

LATE MESOLITHIC TO
EARLY ANGLO-SAXON LAND-USE AT
HOUGHTON REGIS NORTH,
BEDFORDSHIRE



EDITED BY MIKE LUKE AND DREW SHOTLIFF

ALBION ARCHAEOLOGY MONOGRAPH 11



*Late Mesolithic to Early
Anglo-Saxon Land-use at Houghton Regis
North, Bedfordshire: Sites HRN3205,
HRN3455/6/7, HRN3486 and
Woodside Link*

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Cover illustrations

- Front:** Reconstruction of the late Mesolithic landscape based on evidence from site HRN3486 (by Cecily Marshall)
- Back (top):** Pottery sherd with unusual ink-written inscription "For a flagon of the gods Jupiter and Vulcan" from site HRN3455
- Back (bottom):** Roman drying oven G26 on site HRN3205

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Overall

Albion Archaeology would like to thank WT Partnership, who commissioned the archaeological work within HRN1 on behalf of Lands Improvement Holdings Ltd. In particular, we are grateful to Mike Farrand, Ian Frelick, Brian Haughton, John Roberts and Vyas Totaram for their assistance throughout the HRN1 projects. With regard the Woodside Link project Albion Archaeology would like to thank Regeneration and Business Central Bedfordshire Council, who commissioned the archaeological work.

We would also like to acknowledge Martin Oake of Central Bedfordshire Council's Archaeology Team, who monitored the archaeological work on behalf of the local planning authority.

Fieldwork

The individual fieldwork teams for the projects are acknowledged in each chapter.

For all projects metal-detecting was undertaken by Archie Gillespie and Mike Head, with dGPS survey by Mercedes Planas (Souterrain Archaeological Services).

All finds were processed under the supervision of Jackie Wells, who also, along with Holly Duncan, undertook the initial finds identification during fieldwork. Environmental samples were processed under the supervision of Gary Edmondson.

Post-fieldwork

The individual post-fieldwork teams for the different projects are acknowledged in each chapter. Wherever possible, the same specialists worked on both the assessment and the analysis/publication; they are duly acknowledged as contributors to this monograph. Preliminary artefact identifications and catalogues were by Holly Duncan (formerly of Albion Archaeology) and samian identification by Jill Evers (Chiltern Archaeology). In line with archival requirements, and to assist with identifications, all ironwork and selected non-ferrous objects were x-rayed by Pieta Greaves (Drakon Heritage and Conservation).

All Albion projects are under the overall management of Drew Shotliff (Operations Manager), who also had the task of reading, commenting on, and editing the entire publication.

Photographs

Copyright of all photographs rests with Albion Archaeology, including Plates 1.1, 1.2, 2.1, 3.1 and 3.3 taken by Commission Air Ltd. Site photographic credits are given at the end of each chapter except for Chapter 1, which are Adrian Woolmer (Plates 1.3 and 1.4) and Kathy Pilkinton (Plates 1.5 and 1.6).

Project

The acknowledgements for each individual project are placed at the end of the relevant chapter.

About this publication

Combined nature

A combined publication was considered appropriate for the four projects presented here because of their spatial and archaeological connectivity – in some cases the same archaeological remains were found in adjacent excavation areas. This approach was helped by the fact that all four had been undertaken by Albion Archaeology, using similar post-excavation methodologies and, in most cases, the same specialists.

However, it must be stressed that the draft publications for the four projects were completed at different times, according to each one's individual programme agreed with its respective client. Therefore, the combined publication is only a means of presenting similar chronological and spatial evidence; it is not an attempt at an overall synthesis – not least because other projects in the HRN1 development area are still underway or are yet to be commissioned.

Structure

Following this preamble, an introduction to the study area is presented in Chapter 1.

The subsequent chapters focus on the results of the individual projects: Chapter 2 (HRN3405), Chapter 3 (HRN3455/6/7), Chapter 4 (HRN3486) and Chapter 5 (Woodside Link). Each chapter begins with a brief introduction and then the site sequence is presented by chronological Phase and Site Landscape (SL number), e.g. settlement, dispersed activity area, field system etc. Within that structure, sub-divisions are used for the more significant Land-use Areas (L), e.g. enclosure/field, trackway, cemetery, monument; and sometimes for Groups (G), e.g. building, other structure, water-pit etc. Use of the further sub-division Sub-group (SG) varies slightly across the four projects; it is sometimes used for individual graves and significant pits. Each chapter has a project-specific concluding discussion. Plans, section drawings and plates accompany the text.

To avoid repetition a single bibliography is presented at the end of the monograph.

Terminology and abbreviations

The sites within this monograph are distinguished by their project code – WSL in the case of the Woodside Link road scheme, which preceded the housing-led Houghton Regis North 1 (HRN1) development (now known as Linnere). The HRN1 sites are referred to by their project codes, e.g. HRN3205. Chapter 3 covers three excavation areas – HRN3455, HRN3456 and HRN3457 – which were part of the same project.

An understanding of the structural hierarchy is fundamental to an understanding of the layout and terminology used in this publication. It is described in more detail below (see Chapter 1: The archaeological investigation; Post-excavation analysis). The main elements comprise Phases (written in full), Site Landscapes (SL prefix), Land-use Areas (L prefix), Groups (G prefix) and occasionally Sub-group (SG prefix).

The majority of the feature fills were similar, so a generic description is given in the introduction (Chapter 1). On site, slight variations in colour, soil matrix and inclusions were used to distinguish between different fills. Such detail is only included in the text where it aids understanding of the evidence. In general, primary or lower fills tended to be lighter in colour and contain fewer stones. All measurements are metric.

The following terms and abbreviations are used throughout the publication:

Building versus structure: the term building is used where unequivocal evidence exists. The term structure is used where an arrangement of postholes or slots suggests the probable presence of a building but where a convincing ground plan did not survive.

Ditch versus gully: used to distinguish the size of linear features, i.e. gully generally less than 0.7m wide and 0.4m deep, with ditches being larger.

Associated bone group (ABG): associated groups of bone at the time of deposition or, at the very least, part of the same animal

Phases and chronological periods

The indicative date ranges for each phase are as follows:

Early prehistoric (residual flint artefacts recovered from later features)

Late Mesolithic *c.* 7000–4000 BC

Early Neolithic *c.* 4000–2900 BC

Late Neolithic/early Bronze Age *c.* 2900–1600 BC

Middle Bronze Age *c.* 1600–1200 BC

Late Bronze Age/early Iron Age *c.* 1200–300 BC

Late Iron Age/early Roman *c.* 100 BC–AD 100

Roman *c.* AD 100–400

Early Anglo-Saxon *c.* AD 400–650

Note: medieval and post-medieval evidence was mainly associated with field systems and quarrying and does not form part of this publication. It is described in the relevant, project-specific Assessment/Updated Project Design.

Tables

The tables provide detailed information in an easy-to-view manner. Where possible, they have been standardised to allow quick and easy comparison between chapters. Table numbering is a single sequence within each chapter.

Figures

Illustrations are numbered in a single sequence within each chapter.

Plans

The plans are only labelled with those elements of the structural hierarchy (e.g. SL, L or G numbers) referred to in the text. Most plans distinguish between excavated and unexcavated parts of features by the use of shade. Where relevant, earlier features are shown in a different colour or tone.

Where possible, section drawings are included on the plans for ease of reference. They are greyed to help distinguish them from features shown on the plan. In general, section drawings on plans are not labelled in order to keep the figures uncluttered.

Sections

The majority of the section drawings are at a scale of 1:40. Different line types are used for ‘cuts’ and their fills. All sections are positioned in the horizontal plane, but no OD heights are given. They are usually either south- or west-facing; if necessary, the original drawing has been mirrored. Section drawings are only labelled where it will aid understanding of the text. Accordingly, the majority of fills are not labelled because they are not specifically mentioned in the text.

Reconstructions

This publication includes three reconstruction drawings showing the late Mesolithic landscape, the Roman landscape and a close-up of a Roman crop-processing building. Although based where possible on the archaeological evidence, these inevitably require a degree of artistic licence to make them meaningful.

Date of writing

The final reports on the projects within this monograph were completed between February 2019 and August 2021 and then copy-edited. They were originally intended to be published as individual articles before the decision was taken in 2022 to publish them together in a single monograph.

Summary

This publication presents the results of a selection of Albion Archaeology investigations undertaken between 2015 and 2019 in advance of construction of the Woodside Link and the housing-led development known as Houghton Regis North 1 (HRN1), on the north-east outskirts of Houghton Regis in Central Bedfordshire. The investigations produced evidence for human activity spanning the late Mesolithic through to the modern period; the medieval and post-medieval periods are not covered in this monograph. The combined publication of these projects is only a means of presenting similar chronological and spatial evidence; it is not an attempt at an overall synthesis – not least because other projects in the HRN1 development area are still underway or are yet to be commissioned. Nonetheless, the summary below provides a brief overview.

The earliest evidence for human activity (within HRN3486) comprised at least 12 large pits that were radiocarbon-dated to the late Mesolithic. Their discovery was unexpected and is highly significant, given the rarity of features of this period – they represent the largest group of late Mesolithic large pits found to date in England. They were dug, presumably deliberately, adjacent to palaeochannels, which may have been created by seasonal springs or run-off from the higher ground near the source of the Ouzel Brook. Such a location would probably have been highly significant to the hunter-gatherer communities in the area. The pits became the focus for repeated returns and interventions (i.e. filling and recutting) over hundreds and possibly thousands of years. It is interesting that the only early Neolithic pits – much smaller in size – so far identified within HRN1 were also located in this area.

A monument of probable late Neolithic/early Bronze Age date was found adjacent to the present course of the Houghton Brook within the WSL investigations. It comprised an earlier, smaller ring-ditch, which was completely enclosed by a later ring-ditch. A very similar monument, also not firmly dated, was found at nearby HRN3206 (Luke and Barker 2021). Two contemporary pairs of pits were found c.80m north-east of the monument on the other side of the brook (also within the WSL investigations).

All the investigation areas produced evidence for far more extensive activity in the middle Bronze Age to the early Iron Age. It took the form of field/enclosure systems, activity foci (usually indicated by clusters of small pits but also by occasional post-built structures), extensive boundaries (including segmented ditches), post alignments, and a single isolated inhumation. The dating evidence was often limited to a small amount of fairly undiagnostic pottery and a small number of radiocarbon dates. However, there is sufficient evidence to suggest that much of this activity originated in the middle Bronze Age, a period characterised by both an increasing population and societal change. Contemporary remains within HRN3206 included a field system, dispersed activity foci, cremation burials and an inhumation. There is lack of evidence for middle Iron Age activity within the investigation areas, which is also reflected in a general absence of such remains within HRN1 as a whole; however, settlements of this date were found within the A5–M1 Link Road investigations (Brown 2020).

The late Iron Age/early Roman period also sees extensive evidence for activity, including farmsteads within HRN3455 and HRN3457, and others that lay outside the investigation areas (e.g. in HRN3206). Within HRN3205, a small cremation cemetery (comprising 13 graves) was deliberately located adjacent to a trackway; it was associated with an (unexcavated) farmstead to the south.

Three Roman settlements are known within HRN1; to date only that within HRN3206 has been subject to extensive investigation (Luke and Barker 2021). The largest, extending over c.5.5ha, straddles the Ouzel Brook and, as reported in this monograph, has been investigated by geophysical survey, trial trenching and a narrow service trench that traversed it (HRN3455). The combined evidence, including that from an amateur excavation in the 1980s, suggests that the settlement contains at least one substantial building with a hypocaust and a tiled roof. One of the most significant finds from HRN3455 was a sherd of pottery with ink-written graffiti. The third settlement lies at the south end of HRN1 and has only been subject to geophysical survey and trial trenching. However, its northern environs were investigated within the HRN3205 and WSL investigations, revealing two trackways, next to one of which were three crop-processing areas. These contained five drying ovens (two well-preserved), a crop-processing building and a plank-lined pit.

There was extensive evidence for Roman field/enclosure systems and trackways, some of which may have originated in the middle Bronze Age. These were largely devoid of evidence for activity with the exception of occasional isolated structures and one possible burial. Within HRN3457, adjacent to the present course of the Ouzel Brook, enclosures that were established in the late Iron Age appear to have been modified in the Roman period and continued in use, albeit for livestock management rather than settlement. In addition to the fields, which are presumed to be associated with mixed arable/pastoral farming, a block of bedding trenches within HRN3456 represents an area of horticulture.

The only firm evidence for early Anglo-Saxon activity were two isolated sunken-featured buildings (one within HRN3205 and one within HRN3457). Their presence reflects a wider pattern of small-scale and dispersed occupation, often in the vicinity of sites that were in use in the Roman period, with the main contemporary settlements probably underlying modern Houghton Regis and nearby villages.

Chapter 1

Introduction

This publication presents the results of four archaeological investigations undertaken to the north of Houghton Regis.

1.1 PLANNING AND BACKGROUND TO THE INVESTIGATIONS

In 2014, the Secretary of State for Transport gave consent for the construction of the Woodside Link, a road running up the east side of Houghton Regis to a proposed new junction on the M1. In the same year Central Bedfordshire Council granted outline planning consent for a large, housing-led urban extension to the north of Houghton Regis – a development known originally as Houghton Regis North 1 (HRN1) and now as Linmere. As both developments lay within an archaeologically sensitive area (see Archaeological Background below), the Central Bedfordshire Council Archaeology Team (CBCAT) advised that archaeological mitigation would be required in advance of construction.

1.2 LOCATION, TOPOGRAPHY AND GEOLOGY

The HRN1 development area lies in the northern hinterland of the Chilterns, on the Bedfordshire chalklands to the north of Houghton Regis (Fig. 1.1).

The topography of the area is relatively flat, lying at 121–126m OD between the headwaters of the Houghton

Brook (a tributary of the River Lea) and the Ouzel Brook (which feeds into the River Ouzel, itself a tributary of the River Great Ouse) (Plates 1.1 and 1.2). From north-west to south-east the site straddles a series of geological strata dating to the Cretaceous Period (approximately 94–101 million years ago):

- West Melbury Marly Chalk Formation – Chalk
- Totternhoe Stone Member – Chalk
- Zag Chalk Formation – Chalk

Superficial deposits comprise glaciofluvial sand and gravel, with smaller areas of Head deposits along the course of the Houghton and Ouzel Brooks.

1.3 ARCHAEOLOGICAL BACKGROUND

The adjacent chalk ridgelines of the Chilterns have long been known to contain evidence for early prehistoric settlement and ritual activity (Holgate 1994, 31–42), but until recently our understanding of past land-use and settlement in the vicinity of HRN1 was based largely on surface artefact collection and small-scale excavations undertaken by The Manshead Archaeological Society (Hudspith 1991; Hudspith 1995). These had identified scatters of Mesolithic and Neolithic/Bronze Age flints in the vicinity, but all concentrations lay outside the development area. Several long and round barrows are situated



Plate 1.1 Aerial view of the HRN1 development area looking north, with HRN3205 visible in the foreground, beyond which are the Woodside Link and the Houghton Brook with the M1 on the right (July 2018)

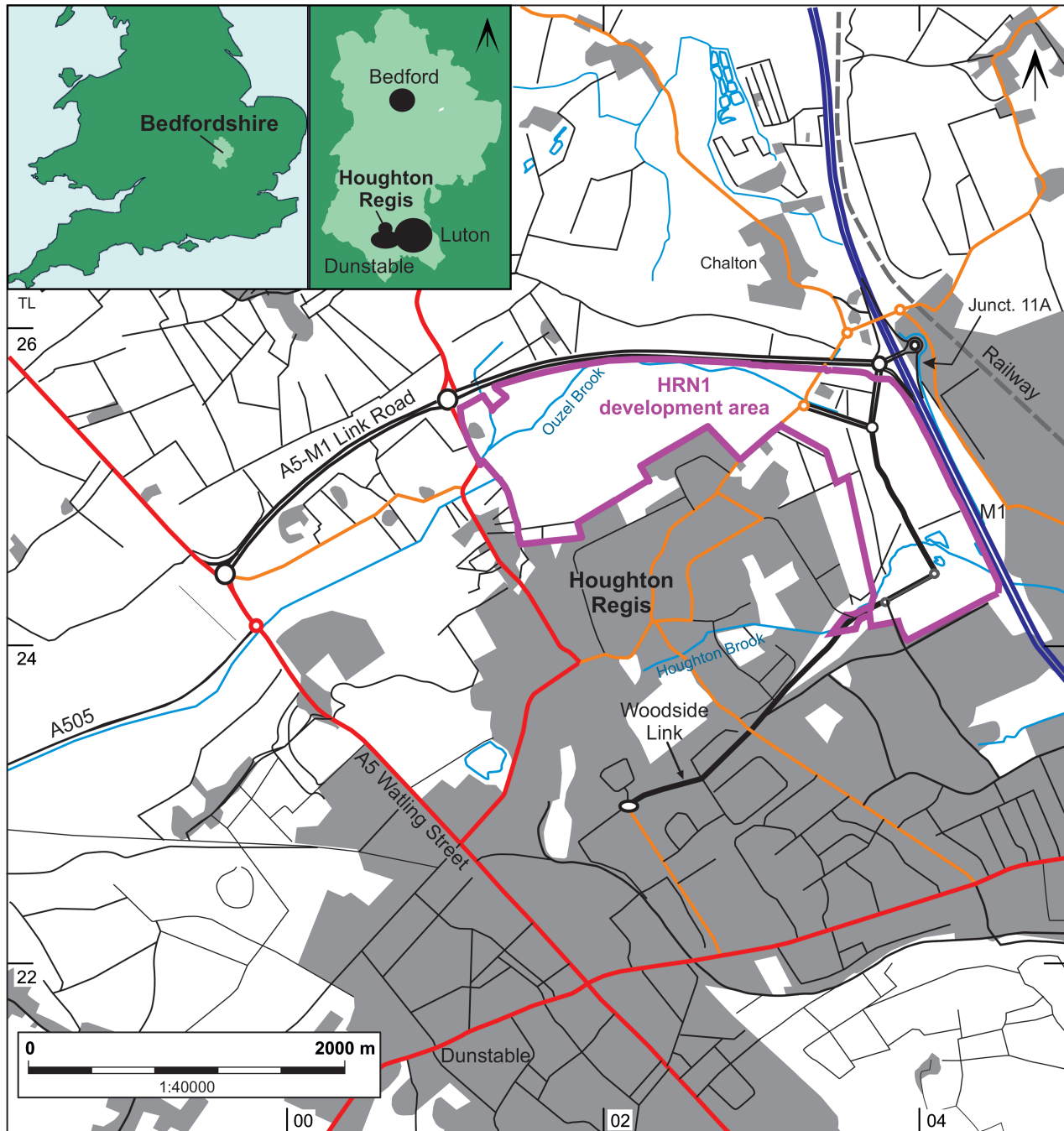


Figure 1.1 Location of HRN1 development area

on the north-facing chalk scarp of the Chilterns (Clark 1991; Holgate 1994). Approximately 1.6km to the east of the development area is Waulud's Bank, which is often cited as a henge monument (Holgate 1994, 39–40). It has been speculated that Maiden Bower, an Iron Age hill fort located 4km to the west, which may have originated as a Neolithic causewayed camp (Pollard and Hamilton 1994, 11). Fieldwalking undertaken by The Manshead Archaeological Society located small quantities of Iron Age pottery within the HRN1 development area adjacent to the Ouzel Brook. They also located three concentrations of Roman pottery and undertook limited excavation within one (Manshead 1986). *Durocobrivis* (modern-day Dunstable), located 3.5km south-west, was a Roman town on Watling Street.

More recent archaeological investigations to the north associated with the A5–M1 Link Road (MOLA 2015;

Brown 2020) and at HRN3206 (Luke and Barker 2021) have highlighted the potential for Bronze Age, Iron Age and Roman settlement and land-use, particularly along the Ouzel and Houghton Brooks (Fig. 1.2). Similar evidence was found c.3.5km to the west at Thorn Turn (Albion Archaeology 2018a).

1.4 THE ARCHAEOLOGICAL INVESTIGATIONS

Evaluation

Field evaluation was undertaken within the Woodside Link (Albion Archaeology 2010 and 2013) and the wider HRN1 development area (Albion Archaeology 2012a) (Fig. 1.2). Based on the results of geophysical survey (Stratascan 2012) and trial trenching, 21 Archaeological Character Areas (ACA) were defined within HRN1. The CBCAT advised that, if preservation *in situ* were not



Plate 1.2 Aerial view of the HRN1 development area looking west, with HRN3457 in foreground (early in machining) and HRN3456 visible behind, Houghton Regis on the left, and the Ouzel Brook and the A5-M1 Link Road on the right (January 2019)

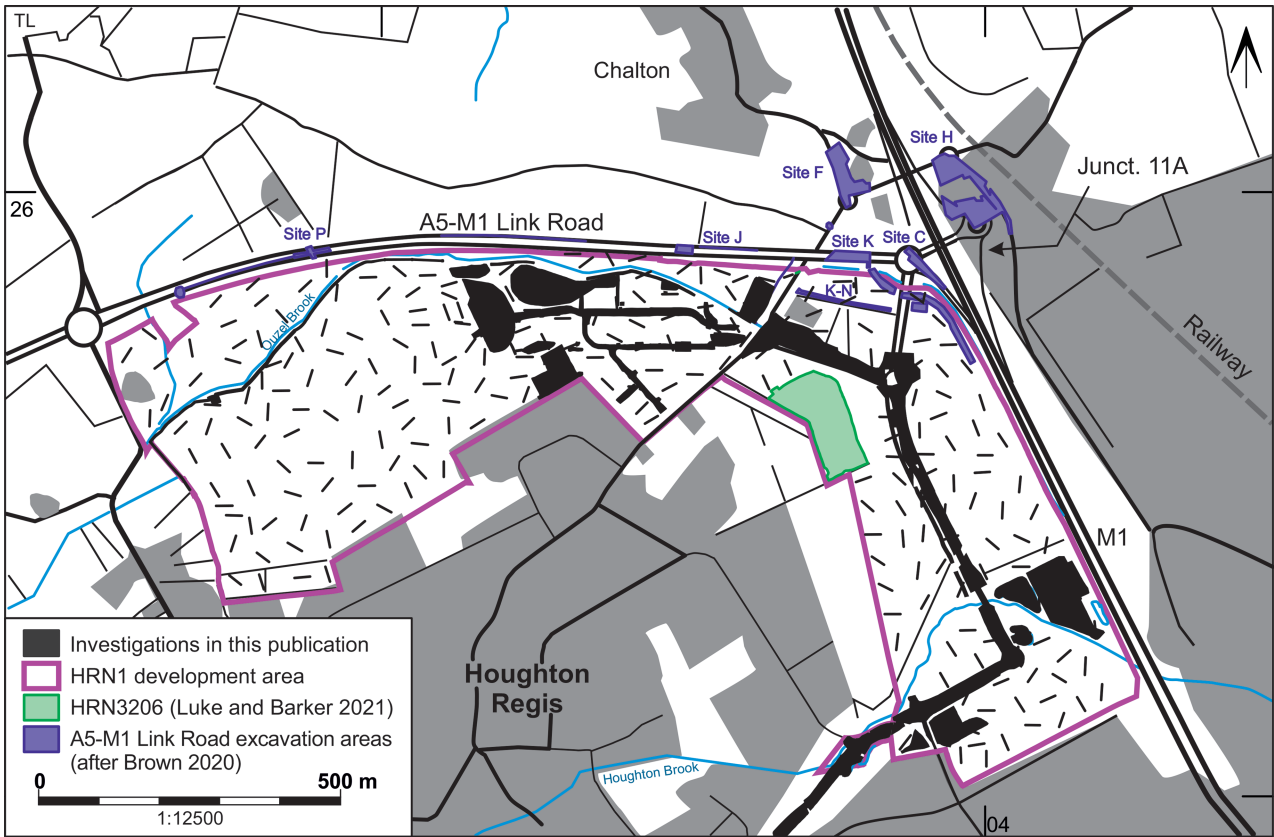


Figure 1.2 Location of HRN1 archaeological investigations, including the trial trenches dug in 2012

possible, then further investigation would be required to record any archaeological remains affected by the development.

Field investigations

The four archaeological projects presented in this report comprise the Woodside Link and five HRN1 investigation areas (site names HRN3205, HRN3455/6/7 and HRN3486 (Fig. 1.3; Table 1.1).

The entire Woodside Link road corridor was subject to archaeological investigation, apart from a length near M1 Junction 11a where the road was to be constructed on an embankment. Within HRN1, the ACAs were not investigated individually; each project only dealt with a specific element of the development, e.g. HRN3455 included a service corridor that crossed ACA2, while HRN3456 only covered the east half of ACA8, etc.

Archaeological investigation was carried out in accordance with project-specific Written Schemes of Archaeological Resource Management (for the HRN1 sites) and a Written Scheme of Investigation (for the Woodside Link); these are referenced in the relevant chapters. Within the investigation areas the ploughsoil and subsoil were mechanically removed under archaeological supervision, exposing the underlying geological strata. A pre-excavation plan was immediately created and used to formulate the excavation strategy (Plate 1.3). Hand excavation and recording (Plates 1.4 and 1.5) were undertaken in line with Albion Archaeology's Procedures Manual (Albion Archaeology 2017a). All isolated



Plate 1.3 Surveying of features on HRN3205

archaeological features were half-sectioned (Plate 1.6) with the exception of graves, which were fully excavated. Initial segments through ditches were distributed evenly along their lengths, although potentially significant variations in their upper fills, e.g. artefact or ecofact concentrations, were also targeted. Finds and ecofact processing was undertaken concurrently with fieldwork to maximise feedback into, and adjustment of, the excavation strategy.

The features contained fills that were generally firm, mid-grey-brown, silty clay, with occasional small to large-sized stones. Any fills that fall outside that 'norm' are described in more detail in Chapters 2–5.

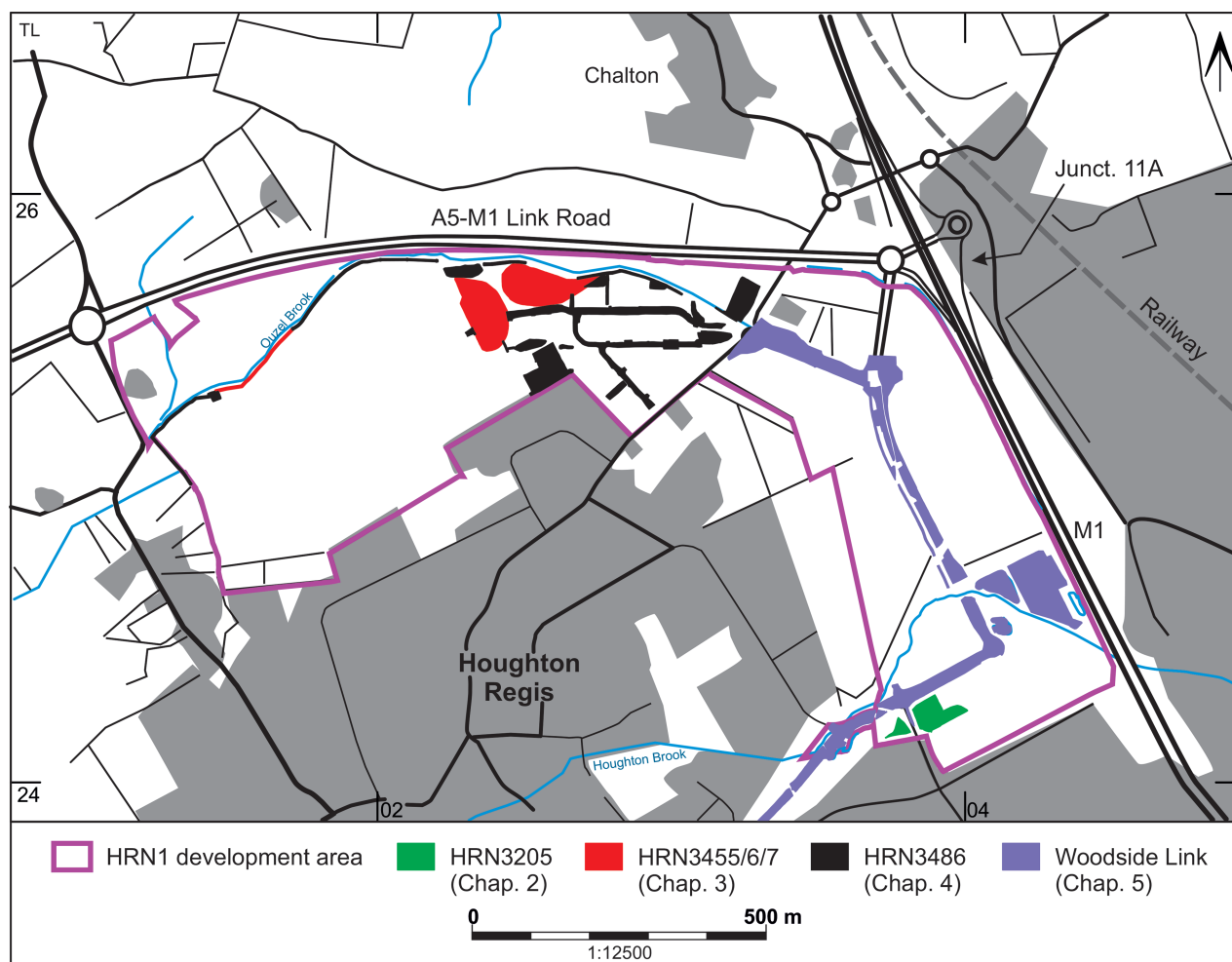


Figure 1.3 Location of sites within this publication

Chapter	Site	Extent (ha)	Date of fieldwork	ACA
2	HRN3205	1.7	July–August 2018	Parts of 18 and 20
3	HRN3455	0.1	December 2018–January 2019	Part of 2
3	HRN3456	2.5	December 2018–January 2019	Part of 8
3	HRN3457	2.5	January 2019–February 2019	Most of 9
4	HRN3486	11.5	April–December 2019	Part of 10
5	WSL	14	May 2015–April 2016	n/a

ACA = Archaeological Character Area, defined by archaeological evaluation of HRN1

Table 1.1 Summary of archaeological investigations published within this monograph



Plate 1.4 Excavating drying oven G26 on HRN3205



Plate 1.5 Archaeological recording during snowy conditions on HRN3457



Plate 1.6 Cleaning around a half-sectioned pit in advance of photography on HRN3457

Assessment and updated project design

All sites were subject to an assessment and updated project design, typically produced within one year of completion of fieldwork; these are referenced in the relevant chapter. They summarised the results of the fieldwork and identified how the recovered data could address local, regional and national research priorities.

In addition, they set out the methodological basis for the post-excavation analysis, publication and archiving.

Post-excavation analysis

The overall approach involved the manipulation of all data within a fully integrated, computer-based system of analysis. All structural, artefactual and ecofactual data were entered onto an Access database, creating an interface with the digital drawings and images. This allowed rapid and flexible analysis of the data and facilitated the creation of the text and plans which form the basis of this publication.

The methodology for the contextual analysis is summarised below; an understanding of the contextual hierarchy is essential as it underpins the structure of this publication. Analytical methodologies for the artefacts and ecofacts are summarised in the relevant sections. The updated project designs contain full details of the methodologies applied to each data-set.

Contextual

Albion Archaeology employs a standardised approach to detailed contextual analysis, requiring the assignment of contexts to a hierarchy. Each hierarchical level/element becomes more interpretative and less detailed in nature. It should be borne in mind that it is the level within the structural hierarchy that is important, *not* necessarily the actual name of the hierarchical element (*e.g.*

Phase, Site Landscape, Land-use Area *etc.*). An understanding of these terms is essential to the understanding of this publication. The four projects apply this approach slightly differently, as when the individual hierarchies were created, it was not envisaged that the projects would be published together. However, the differences are not sufficiently large as to impair understanding of the evidence.

During analysis, the contexts were combined into a hierarchy, comprising:

Phases: broad, chronological divisions, *e.g.* mid- to late Bronze Age, late Iron Age/early Roman, Roman.

SL (Site Landscape): a collection of spatially coherent Land-use Areas, *e.g.* settlement, enclosure system, activity focus.

L (Land-use Area): a collection of broadly contemporary and spatially coherent groups, *e.g.* an enclosure, a trackway, cemetery.

G (Group): more interpretive entities, *e.g.* buildings, drying oven, ditch lengths, pits clusters, *etc.*

SG (Sub-group): indivisible unit of interpretation, *e.g.* grave, significant pits.

Phase, Site Landscape and Land-use Area provide the main framework for presentation of the results within this publication.

Chapter 2

Late Bronze Age to early Anglo-Saxon land-use on site HRN3205

by Mike Luke and Jo Barker

with contributions by Dana Challinor, Holly Duncan, John Giorgi, Mark Maltby, Natasha Powers and Jackie Wells

Illustrations by Mike Trevarthen (Figs 2.2–2.11) and Joan Lightning (Fig. 2.1)

SUMMARY

Excavations in 2018 revealed evidence of land utilisation from the late Bronze Age to the early Anglo-Saxon period. The majority of the evidence is associated with the northern environs of a late Iron Age/Roman farmstead. The investigations revealed a trackway; an adjacent cremation cemetery; and two Roman crop-processing areas, which contained two drying ovens (one well-preserved) and a plank-lined pit. Other remains included a late Bronze Age/early Iron Age boundary ditch and an early Anglo-Saxon sunken-featured building.

2.1 INTRODUCTION

This chapter presents the results of c.1.7ha of open-area excavation (Plate 2.1), undertaken during July and August 2018 in line with an agreed Written Scheme of Archaeological Resource Management (WSARM) (Albion Archaeology 2017b), with the results assessed in order to determine their significance and potential for further analysis (Albion Archaeology 2019a).

Site location and geology

The open-area excavation was centred on NGR: TL 0387 2424, adjacent to the north end of Pastures Way, Houghton Regis (Fig. 2.1). The topography of the area is relatively flat at c.122m OD and low-lying due to its proximity to the Houghton Brook (a tributary of the River Lea). The underlying solid geology consists of Zig Zag Chalk Formation chalk.



Plate 2.1 Aerial view looking west with HRN3205 visible in the foreground (west part backfilled) and Woodside Link on the right, beyond which is Houghton Regis and Dunstable (August 2018)

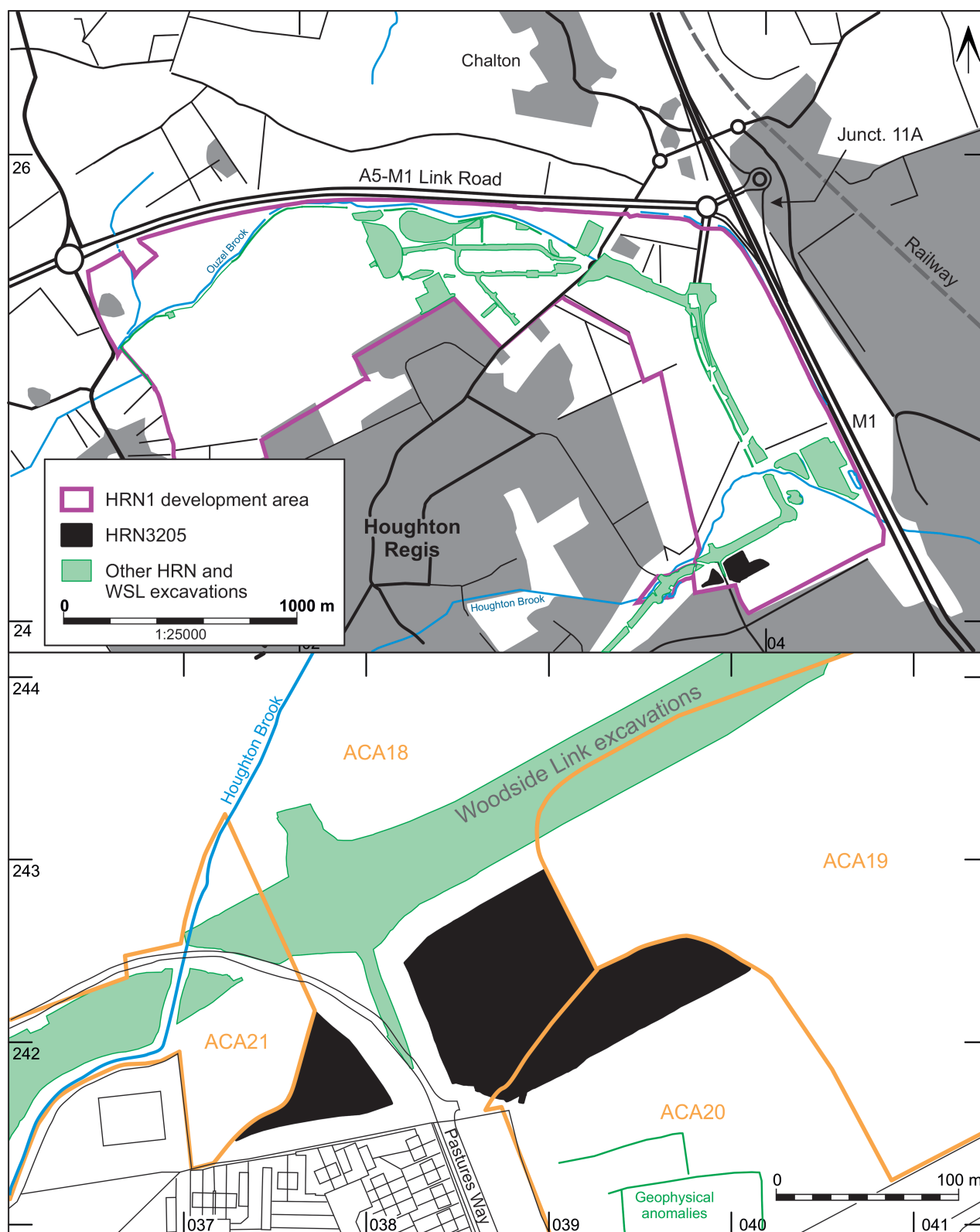


Figure 2.1 HRN3205 location plan

Archaeological background

The site was situated within the southern part of ACA18 and the northern part of ACA20. The evaluation suggested this area contained evidence for dispersed late Bronze Age/Iron Age activity and a late Iron Age/Roman trackway, and that it was located on the northern periphery of a late Iron Age/Roman settlement (within ACA20).

2.2 SITE SEQUENCE

Four chronological phases were identified, spanning the late Bronze Age/early Iron Age (Phase 1) to the early Anglo-Saxon period (Phase 4) (Fig. 2.2). The most extensive remains pertained to a late Iron Age/early Roman cremation cemetery (Phase 2) and Roman crop-processing areas (Phase 3). The results of radiocarbon

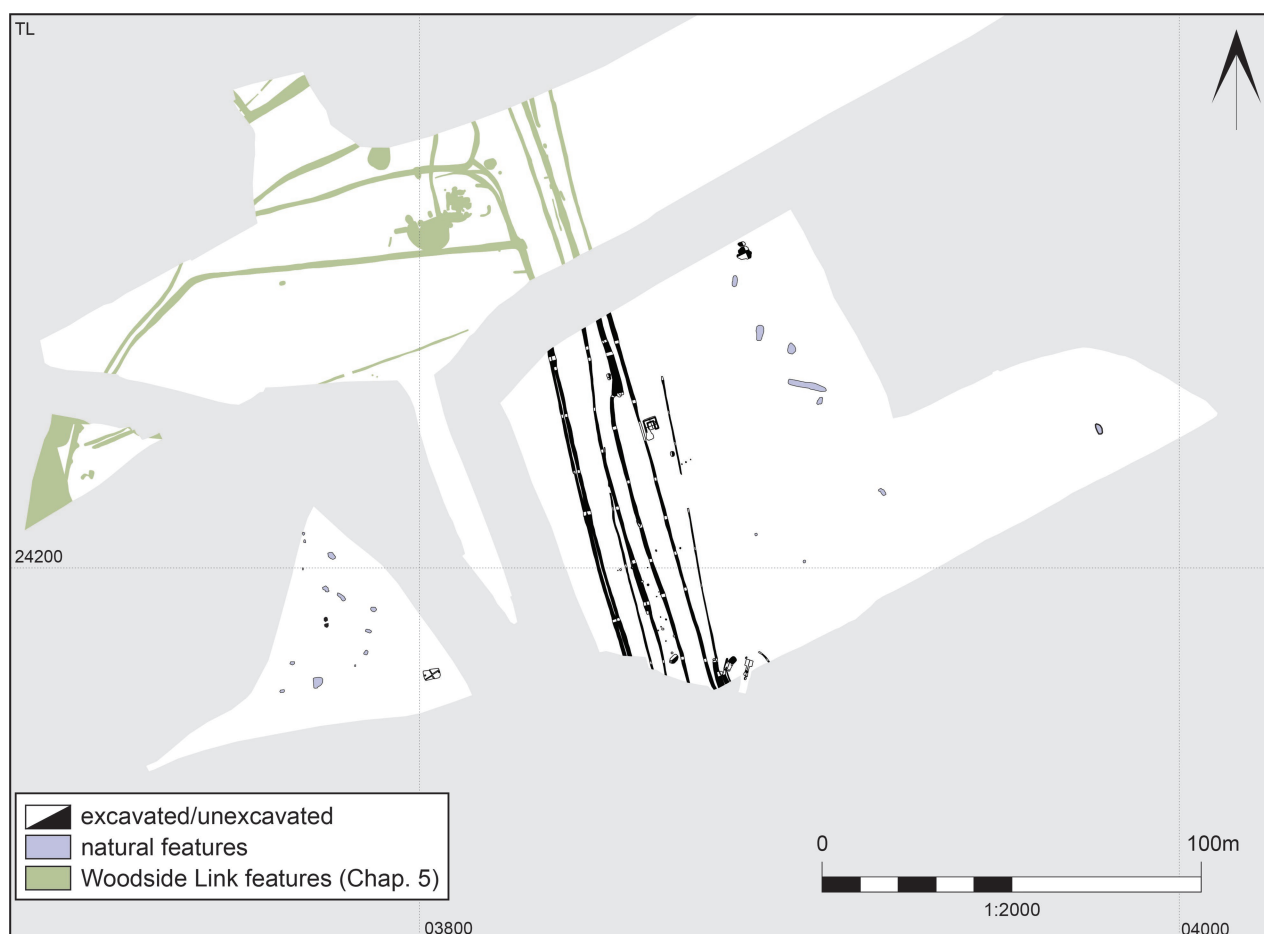


Figure 2.2 All-features plan

dating are summarised within the text; full details are presented in Table 2.24.

Phase 1 (Late Bronze Age/Early Iron Age) boundary and unenclosed activity SL1

A ditched boundary, pits and postholes represent the earliest evidence for human activity within HRN3205 (Fig. 2.3) – on previously unoccupied land c.190m south of the current course of the Houghton Brook. Contemporary remains (including a field system, domestic pits and postholes, and burials) were recorded within the Woodside Link road corridor c.650m to the north-east (Chap. 5) and within site HRN3206, c.900m to the north (Luke and Barker 2021, 39–46).

Later Bronze Age and early Iron Age pottery (71 sherds, 0.37kg) was recovered from the pits and a posthole. Other than an intrusive early Roman cooper alloy pin (OA10), no datable artefacts were recovered from ditched boundary L1. However, the pits were clustered adjacent to the boundary, suggesting that they were broadly contemporary although one pit had been dug into the ditch fill.

Ditched boundary L1

Boundary L1 was defined by two broadly parallel north-south aligned ditches G1 and G3, spaced c.3m apart. The west ditch G1 was re-dug at least once (assigned to G2) on broadly the same course. The ditches were generally <0.9m wide and <0.4m deep. G1 and G3 had similar profiles (Fig. 2.3, sections a and c). Although elements of the ditches terminated within the excavation area,

the boundary clearly continued to the north and south. A northward continuation of the west ditch was identified within the Woodside Link investigations, indicating that L1 was at least 160m long (p. 130–1), with a further geophysical anomaly suggesting that it extended for at least 300m south of the Houghton Brook.

The ditches are interpreted as part of an extensive linear boundary because they were too close to each other to form a trackway and were not part of a field system.

Unenclosed activity area L2 and L3

Two pits (<0.7m in diameter and <0.2m deep; Fig. 2.3, section b) and a posthole L2 were identified on the west side of ditched boundary L1. Pit G5 (L3) was situated on its east side. One pit in L2 truncated the earliest ditch of boundary L1, although they are considered to be broadly contemporary. Assignment of the pits and posthole to this phase was based on the recovery of late Bronze Age/early Iron Age pottery from the posthole and one of the pits.

Phase 2 (Late Iron Age/Early Roman) trackway and cremation cemetery SL2

Trackway L5 was established slightly to the west of Phase 1 boundary L1, with a cremation cemetery L4 to the east (Fig. 2.4). Three of the graves were dug into the fills of the Phase 1 boundary ditches. However, an associated bank or hedge may still have existed because most of the graves were dug in the space between the boundary's two constituent ditches. An inhumation (L12), to the north of the cremation cemetery, was also dug into one of the Phase 1 ditches. Little can be said about isolated pit

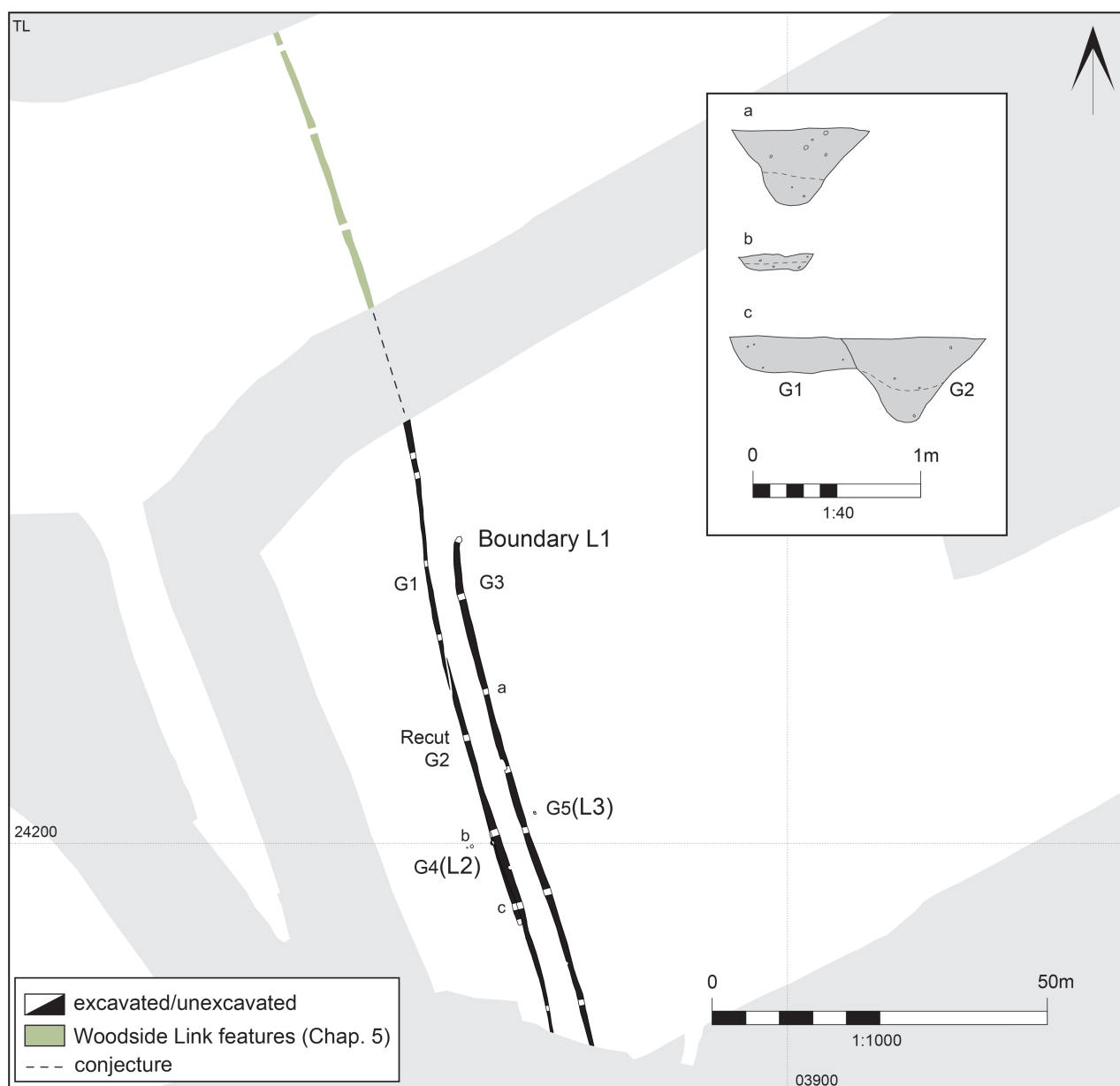


Figure 2.3 Plan of late Bronze Age/early Iron Age (Phase 1) features SL1

G32 (L10), c.8m east of the trackway, other than that it contained a small quantity of late Iron Age/early Roman pottery.

Assignment of features to this phase was largely based on the dating of the pottery assemblage (186 sherds, 3.1kg) and stratigraphic relationships with Phase 1 and Phase 3 features.

Trackway L5

Trackway L5 was defined by two small, parallel ditches, c.8m apart. It ran parallel to, and to the west of, the Phase 1 boundary. The east ditch G10 partly redefined the west ditch of the Phase 1 boundary and it is likely that the latter continued in use further to the north. The trackside ditches were both <0.5m wide and <0.2m deep (Fig. 2.4, sections a and b). The west ditch was extensively re-dug on the same course.

The trackway had been previously identified by geophysical survey (Stratascan 2012) and investigated within the Woodside Link investigations to the north

(p. 133). An aerial photograph taken in 1945 suggests that the trackway's alignment endured in the landscape into the mid-20th century.

Cremation cemetery L4

Cremation cemetery L4 comprised a linear arrangement of 13 graves and 3 non-funerary features – parallel and to the east of trackway L5 (Fig. 2.5; Table 2.1). Three of the graves had been dug into the fills of Phase 1 boundary ditches.

Nature and layout

Ten of the burials were unurned (assigned to G6); three (assigned to G7) were in late Iron Age/early Roman pottery urns (Plate 2.2). The graves were c.0.4m in diameter; they had clearly been truncated by modern ploughing as they were all <0.3m deep. This is one of the reasons for the small amounts of cremated bone recovered, with five graves containing less than 30g. In total, c.3kg of cremated human bone was recovered from the 13 graves.

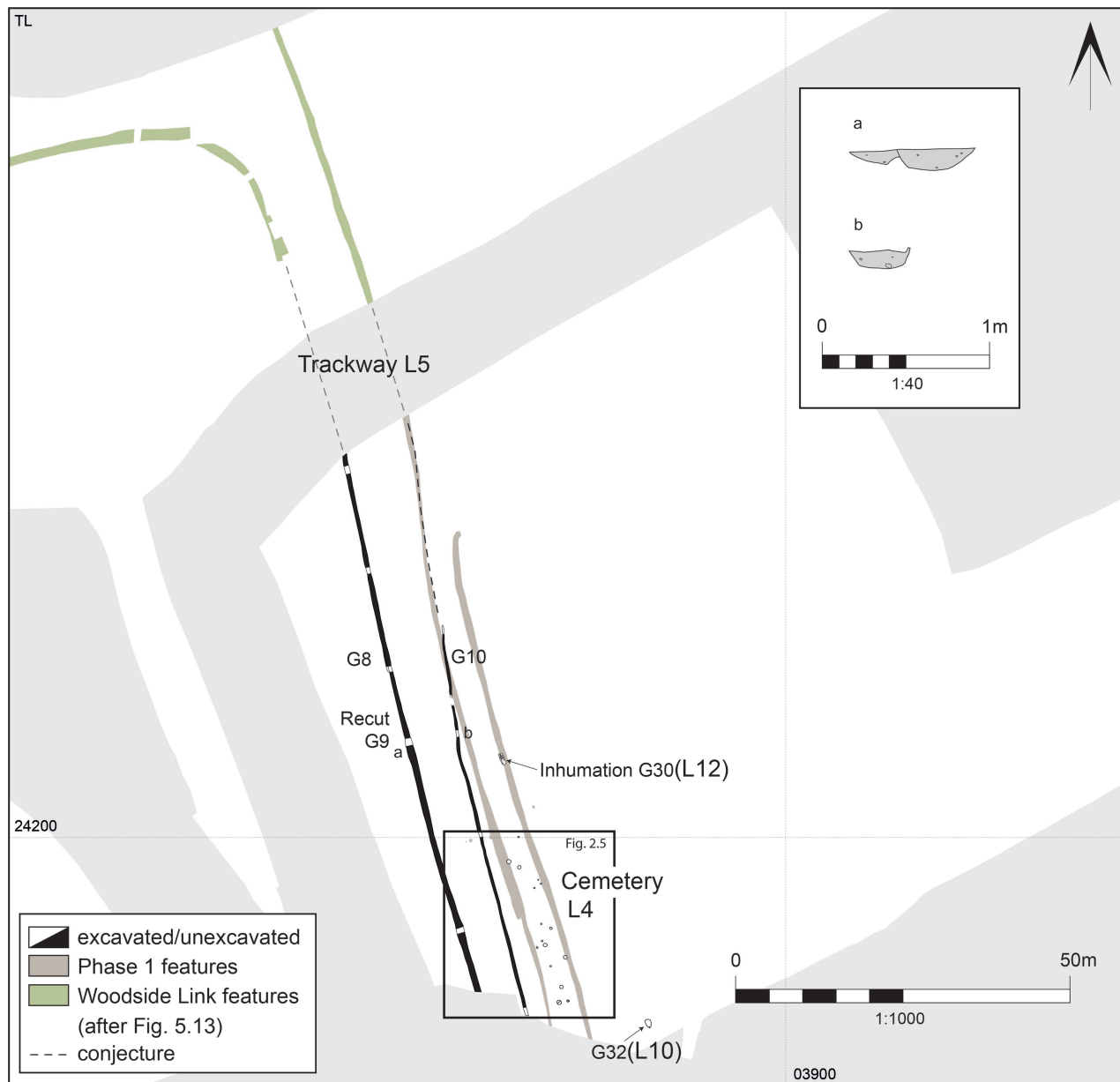


Figure 2.4 Plan of late Iron Age/early Roman (Phase 2) features SL2

The largest quantities derived from graves SG1042 and SG1050 where the partially surviving urns had afforded the cremation deposits some protection.

The spatial layout of the graves suggests that they may have been in pairs, with one cluster of three. Where age was identifiable, most of the graves contained adults. Grave SG1052 at the south end of the cemetery contained the remains of a child (3–4 years old). In no case could sex be determined.

Grave goods

Possible grave goods were identified in five burials. Grave SG1050 contained a samian cup or bowl and a sand-tempered beaker. Fragments of a late 1st-century BC/early 1st-century AD brooch (OAs 5–7 and OA 18) from grave SG1049 and fragments of another brooch from grave SG1060 (OA 9, OA19 and OA20) may represent grave goods. Neither of the brooches had been burnt, indicating that they had been added to the grave at the time of interment. The presence of elm charcoal in

burial SG1048 may represent a pyre good, as elm is not generally used as a pyre fuel. An assemblage of charred, cleaned cereal grain in urned burial SG1042 might represent a grave good, although it could also represent an accidental inclusion of debris from nearby crop-processing/food preparation activities.

Non-funerary features G31 and G34

Three small pits G31 at the south end of the cemetery and an isolated posthole SG1043 (G34) in the northern part of the cemetery did not contain any human bone; they are interpreted as non-funerary features.

Pits SG1053, SG1055 and SG1056 (G31) were 0.4–0.6m in diameter and 0.1–0.2m deep. They contained eight animal bones, none of which was burnt. Charred plant remains including chaff and cereal grains were present in pits SG1055 and SG1056. As these pits are in a cluster, mirroring the pairing/clustering of the graves, they may be associated with the cemetery in some way.

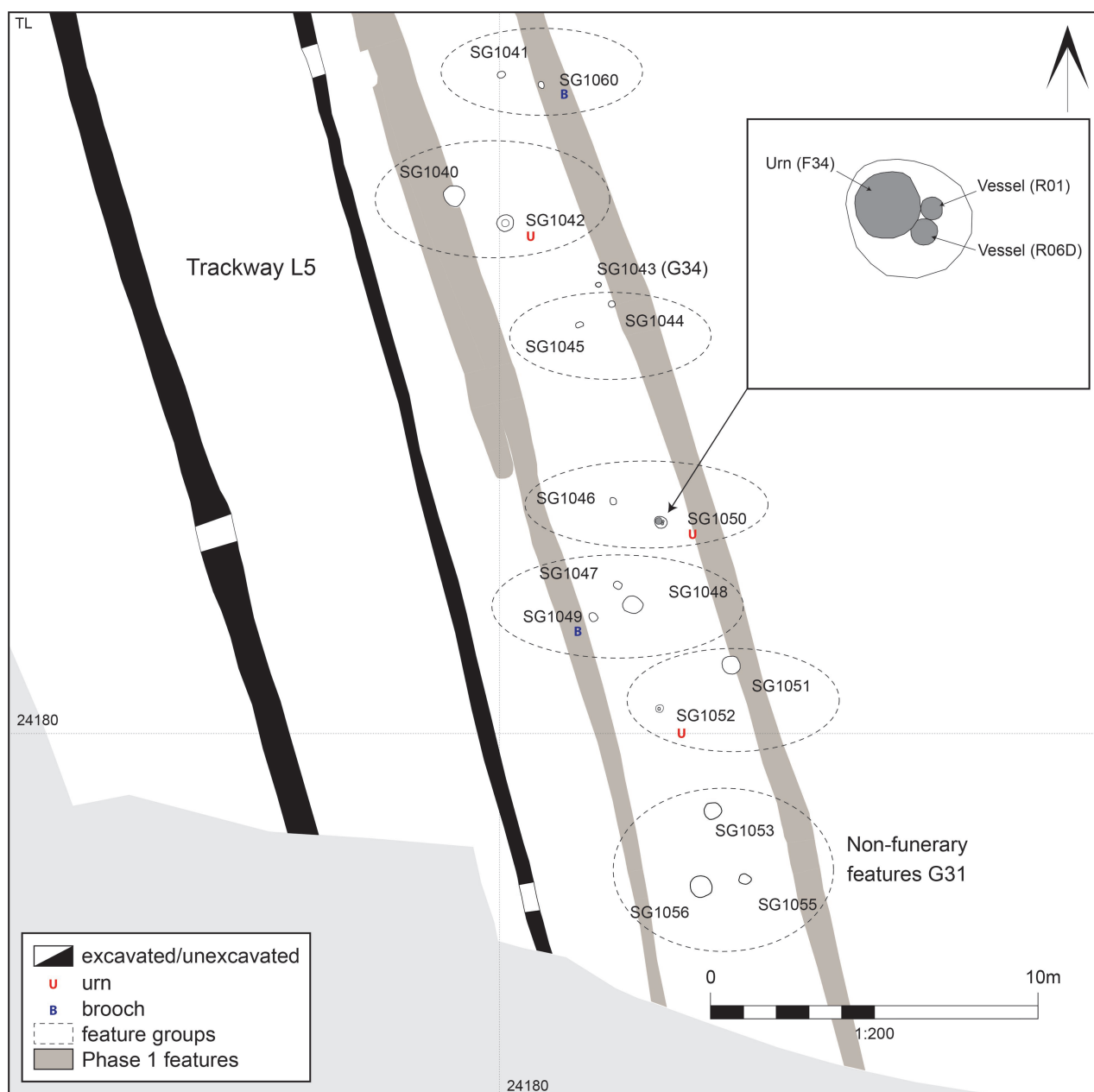


Figure 2.5 Plan of late Iron Age/early Roman (Phase 2) cemetery L4

Inhumation G30 (L12)

Inhumation G30 was located c.11m north of cremation cemetery L4 and 5.5m east of the trackway (Fig. 2.4). The grave was dug into, and was on the same alignment as, one of the Phase 1 boundary ditches. It was sub-rectangular in shape, 1.7m long, 0.4m wide and 0.4m deep. It contained the articulated skeleton of a male aged 17–18 years old (Plate 2.3). The individual had been placed face down (prone) in an extended position, feet to the south and head to the north. No grave goods or evidence of a coffin were identified. The human bone yielded a radio-carbon date of 3–204 cal AD (SUERC-87409, 1920 ± 30 BP).

Phase 3 (Roman) trackway and crop-processing areas SL3

The dating of the pottery assemblage suggests activity within HRN3205 continued throughout the 2nd century and probably well into the 3rd century. The Phase 2 (late Iron Age/early Roman) trackway L5 continued in use but

its position and layout were slightly altered (assigned to L6) (Fig. 2.6). Two crop-processing areas, L7 and L8, c.60m apart, were established adjacent to the east side of the trackway. Drying ovens were also found adjacent to the west side of the same trackway within the Woodside Link investigations, c.70m to the north (p. 134–8).

The finds assemblage principally comprised pottery (170 sherds, 3.1kg) and a small amount of animal bone (11 fragments, 0.1kg). Its relatively small size, coupled with an absence of commonly encountered domestic finds (e.g. personal items, coins etc.) and habitation-related features, demonstrates that this area was on the periphery of a settlement rather than within its core. The nearest known farmstead lies c.50m to the south-east within ACA20 (Fig. 2.1; Albion Archaeology 2012a).

Trackway L6

Ditches G15 and G11 were similar in size and profile (Fig. 2.6, sections a and c); they are presumed to be contemporary and to have defined a c.18m-wide trackway L6.

Group	SG	Urn (sherd:weight (kg))	Grave size (m)	Bone weight (g)	Sex	Age	Possible grave goods
6	1040	–	0.6 × <0.1	180.9	N/D	Adult	–
	1041	–	0.2 × <0.1	17.9	N/D	?	–
	1044	–	0.2 × 0.1	29.5	N/D	?	–
	1045	–	0.2 × 0.1	2.9	N/D	?	–
	1046	–	0.2 × 0.1	448.1	N/D	Adult	–
	1047	–	0.2 × <0.1	2.7	N/D	?	–
	1048	–	0.6 × 0.1	139.2	N/D	Adult	Elm charcoal, possibly representing a pyre good
	1049	–	0.4 × 0.3	151.6	N/D	Adult?	Late 1st-century BC/early 1st-century AD Kragenfibel-type brooch fragments (OAs 5–7, OA18)
	1051	–	0.5 × 0.2	449.0	N/D	Adult?	–
	1060	–	0.5 × 0.1	314.2	N/D	Adult	Brooch fragments (OAs 9, OA19, OA20)
7	1042	Grog-tempered F06B (59:0.8)	0.5 × 0.2	515.1	N/D	Adult	Cleaned cereal grain
	1050	Sand-tempered F34 (74:1.9)	0.3 × 0.2	809.7	N/D	Adult	Two accessory vessels: sand-tempered beaker R06D (35:0.13) central Gaulish samian cup/bowl R01 (7:0.08)
	1052	Sand-tempered F34 (3:0.1)	0.2 × 0.1	24.0	N/D	3–4 years	–

Table 2.1: Summary of the burials in late Iron Age/early Roman (Phase 2) cremation cemetery L4



Plate 2.2 Urned cremation burial SG1042 (L4, Phase 2) under investigation

In contrast to the west ditch G11, the east ditch G15 had been re-dug on number of occasions, although the precise sequence is uncertain. The widened trackway encompassed both the Phase 1 boundary and the Phase 2 burials, which would have lain centrally within it (Fig.



Plate 2.3 Inhumation G30 (L12, Phase 2), looking west. Scale 0.4m

2.6); this unusual juxtaposition is considered further in the Discussion (below).

At some point, ditch G12 was dug c.1.2m to the west of ditch G15, reducing the width of the routeway to c.13m. Ditch G12 terminated just north of crop-processing area L8. It was re-dug twice as ditches G13 and G14, which ran on the same course and terminated in the same location.

Crop-processing area L7

Crop-processing area L7 comprised drying oven G21 and rectangular pit G22, which was associated with sub-rectangular pit G23 (Fig. 2.7). The drying oven was located centrally within a circular enclosure which was defined by an incomplete circuit of ditches; this is presumed to be contemporary.

The enclosure was c.11m in diameter and defined by ditches G19, G20 and G24 (0.3–1.0m wide and 0.1–0.3m deep). An 8m-wide gap on the north side and the absence of the ditch in a southerly extension to the excavation area suggest that the enclosure did not form a complete circuit. The ditch on the west side was re-dug at least

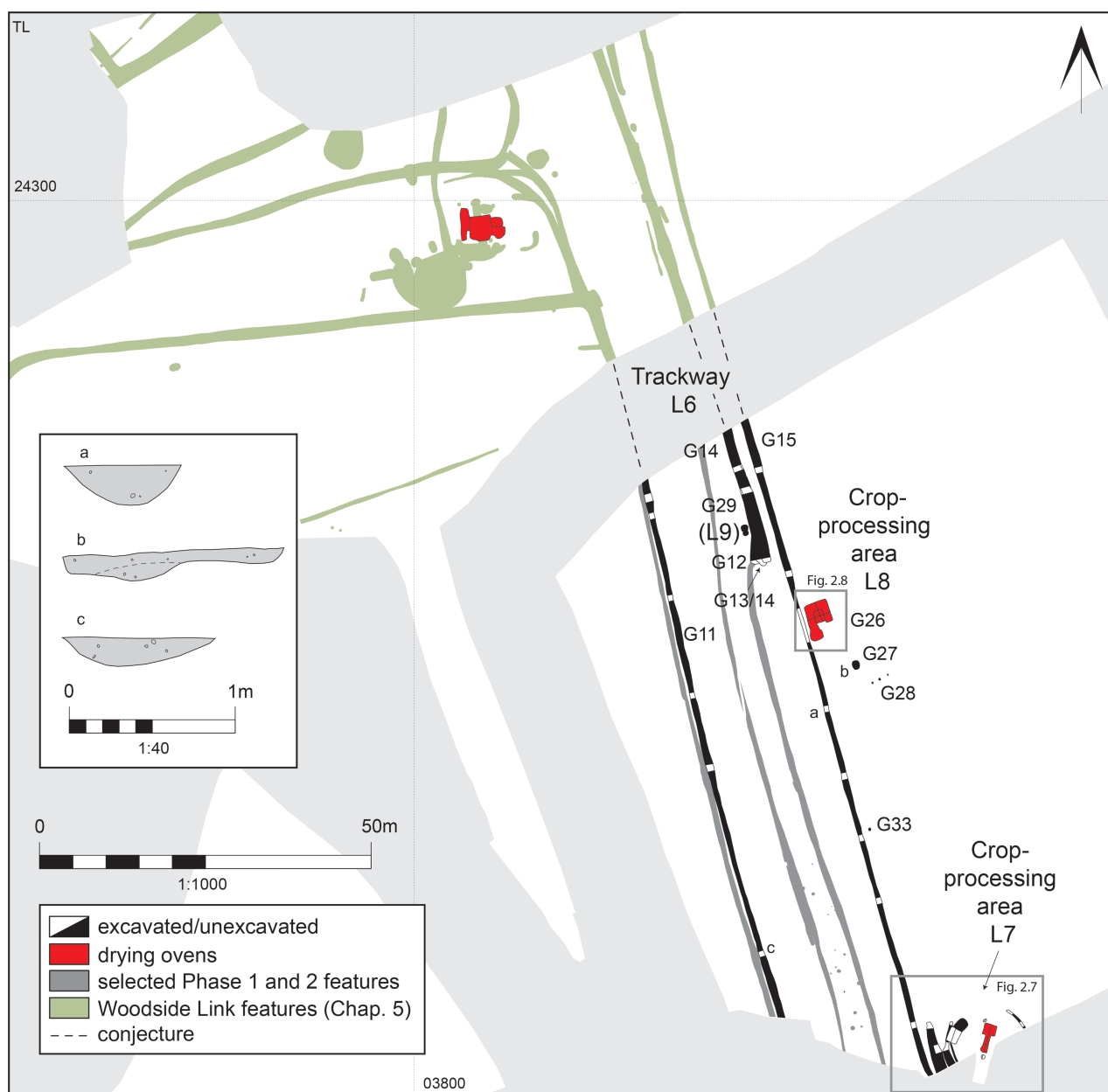


Figure 2.6 Plan of Roman (Phase 3) features SL3

once but it is unclear which of the two ditches (G19 or G24) was the earlier; neither appears to be contemporary with rectangular pit G22. All the ditches contained charred plant remains similar to those recovered from the drying oven, so it is presumed that the features are contemporary. The enclosure's function is uncertain, but it is more likely that the ditches were dug as drains (adjacent to short lengths of curving hurdle) rather than being part of a structure themselves.

