cuneiform and MT2)
Non-metric traits: None identified
Additional bones: 1 bird bone, 4 large fragments of animal bone
Bone measurements: None possible
Other: Extensive ligamentous ossification. Strong musculoskeletal markers, particularly left femur and left tibia

**Grave S16 (HS170)**
Group number: 4
Orientation: East–west
Shape: Sub-rectangular
Dimensions: 2.2m long, 0.6m wide, 0.2m deep
Grave goods: None present
Burial type: Supine, extended skeleton with skull at the west end. Evidence for a coffin comprised staining in the soil and the presence of a coffin nail.
Age: Adult male, 25–30 years, stature c. 167cm
Preservation: Fragmentation moderate, weathering grade 2
Skeletal elements: Fragmentary right skull — 10% occipital, 20% parietal, 95% temporal, 35% mandible, one hyoid wing, sternum complete, most vertebrae represented, 75% sacrum, coccyx, ribs almost complete, 95% both clavicles, 50% both scapulae, both arms almost complete, both hands largely complete, 50% right os coxa, 75% left os coxa, 60% right femur, 95% left femur, 10% left tibia, 30% right fibula, 50% left fibula, feet absent

Dentition:

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | h1 | | | h1 | h2 | | | | | | | | | |
| | ca | ca2 | | | ca | | | | | | | | | | |
| np | w3 | w4 | w3 | w2 | w3 | w3 | np | np | np | np | np | np | np | np | np |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| w3 | w3 | w4 | w2 | w2 | w2 | w4 | np | np | np | np | np | np | np | np | np |
| ca | ca | ca | | ca | ca2 | ca | | | | | | | | | |
| | | h1 | | h1 | h1 | h1 | | | | | | | | | |

General pathology: Extensive periostitis on left tibia, right ulna and right clavicle. Periostitis also on right humerus, right radius, right MC2 and 3, right trapezoid, left clavicle, left scapula and left fibula
Spinal joint disease: Schmorl's Nodes (T6–T12), slight lipping of vertebral bodies (T3–T8)
Non-metric traits: Circumflex sulcus (L and R scapulae), C5 vertebra right transverse foramen bipartite
Additional bones: 1 animal bone fragment
Bone measurements: R radius 24.4cm, L ulna 26.5cm, R ulna 26.8cm, L femur 44.4cm (max) 44.2cm (bicondylar length), R clavicle >15.0cm
Other: Stress lesions at muscle attachment points on both humeri, both clavicles, left ulna and left radius. 11 thoracic vertebrae and 6 lumbar vertebrae: T11 morphologically similar to a normal T12, and T12 similar to a normal L1 but with rib articulation facets on body

**Grave S17 (HS126)**
Group number: 1
Orientation: East–west
Shape: Sub-rectangular
Dimensions: 1.58m long, 0.65m wide, 0.1m deep
Grave goods: None present
Burial type: Supine, extended skeleton with skull at west end. Evidence for a coffin comes from the presence of a small iron fitting (RA9) that was identified near the right arm. Limestone fragments possibly placed under head area
Age: Young adult
Preservation: Fragmentation high, weathering grade 2–3
Skeletal elements: Skull fragments including partial frontal and parietals, C6–T11 vertebrae represented, 25% left clavicle, 10% left scapula, 25% right radius, 5% left radius, right MC1, 3 and 4, left MC2, 2 hand phalanges, 2 right rib head fragments, 7 left rib head fragments, several rib body fragments
Dentition: No mandible or maxilla surviving, only loose teeth

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ca2 | | | | | | | | | | | | | |
| h2 | h1 | h3 | | | | | | h2 | | | | | | | |
| w3 | w3 | w4 | np | np | np | np | np | w4 | np | np | np | np | np | np | np |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| np | np | np | np | np | np | np | np | np | np | np | np | np | np | np | np |

General pathology: Several rib heads and articular facets exhibit slight porosity and osteophytes, Schmorl's Nodes on T7 and T8 inferior vertebral bodies, porosity on vertebral bodies T6–T9
Non-metric traits: None identified
Additional bones: None identified
Bone measurements: None possible

**Grave S18**
Group number: 1
Orientation: East–west
Shape: Oval
Dimensions: 1.35m long, 0.65m wide, 0.05m deep
Grave goods: None present
Burial type: Unknown. No skeletal remains present