Drying oven G21

Oven G21 had been robbed of its lining, but a staining of crushed chalk and clay did survive. Fragments of six quern stones, the base of a 2nd-century pottery vessel, and a stone had been left *in situ* (Plate 2.4), placed on the base and sides of the oven at the junction between the flue and stokehole. Several amorphous baked clay lumps (1kg) were found in the backfill and probably derived from the lining or superstructure of the oven.

The oven was aligned NE–SW. It was c.1.6m long and c.0.7m wide. It featured a slightly wider, bowl-shaped stokehole at the south-west end and a c.1.8m-wide square area at the north-east end, where the chamber would have been (Fig. 2.7, section b; Plate 2.5). A shallow scoop, c.0.4m to the south-west of the stokehole, was recorded as a separate feature but was probably also originally part of the stokehole. No evidence for a cross-flue survived but the overall form of the oven (as it survived) suggests it is likely to have been T-shaped rather than rectangular in plan.

Rich assemblages of charred grain and chaff from the flue of the oven indicate that spelt spikelets were being heated to facilitate dehulling and dried to aid storage. The chaff was probably used as a fuel. A similarly rich assemblage was recovered from enclosure ditches G19 and G20, indicating that they were open while the drying oven was in use and were used for the disposal of rakings from it. The charcoal recovered from the flue included

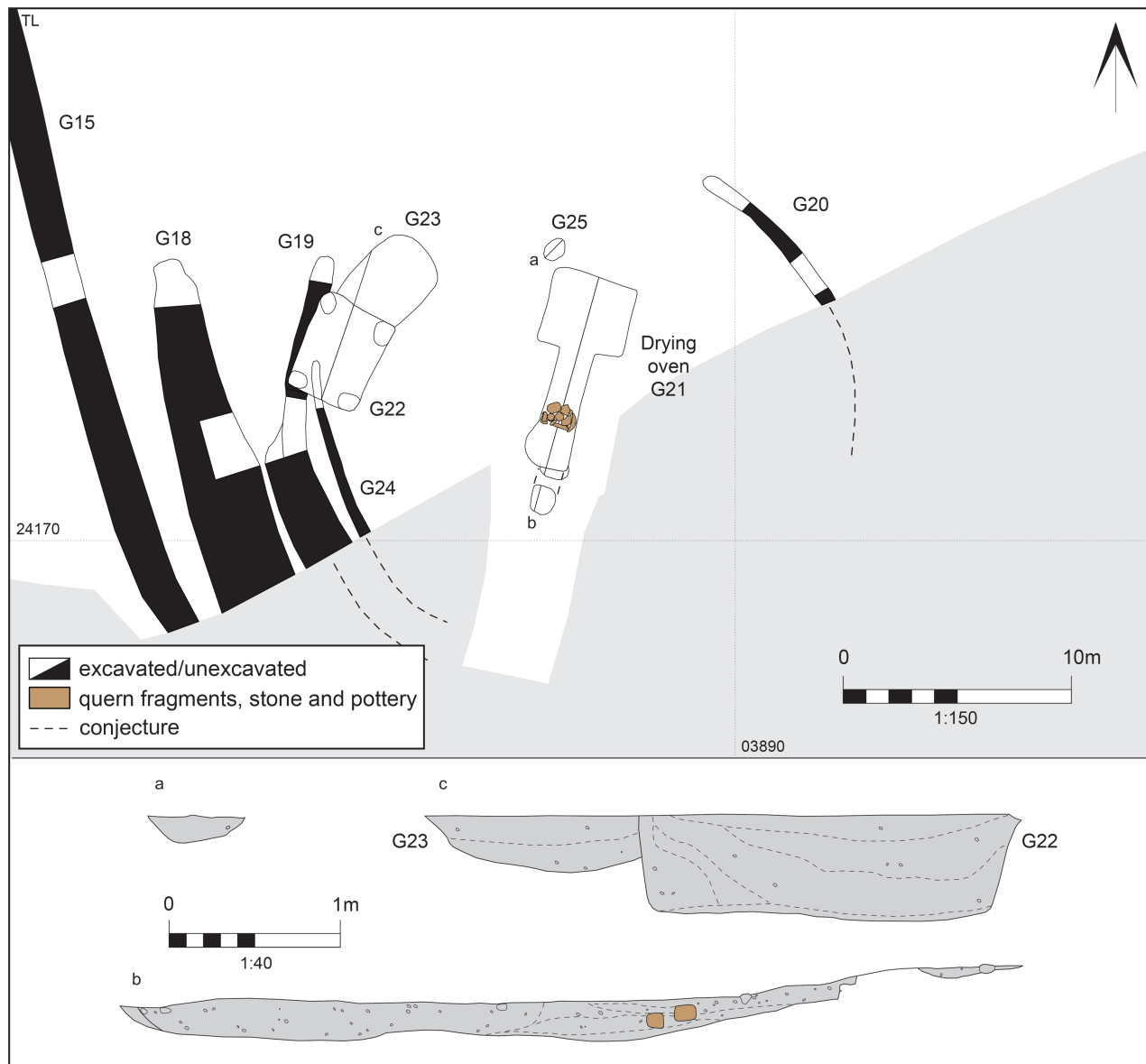


Figure 2.7 Plan of Roman (Phase 3) crop-processing area L7

oak, hazel and blackthorn/cherry, all presumably used as fuel.

The pottery assemblage (96 sherds, 1.6kg) and quern stones suggest that the drying oven was in use in the 2nd century.

Rectangular pit G22 and sub-rectangular pit G23

The juxtaposition of pits G22 and G23 suggests that they are associated and contemporary (Fig. 2.7, section c; Plate 2.6). The assemblage of charred grain and chaff recovered from the lower fill of pit G23 also suggests that it was open while the drying oven was in use.

Pit G22 was dug c.3.7m from the drying oven; their similar alignment suggests the two were contemporary. The pit had near-vertical sides and a flat base (2.2 x 1.7 x 0.6m deep), with a posthole in each corner. Three parallel stains of charcoal, up to 0.2m wide with a 0.1m gap between them, were found on the base of the pit, suggesting that it had a plank floor (Plate 2.7). The charcoal was identified as oak and a radiocarbon determination provided a date of 27–212 cal AD (SUERC-87940; 1903 ± 30BP). The pit's vertical sides are also suggestive

of a plank lining. Finds recovered included pottery (30 sherds, 270g), a single nail and a fragment of quern stone.

Pit G23 was very different in form and profile; it was sub-rectangular with a concave profile, 1.9m long, 1.6m wide and 0.4m deep.

Pit G25

A small pit (0.6m in diameter and c.0.2m deep) was positioned immediately to the north-west of drying oven G21 (Fig. 2.7, section a). It contained fragments of elm, oak, hazel and ash charcoal, probably representing rakings from the oven. It also contained 61 calcined mammal bones, largely unidentifiable but including pig. While these may have been accidentally burnt within the drying oven, it is also possible that they represent a special/structured deposit.

Crop-processing area L8

Crop-processing area L8 was situated c.60m to the north of L7 (Fig. 2.6). It comprised a drying oven G26 and three postholes G28. Cremation burial G27 was also found in this area.



Plate 2.4 Drying oven G21 (Phase 3) under investigation before removal of quern stones, looking north-east

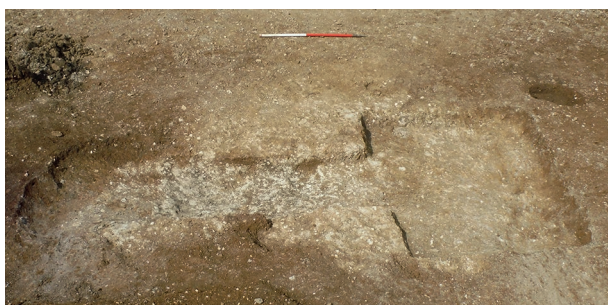


Plate 2.5 Drying oven G21 (Phase 3) after removal of quern stones, looking north-west. Scale 1m

Drying oven G26

Oven G26 lay parallel to, and c.0.6m from, the east ditch G15 of trackway L6 (Fig. 2.8). It corresponds to Morris's rectangular type (1979, 101, fig. 11). It was c.3.5m by 3.1m in extent with a slightly larger construction cut (Plate 2.8). It comprised a c.0.5m-wide flue, which enclosed three sides of a rectangular central chamber (c.1.4 1.8m), and a stokehole to the south. Its layout is very similar to a drying oven found c.70m to the north on the Woodside Link (Fig. 5.14). The oven's stone lining survived below ground to a depth of 0.4m; it was constructed principally of flint nodules set in a crushed chalk and clay matrix. The base of the flue and central chamber did not appear to have been lined; it simply comprised the compacted chalk and clay natural geology. It was noticeable that the base of the central chamber was at a higher level than that of the surrounding flue (Fig. 2.8, section a).



Plate 2.6 Pits G23 and G22 (background) (Phase 3), looking south. Scale 1m



Plate 2.7 Pit G22 (Phase 3) under investigation with charred planks visible at the base

Charred plant assemblages rich in grain, and to a lesser extent chaff, were recovered from the oven, suggesting that it had been used to dry clean grain before storage or milling. The heating of spikelets to facilitate de-husking was also probably taking place. The charcoal assemblage indicates that oak, and to a lesser extent ash, hazel and field maple, were used as fuel. The presence of oak trunkwood (as opposed to ash and hazel roundwood) could suggest that different species were used at different stages of the firing process, with roundwood used as kindling.

The pottery (83 sherds, 1.9kg) recovered from the oven includes 77 sherds (1.8kg) from an early Roman shelly jar. Although found in two locations within

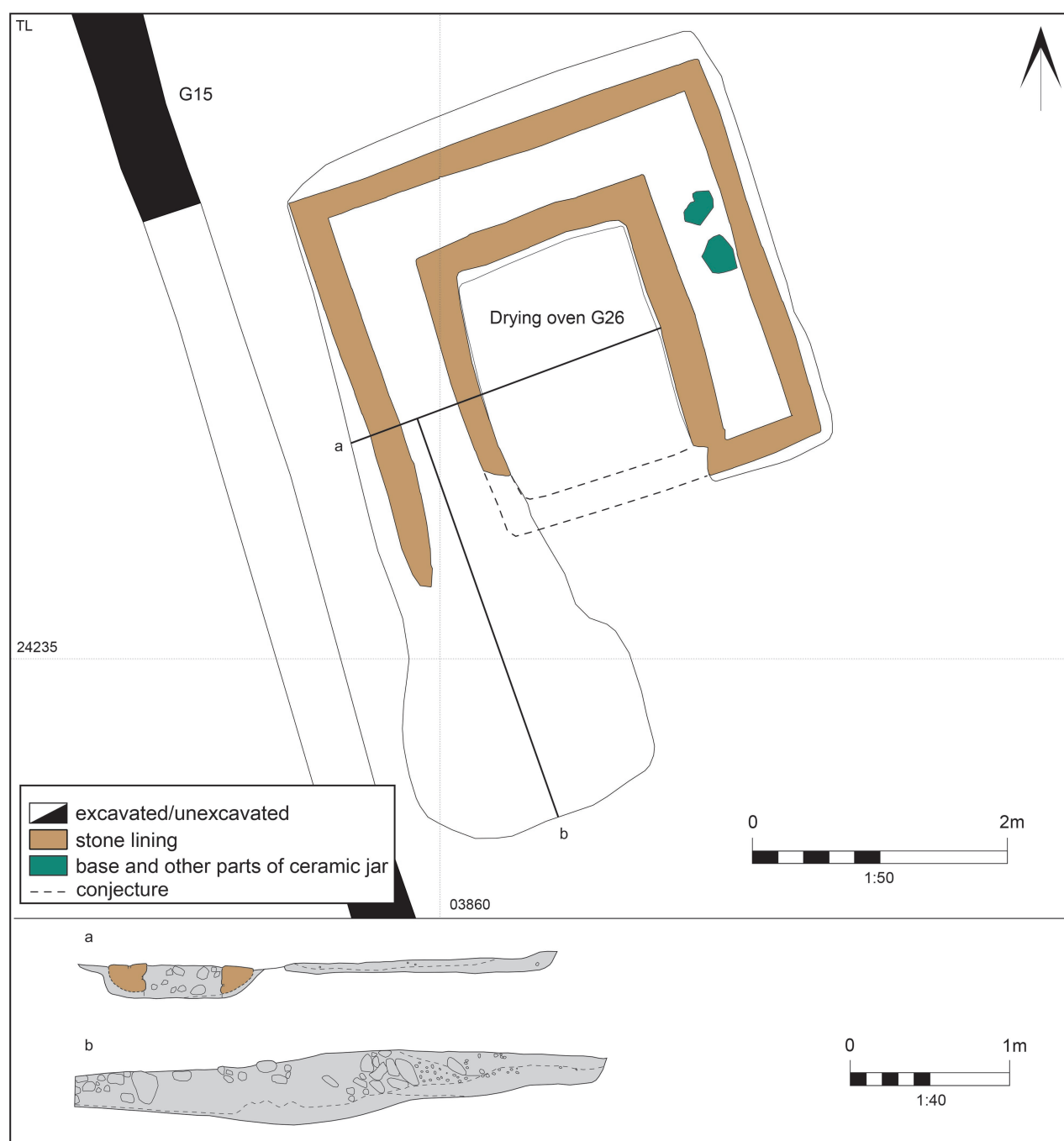


Figure 2.8 Plan of Roman (Phase 3) crop-processing area L8

the flue (see Fig. 2.8), the upright position of the jar's base suggests that it had been deliberately placed and subsequently disturbed. Its position and the absence of scorching suggest that it had been deposited when the oven was no longer in use; it could represent a structured deposit (see Discussion below).

A radiocarbon determination on a spelt grain recovered from near the base of the flue close to the stokehole produced a date of 357–539 cal AD (SUERC-87408, 1621 ± 30 BP). This date is very late Roman in contrast to the early Roman date of the pottery jar. While it may represent the date of the last fire that took place within the oven, it may not be representative of the date for its use as a drying oven.

Cremation burial G27 and postholes G28 and G33

A cremation burial G27 and a line of three postholes G28 were found c.8m to the south of oven G26 (Fig. 2.6). A further posthole G33 was found in isolation adjacent to the east trackside ditch, between the two crop-processing areas.

The three postholes G28 (<0.2m in diameter and <0.1m deep) were c.1.5m apart on a NE–SW alignment. Their function is unclear, but it is possible that they represent part of a post-built structure or fenceline.

Burial G27 was unusual in that all the 0.36kg of cremated bone was found in the upper fill of the 1.3m-diameter pit from which it derived. The pit's lower fill contained a rich assemblage of charred grain and chaff, presumably deriving from oven G26, but no human bone. The size of the pit and the presence of



Plate 2.8 Rectangular drying oven G26 (Phase 3), with trackside ditches visible in background, looking north-west

the charred remains suggest that it may not have been initially dug as a grave but was later used as one. The human bone produced a radiocarbon date of 142–334 cal AD (SUERC-90829, 1778 ± 24BP).

Pits L9

Two intercutting pits G29 (0.7–1.1m in diameter and 0.2m deep) were located towards the north end of trackway L6. They did not contain any artefacts or ecofacts but are considered likely to be contemporary with the trackway.

Phase 4 (early Anglo-Saxon) unenclosed activity focus SL4

Evidence for early Anglo-Saxon activity comprised a sunken-featured building (SFB) and two isolated postholes L15. They were located c.50m to the west of the Roman Phase 3 trackway L6 (Fig. 2.9).



Plate 2.9 Sunken-featured building G36 (Phase 4), looking west. Scale 1m

The SFB comprised a rectangular pit G36 (4.3 2.6 0.2m deep) with a pair of opposing postholes located on its long axis (Plate 2.9). Two sherds of early Anglo-Saxon pottery were recovered, along with residual Iron Age and Roman pottery. No dating evidence was recovered from isolated postholes G37; they have been assigned to this phase on the basis of their proximity to the SFB.

2.3 POTTERY

Jackie Wells

Introduction and methodology

The pottery assemblage totals 449 sherds (7.1kg), the majority deriving from later prehistoric and early Roman features assigned to Phases 2 and 3 (Table 2.2). Later prehistoric wares constitute 51% of the assemblage by sherd count, with Roman wares totalling 48% and Anglo-Saxon the remainder. The pottery is discussed chronologically by fabric, form and deposition.

Pottery was examined in accordance with PCRG/SGRP/MPRG guidelines (2016). The assemblage was quantified by minimum vessel and sherd count, and weight, and assigned form and fabric groups. Vessel attributes, including decoration, manufacturing

Phase	Sherd No.	Wt. (g)
1	71	373
2	186	3110
3	186	3661
4	6	38
Total	449	7182

Table 2.2: Pottery quantification by Phase

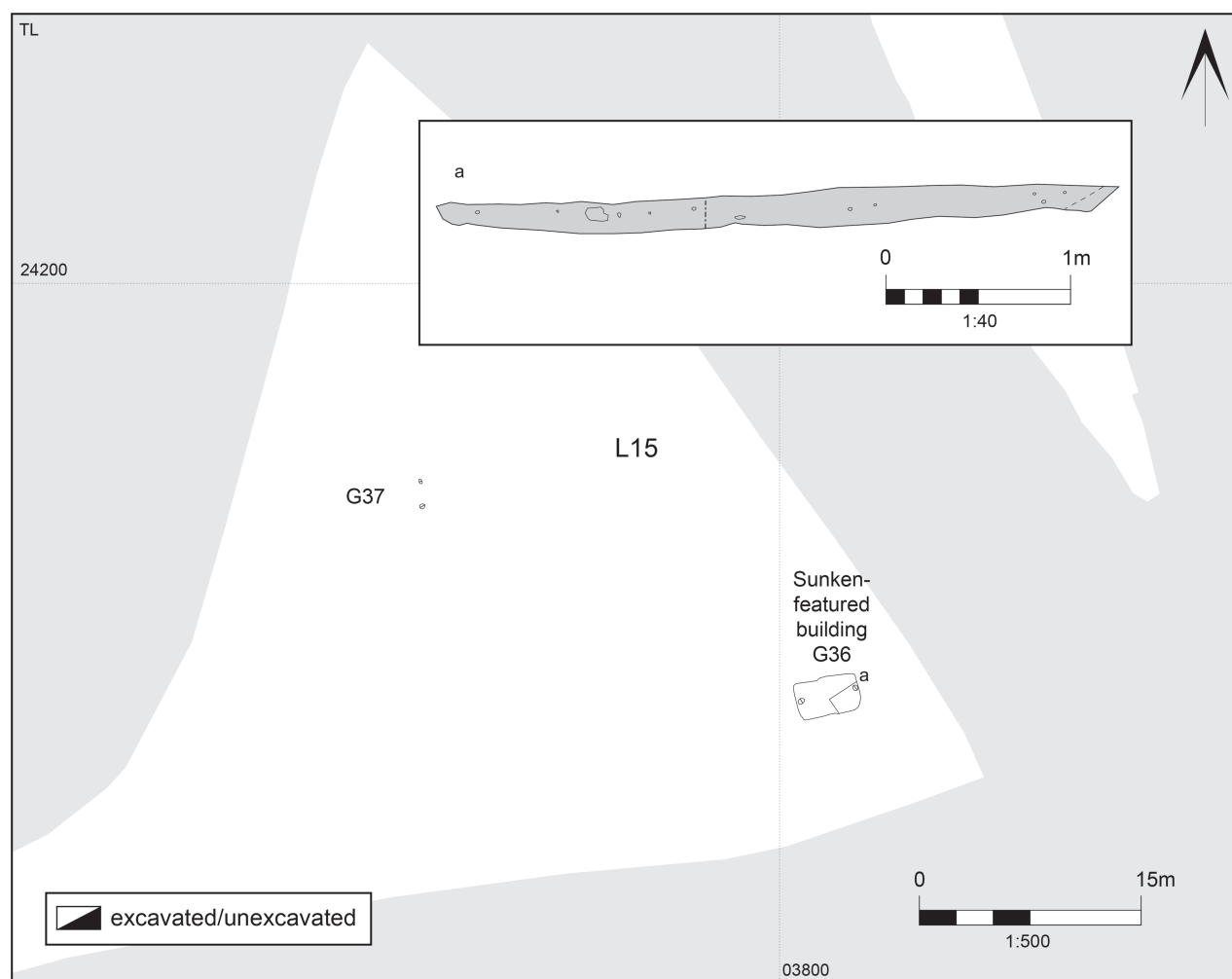


Figure 2.9 Plan of early Anglo-Saxon (Phase 4) features SL4

techniques and levels of abrasion, together with evidence for use (modification, residues/sooting and wear) were recorded. Pottery fabrics, based on surface appearance and the type, size and density of principal inclusions are summarised below (Table 2.3) by chronological period in accordance with the Bedfordshire Ceramic Type Series. No new fabric types were identified. Published descriptions are recorded in Parminster and Slowikowski (2004, 443–55). Reference has been made, where relevant, to the National Roman Fabric Reference Collection handbook (Tomber and Dore 1998), where comprehensive descriptions can be found. Wares and forms are common and well-represented from published excavations in the county; therefore, none was selected for illustration.

Results

Phase 1 (late Bronze Age/early Iron Age)

Unenclosed activity area L2 yielded 71 flint- and flint/sand-tempered sherds (373g), characteristic of the later Bronze Age and early Iron Age in the region. The pottery is abraded and well-fragmented, with a mean sherd weight (MSW) of 5g. Vessel forms are undiagnostic; an upright rim of simple rounded form is the sole feature sherd. The largest single vessel comprises 23 plain body sherds (164g).

Fabric type	Common name	No. Sherd	Wt. (g)
<i>LBA/EIA</i>			
F01B	Fine flint	5	28
F01C	Flint and quartz	42	265
<i>Iron Age</i>			
F03	Grog and sand	1	14
F06A	Fine grog	62	770
F06B	Medium grog	3	192
F09	Sand and grog	7	158
F22	Grog and organic	1	9
F28	Fine sand	4	46
F32	Sand and flint	24	80
F34	Sand	80	2,128
<i>Roman</i>			
R01	Samian ware	8	76
R03B	Gritty white ware	3	55
R05A	Oxidised sandy	1	7
R06B	Coarse grey ware	46	457
R06C	Fine grey ware	10	62
R06D	Micaceous grey ware	35	134
R06F	Grog and sand grey ware	10	61
R07B	Sandy black ware	15	139
R10A	Gritty buff ware	5	29
R13	Shelly ware	78	1,865
R14	Sand (red-brown harsh)	4	495
<i>Anglo-Saxon</i>			
A16	Mixed coarse quartz	15	181

LBA/EIA = late Bronze Age/early Iron Age

Table 2.3: Pottery Type Series

Phase 2 (late Iron Age/early Roman)

Phase 2 features yielded 186 sherds (3.1kg; MSW 16g), the majority representing urns or accessory vessels associated with burials G7 within cremation cemetery L4 (Table 2.4). A minimum of ten vessels is represented; the five associated with the cremation burials are badly truncated and comprise only base and lower body sherds. A range of grog- and sand-tempered fabrics typical of the late 'Belgic' Iron Age and early Roman period occur. Some 59 sherds (759g) from an undiagnostic grog-tempered vessel and three sherds (101g) from a sandy vessel respectively represent the cremation urns from SG1042 and SG1052. Three vessels associated with SG1050 comprise a sand-tempered cremation urn (74 sherds: 1.9kg) and two accessory vessels – a sand-tempered beaker (35 sherds: 134g) and a central Gaulish samian cup/small bowl (7 sherds: 75g). Negligible quantities of abraded late Iron Age/early Roman pottery were collected from trackway L5 and pit L10.

Land-use Area	Group	Sherd No.	Wt. (g)
L4 Cremation cemetery	G7, G31	176	2962
L5 Trackway	G9	2	4
L10 Isolated pit	G32	5	43
L12 Isolated inhumation	G30	3	101
Total		186	3110

Table 2.4: Late Iron Age/early Roman (Phase 2) pottery quantification by Land-use Area

Phase 3 (Roman)

The Phase 3 assemblage totals 186 sherds (3.6kg; MSW 20g) and derives mainly from crop-processing areas L7 and L8 (Table 2.5). Thirteen abraded body sherds (399g) are datable to the late Iron Age and the remainder to the early Roman period (c. mid-1st to 2nd century).

Land-use Area	Group	Sherd No.	Wt. (g)
L6 Trackway	G11, G14	4	39
L7 Crop-processing area	G19–G23	96	1570
L8 Crop-processing area	G26	83	1951
L9 Pits	G30	3	101
Total		186	3661

Table 2.5: Roman (Phase 3) pottery quantification by Land-use Area

The Roman pottery is low-status and domestic, indicated by the basic, utilitarian wares present and a negligible quantity of regional and continental imports. Coarsewares are dominant, represented by a standard range of locally manufactured reduced or oxidised sand-tempered wares (59% by sherd count) and a smaller quantity of shelly wares (36%). Regional and continental imports are represented respectively by three white ware flagon sherds from the Verulamium region, and a single central Gaulish samian body sherd. Coarseware forms are jars with lid-seated or simple everted rims.

One reduced sandy vessel has a neck cordon; a second has a post-firing hole drilled through the neck indicating repair; and a shelly vessel is finely rilled. While most individual vessels weigh less than 100g, a notable exception is 77 sherds (1.8kg) from a shelly jar, deliberately placed within drying oven G26 (L8).

The pottery assemblage is limited both in size and in the range of wares; however, it compares well with that recovered from the Woodside Link investigations (Table 5.3).

Phase 4 (early Anglo-Saxon)

Six abraded body sherds (38g) derived from the fill of SFB G36 (L15). Two sand-tempered examples (11g) are datable to the Anglo-Saxon period; the remainder are residual Iron Age wares.

2.4 CERAMIC BUILDING MATERIAL

Jackie Wells

Associated almost entirely with crop-processing area L7 (Phase 3), the assemblage totals 24 fired clay fragments (151g) and several amorphous baked clay lumps (1kg), representing the lining or superstructure of drying oven G21. Single sand-tempered pieces of abraded Roman tegula (320g) were collected from trackway L6 and crop-processing area L8, the fragment from the latter being reused in the wall of drying oven G26.

2.5 OTHER ARTEFACTS

Holly B. Duncan with Jackie Wells

Introduction

Eight objects of copper alloy, five of iron, and seven of stone were recovered, the majority from Roman features assigned to Phase 3 (Table 2.6). All ironwork and selected non-ferrous objects were x-rayed by P. Greaves (Drakon Heritage and Conservation). No finds were selected for illustration; all are fully catalogued in the archive.

Results

Phase 1 (late Bronze/early Iron Age)

A Roman copper alloy hair pin, likely to have derived from subsequent Phase 2 activity (trackway L5), was found during metal-detecting of the upper fill of ditched boundary L1. The hair pin has a conical head and evenly tapered shank and conforms to Cool's Group 1, subgroup D, thought to have been in use throughout the Roman period (Cool 1990, 151). The length of the object (97mm) suggests an early date, as over 90% of hair pins with a length in excess of 80mm belong to the first two centuries AD (ibid., 173).

Phase	Land-use area	Object
1	Ditched boundary L1	Copper alloy hair pin (intrusive)
2	Cremation cemetery L4 (SG1049)	Copper alloy brooch (4 pieces)
	Cremation cemetery L4 (SG1060)	Copper alloy brooch pin; copper alloy strip fragments
3	Crop-processing area L7	Rotary querns × 7; iron nails × 3
	Crop-processing area L8	Iron nail
4	Sunken-featured building L15	Iron nail

Table 2.6: Other artefacts by Phase and Land-use Area

Phase 2 (late Iron Age/early Roman)

Seven pieces of copper alloy, representing three objects, were recovered from unurned cremation burials within cemetery L4. Four pieces of a single brooch (OAs 5–7 and 18,) thought to belong to a Kragenfibel-type brooch (Mackreth's Rosette (ROS) 1.c type), derived from SG1049. They comprise part of an external chord for a spring, a cylindrical spring case, coils and start of a plate set at right angles to the spring case, a detached fragment of plate, and part of a catch plate. Dating evidence for the occurrence of Kragenfibel brooches in Britain is poor, but the form is considered to be pre-conquest, perhaps spanning the late 1st century BC into the earlier 1st century AD (Mackreth 2011, 27–8; Hattatt 1985, 38).

Cremation burial SG1060 contained three pieces of copper alloy (OAs 9, 19 and 20): a brooch pin with three *in-situ* coils along with two short segments of narrow (<1.5mm wide) copper alloy strip of indeterminate function. The strips have a longitudinal groove on both faces and are partially split on the broken ends; there is a high probability that they form part of the same object. Neither the brooch pin, nor the strip fragments, can be closely dated.

Phase 3 (Roman)

Portions of seven rotary querns were recovered from crop-processing area L7. Fragments of two of continental lava (kerbed upper stone), two of Hertfordshire Puddingstone (upper and lower stones), the skirt of a Quartz Conglomerate, and another lava quern had been placed on the base and sides at the junction between the flue and stokehole of drying oven G21. A further fragment from a lava quern derived from the secondary fill of adjacent pit G22. The use of Hertfordshire Puddingstone to manufacture 'bun-shaped' querns is thought to date from early in the Roman occupation, continuing into perhaps the later 2nd century (Peacock 2013, 161). Quern fragments of lava and Quartz Conglomerate can be dated broadly to the Roman period. The range of stone types utilised for querns is comparable with those found on the Woodside Link investigations to the north.

Single, general-purpose, flat-headed iron nail fragments of Manning's type 1b (1985, 134–5) were collected from the tertiary fills of pits G22 and G23 (both L7). Further examples were recovered from ditch G18 (also L7) and cremation burial G27 (L8).

Phase 4 (early Anglo-Saxon)

The fill of SFB G36 (L15) yielded a single, undatable, iron nail shank.

2.6 ANIMAL BONE

Mark Maltby

Introduction and methodology

Animal bones were collected from 15 contexts, providing a total number of 101 individual specimens (NISP), of which 14 were identified to species.

All the bones and teeth were recorded individually onto a relational database. The following data were recorded where appropriate for each specimen: species, anatomical element, zones of bone present, approximate percentage of bone present, gnawing damage, erosion, weathering, concretions, burning (charring and calcification), fusion data, and other comments including

observations of pathology. Separate tables linked to the main table by an individual identification number were created for metrical and tooth ageing data. Tooth eruption and wear descriptions for cattle and sheep/goat followed the method of Grant (1982). Measurements followed those described by von den Driesch (1976). All fragments, including loose teeth, shaft fragments, rib heads and vertebrae were recorded to species level where possible. The method of recording was identical to those carried out by the author in analyses of other assemblages excavated by Albion Archaeology, including the material from the adjacent Woodside Link investigations (Albion Archaeology 2018b).

Bone preservation

The assemblages from all contexts suffered from surface erosion and in many cases the erosion was heavy. This would have obliterated any fine butchery marks. Preservation favoured the survival of teeth and the denser bones of all species, particularly those of large mammals. Many of the bones were also very fragmented, displaying a lot of modern breaks. Fragments of bones with modern breaks were recorded as one element.

Results**Phase 1 (late Bronze Age/early Iron Age)**

Boundary ditch L1 produced three unidentified mammal fragments, part of the shaft of a cattle radius and a mandible of a mature adult sheep. Resorption of the bone was evident around the fourth premolar socket indicative of periodontal disease. This condition is common in adult sheep and in severe cases leads to tooth loss. Evidence for periodontal disease in sheep has been observed regularly on Iron Age sites and can affect a high percentage of jaws (Hamilton 2000).

An adult cattle upper molar was the only element recovered from L2 (unenclosed activity to the west of boundary L1). Bones of cattle and sheep/goat along with pig were also identified in contemporary deposits from the Woodside Link investigations.

Phase 2 (late Iron Age/early Roman)

Eight unidentified, unburnt mammal fragments were retrieved from a sample taken from pit SG1053 in cemetery L4.

Phase 3 (Roman)

A sample from pit G25 next to drying oven G21 (L7) produced 61 calcined mammal bones. All were very fragmented and only parts of two pig molars and a lateral third phalanx, also of pig, were identified. Most of the other fragments were also of medium-sized mammals but could not be more closely identified.

Only five other animal bone fragments were recovered from Phase 3 features. Trackway L6 produced a cattle upper molar and a rib fragment of a large mammal. Crop-processing area L7 produced parts of a cattle calcaneus and a horse atlas vertebra. The possible fenceline within crop-processing area L8 provided only a single unidentified mammal fragment.

Cattle and horse remains, including associated bone groups, were prominent in Roman deposits from the Woodside Link investigations. That assemblage also included small numbers of sheep/goat, pig, dog and roe deer.

Phase 4 (early Anglo-Saxon)

Unenclosed activity focus L15 produced fifteen animal bone fragments from the fill of SFB G36, ten of which were unidentified. Sheep/goat was represented by two metacarpal fragments. A fragment of pelvis and an upper molar were identified as horse, both probably belonging to adult animals. Most of a cattle metacarpal was recovered from the SFB. This was a slender specimen (distal breadth = 51.9mm) which probably belonged to a small adult cow.

Cattle and sheep/goat are the most common species that have been encountered in Anglo-Saxon sites in Bedfordshire, for example at Meadway, Harrold (Maltby 2012). The presence of horse in SFB assemblages is also attested from there and other Anglo-Saxon assemblages from the county.

Summary

The assemblage was too small and too poorly preserved to provide detailed information about animal exploitation during the various periods of activity on HRN3205, but it does add to information obtained from the adjacent Woodside Link investigations (Chap. 5).

2.7 CHARRED PLANT REMAINS

John Giorgi

Introduction and methodology

A total of 75 bulk soil samples were taken, mainly from Phase 2 late Iron Age/early Roman (42 samples) and Phase 3 Roman (24 samples) deposits. Six and two samples respectively were collected from Phase 1 late Bronze Age/early Iron Age and Phase 4 early Anglo-Saxon deposits. One sample was from an undated feature. The samples were largely from grave fills (39 samples), with smaller numbers from ditches (11), drying ovens (11) and pits (8). Four samples were taken from the fills of postholes and two from a sunken-featured building (SFB).

Sample size ranged from 1–40 litres, the grave fill samples only containing small amounts (<10 litres) of soil. The samples were partially or completely processed using a Siraf-style flotation tank and meshes of 0.3mm and 1mm for the recovery of the flot and residue respectively. The flots were then dried along with the residues, which were sorted for biological and artefactual remains. Identifiable charred plant remains were present in 50 of the 75 processed samples. They were sorted from the flots and identified using a binocular microscope (with a magnification of up to 40) together with modern and charred reference material and manuals (Cappers *et al.* 2006; Jacomet 2006). Three samples produced very rich charred plant assemblages, with only a fraction (25%) of these flots being sorted and quantified; the remainder (75%) was scanned and item estimates recorded for different species (along with small unquantifiable cereal grain fragments (<2mm), indeterminate items and charcoal from all the flots) using the following rating system: + = 1–10; ++ = 11–50; +++ = 51–150; ++++ = 151–250; +++++ = >250 items.

Results

The results are shown in Tables 2.6–2.13. The 50 productive samples produced a large charred plant assemblage, totalling over 6000 quantified items and dominated by

cereal debris consisting of almost equal amounts of grains (40% of the counted remains) and chaff (55%), with few wild plant/weed seeds (5%). Preservation of the charred material was variable but the condition of the grains was poor; almost 70% of them were not identifiable while there were small (<2mm) unquantifiable grain fragments in almost all the productive samples. Virtually all (99%) the charred plant remains were from late Iron Age/early Roman and Roman contexts with only very small quantities in the late Bronze Age/early Iron Age and early Anglo-Saxon samples.

Particularly rich assemblages were found in two fills of late Iron Age/early Roman pit SG1056 (G31), which accounted for 46% of all the quantified charred remains, and in two fills of Roman drying oven G26. Nomenclature and taxonomic order for the wild plants follows Stace (2005), which was also used for ecological data together with Brenchley (1911; 1913), Hanf (1983), and Wilson and King (2004). There follows a description of the charred plant remains by Phase and Site Landscape with discussion of the agrarian economy for each Phase.

Phase 1 (late Bronze Age/early Iron Age)

Six samples were collected from ditches, pits and a post-hole; three produced occasional or very small amounts of identifiable charred plant remains (Table 2.7).

Ditched boundary L1

One of two samples from fill G2 produced a single grain of free-threshing wheat (*Triticum aestivum/turgidum* type).

Unenclosed activity area L2

The fills of a posthole and pit (feature cluster G4), just west of boundary ditch L1, both produced very small cereal assemblages (both grain and chaff), with evidence of hulled wheat including spelt (*Triticum spelta*) in both fills and also a barley (*Hordeum vulgare*) grain and rachis fragment in the pit fill sample.

Discussion

Spelt wheat and barley are the two main cereals, along with occasional finds of free-threshing wheat, found on Bronze Age and Iron Age sites in southern England (Greig 1991, 302, 306). This includes the nearby site at Thorn Turn, where late Bronze Age/early Iron Age deposits produced hulled wheat (including possibly emmer), hulled barley and one free-threshing wheat grain (Giorgi 2018b). Hulled barley and hulled wheat including emmer (*Triticum dicoccum*) with a few free-threshing wheat grains were found in late Bronze Age/early Iron Age deposits on the Biddenham Loop, west of Bedford (Giorgi 2016, 7–8).

These small amounts of cereal remains represent debris from the final stages of crop-cleaning, including the de-husking of hulled wheats and food preparation/cooking, probably from small-scale/domestic activities taking place close-by. The grains may have been accidentally burnt during these activities along with the chaff, which might also have been used as fuel.

Phase 2 (late Iron Age/early Roman)

In total, 42 samples were collected from this phase. Most were from fills associated with cremation cemetery L4, eighteen of which were from ten unurned cremation burials, seven from three urned cremation burials, and

Land-use Area		1	2	
Group		2	4	
Feature type		Ditch	Posthole	Pit
Sample		61	5	21
Vol. sample (l)		10	7	10
Vol. flot (ml)		1	12	14
Cereal grains				
<i>Triticum cf. dicoccum/spelta</i>	?emmer/spelt wheat	-	-	1
<i>T. aestivum</i> type	free-threshing wheat	1	-	-
<i>Hordeum vulgare</i> L.	barley, indet.	-	-	1
Cerealia	indet. cereal (estimate)	-	4	-
Cerealia	indet cereal fragments <2mm	-	+	+
Cereal chaff				
<i>Triticum spelta</i> L.	spelt spikelet forks/bases	-	1	-
<i>T. spelta</i> L.	spelt glume bases	-	1	1
<i>Triticum</i> spp.	wheat glume bases	-	3	-
<i>Triticum</i> spp.	wheat rachis fragments	-	2	-
<i>Hordeum vulgare</i> L.	barley rachis fragments	-	-	1
Total		1	11	4
Item density (per litre of processed soil)		0.1	1.6	0.4

Item frequency: +=1–10; ++=11–50; +++=51–150; ++++=151–250; +++++=250+ items

Table 2.7: Late Bronze Age/early Iron Age (Phase 1) charred plant remains

five from the fills of non-funerary features associated with the cemetery. Further samples were taken from the fills of pits, ditches and a posthole. Of the 42 samples, 22 produced charred plant remains (Tables 2.8 and 2.9).

Cremation cemetery L4

There was no significant difference between the charred plant assemblages in the urned and unurned cremation burials; most of the features contained only occasional or small amounts and low concentrations of cereal remains. They probably represent background debris from low-level domestic activities associated with the final stages of crop-processing (including the de-husking of hulled wheats) and food preparation/cooking.

Unurned cremation burials G6

Twelve of the samples from six of the unurned cremation burials produced charred plant remains (Table 2.8). These consisted almost entirely of cereal remains (grains and chaff) with identifiable remains of wheat, mainly spelt, and a possible free-threshing wheat grain in burial SG1049. There were occasional weed seeds in five samples, largely from wild grasses (Poaceae) and mainly consisting of small grass seeds.

Urned cremation burials G7

Four of the samples from two urned cremation burials produced charred plant remains (just a few small wild grass seeds in the case of burial SG1052) (Table 2.9). In

Grave SG		1044		1046		1048		1049		1051		1060	
Sample		28	29	39	17	18	7	8	41	44	45	46	34
Vol. sample (l)		1	2	1	8	9	5	5	8	10	9	7	3
Vol. flot (ml)		3	46	18	43	31	163	125	48	22	105	14	2
Cereal grains													
<i>Triticum dicoccum/spelta</i>	emmer/spelt wheat	-	-	-	-	-	-	-	-	-	-	-	-
<i>T. cf. dicoccum/spelta</i>	?emmer/spelt wheat	-	-	-	-	-	-	-	-	-	-	-	-
<i>T. cf. aestivum</i> type	?free-threshing wheat	-	-	-	-	-	-	1	-	-	-	-	-
<i>Triticum</i> sp(p).	wheat	-	-	-	-	-	-	-	-	1	-	-	-
cf. <i>Triticum</i> sp(p).	?wheat	-	-	1	-	-	-	-	-	-	1	1	-
Cerealia	indet. cereal (estimate)	2	-	1	-	2	7	-	-	-	1	-	-
Cerealia	indet cereal fragments <2mm	-	+	-	+	+	+	-	-	-	+	+	+
Cereal chaff													
<i>Triticum spelta</i> L.	spelt spikelet forks/bases	-	-	-	-	-	-	-	-	-	-	-	-
<i>T. spelta</i> L.	spelt glume bases	-	1	-	-	-	-	-	5	-	6	2	-
<i>T. spelta</i> L.	spelt rachis fragments	-	-	-	-	-	-	-	-	-	1	-	-
<i>Triticum</i> sp(p).	wheat glume bases	1	-	-	1	-	-	-	-	-	2	1	1
<i>Triticum</i> spp.	wheat spikelet forks/bases	-	-	-	-	-	-	-	-	-	2	-	-
<i>Triticum</i> spp.	wheat rachis fragments	-	-	-	-	-	-	-	-	-	-	-	-
Other plant/weed seeds													
<i>Medicago/Trifolium</i> sp.	medicks/clovers (seeds<1mm)	-	-	-	-	-	-	-	-	-	1	-	-
	pea family (small round cotyledons)	-	-	-	-	-	-	-	-	-	-	-	-
Fabaceae indet.	spike-rush	-	-	-	-	-	-	-	-	-	-	-	-
<i>Eleocharis palustris/uniglumis</i>	grasses (large seeds)	-	-	-	-	-	-	-	-	-	-	-	-
Poaceae indet.	grasses (small seeds)	-	-	-	1	-	-	-	1	-	2	-	-
Poaceae indet.		-	-	-	-	-	-	-	-	-	-	-	-
Total		3	1	2	2	2	7	1	6	1	16	4	1
Item density (per litre of processed soil)		3	0.5	2	0.3	0.2	1.4	0.2	0.8	0.1	1.8	0.6	0.3

Item frequency: +=1–10; ++=11–50; +++=51–150; ++++=151–250; +++++=250+ items

Table 2.8: Late Iron Age/early Roman (Phase 2) charred plant remains from unurned graves G6 within cemetery L4

		Land-use Area			4			5			12
		Group			31			10			30
		SG			1053			1056			1034
		Feature type			Pit			Pit			Inhumation
		12	13	15	42	48	49	53	51	52	60
		Sample	Vol. sample (l)	Vol. flot (ml)	3	4	2	1	20	10	20
		15	6	4	2	2	3	1	19	10	<1
Cereal grains											
<i>Triticum</i> cf. <i>dicoccum</i>	?emmer wheat	-	-	-	-	2	2	1	-	-	-
<i>T. spelta</i> L.	spelt wheat	-	-	-	-	-	2	-	1	-	-
<i>T. cf. spelta</i>	?spelt wheat	-	-	-	-	-	-	-	4	-	-
<i>T. dicoccum/spelta</i>	emmer/spelt wheat	1	-	-	-	-	-	3	7	6	-
<i>T. dicoccum/spelta</i>	emmer/spelt wheat (sprouted)	-	-	-	-	-	-	-	1	-	-
<i>T. cf. dicoccum/spelta</i>	?emmer/spelt wheat	1	-	-	-	-	-	-	22	11	-
<i>T. aestivum/spelta</i> type	free-threshing/spelt wheat	-	-	-	-	-	-	-	3	2	-
<i>T. aestivum/turgidum</i> type	free-threshing wheat	-	-	-	-	-	-	-	3	1	-
<i>T. cf. aestivum/turgidum</i> type	?free-threshing wheat	-	-	-	-	-	-	-	2	2	-
<i>Triticum</i> spp.	wheat	6	-	-	-	-	2	2	21	12	-
cf. <i>Triticum</i> spp.	?wheat	4	-	-	-	-	6	2	36	26	-
<i>Hordeum vulgare</i> L.	barley, hulled twisted	2	-	-	-	-	-	-	-	1	-
<i>H. vulgare</i> L.	barley, hulled indet.	3	-	-	-	-	-	-	-	-	1
<i>H. vulgare</i> L.	barley, indet.	2	-	-	-	-	-	-	1	-	-
Cerealia	indet. cereal (estimate)	49	1	-	-	5	25	11	298	103	1
Cerealia	indet cereal fragments <2mm	++	+	-	-	+	+	+	+++	+++	+
Cereal chaff											
<i>Triticum dicoccum</i> Schubl.	emmer wheat glume base	-	-	-	-	-	-	-	-	2	-
<i>T. spelta</i> L.	spelt spikelet forks/bases	-	-	-	-	-	2	-	5	26	-
<i>T. spelta</i> L.	spelt glume bases	-	-	-	-	1	57	16	458	528	-
<i>T. spelta</i> L.	spelt rachis fragments	-	-	-	-	-	4	1	20	68	-
<i>Triticum</i> sp(p).	wheat glume bases	2	1	2	-	5	27	9	299	315	1
<i>Triticum</i> spp.	wheat spikelet forks/bases	-	-	-	-	5	18	3	243	193	-
<i>Triticum</i> spp.	wheat rachis fragments	-	-	-	-	2	10	-	56	93	-
Other plant/weed seeds											
<i>Fallopia convulvulus</i> (L.) A Love	black bindweed	-	-	-	-	-	-	-	1	-	-
<i>Rumex</i> spp.	dock	-	-	-	-	-	-	-	-	2	-
Polygonaceae indet.		2	-	-	-	-	-	-	-	-	-
Fabaceae indet.	pea family (small round cotyledons)	-	-	-	-	-	1	1	-	-	-
<i>Lolium</i> spp.	rye-grass	-	-	-	-	-	-	-	-	5	-
<i>Lolium/Festuca</i> spp.	rye-grass/fescue	-	-	-	-	-	-	-	5	-	-
<i>Eleocharis palustris/uniglumis</i>	spike-rush	-	-	-	-	1	-	-	-	-	-
Poaceae indet.	grasses (large seeds)	-	-	-	-	-	-	-	-	1	2
Poaceae indet.	grasses (small seeds)	-	-	-	4	1	6	4	13	40	-
Poaceae indet.	cereal/grass culm node/internode	-	-	-	-	-	-	-	1	-	-
Total		72	2	2	4	22	163	53	1500	1437	4
Item density (per litre of processed soil)		24	0.5	1	4	2.4	16.3	2.7	75	143.7	0.4

Item frequency: +=1–10; ++=11–50; +++=51–150; ++++=151–250; +++++=250+ items

Table 2.9: Late Iron Age/early Roman (Phase 2) charred plant remains from urned graves G7 (L4), non-funerary features G31 (L4), ditch G10 (L5) and inhumation G30 (L12)

contrast, a modest-sized assemblage was recovered from grave SG1042, with a high item density of 24 per litre of processed soil. The remains consisted almost entirely (95%) of cereal grains of hulled wheat (also represented by a few chaff fragments) and (six-row hulled) barley. The grains may have been accidentally burnt while being dried before storage or milling or as a result of cooking accidents, although it is possible that these remains, specifically the cleaned grain, were deliberately placed as votive offerings on the pyre.

Non-funerary features G31

All three features in G31 produced rich charred plant assemblages (Table 2.9).

Two very rich charred plant assemblages with high concentrations of remains (98 per litre of processed soil) were recovered from the secondary and tertiary fills of pit SG1056 at the south end of the cremation cemetery. A modest-sized charred plant assemblage was recovered from a fill of pit SG1055, which also contained mainly hulled wheat chaff (54% of the quantified remains) from de-husking activities. The charred plant remains from

the two fills of SG1056 were broadly similar, consisting largely of hulled wheat chaff (72% and 85%) of mainly spelt, with only traces of emmer (*Triticum dicoccum*) in one of the fills. Most of the grains (representing 12% and 27% of the quantified remains in each sample) were poorly preserved and included large amounts of unquantifiable grain fragments, most of the identifiable grains being hulled wheat, including a few identified as spelt. There were also several free-threshing wheat grains and single barley grains in each fill, one being indicative of six-row hulled barley. Wild plant/weed seeds, mostly small wild grass seeds, made up just 1% and 3% of the quantified remains.

The two samples from pit SG1053, slightly to the north, produced large assemblages (185 quantified items) with an item density of *c.*10 per litre of processed soil, the remains consisting mainly of chaff (71% of the quantified remains) with fewer grains (24%) and a small number of weed seeds (5%); the chaff may be from de-husking activities, although the cereal remains (grains and chaff) could also represent the burnt remains of spikelets. It is, therefore, possible that these remains were deliberately placed as votive offerings.

Trackway L5

A sample from the fill of ditch G10 associated with the trackway to the west of the cremation cemetery produced traces of charred grain, a hulled wheat glume base and two large wild grass seeds (Table 2.9) – background debris from the final stages of crop-processing and food preparation.

Inhumation G30 (L12)

A small charred plant assemblage was recovered from a grave fill. It consisted mainly of hulled wheat chaff (both emmer and spelt) (84% of the quantified remains), just a few grains, and a grass seed (Table 2.9). These remains largely represent debris from the de-husking of hulled wheats, from activities that may have been taking place close-by.

Phase 3 (Roman)

A total of 24 samples were collected from this phase, mainly from the fills of two drying ovens (ten samples) and ditches (eight samples), with three samples from pit fills, one from a posthole fill, one from a shallow scoop and one from a grave fill; 22 of the 24 samples produced charred plant remains (Tables 2.10 and 2.11).

Trackway L6

Five samples from the ditches associated with trackway L6 produced variable amounts of charred plant remains, consisting mainly of cereal remains (grains and chaff) that were largely of hulled wheat (Table 2.10). The chaff showed spelt to be the main cereal with traces of emmer and possibly barley in two samples. Two oat (*Avena*) grains were also recovered. There were few weed seeds, virtually all from wild grasses, both large-seeded species including *Bromus* (brome) and small-seeded species.

There was a fairly good-sized assemblage (just over 100 quantified items) in the sole fill of ditch G11 (sample 47). It consisted mainly of grains (60% of the quantified remains) along with smaller amounts of chaff (22%) and small and large wild grass seeds (18%). Two of three ditch fill samples from G15 produced modest amounts of charred plant remains, mainly chaff (53% and 68%),

while the other produced a smaller assemblage, again consisting mostly of chaff. A single grain was found in a sample from another ditch fill sample (G13).

These remains represent small amounts of debris from the final stages of crop-processing (including de-husking of hulled wheats, drying of grains before milling or storage) and food preparation, possibly from low-level/domestic activities taking place close-by.

Crop-processing area L7

Ten samples from L7 produced charred plant remains: two samples from enclosure ditches G19 and G20, five from pits G22, G23, G25 and three from drying oven G21 (Table 2.10). All the charred plant assemblages consisted virtually entirely of cereal debris (grain and chaff) with very few weed seeds. Almost all the identifiable cereal remains were from spelt wheat with only traces of emmer, free-threshing wheat, and possibly barley in a few samples. Four of the samples produced good-sized charred plant assemblages, with a particularly rich assemblage from ditch G19.

Drying oven G21

Sample 57 from the stokehole produced a fairly rich charred plant assemblage with grains making up a good proportion (59%) of the quantified remains; there was also a significant amount of chaff (40%) and only a few weed seeds (1%). Sample 59 from the robbed-out flue contained fewer cereal remains but with a similar pattern, mainly grains (59%) but with a good amount of chaff (37%) and again just a few weed seeds. The grains and chaff in the two samples may have been accidentally burnt in the oven while the spelt wheat spikelets were being parched to facilitate de-husking and/or possibly while the spikelets were being dried before storage. There was virtually no botanical evidence to suggest that the oven was being used for malting activities; just two sprouted grains and a loose cereal coleoptile, which may be the result of accidental germination, were recovered.

A fairly good-sized charred plant assemblage was also found in sample 56 from the fill of a shallow scoop just to the south of the stokehole; this consisted almost entirely of very poorly preserved and fragmented cereal grains (96% of the quantified remains), almost 90% of which were not identifiable. The few better-preserved grains and few chaff fragments show the presence of hulled wheat including spelt. These grains may have been accidentally burnt in the nearby oven while being dried before milling and/or storage, then raked-out and dumped in this feature.

Enclosure ditches G19 and G20

Two fills produced charred plant remains. The sample from ditch G19, the west arm of the enclosure, produced an exceptionally rich and concentrated charred plant assemblage (estimated item density of *c.*100 per litre of processed soil); it was partially sorted and quantified while the remainder was scanned. Wheat chaff was the main component, accounting for 62% of the quantified remains; grains made up most (37%) of the other remains with only a few weed seeds being present.

A smaller assemblage was recovered from ditch G20, the east arm of the enclosure, although the proportions were very similar, again consisting mainly of chaff (66%) with fewer grains (28%) and only a few weed seeds.

Land-use Area		6			15			19			20			21			22			23			25		
Group	Feature type	11	13	Ditch	6	Ditch	15	Ditch	19	Ditch	20	Ditch	20	Oven scoop	Oven stokehole	Oven flue	Pit (planks)	Pit	Pit	Pit	Pit	Pit	Pit	Pit	Pit
Cereal grains	<i>Triticum spelta</i> L.																								
	<i>T. cf. spelta</i>																								
	<i>T. dicoccum/spelta</i>																								
	<i>T. dicoccum/spelta</i>																								
	<i>T. cf. dicoccum/spelta</i>																								
	<i>T. aestivum/spelta</i> type																								
	<i>T. aestivum/turgidum</i> type																								
	<i>T. cf. aestivum/turgidum</i> type																								
	<i>Triticum</i> sp(p).																								
	cf. <i>Triticum</i> sp(p).																								
Cereal chaff	<i>Hordeum vulgare</i> L.																								
	<i>H. vulgare</i> L.																								
	<i>H. vulgare</i> L.																								
	<i>H. vulgare</i> L.																								
	cf. <i>H. vulgare</i>																								
	<i>Avena</i> sp(p).																								
	cf. <i>Avena</i> sp(p).																								
	Cerealia																								
	Cerealia																								
	Cerealia																								
Other plant/weed seeds	<i>Fumaria officinalis</i> L.																								
	<i>Urtica</i> sp.																								
	<i>Chenopodium</i> sp.																								
	<i>Agrostemma githago</i> L.																								
	<i>Rumex</i> sp.																								
	<i>Gallium aparine</i> L.																								
	<i>Anthemis cotula</i> L.																								
	<i>Lotium</i> sp(p).																								
	<i>Lotium/Festuca</i> sp.																								
	<i>Arrhenatherum elatius</i>																								
Total	var. <i>bulbosum</i> (Willd.) St-Amans																								
	<i>Bromus</i> sp(p).																								
	cf. <i>Bromus</i> sp(p).																								
	Poaceae indet.																								
	Poaceae indet.																								
	Poaceae indet.																								
	Poaceae indet.																								
	Poaceae indet.																								
	Poaceae indet.																								
	Poaceae indet.																								
Total		103	1	53	16	72	497	-	110	210	334	87	1	27	17	86	2								
Item density (per litre of processed soil)		10.3	0.1	2.7	1.6	3.6	99.4e	-	5.5	35	16.7	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-

Item frequency: +=1-10; ++=11-50; +++=51-150; ++++=151-250; +++++=250+ items

Table 2.10: Roman (Phase 3) charred plant remains from trackway L6 and crop-processing area L7

The charred remains in the ditch fills probably represent the clearing-out of burnt cereal debris from the oven after the heating of spikelets to facilitate de-husking and/or during the drying of spikelets before storage. It is possible, however, that some of the chaff may represent spent fuel from the oven.

Pits G22, G23 and G25

Samples were analysed from three pits in the vicinity of drying oven G21. The three samples taken from the remains of the planks on the base of pit G22 produced small numbers of cereal grain and chaff. Single coleoptiles were found in samples from G22 and G23, probably the result of accidental germination of grain in damp conditions rather than deliberate germination for malting. In addition, the sample from pit G23 produced

a modest-sized assemblage, consisting of almost equal amounts of grains and chaff with just two weed seeds, again probably debris from similar activities (de-husking, drying of spikelets) being carried out in the oven. The sample from pit G25, just north of the oven, produced just a few charred grain and chaff fragments.

Crop-processing area L8

Crop-processing area L8 contained drying oven G26. Eight of nine samples from this area produced charred plant remains: seven from fills of the oven and one from cremation burial G27 (Table 2.11). The charred plant assemblages consisted almost entirely of cereal debris (92% of the quantified remains) but with a greater proportion of grains (76%) than chaff (16%); weed seeds (8%) consisted mainly of large-seeded (including

	Group	26					27				
	Feature type	Oven					Grave				
	Sample	23	24	25	26	27	31	32	54		
	Vol. sample (l)	20	20	1	20	30	20	20	10		
	Vol. flot (ml)	130	60	2	70	23	91	230	17		
	% flot sorted	25%		25%							
	% flot scanned	75%		75%							
Cereal grains											
<i>Triticum spelta</i> L.	spelt wheat	-	-	+	-	1	-	-	1	-	
<i>T. cf. spelta</i>	?spelt wheat (sprouted)	-	-	-	-	-	-	-	-	-	
<i>T. dicoccum/spelta</i>	emmer/spelt wheat	6	20	+++	1	19	+++	15	5	1	
<i>T. dicoccum/spelta</i>	emmer/spelt wheat (sprouted)	-	-	-	-	-	-	-	-	-	
<i>T. cf. dicoccum/spelta</i>	?emmer/spelt wheat	5	8	-	1	12	-	16	2	2	
<i>T. aestivum/spelta</i> type	free-threshing/spelt wheat	-	3	+	-	2	-	-	-	-	
<i>T. aestivum/turgidum</i> type	free-threshing wheat	-	1	++	-	2	++	2	-	-	
<i>T. cf. aestivum/turgidum</i> type	?free-threshing wheat	-	3	-	-	3	-	-	1	1	
<i>Triticum</i> sp(p).	wheat	5	31	+++	2	18	++	25	5	3	
cf. <i>Triticum</i> sp(p).	?wheat	7	13	-	1	8	-	15	9	4	
cf. <i>Triticum</i> sp.	?wheat (sprouted)	-	-	-	-	-	-	-	-	-	
<i>Hordeum vulgare</i> L.	barley, hulled twisted	1	2	++	-	2	++	-	1	-	
<i>H. vulgare</i> L.	barley, hulled straight	-	-	-	-	-	-	-	-	1	
<i>H. vulgare</i> L.	barley, hulled indet.	-	1	-	-	4	-	-	-	4	
<i>H. vulgare</i> L.	barley, indet.	-	2	-	-	3	-	-	-	5	
cf. <i>H. vulgare</i>	?barley	-	-	-	-	-	-	-	1	-	
<i>Avena</i> sp(p).	oat	-	6	++	-	2	+	1	-	-	
cf. <i>Avena</i> sp(p).	?oat	-	6	-	-	3	-	-	-	-	
Cerealia	indet. cereal (estimate)	52	208	+++++	7	118	++++	95	22	10	
Cerealia	indet cereal fragments <2mm	+	++	-	+	+++	-	++	+	+	
Cerealia	indet cereal loose coleoptiles	-	-	-	-	-	-	-	-	-	
Cereal chaff											
<i>Triticum dicoccum</i> Schubl.	emmer wheat glume base	-	2	+	-	3	-	1	-	-	
<i>T. spelta</i> L.	spelt spikelet forks/bases	-	-	+	-	5	+	-	-	-	
<i>T. spelta</i> L.	spelt glume bases	2	25	+++	-	19	++	2	-	-	
<i>T. spelta</i> L.	spelt rachis fragments	1	5	+	-	2	++	1	-	-	
<i>Triticum</i> sp(p).	wheat glume bases	-	35	++	3	24	++	1	-	1	
<i>Triticum</i> sp(p).	wheat spikelet forks/bases	-	6	++	2	32	++	-	1	-	
<i>Triticum</i> sp(p).	wheat rachis fragments	-	15	++	-	15	++	3	-	-	
Other plant/weed seeds											
<i>Fumaria officinalis</i> L.	common fumitory	1	-	-	-	-	+	-	1	1	
<i>Urtica</i> sp.	nettle	-	-	-	-	-	-	-	-	-	
<i>Chenopodium</i> sp.	goosefoots etc	-	-	-	-	-	-	-	-	-	
<i>Agrostemma githago</i> L.	corncockle	-	-	-	-	-	-	-	-	-	
<i>Rumex</i> sp.	dock	-	-	-	1	-	-	-	-	-	
<i>Galium aparine</i> L.	cleaver	-	-	-	-	-	-	-	-	-	
<i>Anthemis cotula</i> L.	stinking chamomile	-	-	-	-	-	+	-	-	-	
<i>Lolium</i> sp(p).	rye-grass	-	-	-	-	-	-	-	-	-	
<i>Lolium/Festuca</i> sp.	rye-grass/fescue	-	-	-	-	-	-	-	-	-	
<i>Arrhenatherum elatius</i>	onion couch tuber fragments	-	-	-	-	-	-	-	-	-	
var <i>bulbosum</i> (Willd.) St-Amans											
<i>Bromus</i> sp(p).	brome	-	9	++	-	4	++	6	-	-	
cf. <i>Bromus</i> sp(p).	?brome	-	7	-	-	6	-	-	-	-	
Poaceae indet.	grasses (large seeds)	7	10	++	-	12	++	4	-	7	
Poaceae indet.	grasses (small seeds)	3	16	+++	-	7	++	1	1	2	
Poaceae indet.	cereal/grass culm node/internode	-	-	-	-	-	-	-	1	-	
Total		90	434	-	18	326	-	188	49	26	
Item density (per litre of processed soil)		4.5	86.8e	-	18	65.2e	-	6.3	2.5	1.3	

Item frequency: +=1-10; ++=11-50; +++=51-150; ++++=151-250; +++++=250+ items

Table 2.11: Roman (Phase 3) charred plant remains from crop-processing area L8

Bromus) and small-seeded wild grasses (Poaceae). Spelt wheat was again the dominant cereal with only traces of emmer in three samples and very small numbers of (six-row hulled) barley and oat grains in six and three samples respectively. Four samples produced good-sized charred plant assemblages (with >100 quantified items). There were exceptionally rich assemblages in samples 24 and 26 from the oven, the flots of which were sub-sampled, with 25% quantified and the remainder scanned.

Drying oven G26

The two richest charred plant assemblages (with projected item densities of 65 and 87 items per litre of processed soil) were recovered from samples taken from a basal fill of the stokehole (sample 24) and from the basal fill of the adjacent flue (sample 26). Cereal grains dominated both assemblages, making up 60% and 70% of the quantified remains with smaller amounts of chaff (20% and 31%) and weed seeds (10% and 9%). Samples 23 (also from the stokehole) and 31 (from the chamber) produced modest-sized charred plant assemblages, also consisting mainly of cereal grains (85% and 92% of the quantified remains).

Sample 27 (from the east arm of the flue) contained a fairly good-sized assemblage also consisting mainly of grains (90%) and only small amounts of chaff (4%) and weed seeds (11%). Sample 25 (from the pottery vessel in the east arm of the flue) contained only small amounts of charred remains but with similar assemblages.

The grains in these assemblages probably represent debris from the drying of cleaned grains before milling and/or storage. The smaller amounts of chaff could also point to the heating of spikelets to facilitate de-husking, although the chaff (along with the weed seeds) could also be the residues of fuel for the oven, particularly given that the assemblages come from the flue near the stoking pit. There was no botanical evidence to suggest that the oven had been used for malting activities.

Cremation burial G27

A fairly good-sized charred plant assemblage from the lower fill of G27, which was located 6m south of oven G26, also contained mainly grains (95% of the quantified remains), with only traces of chaff (1%) and a very small number of weed seeds (4%). These remains probably represent debris from the raking-out of the nearby oven with the grain accidentally burnt while being dried before milling and/or storage.

Phase 4 (early Anglo-Saxon)

Two samples were taken from sunken-featured building G36 (L15) (Table 2.12). Both produced only very small amounts of identifiable charred plant remains, consisting of cereal debris (grains and chaff) from hulled wheat (including spelt) and barley – debris from low levels of activity associated with the final stages of crop-cleaning and food preparation. It is possible that these remains represent residual material from earlier deposits, with free-threshing wheat, hulled barley, rye and oats usually being the main cereals found during this period (Greig 1991, 315).

Discussion

The following discussion centres on the charred plant remains from the late Iron Age and Roman samples (Phases 2 and 3), which produced evidence for crop

Sample number		1	2
Vol. sample (l)		30	30
Vol. flot (ml)		4	<1
Latin name	English name		
Cereal grains			
<i>Triticum</i> cf. <i>dicoccum</i> /	?emmer/spelt wheat	-	1
<i>spelta</i>			
<i>Triticum</i> sp.	wheat	1	-
<i>H. vulgare</i> L.	barley, indet.	1	-
cf. <i>H. vulgare</i>	?barley	1	-
Cerealia	indet. cereal (estimate)	5	1
Cerealia	indet cereal fragments <2mm	+	+
Cereal chaff			
<i>T. spelta</i> L.	spelt glume bases	2	-
<i>Triticum</i> sp.	wheat glume bases	-	1
<i>Triticum</i> sp.	wheat spikelet forks/bases	1	-
Total		11	3
Item density (per litre of processed soil)		0.4	0.1

Item frequency: +=1–10; ++=11–50; +++=51–150; ++++=151–250; +++++=250+ items

Table 2.12: Early Anglo-Saxon (Phase 4) charred plant remains from SFB G36 (L15)

husbandry and processing, including the function(s) of the drying ovens. The results are compared with other sites in the area but particularly with the adjacent Woodside Link investigations where further drying ovens were found (Giorgi 2018a).

Crop husbandry

The range of cereals

The late Iron Age/early Roman (Phase 2) and Roman (Phase 3) samples produced similar results in the range and proportions of the different cereals. Wheat was the best-represented cereal during both phases, present in 41 of the 44 productive samples and with almost all identifiable wheat grains being from hulled wheat (in 37 samples), specifically spelt, identified on the basis of the chaff fragments in 27 samples. There were definite traces of emmer wheat (identified from chaff fragments) in only ten samples and occasional free-threshing wheat grains in ten samples.

Other cereals were represented by occasional or very small numbers of barley grains in 15 samples, well-preserved grains showing the presence of (six-row) hulled barley. There was a very small number of oat grains in just four Roman (Phase 3) samples, although it was not possible to establish whether these remains are from cultivated and/or wild species.

The cereal remains from the late Iron Age and Roman deposits are similar to previous archaeobotanical evidence from other sites of this period in southern England, which show that spelt was the main wheat crop (along with hulled barley) during the Iron Age and Roman periods (van der Veen 2016; Lodwick 2017; Greig 1991, 306, 309) and the dominant grain in this part of the country during the Roman period (Lodwick 2017, 26). Emmer and free-threshing wheat tend to appear only occasionally and in small amounts on Iron Age and Roman sites; the evidence from HRN3205 suggests that these two cereals, along with barley, probably played only a minor role in the local agricultural economy, the few oat grains from the Roman deposits being weeds. The results are, unsurprisingly, very similar to the charred cereal remains from

the Roman deposits from the adjacent Woodside Link investigations, which also showed spelt to be the dominant grain with only occasional or very small amounts of emmer, free-threshing wheat, and (six-row) hulled barley in a few samples.

The uses of the cereals

Spelt wheat, the main cereal in the samples, has excellent baking and milling properties (Jones 1981, 107) and contains the proteins necessary for making a well-risen loaf (Cool 2006, 70). This cereal was also used for a very common gruel known as *puls* or *pulmentus*, not unlike modern Italian *polenta* (Renfrew 1985, 22). Of the minor crops, free-threshing wheat also has good bread-making qualities (Jones 1981, 107), while barley may have been used for flat breads and griddle cakes (Cool 2006, 70–1) as well as for animal fodder.

The weed seeds

The samples from the late Iron Age and Roman samples only produced several hundred charred wild plant/weed seeds or c.5% of all the quantified remains from Phases 2 and 3. These remains represent a limited but broadly similar species range in both phases but with a greater range of identifiable seeds in the Roman (Phase 3) samples. These remains probably represent crop weeds, given their presence in cereal assemblages. Both phases were dominated by seeds of wild grasses, which accounted for 95% of all the weed seeds, with small-seeded grasses including *Lolium* (rye-grass) and *Lolium/Festuca* (rye-grass/fescue) as well as large-seeded species, notably *Bromus*.

Several arable weeds, identified to species on the basis of a few seeds in the Roman (Phase 3) samples – *Fumaria officinalis* (common fumitory), *Agrostemma githago* (corn cockle), *Galium aparine* (cleaver), and *Anthemis cotula* (stinking chamomile) – may reflect the cultivation of the calcareous loams around the site, these weeds being indicative of nutrient-rich soils. *Fallopia convolvulus* (black bindweed), represented by a single seed in a late Iron Age/early Roman sample, is also common on loams in Bedfordshire (Brenchley 1911; 1913). *Eleocharis* (spike-rush), also represented in a Phase 2 sample, may indicate the use of damper areas of ground for growing crops towards the Houghton Brook. A similar range of weeds was found in the Roman samples from the adjacent Woodside Link investigations.

Galium aparine may point to the winter-sowing of cereals while *Fumaria officinalis* and *Fallopia convolvulus* are usually found in spring-sown crops. Spelt wheat is a hardy crop and would have probably been autumn-sown, archaeobotanical research suggesting that autumn-sowing of crops was likely to have been the norm during the Roman period (Lodwick 2017, 46). There is little evidence to indicate harvesting methods, although seeds of low-growing species, for example *Medicago/Trifolium* (medick/clover), and medium-height taxa, such as *Anthemis cotula*, may suggest that the cereals were harvested fairly low on the straw. Archaeobotanical evidence from other Roman sites suggests that this was probably the most usual method of harvesting cereals at the time (ibid., 47). Straw would have been a valuable commodity as fodder, livestock bedding and fuel; traces of grass culm nodes in two samples possibly represent the residues of burnt cereal straw.

Crop-processing

Crop-processing debris in both the late Iron Age/early Roman and Roman samples largely consisted of almost equal amounts of grains and chaff of hulled (spelt) wheat from the final stages of crop-cleaning, including de-husking activities and the drying of spikelets or cleaned grain before milling/storage. There was little botanical debris from the earlier stages of crop-processing, such as threshing, winnowing and the coarse-sieving of the crops – activities that may, however, have been carried out off-site, possibly in the surrounding fields. Some of the by-products from these activities may have also been used in other ways that leave little trace in the charred record, e.g. the straw as animal bedding and roofing/flooring materials. There was a good number of large weed seeds in the samples, particularly large wild grass seeds, notably *Bromus*, which together with other large grain-sized weed seeds in the samples, for instance *Fallopia convolvulus*, *Agrostemma githago* and *Galium aparine*, are often found in almost fully processed and stored grain because of the difficulty of separating these large weed seeds from the grains other than by hand-sorting.

Drying ovens G21 and G26

Charred plant assemblages from Roman drying ovens show that they may have been used for a number of activities, the main ones appearing to be for the drying/parching of hulled wheats to facilitate de-husking, the drying of grains before milling or storage, or the heating of sprouted grains to halt germination as part of the malting process (van der Veen 1989). Spelt is the most frequent cereal found in drying ovens in Roman Britain (Lodwick 2017, 57). An increasing number of drying ovens are found during the 2nd to 3rd centuries, particularly in the Central Belt (an area defined by Smith *et al.* (2016, fig. 1.5) in their study of rural Roman settlement in England), in which the site is located, suggesting large-scale processing of cereals, perhaps reflecting an increase in the scale of arable cultivation during the Roman period (ibid., 55, 61). The charred plant assemblages from the two Roman ovens on HRN3205 suggest that they were being used both for the drying/parching of spelt wheat to facilitate de-husking and the drying of cleaned grains before milling or storage.

Thus, the samples from the robbed-out oven G21 (L7) consisted of similar amounts of grains and chaff from accidents either during the heating of spikelets to facilitate de-husking or while spelt spikelets were being dried before storage – hulled wheats were often stored as semi-cleaned spikelets, particularly in areas with wet summers, to protect the grain from spoiling (Hillman 1981). Other features near the oven, such as enclosure ditches G19/G20 and pit G23, contained mainly grains and chaff from these activities – probably the rake-out from the oven. However, the sample from the shallow scoop G21 just south of the oven consisted almost entirely of grain, which may have been rake-out from accidents during the drying of cleaned grain in the oven before milling or storage, perhaps reflecting the use of the oven for different activities.

The charred plant remains from the fills of oven G26 (L8) suggest that it was also being used for the drying of cleaned grains before milling and/or storage. Grains dominated four charred plant assemblages from the stoke-hole and adjacent flue; there were fairly good amounts of chaff in the two richest assemblages, although these

could represent spent fuel. The other samples away from the stokehole area are more indicative of the drying of clean grain, all containing mainly grains with only small amounts of chaff. The charred plant remains in cremation burial G27 just to the south of the oven were also dominated by grains with virtually no chaff and were probably rake-out from the drying of cleaned grain in the oven.

There is virtually no evidence to suggest that either oven was being used for malting activities, with the few sprouted grains and loose cereal coleoptiles in oven G21 being probably the result of accidental germination of grain in damp conditions rather than deliberate germination for malting. The ovens may have been multi-functional and might have been used previously used for malting activities – the charred plant remains found in both ovens reflect only the final uses of the features. It may be significant, however, that no debris indicative of malting activities was found in any of the features surrounding the ovens.

Spatial and temporal distribution of the charred plant remains

The late Iron Age and Roman samples included several rich concentrations of charred plant remains pointing to the use of different areas of the site for large-scale activities associated with the final stages of crop-cleaning and food preparation/cooking.

The bulk of the charred plant remains from the late Iron Age/early Roman (Phase 2) samples were from pit SG1056 (G31) at the south end of the cremation cemetery (L4), which produced exceptionally rich and high concentrations of charred plant remains consisting mainly of hulled (spelt) wheat chaff and fewer grains (Table 2.13). The charred remains from two adjacent pits, SG1053 and SG1055, also consisted mostly of chaff fragments, suggesting that this area of the site was being used for crop-processing activities including the de-husking of hulled wheat.

SG Sample	1053 48, 49	1056 51	52
Grains	44 (24%)	399 (27%)	164 (12%)
Cereal chaff	131 (71%)	1081 (72%)	1225 (85%)
Weed seeds	10 (5%)	20 (1%)	48 (3%)
Total no. items	185	1500	1437
Item density (per litre of soil)	9.7	75	143.7

Table 2.13: Late Iron Age/early Roman (Phase 2): frequencies and percentages of grain, chaff and weed seeds in samples with >100 quantified items from pits SG1053 and SG1056 (L4)

Land-use Area Group	6 11	19	20	7 21	26	8 27	27
Feature type	Ditch	Ditch	Ditch	Oven	Oven		Pit
Sample	47	66	50	56	57	24	54
Grains	62 (60%)	181 (37%)	31 (28%)	202 (96%)	198 (59%)	304 (70%)	162 (95%)
Cereal chaff	23 (22%)	309 (62%)	72 (66%)	8 (4%)	132 (40%)	88 (20%)	2 (1%)
Weed seeds	18 (18%)	5 (1%)	7 (6%)	-	3 (1%)	42 (10%)	7 (4%)
Total no. items	103	495	110	210	334	434	171
Item density (per litre of soil)	10.3	99.4e	5.5	35	16.7	86.8e	6.3

Table 2.14: Roman (Phase 3): frequencies and percentages of grain, chaff and weed seeds in samples with >100 quantified items from L6, L7 and L8

Rich concentrations of charred plant remains from the Roman (Phase 3) samples were centred on the two drying ovens (Table 2.14). Crop-processing area L7 at the south end of the site (incorporating oven G21 and associated ditches and pits) contained evidence to suggest that similar crop-processing activities were taking place in the same area during both Phases 2 and 3. The other main area of Phase 3 crop-processing activities was around oven G26 (L8), further to the north, mainly for the drying of cleaned grain before milling and/or storage.

2.8 WOOD CHARCOAL

Dana Challinor

Introduction

The analysed samples ranged in date from the late Bronze Age/early Iron Age (Phase 1) to the early Anglo-Saxon period (Phase 4). In practice, there were two key areas producing charcoal assemblages that provide evidence for wood fuel use and selection practices: the late Iron Age/early Roman (Phase 2) cremation cemetery L4 and the Roman (Phase 3) crop-processing areas L7 and L8.

Methodology

The flots were scanned to determine potential for full analysis. Standard identification procedures were followed using identification keys (Hather 2000; Schweingruber 1990) and modern reference material. The charcoal was fractured and examined at low magnification (up to 45), with representative fragments examined in longitudinal sections at high magnification (up to 400). Depending upon diversity and quantity, up to 50 fragments per feature were examined. Observations on maturity and other features were made where appropriate. Classification and nomenclature follow Stace (2005).

The remains of three charred planks from the base of rectangular pit G22 (L7) were also sampled and submitted, without processing, for analysis. The remains were highly fragmentary and no evidence for construction or structure could be discerned. Although some larger pieces of charcoal were visible, these turned out to be thin slivers encased in clay and no positive identifications could be made. Consequently, the samples were processed by bucket flotation, with the sample held on a 500µm mesh and the flot collected on a 250µm sieve. The smaller residue fraction was retained and dried.

The subsequent dried flots were scanned at low magnification (up to 45), with representative fragments of charcoal examined at high magnification (up to 400).

Results

The charcoal was generally well preserved, with clean and clear anatomical structures. However, the quantities and size of material varied; numerous assemblages were too sparse or too comminuted to merit quantification. The full results are recorded in the archive, with summary tables included in the discussion below.

Eight taxa were positively identified:

ULMACEAE: *Ulmus* sp., elm

FAGACEAE: *Quercus* sp., oak

BETULACEAE: *Corylus avellana*, hazel

ROSACEAE: *Prunus* sp., blackthorn/cherry/plum

Maloideae incl. *Malus*, apple; *Pyrus*, pear; *Sorbus*, service tree/whitebeam/rowan and *Crataegus*, hawthorn

ACERACEAE: *Acer campestre* L. field maple

ARALIACEAE: cf. *Hedera helix* L., ivy

OLEACEAE: *Fraxinus excelsior*, ash

Phase 1 (late Bronze Age/early Iron Age) pits G4 (L2)

The small assemblages of charcoal from pits G4 consisted of oak, hazel, blackthorn, hawthorn group and field maple (Table 2.15). The small quantities of crop-processing or food preparation debris (see Giorgi, above) from the pits indicate that the charcoal derived from domestic fuel use. The fairly diverse nature of the assemblages, along with the roundwood character, is typical for domestic cooking fires. A strong component of hedgerow/scrub type taxa was represented.

	Sample	5	21
<i>Quercus</i> sp.	oak	6	9
<i>Corylus avellana</i> L.	hazel	1	1
<i>Alnus/Corylus</i>	alder/hazel	-	2
<i>Prunus spinosa</i> L.	blackthorn	8r	-
<i>Prunus</i> sp.	cherry type	-	8r
Maloideae	hawthorn group	12r	4
<i>Acer campestre</i> L.	field maple	-	2
Indeterminate	diffuse porous	3	4

Table 2.15: Late Bronze Age/early Iron Age (Phase 1) charcoal from pits G4 (L2)

Phase 2 (late Iron Age/early Roman) cremation burials L4

Charcoal was examined from 12 cremation burials (Table 2.16). It was less abundant in the urned burials G7, indicating that less pyre debris was included than in the urned burials. Taxonomic composition, however, was remarkably homogeneous, with oak predominant in all of the assemblages except one (SG1041). This contained some ash charcoal, but the assemblage was too small to indicate whether this represented the main pyre fuel or an associated artefact. Oak and ash are commonly found in cremation assemblages of late Iron Age and Roman date; both provide highly calorific fuel suitable for efficient

cremation and good structural support for the bier, e.g. Court Drive, Dunstable (Austin 2010), West of Bedford (Challinor 2016), M1 Toddington (Challinor 2020), and further afield at West Hampnett, Sussex (Gale 1997), A120 road corridor, Essex (Challinor 2007a) and Pepper Hill, Kent (Challinor 2006).

The presence of elm in SG1048 is more unusual, since elm tends to smoulder and was not generally used for pyre fuel. There are similar examples where elm is present in the charcoal assemblage in small quantities, as in a Roman cremation burial at Aston Clinton (Challinor 2013), where it may represent the remains of a pyre good. Significant quantities of elm charcoal recovered from an early Roman *bustum* burial at Latton Lands, Wiltshire, were interpreted as the possible remains of a coffin or platform on the pyre (Challinor 2009).

A single sample from non-funerary pit SG1056 was examined for comparison to the cremation burial assemblages. The feature produced a large quantity of crop-processing or food-preparation debris (see Giorgi, above) and the charcoal is likely to represent the fuel used. In practice the assemblage was sparse and small and unlikely to be wholly representative. Only small quantities of oak and a trace of hazel were recorded. Hazel was not present in the cremation burial assemblages but was not generally prominent in the charcoal record from Phases 2 and 3.

Phase 3 (Roman) crop-processing areas L7 and L8

Samples from this phase derived from drying ovens G21 (L7) and G26 (L8), with additional assemblages from several associated pits and ditches (G19, G25, G33) and cremation burial (G27). The remains of three charred planks from rectangular pit G22 (L7) were also examined.

There was little charcoal in oven G21 and associated features G19 and G25, which produced limited residues of elm, oak, hazel, blackthorn/cherry and ash (Table 2.17). The general paucity of charcoal – in both the oven itself and associated features containing rake-out debris – suggests that the fire had been allowed to burn out, leaving scant remnants. Notably, the hazel charcoal from oven G21 exhibited numerous insect tunnels, indicating that the wood was heavily decayed at the time of burning. This factor may also influence the survival of charcoal.

Charcoal from the three charred planks in pit G22 (L7) was abundant (Table 2.18). They were identified as oak, although there was an additional trace of hazel in sample 70, suggesting that some fuel remnants were also present. The material was highly comminuted, most <2mm, and no maturity data could be confidently ascertained; however, since no tyloses were noted, it is likely that at least some sapwood rings were present. The planks may represent the remains of charred flooring or a platform for grain-drying/malting, but no structural elements could be

Group Feature type SG		6 Unurned cremation burials									7 Urned cremation burials		
		1040	1041	1044	1045	1046	1048	1049	1051	1060	1042	1042	1052
<i>Ulmus</i> sp.	elm	-	-	-	-	-	7 (r)	-	-	-	-	-	-
<i>Quercus</i> sp.	oak	+	4	50 (rs)	20	50 (sr)	43 (sr)	50 (srh)	46 (hs)	+	30 (s)	+	20 (r)
<i>Fraxinus excelsior</i> L.	ash	-	15	-	-	-	-	-	-	-	-	-	-
Indeterminate		+b	1b	-	-	-	-	-	4 (br, b)	-	-	-	-

s=sapwood; r=roundwood; h=heartwood, br=burrwood; b=bark, +=trace

Table 2.16: Late Iron Age/early Roman (Phase 2) charcoal from cremation cemetery L4

Land-use Area		7			8					
Group		19	21	25	26		27		31	
Feature type		Ditch	Oven	Pit	Oven	Oven	Oven	Oven	Oven	Posthole
Sample		66	57	67	23	24	26	32	31	30
<i>Ulmus</i> sp.	elm	-	-	1	-	-	-	-	-	-
<i>Quercus</i> sp.	oak	+	6	14	22 (shr)	25 (sh)	1	10 (s)	-	19 (s)
<i>Corylus avellana</i> L.	hazel	-	4r	4	-	-	-	-	-	29 (r)
<i>Alnus/Corylus</i>	alder/hazel	+	-	-	-	-	-	-	-	-
<i>Prunus</i> sp.	blackthorn/cherry	-	1	-	-	-	-	-	-	-
<i>Acer campestre</i> L.	field maple	-	-	-	-	-	24 (r)	-	-	-
<i>Hedera helix</i> L.	ivy	-	-	-	-	-	-	-	-	(1r)
<i>Fraxinus excelsior</i> L.	ash	-	-	9 (1)	3	-	-	40 (r)	-	-
Indeterminate		+b	2b	2b	-	-	-	-	2r	-

s=sapwood; r=roundwood; h=heartwood; b=bark, +=trace. Note. Excludes plank samples from G22

Table 2.17: Roman (Phase 3) charcoal from crop-processing areas L7 and L8

Sample		69	70	71
<i>Quercus</i> sp.	oak	+++	+++	+++
<i>Corylus avellana</i>	hazel	-	++	-

+=trace; ++occasional; +++ abundant

Table 2.18: Roman (Phase 3) charcoal from pit G22 (L7)

determined from the material examined, which presented (prior to processing) as three parallel stains.

In contrast to drying oven G21, the charcoal assemblages associated with oven G26 (L8) were rich, with abundant, well-preserved, large fragments, comprising mostly oak, with hazel, field maple and ash (Table 2.17). Much of the oak charcoal derived from trunkwood, and there was evidence for the use of mature wood; in contrast the ash and hazel mostly derived from roundwood. Insect tunnels were observed in the field maple and the hazel. There were some intra-feature differences in the assemblages of individual samples: samples 23 and 24 were dominated by oak, while sample 26 was chiefly field maple; sample 27 contained oak, while sample 32 was all ash. Differences in taxonomic composition may relate to sample location within the oven; samples 24 and 26 were from the same context, but sample 24 was from the east side of the flue, near the stoking pit, while sample 26 was from the west side of the flue. Sample 32 was from the north-east quadrant. Uses of different taxa and fuel size may represent different firing events or different phases of the fire; e.g. roundwood may have been utilised initially, as kindling or to raise the heat, with larger trunkwood logs used to sustain heat. Generally, a limited range of taxa was used for fuelling the oven, which is consistent with the evidence from the Woodside Link investigations where the ovens were fuelled by oak and ash.

Cremation burial G27 (L8) contained probable rake-out from the oven. The charcoal assemblage was very sparse, with just a trace of oak. In contrast, a nearby post-hole (G33) produced a rich assemblage of oak, mostly from slow-grown heartwood (>20 years' growth) (Table 2.17). Ivy, of which a single probable fragment was recorded, is a climber often found adhering to mature trees. The absence of charred plant remains suggests that the assemblage was not associated with the crop-processing activities; it is appropriate for the remains of a burnt post.

Two additional Phase 3 samples from ditch G11 (associated with trackway L6) and from fenceline G18 (L8) were examined. The charcoal assemblages were

sparse and comminuted and did not merit quantification. However, oak was recorded in both, with a trace of hawthorn group in ditch G11. These results are broadly consistent with the evidence for crop-processing and low-level domestic fuel use in L7 and L8.

Phase 4 (early Anglo-Saxon) sunken-featured building G36 (L15)

Sample 1 from SFB G36 contained a few large fragments and some smaller roundwood fragments of hawthorn group charcoal. Giorgi (above) suggests that the few charred plant remains may have been residual from the Roman crop-processing activities to the east of the building. The charcoal, therefore, may have derived from the earlier activities or it may have genuinely accumulated during Anglo-Saxon occupation. It is worth noting that hawthorn-type charcoal was only recorded in a single Phase 3 sample (from trackway L6) and was not evidently widely utilised for fuel in the ovens.

Summary

In common with the results from the adjacent Woodside Link investigations, it is clear that oak and, to a lesser extent, ash were used for fuelling crop-drying activities in the Roman period (Phase 3). Field maple and hazel were also utilised, but evidence for the use of supplementary taxa is limited. There is less evidence in the HRN3205 assemblage for any contrasting fuel use for other activities, although this may be because many of the surrounding features would have included rake-out material from the ovens.

The Phase 2 late Iron Age/Roman cremation burials were also fuelled by oak, with occasional use of ash. This is similar to results from other nearby sites, such as Dunstable (Austin 2010), Toddington (Challinor 2020) and Aston Clinton (Challinor 2013). While cremation burial, in particular, may have been subjected to preferential selection of fuel, the consistency between the Phase 2 cremation burials and Phase 3 oven assemblages does suggest continuity of resources. It is likely that the local oak woodland was managed, in some form, to ensure adequate supplies.

The results from the earlier Phase 1 samples were typical for domestic-type activities occurring in the late Bronze Age/early Iron Age, with the use of deciduous woodland and scrub/hedgerow-type taxa. Although not directly comparable to the later phases, it is interesting that very little scrub/hedgerow types are recorded in the charcoal from Phases 3 and 4 – suggesting an element of regulation in firewood supplies, both in deliberate

selection for specific activities and management of resources.

2.9 HUMAN BONE

Natasha Powers

Introduction

An inhumation and burnt human bone from 14 cremation burials were recovered. Most of the burials were assigned to Phase 2 (late Iron Age/early Roman); cremation burial G27 was assigned to Phase 3 (Roman).

Methodology

Inhumation

An assessment was made of the state of bone preservation from 'good' to 'poor'. Age was estimated from a combination of epiphyseal fusion, and dental eruption and development (Scheuer and Black 2000; Gustafson and Koch 1974; Moorrees *et al.* 1963). As the individual in question fell in the upper range for a subadult they were recorded as such, but estimation of sex was carried out using morphological characteristics of the pelvis (Buikstra and Ubelaker 1994). Measurements (in mm) were taken of dental features using landmarks identified in Buikstra and Ubelaker (1994). Pathological changes were recorded using standard osteological guidelines (Roberts and Connell 2004, 31–3), with supplementary diagnostic references as required.

Burnt bone

Each sample of burnt bone was recorded in accordance with current guidelines (McKinley 2004). The total weight of the sample was established in grams and the sample was passed through a series of graded sieves to separate the fractions greater than 10mm, 4mm and 2mm. Each resulting fraction was weighed and proportions were calculated as a percentage of the total bone present. Elements identifiable to body area and/or bone were separated and weighed accordingly. Fragmentation was determined from largest fragment size and the average (mean) size of fragments. The approximate percentage of each colour of burnt bone was also described (Holden *et al.* 1995a; Holden *et al.* 1995b; McKinley 2004). The minimum number of individuals (MNI) was calculated by the number of repeated skeletal elements or parts thereof.

Results

Phase 2 (late Iron Age/early Roman) inhumation G30 (L12)

The inhumation was that of an older juvenile aged 17–18 years at death (the proximal femoral epiphyses, greater trochanter, distal tibia and proximal radius remained unfused). The individual had been placed in an extended, prone position (face down) within a sub-rectangular grave. The arms were evenly placed with the right hand apparently beneath the pelvis and the left hand behind the left hip (buttock), although post-depositional damage to the right arm, may have resulted in the original position of the hand (also behind the back) no longer being apparent, as the ulna was broken in the distal third. Although the lower right leg had apparently been truncated at the knee, the tibia and fibula were present (Plate 2.3). The vertebral

column and scapulae were poorly preserved and fragmentary and the skull was also highly fragmentary.

The bone was moderately well preserved with widespread erosion of the outer cortex, limiting surface observations. There was post-mortem damage to the knees, ankles, elbows and wrists and this prevented the collection of metric data for the purposes of establishing age at death.

Although sex estimation using morphological traits is not considered reliable for immature individuals, the sciatic notch was extremely narrow and the mandible robust, traits which may tentatively suggest that this was the burial of a young man.

There was a very small area of fine, grey, porous new bone formation in the base of the superior portion of the groove for the superior sagittal sinus (one of the large blood vessels in the head). Measuring 13mm (inferior-superior) by 6mm (medio-lateral), this bone formation may be an indication of inflammation or haemorrhage of the meninges, secondary to a range of infectious or metabolic conditions (Lewis 2003).

The individual had also suffered from dental disease during their life with deposits of calculus present on the lingual surfaces of the cheek teeth and the buccal surfaces of the anterior teeth, heaviest in the left maxilla. There was also gross carious destruction of the 1st and 2nd maxillary molars. Slight resorption of the alveolar bone, the result of periodontitis (inflammation of the gums), affected the left posterior maxilla.

The left maxillary canine was medially deviated by c.30 degrees so that it overlapped the buccal surface of the lateral incisor. A 6mm diastema between the canine and the first premolar suggests that this maleruption may be the result of retention of a deciduous tooth (subsequently lost during life).

Phase 2 (late Iron Age/early Roman) and Phase 3 (Roman) cremated and burnt bone

All but one of the fourteen cremation burials came from Phase 2 linear cemetery L4. Ten of these burials were unurned (G6) and three (G7) were found within ceramic vessels (urns). Phase 3 unurned cremation burial G27 was found within crop-processing area L8.

Weight

A total of 3451.2g of burnt bone was recovered from the 14 graves (Table 2.19). Most of the bone was highly fragmentary with a bias towards the survival of cortical fragments, as is reflected by those elements and areas of the body that were readily identifiable. The exception to this was burial SG1050 which contained a large proportion of large and unidentifiable elements with cortical and spongy bone intact (see below). The quantities of burnt bone within each sample were generally small with 13 samples containing less than 100g of bone.

When the totals by grave were examined two urned burials (SG1042 and SG1050) contained >500g of burnt bone with four unurned graves containing <100g (Table 2.20). Cremation of an adult will result in production of 1600–3600g of burnt bone (McKinley 1989). All the features, therefore, contained only a proportion of the cremated individual, with some burials affected by truncation. The greater weights of bone within the urned burials probably reflect the additional protection afforded by containment within a vessel.

Phase	Land-use Area	Group	Burial (SG)	Deposit type	Sample	Spit	Total weight (g)
2	4	6	1040	Unurned	19	Sole	180.9
			1041	Unurned	4	Sole	17.9
			1044	Unurned	29	Sole	29.5
			1045	Unurned	9	Sole	2.9
			1046	Unurned	37	Lower	107.3
					39	Upper	340.8
			1047	Unurned	36	Sole	2.7
			1048	Unurned	17	Upper	74.3
					18	Lower	64.9
			1049	Unurned	7	Upper	96.7
					8	Lower	54.9
			1051	Unurned	41	Upper	102.0
					46	Lower	149.1
					45	Upper	125.8
					44	Lower	72.1
		7	1060	Unurned	34	Lower	179.9
					33	Upper	134.3
			1042	Urned	12	Upper	3.9
					13	Lower	28.7
					14	Upper	1.1
					15	Middle	133.3
					16	Lower	348.1
			1050	Urned	73	Upper	290.8
					74	Lower	278.7
					76	Lower	240.2
			1052	Urned	42	Sole	16.5
43	Sole	7.5					
3	8	27	1027	Unurned	54	Sole	366.4
					Total3451.2		

Table 2.19: Burnt bone from samples taken from cremation burials

Phase	Land-use Area	Group	Burial (SG)	Deposit type	Total weight (g)	Residue (g)
2	4	6	1040	Unurned	180.9	189.4
			1041	Unurned	17.9	–
			1044	Unurned	29.5	63.5
			1045	Unurned	2.9	–
			1046	Unurned	448.1	133.4
			1047	Unurned	2.7	–
			1048	Unurned	139.2	581.0
			1049	Unurned	151.6	418
			1051	Unurned	449.0	1164.9
			1060	Unurned	314.2	259.1
		7	1042	Urned	515.1	177.8
			1050	Urned	809.7	325.3
			1052	Urned	24.0	112.4
3	8	27	1027	Unurned	366.47	–

Table 2.20: Total weight of burnt bone from cremation burials

Burial SG1045 contained just 2.9g of unidentifiable calcined bone, whilst SG1047 contained 2.7g; neither of these deposits, therefore, appear to be confirmed as burials. Similarly the small quantities of bone from SG1041, SG1044, and SG1052 do not suggest the presence of a burial but, based on their shallow depths (<0.1m), it is considered likely that they have suffered significant truncation.

Oxidation and fragmentation

Longitudinal, transverse and spiral cracking were seen throughout the assemblage and indicate that the human remains were wet (fleshed) when they were cremated (Buikstra and Ubelaker 1994).

The maximum fragment size observed was 87.3mm in burial SG1050 with average fragment sizes of around 20–25mm commonplace (Table 2.21). There was very little bone in the 2mm fraction and in general most deposits had a larger proportion of bone in the 5mm than

the 10mm fraction. The size of recovered fragments is likely to have been influenced by collection processes, post-depositional conditions and truncation, as pieces of undisturbed cremated bone may measure up to 250mm across, and 140mm long fragments have been found within Roman cremation urns (McKinley 1994a and b). The large fragments seen in SG1050 are therefore typical of urned burials of this date.

The off-white colour of most of the burnt bone reflects a high level of oxidation and heating at consistent temperatures of over 600°C (Holden *et al.* 1995a and b). Greater variability generally reflected smaller samples of bone and no particular patterns were noted within individual features (Table 2.22). Charring, reflecting lower temperature heating, was noted on the endocranial (internal) surface of the skull of SG1048 and the clavicle of burial SG1042. Overall the results suggest efficient cremation over a well-tended pyre.

Phase	Land-use Area	Group	Burial (SG)	Sample	Largest frag. (mm)	Mean frag. (mm)	>10mm (g)	% total	>4mm	% total	>2mm	% total	<2mm approx. % of residue comprised of burnt bone
2	4	6	1040	19	35.7	25	116.1	64.2	64.8	35.8	0.0	0.0	25
			1041	4	33.7	20	4.5	25.1	13.4	74.9	0.0	0.0	-
			1044	29	21.7	15	7.0	23.7	22.5	76.3	0.0	0.0	30
			1045	9	28.7	10	1.6	55.2	1.3	44.8	0.0	0.0	n/a
			1046	37	54.9	15	40.4	37.7	66.9	62.3	0.0	0.0	5
				39	54.9	10	64.3	18.9	139.0	40.8	137.5	40.3	>90
			1047	36	22.0	5	0.8	29.6	1.9	70.4	0.0	0.0	-
			1048	17	27.2	10	31.5	42.4	42.8	57.6	0.0	0.0	10
				18	27.5	10	24.3	37.4	40.6	62.6	0.0	0.0	10
			1049	7	30.5	10	28.8	29.8	67.9	70.2	0.0	0.0	50
				8	25.2	10	16.3	29.7	38.6	70.3	0.0	0.0	10
			1051	41	12.2	5	33.3	32.6	68.7	67.4	0.0	0.0	5
				44	43.5	20	32.6	45.2	39.5	54.8	0.0	0.0	-
				45	32.8	25	45.1	35.9	80.7	64.1	0.0	0.0	-
				46	41.8	25	115.7	77.6	33.4	22.4	0.0	0.0	5
			1060	33	29.5	10	52.1	38.8	82.2	61.2	0.0	0.0	75
				34	61.3	25	109.6	60.9	70.3	39.1	0.0	0.0	75
		7	1042	12	17.0	5	0.0	0.0	3.9	100.0	0.0	0.0	n/a
				13	51.1	25	11.0	38.3	17.7	61.7	0.0	0.0	5
				14	21.0	20	1.1	100.0	0.0	0.0	0.0	0.0	-
				15	52.7	30	94.3	70.7	39.0	29.3	0.0	0.0	60
				16	58.8	30	160.8	46.2	69.4	19.9	117.9	33.9	>90
			1050	4	n/a	n/a	0.0	0.0	0.0	0.0	0.0	0.0	5
				73	57.0	35	202.7	69.7	88.1	30.3	0.0	0.0	40
				74	87.3	50	211.2	75.8	67.5	24.2	0.0	0.0	25
				76	71.4	30	198.1	82.5	42.1	17.5	0.0	0.0	5
			1052	42	20.0	5	0.0	0.0	16.5	100.0	0.0	0.0	30
				43	28.9	10	0.0	0.0	7.5	100.0	0.0	0.0	50
3	8	27	1027	54	56.6	25	237.0	64.7	71.8	19.6	57.6	15.7	-

Table 2.21: Bone fragment size within the cremation burials

Phase	Land-use Area	Group	Burial (SG)	Deposit type	Sample	Colour
2	4	6	1040	Unurned	19	100% off white
			1041	Unurned	4	75% off white, 25% charred
			1044	Unurned	29	100% off white
			1045	Unurned	9	100% off white
			1046	Unurned	37	90% off white, 10% light blue grey
					39	90% off white, 10% light blue grey
			1047	Unurned	36	50% off white, 50% light blue grey
			1048	Unurned	17	80% off white, 10% light blue grey, 10% dark blue grey
					18	40% off white, 40% light blue grey, 20% dark blue grey
			1049	Unurned	7	90% off white, 10% light blue grey
					8	90% off white, 10% light blue grey
			1051	Unurned	41	90% off white, 10% light blue grey
					44	80% off white, 10% light blue grey, 10% dark blue grey
					45	80% off white, 10% light blue grey, 10% dark blue grey
					46	90% off white, 10% light blue grey
			1060	Unurned	33	80% off white, 10% light blue grey, 10% dark blue grey
			1060		34	80% off white, 10% light blue grey, 10% dark blue grey
		7	1042	Urned	12	100% off white
					13	95% off white, 5% light blue grey
					14	50% off white, 50% dark blue grey
					15	70% off white, 10% light blue grey, 20% charred
					16	80% off white, 10% light blue grey, 10% dark blue grey
			1050	Urned	4	100% off white
					73	80% off white, 10% light blue grey, 10% dark blue grey
					74	90% off white, 10% light blue grey
					76	90% off white, 10% light blue grey
			1052	Urned	42	95% off white, 5% light blue grey
					43	90% off white, 10% light blue grey
3	8	27	1027	Unurned	54	100% off white

Table 2.22: Colour of the burnt human bone

No evidence of pyre goods was seen, but fuel slag and burnt stone were present in varying quantities in all the examined residues.

Demography

The estimation of age and sex was compromised by the degree of fragmentation and absence of elements of the skull and pelvis. However, it was possible to ascertain from a combination of fusion of the epiphyses and dental development that seven of the burials were those of adults

Phase	Land-use Area	Group	Burial (SG)	Deposit type	Age
2	4	6	1040	Unurned	Adult
			1041	Unurned	?
			1044	Unurned	?
			1045	Unurned	?
			1046	Unurned	Adult
			1047	Unurned	?
			1048	Unurned	Adult
			1049	Unurned	Adult?
			1051	Unurned	Adult?
			1060	Unurned	Adult
		7	1042	Urned	Adult
			1050	Urned	Adult
			1052	Urned	3–4yrs
			1027	Unurned	Adult
3	8	27			

Table 2.23: Age at death of the cremated individuals

and a further two were probably adult. Burial SG1052 was that of a child whose dental development indicated that they had died at 3–4 years old (Table 2.23). It was not possible to identify the sex of any of the cremated individuals.

Identifiable bone

Twelve graves contained bone that could be identified to body area or skeletal element. Of these, all but two contained parts from every area of the body, suggesting that there had not been any deliberate, preferential collection. Burial SG1041 contained only identifiable fragments of skull and lower limb, and sub-adult burial SG1052 only skull and upper limb. This is considered to be a reflection of the ease of identification of such fragments even when small, both to the recorder and to the person collecting the remains from the pyre, rather than a reflection of deliberate bias.

Burials SG1050 and SG1027 conformed closely to the proportions that would be expected from a whole body, suggesting that the remains were carefully and non-selectively collected from the pyre.

A number of elements were complete enough to be definitively identified, including vertebral bodies, small bones from the hands and feet, and parts of the skull, particularly the supraoccipital, petrous temporal bones and the orbital margins. Large portions of the legs and hips of burial SG1050 also remained intact.

Summary

Burial G30 (L12, Phase 2) was that of a 17–18 years old, probable male, placed in a prone position. The latter is one of the most common forms of ‘deviant’ burial seen in the Roman period and has been suggested to indicate that the occupant of the grave died a ‘bad death’, requiring extra care to prevent their ghosts from walking (Barley 1995, 187–8). A small area of possible inflammation on the interior of the skull and severely rotten teeth were the

only indicators of ill-health and there were no other clues as to how he had died.

The cremation cemetery L4 (Phase 2) contained the remains of 13 individuals (based on the number of graves rather than on the completeness of the remains), including a 3–4-year-old child. There were no pathological changes noted in the assemblage. The deceased had been efficiently cremated, presumably over well-tended pyres and remains had been fairly carefully collected and separated from the pyre material itself. The lack of fragmentation in the urned burials suggests that those not contained in urns had been subject to post-depositional breakage.

The burials are part of a tradition seen across the region in the late Iron Age and early Roman period and attest to the care, variety and sophistication of funerary practices.

2.10 RADIOCARBON DATING

Introduction and methodology

Radiocarbon determinations were undertaken by the Scottish Universities Environmental Research Centre (SUERC) AMS Laboratory. Radiocarbon ages were calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4. Detailed descriptions of the methods employed by SUERC can be found in Dunbar *et al.* (2016).

Results

Four radiocarbon dates were obtained from features assigned to Phase 3—two from human bone and two from charred plant remains/charcoal (Table 2.24). They spanned the Roman period as expected.

2.11 DISCUSSION

Mike Luke and Jo Barker, incorporating ideas from Dana Challinor, Holly Duncan, John Giorgi, Mark Maltby, Natasha Powers and Jackie Wells

Land-use, continuity and discontinuity

The majority of the evidence from HRN3205 relates to a late Iron Age/early Roman (Phase 2) cremation cemetery and two Roman (Phase 3) crop-processing areas. The investigation also revealed more limited evidence for late Bronze Age/early Iron Age (Phase 1) and early Anglo-Saxon (Phase 4) activity. However, land-use was not intensive during any of these periods: Phase 1, a boundary and adjacent pitting; Phases 2 and 3, burials and crop-processing; Phase 4, a single isolated building. Several elements of the evidence are given wider context by features found on the Woodside Link investigations to the north (Chap. 5).

Phase 1 features were dated by a small pottery assemblage, recovered from three pits and a posthole next to

SUERC	GU	Material	Sample	Date (cal AD) (95.4%)	SG	G	L	SL	Phase	Description	Period
87408	51702	Spelt wheat	26	357–539	1057	26	8	3	3	Drying oven	Late Roman
87409	51703	Human bone	40	3–204	1034	30	9	3	3	Inhumation	Early Roman
87940	52089	<i>Quercus</i> (oak)	68	27–212	1022	22	7	3	3	Square pit	Roman
90829	53493	Human bone	–	142–334	–	27	8	3	3	Pit	Roman

Table 2.24: Radiocarbon determinations

a double-ditched boundary that had been re-dug at least once. A continuation of the west ditch was identified within the Woodside Link investigations and a geophysical anomaly suggests that it may have extended for c.300m, as far as the present course of the Houghton Brook. Extensive late Bronze Age/early Iron Age boundaries comprising dykes, pit/posthole alignments and ditches are known in the county (Dawson 2007, 61), although the double-ditched arrangement seen at HRN3205 is unusual.

Given that one of the ditches was re-dug and one of the pits was partly dug into one of the ditch fills, it is likely that Phase 1 represents more than a single episode of activity. The pits and postholes did not form a coherent pattern; however, the 71 sherds of pottery recovered and the small quantities of animal bone, charred cereal remains and charcoal suggest that they are settlement-related. In Bedfordshire, unenclosed late Bronze Age/early Iron Age settlements were once elusive, probably largely due to their often apparently unstructured and dispersed layout (Dawson 2007, 62). They are now more common and often found on open-area excavations targeted on evidence from other periods. Similar loose clusters of pits and postholes are indicative of nearby, possibly contemporary, settlements on the Woodside Link (Chap. 5), HRN3206 (Luke and Barker 2021, 39–46) and the A5–M1 Link Road with the main cluster at Site H (Brown 2020).

HRN3205 produced no evidence for activity during the middle Iron Age. This seems to correspond to a general absence of such remains within the HRN1 development area. However, middle Iron Age settlements were identified within the A5–M1 Link Road at Site K c.1.5km to the north of HRN3205 and at Sites D, G and M c.4km to the west (Brown 2020).

The Phase 1 boundary was still partially visible in the late Iron Age/early Roman period (Phase 2) when a trackway defined by two parallel ditches was created. The east ditch of the new trackway redefined part of the earlier boundary. A linear cemetery was established to the east of the trackway, with most of the graves positioned in the space between the two Phase 1 ditches. No contemporary settlement existed within HRN3205 or within the Woodside Link investigations to the north. It is presumed that the burials were associated with the settlement identified by the evaluation, c.50m to the south-east within ACA20 (Fig. 2.1). The occurrence of burials on the periphery of settlements is a well-known late Iron Age/Roman phenomenon; they were ‘often located adjacent to or visible from one of the routes into the settlement’ (Smith 2018b, 243).

The trackway which originated in the late Iron Age continued to be utilised during the Roman period (Phase 3), although the new ditches formed a wider corridor. This new layout encompassed both the Phase 2 cemetery and the Phase 1 boundary. Although it is unclear how long into the Roman period the cemetery was in use, this seems a particularly unusual arrangement and is discussed further below. More artefacts and ecofacts were recovered from Phase 3 features but the relatively small assemblages demonstrate that HRN3205 was still located on the periphery of the settlement to the south-east. However, the trackway did become a focus of crop-processing, with two drying ovens within HRN3205 and two more to the north within the Woodside Link investigations.

No Anglo-Saxon artefacts were found within the track-side ditches or any of the other Roman features, so it is unclear how long they continued in use. However, a late Roman/early Anglo-Saxon radiocarbon date, obtained from a charred grain from drying oven G26, suggests that the oven was still in use at this time (although not necessarily for its original purpose).

The only firm evidence for early Anglo-Saxon (Phase 4) activity was an isolated sunken-featured building (SFB). The fact that it was located c.50m from the Roman trackway, rather than adjacent to it, may suggest that the latter was no longer in use. The presence of the building reflects a wider pattern of small-scale and dispersed occupation, often in the vicinity of sites that were in use in the Roman period, e.g. the isolated SFB within a Roman enclosure at HRN3457 (Chap. 3) and, further afield, at Honey Hill on the Biddenham Loop where an early Anglo-Saxon settlement was established within a Roman enclosure (Luke 2016, fig. 5.33, 264–5).

Crop-processing during the roman period

Two crop-processing areas, c.60m apart on the east side of the trackway, featured two drying ovens and a rectangular pit. Another crop-processing area was found next to the trackway on the Woodside Link investigations to the north (Chap. 5). As discussed below, it is not certain that they were all in use at the same time.

The crop-processing debris from HRN3205 consisted primarily of almost equal amounts of grains and chaff of hulled (spelt) wheat from the final stages of crop-cleaning, i.e. de-husking and the drying of spikelets or cleaned grain before milling/storage. There was little botanical debris from the earlier stages of crop-processing, such as threshing, winnowing and the coarse-sieving of the crops. Nor was there any substantive evidence to suggest that either oven was used for malting; there were just a few sprouted grains and loose cereal coleoptiles in oven G21 – probably the result of accidental germination of grain in damp conditions.

Drying ovens

Each crop-processing area contained a drying oven. G26 was clearly of the rectangular type. Although G21 had no evidence for a cross-flue and its lining had been removed, its ground plan suggests it was T-shaped (Fig. 2.10).

The stone lining of G26 survived below ground to a depth of 0.4m; it was constructed principally of flint nodules set in a crushed chalk and clay matrix. Its layout and dimensions are very similar to drying oven G93 on the Woodside Link and both are very similar to oven 5 at Foxholes Farm, Hertford (Partridge 1976, fig. 18). The only noticeable difference in dimensions was the larger, inner chamber of the HRN3205 oven; with the use of a suspended floor this may have given it a larger capacity. The Foxholes Farm oven was better preserved and it featured vents between the end of the outer flue and the inner chamber – a similar arrangement would presumably have existed within the HRN3205 oven. The Foxhole Farm oven appeared to be situated within a rectangular timber building (Partridge 1976, fig. 19) but no such evidence survived at HRN3205. Although oven G21 had been robbed of its lining, an arrangement of quern stones and stone survived at the junction between the flue and the stokehole.

Roman drying ovens are notoriously difficult to date, but Morris’s proposed sequence of T-shaped ovens

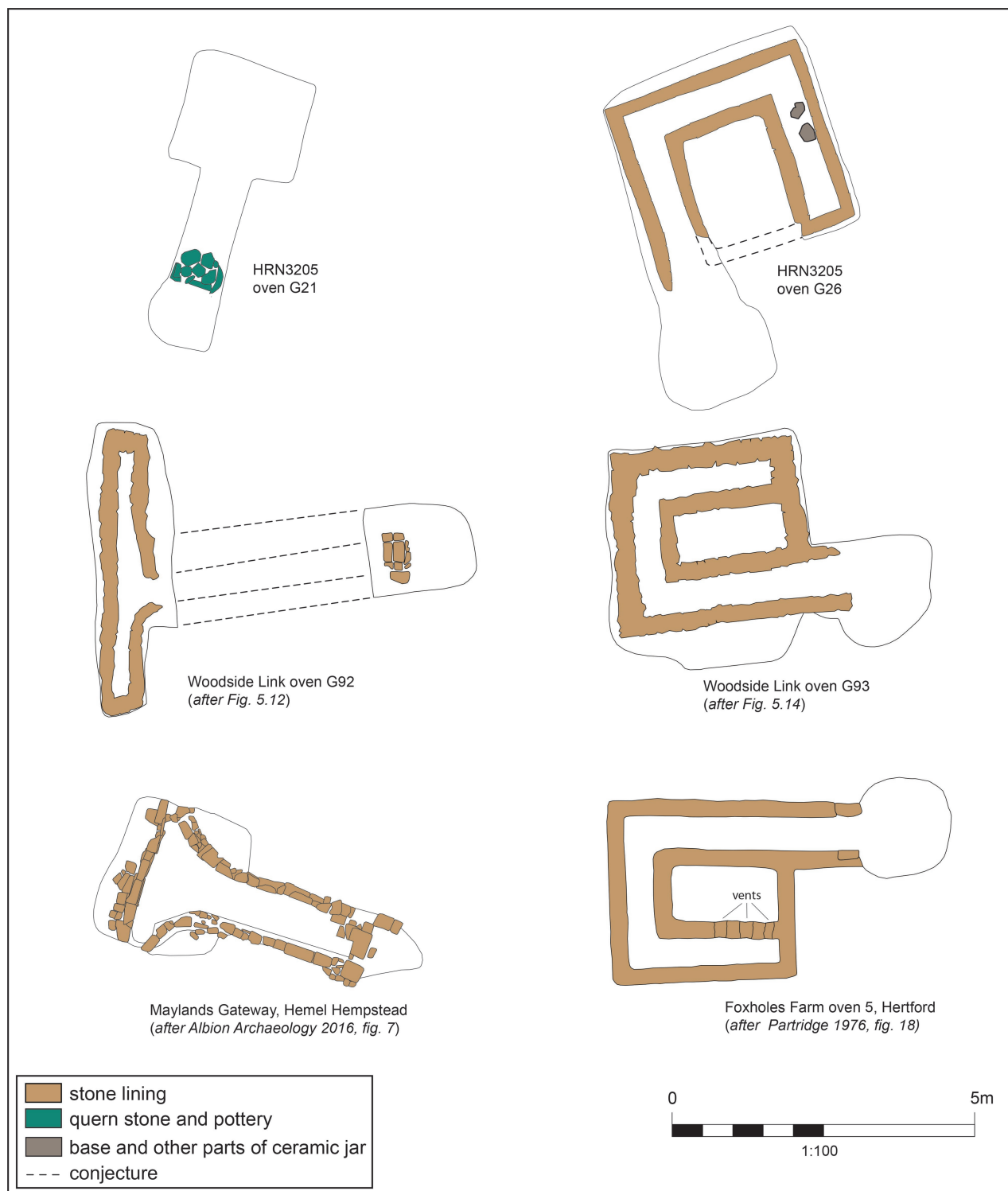


Figure 2.10 Comparative plans of the HRN3205 Roman drying ovens and other regional examples

appearing in the 2nd century to be followed by more complex/larger ones in the 3rd and 4th centuries is probably broadly correct (Morris 1979, 20; Lodwick 2017, 58–9). This change in design (and resultant increase in capacity) has been attributed to both ‘climatic changes and socio-economic change’ (Lodwick 2017, 58–9). Such a progression was neatly exemplified on the Woodside Link investigations where a T-shaped oven was rebuilt as a rectangular one. At HRN3205, the T-shaped oven G21 was robbed of its lining (presumably for re-use) whereas the base of the rectangular oven G26 was left in the ground, which might lead to the conclusion that

G21 was the earlier of the two. The presence of crop-processing debris in some of the Phase 2 burials suggests that this activity was underway as early as the 1st century AD – whether that debris came from the T-shaped oven G21 or another source is unknown.

The pottery recovered from the backfill of oven G21 suggests that it was no longer in use by the end of the 2nd century. This is consistent with the radiocarbon date of 27–212 cal AD from the adjacent rectangular pit G22, which is presumed to be contemporary. The available dating evidence for oven G26 is more contradictory. Radiocarbon dating of a charred grain from the flue

produced a date of 357–539 cal AD. However, the flue also produced the remains of an early Roman ceramic jar that appears to have been deliberately placed in the disused oven (it exhibited no evidence for scorching). It is possible that the jar was a long-curved heirloom – perhaps why it was chosen for a deposition that seems to mark the decommissioning of the oven. On balance, Lodwick's (*ibid.*) suggestion that this type of oven appeared in the 3rd century may provide the best date estimate for the construction of oven G26.

Rectangular pit G22

Rectangular pit/tank G22 was located *c.*3.7m from drying oven G21 and adjacent to pit G23, which had a very different form but was clearly associated. G22 had near-vertical sides and a flat base with an impression of a post in each corner. Three parallel stains of oak charcoal indicate that it had a plank floor and the vertical sides suggest it also had plank sides, characteristic of a tank. Morris (1979, 15–16) lists only four examples of drying ovens associated with tanks, which were, he suggested, designed to hold water. However, greater numbers are now known and a link with malting is often suggested (Lodwick 2017, 63).

Comparable plank-lined pits have been found at a variety of sites (Fig. 2.11): Stebbings Green, Essex (Bedwin and Bedwin 1999, 22, fig. 7); Yaxley, Peterborough (Phillips 2014, 28–9, fig. 5); Halstock, Dorset (Lucas 1993, 73, fig. 9); and The Old Sugar Beet Works, Felsted, Essex (Valentine and Robinson 2002, 7, fig. 12). At the latter two sites the pits were

associated with a possible water inlet and outlet channel or drain.

The pit at Cams Hill School, Fareham, Hampshire was similar to the HRN3205 example. However, it was clay-lined (Eddisford 2009, 91–2, fig. 6) but the position of the lining suggests that it was placed onto plank sides (Fig. 2.11). This feature was interpreted as a grain storage bin due to the presence of charred remains 'from an almost fully processed crop' (*ibid.*).

As with most of the excavated examples in England, the small charred plant remains assemblage from pit G22 does not provide clear evidence for its function. The two likeliest possibilities are that it was either a grain storage bin or a tank designed to hold water for use during the malting process. The latter is perhaps the more likely and it is even possible that the adjacent pit G23 served to empty the tank of water. However, Giorgi (*above*) noted that there is no firm evidence for malting in the charred plant remains from the feature itself, the adjacent drying oven, or the HRN3205 assemblage as a whole.

Burials and structured deposits

Cremation burials

All except one of the cremation burials were within cemetery L4, assigned to the late Iron Age/early Roman (Phase 2). Broadly contemporary cremation cemeteries were found on Sites F and H of the A5–M1 Link Road investigations (Brown 2020). The exception at HRN3205 was grave G27, which was assigned to the Roman period (Phase 3); this had been inserted into a partially infilled

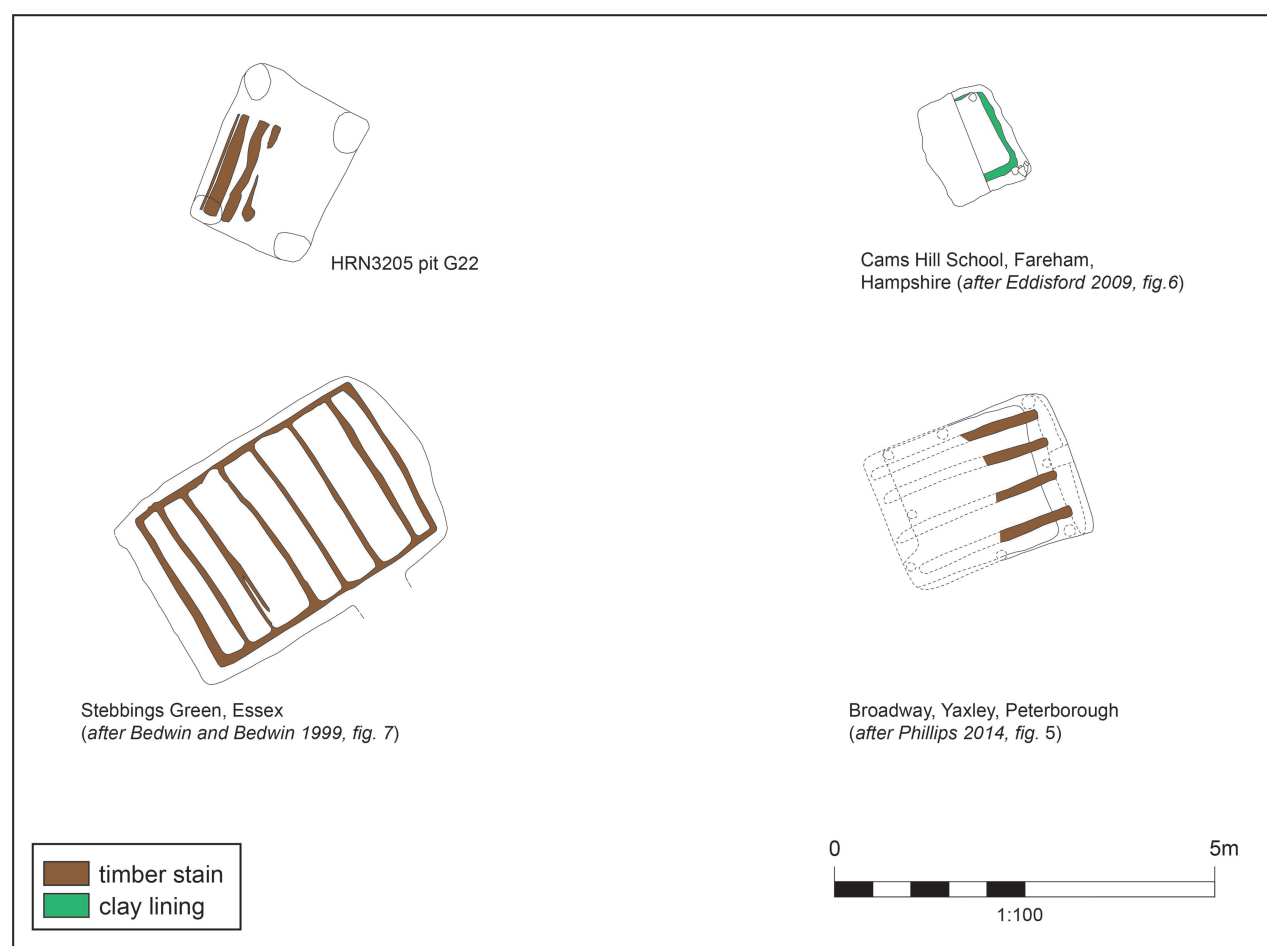


Figure 2.11 Comparative plans of the HRN3205 Roman rectangular pit and other examples

pit, in contrast to the purpose-dug graves that characterised the burials in the cemetery.

The cemetery contained three urned and ten unurned burials (Table 2.1). All had been truncated by modern ploughing, although larger quantities of cremated bone survived where the ceramic urns had provided some protection. Burial SG1050 was the only one to contain accessory vessels (two pots). Brooch fragments in burials SG1049 and SG1060 may represent grave goods. The elm charcoal in SG1048 may also represent the remains of a wooden object burnt on the cremation pyre. Both the pottery and the identifiable brooch suggest a late Iron Age/early Roman date for the cemetery.

The linear arrangement of cemetery L4 suggests that its layout was influenced by surviving elements of the late Bronze Age/early Iron Age (Phase 1) boundary, perhaps a bank or hedge (Fig. 2.5). The spatial layout of the graves suggests that they were in pairs or small clusters. Three of the pairs comprised an urned and an unurned burial. One of the urned burials (SG1052) was a young child. Where age was identifiable, the other burials were adult. In no case could sex be determined, so it is uncertain if any of the pairings represent husband and wife. Possible pairings of graves have been observed at contemporary cemeteries e.g. Harlington Road, Toddington (Brown 2020, 180 and fig. 4.14).

A cluster of three small pits G21 at the south end of the cemetery did not contain any human bone. They did contain charred plant remains, including chaff and cereal grains – material for which Lodwick has suggested a ritual use (2018, 200). The clustering of the pits mirrors the pairing/clustering of the graves and it is likely that they are associated in some way with burial practices within the cemetery; their contents could have derived from feasting associated with grave-side ceremonies or even have been food offerings in their own right.

The location of the HRN3205 burials on the periphery of a farmstead and adjacent to trackway L5 is consistent with the general pattern seen in the late Iron Age/Roman Central Belt (Smith 2018b, 231, 243–5). The cremation cemetery on Site H of the A5–M1 Link Road was also positioned within an enclosure linked to two trackways (Brown 2020, fig. 6.3). The location of the HRN3205 cemetery is particularly interesting due to its position in the space between two parallel ditches associated with the extensive late Bronze Age/early Iron Age (Phase 1) boundary. Some of the graves were dug into the (at least partially) infilled/disused ditches but it is likely that an adjacent hedge and/or bank, possibly on both sides of the boundary, were still in existence. This use of an existing landscape feature was perhaps purely practical but it is more likely to have been a deliberate choice to reinforce land tenure or ownership.

When the trackway was widened (from c.8m to c.18m) in the Roman period (Phase 3), the cremation cemetery would have been situated centrally within the routeway. This is obviously an unusual situation, especially as it is difficult to believe that the graves were no longer visible or remembered by the local population. Given the considerable width of the trackway and the fact that the graves may still have been bounded by hedges/banks created in the late Bronze Age/early Iron Age (Phase 1), it seems possible that the cemetery was indeed preserved within the routeway and possibly thereby made more significant and visible.

The only burial assigned to the Roman period (Phase 3) was adult cremation burial G27, radiocarbon-dated to 142–334 cal AD. It was located c.30m north of the earlier cremation cemetery, close to the widened trackway. The date is interesting because around this time inhumation is believed to have become the main burial rite in this part of Britain (Smith 2018b, 220). The proximity of the burial to drying oven G26 (L8) may be significant. Human burials adjacent to or within drying ovens are known, although they predominantly involve very young infants, such as those at Campbell Park, Milton Keynes (Barker 2019, 62) and Barton Court Farm, Oxfordshire (Miles 1986, 15–16, fig. 8).

Prone inhumation

Phase 2 inhumation SG1034 (G30) lay c.11m north of the cremation cemetery. The occurrence of inhumations and cremation burials in the same location is not uncommon, e.g. Harlington Road, Toddington (Brown 2020, 242). Like some of the cremation burials, the inhumation at HRN3205 was dug into one of the ditches of the Phase 1 (late Bronze Age/early Iron Age) boundary. No grave goods were present but the bone produced a radiocarbon date of 3–204 cal AD. The burial was that of a young man, who had been placed prone (face down). Smith notes that prone burials are ‘often associated with negative connotations’ and are often located away from the main cemetery areas, e.g. Dunstable (2018b, 229). The nature and location of inhumation SG1034 could suggest an individual on the fringes of society but in the absence of any other, contemporary, inhumations there can be no certainty on this issue.

Structured deposits

It has long been recognised in Iron Age studies that certain deposits may be associated with ritual activity (Hill 1995) and it has been suggested that there is no reason why such activity should not continue into the Roman period (Fulford 2001; Smith 2018a, 184–91). Two deposits of charred cereal remains (from cremation burial SG1042 and pit SG1053) are tentatively discussed by Giorgi (above) as possible votive offerings. Two other ‘unusual’ deposits that are more likely to be ‘structured’ are described below.

Substantial amounts of a broken, early Roman ceramic jar were found in the flue of drying oven G26. The upright position of the base and the absence of scorching suggest that the jar had been deliberately placed after the oven had gone out of use. Smith lists eight sites where drying ovens contained ‘unusual’ deposits (albeit not pottery vessels) (2018a, 187–8). However, ‘structured’ deposits most commonly feature pots and animal remains (ibid., 189, fig. 5.58). When such deposits were placed in buildings, including drying ovens, they ‘were not regular offerings, but instead marked specific, important episodes in the life of the building’ (ibid., 188). In the case of the HRN3205 oven this was the end of its life. With this in mind it may be significant that the vessel chosen for deposition had been in use a long time – it was made in the early Roman period whereas the oven probably continued in use into the 3rd or 4th century.

Phase 3 (Roman) pit G25 contained, along with apparent rakings from adjacent drying oven G21, a large assemblage of calcined mammal bones, largely unidentifiable but including pig. This assemblage may represent the remains of a meal and it is possible that this was part

of feasting associated with the drying oven. As discussed above, animal bones (albeit not calcined) are frequently found in ‘structured’ deposits and have been found in association with drying ovens (Smith 2018a, 187–8).

The local environment

although no contemporary ecofactual data was recovered during the HRN3205 investigations, it is likely that woodland clearance in the area was well underway by the late Neolithic/early Bronze Age. This assumption is largely based on the presence of ring-ditches within nearby investigations, e.g. HRN3206 (Luke and Barker 2021, 35–7) and Woodside Link (p. 127–8). The late Bronze Age/early Iron Age boundary on HRN3205 and the pit alignments within Sites M and P of the A5–M1 link road investigations (Brown 2020) would certainly have been created within a cleared landscape.

The HRN3205 charcoal assemblages, although small, indicate that late Bronze Age/early Iron Age communities had access to hedgerow/scrub-type taxa such as blackthorn, field maple, hawthorn group and hazel, suggesting a cleared, hedged landscape in the vicinity of the site. The predominance of oak in the Phase 2 and 3 assemblages indicates that ‘it is likely that the local oak woodland was managed, in some form, to ensure adequate supplies’ (Challinor, above).

Charred cereal remains recovered from Roman (Phase 3) features on HRN3205 and nearby excavations indicate that spelt wheat was the main cereal crop being grown. This is unsurprising as it ‘became the dominant crop in the Roman period in all regions’ (Lodwick 2017, 31). The presence of particular weed seeds, such as common fumitory, corn cockle, cleaver and stinking chamomile, suggests that spelt was being grown on calcareous soils as well as in damper areas.

2.12 ACKNOWLEDGMENTS

The project was managed by Mike Luke and assisted during fieldwork by Wes Keir (Project Officer); the onsite investigation was supervised by Kathy Pilkinton. Hand excavation and recording were undertaken by Petros Fountoukidis, Sebastian Moya Garcia, Annie Moore, Anna Orłowska-Synus, Chris Sopp and Adrian Woolmer.

Jo Barker created the contextual hierarchy and oversaw the post-excavation specialist work. Helen Parslow prepared the project archive for deposition with The Culture Trust Luton (accession number LUTNM: 2018/18).

The photographs used in this publication were taken by Petros Fountoukidis (Plate 2.4), Kathy Pilkinton (Plates 2.6 and 2.9), Chris Sopp (Plate 2.2) and Adrian Woolmer (Plates 2.3, 2.5, 2.7 and 2.8).

Chapter 3

Middle Bronze Age to early Anglo-Saxon land-use on sites HRN3455/6/7

by Mike Luke and Kathy Pilkinton

with reports by Dana Challinor, Holly Duncan, John Giorgi, Mark Maltby, Natasha Powers and Jackie Wells; other contributions by Peter Guest and Roger Tomlin

Illustrations by Mike Trevarthen (Figs 3.2–3.16), and Joan Lightning (Fig. 3.1)

SUMMARY

Three separate excavations, undertaken in late 2018/early 2019, revealed evidence of land utilisation from the middle Bronze Age to the early Anglo-Saxon period. The majority of the evidence was associated with two late Iron Age/Roman settlements. One of these extended over c.5.5ha on either side of the Ouzel Brook, although other than during the evaluation it was only examined within a narrow service corridor. The combined evidence, including that from an amateur excavation in the 1980s, suggests that the settlement contains at least one substantial building with a hypocaust and a tiled roof. One of the most significant finds from the recent investigation was a sherd of pottery with ink-written graffiti. Away from the settlements a block of bedding trenches may represent an area of horticulture. Other remains included a middle Bronze Age inhumation, boundary ditch and pits, along with an early Anglo-Saxon sunken-featured building.

3.1 INTRODUCTION

This chapter presents the results of three separate archaeological open-area excavations undertaken between December 2018 and February 2019 (Plate 3.1), including during periods of heavy snow (Plate 3.2). The excavation

areas were c.0.1ha (HRN3455), c.2.5ha (HRN3456, Plate 3.3) and c.2.5ha (HRN3457) in extent. The investigations were undertaken in line with an agreed Written Scheme of Archaeological Resource Management (WSARM)



Plate 3.1 Aerial view looking west with HRN3457 in foreground (early in machining) and HRN3456 visible in centre, Houghton Regis on the left, and the Ouzel Brook and the A5–M1 Link Road on the right (January 2019)



Plate 3.2 Site investigations on HRN3457 during snowy conditions

(Albion Archaeology 2018c), with the results assessed

in order to determine their significance and potential for further analysis (Albion Archaeology 2019b).

Site location and geology

The three sites reported here were located between Houghton Regis and the A5–M1 Link; all were immediately south of the Ouzel Brook (Fig. 3.1).

The topography of the area is relatively flat at c.120m OD but slopes down, in places quite steeply, to the Ouzel Brook to the north. The underlying solid geology consists of West Melbury Marly Chalk Formation and up to 1m of alluvium, associated with the brook, was present on the north edge of HRN3457.

Archaeological background

The archaeological excavations were located within ACA2, 8 and 9 (Table 3.1), but only covered the extent of the proposed development. Hence the HRN3455 excavations within ACA2 comprised a narrow strip which was to be used as a service corridor.