**Grave S19 (HS122)**
Group number: 1
Orientation: East–west
Shape: Sub-rectangular
Dimensions: 1.7m long, 0.5m wide, 0.02m deep
Grave goods: None present
Burial type: Unknown. Only a few fragments of disarticulated human bone were found
Age: Juvenile, 12–18 years
Preservation: Fragmentation high, weathering grade 2
Skeletal elements: 30% right fibula, 60% left fibula, several tibial fragments, left calcaneus
Dentition: None present
General pathology: Extensive periostitis on left fibula and tibial fragments, slight periostitis on right fibula
Non-metric traits: None identified
Additional bones: None identified
Bone measurements: None possible
Other: Distal fibula unfused, calcaneus partially fused

**Grave S20**
Group number: 1
Orientation: East–west
Shape: Oval
Dimensions: 1.85m long, 0.7m wide, 0.05m deep
Grave goods: None present
Burial type: Unknown. No skeletal remains present

**Grave S21**

| | |
|---|---|
| Group number: | 1 |
| Orientation: | East–west |
| Shape: | Sub-rectangular |
| Dimensions: | 2.1m long, 0.8m wide, 0.02m deep |
| Grave goods: | None present |
| Burial type: | Unknown. No skeletal remains present |

**Grave S22 (HS154)**

| | |
|---|---|
| Group number: | 1 |
| Orientation: | East–west |
| Shape: | Oval |
| Dimensions: | 0.9m long, 0.3m wide, 0.02m deep |
| Grave goods: | None present |
| Burial type: | Unknown. Only a few fragments of disarticulated human bone were found |
| Age: | Adult |
| Preservation: | Fragmentation low, weathering grade 2 |
| Skeletal elements: | Right metacarpal 2 |
| Dentition: | None present |
| General pathology: | None identified |
| Non-metric traits: | None identified |
| Additional bones: | None identified |
| Bone measurements: | Right MC2 73mm |

**Grave S23 (HS118)**

| | |
|---|---|
| Group number: | 1 |
| Orientation: | East–west |
| Shape: | Sub-rectangular |
| Dimensions: | 1.95m long, 0.65m wide, 0.15m deep |
| Grave goods: | None present |
| Burial type: | Supine, extended skeleton with skull at west end. Evidence for a coffin was present with 5 nails recovered from grave (two near head and feet, one on left side) |
| Age: | Adult male, 40+ years, stature c. 161cm |
| Preservation: | Fragmentation low–moderate, weathering grade 2 |
| Skeletal elements: | Skull fragmentary — 40% occipital, 40% left parietal, 40% left temporal, 50% mandible, 50% manubrium, 75% sternum, all vertebrae and sacrum, most ribs represented, both clavicles almost complete, 75% right scapula, 30% left scapula, 50% both humeri, 50% right ulna, 75% left ulna, 75% right radius, 65% left radius, few hand and wrist elements, 75% both os coxae, legs largely complete, all ankle elements and metatarsals present, 7 foot phalanges |
| Dentition: | All teeth missing |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| np | np | np | np | np | np | np | np | np | np | np | np | np | np | np | np |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| np | np | np | np | np | np | np | np | np | x | x | / | / | / | x | x |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | | | | | | | |

| | |
|---|---|
| General pathology: | Extensive degenerative joint disease: sacral and vertebral articular surfaces — osteophytes and porosity; both os coxae — retroauricular osteophytes and lipping on acetabulum; sternal ends of both clavicles — osteophytes and porosity; acromion processes of both scapulae — eburnation and porosity on clavicular articulation; left humerus head (inferior aspect) osteophytic lipping and eburnation; left scapula, glenoid inferior/anterior — eburnation; right scapula, glenoid superior/posterior — eburnation and lipping; both radii, radial tuberosity — osteophytes; left MC1, proximal articular surface, lateral and palmar — eburnation and osteophytes; left scaphoid, articulation facet for trapezoid, eburnation; hand mid-phalanx, distal articulation — eburnation and osteophytes; eburnation on left trapezoid, articulation for scaphoid, and left trapezium, articulation for MC1; eburnation on left femur, lateral condyle and left tibia, lateral condyle; ligamentous ossification on either side of shafts of proximal foot phalanges; both left and right MT1 and MT2 articulate with each other, osteophytes on facets; right femur head — porosity near fovea teres; severe eburnation and grooving with porosity and osteophytes on right femur lateral condyle and right tibia lateral condyle; osteophytes, porosity and eburnation on distal condyle of right tibia; osteophytes and porosity on right fibula, distal articulation with tibia; right talus — lateral aspect of superior facet exhibits eburnation and porosity and inferior facet, medial aspect exhibits eburnation; eburnation on head of right MT1, proximal facet of right MT3 and distal facet of a proximal phalanx; osteophytic lipping on proximal facet of right proximal phalanx 1 and the proximal facet of a distal phalanx; various rib heads exhibit osteophytes, porosity and eburnation. Right metatarsals 2–4 exhibit healed mid-shaft fractures. Smooth bony nodules present on: ventral surfaces of various ribs; both os coxae, lateral ischium inferior to acetabulum; right os coxa, posterior iliac blade; left MT4, lateral shaft; left MT2, medial shaft; right femur, lateral proximal shaft; right tibia, anterior border towards proximal end; right fibula, lateral shaft towards proximal end; spinous processes of C7 and T3 |
| Severe spinal joint disease (SJD): | osteophytes (C1–L5), porosity (C1–L5), eburnation (C1–C5, C7–T2, T4–T5, T7–T11, L2–L5). Osteophytic lipping severe on bodies of T8–T11 and L5. Lower spine curves to the left. Possible crushing injury |
| Non-metric traits: | exostosis in trochanteric fossa (R femur), medial tibial squatting facet (R), lateral tibial squatting facet (L), septal aperture (R humerus), sternal foramen, acromial articular facet (L and R scapulae), double inferior anterior talar facet (R), double anterior calcaneal facet (R), peroneal tubercle (L and R calcaneus) |
| Additional bones: | 1 fragment of animal bone, extra femur head |
| Bone measurements: | L femur 43.1cm (max) 42.6cm (bicondylar length), R femur 42.9cm (max) 42.5cm (bicondylar length), L tibia 33.2cm (parallel to axis) 33.4cm (max), R clavicle 12.7cm |
| Other: | Strong musculoskeletal markers in upper limbs, right arm appears stronger. Sternum is asymmetric. Sacrum exhibits marked curvature. Right upper rib (4 or 5) possibly bifid |

**Grave S24 (HS114)**

Group number: 1
Orientation: East–west
Shape: Sub-rectangular
Dimensions: 2m long, 0.75m wide, 0.05m deep
Grave goods: None present
Burial type: Extended skeleton with skull at west end
Age: Adult
Preservation: Fragmentation high, weathering grade 2–3
Skeletal elements: 6 thoracic vertebral arches, several rib fragments
Dentition: None present
General pathology: None identified
Non-metric traits: None identified
Additional bones: None identified
Bone measurements: None possible

**Grave S25 (HS102)**

Group number: 1
Orientation: East–west
Shape: Sub-rectangular
Dimensions: 2.2m long, 0.65m wide, 0.2m deep
Grave goods: None present
Burial type: Supine, extended skeleton with skull at west end. Evidence for a coffin comprised staining in the soil and the presence of large coffin nails.
Age: Adult male, 24–30 years, stature c. 173cm
Preservation: Fragmentation low–moderate, weathering grade 4, skull 3
Skeletal elements: Partial skull — occipital, mandible, parietals, temporals, right maxilla, 50% C1, 2 lumbar vertebral arches, 25% left clavicle, few scapulae fragments, right humerus, ulna and radius, 25% left ulna and radius, few small rib fragments, few hand and wrist elements, 10% os coxae, both femora, patellae and tibiae, 75% fibulae, most ankle elements and all metatarsals

Dentition:

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -- | h2 | h2 | h2 | h2 | h1 | h1 | h1 | -- | -- | -- | -- | -- | -- | -- | -- |
| ca | ca | ca | ca | ca | ca | ca | ca | | | | | | | | ca |
| w2 | w2 | w3 | w2 | w3 | w3 | w3 | w4 | | | | | | | | w2 |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| w2 | w3 | w3 | w2 | w2 | w3 | w3 | w5 | w5 | w3 | w3 | w2 | w2 | w4 | w3 | w2 |
| | | ca | | ca | ca | | ca | ca | ca | | | | ca | ca | |
| h1 | h3 | h1 | h2 | h3 | h2 | h1 | h1 | h1 | h1 | h2 | h3 | h2 | h1 | h3 | h1 |