Excavation area code	Grid ref. (TL)	ACA	Evaluation evidence	Interpretation	HER evidence
HRN3455	0160/2542	2	Extensive enclosure system, pits, ditches, occupation/demolition layers, possible wall foundations	Late Iron Age/Roman settlement	HER 1453 cropmarks, finds scatters, small-scale excavation
HRN3456	0236/2560	8	Enclosure ditches, pits, an inhumation	Late Iron Age/Roman settlement	HER 15855 cropmarks, finds scatters
HRN3457	0260/2570	9	Numerous enclosure ditches	Late Iron Age/Roman settlement	HER 15856 cropmarks, finds scatters

ACA = Archaeological Character Area (as defined by the evaluation)
HER = Central Bedfordshire and Luton Historic Environment Record

Table 3.1 Evaluation evidence from HRN3455, HRN3456 and HRN3457



Plate 3.3 Aerial view of HRN3456 looking north, palaeochannel L107 visible in centre of excavation area and bedding trenches SL30 bottom left (January 2019)

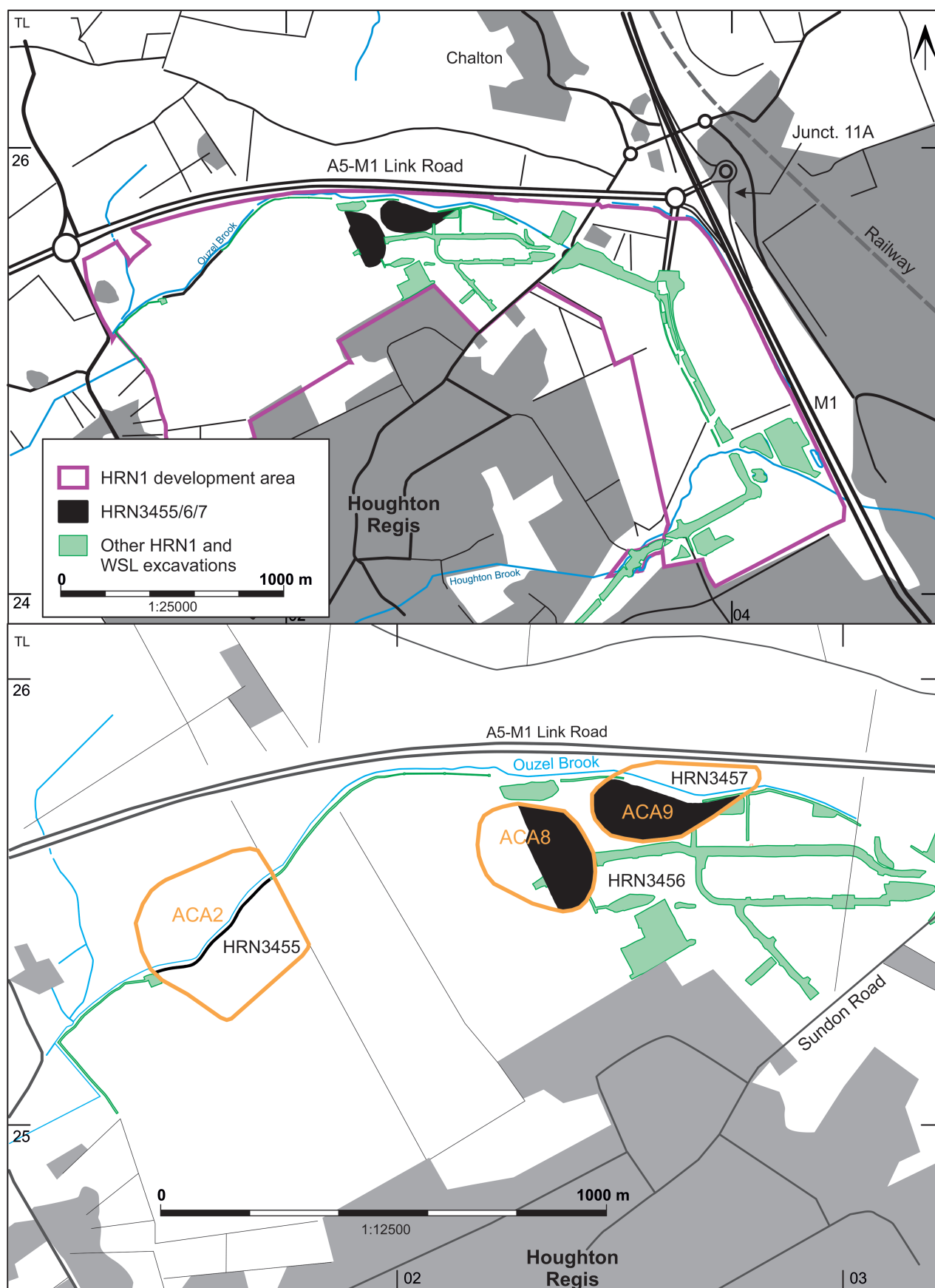


Figure 3.1 HRN3455/6/7 location plan

3.2 SITE SEQUENCE

The evidence from the three excavations was combined and four chronological phases were identified, spanning the middle–late Bronze Age (Phase 2) to the early Anglo-Saxon period (Phase 5) (Figs 3.2–3.4). The majority of the remains pertain to a small late Iron Age/early Roman settlement on HRN3457 and a more extensive Roman settlement that was only partially investigated on HRN3455. Palaeochannels associated with the Ouzel Brook that probably predate human activity (Phase 1) were identified on HRN3456 and HRN3457.

Phase 1 (geological and natural features)

Two palaeochannels and other natural features, including tree-throws, were identified within all three excavation areas (Figs 3.2–3.4). Their sterile fills distinguished them from features of human origin. The N–S-aligned palaeochannels within HRN3455 and HRN3457 were 10–18m wide and 0.60–1.85m deep; they became wider and deeper to the north, i.e. towards the Ouzel Brook. They are undated but did contain charred hazelnut shell, which could have accumulated at some point in the early prehistoric period. The alignment of late Iron Age and Roman ditches appeared to respect the palaeochannels, suggesting that they were still visible landscape features during those periods.

Phase 2 (Middle–Late Bronze Age)

The earliest evidence for human activity was widely dispersed within HRN3456 and HRN3457. It comprised two large pits SL22, a boundary ditch SL23, and a ditch

terminus, pit and inhumation (SL24); all were located at least 70m south of the present course of the Ouzel Brook.

Assignment of features to this phase was based on stratigraphic relationships with later features (in the case of the two ditches) and radiocarbon dating (in the case of the inhumation). However, the pits are undated and the other evidence was limited – hence the broad description of middle–late Bronze Age.

Large pits SL22

SL22 comprised two large pits L103, located c.50m apart (Fig. 3.5). Pit G106 was 3.5 × 2.9 × 1.1m deep (Fig. 3.5 section a; Plate 3.4); pit G105 was 2.2 × 2.2 × 0.8m deep (Fig. 3.5 section b). They had similar sterile chalky fills.



Plate 3.4 Pit G106 (L103, SL22, Phase 2), looking south. Scale 1m

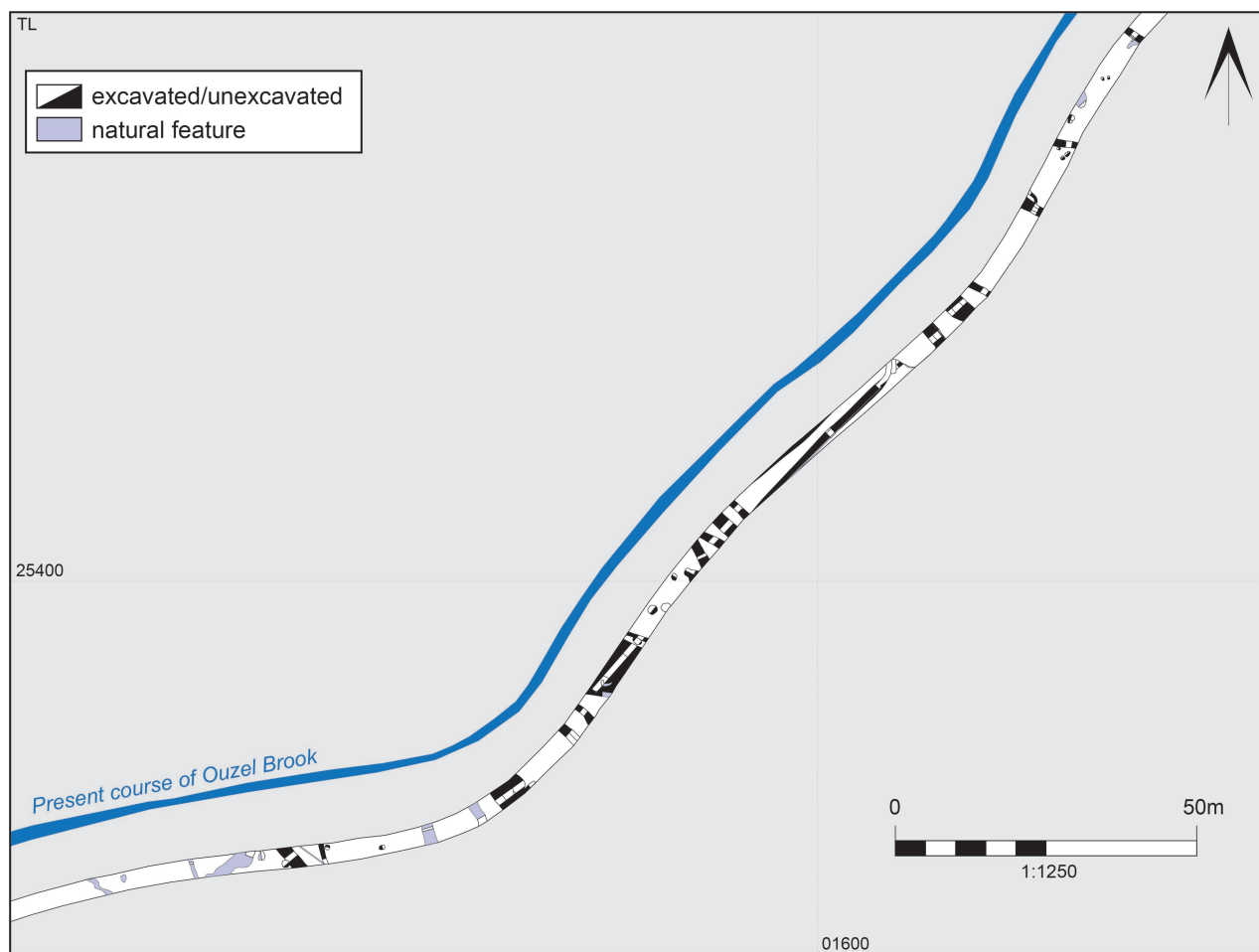


Figure 3.2 All-features plan HRN3455

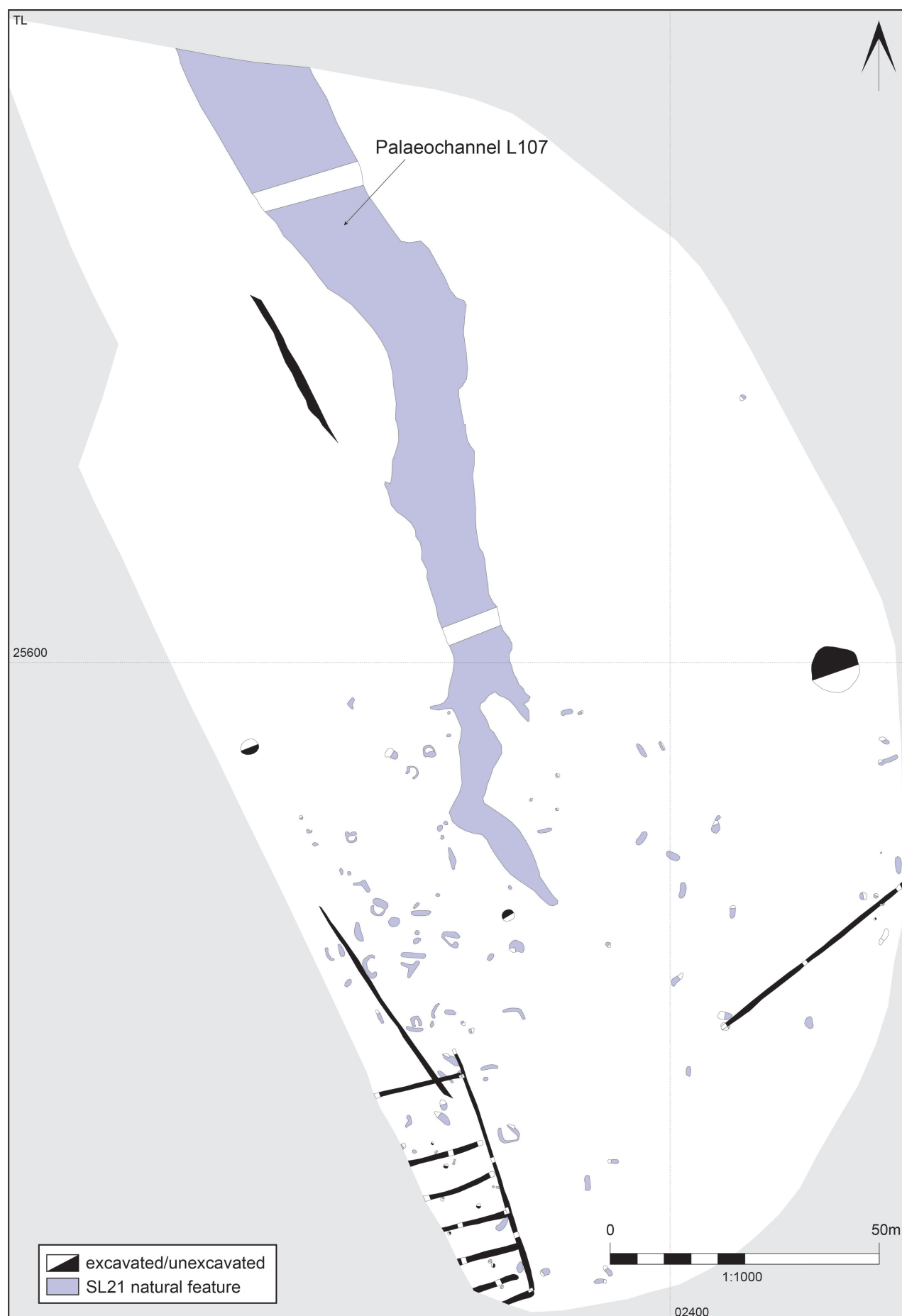


Figure 3.3 All-features plan HRN3456

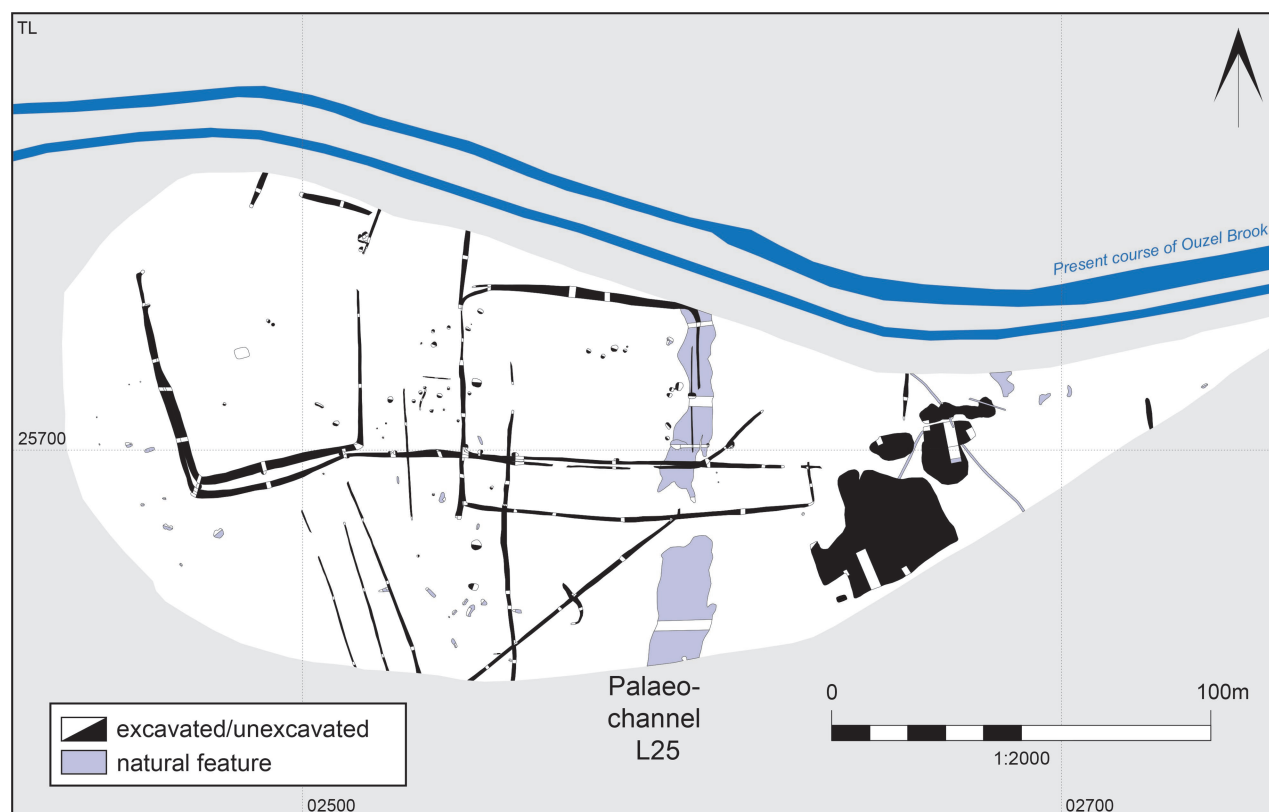


Figure 3.4 All-features plan HRN3457

Boundary ditch SL23

This N–S boundary survived as ditch L28 (Fig. 3.6 sections a and b). It became shallower towards its north end where it had clearly been truncated; it probably originally extended beyond the north limit of the excavation area. However, a c.7m-wide gap in the north part of the ditch probably indicates the location of an entranceway through the boundary.

Inhumation, ditch terminus and large pit SL24

A short length of NW–SE aligned ditch L29 was identified within the small excavation area targeted on an inhumation that had been found during the evaluation trenching (Albion Archaeology 2012a, 28). It was a similar width to ditch L28 (SL23) to the west but had a steep-sided profile. It terminated within the excavation area and was truncated by grave G75 (Fig. 3.6 section d).

Grave G75 (L30) was oval in plan and on the same alignment as ditch L29, although it was much shallower (Fig. 3.6 section c). It contained the partially flexed skeleton of a child, aged 9–10 years at death, with its head to the north-west (Plate 3.5). No artefacts were recovered. A radiocarbon date of 1636–1501 cal BC (SUERC-88596/GU52376, 3291 ± 30 BP) was obtained from the bone, indicating that burial took place at the beginning of the middle Bronze Age. The ditch that the grave was dug into is obviously older but there is no evidence to suggest that it may have been part of a ring-ditch.

Pit G76, which was truncated by ditch, was 1.9 x 1.6 x 0.8m deep (Fig. 3.6 section c) and contained a sterile chalky fill.

Phase 3 (Late Iron Age/Early Roman)

The focus of activity in the late Iron Age/early Roman period was within HRN3457 where a series of enclosures

SL28 were established. Two pit clusters SL26 were present within HRN3456 to the west. Only a single ditch SL25 within HRN3455 was assigned to this period, but



Plate 3.5 Inhumation G75 (L30, SL24, Phase 2), looking north-west. Scale 0.4m

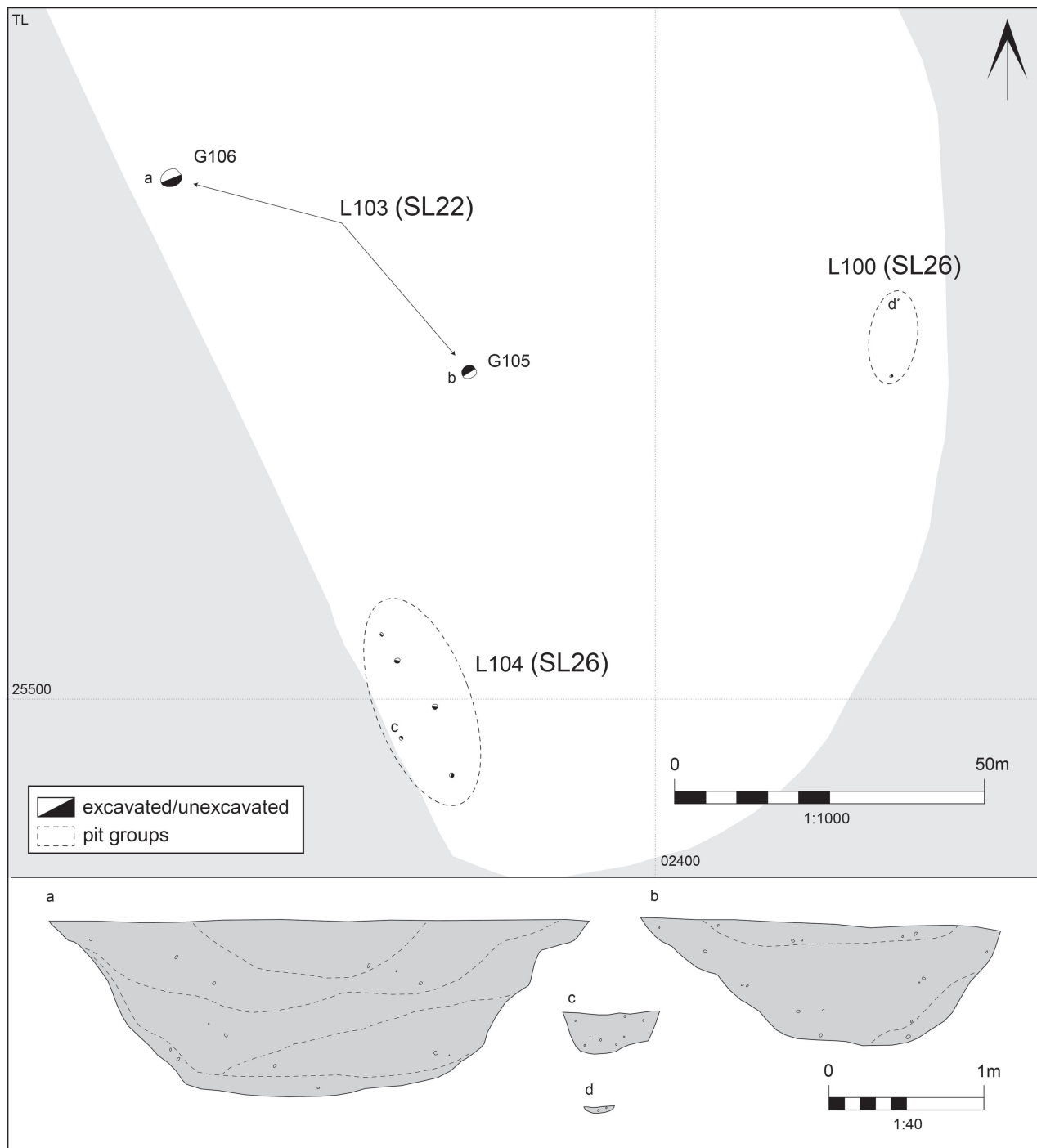


Figure 3.5 Plan of middle–late Bronze Age (Phase 2) SL22 and late Iron Age/early Roman (Phase 3) SL26, with selected sections (HRN3456)

the evaluation results suggest that a settlement of this period did exist within the adjacent, unexcavated land.

The enclosures assigned to SL28 were on the same alignment as the boundary established in Phase 2 (SL23), suggesting a degree of continuity within the landscape. Assignment of most features to this phase is largely based on the presence of late Iron Age/early Roman pottery and stratigraphic relationships with Phase 4 features. Approximately 3.2kg of fired clay was recovered from features assigned to SL27 and SL28.

Settlement SL25

Ditch L200 was c.0.9m wide and 0.4m deep (Fig. 3.7 section e); it was the only feature within the HRN3455

excavation area that produced solely late Iron Age pottery. It also contained an early 1st-century AD coin (HRN3455 – RA2).

Pit clusters SL26

Two clusters of small pits and postholes were located within HRN3456 (Fig. 3.5). Cluster L104 comprised five steep-sided pits, measuring up to 0.8m in diameter and 0.4m deep (Fig. 3.5 section c). L100 to the east comprised two truncated, probable postholes (Fig. 3.5 section d), one of which contained two abraded sherds of probable late Iron Age pottery.

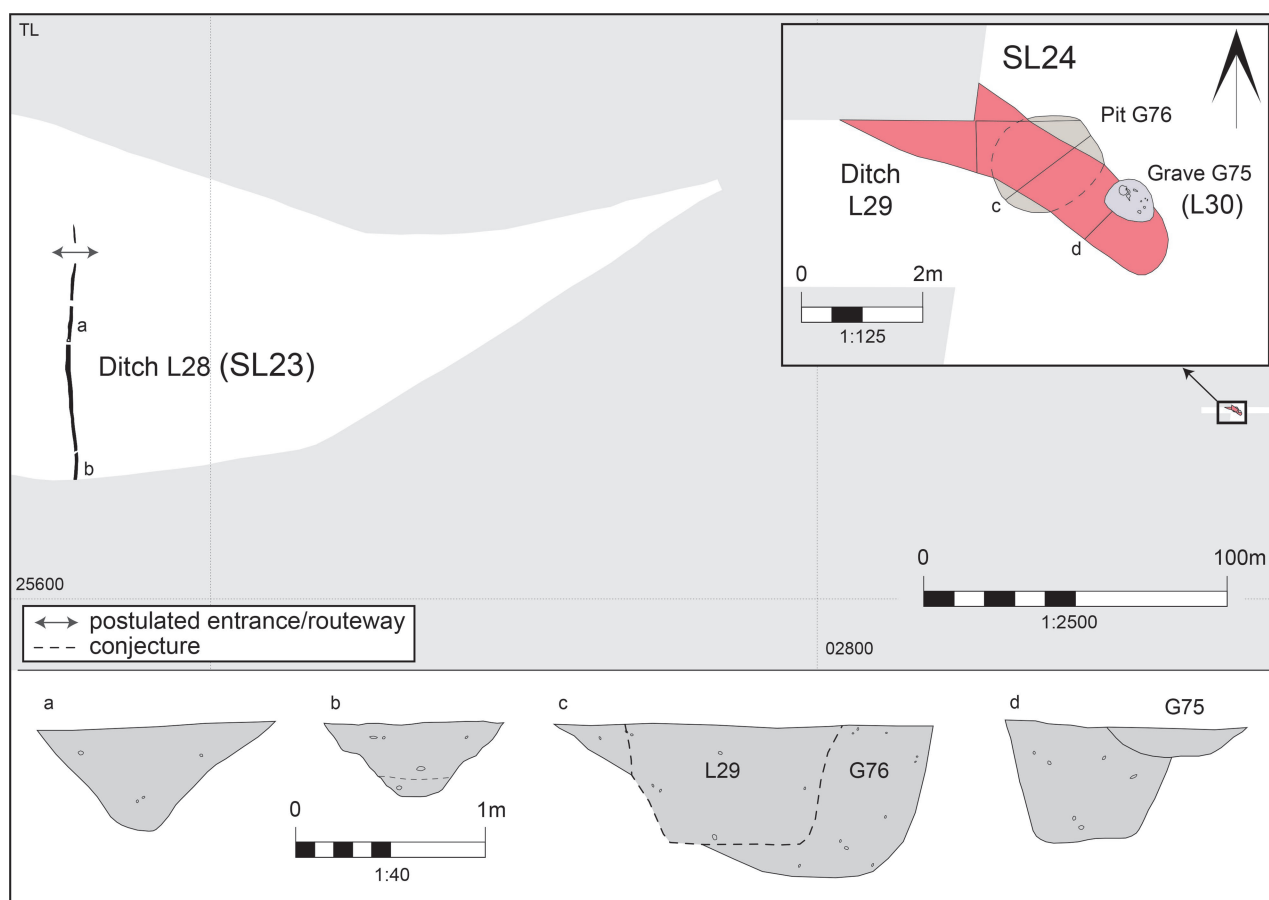


Figure 3.6 Plan of middle-late Bronze Age (Phase 2) SL23 and SL24, with selected sections (east end of HRN3457)

Clustered and dispersed pits SL27

Thirty-eight pits and two postholes within HRN3457 broadly corresponded to the location of enclosure system SL28 (Fig. 3.8). However, a small number of stratigraphic relationships suggest that the pits were generally earlier in date; at least some of them may, therefore, represent slightly earlier, unenclosed activity.

Pits L5 were mainly clustered into five principal pit groups around enclosure L6 (SL28); pits L19 were more dispersed and lay to the south-west of the enclosure. Three of the L5 pit groups (G44, G47 and G49) were located solely within the eastern enclosure of SL28. Pit groups G35 and G37 overlapped the ditch on its west side. The three pits of G41 were all dug into the southern



Plate 3.6 Pit cluster G35 (L5, SL27, Phase 3) under investigation, looking south

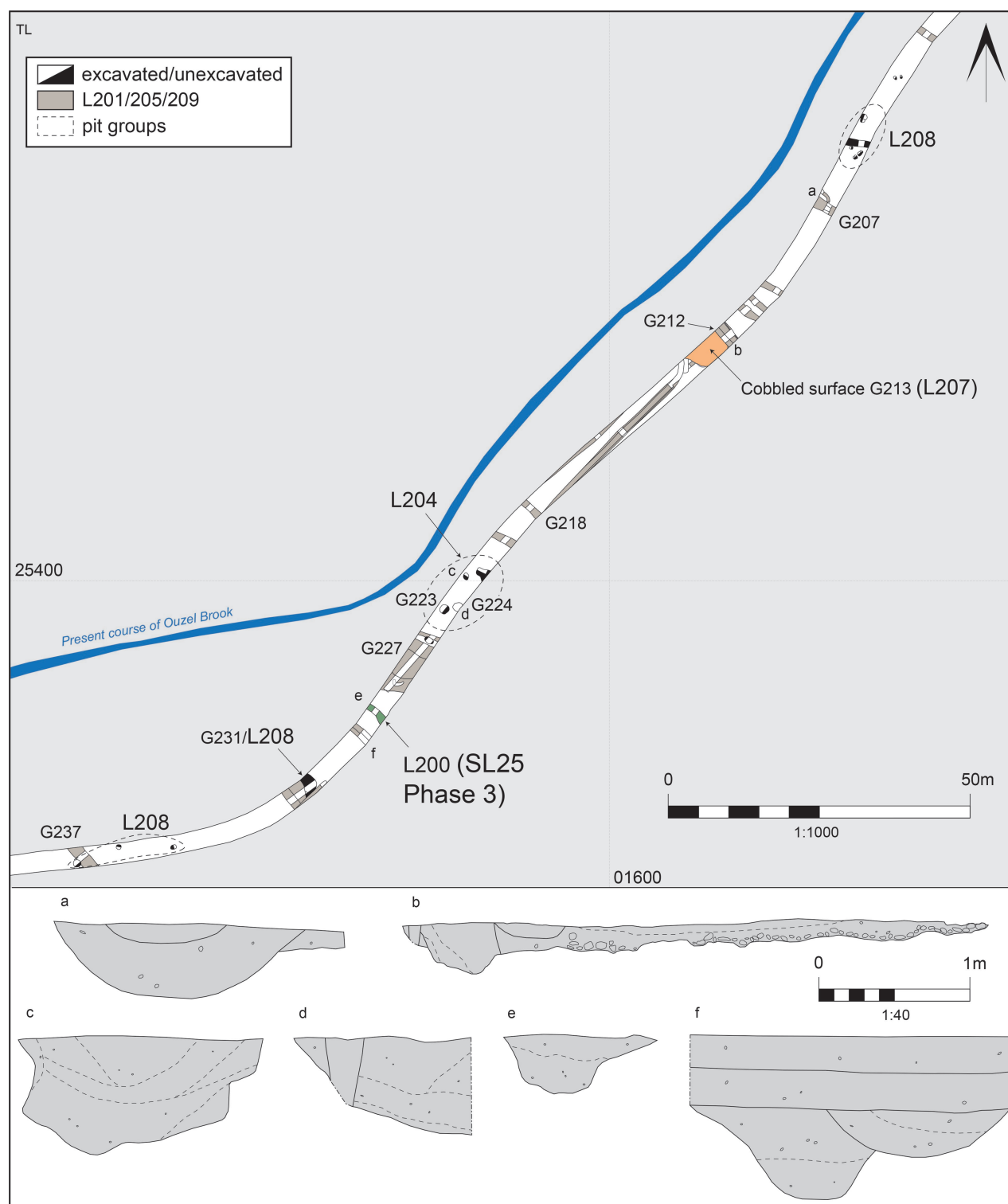


Figure 3.7 Plan of Roman (Phase 4) features SL29 and late Iron Age/early Roman (Phase 3) ditch SL25, with selected sections (HRN3455)

enclosure ditch. The pit groups varied in size (Plate 3.6) and sometimes included a posthole (e.g. G44).

The SL27 pits were 0.8–1.5m in diameter and usually no deeper than 0.4m (Fig. 3.8 sections a, c–g). The majority had concave profiles and relatively sterile fills. A small number of exceptions included vertical-sided, flat-based pit G39 (Fig. 3.8 section b) and two bell-shaped pits G47 (Fig. 3.8 section f). The profiles and depths (c.1.2m) of these pits suggest that they were storage pits. The fills of pit G47 were slightly unusual and may be indicative of

structured deposition. They consisted of chalk deposits with some darker charcoal-rich banding, suggesting intermittent deliberate deposition; finds included an iron Drahtfibel brooch, sheep and cattle bones (some of which were burnt) and the charred remains of wheat.

Enclosure system SL28

Enclosure system SL28 comprised two definite enclosures and a possible third one to the north-west. Four possible post-built structures were situated outside the

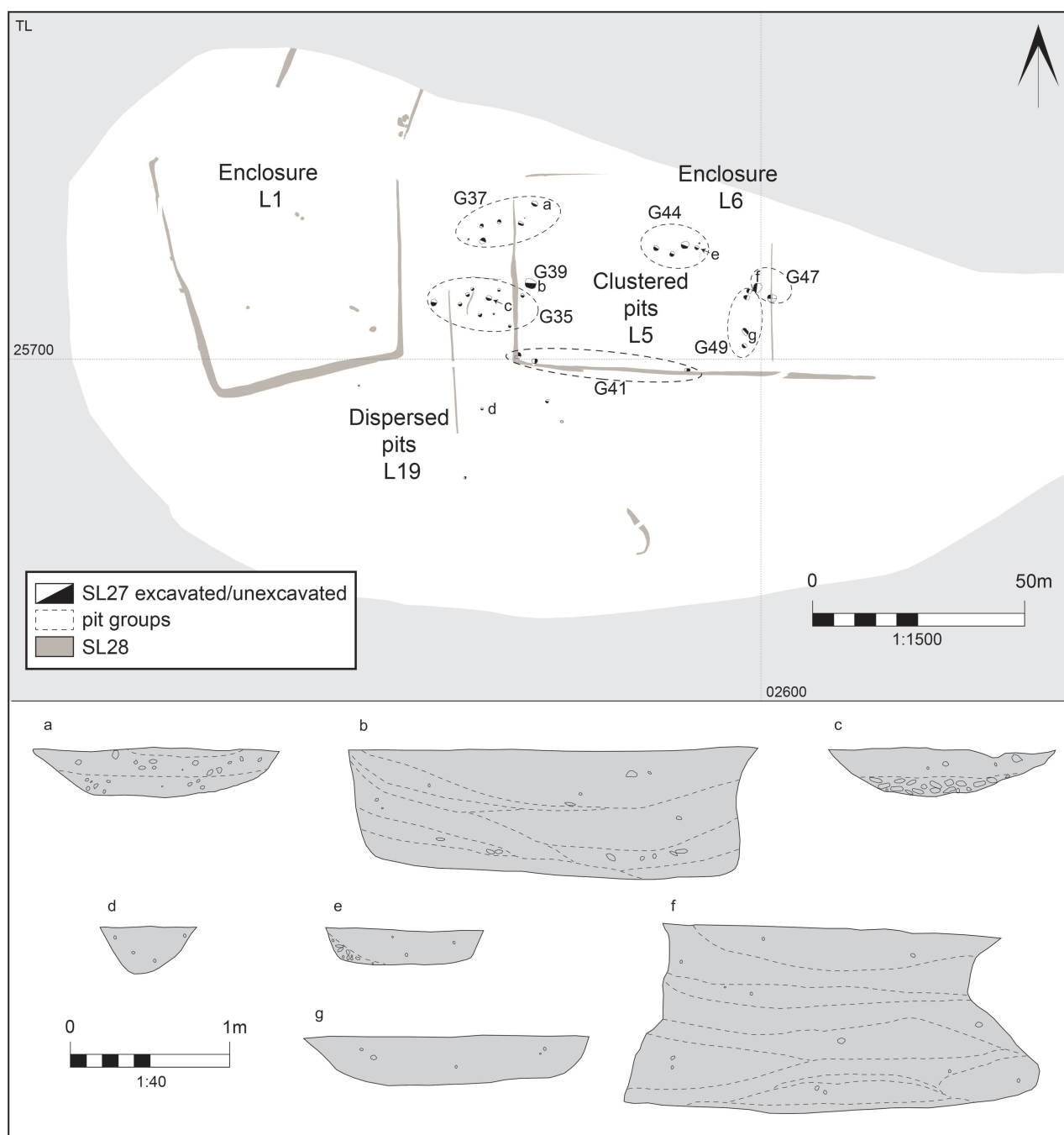


Figure 3.8 Plan of late Iron Age/early Roman (Phase 3) pits SL27 and enclosure system SL28, selected sections (HRN3457)

enclosures. Pits G25, G60, G61 and G62 were located within the enclosures. However, as described above, some of the pits assigned to SL27 are likely to be contemporary with the enclosures.

Enclosure L1

Ditches defined three sides of this enclosure but the north side appeared to be open. However, as the ditches to the south were larger (Fig. 3.9 section c) and those on the east and west sides decreased in size to the north, it is possible that modern ploughing has removed a ditch on the north side. The only firm evidence for re-cutting was identified in the ditch on the west side.

A scatter of pits, assigned to G25, was found within the enclosure. The largest had steep sides and a flat base (Fig. 3.9 section d).

Possible enclosure L2

Two parallel NE–SW aligned ditches at the north limit of excavation may form two sides of a small enclosure to the north-east of enclosure L1.

A pit cluster was located adjacent to the south-east side of the possible enclosure near what might be an entrance. The majority of the pits, assigned to G60, appeared to intercut slightly and most were shallow (Fig. 3.9 section b), suggesting that they may represent quarry pits. Pits G61 and G62 produced rich charred plant assemblages of largely clean and de-husked hulled wheat and hulled barley grains. Pit G62 was steep-sided and may have originally been used for grain storage. Pit G61 was unusual in that it was one of the smallest pits but it produced the largest quantity of pottery.

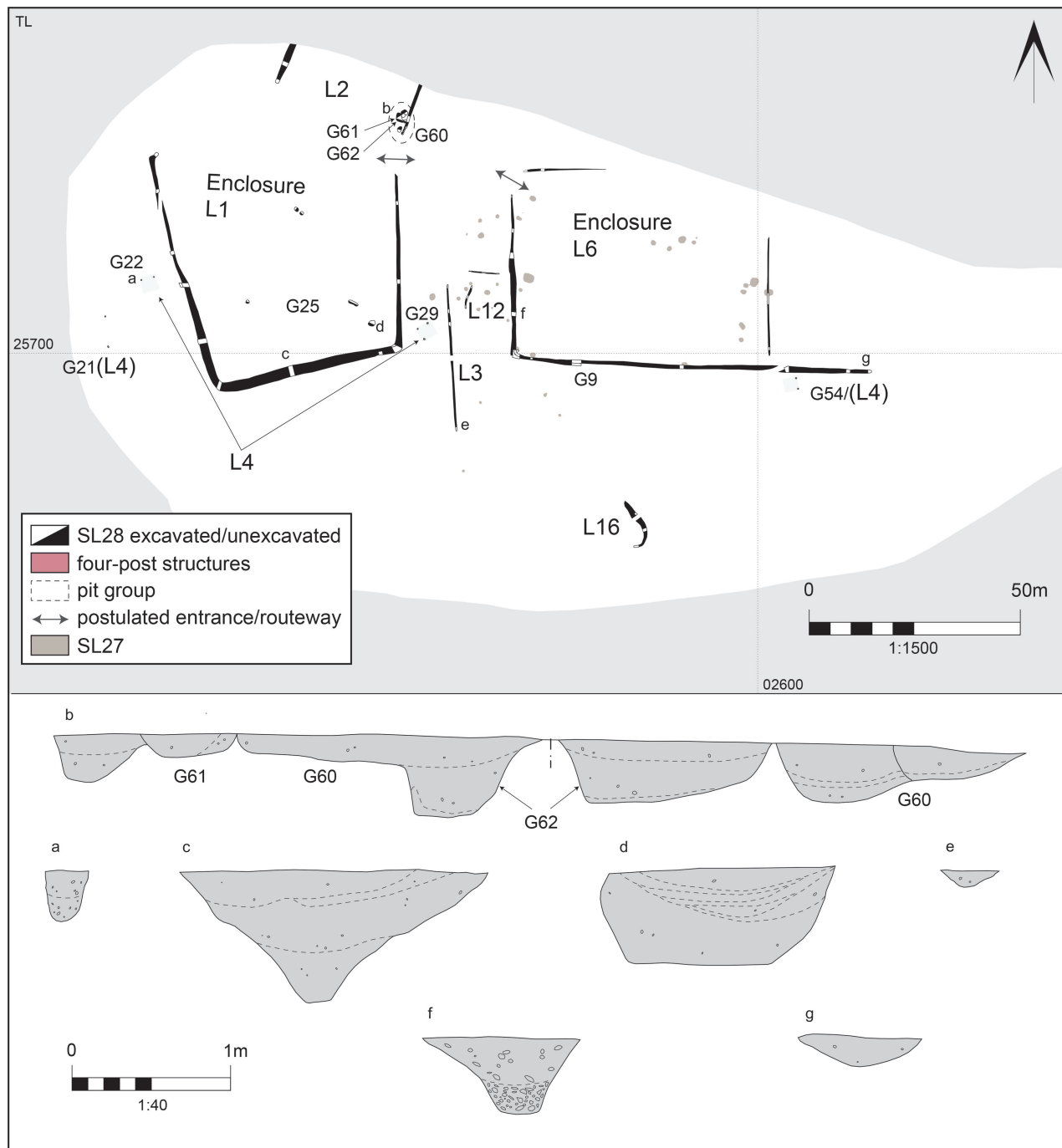


Figure 3.9 Plan of late Iron Age/early Roman (Phase 3) enclosure system SL28, with selected sections (HRN3457)

Enclosure L6

This rectangular enclosure was defined by ditches on all sides, albeit heavily truncated to the north. A 6m-wide entrance was revealed at the north-west corner. The existence of an earlier ditch (G9) along its south-west side may hint at the original form of the enclosure before it was extended to the east.

Post-built structures L4

Four groups of postholes may be associated with post-built structures located outside enclosures L1 and L6. G22, G29 and G54 probably represent four-post structures, c.2.5–3.0m square. The postholes were c.0.25m in diameter and between 0.05m (G54) and 0.40m (G22) deep. Given the shallow nature of the surviving postholes, it is probably inevitable that other postholes have

been lost to modern ploughing. G21 comprises two individual postholes, c.7m apart, located to the south-west of G22; they may represent the only surviving evidence for two further four-post structures.

Other ditches L3, L12 and L16

A number of other small ditches were identified in the vicinity of the enclosures. The position of N–S aligned ditch L3 between enclosures L1 and L6 suggests that it may have been dug to facilitate livestock movement in this space. A similar interpretation is possible for short ditch lengths L12. To the south of the enclosures, curving ditch L16 was excavated as an archaeological feature but its uneven profile suggests that it may represent a natural variation in the chalk geology.

Phase 4 (Roman)

Evidence for Roman activity was present within the three excavation areas but the only definite settlement was SL29 within HRN3455. Approximately 600m to the east within HRN3456 was a series of bedding trenches SL30, and further east again within HRN3457 was enclosure system SL31. Brief mention should be made of boundary ditch L102/L9, which extended for at least 240m and appeared to link bedding trenches SL30 with enclosure system SL31 to the north-east (Fig. 3.10).

Settlement SL29

Geophysical survey (Stratascan 2012) and evaluation trenching (Albion Archaeology 2012a) identified a settlement of *c.* 4.5ha (designated ACA2) that is bisected by the present-day course of the Ouzel Brook. A linear geophysical anomaly suggests that the settlement was bounded by an outer ditch, which would correlate with G237 at the west end of excavation area HRN3455 (Fig. 3.7). In addition, a series of enclosure ditches, pits, post-holes and a cobbled surface were identified within the narrow excavation area. The pottery dating suggests that the settlement was in use from the later 1st to the 3rd century, with two coins (Table 3.8) indicating some activity into the late 4th century.

The majority of the ditches within the excavation area were aligned NW–SE (L201 and L209). They were

typically at least 1.2m wide and 0.6m deep (Fig. 3.7 section a) and a number had been re-dug (Fig. 7 section f). It is likely that they defined enclosures. The smaller NE–SW aligned ditches (L205) are likely to represent internal divisions or drainage within the enclosures. A sample from ditch G227 (L205) produced charred remains, probably associated with the de-husking of spelt wheat. Ditches L201 produced two Roman coins and iron objects, including a ‘joiner’s dog’ and a socketed spearhead, together with a spherical ironstone ball that could be a slingshot.

Four clustered pits L204 of varying form were identified. They produced half of the pottery recovered from HRN3455. The majority derived from pit G224 and included a sherd which featured an inscription in ink. The pit was 1.6m in diameter and 0.7m deep (Fig. 3.7 section d). Adjacent pit G223 was similar in size; it was the only one of the four pits to have near-vertical sides and a flat base, suggesting it was a storage pit.

Limited evidence for structures was revealed within HRN3455. However, two loose clusters of postholes and small pits (L208) were located at either end of the excavation area and may relate to the partial remains of structures.

Cobbled surface G213 (L207) was 5.5 3.5m in extent and was situated adjacent to ditch G212. It comprised closely packed stones and fragments of Roman ceramic

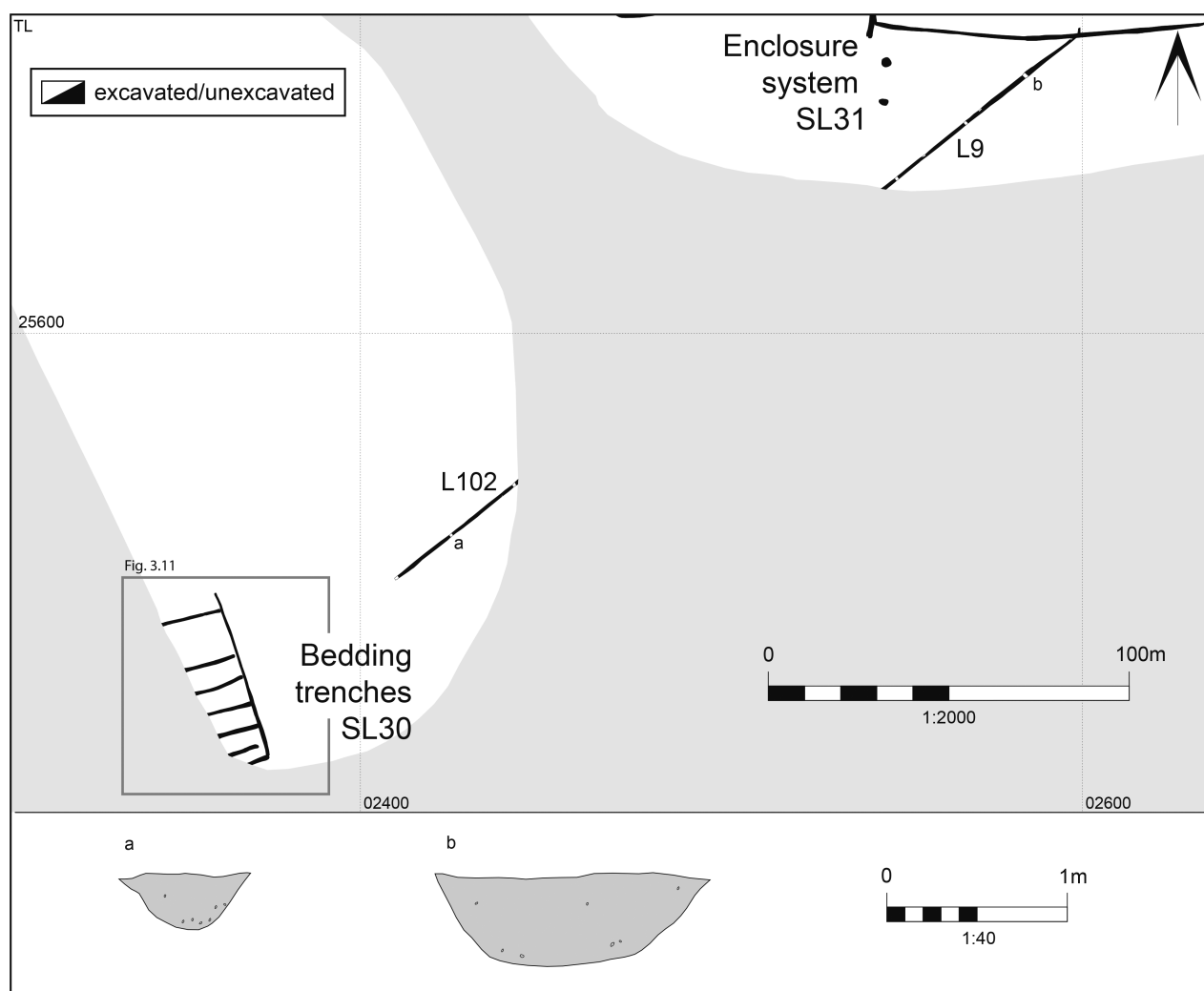


Figure 3.10 Plan of Roman (Phase 4) boundary L9/L102 in relation to bedding trenches SL30 and enclosure system SL31, with selected sections (HRN3456/3457)

building material (CBM), seemingly placed within a shallow depression (Fig. 3.7 section b). Its uneven nature is suggestive of a yard or road surface rather than the floor of a building. Other than the CBM, the surface produced no datable finds, although later 3rd- and 4th-century coins (HRN3455 – RA3 and RA4) were recovered from overlying deposits, which also produced 13 fragments of human skull and charred plant remains suggestive of the de-husking of spelt wheat.

Bedding trenches SL30

An array of bedding trenches L101 was located in the south-west corner of HRN3456 and clearly continued beyond the limit of excavation. It comprised six NE–SW aligned trenches G102, spaced *c.*6m apart. They were under 1m wide and 0.25m deep (Fig. 3.11 sections b–d; Plate 3.7). Their spacing suggests that there may have originally been a seventh trench at the north end of the system – the shallowness of the trenches indicates that they had been heavily truncated by modern ploughing.

Ditch G114 defined the array on its east and south sides. Some of the trenches appeared to terminate before this ditch while others appeared to join it. The features were too truncated to determine their true relationship, although they were clearly part of the same system.



Plate 3.7 Bedding trench G102 (L101, SL30, Phase 4), looking east. Scale 0.4m

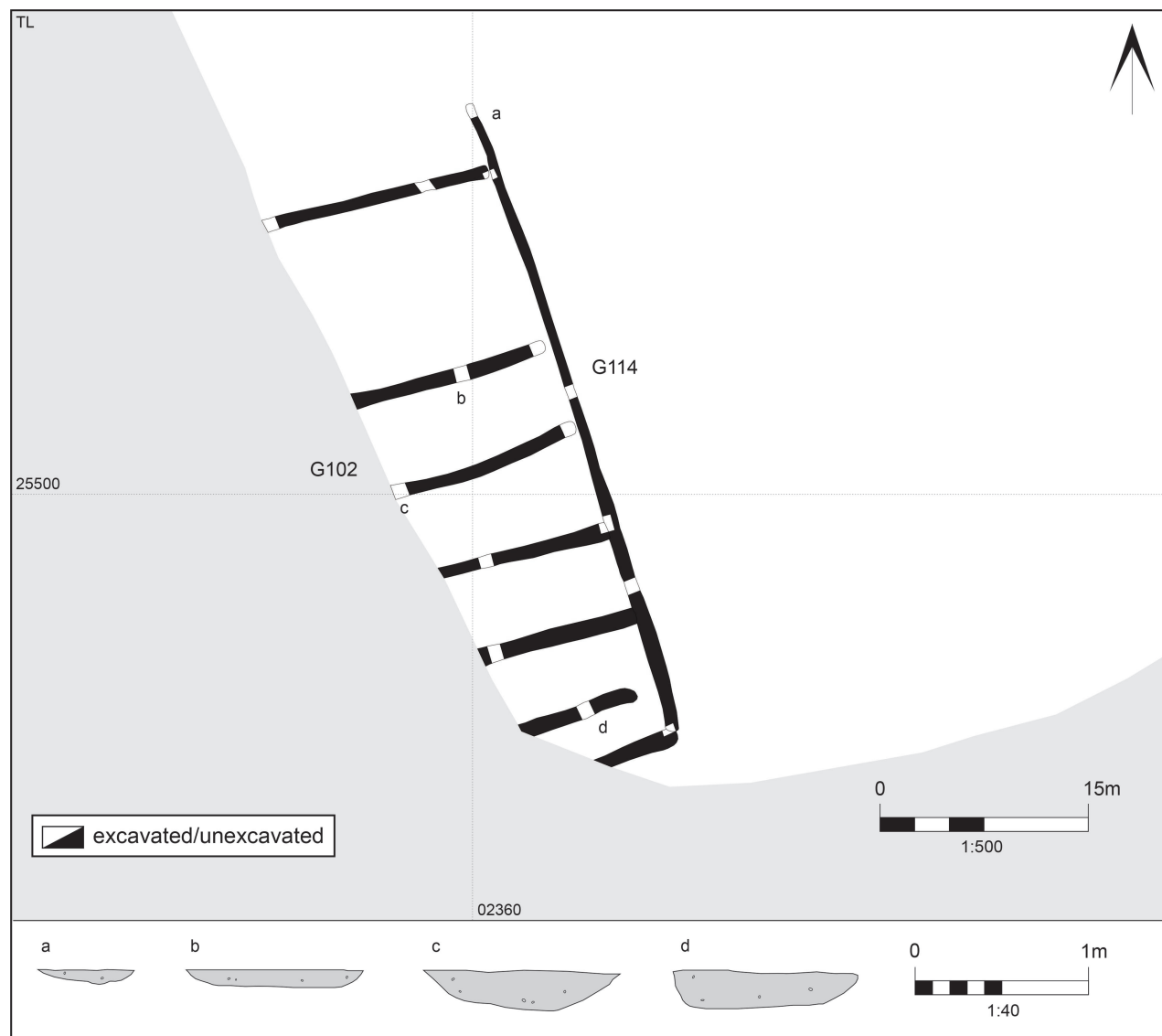


Figure 3.11 Plan of Roman (Phase 4) bedding trenches L101 (SL30) (HRN3456)

The ditch was similar in profile and dimensions to the trenches and appeared to get shallower, probably due to plough truncation, to the north (Fig. 3.11 section a). Dating evidence was limited to a single sherd of abraded late Iron Age pottery but their assignment to this phase is based on better-dated, comparable examples in southern Britain (Smith 2016, 183).

Enclosure system SL31

Enclosure system SL31 in HRN3457 was in a similar location to the late Iron Age/early Roman (Phase 3) settlement SL28 (see Fig. 3.8). Assignment of features to Phase 4 was based on pottery dating and stratigraphic

evidence. Much of the pottery assemblage was residual Iron Age material, but it did include late 1st- and 2nd-century Roman wares. The small size of the contemporary pottery assemblage and the limited number of pits and postholes suggest that SL31 may represent a peripheral activity area, rather than a focus of permanent settlement.

Enclosures and ditches

Enclosure L7 reused some of the Phase 3 ditches. The ditch on its north side was up to 1.1m deep (Fig. 3.12 section d); the ditch on its south side was half that size (Fig. 3.12 section f). There was some evidence of

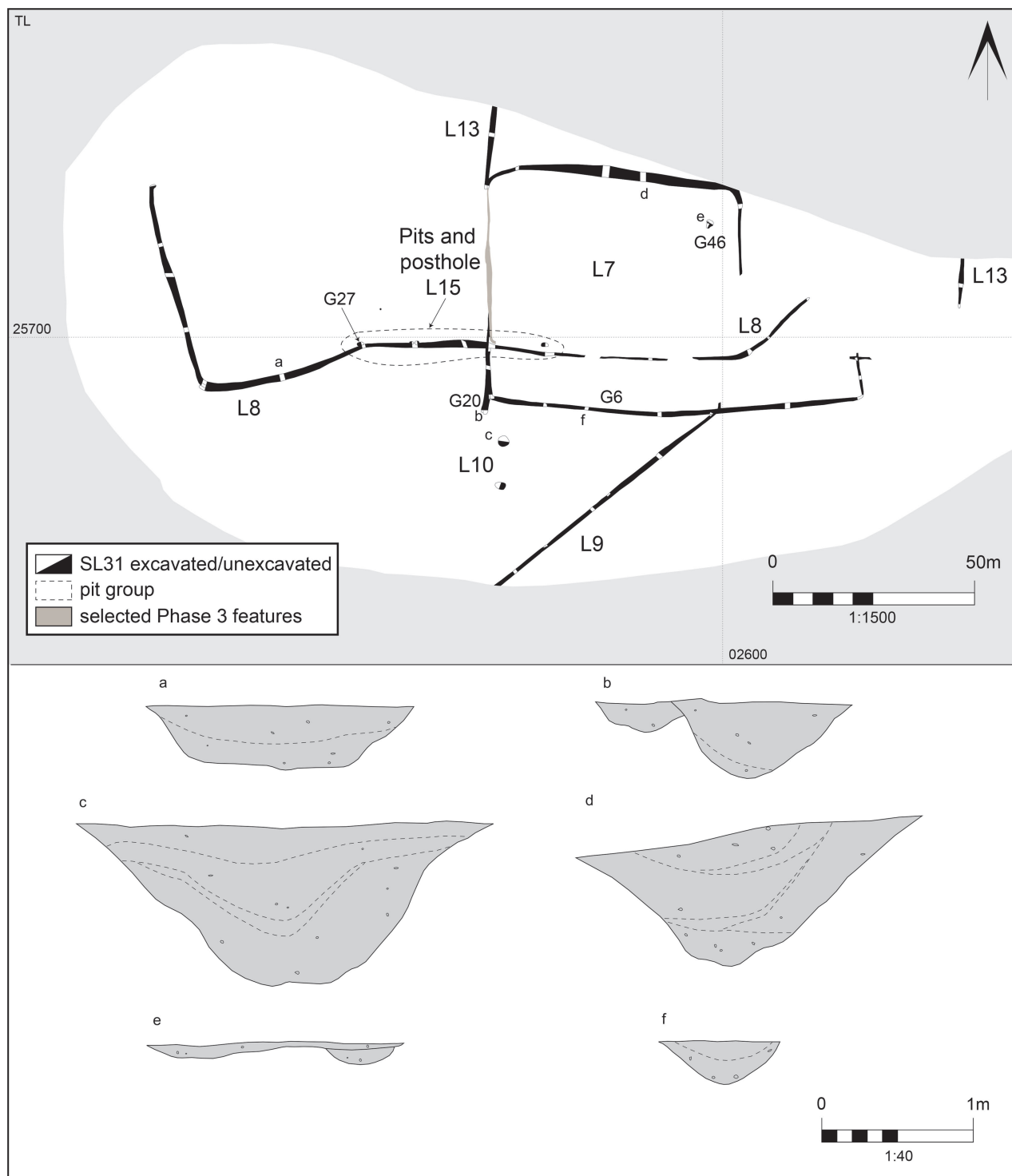


Figure 3.12 Plan of Roman (Phase 4) enclosure system SL31, with selected sections (HRN3457)

re-cutting (Fig. 3.12 section b) and some complexity in the ditch arrangements in the south-west corner of the enclosure where ditch G20 terminated, suggesting that there may have been an extension to the south. A copper alloy, Colchester Derivative brooch recovered from one of the L7 enclosure ditches was the most closely dated (c. AD 43–120) object associated with SL31. Two samples from the enclosure ditch and pit G27 contained fully processed (and de-husked) hulled spelt wheat grains, accidentally burnt during drying.

Additional boundaries or enclosures to the north and east of enclosure L7 are hinted at by the two ditches assigned to L13. They were c.1.2m wide and on a similar N–S alignment to enclosure L7, continuing beyond the limit of excavation.

Ditch L8 crossed the excavation area and does not fit neatly with enclosure L7. To the west, the ditch may define an L-shaped enclosure but it continues eastwards on an E–W alignment across the interior of L7, before turning onto a NE–SW alignment beyond the projected limit of the enclosure. While its alignment suggests that it is associated with enclosure L7, it does more than just sub-divide it; it appears to be a later modification and may have been associated with livestock management.

The NE–SW aligned boundary ditch L9 was on a different alignment to the ditches of SL31 but it stopped at the ditch on the south side of enclosure L7, suggesting it was contemporary. A shallow, short gully extended to the north; it may have originally continued to meet the east side of enclosure L7 or it may be associated with the NE–SW aligned part of ditch L8.

Pits and postholes

One of the few features within enclosure L7 was post-hole G46 (Fig. 3.12 section e). To the south, three pits and a posthole L15 were dug into the north side of ditch L8 and may be among the latest features in Phase 4. Pit G27 produced a rich assemblage of charred, hulled wheat grain. To the south of the main enclosures, two large pits L10 were located close to the projected alignment of ditch G20. They were c.2.5m in diameter and c.1m deep (Fig. 3.12 section c); they were probably large enough to have functioned as water-pits, although no waterlogged deposits were present.

Phase 5 (Early Anglo-Saxon)

Sunken-featured building G65 (L11, SL32)

The only firm evidence for early Anglo-Saxon activity comprised a single sunken-featured building (SFB) G65 in HRN 3456. Its location in relation to the earlier Phase 3 and 4 ditches suggests that these may still have been visible at this time.

The SFB comprised a rectangular pit (3.5 3.0 0.1m) with a pair of opposing postholes on its long axis; the latter contained postpipes that were c.0.2m in diameter and up to 0.6m deep (Plate 3.8). It also featured a smaller, central posthole (Fig. 3.13). Approximately 0.5kg of early Anglo-Saxon pottery was recovered from its fill, which also produced two iron nails, a fragment of a glass vessel and a Roman coin (HRN3457 – RA1).



Plate 3.8 Sunken-featured building G65 (L11, SL32, Phase 5) under investigation, looking south

3.3 POTTERY

Jackie Wells

Introduction and methodology

The assemblage totals 641 sherds (15kg), representing a minimum of 338 vessels. Some 78% (by sherd count) was recovered from HRN3457, 21% from HRN3455, and the remainder from HRN3456. The majority of the pottery derives from late Iron Age and early Roman features assigned to Phases 3 and 4 (Table 3.2). Later Iron Age wares constitute 65% of the assemblage by sherd count, with Roman wares totalling 30% and Anglo-Saxon the remainder. The pottery is discussed chronologically by fabric, form and deposition across the three excavation areas.

Methodology is described in Chapter 2 (p. 18–19) and the type series detailed in Table 3.3. No new fabric types were identified. Published descriptions are recorded in Parminster and Slowikowski (2004, 443–55). Wares and forms are common and well-represented from published excavations in the county; therefore, none was selected for illustration.

Phase	Sherd No.	% sherd	Wt. (g)	% Wt.
2	1	0.2	13	0.1
3	226	35.3	6371	42.3
4	383	59.7	8156	54.2
5	31	4.8	504	3.4
Total	641	100	15,044	100

Table 3.2 Pottery quantification by Phase

Results

Phase 2 (middle–late Bronze Age)

A highly abraded grog-tempered body sherd (13g) datable to the early 1st century AD was collected from boundary ditch L28 (SL23). The sherd is considered to be intrusive; it is likely to originate from Phase 3 enclosure L6 (SL28).

Phase 3 (late Iron Age/early Roman)

The Phase 3 assemblage totals 226 sherds (6.4kg: mean sherd weight 28g) and derives mainly from pits SL27 and enclosure system SL28 (Table 3.4), the latter including 14 sherds (828g) from a single vessel. A range of grog- and sand-tempered fabrics datable to the early 1st century AD occur. All are likely to be of local origin, although specific provenance is unknown. Most vessels are wheel-thrown;

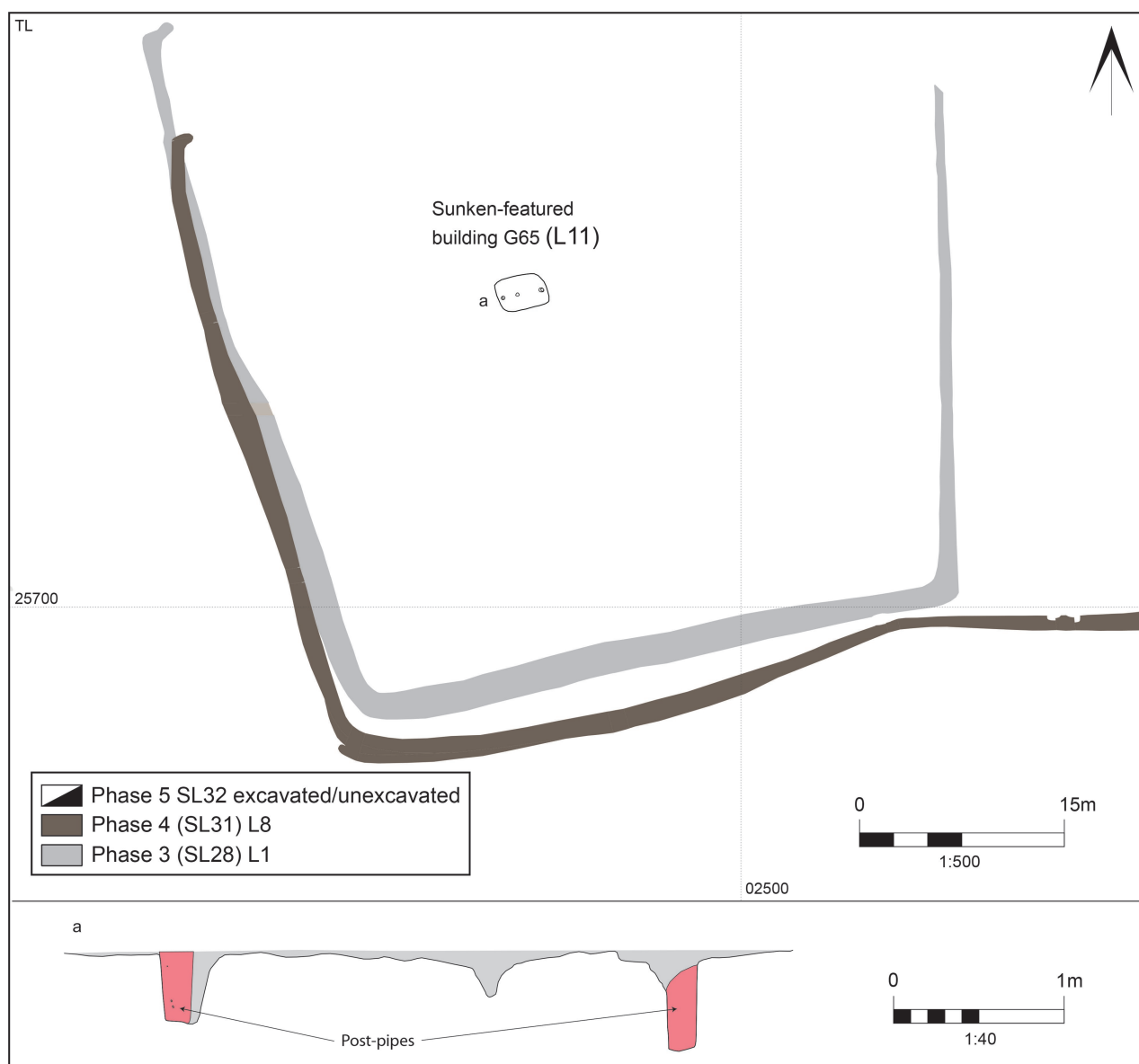


Figure 3.13 Plan of early Anglo-Saxon (Phase 5) activity L11 (SL32), with selected section (HRN3457)

some are hand-built with a wheel-finished shoulder and rim; and a few are entirely hand-built. Diagnostic forms are in the 'Belgic' tradition (after Thompson 1982) and comprise jars with simple everted or lid-seated rims, some with single/multiple cordons or combed decoration; large storage-type vessels; and a rouletted butt beaker.

Pottery collected from ditch L200 (SL25) comprises seven late Iron Age sherds (250g) in grog-, sand-, and shell-tempered fabrics. Diagnostic forms are two lid-seated jars and a storage-type vessel. Two abraded sand-tempered sherds of similar date (13g) derived from the northernmost of two probable postholes assigned to L100 (SL26).