Hypoplasia low on canine crowns, mid-crown on pre-molars

General pathology: None identified
Non-metric traits: Lateral talar extension (L and R)
Additional bones: None identified
Bone measurements: R humerus 32.8cm, R radius 25.5cm, R ulna 27.9cm, L tibia 37.7cm (parallel to axis), R tibia 37.5cm (parallel to axis)

**Grave S26**

Group number: 1
Orientation: East–west
Shape: Oval
Dimensions: 1.65m long, 0.55m wide, 0.05m deep
Grave goods: None present
Burial type: Unknown. No skeletal remains present

**Grave S27 (HS110)**

Group number: 1
Orientation: East–west
Shape: Sub-rectangular
Dimensions: 2.2m long, 0.75m wide, 0.12m deep
Grave goods: None present
Burial type: Extended coffined inhumation, skull at east end. Evidence for a coffin was present, with 1 nail recovered.
Age: Adult female, 50+ years, stature c. 163cm
Preservation: Fragmentation moderate, weathering grade 1
Skeletal elements: Skull 50% right side, partial mandible and maxilla, 1 lower rib, 4 hand phalanges, 75% left os coxa, 5% right os coxa, 50% right tibia, 95% right fibula, right metatarsals, 2 foot phalanges, left MT4

Dentition:

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| p | p | p | | | | | | | | | | | | | |
| ca | ca | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| w6 | w6 | x | np | np | np | np | np | np | np | np | np | np | np | np | np |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| np | np | w5 | w5 | w5 | np | np | np | np | np | w3 | np | np | np | np | np |
| -- | -- | ca | ca | ca2 | | | | | | ca2 | | -- | -- | -- | -- |
| | | c | | | | | | | a* | | | | | | |
| | | h1 | h1 | h2 | | | | | | h1 | | | | | |
| | | p | p | p | p | p | | | | p | | | | | |

* Chronic abscess

General pathology: Degenerative joint disease: eburnation, lipping and macro-porosity on right tibia, medial condyle; osteophytes, porosity and eburnation on lower right rib head; left os coxa — porosity and lipping on acetabulum, osteophytes and porosity on ischial tuberosity, eburnation on inferior border of auricular surface, extensive osteophytes and macro-porosity in retro-auricular area
Non-metric traits: None identified
Additional bones: 1 animal bone fragment
Bone measurements: Right fibula 35.5cm
Other: Strong temporal line on right parietal

**Grave S28 (HS166)**
Group number: 4
Orientation: NE–SW
Shape: Sub-rectangular
Dimensions: 1.95m long, 0.65m wide, 0.4m deep
Grave goods: None present
Burial type: Extended skeleton with skull at south-west end
Age: Adult
Preservation: Fragmentation low, weathering grade 3 generally, more extensive on proximal ends of tibiae and fibulae — grade 5+
Skeletal elements: 90% both tibiae, 25% right fibula, 90% left fibula, right foot largely complete, left calcaneus and medial cuneiform only
Dentition: None present
General pathology: None identified
Non-metric traits: Double anterior calcaneal facet (L and R)
Additional bones: Foetal/neonate bones HS166a (see below)
Bone measurements: None possible

**Grave S28 (HS166a)**
Group number: 4
Orientation: Found associated with HS166 and only identified during analysis
Age: Neonate/foetus c. 40–41 weeks
Preservation: Fragmentation low, weathering grade 1
Skeletal elements: Left humerus, left femur
Dentition: None present
General pathology: None identified
Non-metric traits: None identified
Bone measurements: L humerus 69mm, L femur 79mm

**Grave S29 (HS106)**
Group number: 4
Orientation: East–west
Shape: Sub-rectangular
Dimensions: 1.55m long, 0.7m wide, 0.1m deep
Grave goods: None present
Burial type: Supine extended skeleton with skull at west end. Evidence for a coffin comprised a ferrous stain.
Age: Adult female, 17–19 years, stature c. 160cm
Preservation: Fragmentation low–moderate, weathering grade 2 on legs and pelvis, 3 on radius and humerus, 4 on ulna
Skeletal elements: Few vertebral fragments, 1 complete lumbar vertebra, sacrum, coccyx, 50% right arm and scapula, 25% left arm, few rib fragments, 90% right os coxa, 40% left os coxa, legs near complete, right calcaneus and talus, left talus and first metatarsal, 2 foot phalanges. More bones from this individual may have been recorded as HS182a (grave S13).
Dentition: None present
General pathology: Slight periostitis along gluteal ridges of both femora
Non-metric traits: Allen's fossa (L and R femora), third trochanter (L and R), lateral tibial squatting facet (L and R), vastus notch (L and R patellae), lateral talar extension (L and R), double anterior calcaneal facet (R)
Additional bones: 6 animal bone fragments
Bone measurements: L femur 43.2cm (max) 42.9cm (bicondylar length), R femur 43.5cm (max) 43.1cm (bicondylar length), L tibia 33.4cm (parallel to axis) 34.1cm (max), R tibia 33.5cm (parallel to axis) 34.2cm (max)
Other: Left hamate — hook not formed