Phase 4 (Roman)

A total of 383 sherds (8.2kg; mean sherd weight 21g) was collected. With the exception of a single abraded late Iron Age sherd (4g) recovered from SL30 bedding trenches L101, the assemblage derived entirely from settlements SL29 and SL31 (Table 3.5).

Settlement SL29: 126 sherds (3.1kg)

The majority of the SL29 assemblage occurred in pit group L204, principally G224, which contained 1.7kg, including 16 base and lower body sherds (766g) from a single Roman grey ware vessel. The remaining assemblage is well-fragmented, with most individual vessels weighing less than 150g.

Apart from a single late Iron Age sherd, all wares are fully Romanised, ranging in date from the later 1st to the 3rd century. The assemblage is predominantly local in character and comprises a standard range of sandy coarse wares (75 sherds) and a smaller quantity of shelly wares (17 sherds). A few regional wares occur, deriving from Buckinghamshire (pink-grogged ware), the Verulamium region (white ware), the Nene Valley (colour-coated ware), Oxfordshire (oxidised ware), and Dorset (black-burnished ware). Eight highly abraded samian sherds (32g), deriving from central and south Gaul (four sherds each), are the sole continental import. The samian ranges in date from AD 50 to AD 200 and includes a form 35 cup and a Ritterling 12 bowl.

Fabric type	Common name	No. Sherd	Wt. (g)
<i>Iron Age</i>			
F03	Grog and sand	9	329
F05	Grog and shell	4	282
F06A	Fine grog	34	575
F06B	Medium grog	111	2,519
F06C	Coarse grog	36	1,398
F07	Shell	26	534
F09	Sand and grog	114	3,732
F17	Grog	1	4
F32	Sand and flint	2	13
F34	Sand	55	908
F39	Grog and mica	9	183
F	Non-specific Iron Age	27	220
<i>Roman</i>			
R01A	Central Gaulish samian	11	87
R01B	South Gaulish samian	4	26
R03B	Gritty white ware	4	128
R05A	Oxidised sandy	1	54
R06B	Coarse grey ware	62	1,409
R06C	Fine grey ware	18	225
R06F	Grog and sand grey ware	15	335
R06G	Silty grey ware	1	2
R06H	White-slipped grey ware	7	25
R06I	Black-slipped grey ware	13	205
R07A	Black-burnished ware	2	65
R07B	Sandy black ware	2	26
R09A	Pink-grogged ware	2	82
R11	Oxford oxidised ware	1	9
R11E	Oxford white ware	2	86
R12B	Nene Valley colour-coated ware	5	43
R13	Shelly ware	23	648
R14	Sand (red-brown harsh)	5	211
R18A	Gritty pink ware	1	12
R21	Mortaria (unprovenanced)	1	99
R22A	Hadham oxidised ware	1	66
<i>Anglo-Saxon</i>			
A16	Coarse quartz	21	395
A18	Fine quartz	7	55
A19	Quartz and organic	3	54

Table 3.3 Pottery type series

Site Landscape	Land-use Area	Sherd No.	Wt. (g)
SL25 Settlement	L200	7	250
SL26 Deep pits	L100	2	13
SL27 Pits	L5 (clustered) and L19 (dispersed)	83	2354
SL28 Settlement	L1 Enclosure	46	915
	L2 Partial enclosure	67	1990
	L3 Ditch	1	6
	L6 Enclosure	20	843
Total		226	6371

Table 3.4 Late Iron Age/early Roman (Phase 3) pottery quantification by Site Landscape and Land-use Area

Site Landscape	Land-use Area	Sherd No.	Wt. (g)
SL29 Settlement	L201 Enclosure ditches	38	803
	L204 Pit cluster	61	1737
	L205 Enclosure ditches	8	193
	L207 Stone surface	19	443
	L101 Bedding trenches	1	4
SL30 Bedding trench array			
SL31 Enclosure system	L7 Enclosure	129	2047
	L8 Ditch	70	1609
	L9 Boundary ditch	2	38
	L10 Large pits	3	22
	L13 Ditches	6	33
	L14 Pits (within enclosure L7)	4	36
	L15 Pits (cutting L8)	41	1113
	L102 Boundary ditch	1	78
Total		383	8156

Table 3.5 Roman (Phase 4) pottery quantification by Site Landscape and Land-use Area

Non-samian forms include jars with simple everted rims, a rouletted beaker, flanged bowls, mortaria and a flagon. The latter derived from the fill of pit G224 (L204) within settlement SL29 and is of particular interest as it has an unusual ink-written inscription (Plate 3.9):



Plate 3.9 Pottery sherd with unusual ink-written inscription. Scale 0.1m

LAGONAE [.IEO[...]] IOVIS ET VOLKANI
lagonae [d]eo[rum] I Iovis et Volkani
 'For a flagon of the gods Jupiter and Vulcan.'

The sherd was examined by Dr Roger Tomlin, whose detailed comments are reproduced below; it is also published in *Britannia* (2019, 496–7).

Line 2 is indented with respect to line 1, and if [D]EO[RVM] is correct, it would seem that line 2 was centred below line 1, as if together they formed a heading. There is no sign of any text above or to the left, but the broken edge below is too close to be quite sure there was not a third line. The sequence LAGON is quite clear, with L and O both made rather narrow (like ET in line 2), and A with a short diagonal cross-stroke. This cross-stroke is now missing from the second A which follows N. A is followed by a vertical stroke, which is probably a narrow E like that in ET below. The resulting *lagonae* might be either genitive or dative, but may be taken as a 'dative of purpose', the intended use of the flagon. After *lagonae* there is a space, then faint trace of what looks like 'IC', which in view of line 2 (the names of two deities in the genitive case) can be restored as [D]EO[RVM]. A photograph taken by infra-red did not reveal any more than this. Line 2, after the initial IOVI, is a little faint and rubbed, but the reading is certain.

Lagona (variously spelt) means 'a bottle with a narrow neck, flask, flagon; esp. a wine-flask, bottle of wine' (*OLD*). In Britain it is applied to a wine-amphora (*RIB* II.6, 2492.7), a storage jar (II.8, 2502.4) and a jug (2503.111), but the only parallel for its use in a religious context seems to be the jug from Le Rondet (Switzerland), which carries two separate but related graffiti, *lagona* and *Is[i]di*: 'a flagon for Isis' (L. Bricault, *Recueil des inscriptions concernant les cultes isiaques* (2015), illustrated in *Epigraphica* 71 (2009), 400, fig. 7). There is evidence from Britain for the cults of Jupiter and Vulcan being combined, in a silver plate (*RIB* 215) and a stone altar (899) dedicated to them jointly; *RIB* 835 may be another such

altar. The purpose of this flagon can only be guessed, but perhaps it held wine to refresh a guild of worshippers. Such *collegia* are attested for Apollo (*RIB* 611), Mercury (2102, 2103), Minerva (1268) and Silvanus (1136+*add.*, II.3, 2422.52).

Enclosure system SL31: 255 sherds (4.8kg)

Pottery assigned to SL31 derived mainly from enclosure L7 and ditch L8, the latter including 31 sherds (840g) from a single lid-seated vessel. In common with SL29, the remainder of the assemblage is well-fragmented, with most individual vessels weighing less than 150g.

Fifty-four sherds (629g) are Roman in date (mainly late 1st and 2nd century) and the remainder late Iron Age (early to mid-1st century AD). Iron Age wares are comparable in form and fabric to those collected from Phase 3 features. Additional forms are a platter and a corrugated vessel.

The Roman assemblage almost entirely comprises locally manufactured sandy coarse wares (36 sherds) and a smaller quantity of shelly wares (6 sherds). Regional and continental wares are less well-represented than within L29, and respectively comprise a reeded-rim white ware bowl from the Verulamium region and seven central Gaulish samian sherds (c. AD 120–200) including a form 15/31 and a possible form 37 bowl.

Phase 5 (early Anglo-Saxon)

The fills of sunken-featured building SL32 yielded 31 sherds, representing 15 hand-built vessels (504g). Wares are principally sand-tempered, typical of the period; three sherds also contain organic matter. The pottery is well-preserved, with a mean sherd weight of 16g. It is largely undiagnostic of form – an upright, incurving rim and flat-rounded base are the only feature sherds. The pottery is undecorated, although several sherds have smoothed or wiped surfaces. The largest single vessel comprises six sherds, weighing only 123g.

Summary

The majority of the assemblage is later Iron Age and early Roman in date, and primarily local in character. Roman pottery is largely low-status and domestic, indicated by the basic, utilitarian wares present, and the small quantity of regional and continental imports. With the exception of the flagon sherd with the ink-written inscription from HRN3455, the pottery is typical of the period and locality, and compares well with material recovered from other sites in the Houghton Regis

environs, e.g. HRN3205 (Chap. 2), Woodside Link (Chap. 5), HRN3206 (Luke and Barker 2021), and the A5–M1 Link (Brown 2020).

The small Anglo-Saxon assemblage from HRN3457 is of interest as it demonstrates a degree of continuity from the Roman period. Pottery of this date is largely absent from the neighbouring sites, although small assemblages were recovered from HRN3205 (p. 21) and from pits and cultivation features at Site F on the A5–M1 Link (Brown 2020, 6).

3.4 CERAMIC BUILDING MATERIAL

Jackie Wells

Introduction

Brick, tile and fired clay were recorded by fabric type, and quantified by minimum fragment count and weight. Brick and tile derived entirely from HRN3455 and fired clay principally from HRN3457 (Table 3.6).

Results

Phase 3 (late Iron Age / early Roman)

Forty-one fired clay fragments (3.2kg) were collected from pits L5 (SL27) and enclosures L1, L2 and L6 (SL28). They mainly occur in a sandy organic fabric; most are amorphous, although a few retain traces of flat or slightly undulating finger-smoothed surfaces. Portable furniture includes fragments from a minimum of 14 handmade slabs, ranging in thickness from 25mm to 40mm. Slabs occur with greatest frequency on late Iron Age and early Roman sites; they are likely to represent ‘bake stones’ or temporary shelves in ovens or kilns. Fragments of a tray or slab with raised edges and a plate with pre-firing circular perforations (diameter 30mm) also occur.

Phase 4 (Roman)

Settlement SL29 yielded Roman building material (4.8kg) of standard form: tegula (24 examples), imbrex (12) and a single stamped flue tile; they occur in abraded, oxidised, sand- or pink grog-tempered fabrics. The latter are likely to be products of kilns in the Towcester/Milton Keynes environs (Booth and Green 1989, 82), and are typically poorly represented in Bedfordshire assemblages. Extant tegulae flanges are D-shaped and two have knife-cut rebates.

Most of the material was collected from enclosure ditches L201 or associated with stone surface L207

			Brick and tile		Fired clay	
Phase	Site Landscape	Land-use Area	Frag. No.	Wt. (g)	Frag. No.	Wt. (g)
3	SL27 Pits	L5 (clustered)	-	-	29	2032
	SL28 Settlement	L1, L2, L6 Enclosures	-	-	12	1,200
4	SL29 Settlement	L201 Enclosure ditch	24	3484	1	133
		L204 Pit group	1	51	-	-
		L205 Enclosure ditches	1	93	-	-
		L207 Stone surface	10	1127	-	-
		L209 Ditches	1	99	-	-
	SL31 Enclosure system	L7 Enclosure	-	-	3	201
		L8 Ditch	-	-	13	451
		L13 Ditches	-	-	1	44
		L15 Pits (cutting L8)	-	-	1	16
Total			37	4854	19	845

Table 3.6 Ceramic building material quantification by Site Landscape and Land-use Area

where they had been reused in its construction. Nineteen fired clay fragments (845g) derived from SL31, principally enclosures L7 and ditch L8. The latter contained two pieces of daub (125g), distinguished by wattle/lath impressions. Part of a handmade, sand and organic slab (thickness 34mm) derived from SL29 enclosure ditch L201.

3.5 OTHER ARTEFACTS

Holly B. Duncan and Jackie Wells, with coins identified by Peter Guest

Introduction

Twenty-six objects of iron (10 examples), copper alloy (9), flint (2), lead alloy (2), silver, glass and stone (1 each) were recovered, the majority from Roman features assigned to Phase 4 (Table 3.7). None was selected for illustration; all are fully catalogued in the archive. The coins are catalogued separately in Table 3.8.

Results

Phase 3 (late Iron Age/early Roman)

An illegible, early 1st-century AD, copper alloy coin was recovered from ditch L200 (SL25) (HRN3455 – RA2).

The fills of enclosure ditch L2 (SL28) produced a battered Mesolithic to early Neolithic flint blade core fragment with opposed platforms and small blade-like removal scars. Post-depositional damage is indicative of its residual nature.

Clustered pits L5 (SL27) yielded four objects. A possible copper alloy mount from pit cluster G35 comprises a rectangular strip (30 × 9mm) with a small, integral, D-shaped loop at either end of the reverse surface, the loop oriented transversely. The obverse surface has engraved decoration; a vertical line divides the surface in two, each zone has eight lines radiating from a central point. The object bears some similarities to strap or apron mounts, in particular the pattern of decoration (cf. Webster 1960, fig. 5 no. 134), although such mounts have integral rivets rather than loops. There are also similarities to rectangular shield plate brooches (cf. Mackreth 2011, pl. 124 nos 7888–11675), although the loops are set in the wrong orientation to serve as a form of pin.

A lead alloy strip fragment and iron nail head recovered from storage pit G47 (L5) are not particularly informative, but an iron Drahtfibel brooch (Mackreth's D1.b; 2011, 22), spanning the period c.50 BC–AD 50, suggests a late Iron Age date for the infilling of the feature. The presence of personal dress items in Iron Age pit fills, although not unknown, is relatively rare (Hill

1995, 66) and this could perhaps signal that the infilling of the storage pit was a significant event.

Phase 4 (Roman)

Phase 4 features yielded 15 objects, the majority deriving from settlement SL29.

Settlement SL29

Enclosure ditches G207 and G218 (L201) contained two Roman coins: a copper alloy *dupondius* of Hadrian (AD 117–38: HRN3455 – RA6) and a later 4th-century silver *siliqua* of Valentinian I (HRN3455 – RA1) minted at Thessalonica, Greece. Iron objects collected from the same ditches comprise a 'joiner's dog' and a socketed spearhead. Although incomplete, the latter appears to be an example of Manning's type 3, with a narrow blade with expansion at the base (1976, 19–20), broadly datable to the Roman period. An indeterminate copper alloy strip fragment and a naturally occurring spherical ironstone ball (63g) were also collected. Examples of the latter have been utilised as slingshot, possibly in hunting as well as warfare (Cunliffe 1984, 425–6; Greep 1987, 183–200).

The deposits above stone surface G213 (L207) yielded two poorly preserved copper alloy coins of later 3rd- and 4th-century date (HRN3455 – RA3 and RA4); a flat-headed, general-purpose nail (Manning type 1b: 1985, 134–5); and a large, robust S-shaped hook. The nail and hook are not typologically datable, but the size of the hook (102mm long) suggests that it may have been used for suspension (steelyard?) or perhaps as a harness or cart fitting.

Enclosure system SL31

Collected from the ditch fills of enclosure L7, a copper alloy Colchester Derivative brooch (Mackreth's CD Ha 1.a3a.d; 2011, 52–3: c. AD 43–120) is the most closely datable object associated with SL31.

A lead alloy 'waisted' vessel repair plug derived from L102 boundary ditch G104. Such items, which are known from the Roman and medieval periods, are not typologically datable. Part of a flat-headed iron nail and an indeterminate tapering iron fragment (66mm long) are similarly enigmatic. A damaged narrow flint blade with parallel ridges can be assigned a Mesolithic to early Neolithic date.

Phase 5 (early Anglo-Saxon)

Objects collected from the fills of sunken-featured building G65 (L11, SL32) are portions from two iron timber nails, a late Roman coin of Valens, AD 364–78

Phase	Site Landscape	Land-use Area		Description
3	SL25 Settlement	L200	Ditch	Copper alloy coin
	SL27 Pits	L5	Pits (clustered)	Iron brooch, iron nail, copper alloy mount, lead alloy strip
	SL28 Settlement	L2	Partial enclosure	Flint core
4	SL29 Settlement	L201	Enclosure ditches	Silver coin, copper alloy coin, iron timber dog, iron socket, copper alloy fragment, ironstone fossil sphere
		L207	Stone surface	Copper alloy coin 2, iron hook, iron nail
		L7	Enclosure	Copper alloy brooch
	SL31 Enclosure system	L8	Ditch	Iron fragment, flint blade
		L14	Pits (within enclosure L7)	Iron nail
		L102	Boundary ditch	Lead alloy vessel repair
5	SL32 ?Settlement	L11	Sunken-featured building	Copper alloy coin, iron nail 2, vessel glass

Table 3.7 Other artefacts by Phase and Land-use Area

Area	RA	SL	L	Denom.	Date (AD)	Ruler/Obverse	Reverse
HRN3455	2	25	200	Cu A unit	early 1st C.	Uncertain	Uncertain
HRN3455	6	29	201	Dupondius	117–38	HADRIAN	Uncertain
HRN3455	3	29	207	AE4 copy	353–64	As House of Constantine	as FEL TEMP REPARATIO (falling horseman)
HRN3455	1	29	201	Siliqua	364–67	VALENTINIAN	RESTITVTOR REIP (Mint: Thessalonica //TES)
HRN3455	4	29	207	AE3	late 3rd–4th C.	Uncertain	Uncertain
HRN3456	5	TS	TS	AE4 minim	late 3rd–4th C.	Uncertain	Uncertain
HRN3457	1	32	11	AE3	364–78	VALENS	SECVRITAS REIPVBLICAE (Mint mark //[…])
HRN3457	4	TS	TS	Cu A unit	early 1st C.	Pegasus right, CV-NO behind & below Pegasus	Victory sacrificing bull right, TASCI below

TS = topsoil and other overburden deposits

Table 3.8 Coins by excavation area and RA number

(HRN3457 – RA1), and a tiny fragment (<1g) from a pale greenish-yellow glass vessel with self-coloured raised trails, which may date to the 3rd or 4th century. Although the coin could be residual, it perhaps reflects the Anglo-Saxon penchant for collecting and curating Roman objects.

Overburden

Overburden deposits near palaeochannel SL21 contained a copper alloy, later 3rd- to 4th-century coin (HRN3456 – RA5). Pre-Roman finds from modern ploughsoil included a copper alloy Nauheim brooch of Mackreth's Nauheim 1.a (2011, 14), dating to c.50 BC–AD 50 and a copper alloy, late Iron Age coin (see below).

Iron Age and Roman coins

Peter Guest

Excavation areas HRN3455, HRN3456 and HRN3457 produced a total of five, one, and two coins respectively, comprising two late Iron Age copper alloy coins and six Roman coins (Table 3.8). The presence of the Iron Age units, one of which was struck in the name of Cunobelin (HRN3457 – RA4), confirms later prehistoric occupation. The remaining six coins included a *dupondius* of Hadrian (HRN3455 – RA6), and three 4th-century issues, including an unclipped *siliqua* of Valentinian I (HRN3455 – RA1). It is noteworthy that the three excavation areas did not produce any late 3rd-century *radiates* or Constantinian issues that were both so common at nearby HRN3206 (Guest 2021).

3.6 ANIMAL BONE

Mark Maltby

Introduction and methodology

HRN3455 produced 201 fragments of animal bone (c.3.9kg); HRN3456 produced just two fragments (1g); and HRN3457 produced 435 fragments (c.4.7kg). Most of the assemblage was recovered from late Iron Age/early Roman (Phase 3) and Roman (Phase 4) features.

All the bones and teeth were recorded individually onto a relational database. The following data were recorded where appropriate for each specimen: species; anatomical element; zones of bone present; approximate percentage of bone present; gnawing damage; erosion; weathering; concretions; burning (charring and calcification); fusion data; other comments including observations of pathology. Separate tables linked to the main table by an individual identification number were

created for metrical and tooth ageing data. Tooth eruption and wear descriptions for cattle and sheep/goat followed the method of Grant (1982). Measurements followed those described by von den Driesch (1976). All fragments, including loose teeth, shaft fragments, rib heads and vertebrae were recorded to species level where possible. The method of recording was identical to those carried out by the author in analyses of other assemblages excavated by Albion Archaeology, including the material from HRN3205 (Section 2.6), Woodside Link (Section 5.6), and HRN3206 (Maltby 2021).

Results

Phase 1 (palaeochannels)

The only animal bones from HRN3456 came from a sieved sample from palaeochannel L107 (SL21). Two calcined unidentified mammal fragments, possibly from the same bone, were the only elements recovered.

Phase 2 (middle–late Bronze Age)

A single small bone fragment identified as a cattle mandible was recovered from the terminus of ditch L29 (SL23) on HRN3457. The mandible was from a young adult.

Phase 3 (late Iron Age/early Roman)

Twenty-one bone fragments were recovered from ditch L200 (SL25) on HRN3455, including five bones of cattle consisting of three weathered radius fragments and two tibia fragments. Two of these bones came from immature cattle. One of the unidentified mammal fragments was charred.

The majority of the Phase 3 animal bone was recovered from features assigned to SL27 and SL28 – a total of 271 fragments from five Land-use Areas on HRN3457. These included 138 fragments retrieved from sieved samples, of which 131 were of unidentified mammal. Altogether, 80 fragments were identified. Cattle (46%) were the most commonly identified species, followed by sheep/goat (34%), pig (13%), horse (3%) and dog (1%) (Table 3.9). Three bones of frog/toad were recovered from a sieved sample. No bones of wild mammals, bird or fish were identified. The percentages were fairly similar to those obtained from contemporary deposits from HRN3206 (Maltby 2021), in which pigs were better represented than in subsequent Roman phases.

Preservation

The assemblage was generally quite poorly preserved. Erosion damage, sometimes severe, was recorded on 54 (68%) of the identified elements and weathering

	SL25 L200	SL27 L5	SL28				Total	%
			L1	L2	L4	L6		
Cattle	5	16	9	5	-	7	37	46
Sheep/goat	-	21	4	1	-	1	27	34
Pig	-	8	1	-	-	1	10	13
Horse	-	1	-	1	-	-	2	3
Dog	-	1	-	-	-	-	1	1
Frog/toad	-	3	-	-	-	-	3	4
Total identified	5	50	14	7	0	9	80	
Unidentified	16	122	4	23	3	39	207	
Total	21	172	18	30	3	48	287	

Counts are of numbers of individual specimens (NISP).
Totals include bones from sieved samples.

Table 3.9 Late Iron Age/early Roman (Phase 3) animal bone species by Site Landscape and Land-use Area

on 21 (26%). Gnawing damage was recorded on two cattle bones. Subsequent erosion would have obliterated evidence of many gnawing marks. Fifty of the elements were burnt. Most of these belonged to unidentified mammal fragments recovered from a sieved sample from storage pit G47, which also produced four burnt sheep/goat and two burnt pig elements. Preservation conditions would have hindered the chances of recovery of the more fragile bones (Table 3.10). No butchered bones were recorded. Tooth ageing records were only possible on one cattle mandible and three each of sheep/goat and pig. The cattle mandible belonged to a mature adult. Two of the sheep/goat mandibles belonged to sheep probably slaughtered during their second year. The third belonged to a mature adult. The three pig mandibles belonged to animals that died in their first, second and third years. Epiphyseal fusion data was obtained from ten cattle, eight sheep/goat and two pig bones. These merely confirmed that both immature and adult animals were represented.

	SL25	SL27 and 28				
	Cattle	Cattle	S/G	Pig	Horse	Dog
Skull fragments	-	1	1	-	-	-
Mandible	-	5	2	3	-	-
Loose teeth	-	5	4	1	-	-
Scapula	-	1	-	-	1	-
Humerus	-	5	1	2	-	1
Radius	3	2	2	-	-	-
Pelvis	-	-	-	-	1	-
Femur	-	2	2	-	-	-
Tibia	2	6	6	1	-	-
Astragalus	-	1	-	-	-	-
Calcaneus	-	-	1	-	-	-
Metacarpal	-	-	3	-	-	-
Metatarsal	-	7	4	-	-	-
Phalanx 1	-	-	-	1	-	-
Phalanx 2	-	-	1	-	-	-
Phalanx 3	-	2	-	-	-	-
Atlas (VC1)	-	-	-	1	-	-
Thoracic vertebrae	-	-	-	1	-	-
Total	5	37	27	10	2	1

S/G = sheep/goat

Table 3.10 Late Iron Age/early Roman (Phase 3) animal bone elements by Site Landscape and species

Clustered and dispersed pits SL27

A total of 172 animal bone fragments were recovered from clustered pits L5, including 50 identified elements.

Sheep/goat elements were the most commonly recorded. Their 21 elements included a mandible of a sub-adult sheep (from pit cluster G35). Two sheep/goat femur fragments, a calcaneus and a complete sheep metacarpal from storage pit G47 were burnt. The same pit produced another fairly complete sheep metacarpal, three substantial portions of sheep metatarsals, two largely complete sheep/goat tibiae and part of a horned ewe skull.

Sixteen cattle and eight pig elements were also recovered from L5. A pig atlas and thoracic vertebra from pit G47 were burnt. A pig mandible from one of the pits in cluster G37 belonged to a juvenile animal. Horse and dog were only represented by single specimens. Three bones of frog/toad were recovered from a sieved sample from pit cluster G37.

Enclosure system SL28

Enclosure L1

Eighteen, mainly heavily eroded, animal bone elements were recovered, of which fourteen were identified. The nine cattle elements included a fairly complete tibia of an adult. A mandible also belonged to a mature adult. Two of the four sheep/goat elements were heavily worn molars probably from the same animal. A mandible of a young adult pig was also recovered.

Possible Enclosure And Associated Features L2

Thirty animal bone fragments were recovered, of which only seven were identified. Most of the bones were eroded. Sieved samples accounted for 21 of the unidentified mammal fragments. Five elements of cattle and one each of a lamb and horse were identified. A fairly complete cattle metatarsal was found in one of the enclosure ditches.

Post-built structures L4

Only three unidentified mammal fragments were recovered from a sieved sample from one of the postholes.

Enclosure L6

A total of 48 bone fragments were recovered, of which 39 were unidentified. Most of the bones were eroded. Seven of the nine identified elements belonged to cattle. These included the back portion of a skull. A sheep/goat mandible belonged to a mature adult whereas a pig mandible came from a sub-adult.

Phase 4 (Roman)**Settlement SL29**

A total of 180 fragments were recovered. These included 37 unidentified mammal fragments retrieved from sieved samples. A total of 53 fragments were identified. These were dominated by cattle (79%), with horse (11%) and sheep/goat (10%) the only other species recorded (Table 3.11).

Preservation

The assemblage was generally poorly preserved with heavy erosion on many elements including 18 (34%) of the identified bones. Weathering was also recorded on 17 (32%) of the identified bones. Eight of the unidentified mammal elements were burnt. Preservation conditions would have severely affected the chances of survival of the less robust bones, particularly those of smaller species such as sheep/goat and pig (Table 3.12). No butchered bones were recorded. Evidence of processing marks would probably have been obliterated by erosion. Only three bones could be measured, and tooth ageing

records were only possible on three cattle jaws. All three belonged to adults. Epiphyseal fusion data was obtained from only 14 bones, mainly of cattle. These revealed the presence of immature as well as adult cattle.

Ditches L201

In total, 82 bone fragments were recovered, including 53 of unidentified mammal. Twenty-three of the 29 identified elements belonged to cattle (Table 3.11). These included parts of three humeri and a substantially complete radius of an adult animal. The other two radius fragments had unfused distal epiphyses and belonged to younger cattle. Other adult cattle were represented by a mandible and a maxilla with fully erupted cheek teeth and by a femur with a fused proximal epiphysis. A humerus and calcaneus had been damaged by dog gnawing. The five horse elements included two loose teeth and a radius of adult animals. Sheep/goat was represented by an eroded tibia fragment.

	SL29								SL31							
	L201	L204	L205	L207	L208	L209	Total	%	L7	L8	L13	L15	Total	%	Total	%
Cattle	23	1	2	14	1	1	42	79	13	13	2	-	28	48	70	63
Sheep/goat	1	3	-	1	-	-	5	10	6	7	3	-	16	28	21	19
Pig	-	-	-	-	-	-	-	-	2	4	-	-	6	10	6	5
Horse	5	-	-	1	-	-	6	11	3	2	1	-	6	10	12	11
Dog	-	-	-	-	-	-	-	-	1	-	-	-	1	2	1	1
Frog/toad	-	-	-	-	-	-	-	-	-	1	-	-	1	2	1	1
Total identified	29	4	2	16	1	1	53		25	27	6	0	58		111	
Unidentified	53	7	2	57	6	2	127		13	15	5	24	57		184	
Total	82	11	4	73	7	3	180		38	42	11	24	115		295	

Counts are of numbers of individual specimens (NISP)

Total includes bones from sieved samples

Table 3.11 Roman (Phase 4) animal bone by Site Landscape and Land-use Area

	SL29			SL31				
	Cattle	S/G	Horse	Cattle	S/G	Pig	Horse	Dog
Skull fragments	-	-	-	-	-	1	-	-
Horn core	-	-	-	1	-	-	-	-
Maxilla	1	-	-	-	-	1	-	-
Mandible	3	-	-	2	2	2	1	-
Loose teeth	5	3	2	9	5	1	-	-
Scapula	2	-	-	3	-	-	-	-
Humerus	3	1	-	-	1	1	-	-
Radius	4	-	1	2	2	-	1	-
Ulna	1	-	-	1	-	-	1	-
Pelvis	2	-	-	-	-	-	-	-
Femur	3	-	-	-	-	-	-	-
Patella	-	-	1	-	-	-	-	-
Tibia	3	1	-	2	3	-	-	-
Astragalus	-	-	-	1	-	-	-	-
Calcaneus	2	-	-	1	1	-	-	1
Metacarpal	4	-	-	1	1	-	-	-
Metatarsal	1	-	-	1	-	-	1	-
Metapodial	1	-	1	-	-	-	-	-
Phalanx 1	2	-	1	2	1	-	2	-
Phalanx 2	1	-	-	1	-	-	-	-
Atlas (VC1)	1	-	-	-	-	-	-	-
Axis (VC2)	1	-	-	1	-	-	-	-
Thoracic vertebrae	1	-	-	-	-	-	-	-
Ribs	1	-	-	-	-	-	-	-
Total	42	5	6	28	16	6	6	1

S/G = sheep/goat

Table 3.12 Roman (Phase 4) animal bone elements by Site Landscape and species

Pits L204

Only 11 bone fragments were recovered. These included two teeth and a humerus fragment of sheep/goat and a cattle metacarpal damaged by canid gnawing.

Enclosure ditches L205

Only two unidentified mammal fragments were recovered.

Stone surface L207

A total of 73 fragments were recovered, including 37 from a sieved sample, four of which were burnt. Fourteen of the sixteen identified elements belonged to cattle. These included the distal half of a femur of an immature animal. A sheep/goat tooth and a horse metapodials fragment were also identified.

Clusters of postholes and small pits L208

Six of the seven animal bone fragments were from unidentified mammals. An eroded fragment of cattle tibia was also recovered.

Ditches L209

The three bone fragments included a cattle first phalanx.

Enclosure system SL31

In total, 115 animal bone fragments were recovered. These included 31 fragments from sieved samples, of which 30 were of unidentified mammal. A total of 58 fragments were identified. Cattle were the most commonly identified followed by sheep/goat. Pig, horse and dog were also found in small numbers (Table 3.11). An amphibian bone was recovered from a sieved sample.

Preservation

The assemblage was generally poorly preserved. Erosion was recorded on 41 (71%) of the identified elements. Eleven (19%) identified elements were recorded as weathered. Canid gnawing was observed on a horse and two cattle bones. Eighteen of the unidentified mammal fragments were burnt. As in previous phases, poor preservation favoured the survival of more robust elements such as loose teeth (Table 3.12). Again, no butchered bones were recorded and only five bones were measured. There were very few jaws that provided ageing data. Two worn cattle third molars belonged to adults. Two sheep/goat mandibles belonged to mature adults, whilst a third belonged to an immature sheep. Two pig jaws were from animals culled in their second year. Epiphyseal fusion data was obtained from eight cattle, four horse and two sheep/goat bones. These merely confirmed the presence of adult and immature stock.

Enclosure L7

The 38 recovered bone fragments included 13 unidentified fragments; while 13 cattle elements included a complete horn core. Sheep/goat (6), horse (3), pig (2) and dog were also represented, including a complete horse metatarsal.

Ditch L8

In total, 42 bone fragments were retrieved, including 27 identified elements. Cattle (13) were the most commonly represented. They included a complete radius of an immature animal. The seven sheep/goat elements included two mandibles of mature adults. The four cranial elements

of pig included a mandible and maxilla of sub-adult animals. A frog/toad bone was found in a sieved sample.

Ditches L13

Only 11 fragments were recovered. Sheep/goat (3), cattle (2) and horse (1) were identified.

Features L15 dug into L8

Sieved samples produced 24 animal bone fragments; none was identified.

Phase 5 (early Anglo-Saxon)

Sunken-featured building G65 (L11) produced fifteen animal bone fragments, ten of which were unidentified. Sheep/goat was represented by two metacarpals fragments. A fragment of pelvis and an upper molar were identified as horse, both probably belonging to adult animals. Most of a cattle metacarpal was recovered – a slender specimen (distal breadth = 51.9mm), which probably belonged to a small adult cow.

Cattle and sheep/goat are the most common species that have been encountered in Anglo-Saxon sites in Bedfordshire, e.g. at Meadway, Harrold (Maltby 2012, 68–9). The presence of horse in SFB assemblages is also attested from there and other Anglo-Saxon assemblages from the county.

Summary

eighty identified elements from the late Iron Age/early Roman period (Phase 3) were recorded from SL27/SL28. However, preservation was generally poor, which will have biased the assemblage towards large, robust bones. Cattle elements were the most frequently recovered with sheep/goat, pig, horse and dog also present in small numbers.

Poor preservation conditions also severely impacted on the survival of bones recovered from the Roman period (Phase 4). Settlement SL29 produced the larger sample, which was dominated by cattle, with sheep/goat and horse the only other species recorded. Cattle were also the most frequently identified within the assemblage from enclosure system SL31 followed by sheep/goat, pig, horse, dog and amphibian. Based on the animal bone assemblage, it seems likely that pastoral farming was mainly focused on cattle husbandry in this part of Bedfordshire. However, the assemblages provided little further information about cattle exploitation other than to observe that both adult and immature cattle were represented.

The absence of chickens, wild birds and mammals and fish is not unusual in small assemblages from Roman rural settlements. Preservation conditions will have, in any case, militated against the survival of bird and fish bones.

3.7 CHARRED PLANT REMAINS

John Giorgi

Introduction and methodology

Twenty-four environmental bulk soil samples were collected for the potential recovery of charred plant remains. The majority of the samples were taken from deposits assigned to the late Iron Age/early Roman (Phase 3) and the Roman (Phase 4) periods. One sample was taken from a middle–late Bronze Age (Phase 2) ditch

fill, two from an early Anglo-Saxon (Phase 5) SFB, one from a post-medieval (Phase 7) ditch, and three from the fills of two palaeochannels (Phase 1). Most (21) of the samples were from HRN3457 with two samples each from HRN3455 and HRN3456.

The samples ranged in size from 4–30l. They were processed using a Siraf-style flotation tank with meshes of 0.3mm and 1mm for the recovery of the flots and residues respectively. The charred plant remains were identified using a binocular microscope (with a magnification of up to 40) together with modern and charred reference material and manuals (Cappers *et al.* 2006; Jacomet 2006).

Results

Identifiable charred plant remains were recovered from 21 of the 24 samples. Remains from Phases 3–5 are detailed in Tables 3.13–3.15. Nomenclature and taxonomic order for the wild plants follows Stace (2005), also used for ecological data together with Hanf (1983) and Wilson and King (2003).

The charred plant remains consisted mainly of cereal debris, mostly grains (70%) with some chaff (23%) and smaller amounts (7%) of the remains of other plants (largely wild plant/weed seeds). Virtually all the quantified remains were from late Iron Age and Roman samples with most of the material coming from HRN3455 and HRN3457. There were very few charred plant remains in the two samples from HRN3456.

Phase 1 (palaeochannels)

Samples were taken from the two palaeochannels (SL21). A few charred remains were recovered from palaeochannel L107 – a hazelnut (*Corylus avellana*) shell fragment and a few small cereal grain and rhizome fragments. Neither palaeochannel was dated but charred hazelnut shell from gathered wild food is frequently found in early prehistoric contexts dating from the Mesolithic period onwards (see e.g. Greig 1991, 299).

Phase 2 (middle–late Bronze Age)

The sample from ditch L28 (SL23) produced just one unidentifiable charred grain. On this basis no further comment is possible, although small amounts of charred cereal remains of spelt wheat (*Triticum spelta*) were recovered from middle–late Bronze Age/early Iron Age deposits from the nearby HRN3205 (p. 22) and Woodside Link (p. 154).

Phase 3: (late Iron Age/Roman)

Nine late Iron Age/early Roman samples were collected from the three excavation areas (Table 3.13). One sample from SL27 and two from SL28 produced particularly rich assemblages.

Clustered and dispersed pits SL27

A very rich and dense concentration of charred plant remains from the fill of storage pit G47 (L5) consisted mainly of large amounts of both hulled (spelt) wheat grains and chaff, which may at least partly represent the remains of spelt spikelets accidentally burnt while being dried to facilitate de-husking of the hulled wheats (*i.e.* the separation of the grains from the chaff). The spelt wheat may have originally been stored in this pit as spikelets, the husks protecting the grain from accidental germination or insect/fungal attack; hermitically sealed pits

would also have prevented spoilage of the grain by heat, moisture or vermin (van der Veen and Jones 2006, 224). A much smaller amount of charred cereal debris, mainly hulled (spelt) wheat grain and chaff, was recovered from the basal fill of the storage pit.

Two other pit fills (in clusters G35 and G37) within L5 produced modest amounts of charred cereal debris from mainly fully processed hulled wheats, probably from domestic crop-cleaning and food preparation activities taking place close-by.

Enclosure system SL28

Pits G61 and G62 within possible enclosure L2 produced rich charred plant assemblages of largely clean and de-husked hulled wheat and hulled barley grains, which may have been accidentally burnt while being dried before milling, storage or during cooking. The steep-sided pit G62 may have been originally used for grain storage, the burnt grain subsequently incorporated into the backfill of the feature.

A rich assemblage from a posthole associated with structure G29 (L4) also consisted mainly of clean, fully processed hulled (spelt) wheat. This probably derived from similar activities associated with the drying of fully processed grain, which may have been initially stored in the four-post structure. A posthole fill associated with post-built structure G22 to the west of enclosure L1 only produced a few charred grains.

Phase 4: (Roman)

Eight samples were recovered from the three excavation areas (Table 3.14). They included four particularly rich assemblages.

Settlement SL29

Two rich charred plant assemblages contained evidence to suggest that the de-husking of spelt wheat was taking place nearby; the fill of enclosure ditch G227 (L205) produced mainly hulled (spelt) wheat chaff, while a layer overlying stone surface G213 (L207) contained mainly grains but also a fairly good amount of chaff. The grains and chaff may have been accidentally burnt while being heated to facilitate de-husking, although the chaff could also be from use as fuel once separated from the grains.

Enclosure ditch G227 also contained a very large number of uncharred seeds, which may be contemporary with the sampled feature and as such, may provide information on the character of the local environment within, and in close proximity to, the ditch. The presence of still or slow-flowing, shallow water within the ditch is suggested by the aquatics *Potamogeton* (pondweeds) and *Zannichellia palustris* (horned pondweed); while the remains of *Ranunculus* (buttercup), *Carduus/Cirsium* (thistles), *Carex* (sedge), *Conium maculatum* (hemlock) and *Hyoscyamus niger* (henbane) point to damp, grassy disturbed/waste ground in the vicinity of the feature. The large shrubs represented in the sample, *Sambucus* (elder) and *Rubus* (brambles), may be from a hedgerow lining the ditch. A number of these species are found in nutrient-rich soils and, as such, may indicate human activities close-by (including the crop-cleaning activities described above) and/or grazing livestock possibly watering here, with both *Sambucus nigra* and *Hyoscyamus niger* found in manured soils.

		Site Landscape Land-use Area Group Feature type Sample no. Vol. sample (l) Vol. flot (ml)	SL27 L5				SL28				
			G35	G37	G47	SP	L1 G1 Ditch	L2		L4	
								G61 Pit	G62 Pit	G22 PH	G29 PH
9	1	2	3	12	5	18	10	13			
20	30	4	19	10	25	10	10	8			
2	4	4	44	2	55	17	3	80			
Latin name	English name										
Cereal grains											
<i>Triticum spelta</i> L.	spelt wheat	-	-	-	1	-	-	-	-	4	
<i>T. dicoccum/spelta</i>	emmer/spelt wheat	3	2	2	16	-	3	3	1	10	
<i>T. cf. dicoccum/spelta</i>	?emmer/spelt wheat	5	2	-	11	-	4	10	-	11	
<i>T. aestivum/turgidum</i> type	free-threshing wheat	-	-	-	2	-	1	-	-	-	
<i>T. cf. aestivum/turgidum</i> type	?free-threshing wheat	-	1	-	3	-	1	2	-	-	
<i>Triticum</i> sp(p).	wheat	5	-	4	148	-	7	11	-	9	
cf. <i>Triticum</i> sp(p).	?wheat	5	2	5	156	-	16	12	-	12	
<i>Hordeum vulgare</i> L.	barley, hulled twisted	-	-	-	3	-	-	2	1	1	
<i>H. vulgare</i> L.	barley, hulled straight	-	-	-	1	-	-	-	1	-	
<i>H. vulgare</i> L.	barley, hulled indet.	-	-	-	3	-	3	3	-	1	
<i>H. vulgare</i> L.	barley, indet, twisted	-	-	-	-	-	-	5	-	-	
<i>H. vulgare</i> L.	barley, indet, straight	-	-	-	-	-	-	2	-	-	
<i>H. vulgare</i> L.	barley, indet.	-	-	-	9	-	14	22	-	3	
cf. <i>H. vulgare</i>	?barley	-	1	2	4	-	9	10	-	-	
<i>Avena</i> sp(p).	oat	-	-	-	3	-	-	2	-	-	
Cerealia	indet. cereal (estimate)	41	9	25	302	2	202	257	1	166	
Cerealia	indet cereal fragments <1mm	++	++	++	+++	+	++	++	+	++	
Cereal chaff											
<i>Triticum dicoccum</i> Schubl.	emmer wheat glume base	1	-	-	2	-	1	-	-	-	
<i>T. spelta</i> L.	spelt glume bases	1	-	2	115	-	-	-	-	6	
<i>T. spelta</i> L.	spelt rachis	-	1	-	7	-	-	-	-	-	
<i>Triticum</i> spp.	wheat glume bases	3	3	11	280	-	12	3	-	7	
<i>Triticum</i> sp(p).	wheat spikelet forks/bases	1	-	2	59	-	7	1	-	10	
<i>Triticum</i> sp(p).	wheat rachis	-	1	-	23	-	-	-	-	-	
<i>Avena fatua</i> L.	wild oat floret base	-	-	-	1	-	-	-	-	-	
<i>Avena</i> sp.	oat awn fragments	-	-	1	-	-	-	-	-	-	
Cerealia	indet. cereal loose coleoptiles	-	-	-	4	-	-	-	-	-	
Other plant/weed seeds											
<i>Urtica</i> sp.	nettle	1	-	-	-	-	-	-	-	-	
<i>Chenopodium</i> sp.	goosefoot etc	-	-	-	1	-	-	-	-	-	
<i>Polygonum aviculare</i> L.	knotgrass	-	-	-	-	-	-	-	-	1	
<i>Rumex</i> sp(p).	dock	1	-	-	11	-	-	-	-	-	
Polygonaceae indet		-	-	-	3	-	-	-	-	6	
<i>Vicia/Lathyrus</i> spp.	vetch/tare/vetchling (>2mm)	-	-	-	-	-	-	-	-	-	
	vetch/tare/vetchling/pea (>2mm)	-	-	-	3	-	-	-	-	-	
<i>Vicia/Lathyrus/Pisum</i> sp(p).	vetch/tare/vetchling/pea (small <2mm)	1	-	-	-	-	-	-	-	-	
<i>Medicago/Trifolium</i> sp(p).	medicks/clovers (small seeds)	2	1	-	6	-	-	6	-	-	
<i>Euphorbia peplus</i> L.	petty spurge	-	-	-	1	-	-	-	-	-	
<i>Daucus carota</i> L.	carrot	-	-	-	2	-	-	-	-	-	
Apiaceae indet.	-	-	-	-	2	-	-	-	-	-	
<i>Lithospermum arvense</i> L.	field gromwell	-	-	-	1m	-	-	-	-	-	
<i>Sherardia arvensis</i> L.	field madder	-	-	-	1	-	-	-	-	-	
<i>Galium aparine</i> L.	cleaver	1	-	-	-	-	1	2	-	-	
Asteraceae indet	-	-	-	-	-	1	-	-	-	-	
<i>Carex</i> sp(p).	sedge	-	-	-	1	-	-	-	-	-	
<i>Festuca/Lolium</i> sp(p).	fescue/rye-grass	1	-	-	1	-	-	3	-	-	
<i>Arrhenatherum elatius</i> (L.) var bulbosus	onion couch grass tuber fragments	-	-	-	2	-	-	2	-	-	
<i>Bromus</i> sp(p).	brome	1	-	-	4	-	-	-	-	7	
cf. <i>Bromus</i> spp.	?brome	-	-	-	3	-	-	-	-	3	
Poaceae indet.	grasses (large seeds)	4	-	1	8	-	2	5	-	12	
Poaceae indet.	grasses (small seeds)	8	6	3	71	-	5	6	-	4	
indeterminate	stems (thin round ribbed)	-	-	-	-	-	-	2	-	-	
indeterminate	tuber fragments	-	1	-	-	-	-	-	-	-	
indeterminate		+	-	-	+	-	-	-	-	+	
Total		85	30	58	1274	3	288	371	4	273	
Item density of charred plant remains		4.3	1	14.5	67.1	0.3	11.5	37.1	0.4	34.1	

Item frequency: + = 1–10; ++ = 11–50; +++ = 51–100; ++++ = 101–250; +++++ = >250

PH = posthole; SP = storage pit; m = mineralised seed

Table 3.13 Late Iron Age/early Roman (Phase 3) charred plant remains from samples

Bedding trenches SL30

There were just a few charred cereal grains and hulled wheat chaff fragments in the sample from a bedding trench, probably from activities being carried out at some

distance from these features. No *in-situ* archaeobotanical remains have yet been recovered from bedding trenches on other Roman sites to establish the use of these features (Lodwick 2017, 74).

	Site Landscape Land-use Area Group Feature type Sample no. Vol. sample (l) Vol. flot (ml)	SL29		SL30	SL31				
		L201	L207	L101	L7		L8	L10	L15
		G227	G213	G102	G4	G6	G5	G55	G27
		Ditch	Surface	BT	Ditch	Ditch	Ditch	Pit	Pit
		1	2	2	11	17	4	16	6
		30	30	30	16	10	20	10	30
		100	130	3	197	5	18	2	35
Latin name	English name								
Cereal grains									
<i>Triticum spelta</i> L.	spelt wheat	-	2	-	3	-	-	-	-
<i>T. dicoccum/spelta</i>	emmer/spelt wheat	2	7	-	10	-	-	1	3
<i>T. cf. dicoccum/spelta</i>	?emmer/spelt wheat	4	5	-	19	-	-	-	11
<i>T. aestivum/turgidum</i> type	free-threshing wheat	-	-	-	4	-	-	-	-
<i>T. cf. aestivum/turgidum</i> type	?free-threshing wheat	-	-	-	3	-	-	-	1
<i>Triticum</i> sp(p).	wheat	6	8	-	107	-	-	-	32
cf. <i>Triticum</i> sp(p).	?wheat	13	23	1	161	-	2	2	28
<i>Hordeum vulgare</i> L.	barley, hulled twisted	-	-	-	1	-	-	-	3
<i>H. vulgare</i> L.	barley, hulled indet.	-	-	-	4	-	-	-	4
<i>H. vulgare</i> L.	barley, indet.	-	2	-	3	-	-	-	22
cf. <i>H. vulgare</i>	?barley	1	1	-	6	-	-	-	-
<i>Avena</i> sp(p).	oat	-	1	-	2	-	-	-	3
cf. <i>Avena</i> sp(p).	?oat	-	-	-	-	-	-	-	2
Cerealia	indet. cereal (estimate)	54	65	3	535	1	-	7	236
Cerealia	indet cereal fragments <1mm	+++	+++	++	++++	-	+	+	+++
Cereal chaff									
<i>Triticum spelta</i> L.	spelt wheat spikelet forks	5	-	-	-	-	-	-	-
<i>T. spelta</i> L.	spelt glume bases	119	13	-	8	-	-	-	-
<i>T. spelta</i> L.	spelt rachis	17	1	-	2	-	-	-	-
<i>Triticum</i> spp.	wheat glume bases	91	13	1	33	-	-	-	10
<i>Triticum</i> sp(p).	wheat spikelet forks/bases	128	8	-	10	-	-	-	2
<i>T. aestivum/turgidum</i> type	free-threshing wheat rachis	1	-	-	-	-	-	-	-
<i>Triticum</i> sp(p).	wheat rachis	10	2	1	4	-	-	-	1
<i>Hordeum vulgare</i> L.	barley rachis	1	-	-	-	-	-	-	-
Cerealia	indet. cereal loose coleoptiles	1	-	-	-	-	-	-	-
Other plant/weed seeds									
<i>Corylus avellana</i> L.	hazelnut shell fragments	-	-	-	-	6	-	-	-
<i>Rumex</i> sp(p).	dock	-	1	-	-	-	-	-	-
<i>Carex</i> sp.	sedge	-	1	-	-	-	-	-	-
<i>Bromus</i> sp.	brome	1	-	-	-	-	-	-	-
<i>Vicia/Lathyrus</i> spp.	vetch/tare/vetchling (>2mm)	-	-	-	2	-	-	-	-
<i>Vicia/Lathyrus/Pisum</i> sp(p).	vetch/tare/vetchling/pea (small <2mm)	-	-	-	2	-	-	-	-
<i>Medicago/Trifolium</i> sp(p).	medicks/clovers (small seeds)	-	-	-	-	-	-	-	1
Fabaceae indet.	pea family (large fragments >2mm)	-	-	-	2	-	-	-	-
<i>Sherardia arvensis</i> L.	field madder	-	-	-	1	-	-	-	-
<i>Carex</i> sp(p).	sedge	-	-	-	2	-	-	-	-
<i>Festuca/Lolium</i> sp(p).	fescue/rye-grass	-	-	-	1	-	-	-	6
<i>Bromus</i> sp(p).	brome	-	-	-	2	-	-	-	-
cf. <i>Bromus</i> spp.	?brome	-	-	1	-	-	-	-	2
Poaceae indet.	grasses (large seeds)	4	1	-	8	-	-	2	16
Poaceae indet.	grasses (small seeds)	-	-	-	3	-	1	-	24
Total		458	154	7	938	7	3	12	407
Item density of charred plant remains		15.3	5.1	0.2	58.6	0.7	0.2	1.2	13.6

Item frequency: + = 1–10; ++ = 11–50 items; +++ = 51–100; ++++ = 101–250; +++++ = > 250 BT = bedding trench; m = mineralised seed

Table 3.14 Roman (Phase 4) charred plant remains from samples

Enclosure system SL31

SL31 produced two rich charred plant assemblages. A sample from a ditch fill at the north-east corner of enclosure L7 produced a very rich and high concentration of charred plant remains. This consisted mainly of hulled (spelt) wheat grains, representing the residues of fully processed (and de-husked) hulled spelt wheat grains accidentally burnt during drying from activities probably taking place close-by. A sample from the fill of the south ditch of the same enclosure only produced a small number of charred hazelnut shell fragments. The other rich charred plant assemblage, from the fill of pit G27 (L15), also consisted of mainly cleaned, hulled wheat grain (and some hulled barley grain), presumably derived from drying activities probably carried out close-by.

The other two samples contained a few charred cereal grains, from the fill of ditch L8 and from the fill of

the northernmost pit of cluster L10, south of the main enclosures.

Phase 5: early Anglo-Saxon

Two samples from the main fill and a posthole associated with SFB G65 (L11, SL32) produced a modest number of charred remains (Table 3.15). Amongst the remains were cereal grains, including free-threshing wheat, (six-row) hulled barley and oats, a few large legume seeds, possibly from cultivated pulses, and several hazelnut shell fragments and weed seeds. These remains mainly represent fully processed cereal (and possibly legume) crops, which may have been accidentally burnt while being dried before milling or storage or during cooking. Free-threshing wheat, hulled barley, and oats are three of the main cereals found during the Anglo-Saxon period (Greig 1991, 315).

		Site Landscape Land-use Area Group	SL32 L11 G65	
		Feature type	SFB	PP
		Sample no.	7	8
		Vol. sample (l)	28	10
		Vol. flot (ml)	112	42
Latin name	English name			
Cereal grains				
<i>T. aestivum/turgidum</i> type	free-threshing wheat	4	-	
<i>T. cf. aestivum/turgidum</i> type	?free-threshing wheat	3	-	
<i>Triticum</i> sp(p).	wheat	1	1	
cf. <i>Triticum</i> sp(p).	?wheat	2	1	
<i>Hordeum vulgare</i> L.	barley, hulled twisted	2	-	
<i>H. vulgare</i> L.	barley, hulled indet.	2	-	
<i>H. vulgare</i> L.	barley, indet.	1	2	
cf. <i>H. vulgare</i>	?barley	2	-	
<i>Avena</i> sp(p).	oat	5	1	
cf. <i>Avena</i> sp(p).	?oat	1	-	
Cerealia	indet. cereal (estimate)	41	13	
Cerealia	indet cereal fragments <1mm	++	+	
Other plant/weed seeds				
<i>Corylus avellana</i> L.	hazel nut shell fragments	3	-	
<i>Persicaria</i> sp.	knotweed	1	-	
<i>Vicia/Lathyrus/Pisum</i> sp(p).	vetch/tare/vetchling/pea (>2mm)	-	1	
Fabaceae indet.	pea family (large fragments >2mm)	3	1	
Poaceae indet.	grasses (small seeds)	1	-	
Total		72	20	
Item density of charred plant remains		2.6	2	

Item frequency: + = 1–10; ++ = 11–50; +++ = 51–100; ++++ = 101–250; +++++ = > 250
SFB = sunken-featured building; PP = postpipe within SFB; m = mineralised seed

Table 3.15 Early Anglo-Saxon (Phase 5) charred plant remains from samples

Summary

The following summary centres on the charred plant remains from the late Iron Age and Roman samples (Phases 3 and 4), which produced evidence for crop husbandry and processing during this period. The results can be compared to other sites in the area, particularly the investigations at HRN3205 (Section 2.7), Woodside Link (Section 5.7) and HRN3206 (Giorgi 2021).

Crop husbandry

Cereal debris accounted for the bulk of the charred plant remains. It consisted mainly of poorly preserved cereal grains, most of which could not be identified, and smaller amounts of (mainly hulled wheat) chaff. The identifiable remains suggest that hulled wheat and specifically spelt was the main cereal in both phases with only a little evidence for emmer (*Triticum dicoccum*) in a few late Iron Age/early Roman samples and occasional grains of free-threshing wheat (*Triticum aestivum/turgidum*) in six samples from both phases. Barley (*Hordeum vulgare*) was the second-best-represented cereal in both phases, albeit on the basis of much smaller numbers of grains, the well-preserved ones showing the presence of (six-row) hulled barley. There were also a few oat (*Avena*) grains but these are probably weeds, a wild oat floret base being found in a late Iron Age/early Roman sample.

The cereal remains from the late Iron Age and Roman deposits are similar to previous archaeobotanical evidence from other sites in southern England, showing spelt to be

the main wheat (along with hulled barley) during the Iron Age and Roman periods while emmer and free-threshing wheat tend to appear only occasionally and in small amounts (Lodwick 2017, 26; van der Veen 2016; Greig 1991, 306, 309). The results also compare well with the charred cereal remains from other investigations in the vicinity, e.g. HRN3205 (p. 28–30) and Woodside Link (p. 160–1). These showed spelt to be the dominant grain with only occasional or very small amounts of emmer, free-threshing wheat and (six-row) hulled barley.

Spelt wheat, the main cereal in the samples, has excellent baking and milling properties (Jones 1981, 107) and contains the proteins necessary for making a well-risen loaf (Cool 2006, 70). This cereal was also used for a very common gruel known as *puls* or *pulmentus*, not unlike modern Italian *polenta* (Renfrew 1985, 22). Of the minor crops, free-threshing wheat also has good bread-making qualities (Jones 1981, 107) while barley may have been used for flat bread and griddle cakes (Cool 2006, 70–1) as well as for animal fodder.

There was no definite evidence amongst the charred plant remains for the residues of other cultivated plants, although a few poorly preserved large legume seeds (>2mm) in single samples from deposits assigned to late Iron Age/early Roman and Roman phases may be from cultivated pulses. In addition, six hazelnut shell fragments from a Roman sample may be from collected and consumed foodstuffs, perhaps gathered from open woodland/hedgerow/scrub habitats close-by.

Weeds

There were small numbers of charred wild plant/weed seeds in these samples, virtually all of which were from excavation area HRN3457, with a slightly greater number and species diversity in the late Iron Age/early Roman (Phase 3) samples. Most of these remains are probably from crop weeds, given their presence in cereal assemblages, with samples from both phases dominated by seeds of wild grasses (Poaceae), including small-seeded (*Lolium/Festuca* – rye-grass/fescue) and large-seeded species, notably *Bromus* (brome).

The charred weed seeds provide some information on aspects of crop husbandry. Occasional seeds of *Lithospermum arvense* (field gromwell) and *Galium aparine* (cleaver), both loam indicators (Hanf 1983) in late Iron Age/early Roman (Phase 3) samples, and *Sherardia arvensis* (field madder) identified in Phase 4 as well, may point to the cultivation of the calcareous loams in the area; while a few seeds of *Carex* (sedge) in both phases may tentatively suggest the use of damper areas of ground for growing crops. Both *Galium aparine* and *Lithospermum arvense* may also indicate the winter-sowing of cereals, with a hardy crop like spelt wheat probably being autumn-sown; this may have been the norm during the Roman period (Lodwick 2017, 46). The presence of low-growing plants, for example *Medicago/Trifolium* (medick/ clover), and those of medium height, such as *Sherardia arvensis* and *Lithospermum arvense*, may perhaps suggest that the cereals were harvested fairly low on the straw. A few charred tubers of *Arrhenatherum elatius* var. *bulbosus* (onion couch) in two late Iron Age/early Roman (Phase 3) samples may be from the gathering and uprooting of wild grassland vegetation for various uses on site, including as fuel.

Crop-processing

Over 90% of the charred cereal remains in the late Iron Age/early Roman and Roman samples consisted of cereal debris, mainly grains and smaller amounts of mainly hulled (spelt) wheat chaff, debris from the final stages of crop-cleaning including the de-husking of hulled wheat and the drying of grains before milling/storage. The small numbers of weed seeds in the samples represent by-products, also from the latter stages of crop-processing, the small weed seeds, separated by use of the 'wheat' sieve, perhaps having been used as fuel along with the chaff. There were also a good number of large weed seeds in the samples, particularly wild grass seeds, notably *Bromus*, which are often found in almost fully

processed and stored grain because of the difficulty of separating these large weed seeds from the grains other than by hand-sorting.

3.8 WOOD CHARCOAL

Dana Challinor

Introduction

Charcoal samples from features ranging in date from the middle-late Bronze Age (Phase 2) to the early Anglo-Saxon period (Phase 5) were analysed. Not all of the samples produced sufficient identifiable charcoal to merit analysis, but a selection from pits, postholes and ditches of Phase 3 (late Iron Age/early Roman), Phase 4 (Roman) and Phase 5 (early Anglo-Saxon) are presented below.

Methodology

A number of flots were scanned in the first instance to determine potential for full analysis. Standard identification procedures were followed using identification keys (Hather 2000; Schweingruber 1990) and modern reference material. The charcoal was fractured and examined at low magnification (up to 45), with representative fragments examined in longitudinal sections at high magnification (up to 400). Where available, 30 fragments per feature were selected for identification. Observations on maturity and other features were made where appropriate. Classification and nomenclature follow Stace 2005.

Results

The condition of the charcoal was fair, though generally quite comminuted. Excavation area HRN3457 produced the only significant body of charcoal, from which six samples were analysed. The results are summarised by phase below and in Table 3.16.

A total of five taxa were positively identified: *Quercus* sp. (oak), *Corylus avellana* (hazel), *Prunus* sp. (blackthorn/cherry), Maloideae (hawthorn, apple, whitebeam/rowan etc.) and *Fraxinus excelsior* (ash). Some of the *Prunus* charcoal in the Phase 5 samples exhibited the large rays typical of the native *P. spinosa* (blackthorn), but this species cannot be easily distinguished from the introduced *P. domestica* (plum). Since a plum stone was found in a Roman context at Woodside Link (p. 159), it is possible that *P. domestica* is represented in the charcoal from the area.

Phase Site Landscape Land-use Area Group Feature type Sample no.	3			4	5	
	SL27	SL28		SL31	SL32	
	L5	L2	L4	L7	L11	
	G47	G62	G29	G4	G65	
	Storage pit	Pit	Posthole	Ditch	Posthole	Postpipe
	3	5	13	11	7	8
<i>Quercus</i> sp. oak	18 (sh)	19 (sh)	30 (s)	17 (rs)	1	-
<i>Corylus avellana</i> L.	-	5	-	-	6	-
<i>Alnus/Corylus</i>	-	6	-	-	2	6
<i>Prunus</i> sp. blackthorn/cherry/plum	2	-	-	2 (r)	7 (r)	11 (r)
Maloideae hawthorn/apple/whitebeam	-	-	-	-	12 (r)	6
<i>Fraxinus excelsior</i> L. ash	-	-	-	11 (r)	2	5
Indeterminate diffuse porous	-	-	-	-	-	2r
Bark	+	-	-	++	-	-

s = sapwood; h = heartwood; r = roundwood

Table 3.16 Charcoal from quantified HRN3457 samples

Phase 3 (late Iron Age/early Roman)

Samples from four-post structure G29 and pit G62 (both SL28) and storage pit G47 (SL27) were dominated by oak (mostly sapwood), with a smattering of hazel and blackthorn/cherry type. As the assemblages are mixed they probably represent fuel waste from domestic activities, e.g. cooking, crop-processing etc. Small asymmetric insect tunnels were noted in the hazel from pit G61, indicating that the firewood had been seasoned prior to use or that structural/artefactual timbers had been reused.

Phase 4 (Roman)

Four samples from the Roman period produced moderately abundant and well-preserved assemblages.

Settlement SL29

Charcoal preservation for SL29 was very poor, hampered by heavy iron and vivianite staining, indicating deposition in a waterlain or partially waterlogged environment. Two samples – from a layer overlaying stone surface L207 and enclosure ditch G227 – contained dried waterlogged wood fragments (unidentifiable), as well as charcoal. Three taxa were recorded: *Quercus* sp. (oak), *Corylus avellana* (hazel) and *Prunus* sp. (blackthorn/cherry). The results are compatible with results from comparable Roman samples at HRN3205 (p. 31–2).

Enclosure system SL31

SL31 offered more potential for charcoal analysis, with two moderately abundant and well-preserved assemblages, albeit often highly comminuted. The charcoal from enclosure L7 and pit G27 (L15) suggests a preference for oak as fuel, similar to those recorded from Phase 3, along with the use of *Fraxinus excelsior* (ash).

Phase 5 (early Anglo-Saxon)

The charcoal from SFB G65 (L11, SL32) was somewhat different to the earlier assemblages – with a notable paucity of oak, and a significant hedgerow/scrub component (*Prunus*, Maloideae). Whether this represents a change in landscape or firewood-collection practices is impossible to say on the basis of this small dataset, but it is worth noting. The use of hedgerow/scrub-type taxa for fuel from Roman phases onwards has been recorded at other sites in the vicinity, such as Woodside Link (p. 32), especially in relation to general or peripheral domestic waste dumps rather than event-specific contexts.

Summary

The charcoal assemblage demonstrates that oak was the main species being exploited during the late Iron Age/early Roman period (Phase 3) and the Roman period (Phase 4). A possible change in species exploitation during the early Anglo-Saxon period (Phase 5) is indicated, although the limited dataset recovered for this period makes conclusions problematic. However, considered as part of our growing picture of the wider landscape north of Houghton Regis, patterns of species exploitation may yet emerge more clearly.

3.9 HUMAN BONE

Natasha Powers

Introduction

One inhumation and a fragmentary skull were recovered. The isolated inhumation burial was assigned to the middle–late Bronze Age (Phase 2) and the fragments of skull were recovered from deposits assigned to the Roman period (Phase 4).

Methodology

An assessment was made of the state of preservation from ‘good’ to ‘poor’. Age was estimated from a combination of epiphyseal fusion, and dental eruption and development (Scheuer and Black 2000; Gustafson and Koch 1974; Moorrees *et al.* 1963). Measurements (in mm) were taken of dental features using landmarks identified in Buikstra and Ubelaker (1994). Pathological changes were recorded using standard osteological guidelines (Roberts and Connell 2004), with supplementary diagnostic references as required. A full catalogue can be found in the project archive.

Results**Phase 2 (middle-late Bronze Age)**

The inhumation G75 (SL24) consisted of the largely complete, though fragmentary, remains of a child aged 9–10 years at death. They appear to have been partially flexed with the knees bent and raised. The skeleton was orientated NW–SE with the head to the north-west. The bone was poorly preserved, with widespread erosion of the outer cortex and the absence of all joint surfaces and epiphyses, limiting surface observations and the collection of metric data. A radiocarbon determination indicates that death took place at the beginning of the middle Bronze Age.

The individual had suffered from a period of systemic stress (such as disease or nutritional deficiency), which exhibited as a clear hypoplastic line towards the cemento-enamel junction of the permanent maxillary molars, suggesting that the incident occurred around the age of 5 years. Cribra orbitalia (grade 2, Stuart-Macadam 1991), displaying as a lesion in the right orbit, showed that they may also have suffered from metabolic stress. The permanent left mandibular canine was not yet erupted but was deviating towards the midline at an angle of c.20 degrees. This impaction had caused the central incisors to rotate medially by approximately 45 degrees.

Phase 4 (Roman)

The bone from the deposits overlying stone surface L207 (SL29) consisted of 13 fragments of adult frontal bone, which could be reconstructed to show a moderately well-preserved and largely complete left frontal and orbital roof, a partial right frontal, and an area of missing bone in the midline and glabella region. Some of the fragments show wear on the broken edges, suggesting that the skull has been redeposited and/or exposed to the elements in its broken state. Slight polishing of the surface may indicate that it was handled in antiquity. A slightly sloping forehead and orbital margins, which are wide and square, suggest that the skull may be that of a male.

Summary

As an isolated feature, the middle Bronze Age child's burial can tell us little of the general living population from which it originated, but there are indications that they had suffered from systemic stress in infancy, which may be a measure of the level of resources available at that time, although other more individualised interpretations, such as childhood disease, are equally possible. The partially flexed position of the body within the grave is typical of burials of this date.

Disarticulated deposits of human bone such as those from SL29 are relatively common in prehistory, with the cranium often favoured, and have been suggested to indicate extended burial rituals involving excarnation and selective disposal. However, in this instance, the cranium fragments were found within well-dated deposits within a Roman settlement, which is unusual. It may be that they were derived from the disturbance of a nearby grave of an earlier period, rather than deliberate curation or selective deposition.

3.10 DISCUSSION

Mike Luke and Kathy Pilkinton, incorporating the conclusions of Dana Challinor, Holly Duncan, John Giorgi, Mark Maltby, Natasha Powers and Jackie Wells

The majority of the recovered evidence was associated with two late Iron Age/Roman settlement areas. The remainder included a middle Bronze Age inhumation, an array of Roman bedding trenches and an early Anglo-Saxon sunken-featured building.

Land-use, continuity and discontinuity

The investigations produced evidence of land utilisation from the middle Bronze Age to the modern period. Its assignment to specific phases can usefully characterise activity at a particular point in time and, thereby, highlight discontinuity. Conversely this process can also hinder an appreciation of continuity in the landscape. The transition from one chronological period to the next is a common theme in both national (Historic England 2014), regional (Medlycott 2011) and county research agendas (Oake *et al.* 2007).

The natural features identified within HRN3456 and HRN3457 (Phase 1) consist primarily of palaeochannels pre-dating the earliest archaeological evidence. Tree-throw holes were also a prominent feature and, where a stratigraphic relationship existed, they always pre-dated archaeological remains. Sampled deposits from the palaeochannels contained charred hazelnut shell, which is frequently found in early prehistoric contexts dating from the Mesolithic period onwards (Greig 1991, 299). Given the presence of ring-ditches in the immediate area, e.g. Woodside Link (Chap. 5), HRN3206 (Luke and Barker 2021, 35–7), and A5–M1 Link (MOLA 2015; Brown 2020), it is likely that woodland clearance was well underway by the late Neolithic/early Bronze Age.

A small number of dispersed features and ditches were assigned to the middle–late Bronze Age. None produced artefactual dating evidence, although a radiocarbon date was obtained from inhumation G75. They were situated on previously unoccupied land, although ditch L28 (SL23) was aligned with a palaeochannel. Similar dispersed features of this date were recorded along the line of the Woodside Link (Chap. 5).

Phase 3 enclosures L1 and L6 (SL28) followed a similar alignment to the middle–late Bronze Age boundary ditch and, therefore, the earlier palaeochannels. The enclosures, and associated clusters of small pits, indicate increased activity in the late Iron Age/early Roman period. Storage pits and four-post structures are more commonly associated with the middle Iron Age but the late Iron Age/early Roman finds from these features suggest that they either fell out of use during this period or continued to be utilised for a longer period than at other settlements. A lack of evidence for middle Iron Age activity seems to correspond to a general absence of such remains within the HRN1 development area. However, middle Iron Age settlements were identified on the A5–M1 Link at Site K, c.1km to the east of HRN3457, and at Sites D, G and M, c.2km to the west of HRN3455 (Brown 2020). The late Iron Age/early Roman enclosures SL28 were modified in the Roman period (Phase 4) to create a new layout of enclosures SL31.

It is interesting to note that bedding trenches SL30 occupied the same area as a number of small pits, dug in the late Iron Age/early Roman period (Phase 3). A similar juxtaposition was observed at Tavistock Avenue, Amptill where pits dated to the early Roman period clearly predated the bedding trench array (Northamptonshire Archaeology 2010).

The enclosures of Phase 4 Roman settlement SL29 (ACA2) were on a similar alignment to the late Iron Age/early Roman ditch in this area. Evidence from the trial trenching supports the idea that the Roman settlement originated in the late Iron Age (Albion Archaeology 2012a, 21). This fits the trend observed by the rural settlement of Roman Britain project where 'continuity of settlement from the late Iron Age seems to have been the norm' (Smith *et al.* 2016, 408).

An early Anglo-Saxon sunken-featured building G65 (L11) was located roughly centrally within the westernmost enclosure of systems SL28 and SL31 (Fig. 3.13). This suggests that at the least the limits of the enclosure survived as landscape features at this time.

Nature/status of the settlements

The majority of the recovered evidence is associated with two late Iron Age/Roman settlement areas, one of which contained evidence of early Anglo-Saxon settlement. Excluded from this discussion is ACA8, which was interpreted as a settlement in the evaluation report (Albion Archaeology 2012a, 25) but whose eastern part was excavated as HRN3456 (Fig. 3.1) and was shown not to be part of a settlement. It is possible that the unexcavated western part of ACA8 (where the evaluation revealed multiple ditches and an inhumation) may still represent a settlement.

Settlement SL27/SL28 and SL31 (ACA9/HRN3457)

Settlement SL27/SL28 in excavation area HRN3457 originated in the late Iron Age/early Roman period and extended over c.1.3ha. It comprised enclosures, pit clusters and four-post structures. During the Roman period, enclosure system SL31 occupied the same piece of land; however, at this time it probably represents stock enclosures adjacent to the pasture along the Ouzel Brook rather than a settlement. The position and arrangement of the late Iron Age/early Roman settlement enclosures SL27/SL28 also suggests an association with stock management, but the quantities of finds and types of features

present are indicative of a settlement. The steep-sided pits and post-built structures, both widely interpreted as being used for grain storage (van der Veen and Jones 2006, 224–5), suggest that crop-processing was taking place (see below). Although there were a few exceptions, the majority of the pits were situated around the periphery of the enclosures and the post-built structures were all located outside the enclosures. Both storage pits and post-built structures are more commonly assigned to the middle Iron Age and it is certainly possible that some of those within SL27/SL28 belong to this period as they are not all securely dated. The only personal object from settlement SL27/SL28 was an iron Drahtfibel brooch, dated to c.50 BC–AD 50, recovered from storage pit G47 (L5). The most closely dated object from SL31 is an early Roman Colchester Derivative brooch of c. AD 43–120.

Settlement SL25 and SL29 (ACA2/HRN3455)

Approximately 850m to the west of ACA9, settlement SL25 also originated in the late Iron Age/early Roman period. Only one boundary ditch was present within the narrow HRN3455 excavation area. However, a large number of Roman ditches were present and the results of the geophysical survey (Stratascan 2012) provide a better impression of the overall layout of the Roman settlement. It extended over c.5.5ha and comprised a series of broadly rectangular enclosures on either side of the Ouzel Brook; they lay within an outer boundary ditch, which was more curvilinear on the north side of the brook (Fig. 3.14). At least four small, sub-square enclosures were identified by the geophysical survey just north of the brook. The pottery and coin assemblages indicate that the settlement was occupied throughout the Roman period.

While no definite buildings were identified within HRN3455, stone surface L207 may have functioned as a yard. Some of the evaluation trenches south of the excavation area did produce evidence for buildings in the form of a shallow NE–SW aligned trench that was filled with stones (Trench 36) and a posthole within a narrow gully (Trench 19) (Albion Archaeology 2012a, 21). Several large, shallow features and layers were uncovered within Trenches 36, 37, 39 and 40 (op. cit., figs 15 and 17). These contained only Roman finds, including building material, and were interpreted as evidence for Roman buildings rather than Anglo-Saxon SFBs or modern features.

In the 1980s, a small excavation took place within the ACA2 settlement (Manshead 1986). A plan in the HER (1453) suggests that it would have been situated to the east of Trench 36, coinciding with a geophysical anomaly (Fig. 3.14). The remains of a small building (8.6.3m) with flint-nodule wall foundations and an internal drain were interpreted as a temple/shrine (op. cit., 34). Roman building material, including a variety of tile types, painted and moulded wall plaster, and window glass, suggested the presence of a substantial building in the vicinity of the excavation area. During the HRN1 evaluation, quantities of ceramic building material were mainly found in Trenches 36 and 39; it included roof tile, flue tile and bricks (used for flooring and pilae stacks in hypocausts) (Albion Archaeology 2012a, 59). The combined evidence suggests that the ACA2 settlement contains at least one substantial building with a hypocaust and a tiled roof.

In terms of artefacts, the presence of ink writing on a pottery sherd might suggest that at least one person within

the settlement was literate, although it is obviously not known when or where the writing was done (see below for fuller discussion). Other objects of note are a socketed spearhead and a hook, which might have been part of a steelyard. Given that HRN3455 investigated only a tiny percentage of the settlement, the recovery of these artefacts and the evidence for substantial building(s) suggest that the inhabitants were wealthier than those of the average farmstead.

Early Anglo-Saxon settlement

No Anglo-Saxon artefacts were found within the enclosure ditches or any of the other Roman features, so it is unclear how long they continued in use. The only firm evidence for early Anglo-Saxon (Phase 5) activity was an apparently isolated sunken-featured building (SFB) G65 (L11), located roughly centrally within the westernmost element of the late Iron Age/Roman enclosure systems SL28 and SL31. The SFB was aligned roughly E–W; a comparable, isolated SFB was found c.2km to the south-east within excavation area HRN3205 (Fig. 3.15). No larger, post-built, rectangular buildings were detected but often the evidence for such buildings does not survive later ploughing. Nonetheless, the quantity of early Anglo-Saxon pottery (0.5kg) from SFB G65 does suggest that it (or an undetected building in the vicinity) was occupied on more than a temporary basis. It also produced a late Roman coin, which could be residual or could have been retrieved from one of the nearby earlier settlements. The charred plant remains from the SFB contained the three cereals that typify Anglo-Saxon assemblages: free-threshing wheat, hulled barley, and oats.

The presence of these apparently isolated buildings reflects a wider pattern of small-scale and dispersed early Anglo-Saxon occupation, often in the vicinity of sites that were in use in the Roman period. SFB G36 on HRN3205 was near a Roman trackway (p. 37) and, further afield, at Honey Hill on the Biddenham Loop, an early Anglo-Saxon settlement was established within a Roman enclosure (Luke 2016, fig. 5.33, 264–5).

Economic basis of the settlements

Only the late Iron Age/early Roman (Phase 3) and Roman (Phase 4) settlements produced enough evidence for a discussion of their economic foundations. In both cases the limited plant and faunal assemblages make analysis problematic; however, when considered alongside larger assemblages from contemporary sites such as HRN3205 and HRN3206 (Giorgi 2021, 135–9), they augment a growing picture of late Iron Age and Roman economies in the Houghton Regis environs.

Crop-processing and storage

A small number of probable storage pits (with characteristically steep sides and flat bases) and post-built structures (interpreted as granaries) were identified, mainly within settlement SL27/SL28. Such pits and four-post structures are believed to have been widely used, particularly in central southern England, for grain storage during the Iron Age (van der Veen and Jones 2006, 224–5) – the pits for long-term storage and the four-post structures for short-term, more readily accessible storage.

The charred plant remains from both the late Iron Age and Roman samples show that within settlements SL27/SL28 and SL29 spelt wheat was the main cereal being cultivated and used – probably largely for

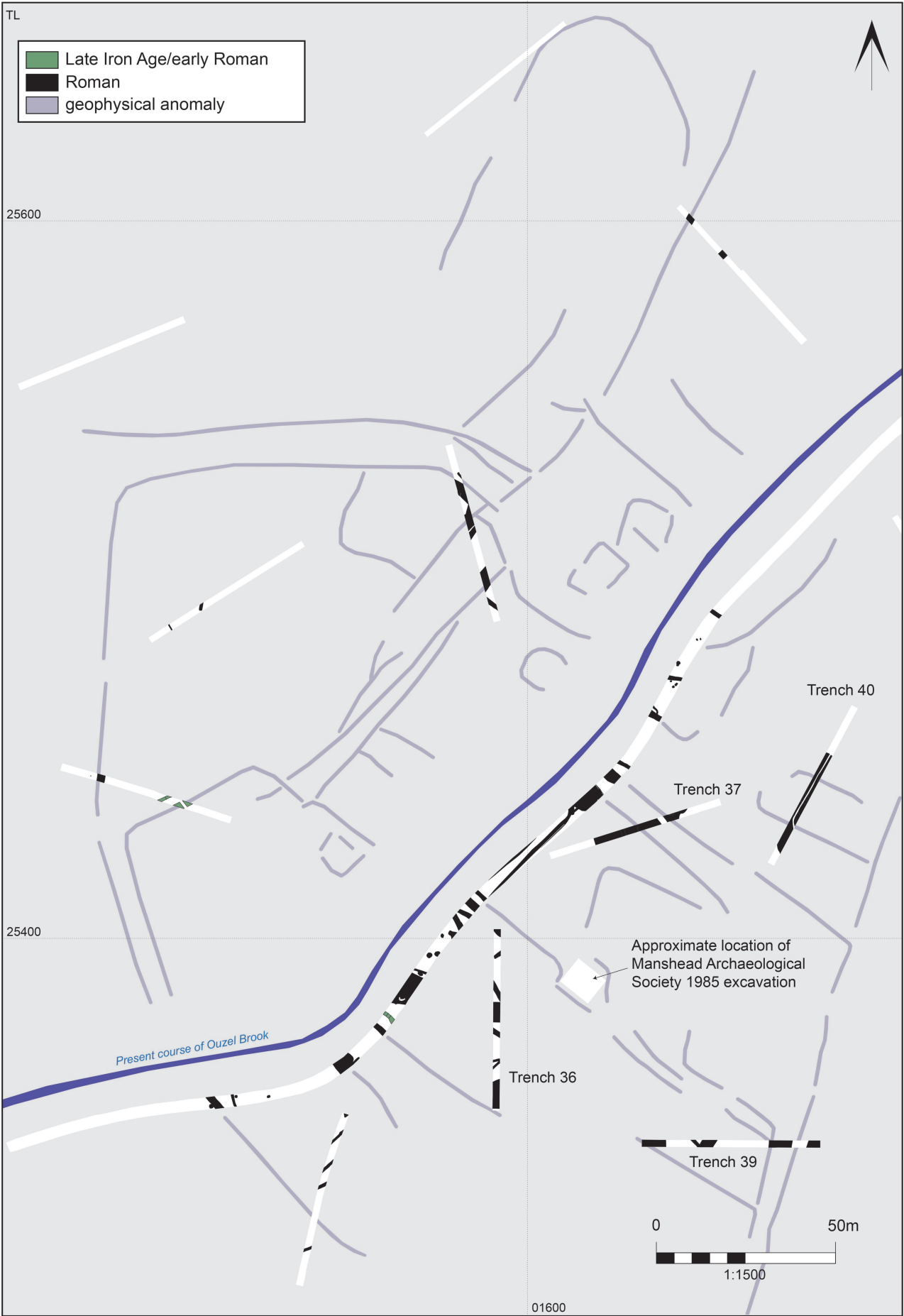


Figure 3.14 Plan of Roman settlement ACA2 with HRN3455 features, geophysical anomalies and trial trenches

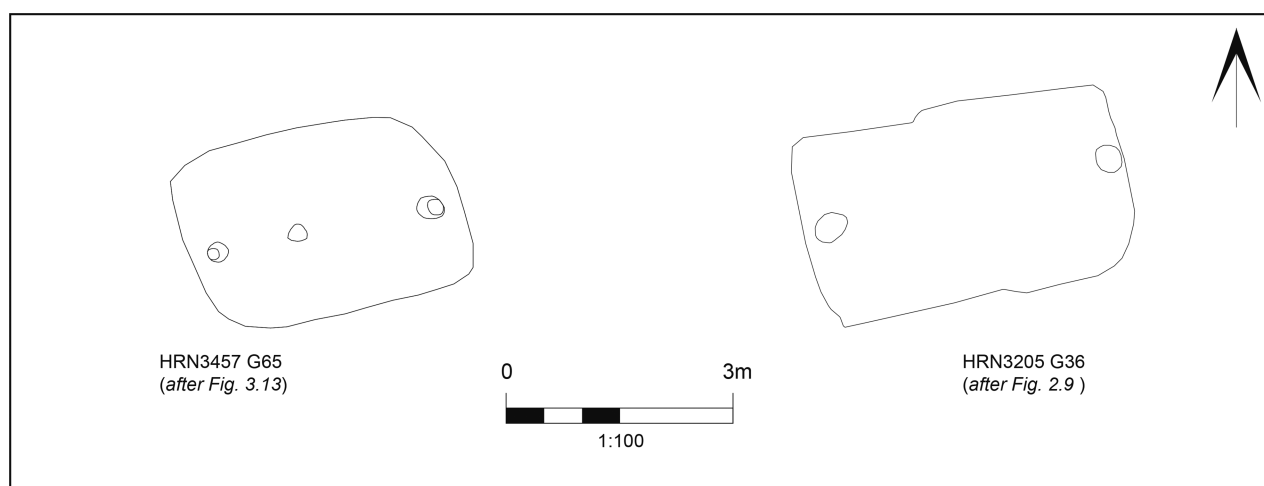


Figure 3.15 Comparative plans of two early Anglo-Saxon sunken-featured buildings from HRN1

bread-making or as a gruel. Excavations at HRN3205 (p. 28) and Woodside Link (p. 160) produced similar results, although barley, which may have been used for flat bread, griddle cakes and animal fodder, was slightly better-represented within the SL27/28 and SL31 samples. The few identifiable weed seeds suggest that the cereals were being cultivated on the calcareous loams in the vicinity of the settlements. There was some evidence for the autumn-sowing of cereals and possibly the harvesting of cereals fairly low on the straw, which was probably the most common method of harvesting cereals during the Roman period (Lodwick 2017, 47).

The assemblages consisted largely of cereal debris (mainly grains and fewer chaff fragments) from the final stages of crop-cleaning and food preparation/cooking. The charred plant remains from the late Iron Age/early Roman settlement SL27/28 suggest that activities associated with the drying of clean and de-husked hulled (spelt) wheat grain were being carried out in specific parts of the enclosures. Some of this grain may even have initially been stored in pit G62 (L2) and in four-post structure G29 (L4). In the eastern part of the settlement there was potential evidence for activities associated with the de-husking of hulled spelt wheat, with the spikelets perhaps being stored in pit G47 (L5) beforehand.

No evidence was found for the storage of grain in any of the Roman samples and it has been argued that the use of pits for grain storage largely went out of use by this period; there also appears to be a reduction in the use of four-post structures for storing crops (Lodwick 2017, 71). The two rich Roman charred plant assemblages suggest that the drying of de-husked hulled wheat grain was taking place in the north-east and central areas of enclosure system SL31 and activities associated with the de-husking of hulled (spelt) wheat were being carried out near the excavated part of settlement SL29. It is not impossible that stone surface G213 (L207) within settlement SL29 was used as a threshing floor, although it is not as convincing as others excavated in the county (Luke and Preece 2012, fig. 17).

Animal husbandry

The main body of faunal evidence was recovered from features assigned to the late Iron Age/early Roman (Phase 3) and Roman (Phase 4) periods. Preservation of animal bone was poor in all assemblages, which will have biased the assemblage towards large, robust bones.

Cattle elements were the most frequently recovered from settlement SL27/SL28 (Phase 3), with sheep/goat, pig, horse and dog also present in small numbers. Roman settlement SL29 produced the largest sample, which was similarly dominated by cattle. Horse and sheep/goat were the only other species recorded. Cattle were also the most frequently identified from enclosure system SL31, followed by sheep/goat, pig, horse and dog. Based on the animal bone assemblage, it seems likely that pastoral farming was mainly focused on cattle husbandry in this part of Bedfordshire. The spatial layout of some of the enclosures within the settlements is also characteristic of livestock management.

Wild species

Despite the proximity of the Ouzel Brook, the absence of wild mammals, birds and fish is not unusual in small assemblages from Roman rural settlements (Luke 2016, 328). Preservation conditions will have, in any case, militated against the survival of bird and fish bones. There is possible, indirect, evidence for hunting in the form of the spherical ironstone ball from settlement SL29, which may have been used as a slingshot.

Bedding trenches

Bedding trenches SL30 contribute to our understanding of the Roman rural economy in the Houghton Regis environs, helping to 'fill in' the rural landscape between the settlements. The full extent of SL30 was not exposed within the excavation area and the trenches were not detected by the geophysical survey. They appear to comprise a small array of trenches, comparable to others in the region (e.g. to the west of Bedford; Luke 2016, 292–4) (Fig. 3.16). They are thought to be associated with the cultivation of horticultural crops, such as fruit trees (Lodwick 2017, 73). Far more extensive arrays have been found in the region, e.g. Tavistock Avenue, Ampthill (Northamptonshire Archaeology 2010) and Woolaston, Northamptonshire (Brown *et al.* 2001). At Woolaston, the bedding trenches were considered to be part of a large vineyard. While the evidence for viticulture elsewhere is limited, it is generally accepted that the creation of bedding trenches is evidence for increased horticulture in the Roman period. 'No *in situ* archaeobotanical remains have been recovered from bedding trenches that could indicate which crops were grown, and, furthermore, the separation between "bedding trenches" and "vineyards"

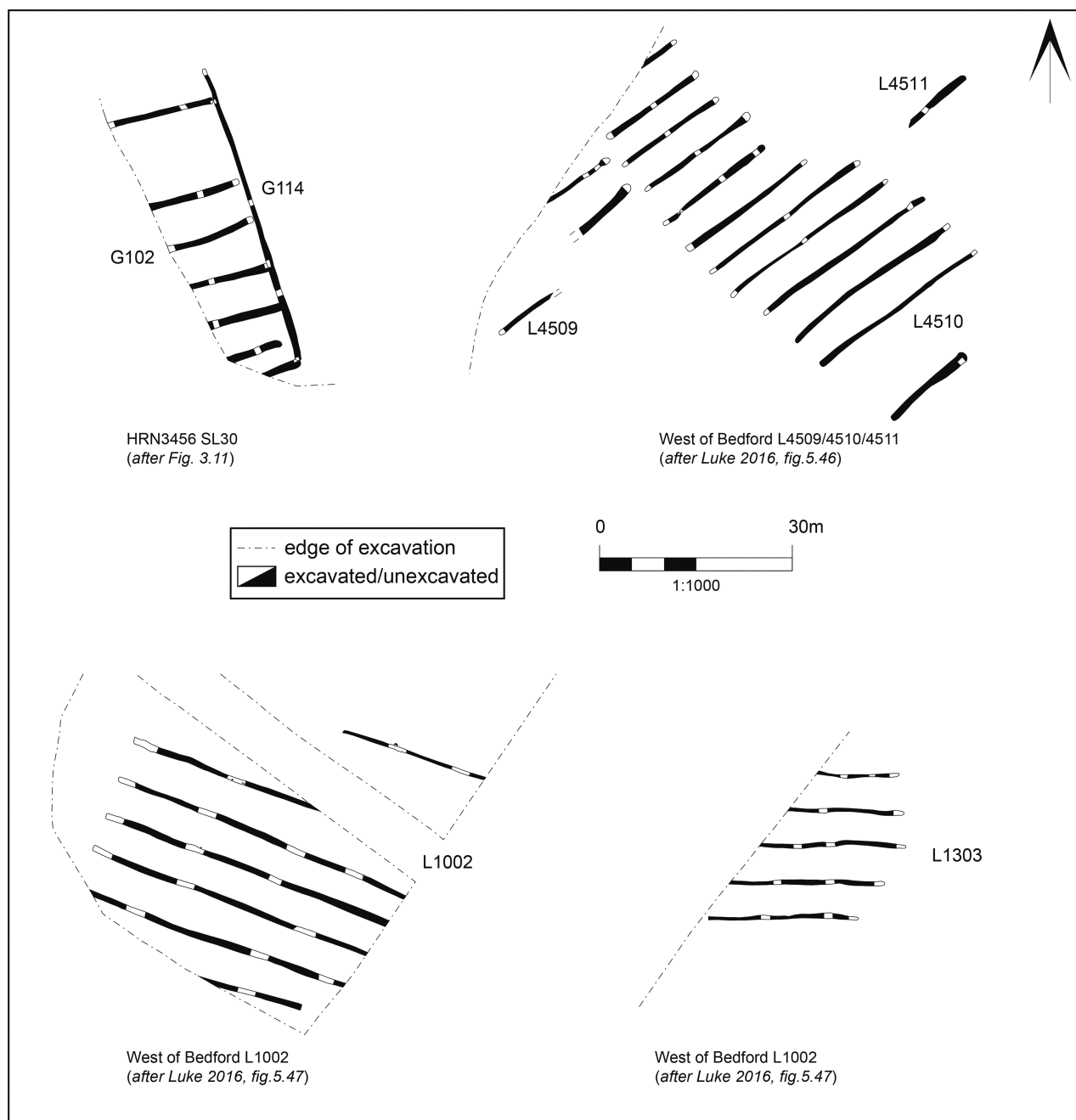


Figure 3.16 Comparative plans of arrays of bedding trenches from HRN1 and other sites in Bedfordshire

appears blurred' (Lodwick 2017, 74). No ecofactual remains were recovered from the SL30 bedding trenches, so it is unclear what crops were grown in them.

Burial and ritual

Limited evidence for burial and ritual was recovered from the three excavation areas.

Human burial

The middle Bronze Age child burial, near a ditch terminus, was in the partially flexed position that is fairly typical of the period. In isolation, a single burial can tell us little about the general population from which it originated. However, the skeleton does display indicators of systematic stress on the individual, which may suggest access to only limited food resources, but may also be the result of childhood disease.

Disarticulated human bone

The fragments of human skull (possibly male) from deposits above stone surface G213 within settlement SL29 may have derived from a disturbed, earlier burial – it is unusual to find deliberate deposits of disarticulated human bone in Roman contexts. However, while wear on some broken edges suggests redeposition, the slight polishing of the surface may indicate that the bone was handled in antiquity.

Other evidence for ritual behaviour

A sherd of a flagon from pit G224 (L204) within settlement SL29 is of particular interest because it features an ink-written inscription, translated by Roger Tomlin as: 'For a flagon of the gods Jupiter and Vulcan' (Plate 3.9). There is evidence from Britain for the cults of Jupiter and Vulcan being combined and this flagon perhaps held wine to refresh a guild of worshippers.

Another possibility is that rather than being written on a complete vessel, the inscription was actually written on the sherd prior to it being incorporated into a structured deposit. This is impossible to prove as there were no other ‘unusual’ finds within the pit, but the inscription appeared to be complete and was centrally placed on the sherd. It has long been recognised in Iron Age studies that certain deposits may be associated with ritual activity rather than simply being the result of rubbish disposal (Hill 1995; Cunliffe 1992). Fulford has noted that ‘in the case of Roman Britain there has also been a growing awareness of diversity in expressions of ritual behaviour as evidenced in the archaeological record’ (2001, 199). He presented a number of case studies of such deposits in secular contexts – unfortunately all from cities and small towns, not rural settlements.

A number of pits within late Iron Age/early Roman settlement SL27/SL28 contained greater quantities of pottery than other pits. These may represent structured deposits, but there was nothing specifically to suggest that they were anything other than deposits of rubbish. However, the fills of pit G47 (L5) were unusual in that they consisted of alternate layers of chalk and darker, charcoal-rich bands, suggestive of intermittent and deliberate deposition. The pit produced an iron Drahtfibel brooch, sheep and cattle bones (some of which were burnt), and charred wheat remains. While the inclusion of personal dress items within Iron Age pit fills is not unknown, it is relatively rare (Hill 1995, 66). Its presence, combined with the possible evidence for feasting, might suggest that the infilling of the storage pit was a significant event in the life of the community.

3.11 ACKNOWLEDGEMENTS

This project was managed by Mike Luke and assisted during fieldwork by Wes Keir (Project Officer). Onsite investigation was supervised by Kathy Pilkinton and Tori Guy. Hand excavation and recording were undertaken by Marco Capardoni, Elizabeth Di Vincenzo, Jonathan Durman, Mike Emra, William Eves, Allan King, Gary Manning, Annie Moore, Sabine Pescheck, Ernie Rizzo, Krzysztof Ryniec, Irene Sala, Gareth Shane, Chris Sopp, Catie Watts, Adam Williams and Adrian Woolmer (Archaeological Technicians) (Plate 3.10).

Kathy Pilkinton created the contextual hierarchy and oversaw the post-excavation specialist work. Helen Parslow prepared the project archives for deposition with The Culture Trust Luton (accession numbers LUTNM:2018/37, LUTNM:2018/38 and LUTNM:2018/43).

The photographs used in this publication were taken by Ben Carroll (Plate 3.5), Mike Emra (Plate 3.4), William Eves (Plate 3.7), Kathy Pilkinton (Plates 3.4, 3.6, 3.8 and 3.10), and Adam Williams (Plate 3.9).



Plate 3.10 Part of the field team on HRN3457

Chapter 4

Late Mesolithic to Roman land-use at site HRN3486

By Mike Luke and Marcin Kozimiński

with reports by Sarah Bates, Dana Challinor, John Giorgi, Mark Maltby and Jackie Wells

Illustrations by Mike Trevarthen (Figs 4.2–4.27) and Joan Lightning (Fig. 4.1)

SUMMARY

Between April and December 2019, archaeological investigation revealed evidence of land utilisation from the late Mesolithic to the Roman period. The earliest evidence for human activity comprised 12 large late Mesolithic pits. Their unexpected discovery is highly significant given the rarity of features of this period in Britain and they represent the largest group of such features found to date in England. Middle Bronze Age–early Iron Age evidence included a possible segmented enclosure, isolated ditched boundaries (some also segmented) and activity foci including possible post-built structures. Late Iron Age/Roman remains principally comprised ditches associated with extensive field systems. The latter contained an isolated possible structure and an isolated possible grave, which contained seven pottery vessels and an iron knife.

4.1 INTRODUCTION

This chapter presents the results of c.11.5ha of strip, map and sample (SMS) investigation, undertaken immediately in advance of construction between April and December 2019 (Plate 4.1), although in the case of c.3.7ha of the area only topsoil was removed. The outline planning permission for the HRN1 development allowed for the implementation of Advance Infrastructure Works (AIW) – primarily roads, but also water infrastructure (including attenuation basins and pumping stations) and temporary haul routes and compounds – and these were the occasion for the work. It was carried out in line with an approved Written Scheme of Archaeological Resource Management (WSARM) (Albion Archaeology 2018c) and the results were assessed in order to determine their significance and potential for further analysis (Albion Archaeology 2021).



Plate 4.1 Archaeological investigations with construction work underway in the background

Site location and geology

The Phase 1 AIW were located to the south of the Ouzel Brook and to the west of Sundon Road (Fig. 4.1). The area is relatively flat at c.115–130m OD but slopes down, in places quite steeply, to the Ouzel Brook to the north and west. The underlying solid geology consists of West Melbury Marly Chalk Formation, with up to 1m of alluvium associated with the brook.

Archaeological background

Site HRN3486 was situated within ACA10, which the evaluation suggested would contain dispersed evidence for trackways and field systems/boundaries of Iron Age and later date.

4.2 SITE SEQUENCE

Pottery typology was the primary means of feature-dating; radiocarbon dating also allowed some features to be assigned to the late Mesolithic–early Neolithic (Phase 2) and middle Bronze Age–early Iron Age (Phase 3). The phasing relied heavily on stratigraphic relationships between features (where available) and the latter's spatial patterning.

The majority of the remains pertained to middle Bronze Age–early Iron Age (Phase 3) enclosure ditches, and an extensive Roman (Phase 5) field system. Palaeochannels, associated with the Ouzel Brook, and tree-throw holes, probably largely pre-dating human activity (Phase 1), were identified in the north part of the investigation area. However, the most significant remains were 12 large pits, some of which were radiocarbon-dated to the late Mesolithic. The results of radiocarbon dating are summarised within the text; full details are presented in Table 4.12.

Phase 1 (palaeochannels and tree-throw holes)

Three palaeochannels L1 and c.550 tree-throw holes L2 were identified, with approximately 25% of the latter

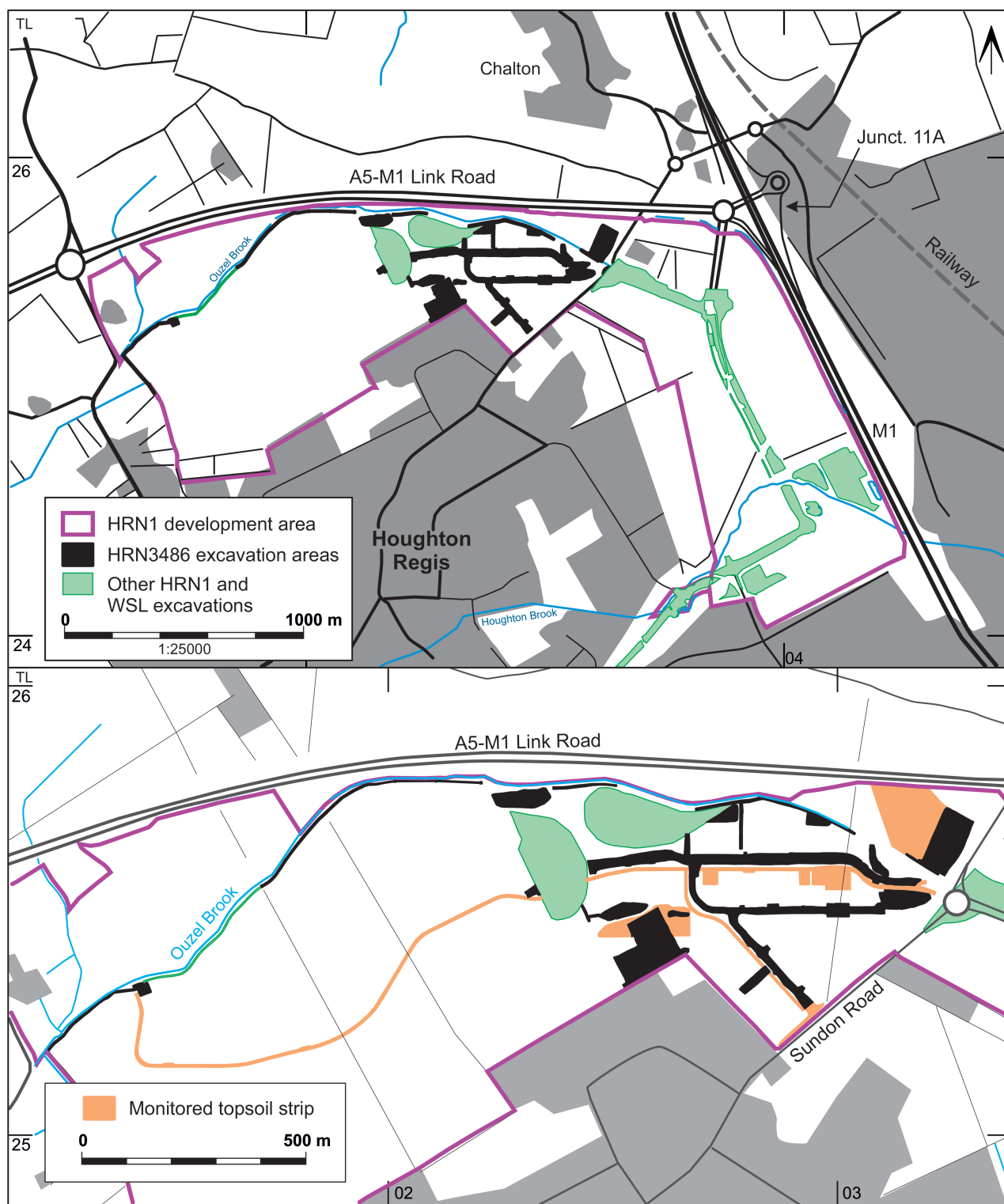


Figure 4.1 HRN3486 location plan

subject to some level of hand-excavation (Fig. 4.2). All were filled with similar sterile deposits, suggesting that they were part of a contemporary natural landscape. The tree-throw holes were predominantly sub-oval to 'kidney'-shaped in plan and c.0.5–5m in diameter; they generally had irregular profiles and were c.0.2–0.8m deep. Two produced seven unidentified animal bone fragments; these features were no different in character to the ones without finds.

Two north-south aligned palaeochannels L107 and L25 had been identified in the earlier open-area

excavations (HRN3456 and HRN3457 respectively) (Chap. 3). Within HRN3486, G1 corresponded with L107 where it was c.30m wide and more than 2m deep (Plate 4.2) (Fig. 4.2 section a). G2 was probably related to L25 but it was only 0.15m deep (Fig. 4.2 section c) and probably represents the beginning of the palaeochannel (perhaps explaining its narrower and slightly different alignment). The east-west aligned palaeochannel G183 was only partially observed within the SMS area (Fig. 4.2 section b); it probably represents the maximum extent to the south of a former course of the Ouzel Brook.

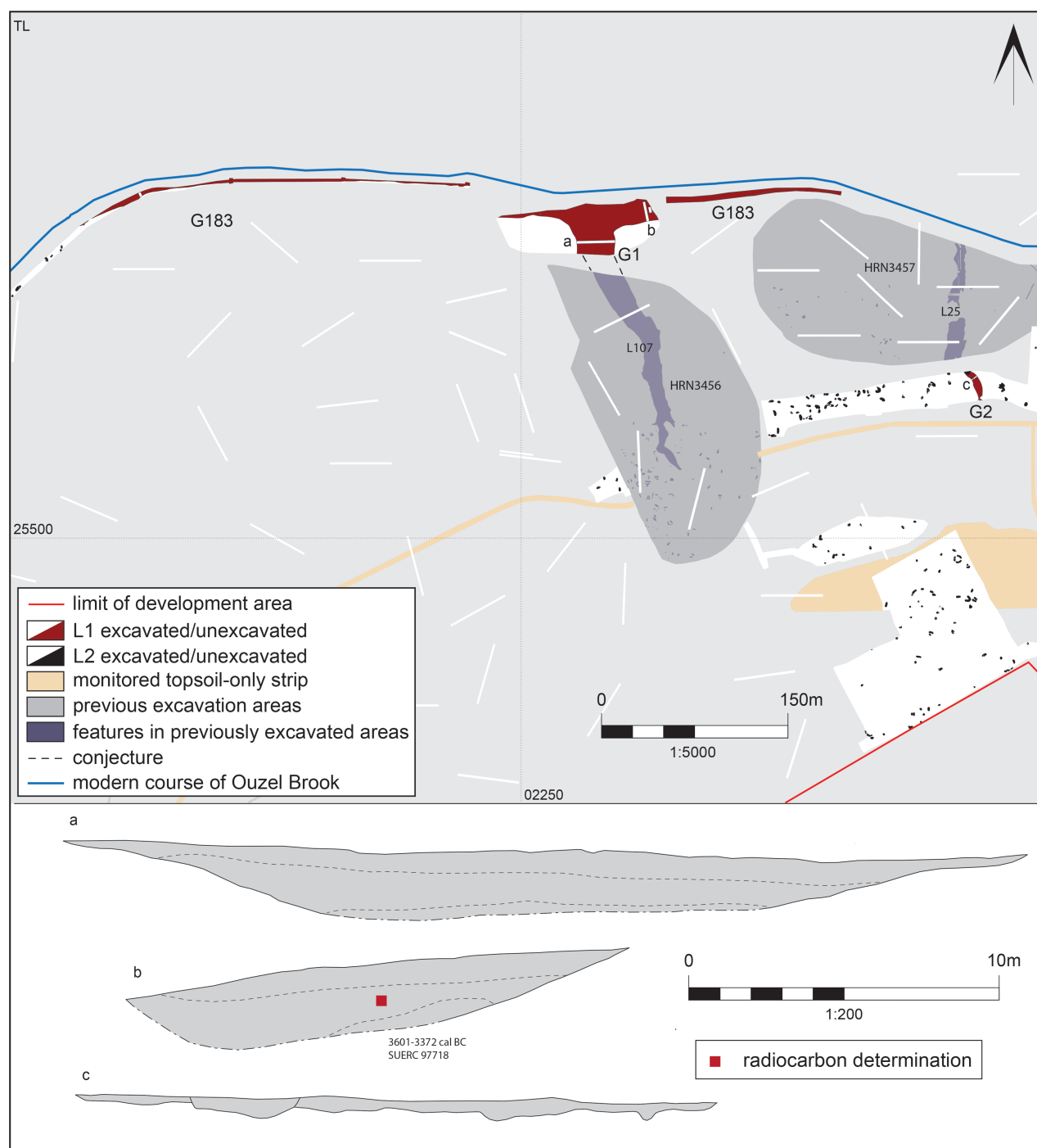


Figure 4.2 Plan of Phase 1 palaeochannels L1 and tree-throw holes L3, with selected sections



Plate 4.2 Palaeochannel G1 (L1, Phase 1) machine-dug segment, looking north-west. Scale 1m

The precise origins and dating of the palaeochannels are uncertain. One of the excavated (but not basal) fills of G1 contained a charred hazelnut shell, which produced an early Neolithic radiocarbon date of 3601–3372 cal BC (SUERC-97718); while the uppermost fill produced three small, abraded sherds of late Iron Age pottery. This probably suggests that the channels were long-lived landscape features. The shallower elements, like G2, may have become infilled earlier.

Phase 2 (late Mesolithic–early Neolithic)

The earliest evidence for human activity was identified in the central part of the site. It comprised 12 large pits (L4 and L46), two small pits (L4) and a tree-throw hole

L3 which contained a single flint blade of probable late Mesolithic/early Neolithic date.

In terms of the large pits' overall distribution, a loose cluster L4 lay at the west end of a possible alignment L46 (Fig. 4.3). The L4 pits were assigned to different Groups based on their spatial layout and similarities in shape, profile, dimensions and depth (Tables 4.1 and 4.2). All pits were excavated to their full depth and at least half-sectioned. Pits SG8.02 (G8, L4) and SG50.02 (G50, L46) were 100% excavated to recover animal bone that clearly continued into the unexcavated half.

The pits produced no firmly datable finds and, as they were identified at different times within different areas, their overall similarities were not recognised at the time. During the post-fieldwork assessment, animal bone from two of the large pits (unexpectedly) returned late Mesolithic radiocarbon dates. A second stage of radiocarbon dating of animal bone and charred plant remains from three other pits produced late Mesolithic dates from two additional large pits and an early Neolithic date from one of the small pits (Table 4.12). (Clearly, had the pits' late Mesolithic date been known during fieldwork, they

would have been 100% excavated and subject to more extensive sampling.)

Loose cluster of circular pits L4

L4 comprised eight pits arranged in an arc of four G8, and two pairs G10 and G179 (Figs 4.3 and 4.4; Table 4.1).

Arc of four large pits G8

These pits were arranged c.3–8m apart in a broad arc that extended over c.25m immediately south of the main course of the palaeochannel seen within HRN3457 (Chap. 3) and c.30m west of the remnant G2. The four pits were circular or sub-circular, 2.1–3.2m in diameter, and all except SG8.04 had steep to near-vertical sides and fairly flat bases; they were c. 1.0–1.7m deep (Fig. 4.4; Plates 4.3–4.6). Their fills typically followed a pattern of lighter, chalk-rich primary and secondary fills, sealed by darker tertiary fills. The lower fills of pit SG8.02 formed light and 'dark bands'.

Pits SG8.02 and SG8.04 contained animal bone. The exceptionally large assemblage from the secondary fills

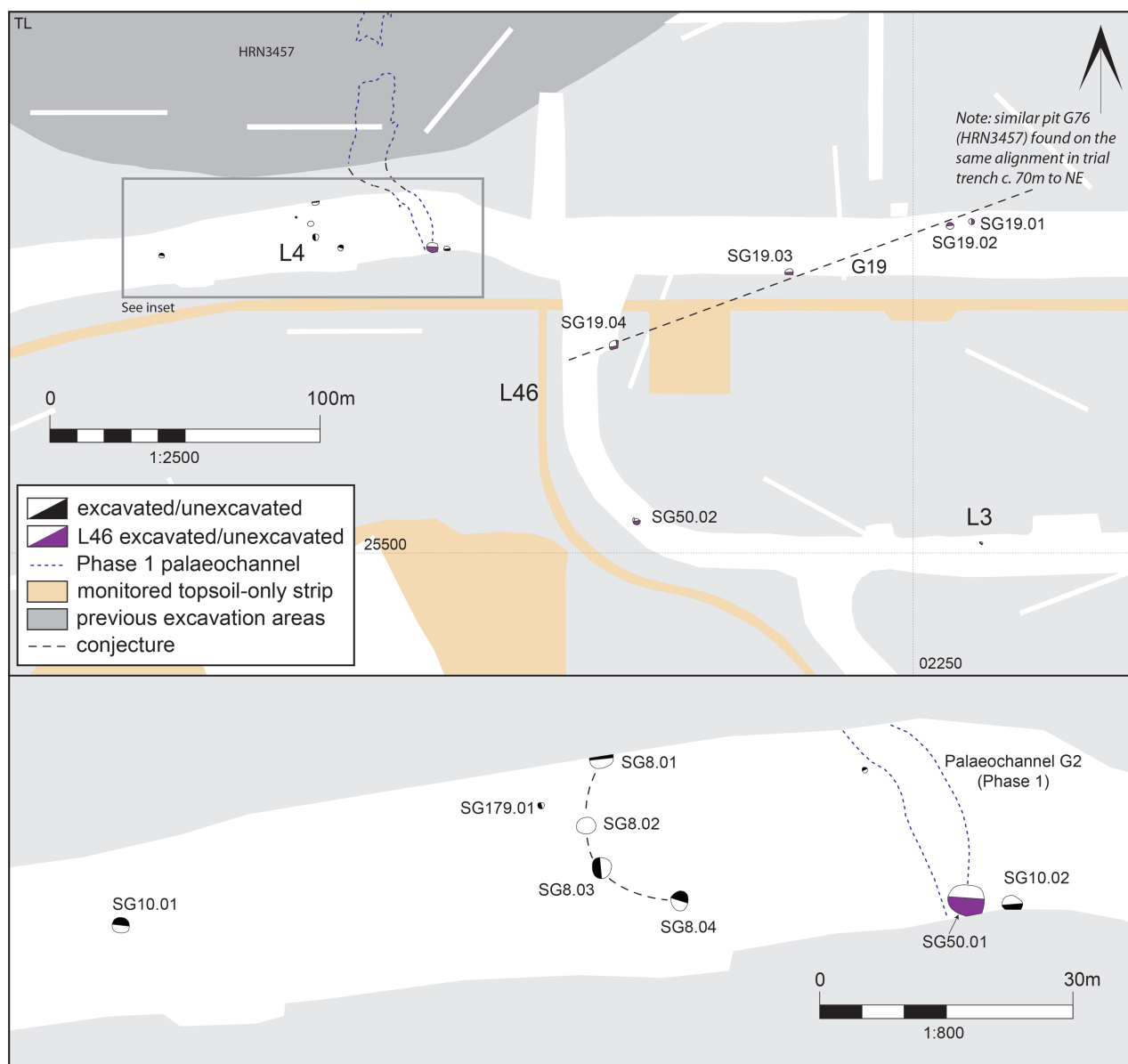


Figure 4.3 Plan of late Mesolithic/early Neolithic (Phase 2)

SG	Form	Diameter top:base (m)	Depth (m)	Fill	Animal bone and/or charred plan remains	Radiocarbon determination (95.4%)
8.01	Plan: sub-circular. Profile: asymmetric. Sides: near-vertical to west, steep to east. Base: slightly concave	3.2:1.1	1.3	425 secondary 426 tertiary 427 tertiary	- - -	- - -
8.02	Plan: circular. Profile: symmetrical. Sides: near-vertical. Base: slightly concave.	2.3:1.3	1.3	403 primary 404 primary 405 primary 406 secondary 407 secondary 408 secondary 409 secondary 410 secondary 411 tertiary 421 secondary	- - - - - - Fragments from two skulls of aurochs, 403g Fragments from large bovid humerus, rib; tooth, 457g - Fragments from aurochs horn core & skull, 3993g	- - - - - - - 6443–6271 cal BC (SUERC-95057; 7516±25 BP)
8.03	Plan: circular. Profile: symmetrical. Sides: near-vertical. Base: flat.	2.5:1.4	1.7	413 secondary 414 secondary 415 secondary 416 secondary 417 secondary 418 secondary 419 tertiary	- - - - - - -	- - - - - - -
8.04	Plan sub-circular. Profile: asymmetrical. Sides: steep to east, stepped to west. Base: concave.	2.1:0.9	1	393 primary 394 secondary 395 secondary 396 secondary 397 secondary 398 tertiary 399 tertiary 401 tertiary	Fragments from bovine/auroch horn core, 34g - - - - - - -	- - - - - - -
10.01	Plan: circular. Profile: symmetrical. Sides: concave. Base: concave.	2:0.7	0.9	326 secondary 327 secondary 328 tertiary	- - -	- - -
10.02	Plan: sub-circular. Profile: asymmetric. Sides: steep to west, c. 45 degrees to east. Base: concave.	2.5:0.7	1	315 primary 316 secondary 317 tertiary 318 tertiary	- - - -	- - - -
179.01*	Plan: circular. Profile: symmetrical. Sides: concave. Base: concave.	0.75:0.4	0.4	350 sole	-	-
179.02*	Plan: circular. Profile: symmetrical. Sides: concave. Base: concave.	0.65:0.2	0.3	423 sole	Fruit stone fragments (Prunus) Charcoal (oak, hazel and malvoideae)	3517–3371 cal BC (SUERC-97719; 4669±25 BP)

* pits SG179 are dated to the early Neolithic

Table 4.1 Late Mesolithic–early Neolithic (Phase 2) pits L4

of SG8.02 weighed c.4.8kg and included an aurochs horn core radiocarbon-dated to the late Mesolithic (6443–6271 cal BC – SUERC-95057) (Table 4.12).

Two large pits G10 near arc G8

Pits SG10.01 and SG10.02 lay c.50m to the west and c.50m to the east of arc G8. They were similar in size and profile to pits G8, but had more concave profiles (Fig. 4.4; Plates 4.7 and 4.8). Their fills were more homogenous than those in G8 and generally consisted of mid-brown-grey silty clay.

Two small pits G179 near arc G8

Pits SG179.01 and SG179.02 were noticeably smaller than the others in this area – c.0.75m in diameter and c.0.4m deep. However, like pits G10 they were located on either side of arc G8. Both had U-shaped profiles with steep sides and concave bases (Fig. 4.4; Plates 4.9 and 4.10). They contained similar dark orange-brown single fills. Fragments of charred *Prunus* fruit stones from pit SG179.02 were radiocarbon-dated to the early Neolithic (3517–3371 cal BC – SUERC-97719).

SG	Form	Diameter top:base (m)	Depth (m)	Fill	Flint	Animal bone	Radiocarbon determination
19.01	Plan: circular. Profile: symmetrical. Sides: steep. Base: flat.	2.2:0.7	0.8	63 secondary 64 tertiary	- -	- -	- -
19.02	Plan: sub-circular. Profile: symmetrical. Sides: steep. Base: flat.	2.9:2.2	0.7	45 primary 46 secondary	- -	- Frag. unid. large mammal, 45g	- 5712–5627 cal BC (SUERC-95055; 6752±25 BP)
19.03	Plan: sub-circular. Profile: symmetrical. Sides: steep. Base: flattish.	3.1:1.8	1.3	47 tertiary 57 primary 58 secondary 59 secondary 60 tertiary 61 tertiary	- - - - - -	- - - - - -	- - - - - -
19.04	Plan: sub-circular. Profile: symmetrical. Sides: steep. Base: flat.	c. 5:3.6 (minimum)	1.5	602 primary 603 primary 604 secondary 605 tertiary	- - - -	- - Frag. unid. large mammal, 132g -	- - - -
50.01	Plan: sub-circular. Profile: symmetrical. Sides: steep with some stepping. Base: flat.	4.3:1.4	1.7	352 tertiary 353 tertiary 354 primary 355 secondary 356 secondary 357 tertiary 358 primary 359 tertiary	Blade Blade - - - - - -	Frag. of aurochs mandible, red deer tooth, roe deer ulna, 59g - - - - - Frag. unid., 2g	6232–6086 cal BC (SUERC-97772; 7327±25 BP) - - - - - -
50.02	Plan: sub-circular. Profile: symmetrical. Sides: steep with some stepping. Base: flat.	2.7:1	1.6	629 primary 630 secondary 631 secondary 632 secondary 633 tertiary 634 tertiary 641 tertiary	- - Blade ?retouched blade x2 utilised blade - Blade Retouched blade ?utilised blade x3 Blade x3 -	- - - - Hazel nut shells (x3) Charcoal (hazel, oak and pine) - - Frag. including skulls from bovine/auroch. Also single pig and red deer bone, 2892g	- - - - - - 6636–6498 cal BC (SUERC-95058; 7736±24 BP) 6595–6469 cal BC (SUERC-97773; 7703±25 BP)

Table 4.2 Late Mesolithic (Phase 2) pits L46

Plate 4.3 Pit SG8.01 (L4, Phase 2), half-sectioned,
looking north. Scale 1mPlate 4.4 Pit SG8.02 (L4, Phase 2), half-sectioned,
looking south. Scale 1m

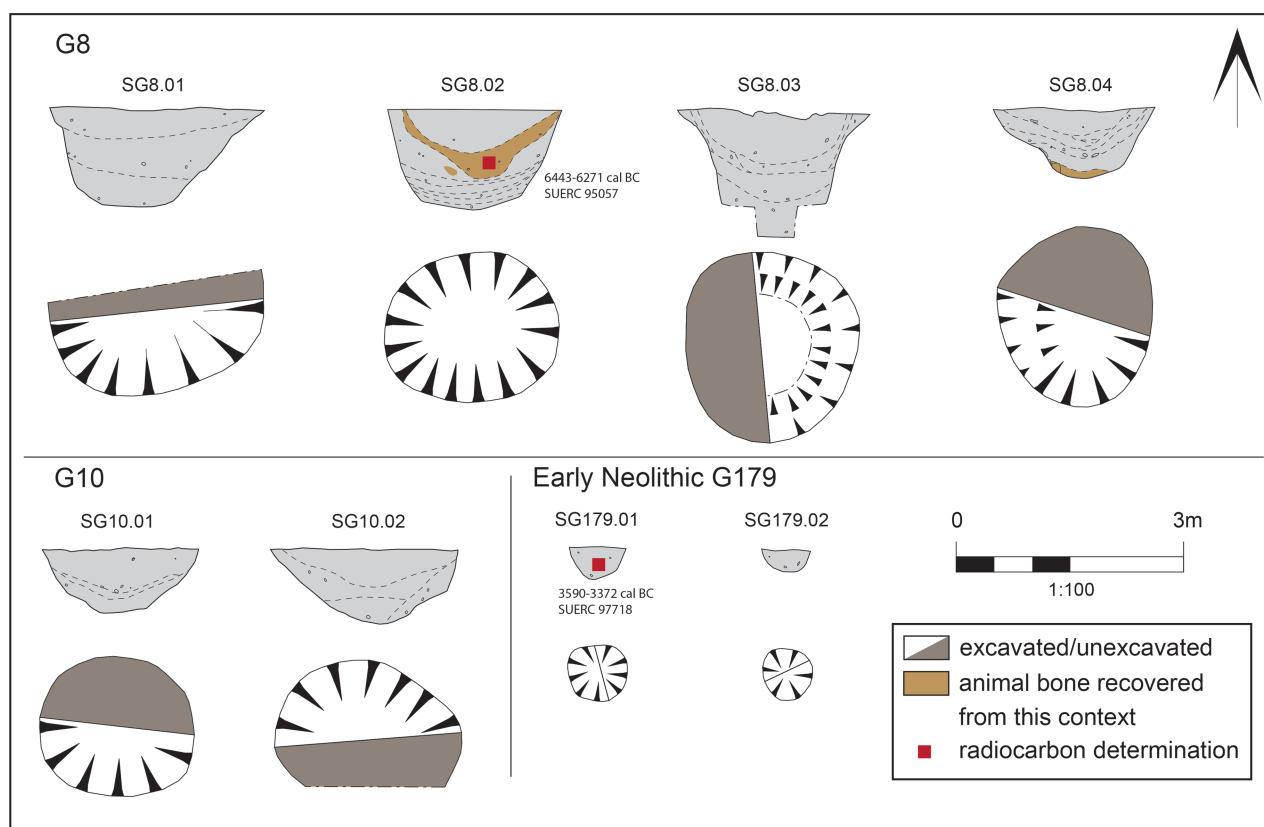


Figure 4.4 Individual plans and sections of late Mesolithic/early Neolithic (Phase 2) pits L4



Plate 4.5 Pit SG8.03 (L4, Phase 2), half-sectioned, looking west. Scale 1m



Plate 4.6 Pit SG8.04 (L4, Phase 2), half-sectioned, looking north. Scale 1m



Plate 4.7 Pit SG10.01 (L4, Phase 2), half-sectioned, looking north. Scale 1m



Plate 4.8 Pit SG10.02 (L4, Phase 2), half-sectioned, looking south. Scale 1m



Plate 4.9 Pit SG179.01 (L4, Phase 2), half-sectioned, looking east. Scale 0.4m



Plate 4.10 Pit SG179.02 (L4, Phase 2), half-sectioned, looking east. Scale 0.4m

Dispersed large pits L46

Six pits, mainly located to the east of L4 (Fig. 4.3), were much larger; four of them appeared to form an alignment G19. Assignment to this Land-use Area was based on four radiocarbon determinations, the spatial arrangement of the pits, and their morphological similarities.

Alignment of four pits G19

Four pits appeared to form a c.140m-long, ENE–WSW alignment. A fifth, similarly sized pit, found c.120m to the ENE, was possibly part of the same alignment. First identified during trial trenching (Albion Archaeology 2012a, 28 and fig. 42) but undated, it was later investigated as part of the HRN3457 excavation (p. 48).

These four circular pits were generally 2.2–3.1m in diameter, although SG19.04 (at the south-west end of the alignment) was c.5m in diameter. Pits SG19.03 and SG19.04 to the south-west were c.1.4m deep, whilst SG19.01 and SG19.02 to the north-east were no more than 0.8m deep. They all had steep sides but with a mix of concave and flat bases (Fig. 4.5; Plates 4.11–4.14). They contained light, chalk-rich primary and secondary fills, with darker, siltier, tertiary fills.



Plate 4.12 Pit SG19.02 (L46, Phase 2), half-sectioned, looking north. Scale 1m



Plate 4.11 Pit SG19.01 (L46, Phase 2), half-sectioned, looking east. Scale 1m



Plate 4.13 Pit SG19.03 (L46, Phase 2), half-sectioned, looking south. Scale 1m



Plate 4.14 Pit SG19.04 (L46, Phase 2), part-sectioned, looking south. Scale 1m

A total of 177g of animal bone was recovered from the secondary fills of pits SG19.02 and SG19.04. A fragment of a large mammal animal bone from SG19.02 produced a late Mesolithic radiocarbon date (5712–5627 cal BC – SUERC-95055).

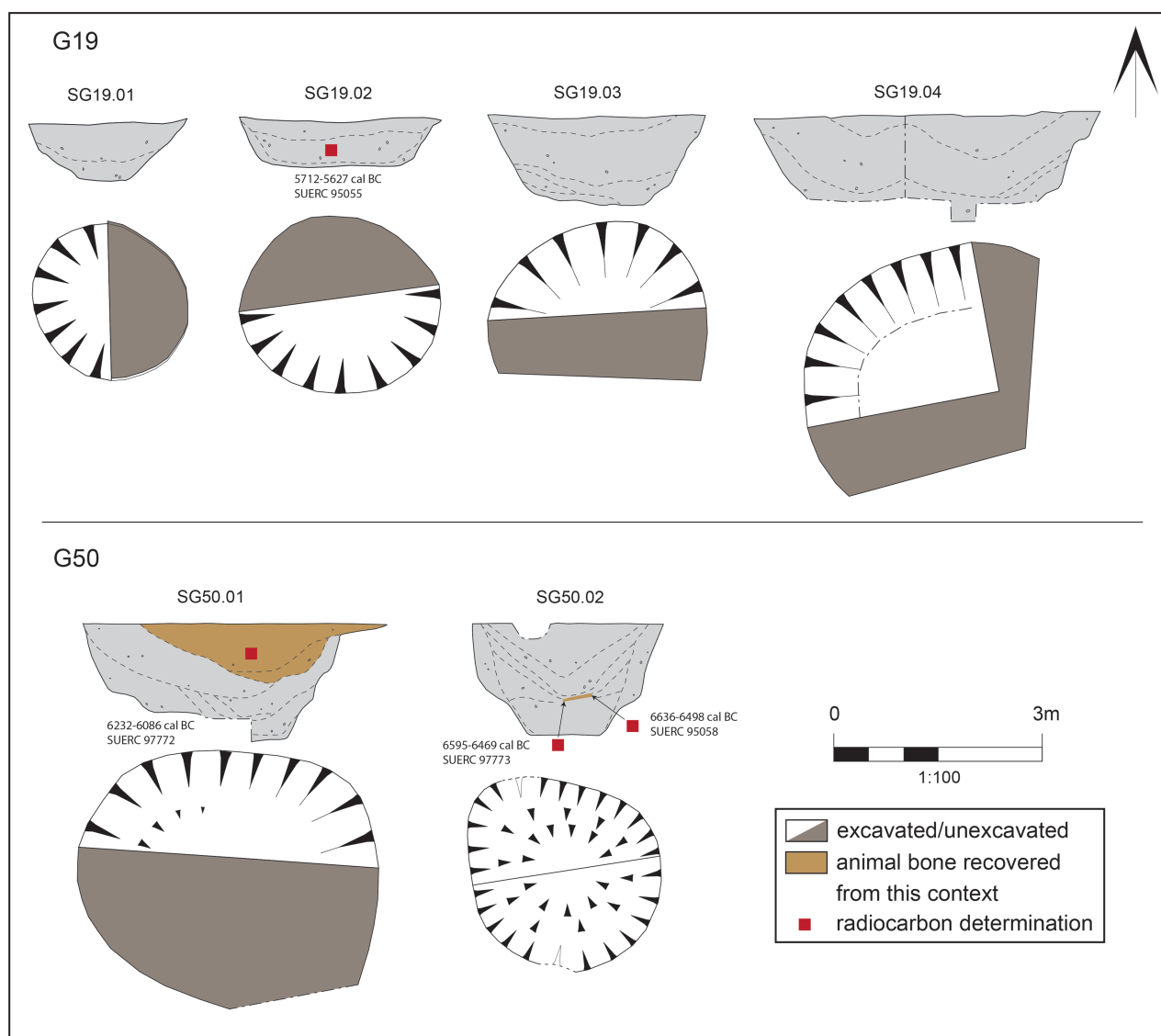


Figure 4.5 Individual plans and sections of late Mesolithic/early Neolithic (Phase 2) pits L46

Two large pits G50

These two large, circular pits were situated *c.*130m apart and pit G50.01 was dug into the south-east part of the Phase 1 palaeochannel G2 (Fig. 4.3). They were *c.*2.8m and 4.5m in diameter and up to *c.*1.7m deep (Fig. 4.5). Both pits had steep sides that were slightly stepped towards the flat base (Plates 4.15 and 4.16). Their fills



Plate 4.15 Pit SG50.01 (L46, Phase 2), half-sectioned, looking south. Scale 1m



Plate 4.16 Pit SG50.02 (L46, Phase 2), half-sectioned, looking north. Scale 1m

were similar to those of pits G8 and G19, with lighter, chalk-rich primary and secondary fills, and darker tertiary fills.

SG50.01 was the larger of the two pits. It produced 61g of animal bone and two flint blades. One of the bone fragments – an aurochs mandible – was radiocarbon-dated to the late Mesolithic (6232–6086 cal BC – SUERC-97772).

The primary fill included bands of darker material in a light-coloured matrix.

One of the secondary fills of SG50.02 produced *c.*2.9kg of animal bone; most of the identified elements were from at least one, but probably two, aurochs. Two bone fragments from the same fill were radiocarbon-dated to the late Mesolithic (6636–6498 cal BC – SUERC-95058 and 6595–6469 cal BC – SUERC-97773). Cut marks on two humeri from SG50.02 provided evidence for dismemberment and possibly filleting. Twelve flint blades of probable late Mesolithic/early Neolithic date were recovered from SG50.02.

Tree-throw hole SG4 (L3)

This tree-throw hole measured *c.*1.4 × 0.7 × 0.25m deep. Its fill was similar to the upper fills of pits L4 and L46 and, as such, it was similar to the tree-throw holes L2 (Phase 1). It was assigned to this phase because it contained a single flint blade of probable late Mesolithic/early Neolithic date.

Phase 3 (middle Bronze Age–early Iron Age)

Evidence for Phase 3 activity was spread across the investigation area (Fig. 4.6) but there was more in the east (Fig. 4.7) than the west (Fig. 4.8). The most significant remains were a possible enclosure L18/20 with both internal (L19 and L24) and immediately adjacent features (L50). Other possible activity foci were L27, to

the north-west of the possible enclosure, and the more distant L30 and L47. Five possible post-built structures L21 were located just south of the present-day course of the Ouzel Brook. Segmented or short ditch lengths L5, L8, L23, L26 and L38 were found across the investigation area. A possible field L45 was found in the north-east corner.

The finds assemblage included 106 sherds (1.1kg) of pottery and *c.*2kg of animal bone. Wells (this vol) describes the pottery as typical of transitional later Bronze Age/earliest Iron Age assemblages in south-east England. However, three middle Bronze Age radio-carbon dates (Table 4.12) from Phase 3 features might indicate that the date range of some of the indeterminate later Bronze Age flint-tempered wares could be pushed back into the middle Bronze Age. The largest assemblages (still under 0.5kg) were recovered from activity focus L27, ditch L26 and possible field L45.