**Grave S30**
Group number: 2
Orientation: North–south
Shape: Sub-rectangular
Dimensions: 1.85m long, 0.65m wide, 0.2m deep
Grave goods: None present
Burial type: Unknown. No skeletal remains present although depth would suggest that they were absent rather than simple disturbed. Dog skull AS201 discovered at base of grave

**Grave S120**
Group number: 27
Orientation: East–west
Shape: Oval
Dimensions: A least 1.35m long and 0.65m wide
Grave goods: None present
Burial type: Extended skeleton with head to west. Not fully excavated as within evaluation trench
Skeletal elements: Fragments of skull, vertebrae, pelvis and femurs were observed

**Grave S121**
Group number: 27
Orientation: East–west
Shape: Sub-rectangular
Dimensions: At least 1.3m long and 0.7m wide
Grave goods: None present
Burial type: Unknown. Not investigated as within evaluation trench

**Grave S122**
Group number: 27
Orientation: East–west
Shape: Sub-rectangular
Dimensions: At least 1.4m long and 0.5m wide
Grave goods: None present
Burial type: Unknown. Not fully excavated as within evaluation trench
Skeletal elements: The right leg and the upper part of the left leg were observed. Skull fragments were located next to the left knee, possibly suggesting either decapitation or the inclusion of disturbed bone.

**Grave S123**
Group number: 27
Orientation: East–west
Shape: Oval
Dimensions: At least 1.15m long and 0.8m wide
Grave goods: None present
Burial type: Unknown. Not investigated as within evaluation trench

**Grave S124**
Group number: 26
Orientation: NW–SE
Shape: Oval
Dimensions: 1.15m long and 0.45m wide
Grave goods: None present
Burial type: Unknown. Not investigated as within evaluation trench

**Grave S125 (HS636)**
Group number: 26
Orientation: WNW–ESE
Shape: Rectangular
Dimensions: 1.9m long and 0.45m wide
Grave goods: None present
Burial type: Extended skeleton with head to west. Not fully excavated as within evaluation trench
Age: Adult male, 26–30 years
Preservation: Fragmentation high, weathering grade 3–4
Skeletal elements: Few skull fragments, 25% mandible, 1 thoracic vertebral body, 5% right clavicle, 95% left clavicle, 10% left scapula, 75% left ulna, fragment of humeral head, fragments of 5 ribs, left MC4, 1 hand phalanx, 5% left os coxa, 25% right femur, 50% left femur, 25% left patella, no foot elements

Dentition:

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| np | np | np | np | np | np | np | np | np | np | np | np | np | np | np | np |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| -- | -- | -- | -- | -- | -- | -- | w5 | w5 | w4 | w4 | w2 | w2 | w4 | w4 | -- |
| np | np | np | np | np | np | np | ca | ca | ca | ca | ca | ca | ca | ca | np |
| | | | | | | | | h1 | h1 | h2 | h3 | | | | |

General pathology: None identified No sign of degeneration
Non-metric traits: None identified
Additional bones: None identified
Bone measurements: None possible
Other: Left clavicle, stress defect at costal tuberosity

**Grave S126**
Group number: 26
Orientation: WNW–ESE
Shape: Rectangular grave
Dimensions: 2.1m long and 0.65m wide
Grave goods: None present
Burial type: Extended skeleton with head to west. Not fully excavated as within evaluation trench
Skeletal elements: Skull fragments, vertebrae and pelvis were observed and it was thought that the skeleton was lying on its side.

**Grave S127**
Group number: 26
Orientation: WNW–ESE
Shape: Rectangular
Dimensions: 1.5m long and 0.55m wide
Grave goods: None present
Burial type: Unknown. Not investigated as within evaluation trench
Skeletal elements: Only rib fragments were observed