Possible enclosure L18/L20

Segmented ditches L18 (to the south) and L20 (to the north) defined a possible enclosure (Figs 4.7 and 4.9). Although they did not form a complete circuit, the surviving ditches suggest that the enclosure would have been polygonal in plan and *c.*60m in diameter. A cluster of features L24, incorporating several layers, lay within the north-east part of the enclosure. More dispersed internal features L19 included a large water-pit and a post-built

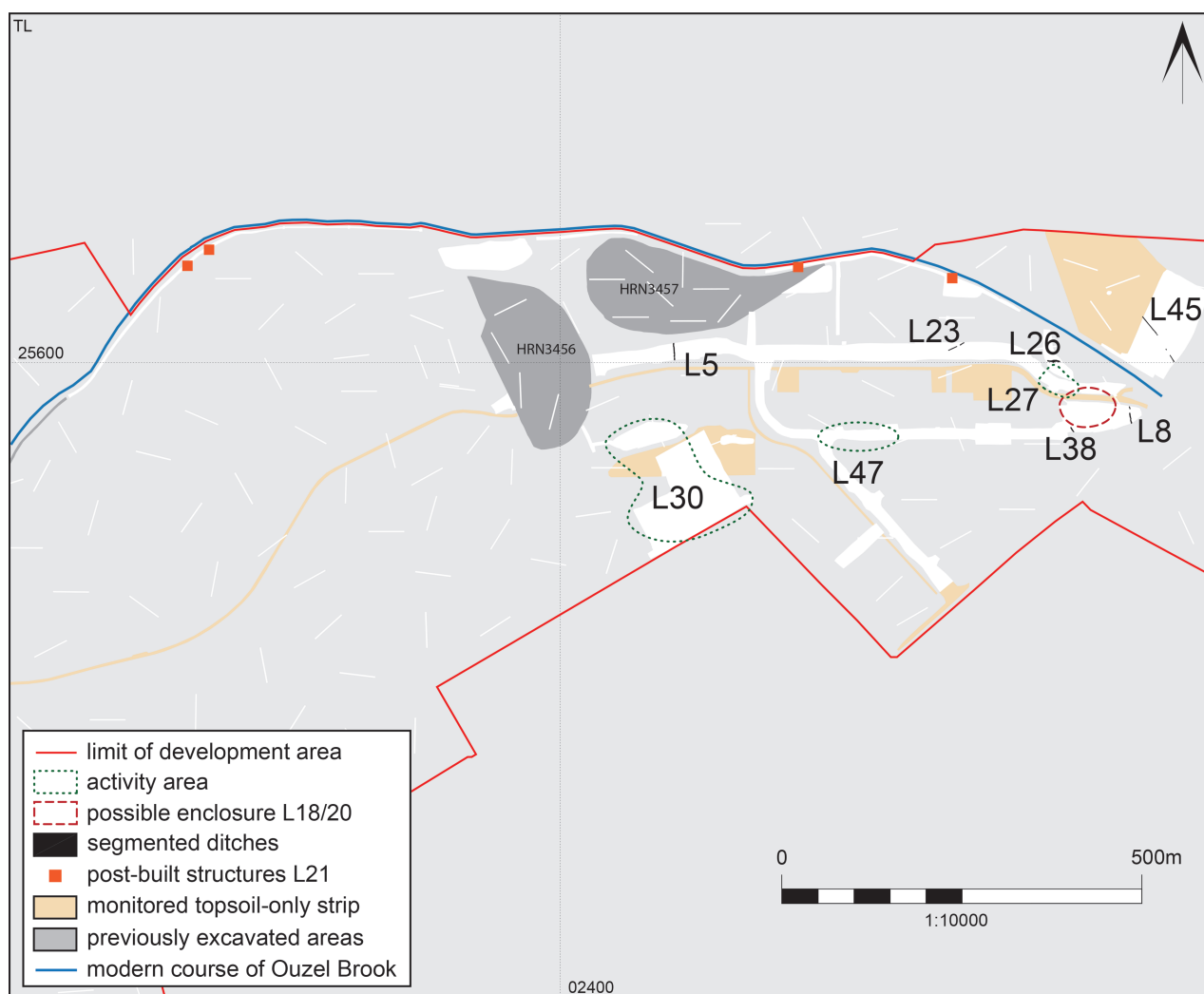


Figure 4.6 Plan of middle Bronze Age–early Iron Age (Phase 3)

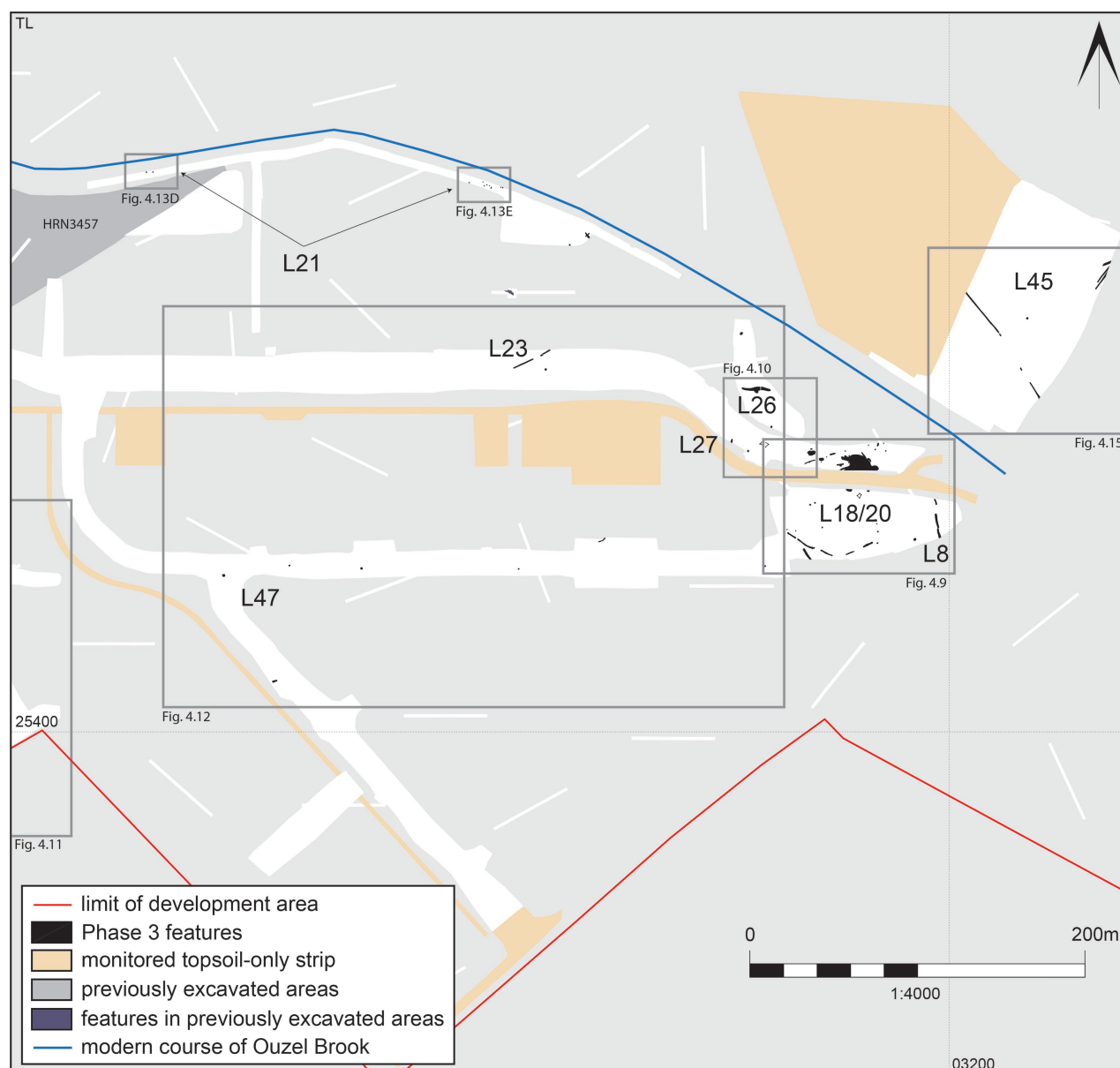


Figure 4.7 Plan of middle Bronze Age–early Iron Age (Phase 3) in east part of investigation area

structure. There was also a small number of features L50 immediately outside the enclosure.

Southern enclosure ditch L18

The south side of the possible enclosure comprised ten individual ditch segments, forming five discrete lengths. The segments were between 1m and 12m long; some appeared to abut adjacent segments while others were dug into them (Plate 4.17). However, they were all on a similar alignment, so are interpreted as being broadly contemporary. All had steep to U-shaped profiles, c.0.5–1.0m wide, and most were no deeper than 0.3m (Fig. 4.9 section d). Lengths G38 and G40 were exceptional in that they were more slot-like in profile (Fig. 4.9 section e; Plate 4.17). Cereal grains from ditch-length G39 were radiocarbon-dated to the middle Bronze Age (1496–1318 cal BC – SUERC-95053) (Table 4.12).

Northern enclosure ditch L20

The north side of the possible enclosure comprised nine individual ditch segments, forming three discrete lengths,



Plate 4.17 Slot G40 (enclosure L18, Phase 3), looking north-east. Scale 1m

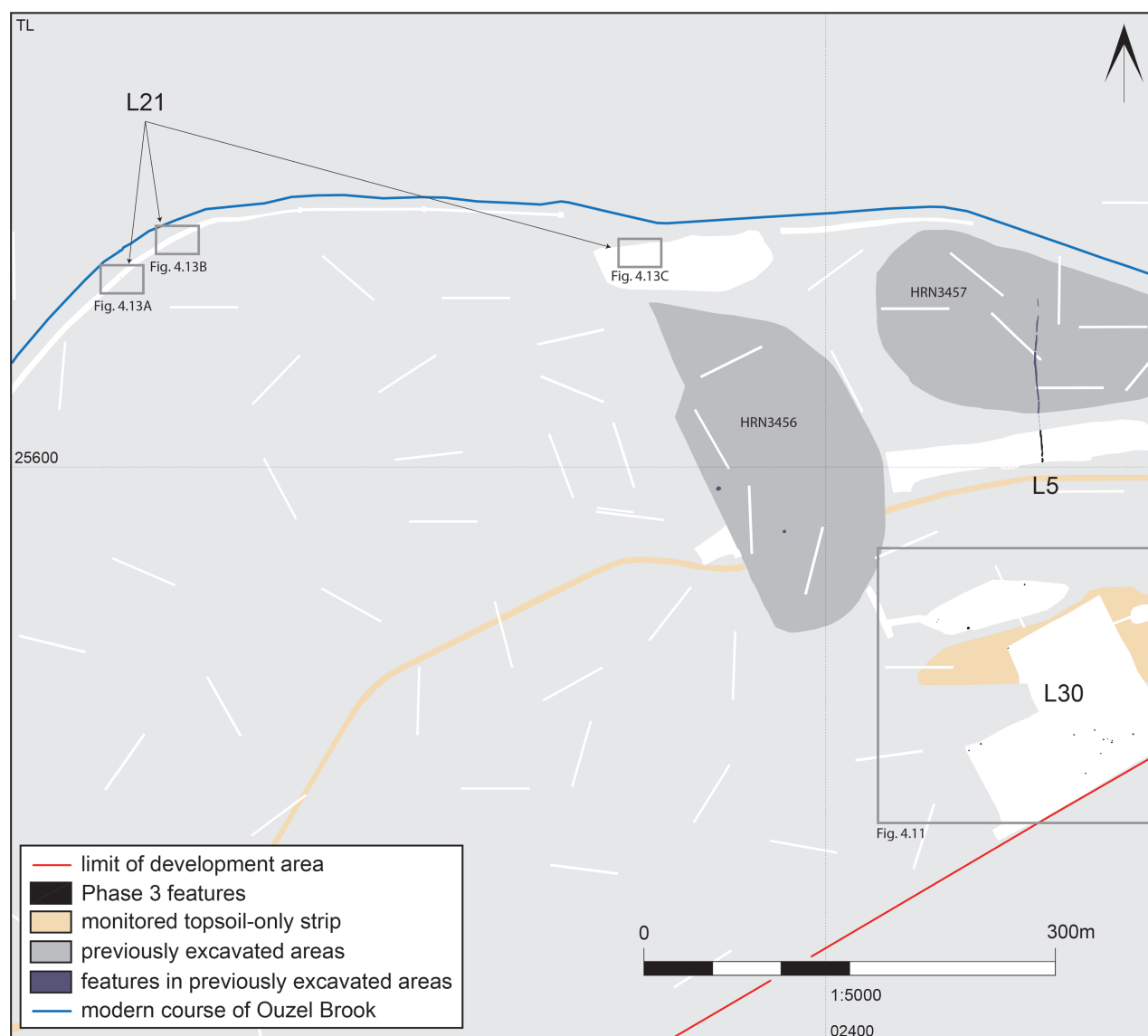


Figure 4.8 Plan of middle Bronze Age–early Iron Age (Phase 3) in west part of investigation area

albeit with an unclear arrangement to the north-east. The individual segments were between 3.5m and 6.5m long, with U-shaped profiles that were up to 1.2m wide and up to 0.45m deep (Fig. 4.9 section a). Large post-pit G34, dug into the terminus of one of the ditch lengths, was $c.2.1 \times 1.3$ m in plan and $c.0.6$ m deep with near-vertical sides. A cow bone from ditch-length G26 was radiocarbon-dated to the middle Bronze Age (1520–1428 cal BC – SUERC-95056) (Table 4.12).

Internal features L19 and L24

Evidence of note for internal activity L19 included water-pit G25, short posthole alignment G157, four-post structure G158 and a series of layers L24. Other features (not described below) included two gullies, dispersed postholes and small pits (including two intersecting pits G181).

Water-pit G25 was in the north-east part of the possible enclosure. It measured $c.5.0 \times 2.8$ m and was $c.1.4$ m deep; it had been recut at least once (Fig. 4.9 section b). A single sherd of late Bronze Age/early Iron Age pottery and $c.9$ kg of burnt stone were recovered from the fills of the re-cut. A $c.8$ m-long alignment of three postholes G157 was located in the southern part of the enclosure.

Four-post structure G158 was $c.2$ m square and was located roughly in the centre of the enclosure (Fig. 4.9 section c).

Associated with the re-cutting of the northern enclosure ditch L20 was a series of layers L24, which partially sealed water-pit G25 and a small number of features of uncertain origin. These layers covered an area of $c.20 \times 15$ m; they were up to $c.0.25$ m thick.

Adjacent features L50

Evidence for activity next to the enclosure comprised three pits to the south (G9, G56 and G159) and five postholes G128 and a short gully G130 to the north-east. Four of the postholes were clustered near the gully and this arrangement is tentatively interpreted as a possible structure.

Dispersed activity foci

Three loose clusters of features L27, L30 and L47 were defined as activity foci. Their constituent elements are very dispersed and their identification as Land-use Areas is primarily a useful way to describe them spatially rather than indicating that they are functionally related. The dating evidence is also poor; it mainly comprises

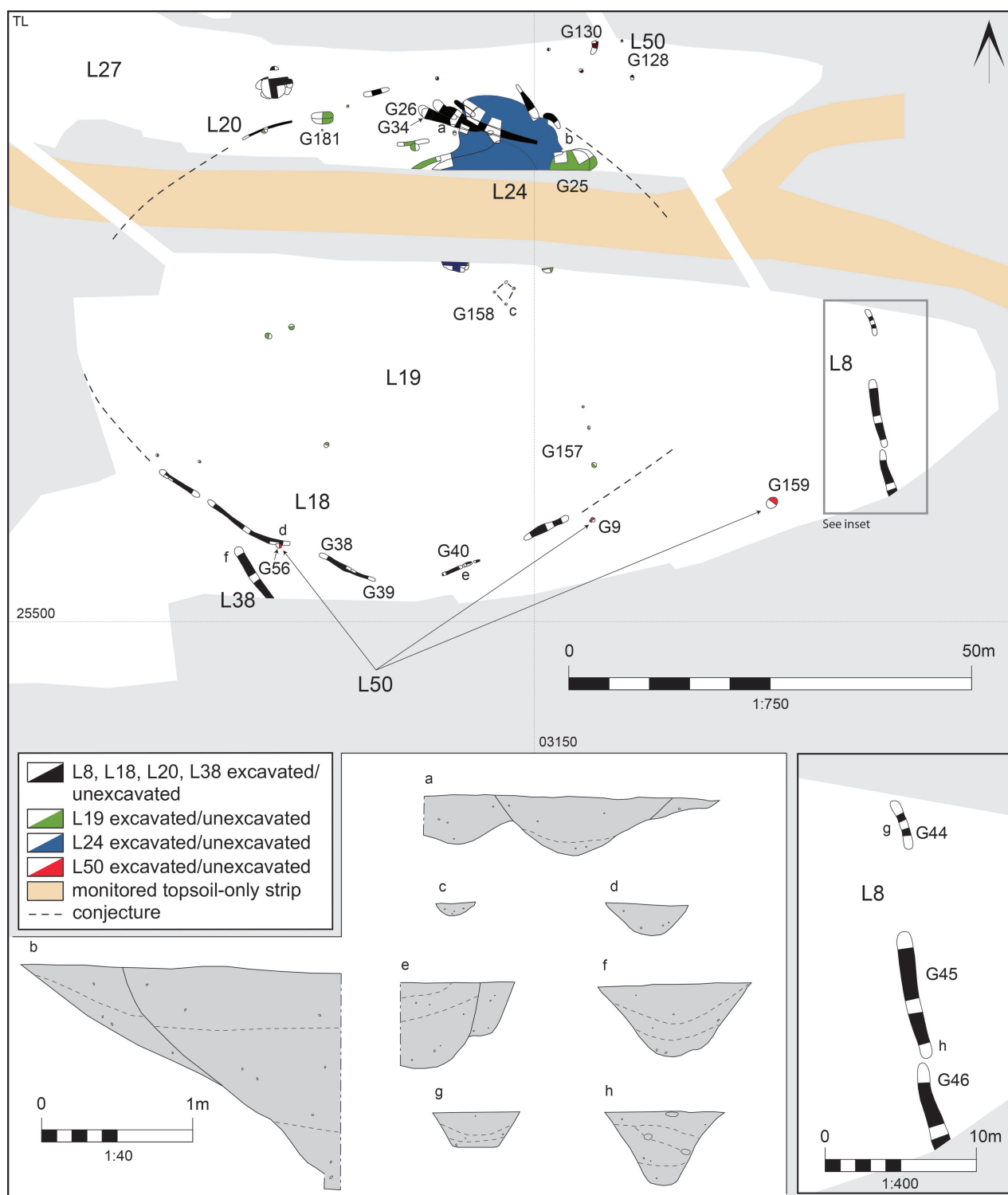


Figure 4.9 Plan of middle Bronze Age–early Iron Age (Phase 3) possible enclosure L18/20, segmented ditch L8 and ditch L38, with selected sections

undiagnostic later Bronze Age/earliest Iron Age pottery; only a single diagnostically Iron Age rim sherd was identified.

Activity focus L27

L27 was located to the north-west of possible enclosure L18/20 and extended over 0.25ha (Figs 4.7 and 4.10). It comprised a possible four-post structure, dispersed isolated pits, an area of intercutting pits, and a short length of gully.

Of the three dispersed, isolated pits (G22, G53 and G137), G22 was situated adjacent to ditch L26 (see below). All were less than 1.5m in diameter and less than 0.4m deep (Fig. 4.10 sections a and b). Only G53 produced dating evidence in the form of 16 sherds of late Bronze Age/early Iron Age pottery.

Three postholes probably define three corners of a rectangular four-post structure G135 that would have been $c.3.8 \times 2.4$ m in extent. The postholes were $c.0.25$ – 0.40 m in diameter and up to 0.17m deep. The west corner

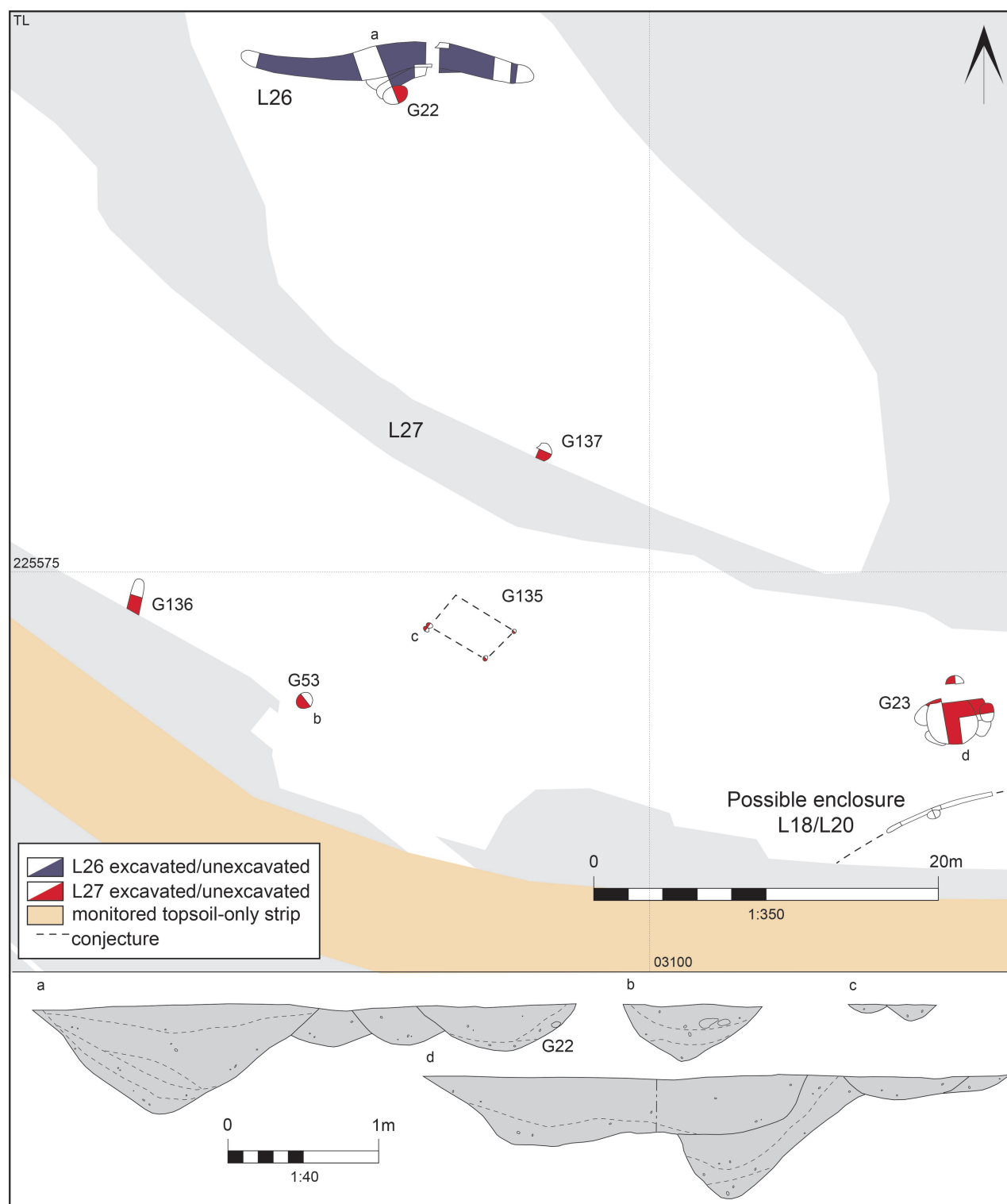


Figure 4.10 Plan of middle Bronze Age–early Iron Age (Phase 3) activity focus L27 and ditch L26, with selected sections

post appeared to have been replaced at least once (Fig. 4.10 section c).

Seven intercutting pits G23 lay just outside possible enclosure L18/20. The largest and probably the latest in the stratigraphic sequence was *c.*2.9m in diameter and *c.*0.55m deep. It was dug into smaller pits, most of which were 0.8–1.5m in diameter and 0.15–0.8m deep (Fig. 4.10 section d; Plate 4.18). In total, the pits produced 35 sherds of late Bronze Age/early Iron Age pottery and 161g of animal bone.

To the west, a 2m-long, possible N–S aligned gully G136 extended to the south beyond the limit of excavation.

Activity focus L30

L30 extended over 2ha and comprised a loose cluster of 11 pits, three more isolated pits, a pair of pits, a two-post structure and an isolated posthole (Figs 4.8 and 4.11).

In the north-west part of L30, two-post structure G162 was formed by postholes that were 2.3m apart; both were



Plate 4.18 Intercutting pits G23 (L27, Phase 3), part-excavated, looking north-west. Scale 1m



Plate 4.19 Pit G163 (L30, Phase 3), half-sectioned, looking north-west. Scale 1m

c.0.3m in diameter and less than 0.1m deep (Fig. 4.11 section a).

Three isolated pits (G163 (Plate 4.19), G164 and G167) were located to the east of G162; there was also a

pair of pits G169 c.70m to the south. They were generally c.0.7–1.9m in diameter and up to c.0.7m deep (Fig. 4.11 sections b and c). A cereal grain from pit G167 produced

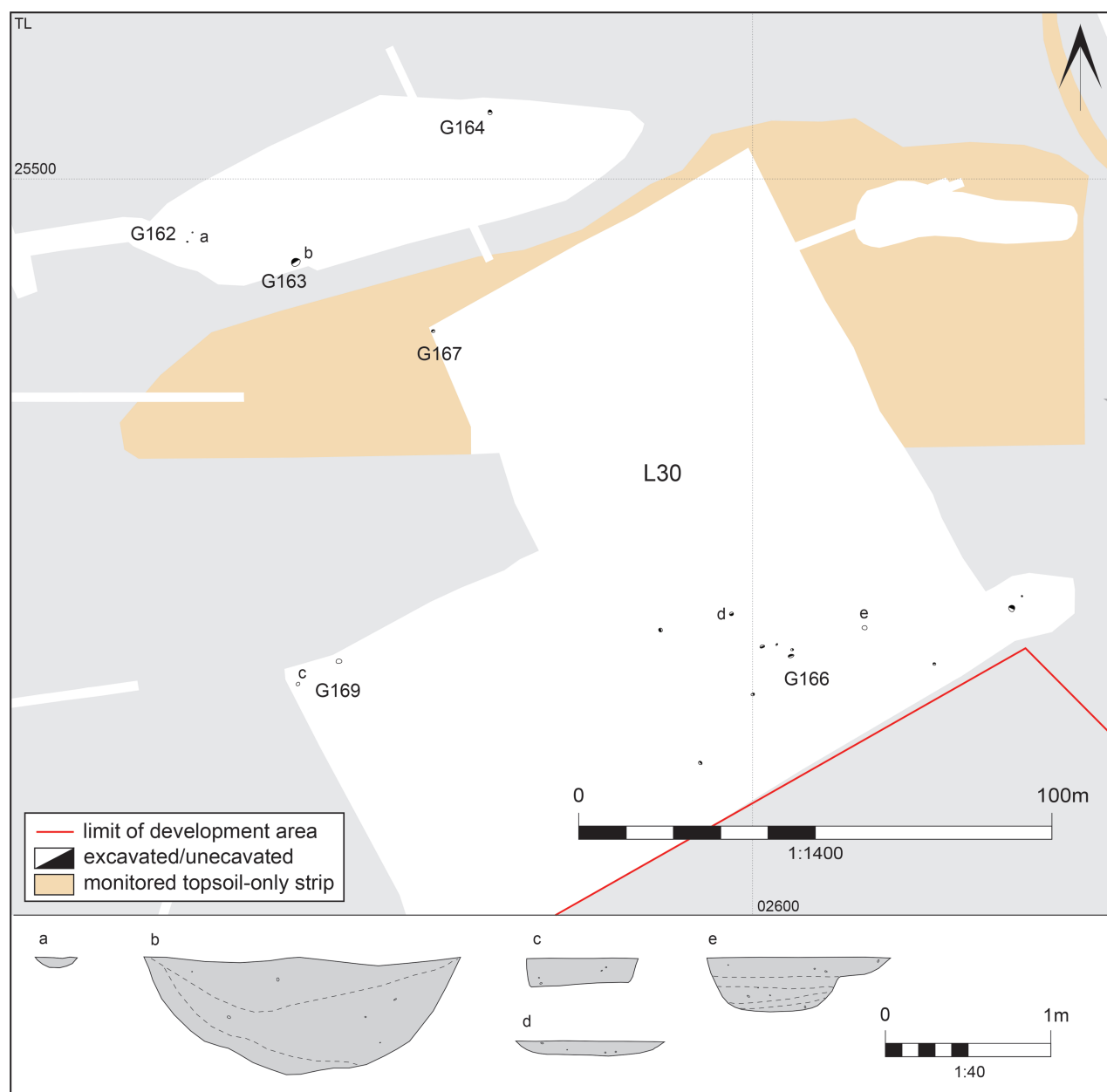


Figure 4.11 Plan of middle Bronze Age–early Iron Age (Phase 3) activity focus L30, with selected sections

a modern radiocarbon date (SUERC-95052), indicating that it is intrusive.

A loose cluster of 11 pits G166 was located to the south of the activity focus. The pits were sub-circular to sub-oval in plan, measuring $c.0.3\text{--}1.3\text{m}$ across and $c.0.1\text{--}0.3\text{m}$ deep (Fig. 4.11 sections d and e). Five sherds of late Bronze Age/early Iron Age pottery were retrieved from pit SG166.11.

Activity focus L47

L47 was located $c.150\text{m}$ east of L30 and extended over 4ha (Figs 4.7 and 4.12). It comprised eight dispersed pits, four gullies/ditches, and two large possible post-pits G148, $c.80\text{m}$ apart. The dispersed pits measured $c.0.60\text{--}1.75\text{m}$ across and $c.0.15\text{--}0.65\text{m}$ deep (Fig. 4.12 sections c and e), whilst the linear features were up to $c.0.9\text{m}$ wide and up to $c.0.35\text{m}$ deep. The possible post-pits had steep-sided profiles and were $c.1.1\text{m}$ and 1.4m in diameter and $c.0.9\text{--}1\text{m}$ deep (Fig. 4.12 section d).

Possible post-built structures adjacent to Ouzel Brook L21

The narrow extent of the investigation area hampers the interpretation of isolated and clustered postholes (Figs 4.7, 4.8 and 4.13). However, it is possible that some of those to the south of the current course of the Ouzel Brook (assigned to L21) may represent post-built structures. None of the postholes produced finds or material suitable for radiocarbon dating. They were assigned to this period partly because of the presence of similar (better-dated) features elsewhere and partly because, had they been Iron Age or Roman, it is more likely that they would have contained identifiable artefacts.

The most substantial possible structure G118 comprised eight postholes spread irregularly across an area of $c.21 \times 4.5\text{m}$. All the postholes were circular ($c.0.25\text{--}0.40\text{m}$ in diameter and $c.0.1\text{--}0.2\text{m}$ deep), except for SG118.06, which was elongated, measuring $0.75 \times 0.30 \times 0.07\text{m}$ (Fig. 4.13 sections d and e).

G113 comprised a 20m-long alignment of six postholes. They were $0.2\text{--}0.5\text{m}$ in diameter and no more than 0.25m deep (Fig. 4.13 section b).

Paired postholes G112 were $c.0.20\text{m}$ apart, $c.0.35\text{m}$ in diameter and 0.10m deep (Fig. 4.13 section a). Paired postholes G115 were $c.3\text{m}$ apart, $c.0.45\text{m}$ in diameter and $c.0.10\text{m}$ deep (Fig. 4.13 section c). Little can be said about isolated posthole G111 other than it was 0.40m in diameter and 0.09m deep.

Segmented and other boundary ditches

Three segmented boundary ditches (L5, L8 and L23) and two individual ditch lengths (L26 and L38) were identified.

N-S segmented boundary L5

The six segments (G11–16) of L5 were $c.23\text{m}$ long but were clearly the continuation of a boundary identified in HRN3457 to the north (p. 48) (Fig. 4.14). Only the southernmost segment G16 was physically separated from the rest – by a $c.1\text{m}$ -wide gap. The other segments appeared to slightly truncate the end of adjacent segments, suggesting that they were only broadly contemporary (Plate 4.20). Individual segments were $c.2.0\text{--}9.4\text{m}$ long, $c.0.6\text{--}1.1\text{m}$ wide and $c.0.25\text{--}0.50\text{m}$ deep (Fig. 4.14 sections a and b).

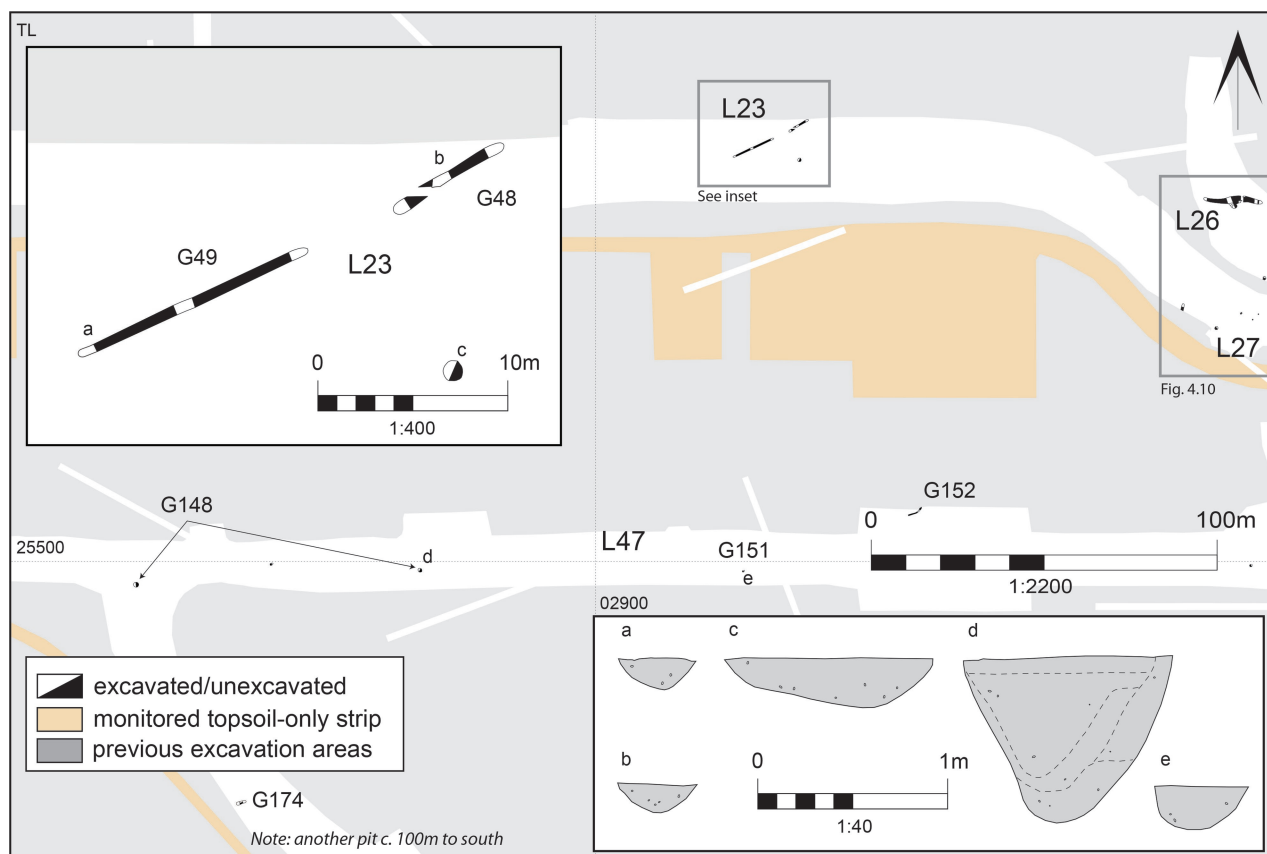


Figure 4.12 Plan of middle Bronze Age–early Iron Age (Phase 3) activity focus L47 and segmented ditch L23, with selected sections

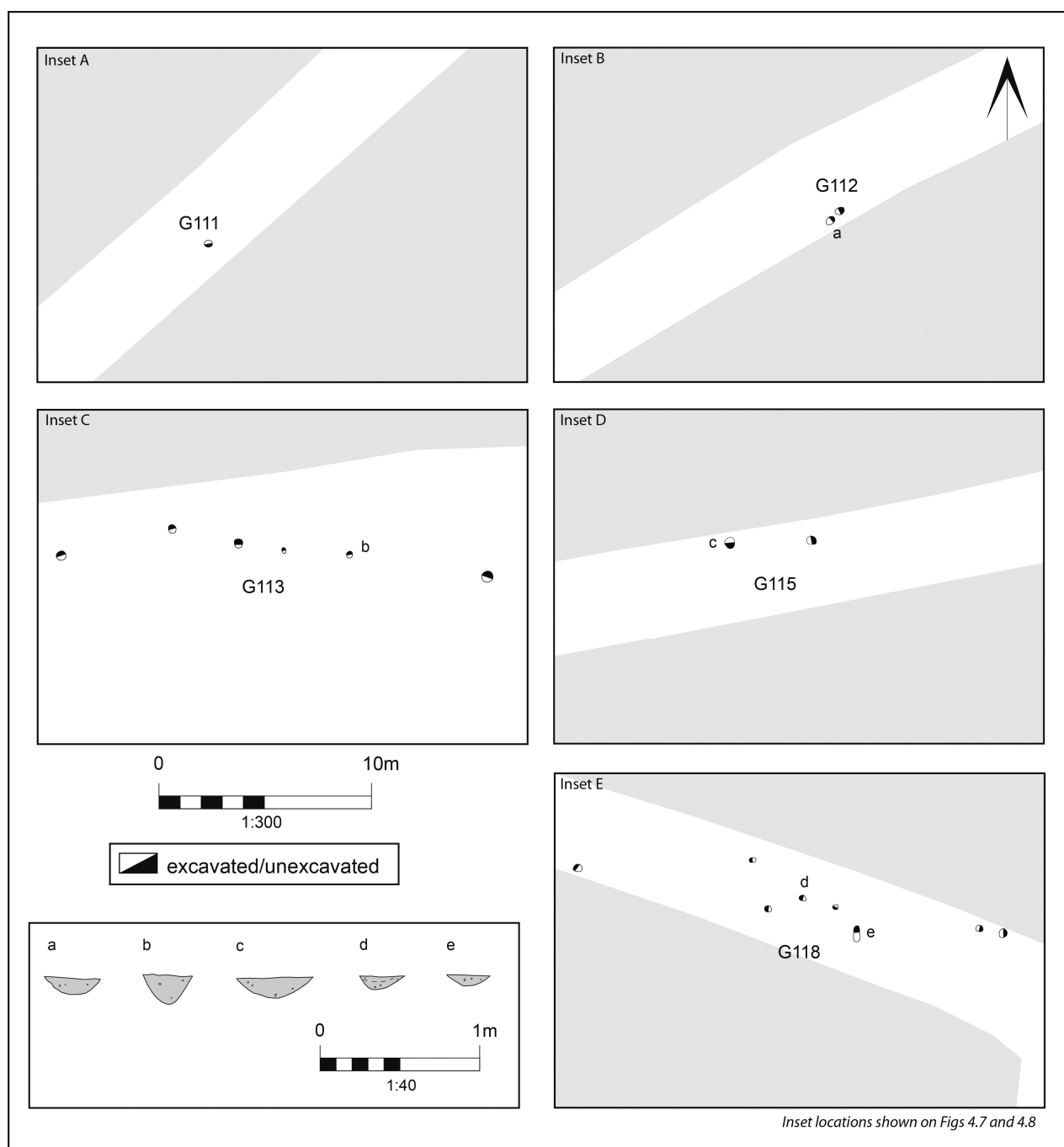


Figure 4.13 Individual plans of middle Bronze Age–early Iron Age (Phase 3) post-built structures L21, with selected sections



Plate 4.20 Ditch segments G16–G13 (L5, Phase 3), looking north. Scale 0.4m

N-S segmented boundary L8

L8 was located *c.*25m east of possible enclosure L18/20 (Fig. 4.9). It was *c.*23m long but clearly continued beyond the limit of excavation to the south. Its three constituent segments (G44–46) were *c.*3.5–8.7m long (Plate 4.21). There was a narrow gap between G44 and G45, and a *c.*5m-wide gap between G45 and G46, with the former slightly off-set from the overall alignment. Individual segments were *c.*0.6–1.3m wide and *c.*0.2–0.5m deep (Fig. 4.9 sections g and h). No finds were recovered from any of the ditch segments. However, a cereal grain (*Hordeum/Triticum*) recovered from G45 was radio-carbon-dated to the middle Bronze Age (1499–1402 cal BC – SUERC-95054) (Table 4.12).

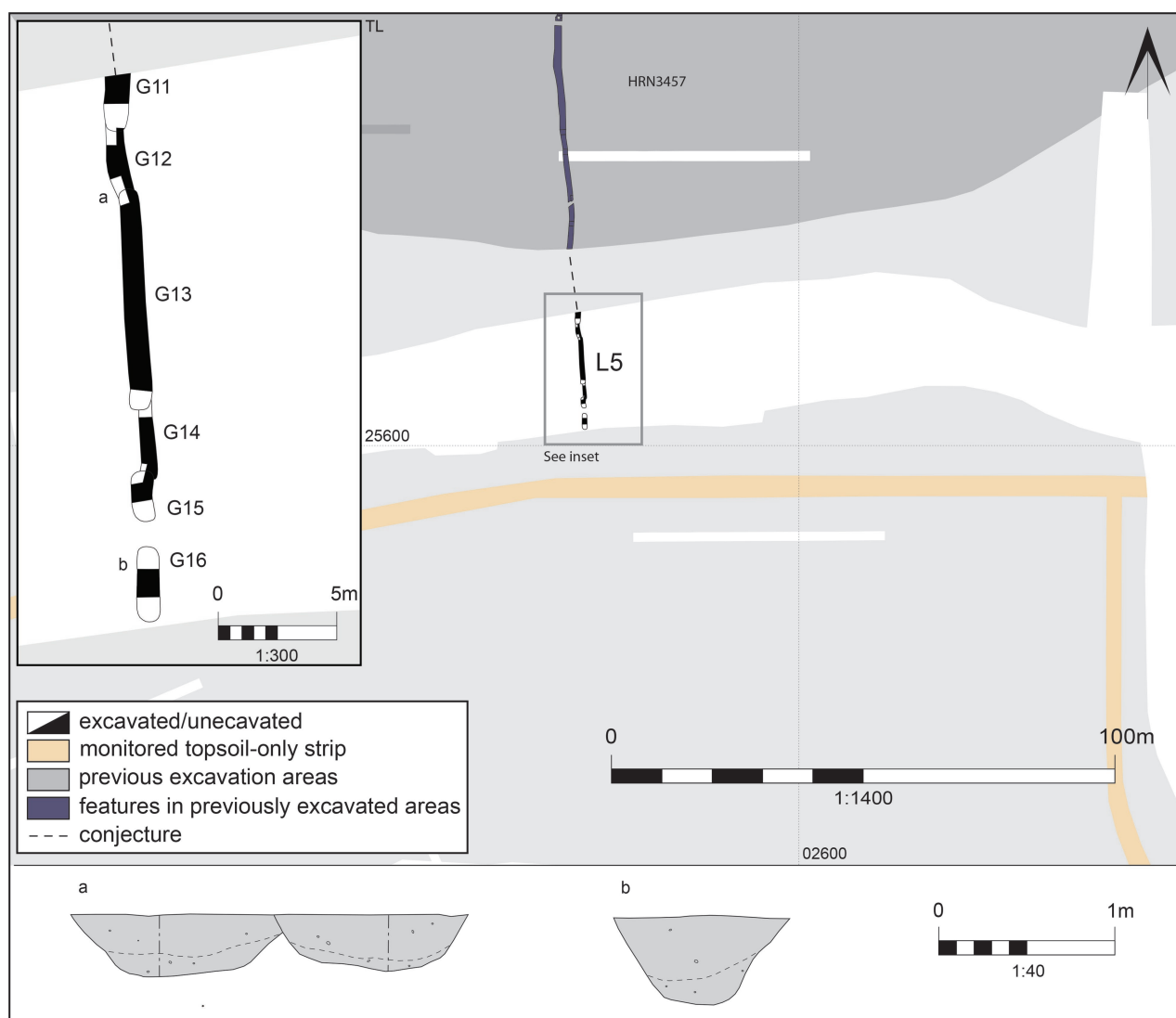


Figure 4.14 Plan of middle Bronze Age–early Iron Age (Phase 3) segmented ditch L5, with selected sections



Plate 4.21 Ditch segments G44–G46 (L8, Phase 3), looking north

NE–SW segmented boundary L23

L23 was located 150m north-west of possible enclosure L18/20 (Fig. 4.12). It was 25m long and comprised two segments, 13m and 7m long with a 5m gap between them. The segments were c.0.5m wide and less than 0.3m deep (Fig. 4.12 sections a and b).

Ditch lengths L26 and L38

Ditch length L26 was c.17m long. It had a slightly sinuous E–W alignment and part of it had been redug multiple times (Fig. 4.10 section a). It produced 20 sherds of late Bronze Age/early Iron Age pottery. Ditch length L38, which was aligned NW–SE, was c.7.6m long and located to the south-west of possible enclosure L18/20 (Fig. 4.9 section f). It is possible that both L26 and L38 represent the only surviving parts of more extensive segmented ditches, although this is uncertain.

Possible fields L45

In the north-east part of the investigation area (Fig. 4.15), ditch G124 extended over a distance of at least 80m and may represent a boundary between two fields L45. It was up to 0.70m wide and 0.25m deep (Fig. 4.15 sections b and d). Three other ditches (G125, G126 and G127) at right angles to G124 were located 70m to the north-east. They were c.0.4–1.1m wide and up to c.0.35m deep (Fig.

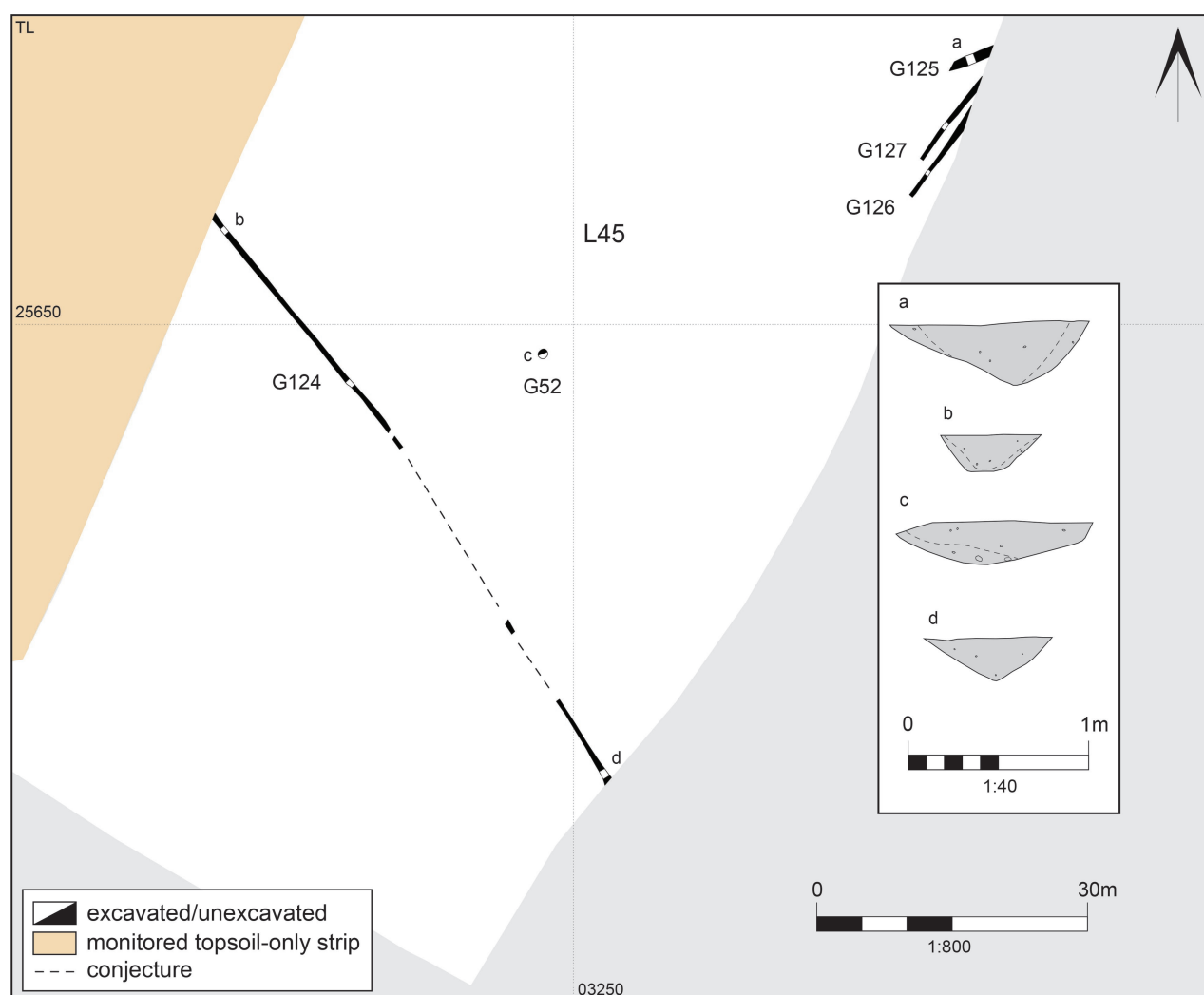


Figure 4.15 Plan of middle Bronze Age–early Iron Age (Phase 3) possible fields L45, with selected sections

4.15 section a). A single pit G52, c.18m to the north-east of ditch G124, was 1.10m across and 0.25m deep (Fig. 4.15 section c); it produced five sherds of a high-shouldered coarse ware vessel of probable early Iron Age date and five sherds of late Bronze Age/early Iron Age pottery. Ten sherds of the latter were also recovered from ditch G125.

Phase 4 (late Iron Age/early Roman)

Phase 4 evidence was limited to possible structure L9 within possible enclosure L25, and two short lengths of ditches L43 and L49. Little can be said about the latter, which were located in relatively remote parts of the investigation area. Both were c.0.45–0.60m wide and up to c.0.25m deep (Fig. 4.16 sections a and b). The ditches yielded only two sherds of abraded late Iron Age/early Roman pottery but they were on a different alignment to the Roman (Phase 5) ditches, hence their assignment to Phase 4.

Possible structure L9

L9 comprised a concentration of gullies and seven post-holes in an area c.6.0 × 4.5m (Plate 4.22). Five short gullies appeared to radiate from a longer, curving gully. The central gully was c.6m long, c.0.50m wide and c.0.35m deep (Fig. 4.16 sections c and e). The shorter radiating gullies were c.1.0–2.5m long, c.0.25–0.50m



Plate 4.22 Possible structure L9 (Phase 4), looking north-west. Scale 1m

wide and c.0.2m deep, typically with steep sides and a flat base (Fig. 4.16 sections g and f). The postholes sometimes partially truncated the gullies; they ranged in diameter from c.0.35–1.00m and were c.0.15–0.35m deep (Fig. 4.16 section d). Although the relationships recorded on site between some of the features suggest that they were not all contemporary, their proximity suggests that they are associated in some way.

The interpretation of L9 as a possible structure is speculative, not least because the arrangements of its features do not form an obvious building plan. In addition, it

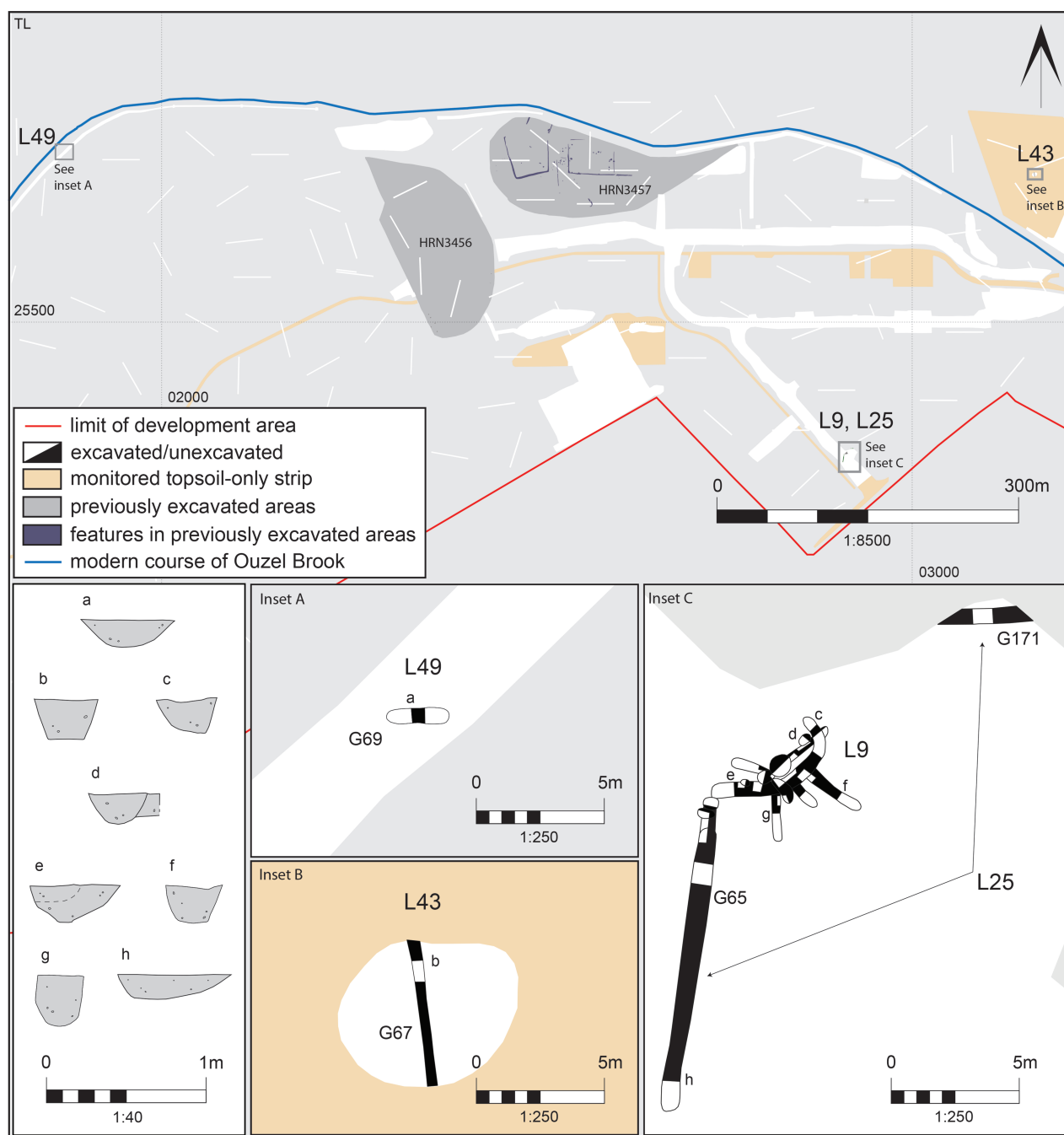


Figure 4.16 Plan of late Iron Age/early Roman (Phase 4), with inset plans for L9, L43 and L49 and selected sections

appears to be located 500m away from the only known contemporary settlement in the area (within HRN3457 to the north) (Chap. 3). No firm dating evidence was recovered and L9 was assigned to this phase because of its position in relation to ditch G65 (L25).

Possible enclosure L25

L25 was defined by ditches G65 and G171, which extended beyond the investigation area. They were up to 0.80m wide and 0.15m deep (Fig. 4.16 section h). Ditch G65 produced two abraded sherds of late Iron Age/early Roman pottery.

Phase 5 (Roman)

Ditches suggestive of field systems were identified across the investigation area (Fig. 4.17). The latter's extended, irregular shape means that much of the evidence is

piecemeal, although coherent plans of field systems L6/L7 and L14/L53/L54 were recovered. Most of the field systems were on an E–W/N–S alignment but ditch L11, which did not appear to be part of a field system, was aligned NE–SW. A small number of isolated features, such as pits and postholes, were identified; the most significant was possible grave G68 (L53).

Approximately 381 sherds (4.7kg) of pottery, c.0.5kg of animal bone, 4.5kg of burnt stone and an iron knife were recovered from Phase 5 features. Most of the pottery and the iron knife derived from possible grave G68 (L53). Smaller quantities of Roman pottery (83g) were recovered from field systems L7 (G178) and L33 (G105). However, most of the isolated features did not produce any datable finds; they were assigned to this period because of their proximity to better-dated ditches, including ones in the adjacent excavation areas.

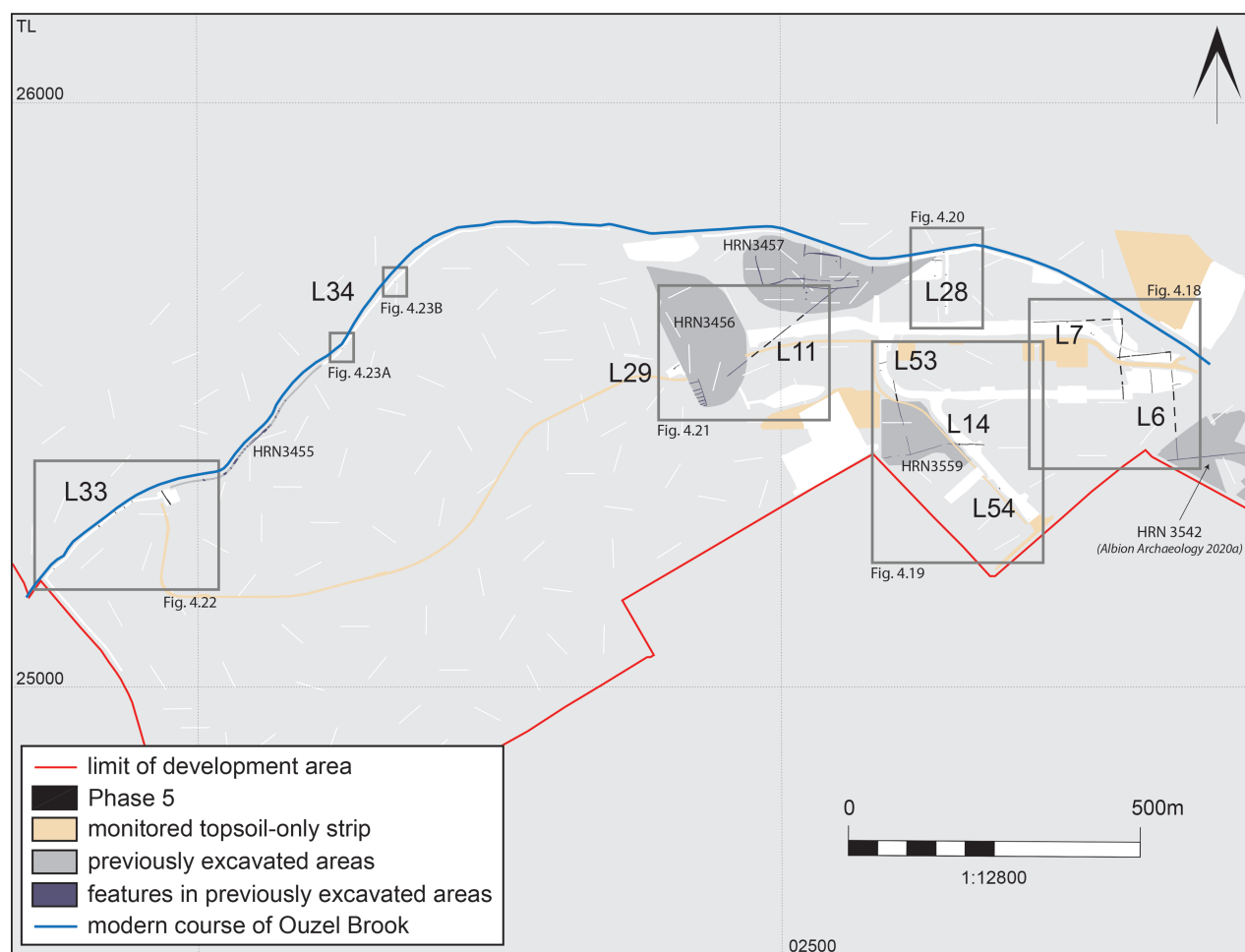


Figure 4.17 Plan of Roman (Phase 5)

Field system L6/L7

Field system L6/L7 appears to be a single entity, but the way ditch G178 (L7) truncates ditch G78 (L6) suggests that L6 may be an earlier, smaller unit (Fig. 4.18). L6 extended southwards beyond the limit of the investigation area; it was clearly part of a similarly aligned field system identified c.80m to the south within HRN3542 (Albion Archaeology 2020a). The overall field system in this area probably covered at least 4ha.

L6 was defined by ditches G77, G78 and G80, which were generally up to 1.2m wide and 0.3m deep (Fig. 4.18 sections c, d and f). N–S ditch G79 was parallel to G77 and G80 but less substantial (Fig. 18 section e); it appears to represent an internal sub-division. E–W ditch G81 was only 15m long and may have defined an entrance into the field system. The only isolated feature that may be broadly contemporary with the field system was pit G180, which truncated ditch G80. It was up to 1.00m in diameter and 0.25m deep.

L7 was defined by ditches G76 to the north and G178 to the east. They were similar in size, up to 1.0m wide and 0.3m deep (Fig. 4.18 sections a and b). Within the field was a pair of oval pits G139, measuring 1.8 × 1.0m, and a short gully G140. Only ditch G178 produced dating evidence in the form of four sherds of Roman pottery.

Possible field system L14/L53/L54

To the west of field system L6/L7 was another, L14/L53/L54, that covered at least 3ha (Fig. 4.19). Although

broadly on the same alignment, no ditches directly linking the two systems were found.

L14 comprised a N–S-aligned ditch G71, which stopped at a perpendicular ditch that was possibly segmented (G72–75 and G147). Ditch G71 was less than 0.6m wide and 0.4m deep with no evidence for redigging (Fig. 19 section d); the perpendicular ditch, which had been redug at least twice, was of a similar size (Fig. 4.19 sections e and f). The continuation of both these ditches was found in HRN3559 to the south and west (Albion Archaeology 2020b).

Two parallel ditches G143 and G144 (L53), c.11m apart, may represent a northern extension of field system L14. The ditches were up to 0.4m wide and 0.1m deep (Fig. 4.19 sections b and c); G144 terminated within the investigation area. Other than isolated posthole G145 (near ditch G144), the only other feature in this part of the field system was possible grave G68 (see below), which was located c.26m north of ditch G143.

A short length of N–S aligned ditch G173 (L54) was the only evidence to suggest that the field systems extended southwards. It was broadly perpendicular but otherwise produced no dating evidence.

Possible grave G68

Circular pit G68 was c.1.0m in diameter and 0.2m deep (Fig. 4.19 section a; Plate 4.23). It contained an incomplete iron knife and seven pottery vessels which had been partially truncated – a jug (V1), a carinated cup (V2), a pedestal urn (V3), a flagon (V4), a platter (V5), an

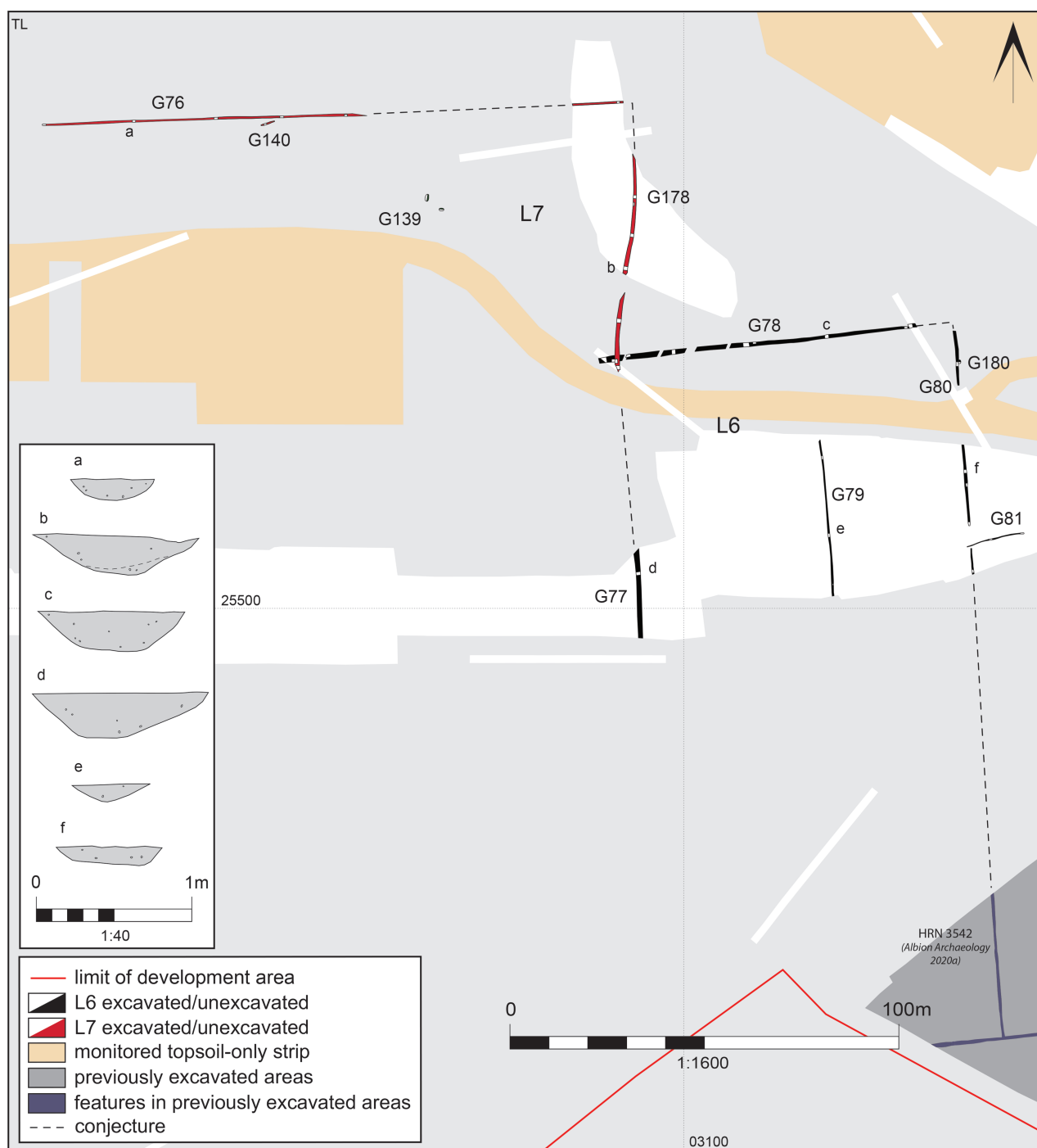


Figure 4.18 Plan of Roman (Phase 5) field system L6/L7, with selected sections



Plate 4.23 Possible burial G68 (L53, Phase 5), prior to full excavation, looking north-east. Scale 0.4m

undiagnostic vessel (V6), and a butt beaker (V7) (Table 4.6), all located in the south half of the fully excavated feature (Fig. 4.19). They were all dated to the 1st century AD and would not be out of place in a burial of this date. The charcoal recovered was of oak, which was widely used in cremations. Notwithstanding the finds evidence, in the absence of human remains this feature cannot be definitively characterised as a grave, although it is possible that it was dug as a cenotaph.

Other possible field systems L28, L29, L33

More limited evidence, usually in the form of short lengths of isolated ditches, may indicate the presence of other field systems but the evidence is not conclusive.

Possible field system L28 comprised two E–W ditches, c.80m apart, which may be parallel. The northern ditch G117 was heavily truncated – 0.40m wide and less than

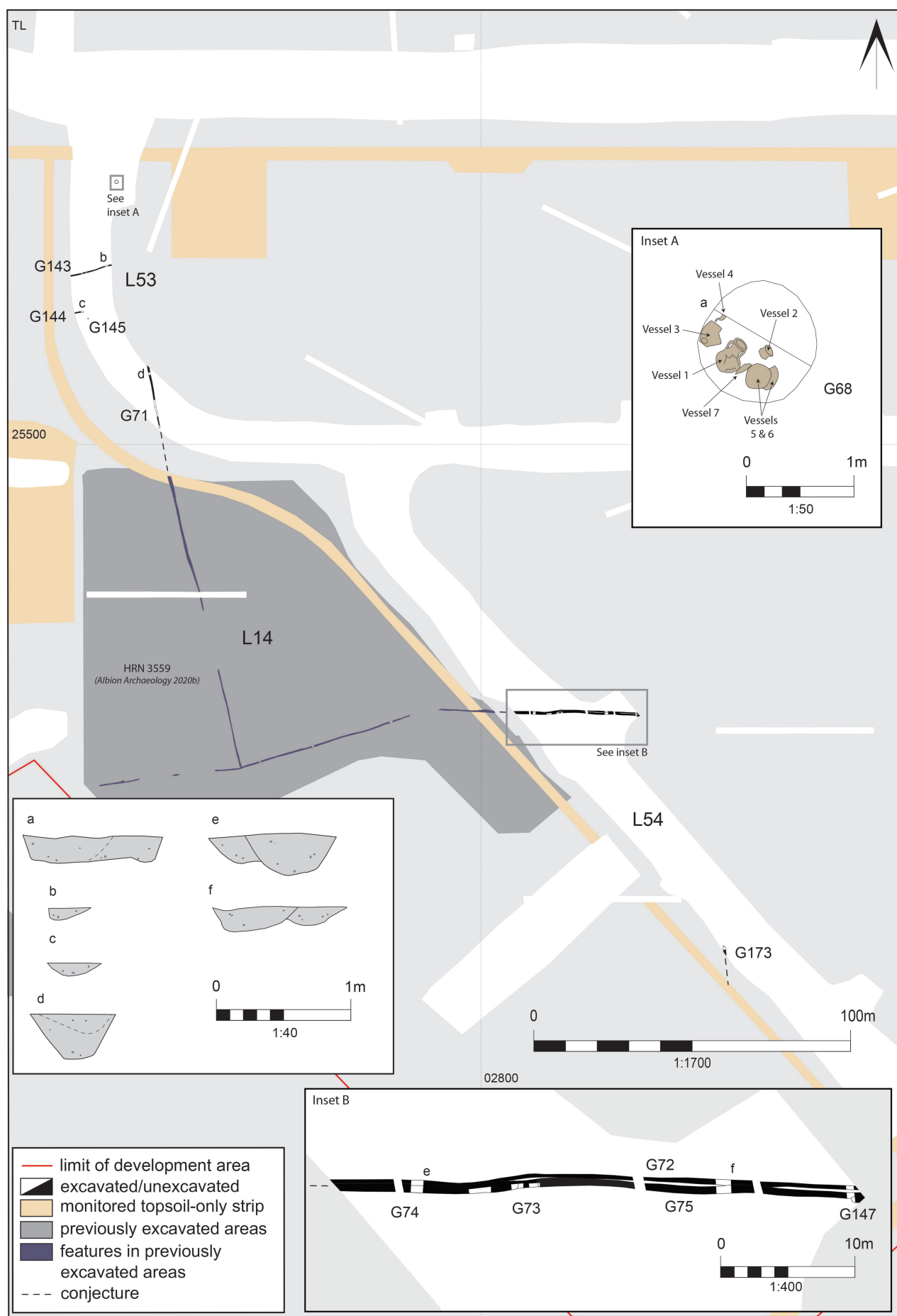


Figure 4.19 Plan of Roman (Phase 5) field system L14/L53/L54, with selected sections

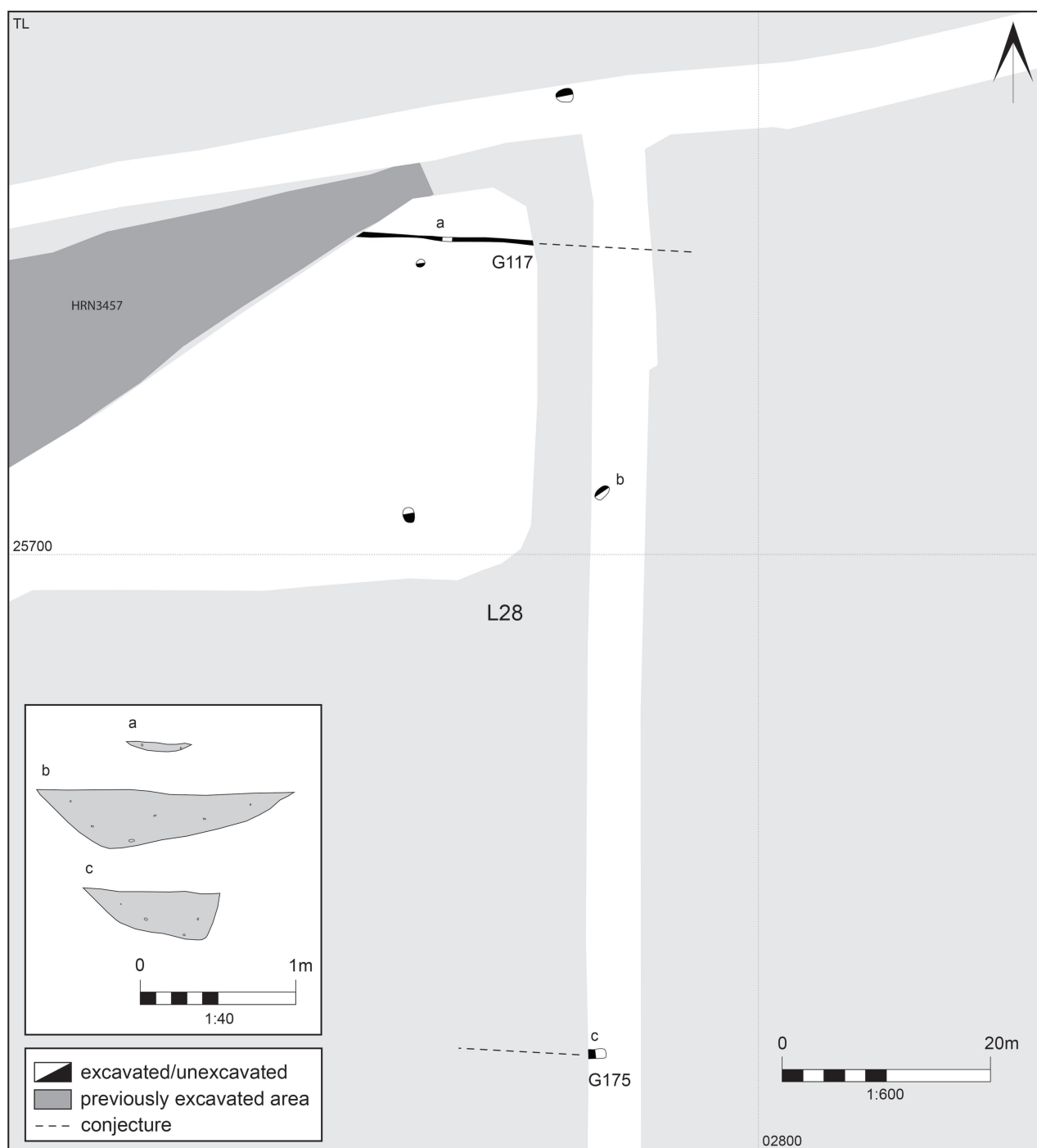


Figure 4.20 Plan of Roman (Phase 5) possible field system L28, with selected sections

0.15m deep (Fig. 4.20 section a) – which may explain why it was not visible in the HRN3457 excavation area to the west. The southern ditch G175 was 0.80m wide and 0.35m deep (Fig. 4.20 section c); it terminated within the investigation area. Four pits in the vicinity of ditch G117 were all less than 1.5m in diameter and 0.5m deep (Fig. 4.20 section b).

L29 was identified immediately west of excavation area HRN3456 (Chap. 3); it comprised two adjacent, parallel, NE–SW ditches (Fig. 4.21 sections b and c). They were less than 0.50m wide and 0.15m deep. Their size and alignment suggest that they are not part of the bedding trench system found in HRN3456.

Possible field system L33 was situated immediately west of the settlement partially investigated within the HRN3455 excavation area (Chap. 3). It was defined by five parallel NW–SE aligned ditches. At 1.85m wide and 0.50m deep, the easternmost ditch G105 (Fig. 4.22 section d) was more substantial than the others, which were 0.4–1.0m wide and 0.10–0.45m deep (Fig. 4.22 sections b and c). The only contemporary feature identified was possible hearth-related feature G99 (Fig. 4.22 section a). It was $c.1.4 \times 0.9$ m in plan and 0.1m deep. Its two dark fills produced 4.5kg of burnt stones. Ditch G105 produced two sherds of Roman pottery; the other features did not produce any dating evidence and were

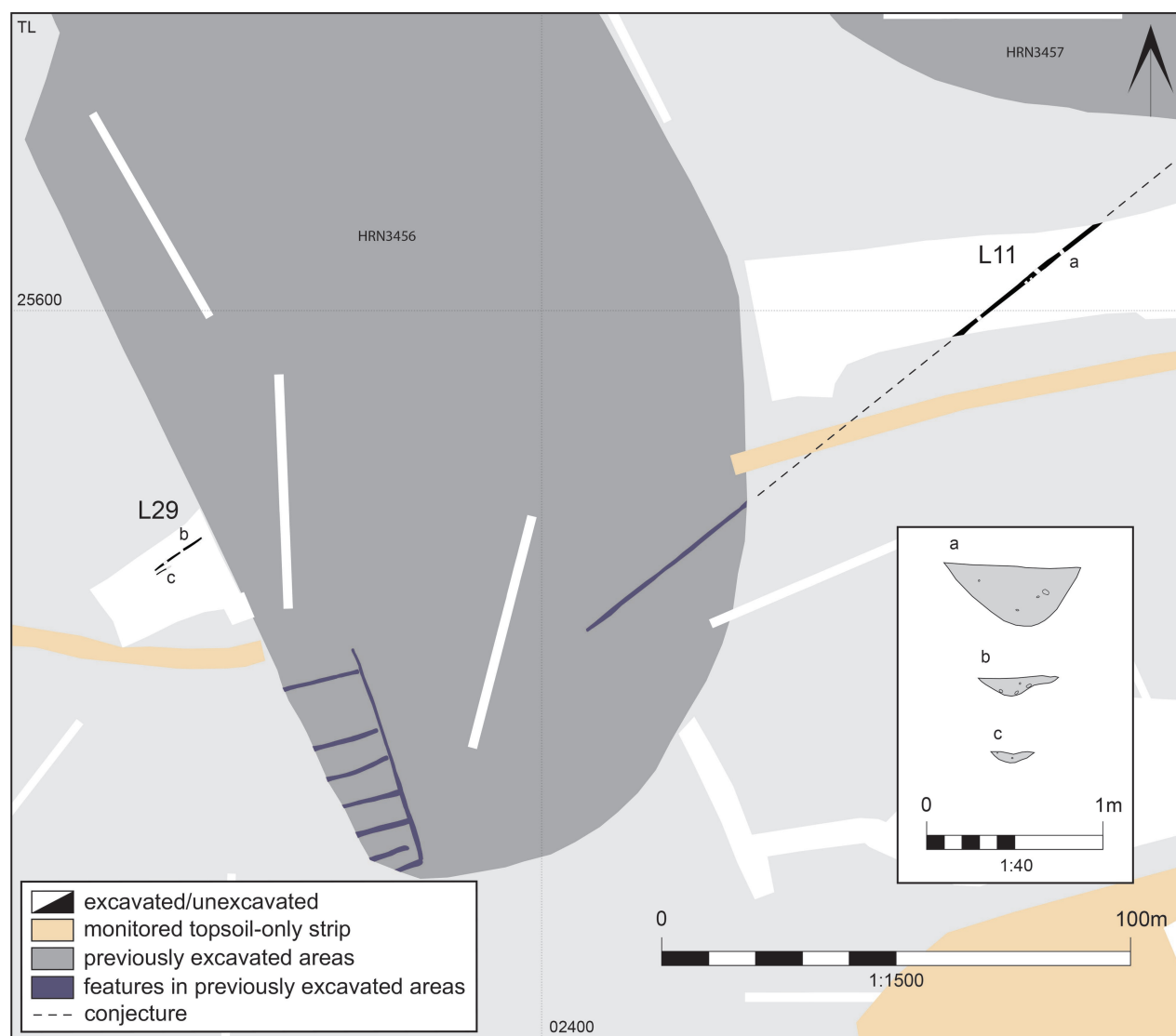


Figure 4.21 Plan of Roman (Phase 5) boundary ditch L11 and ditches L29, with selected sections

assigned to L33 based on their spatial association with G105.

Boundary ditch L11

Boundary ditch L11 is unusual because it is aligned NE–SW (Fig. 4.21), in contrast to the N–S or E–W alignment of most of the other ditches. It represents the continuation of a ditch identified within HRN3456 and HRN3457 (p. 54) and is, therefore, known to extend over at least 240m. It was less than 1.1m wide and 0.4 deep (Fig. 4.21 section a). Although it produced no datable finds, its apparent association with the enclosures to the north-east within HRN3457 and the bedding trenches to the south-west within HRN3456 suggests that it is Roman in date.

Other evidence for dispersed activity L34

To the north-east of the HRN3455 excavation area, evidence for dispersed activity was found adjacent to the present course of the Ouzel Brook (Fig. 4.17). It comprised possible post-built structure G107 and, c.100m to the north-east, pit G110. G107 consisted of four postholes (Fig. 4.23 sections a and c) and a small pit (Fig. 4.23 section b) within an 8 × 3m area. Pit G110 was 0.6m in diameter and 0.2m deep (Fig. 4.23 section d). None of these features produced dating evidence; they were assigned to Phase 5 based on their proximity to the Roman settlement within HRN3455 to the west.

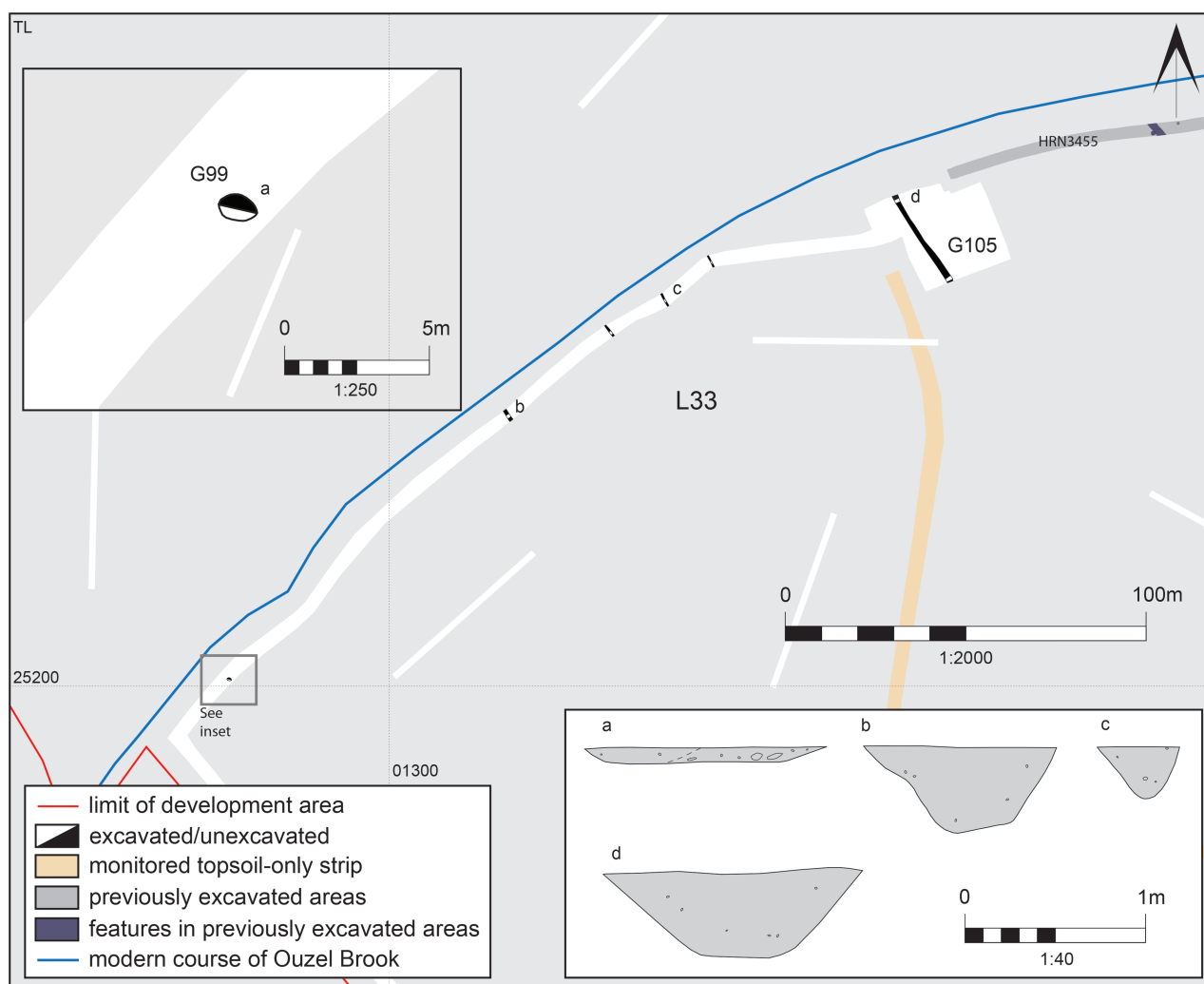


Figure 4.22 Plan of Roman (Phase 5) possible field system L33, with selected sections

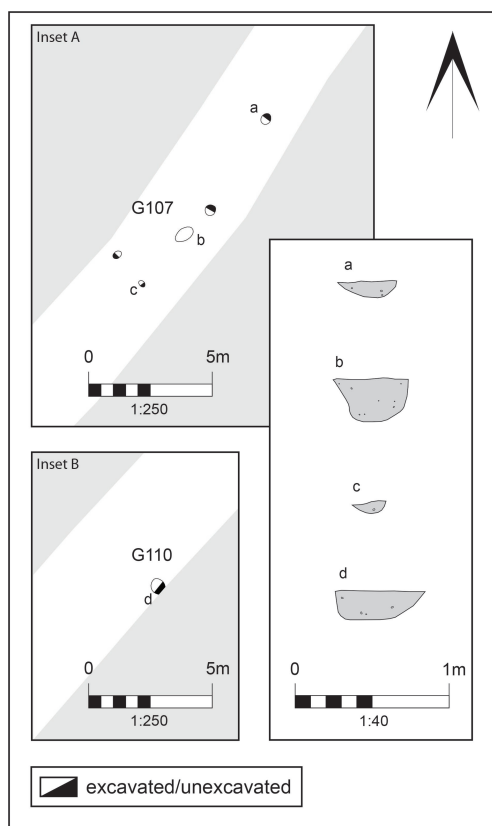


Figure 4.23 (left) Individual plans of Roman (Phase 5) post structures L34, with selected sections

4.3 POTTERY

Jackie Wells

Introduction and methodology

The assemblage totals 498 sherds (6.2kg) and spans a wide chronological period from the later Bronze Age/early Iron Age to the early Roman period. A single post-medieval sherd also occurs. Some 21% of the pottery by sherd count (19% by weight) was recovered from features assigned to Phase 3 (Table 4.3). Late Iron Age/early Roman wares (retrieved mainly from Phase 5 features, but also from Phase 4) total 77% of the assemblage by sherd count (80% by weight), with the majority deriving from vessels associated with possible grave G68. The abbreviation MSW (mean sherd weight) is used throughout this section.

Methodology is described in Chapter 2 (p. 18–9) and the type series detailed in Table 4.4. No new fabric types were identified. Published descriptions are recorded in Parminster and Slowikowski (2004, 443–55). Wares and forms are common and well-represented from published excavations in the county; therefore, none was selected for illustration.

Phase	Sherd	% Sherd	Wt. (g)	% Wt.
1	3	0.6	16	0.3
2	-	-	-	-
3	106	21.3	1165	18.8
4	4	0.8	123	2.0
5	381	76.5	4801	77.5
6	-	-	-	-
7	-	-	-	-
8	4	0.8	86	1.4
Total	498	100	6191	100

Table 4.3 Pottery quantification by Phase

Fabric type	Common name	Sherd	Wt. (g)
<i>Late Bronze Age/early Iron Age</i>			
F01A	Coarse flint	25	304
F01B	Fine flint	9	148
F01C	Flint and quartz	46	477
F02	Grog and flint	1	8
<i>Iron Age</i>			
F19	Sand and organic	1	5
F32	Sand and flint	25	226
F35	Micaceous sand	2	7
<i>Late Iron Age</i>			
F05	Grog and shell	1	19
F06A	Fine grog	19	74
F06B	Medium grog	93	1941
F09	Sand and grog	1	4
F34	Sand	202	1764
<i>Early Roman</i>			
R03E	Sandy fine ware	50	472
R06B	Coarse grey ware	2	34
R13	Shelly ware	4	49
R26	Terra Nigra or imitation	16	583
<i>Post-medieval</i>			
P01	Glazed red earthenware	1	76

Table 4.4 Pottery type series

Results

Phase 1 (palaeochannels and tree-throw holes)

Abraded late Iron Age pottery from palaeochannel G1 (L1) comprises two grog-/sand-tempered body sherds and a footring base (16g).

Phase 3 (middle Bronze Age–early Iron Age)

Phase 3 features yielded 106 sherds (1.1kg) with the largest assemblage recovered from dispersed features L27, ditch L26 and fields/enclosure L45 (Table 4.5). The pottery is abraded, well-fragmented (MSW 11g) and derives from a minimum of 37 vessels. The largest single vessel weighs only 254g.

The pottery occurs in a range of coarse and fine flint- and sand-tempered fabrics, typical of transitional later Bronze Age/earliest Iron Age assemblages in south-east England. Dating is largely based on fabric characteristics

Land-use Area		Sherd	Wt. (g)
L18	Southern enclosure ditch	3	14
L19	Internal features	6	52
L23	Segmented boundary	2	57
L26	Ditch	20	261
L27	Activity focus	51	433
L30	Activity focus	5	17
L45	Possible fields	10	256
L47	Activity focus	9	75
Total		106	1165

Table 4.5 Middle Bronze Age–early Iron Age (Phase 3) pottery quantification

as most of the assemblage comprises plain body sherds. Middle Bronze Age radiocarbon dates obtained for some Phase 3 features may suggest that the date range of some of the indeterminate later Bronze Age flint-tempered wares could potentially be pushed back into the middle Bronze Age. However, the small size of the assemblage and its largely undiagnostic nature preclude further elucidation of this point.

The only diagnostic form in the Phase 3 assemblage is from pit G52 (L45) and comprised a high-shouldered coarse ware vessel with a flat rim, faint fingertip impressions on the shoulder and rim exterior, and a light vertical twig-brushed body. The latter is a trait more typically associated with the middle Iron Age scored ware tradition. However, given that it is unusual to find flint-tempered middle Iron Age wares in the county, the vessel is considered to be early Iron Age in date, particularly in light of its association with other flint-tempered vessels.

Phase 4 (late Iron Age/early Roman)

Enclosure ditch G65 (L25) and ditches L43 and L49 yielded a total of four highly abraded grog-tempered body sherds (123g) of transitional late Iron Age/early Roman date.

Phase 5 (Roman)

The majority of the pottery assemblage (a total of 381 sherds weighing 4.8kg (MSW 13g)) was recovered from Phase 5 features. Roman pottery – totalling 83g – from field systems L7 (G178) and L33 (G105) are respectively a shelly bowl with a drooping rim of 240mm diameter (cf. Brown 1994, fig. 27, illus. 122) and two highly abraded grey ware sherds.

A total of 375 sherds (4.7kg), possibly representing an urn and six accessory vessels, was recovered from possible grave G68 (L53). The well-made vessels are grog- or sand-tempered and datable to the 1st century AD. Diagnostic forms comprise a carinated cup (V2), a flagon (V4), a flat-footed pedestal urn (V3), a butt beaker (V7), a foot-ring platter (V5) and a two-handled jug (V1) (Table 4.6). The range of wares and vessel forms are

Vessel	Description	Sherd	Wt. (g)
V1	Jug with strap handles and single broad cordon, Thompson (1982) form G6, Fabric F06B	89	1836
V2	Carinated cup with single cordon, Thompson (1982) form E1-1, Fabric F34	15	217
V3	Flat-footed pedestal urn base and lower body, Thompson (1982) form A8, Fabric F34	68	544
V4	Flagon with narrow, plain and sharply undercut collar, Stead and Rigby (1989, fig. 57), Fabric F34	118	992
V5	Shallow straight-sided foot-ring platter, Thompson (1982) form G1-1, Fabric F34 Terra Nigra style/imitation	16	583
V6	Undiagnostic vessel with foot-ring base, Fabric F06A	19	74
V7	Decorated barrel-shaped butt beaker, Thompson (1982) form G5-2, Fabric R03E import or copy	50	472
Total		375	4718

Table 4.6 Pottery vessels from possible burial G68

fairly typical of those selected as funerary vessels during this period (cf. Philpott 1991, 35) and compare well with examples recovered from sites such as the King Harry Lane cemetery, Verulamium (Stead and Rigby 1989, 217–8), and cemetery L39 at Biddenham Loop, Beds. (Wells 2008, 218).

4.4 OTHER ARTEFACTS

Jackie Wells

A single iron object was recovered from a Roman feature assigned to Phase 5 – an incomplete Manning type 13 tanged iron knife (1985, 114) from possible grave G68 (L53). The object has a straight, rectangular-sectioned tang and a broad, slightly arched blade. It is one of the most common general-purpose knife forms of the Roman period (*ibid.*).

4.5 FLINT

Sarah Bates

Introduction

A total of 15 struck flints (Table 4.7) was recovered from three Phase 2 (late Mesolithic–early Neolithic) features: one from a tree-throw hole L3, and the remainder from two large pits G50 (L46).

The flint is smooth and fine-textured. Almost all of it has been affected by post-depositional patination but, while most of it was probably originally dark grey or near-black in colour, a few pieces are of a light, slightly brownish-grey colour. Cortex is rare but is present in small areas on a few pieces where it is creamy-white and mostly abraded, showing that surface-collected material was used. All but one of the flints are patinated; mostly the patina is a patchy bluish-white, typical of material found in chalky geology, which is predominant within the excavation area (British Geological Survey 2017). The patina is probably not particularly indicative of relative age, as similarly affected flint is known from later prehistoric sites elsewhere. One piece has a different opaque white patina and one piece is unpatinated, near-black in colour. The flint is quite sharp, although there is occasional slight edge damage on some pieces.

Sub-group	Land-use Area	Type	No.
SG4.00	L3	blade	1
SG50.01	L46	blade	2
SG50.02	L46	blade	5
SG50.02	L46	?retouched blade	2
SG50.02	L46	utilised blade	1
SG50.02	L46	retouched blade	1
SG50.02	L46	?utilised blade	3
Total			15

Table 4.7 Summary of flint from late Mesolithic–early Neolithic (Phase 2)

Results

All the flints are in the form of blades, carefully produced from blade cores. Ten of them exhibit evidence of the preparation of the core platforms; almost all of them are thin and very regular parallel-sided pieces. Three (or possibly four) pieces have a slight possible ‘lip’ at their proximal ventral edge – a feature sometimes considered

to indicate the use of a soft hammer during knapping (Andrefsky 1998, 114–15).

Tree-throw hole SG4 (L3)

SG4 produced a patinated white blade with a more opaque, almost porcelain-like, appearance. Its thin left side appears to be a thermal surface and has slight iron staining. Perhaps an already patinated piece of flint was deliberately selected for its specific nature.

Two large pits G50 (L46)

One blade from pit SG50.01 is unpatinated – the only such piece in the assemblage – but otherwise of very similar nature to the other blades. The other flint from this pit is a patinated blade.

Twelve blades were recovered from pit SG50.02. Three have slightly thicker distal parts with cortex on one side at that end; one of these has a slightly plunging termination. Two thin pieces also have some cortex surviving at their distal end. The position of the cortex suggests that the cores were initially carefully worked from one platform. Another two blades from this pit, however, are from cores with at least one previous removal from the opposite end. Both are thin tertiary pieces (without cortex), showing that they resulted later in the use of the core when, for example, the original platform may have become exhausted. This provides further evidence of the careful use of the cores (Butler 2005, 84). One pale slightly brownish-grey flint blade has very slight irregular retouch of its left lateral edge. Two other pieces have possible retouch but in both cases the affected surfaces are unpatinated near-black flint and have a relatively ‘fresh’ appearance. These surfaces clearly post-date original production of the blades. One of these blades has this ‘retouch’ at its left lateral edge near the proximal end and a short step-fractured removal from the right proximal edge, creating a narrow point at the proximal end. However, the step-fractured area is patinated like the rest of the blade and must have resulted during the original working of the core; only the retouch at the left side and tip, along with some small edge nicks and other damage further along the left edge, is unpatinated ‘fresh’ black flint. The other possibly retouched blade has a blunt and a slightly obliquely sloping distal edge formed by ‘retouch’. The unpatinated nature of the edge suggests that it may be later damage.

In addition, four blades have evidence of possible very slight edge use, although this could equally be a result of accidental damage.

Discussion

The nature of the blades is characteristic of the late Mesolithic or early Neolithic period. However, there are no very diagnostic, closely datable pieces (neither tools nor core preparation pieces), which would help clarify the dating. Without such pieces, much of the struck flint produced during these two periods is likely to appear to be of a similar nature (Holgate 2004, 26). The consistency of the very regular, thin, narrow, parallel-sided pieces, the prevalence of evidence of platform-edge preparation and some evidence of single or opposed platform cores suggest that the former date is probably most likely. This would concur with the radiocarbon dating of animal bone from the two pits G50.

Two pieces from pit SG50.02 are reminiscent of truncated blades, which are more characteristic of the

Mesolithic than the later period. However, the unpatinated, relatively fresh nature of these ‘retouched’ edges is disconcerting and suggests possible reuse (in which case questioning their undisturbed context) or, possibly, accidental damage – the fresh and slightly ‘crushed’ nature of the edges of the affected areas might support the latter suggestion.

The extremely consistent nature of the flint is of interest. There are no cores, although it is evident that cores were carefully prepared and used for blade production. This is not unusual as it seems plausible that cores were worked and discarded elsewhere. However, the absence of any flakes or other pieces of non-blade proportions is notable. It is almost certain that, even if blades were the intended sole end product, other flakes would have resulted during the production process. This seems to suggest that the pieces were all intended for use and/or may have been deliberately discarded/deposited in the features. Although pits dated to the late Mesolithic period are relatively rare, lithics have been recovered from such features at other sites including material thought to represent deliberate or contemporaneous deposition (Blinkhorn *et al.* 2017, 215).

An anomaly within the assemblage is the single unpatinated blade from pit SG50.01, which also produced a patinated blade. Perhaps this lay in a pocket of different soil type or was unaffected due to a different raw material type (although the damaged areas of the two ‘retouched’ pieces from pit SG50.02 show that, prior to patination, they were of a similar near-black flint).

4.6 ANIMAL BONE

Mark Maltby

Introduction and methodology

The assemblage comprised 660 fragments (*c.*12.4kg), mostly recovered from Phase 2 (late Mesolithic–early Neolithic) and Phase 3 (middle Bronze Age–early Iron Age) features.

All the bones and teeth were recorded individually onto a relational database. The following data were recorded where appropriate for each specimen: context; species; anatomical element; zones of bone present; approximate percentage of bone present; gnawing damage; erosion; weathering; concretions; burning; fusion data; associated bone group (ABG); sieved sample number; other comments including observations of pathology. Separate tables linked to the main table by an individual identification number were created for metrical and tooth ageing data. Tooth eruption and wear descriptions for cattle and sheep/goat followed Grant (1982). Measurements were selected from those recommended by von den Driesch (1976). All fragments, including loose teeth, shaft fragments, rib heads and vertebrae were recorded to species level where possible. The method of recording was identical to those carried out by the author in analyses of other assemblages excavated by Albion Archaeology, including the material from HRN3206 (Maltby 2021), HRN3205 (Section 2.6), and HRN3455–7 (Section 3.6). Woodside Link (Section 5.6).

Results

Phase 1 (*palaeochannels and tree-throw holes*)

Seven unidentified animal bone fragments (126g) were recovered from two separate tree-throw holes assigned to L2.

Phase 2 (*late Mesolithic–early Neolithic*)

Approximately 8kg of animal bone (*c.*400 fragments) was recovered from six pits assigned to Phase 2: SG8.02 and SG8.04 (L4), SG19.02 and SG19.04 (L46), and SG50.01 and SG50.02 (L46). These produced a total of 95 individual specimens, of which 30 were identified (Table 4.8). The majority of the assemblage was recovered from pits SG8.02 and SG50.02 totalling 80 specimens (*c.*7.7kg).

Element	Bovid	Pig	Red Deer	Roe Deer	Unidentified
Horn Core*	7				
Skull*	4				
Maxilla*	3				
Mandible	1				
Loose Teeth	1		1		
Scapula					
Humerus	4	1			
Ulna				1	
Femur			1		
Astragalus	1				
Calcaneus	1				
Metacarpal	1				
Thoracic V	2				
Sacrum	1				
Ribs	1				
Fragment					65
Total	27		2	1	65

NISP = number of individual specimens; refitted fragments with modern breaks counted as one specimen

* horn cores and maxillae counted separately from other skull fragments

Bovid = probably all aurochs

Pig = probably wild boar

Table 4.8 Late Mesolithic–early Neolithic (Phase 2) animal bone element counts (NISP)

Arc of four large pits G8 (L4)

Pit SG8.02 contained substantial parts of two skulls of aurochs (*Bos primigenius*). Both were heavily fragmented making it impossible to assign all the fragments to individual skulls. At least two animals were represented by the occipitals, parietals, temporals and frontals. Three of the horncores had survived almost intact, with the largest one being from the right side of the larger skull. It had a basal circumference of 333mm and a maximum basal breadth of 112.1mm. These dimensions fall within the range of male aurochs from Holocene sites in northern Europe (Degerbøl and Fredskild 1970; Grigson 1982, 32) and its fairly flat profile was also typical of a male. This specimen was radiocarbon-dated to the late Mesolithic (SUERC-95057). The other two horncores formed a pair. These were smaller and more rounded in profile. The right horncore had a basal circumference of 230mm. This fell in the middle of the size range of Holocene female aurochs measured by Degerbøl and Fredskild (1970). It was attached to the parietal, which was unfused, suggesting that this skull was from a younger animal than the male, although the density of the horncores suggested that both skulls were from adults. A pair of maxillae belonged to one of the skulls. The first and second molars

of the left maxilla were both in wear. None of the other teeth was found within the jaws but a worn loose fourth premolar may have belonged to one of them.

The distal quarter of a large bovid left humerus was also recovered from pit SG8.02. This had a distal articular (trochlea) breadth (BT) of 87.1mm and medial trochlea height (HT) of 54.7mm. This specimen was slightly smaller than two aurochs humeri from Star Carr, which had estimated BT measurements of 96.8mm and 97.5mm (Legge and Rowley-Conwy 1988, 130). They do fall within the range of smaller measurements of bovid humeri obtained from Mesolithic sites in Denmark and it is, therefore, probable that the humerus from pit SG8.02 belonged to a female aurochs (Wright 2013, 66). The shaft had a conical fracture indicating that it had been deliberately broken to access marrow.

Pit SG8.04 produced the fragmented remains of a large horn core of a bovid. It was not possible to determine with certainty whether this was from a wild or domestic animal, but it is likely that it belonged to another aurochs.

Alignment of four pits G19 (L46)

Nine unidentified large mammal fragments were recovered from two of the pits (SG19.02 and SG19.04). One of the two bones from SG19.02 was radiocarbon-dated to the late Mesolithic (SUERC-95055).

Two large pits G50 (L46)

Pit SG50.01 contained six eroded animal bone fragments, three of which were unidentified. A red deer maxillary tooth was recorded along with a portion of roe deer ulna and a diastema of an aurochs mandible. The latter was radiocarbon-dated to the late Mesolithic (SUERC-97772).

Pit SG50.02 contained 70 bone fragments, many of which were eroded. All but one of them were from large mammals, of which 51 were unidentified. These included several skull fragments, which along with some of the limb bone fragments could have belonged to some of the identified specimens. Apart from one bone each of pig and red deer, all the identified bones were from bovids.

Fragments of at least one and probably two very fragmented bovid skulls were recovered. One group of fragments included parts of the occipital, temporal and basisphenoid; a second group included the top of the skull (akrokranium) and parts of the parietals. Both groups conceivably could have belonged to the same skull. There were also several pieces of fragmented horncores, including parts of three bases, two of which probably were a pair; the third base fragment was possibly from another animal. No measurements were obtained from these cranial elements, but they were sufficiently large to be identified as probable aurochs. Unworn deciduous premolars 3–4 probably came from the same maxilla. Neither was worn so they belonged to a neonatal bovid calf.

Three portions of humeri belonged to at least two bovids/aurochs. One of the fragments was radiocarbon-dated to the late Mesolithic (SUERC-97773). The distal quarter of a left humerus possessed a distal epiphysis that had fused not long before the animal's death (the fusion line was still visible on the epicondyles). It had a distal articular (trochlea) breadth (BT) of 96.3mm and medial trochlea height (HT) of 58.3mm. It was, therefore, larger than the humerus from pit SG8.02 and very similar in size to the aurochs humeri from Star Carr (Legge and

Rowley-Conwy 1988, 130). Fine cut marks were present on the medial aspect of the distal end adjacent to the border of the articular surface. These marks were made during disarticulation from the radius and ulna. Further fine cut marks were located higher up the medial aspect of the shaft. These oblique cuts may have been filleting marks. However, they were positioned close to where the shaft had been severed. They may, therefore, have been cuts associated with removing the flesh to expose the bone prior to its being broken to access the marrow. The proximal end of a large humerus from the same context may have belonged to the same aurochs. The proximal epiphysis was unfused and it also bore fine cut marks on its medial aspect near the proximal articular surface.

A third humerus fragment was from another bovid – a younger animal as the distal epiphysis was just fusing. It was also from a smaller animal, having a BT measurement of only 76.0mm. This measurement was smaller than any obtained from aurochs humeri at Star Carr (Legge and Rowley-Conwy 1988, 130), Danish sites studied by Degerbøl and Fredskild (1970) and from nearly all the Mesolithic sites in Europe in the sample accumulated by Wright and Viner-Daniels (2015). The fact that the distal epiphysis was only just fusing could partly explain its small size, as the BT measurement is subject to some post-fusion growth. The bone was slightly larger than two humeri from the middle Mesolithic site at Noyen-sur-Seine near Paris (BT = 71.7mm and 72.8mm). The unusually small size of the French specimens could have been the result of later intrusions of bones of smaller domestic cattle into the Mesolithic deposits rather than the presence of exceptionally small aurochs (Wright 2013, 234). It is more likely, however, that the humerus from pit SG50.02 was from an immature aurochs.

A distal metacarpal had recently fused and belonged to a sub-adult or young adult bovid. It had a maximum distal breadth (Bd) of 64.1mm and a breadth at the distal fusion point of 61.0mm. This bone was marginally smaller than the smallest aurochs metacarpals from Star Carr and Danish Mesolithic sites (Legge and Rowley-Conwy 1988, 49) and it could, therefore, have been from a small female aurochs. The bone does, however, also lie within the range of male domestic cattle found on later prehistoric and Roman sites in the region. The shaft had been broken transversely to gain access to the marrow cavity.

A complete astragalus was submitted for radiocarbon dating, and this produced a late Mesolithic date (SUERC-95058). The astragalus had a greatest lateral length (GLl) of 82.2mm, a greatest medial length (GLm) of 73.6mm and a distal breadth (Bd) of 57.1mm. These dimensions fall comfortably within the range of aurochs astragali from the Mesolithic sites at Star Carr (Legge and Rowley-Conwy 1988, 131) and Blick Hill, Wiltshire (Rogers *et al.* 2018).

A complete calcaneus with an unfused tuber calcis was also recovered. Although unfused, it had attained a greatest length of >154mm, which places it comfortably within the size range of aurochs, although there is overlap with some larger domestic cattle (Wright 2013).

The other identified large bovid remains consisted of two thoracic vertebrae, both of which had unfused cranial and caudal epiphyses, part of a sacrum and a rib head. These were not measured but were all large enough to be considered to be probably from aurochs.

The only other identified elements from pit SG50.02 consisted of the proximal end of a femur of a red deer and the distal portion of the shaft of a pig humerus. The proximal epiphyses of the femur had fused indicating that the red deer was an adult. The depth of the caput measured 34.1 mm. The pig humerus was quite small and could have been from a domestic pig, although it is feasible that it belonged to a young wild boar.

Phase 3 (middle Bronze Age–early Iron Age)

Features assigned to Phase 3 produced 82 bone specimens, totalling *c.*2kg (*c.*137 fragments), of which 26 were identified (Table 4.9).

Element	Bovid	Pig	Red Deer	Unidentified
Mandible	2			
Loose Teeth	3	1		
Scapula			1	
Humerus	3			
Radius	2		1	
Ulna			1	
Pelvis	3			
Femur	1			
Tibia	5			
Metacarpal	1			
Metatarsal	2			
Fragment				56
Total	22	1	3	56

NISP = number of individual specimens; refitted fragments with modern breaks counted as one specimen

Bovid = probably all domestic cattle

Pig = probably domestic pig

Table 4.9 Middle Bronze Age–early Iron Age (Phase 3) animal bone element counts (NISP)

Southern enclosure ditch L18

A bovid tooth and an unidentified mammal fragment were the only elements recovered from features forming the southern boundary of possible enclosure L18/L20.

Internal features L19

Four fragments were recovered from internal features L19; one fragment was identified as a bovid humerus.

Northern enclosure ditch L20

Sixteen eroded bone fragments were recovered, including 11 unidentified mammal fragments. There were three fragments from at least two bovid pelvises. One of these, recovered from ditch SG26.03, was radiocarbon dated to the middle Bronze Age (SUERC-95056). There was also a bovid mandible fragment and part of a red deer scapula. The mandible belonged to a sub-adult animal.

Layers L24

Sixteen bone fragments were recovered. Most of them were eroded and only four elements were identified: a pig tooth, a bovid tooth, and the proximal ends of two bovid radii.

Ditch length L26

All five of the identified elements from seven bone fragments belonged to bovinds; they were all heavily eroded. They consisted of a small fragment of femur, a substantial portion of the shafts of two tibiae, the proximal half of a metacarpal and a largely complete metatarsal.

Possible activity focus L27

Only three of the 17 fragments were identified: a cattle tooth and small parts of two cattle tibiae.

Possible fields L45

Seven eroded bone fragments included the proximal parts of a red deer radius and ulna, a substantially complete cattle mandible as well as a tibia fragment of a large bovid. The mandible belonged to a sub-adult animal.

Possible activity focus L47

Seven bone fragments were recovered. They included parts of a pair of bovid humeri from an immature animal and the proximal half of a bovid metatarsal.

Phase 4 (late Iron Age/early Roman)

Only three bones were recovered from structure L9 within possible enclosure L25. A small section of cattle horn core was the only element identified.

Phase 5 (Roman)

Approximately 460g (37 fragments) of animal bone were recovered from Phase 5 features. The bones were all heavily eroded and fragmented. Four specimens from field system L7 were identified as horse (radius, pelvis, femur and calcaneus). A small section of antler, probably from red deer, was also recorded.

Discussion

The late Mesolithic pits produced evidence for the exploitation and deposition of the bones of several aurochs. It is feasible that many of the bones from pit SG50.02 could have belonged to the same sub-adult or young adult female aurochs. The unfused proximal humerus and calcaneus and the relatively recently fused distal metacarpal and humerus would suggest that the animal(s) represented was possibly 18–36 months old (Silver 1969), although this assumes that the fusion rates of aurochs were similar to those of domestic cattle. However, a humerus in SG50.02 was from a bovid that was probably under two years old, and the maxilla belonged to a very young calf.

Substantial parts of the skulls from two aurochs were found in pit SG8.02. The size and morphology of the horncores indicated that one was a male and the other a female. They were both probably from older animals than those found in pit SG50.02. The absence of some teeth from the maxillae and slight signs of weathering indicate that the skulls were not deposited immediately after death. Although heavily fragmented, there was no clear evidence that these skulls had been processed. This leads to the possibility that there was some symbolic significance in their deposition in the pit. There are no reported examples from central England of the deposition of complete Mesolithic aurochs skulls (Albarella 2019); however, occasional depositions of aurochs skulls and horncores are known on Neolithic sites. At the Neolithic causewayed enclosure at Etton, Cambs., the skulls of a male and female aurochs were laid on a plank deposited in a late Neolithic recut of an early Neolithic ditch (Armour-Chelu 1998). At Irthlingborough, Northants., a single aurochs' skull was deposited on a burial cairn along with 185 domestic cattle skulls (Davis and Payne 1993). At Biddenham Loop, Beds., an eroded aurochs' horncore was deposited along with a horncore and a complete mandible of domestic cattle in a late Neolithic pit (Maltby 2008, 92).

There was some evidence for carcass-processing on the bovid remains. Deliberate breakage was evident on the shafts of two of the humeri and the metacarpal, which would have enabled marrow to be extracted. Cut marks on two humeri fragments from pit SG50.02 provided evidence for dismemberment and possibly filleting.

There are still very few Mesolithic sites from England that have produced substantial animal bone assemblages. While Star Carr is the most famous (Legge and Rowley-Conwy 1988), smaller assemblages from southern England include those from Thatcham (King 1962) and Blick Mead (Rogers *et al.* 2018). Evidence from the Midlands is particularly sparse and even where faunal assemblages do exist, they are very small and usually face problems of possible intrusions of later material (Albarella 2019). Albarella has commented that there may have been a trend in Mesolithic England for aurochs to have been exploited more frequently in the late Mesolithic and Rogers *et al.* (2018) noted that there was a tendency for Mesolithic assemblages to be dominated by one or two species, including Blick Mead which had a high percentage of aurochs.

Out of 82 fragments assigned to the middle Bronze Age–early Iron Age period (Phase 3), 55 were unidentified, with most of them being eroded. Twenty-two of the identified elements were classified as bovids, three were assigned to red deer and one to pig. Unfortunately, none of the bovid bones provided measurements, but most appeared to be sufficiently small to be classified as domestic cattle and a radiocarbon date on the pelvis from L20 gave a middle Bronze Age date. However, there were one or two larger specimens that could have been from aurochs and possibly had Mesolithic or Neolithic origins. The presence of red deer may also indicate that some of the bones were of earlier date. Red deer have been found on later Bronze Age and early Iron Age sites in the Midlands but usually only in very small numbers. The absence of sheep/goat in this sample is also unusual in a later Bronze Age or Iron Age assemblage, although the poor preservation conditions were not conducive to the recovery of bones of smaller mammals.

4.7 CHARRED PLANT REMAINS

John Giorgi

Introduction and methodology

A total of 48 environmental bulk soil samples was collected for the recovery of biological evidence, including charred plant remains for potential information on human activities. The samples derived from late Mesolithic to post-medieval features: ditches (22 samples); pits (17); two samples apiece from palaeochannels, postholes and layers; single samples from a water-pit, post-pit and animal burial.

The volume of the processed samples ranged from 4–29l; most were at the upper end of this range. The samples were processed using a Siraf-style type flotation tank with mesh sizes of 0.3mm and 1mm for the recovery of the flot and residues, respectively. The flots were then dried along with the residues which were sorted for biological remains and artefacts.

Charred plant remains in the flots were sorted, identified and quantified except for very small grain (<2mm) and charcoal fragments. The plant remains were identified using a binocular microscope (with a magnification of up to x40) together with modern and charred reference material and manuals (Cappers *et al.* 2006; Jacomet 2006).

Results

Only 17 of the 48 samples produced identifiable charred plant remains, although the entire charred assemblage amounted to only c.100 quantified items. It consisted mainly of cereal grains in 13 samples, with cereal chaff in two and wild plant remains in six. Most of the plant remains were from 11 middle Bronze Age–early Iron Age features (Phase 3), with a few remains in single samples from later periods (Phases 4, 5 and 7). Preservation was generally poor with a high degree of fragmentation particularly in the case of the cereal grains. The results are shown in Table 4.10; taxonomic order for the wild plants follows Stace (2019), which was also used for ecological data along with Hanf (1983) and Wilson and King (2003).

Phase 1 (palaeochannels and tree-throw holes)

One sample from the western palaeochannel G1 (L1) produced two charred hazelnut (*Corylus avellana*) shell fragments and two other unidentifiable charred shell fragments. The charred hazelnut fragments returned an early Neolithic radiocarbon date (SUERC-97718).

Phase 2 (late Mesolithic–early Neolithic)

Ten samples were collected from the fills of seven Phase 2 pits – four from clustered pits L4 and six from dispersed large pits L46.

Two of the samples produced charred plant remains. Very large pit SG50.02 (L46) produced three fragments of charred hazelnut shell, while small pit SG179.02 (L4) produced fragments of *Prunus* fruit stones, which returned an early Neolithic radiocarbon date (SUERC-97719). SG179.02 also produced one large fragment (>4mm) identified as sloe/blackthorn (*Prunus spinosa*), 19 small fragments (2–4mm) tentatively identified as belonging to these wild fruits, and 19 smaller fragments (<2mm) only classified as *Prunus* fruit stone fragments.

Phase 3 (middle Bronze Age–early Iron Age)

Twenty-two samples were collected from features assigned to Phase 3 – mainly from ditches (12 samples) and pits (five), with two from layers and single samples from a posthole, a post-pit and a water-pit.

Eleven of the 22 samples produced very occasional or small amounts of charred plant material with the whole assemblage amounting to just 49 quantified items. The samples produced mostly cereal grains (11 samples) as well as smaller unquantifiable grain fragments (seven samples). The grains included wheat (*Triticum* – four samples), a few of which were tentatively identified as hulled emmer/spelt wheat (*Triticum cf dicoccum/spelta* – in two samples), and possibly free-threshing wheat (*T. cf aestivum/turgidum* – in one sample). The presence of the cereal (specifically bread wheat – *T. aestivum*) was

confirmed by the recovery of a hexaploid free-threshing wheat rachis fragment in a separate sample. A wheat rachis fragment was also identified. A small number of barley (*Hordeum vulgare*) grains were also recovered from five samples; one large grass seed may be from oat (*Avena*), although this may have been growing as a weed at the time.

Hulled wheat (emmer and spelt) and (hulled) barley are the two main cereals found in southern Britain – including this region – during this period (Carruthers and Hunter Dowse 2019, 47, 54) along with occasional finds of free-threshing wheat (Greig 1991, 302, 306). Other middle Bronze Age to early Iron Age contexts from sites close-by produced similar evidence with hulled wheat (including spelt chaff) from Woodside Link (p. 160) and spelt, barley and a trace of free-threshing wheat at HRN3206 (Giorgi 2021) and HRN3205 (p. 22).

The charred wild plant remains, with the exception of one *Rumex* (dock) seed, were all recovered from pit G53 (L27) and included a hazelnut shell fragment and a few wild plant/weed seeds including *Fallopia convolvulus* (black bindweed), a common cereal weed, and *Daucus carota* (carrot), a plant usually found in grassy and rough ground and mostly on chalky soils. The few weeds cannot provide any significant evidence on crop husbandry practices during this period. However, *Fallopia convolvulus* is largely found on well-drained soils, mainly on sands or limestones and is often associated with spring-sown crops, having also been recorded in a middle Bronze Age to early Iron Age context from HRN3206 (Giorgi 2021).

Most of the charred plant remains from Phase 3 features, albeit of generally limited quantity, were recovered from the east part of the investigation area, where most of the middle Bronze Age–early Iron Age activity was focused. The charred remains, which consisted largely of grains, mainly represent debris from fully processed cereals. The grains were perhaps accidentally burnt while being dried before milling or storage or, alternatively, during cooking and – in the case of the hulled wheats – also during de-husking activities.

Phase 4 (late Iron Age/early Roman)

Two samples were collected from Phase 4 features. Charred plant remains were limited to one possible cereal grain from gully G63 (L9).

Phase 5 (Roman)

Eight samples were taken from Phase 5 features. Only ditch G105 (L33) produced charred plant remains, consisting of one small, unidentifiable leguminous seed.

Discussion

Few charred plant remains were recovered from the investigation area. The paucity of evidence from the middle Bronze Age onwards is indicative of either low-level or peripheral activities, suggesting that the main areas of settlement were at some distance from the sampled features. The significance of the earlier charred plant remains from the Phase 1 palaeochannel and two Phase 2 pits (consisting of a few hazelnut shell fragments and fragmented *Prunus* fruit stone(s)), however, cannot be understated given the dearth of botanical data from these periods and, moreover, the contexts from which the remains were recovered.

The significance of the, albeit limited, charred plant material from Phase 2 must be viewed in light of the paucity of botanical remains from late Mesolithic–early Neolithic contexts and the dearth of direct evidence for plant exploitation in this part of the country and in the British Isles in general (Carruthers and Hunter Dowse 2019, 24). It is often difficult to establish whether charred plant remains were directly related to human activities and their collection as food or were charred as a result of natural fires (*ibid.*, 26–7). It is possible that the hazelnuts were incidentally burnt as part of hazel wood fuel rather than charred as part of the processing of the nuts for food, although given the high nutrient value of this food resource it is perhaps unlikely that they would not have been separated from the wood fuel beforehand.

A number of Mesolithic sites containing charred hazelnut shell have recently been cited in a review of botanical remains from the Midlands, including: Mother Grundy's Parlour at Creswell Crags, Derbyshire; Caistor St Edmunds, Norfolk; Lightmarsh Farm, Worcestershire, where 170 charred hazelnut shell fragments in two samples were radiocarbon-dated to 8610–8230 cal BC (BIRM-974); and Taplow, Buckinghamshire, where charred hazelnut shell was radiocarbon-dated to 8560–8290 cal BC (SUERC-4969) (Carruthers and Hunter Dowse 2019, 27). Both charred hazelnut shell and a sloe stone were found in Mesolithic contexts from Madawg Rockshelter in the Wye Valley, Herefordshire, the hazelnut shell dated to 8290–7830 cal BC (OxA-6113) and 5680–5480 cal BC (OxA-6082), and the sloe stone to 8170–7580 cal BC (OxA-6081) (Carruthers and Hunter Dowse 2019, 27). Again, there is the possibility that the hazelnut and fruit stones were attached to and burnt as part of wood fuel, although their nutritious value as food would have probably been recognised at the time. Although sloes are bitter and sour to eat raw, they are palatable when cooked or preserved.

		Phase	1	2	
		Period	-	Late Mesolithic–early Neolithic	
		Land-use area (L)	1	4	5
		Group (G)	1	179	11
		Subgroup (SG)	1	179.02	11
		Feature type	PAL	Pit	Ditch
		Sample	6	19	15
		Vol. sample (l)	17	17	20
		Vol. flot (ml)	2	8	1
Latin name	English name				
Cereal grains					
<i>Triticum</i> cf. <i>dicoccum/spelta</i>	?emmer/spelt wheat				
<i>T.</i> cf. <i>aestivum/turgidum</i> type	?free-threshing wheat				
<i>Triticum</i> sp.	wheat				
cf. <i>Triticum</i> sp(p).	?wheat				
<i>Triticum/Hordeum</i> sp.	wheat/barley				
<i>Hordeum vulgare</i> L.	barley, indet				
cf. <i>H. vulgare</i>	?barley				
<i>Avena</i> /Poaceae indet.	oat/large wild grass seeds				
Cerealia	indet. cereal (estimate)				
Cerealia	indet cereal fragments <2mm				+
cf Cerealia	indet ?cereal grain				
Cereal chaff					
<i>Triticum spelta</i> L.	spelt glume bases				
<i>Triticum</i> sp.	wheat spikelet base				
<i>Triticum</i> sp.	wheat rachis fragments				
<i>T. aestivum</i> type	hexaploid free-threshing wheat rachis				
Other plant/weed seeds					
<i>Corylus avellana</i> L.	hazelnut shell fragments	2		3	
<i>Chenopodium</i> sp.	goosefoot etc				
<i>Fallopia convulvulus</i> (L.) A Love	black bindweed				
<i>Rumex</i> sp.	dock				
<i>Prunus spinosa</i> L.	sloe/blackthorn fruit stone fragments >4mm		1		
cf. <i>P. spinosa</i>	?sloe/blackthorn fruit stone fragments 2–4mm		19		
<i>Prunus</i> spp.	sloe/blackthorn/plum/bullace stone frags >2mm		19		
Fabaceae/cf <i>Medicago/Trifolium</i> sp.	small indet legume/medick/clover (<2mm)				
<i>Daucus carota</i> L.	carrot				
Apiaceae indet.	-				
<i>Euphrasia/Odontites</i> spp.	eyebrights/bartsias				
Indeterminate	nut shell fragments	2			
Indeterminate	wood charcoal (>/<2mm)	++/+++	++/+++++	+++/+++++	-/++
Total		4	39	3	

Item frequency: + = 1–10; ++ = 11–50; +++ = 51–150; ++++ = 151–250; +++++ = 250+ items

Period: LIA/ER =late Iron Age/early Roman

Feature type: PAL = palaeochannel

Table 4.10 Charred plant remains by Phase and taxonomic order

4.8 WOOD CHARCOAL

Dana Challinor

Introduction and methodology

Most of the environmental samples did not produce useful charcoal assemblages and preservation was generally poor, as was the case on the adjacent HRN3455/6/7 investigations (p. 70). However, those from the late Mesolithic–early Neolithic (Phase 2) pits were considered significant enough in their own right to merit examination, even where assemblages were poor. In addition, charcoal assemblages from three middle Bronze Age–early Iron Age (Phase 3) samples and two Roman (Phase 5) samples were also analysed.

Standard identification procedures were followed using identification keys (Hather 2000; Schweingruber 1990) and modern reference material. The charcoal was fractured and examined at low magnification (up to x45), with representative fragments examined in longitudinal sections at high magnification (up to x400). Observations on maturity and other features were made where appropriate. Classification and nomenclature follow Stace 2019.

Results

A total of 15 samples was examined, but only eight produced identifiable material (Table 4.11). Eight taxa were positively identified: *Pinus sylvestris* (pine), *Prunus spinosa* (blackthorn), Maloideae (hawthorn, apple, rowan/whitebeams etc.), *Rhamnus cathartica* (purging buckthorn), *Quercus* sp. (oak), *Corylus avellana* (hazel), *Acer campestre* (field maple) and *Fraxinus excelsior* (ash).

Phase 2 (late Mesolithic–early Neolithic)

Seven samples from Phase 2 pits contained either unidentifiable flecks of charcoal, or no charcoal. Two samples from pit G50.02 (L46) and one from pit G179.02 (L4) produced some sparse remains which were identified in full. Three taxa were present in SG50.02 – hazel, oak and a couple of fragments of pine. The assemblage from SG179.02 was similar – oak and hazel, with the addition of Maloideae type (hawthorn, apple, rowan/whitebeam etc). The presence of pine in the assemblage is significant, though not unexpected. Pollen evidence for the early Holocene from Kempston shows a dominance of pine, with hazel, after c.10,000 BP, which is followed

3 Middle Bronze Age–early Iron Age										4 LIA/ER	5 Roman	7 Post-medieval
8	18		20	23	26	27	30		38	9	33	32
45	39	40	29	48	20	53	166	167	47	63	105	108
45	39	40	29	48	20	53	166.01	167	47	63	105	108
Ditch	Ditch	Ditch	Ditch	Ditch	Ditch	Pit	Pit	Pit	Ditch	Gully	Ditch	Ditch
36	33	39	10	3	26	4	27	28	34	32	46	43
18	18	18	20	18	18	18	20	20	18	20	29	16
30	2	1	115	2	13	36	2	1	2	2	34	275

by a rise in oak and elm from *c.*8500 BP (Scaife 2000, 19–20). By the Neolithic period, *c.*5000 BP, the pollen record from Flitwick Moor indicates a dominance of mixed deciduous woodland, with some scarce remnants of pine (*ibid.*, 22–3).

In light of the late Mesolithic–early Neolithic radiocarbon dates from the sampled features (Table 4.12), the charcoal record can be seen as indicative of the general picture of woodland succession in Bedfordshire. A similar picture emerged from the charcoal assemblages of the Mesolithic pits at Stonehenge car park where pine was dominant (Allen 1995, 43, 47); it was also found in fuel residues at Boscombe Down, alongside birch, oak, hazel and Maloideae type (Barnett and Gale in prep). Notably, pine charcoal has not been identified in any of the later period assemblages from other HRN1 sites.

Phase 3 (middle Bronze Age–early Iron Age)

The charcoal record from Phase 3 features comprised assemblages from ditch G29 (L20), post-pit G34 (L20) and pit G53 (L27). The assemblages were remarkably similar in character – dominated by Maloideae and *Prunus* types with a smattering of other taxa, including

buckthorn, oak, hazel, field maple and ash. The presence of blackthorn (*Prunus spinosa*) charcoal was confirmed in one sample, but *Prunus* fragments in other samples could not be assigned to species; the majority of the wood derived from small roundwood. Insect tunnels were observed in fragments of several taxa (buckthorn, field maple and Maloideae) in the charcoal from ditch G29. The character and types of wood is typical of domestic fuel waste from similarly dated assemblages at nearby excavations, indicating the use of predominantly hedgerow/scrub taxa (blackthorn, buckthorn, hawthorn etc.) supplemented with some woodland taxa. For instance, two late Bronze Age/early Iron Age pits from HRN3205 (p. 31) and four early–middle Iron Age pits at Thorn Turn (Challinor 2018a) produced charcoal assemblages with a similar signature, characterised by open ground, light-demanding and hedgerow/scrub species (ash, blackthorn, purging buckthorn and Maloideae type), along with oak, hazel and field maple. The presence of insect tunnels in the charcoal indicates that the wood had been subjected to beetle attack, which can be an indicator of firewood-seasoning practices, or the gathering of already dead wood from local woodland/hedges.

		Phase 2 Late Mesolithic–early Neolithic			Phase 3 Middle Bronze Age–early Iron Age			Phase 5 Roman	
Land-use area (L)		46	46	4	27	20	20	53	33
Group (G)		50	50	179	53	34	29	68	99
Subgroup (SG)		50.02	50.02	179.02	53	34	29	68	99
Feature type		Pit	Pit	Pit	Pit	Post pit	Ditch	Possible grave	Hearth-related feature
Sample		24	25	19	4	9	10	22	47
<i>Pinus sylvestris</i> L.	Scot's pine	2							
<i>Prunus spinosa</i> L.	blackthorn				27 (r)				38 (r)
<i>Prunus</i> sp.	cherry type					3r	16r		
Maloideae	hawthorn grp			5	4	18r	15r		
<i>Rhamnus cathartica</i> L.	buckthorn						9r		
<i>Quercus</i> sp.	oak	2		9	9		1	20	1
<i>Corylus avellana</i> L.	hazel	18	2	3	2				
<i>Alnus/Corylus</i>	alder/hazel								2
<i>Acer campestre</i> L.	field maple				5	2			
<i>Fraxinus excelsior</i> L.	ash						4 (r)		1
Bark							+		+
Indeterminate					3	7 (r)	3r		8
Total		22	2	17	50	30	50	20	50

r = roundwood; brackets denote presence in some fragments only

Table 4.11 Charcoal by Phase and taxonomic order

Phase 5 (Roman)

Identifiable charcoal was retrieved from two features assigned to Phase 5 – possible grave G68 (L53) and hearth-related feature G99 (L33). The charcoal was comparable in exhibiting poor condition; that from G99, in particular, showed vivianite and iron staining, suggesting that it had been deposited in a partially waterlain or seasonally waterlogged environment. The taxonomic composition of the two assemblages, however, was notably distinct; possible grave G68 produced finely comminuted slivers of oak, while blackthorn dominated the assemblage from G99, with traces of other taxa (oak, alder/hazel and ash). Little conclusion may be drawn from this small data-set on its own; however, there are indications from contemporary sites nearby that domestic fires were largely fuelled by a mix of taxa with a strong component of hedgerow/scrub types, while more specialised activities, such as cremation or crop drying utilised predominantly oak or ash (e.g., Woodside Link, p. 163; Dunstable, Austin 2010; and M1 Junction 12, Challinor 2020).

4.9 RADIOCARBON DATING

Introduction and methodology

Radiocarbon determinations were undertaken by the Scottish Universities Environmental Research Centre (SUERC) AMS Laboratory. Radiocarbon ages were calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4. Detailed descriptions of the methods employed by SUERC can be found in Dunbar *et al.* (2016).

Results

Eleven radiocarbon dates were obtained from features assigned to Phases 1–3. They spanned the late Mesolithic to the middle Bronze Age, apart from SUERC-95052, a modern date from cereal grains from a Phase 3 pit. This material is, therefore, considered to be intrusive. Of the ten non-modern dates, six were from animal bone and four from charred plant remains (Table 4.12).

4.10 DISCUSSION

Mike Luke and Marcin Koziminski, incorporating the conclusions of Sarah Bates, Dana Challinor, John Giorgi, Mark Maltby and Jackie Wells

Most of the recovered evidence dated to the late Mesolithic, middle Bronze Age and Roman periods, with smaller amounts for the early Neolithic, late Iron Age/early Roman, medieval and post-medieval periods. The late Mesolithic remains are undoubtedly the most significant. The finds dating is generally poor and imprecise for pre-Roman elements, which are often dispersed, discrete features or linears, with some of the latter appearing to form parts of field systems. The finds dating is supplemented by ten radiocarbon determinations, which together with the spatial arrangement of the features, has enabled a sequence of human activity to be established from the late Mesolithic through to the post-medieval period. The often-narrow and irregular shape of the investigation area hinders interpretation, although its large overall extent does assist understanding of the development of the overall landscape.

Land-use, continuity and discontinuity

The investigations produced evidence of land utilisation from the late Mesolithic to the modern period. While assignment of evidence to specific phases can usefully characterise activity at a particular point in time and, thereby, highlight discontinuity, conversely this process can also hinder an appreciation of continuity in the landscape. The transition from one chronological period to the next is a common theme in both national (Historic Environment Forum 2014), regional (Medlycott 2011) and county research agendas (Oake *et al.* 2007).

The Phase 1 natural features consisted of paleochannels L1, one of which (G183, Fig. 4.2) was parallel to the present course of the Ouzel Brook. The other two were also identified in the earlier open-area excavations (HRN3456 and HRN3457) (p. 46); they were short, aligned approximately north–south and led down

SUERC	GU	Material	BP	95.4%	Period	Sample	SG	L	Phase	Description
95052	56309	Cereal grain (various)	0	>1950 CE	Modern	28	167	30	3	Small pit
95053	56310	Cereal grain (various)	3145 ± 241496–1318		Middle Bronze Age	33	39	18	3	Segmented ditch
95054	56311	Cereal grain (<i>Hordeum/</i> <i>Triticum</i>)	3161 ± 241499–1402		Middle Bronze Age	36	45	8	3	Segmented ditch
95055	56312	Large mammal fragment	6752 ± 255712–5627		Late Mesolithic	2	19.02	46	2	Large pit
95056	56313	Cow pelvis	3208 ± 241520–1428		Middle Bronze Age	–	26.03	20	3	Segmented ditch
95057	56314	Aurochs horn core	7516 ± 256443–6271		Late Mesolithic	–	8.02	4	2	Large pit
95058	56315	Bovine astragalus	7736 ± 246636–6498		Late Mesolithic	–	50.02	46	2	Large pit
97718	57404	Hazelnut shell (<i>Corylus</i> <i>Avellana</i>)	4693 ± 253601–3372		Early Neolithic	6	1	1	1	Palaeochannel
97719	57405	Fruit stone fragments (<i>Prunus</i>)	4669 ± 253517–3371		Early Neolithic	19	179.02	4	2	Small pit
97772	57482	Aurochs mandible	7327 ± 256232–6086		Late Mesolithic	–	50.01	46	2	Large pit
97773	57483	Aurochs humerus	7703 ± 256595–6469		Late Mesolithic	–	50.02	46	2	Large pit

Table 4.12 Radiocarbon determinations

towards the Ouzel Brook. Their origins and longevity are uncertain, but they may have been created by seasonal springs or run-off from the higher ground to the south of the brook. Sampling produced small quantities of charred hazelnut shell – a common find in early prehistoric contexts from the Mesolithic period onwards (e.g. Greig 1991, 299). One fragment, although not from the lowest fill, of north–south palaeochannel G1 returned an early Neolithic radiocarbon date, while the uppermost fill produced three small, abraded sherds of late Iron Age pottery. This suggests that the palaeochannels were long-lived landscape features. G2 was only 0.15m deep and probably represents the beginning of the palaeochannel (perhaps explaining its narrower and slightly different alignment). A somewhat similar feature, adjacent to a stream at Eye Kettleby, Leicestershire, was interpreted as a mire or carr; it contained Mesolithic/early Neolithic struck flint and is interpreted as having been present from the Mesolithic period onwards (Finn and Cooper 2011, 6).

The earliest firm evidence for human activity was identified in the central part of the site. It comprised 12 large, pits, distributed in a loose cluster L4 at the west end of a possible alignment L46. Animal bone from four of the pits returned late Mesolithic radiocarbon dates. None of the pits appeared to respect the tree-throw holes (see below), but pit SG50.01 was dug into the beginning of palaeochannel G2 and it could be argued that pits G8 form an arc to the west of this feature (Fig. 4.3). It is interesting that the only pits likely to date to the early Neolithic were also located in this area. With hindsight, it is possible that three large undated pits within the earlier excavations (HRN3456 G105 and G106; HRN3457 G76), assigned to the middle–late Bronze Age (Figs 3.5 and 3.6), are also late Mesolithic in date.

Given the presence of late Neolithic/early Bronze Age ring-ditches, small pits and burials in the vicinity, e.g. HRN3206 (Luke and Barker 2021, 35–7), Woodside Link (p. 125–8), it is likely that woodland clearance was well underway by this period. Although large numbers of tree-throw holes L2 were present, only one struck flint was recovered. They cannot, therefore, be associated with human clearance (although this is notoriously difficult to prove, e.g. Biddenham Loop (Luke 2008, 69–72)). Where stratigraphic relationship existed, the tree-throw holes always predated anthropogenic features.

The first firm evidence for enclosure of land was a possible middle–late Bronze Age enclosure SL18/20 and various segmented or short ditch lengths. The latter

were spread across the investigation area but were more concentrated to the east, within and around the possible enclosure. Of similar date were a number of possible post-built structures L21. A pottery assemblage of small and undiagnostic sherds did contain later Bronze Age/earliest Iron Age material, some of which may have originated in the middle Bronze Age. Three features produced middle Bronze Age radiocarbon dates, but most were assigned to this period based on their spatial layout. One of the earlier excavations featured a middle Bronze Age inhumation (HRN3457 G75) (fig. 3.6). Other contemporary dispersed features were recorded on Woodside Link (Chap. 5).

There was no clear evidence for activity during the middle Iron Age, reflecting an apparent general absence of such remains within the HRN1 development area. However, middle Iron Age settlements were identified on the A5–M1 Link at Site K, c.1km to the east of HRN3457, and at Sites D, G and M, c.2km to the west of HRN3455 (Brown 2020).

Late Iron Age/early Roman evidence was limited to possible structure L9 within possible enclosure L25, and two short lengths of ditch L43 and L49. Little can be said about the latter, which were in relatively remote parts of the investigation area. However, it is perhaps noteworthy that none of these features appeared to be associated with the segmented and short ditches believed to have originated in the middle Bronze Age. This dearth of evidence for late Iron Age/early Roman activity contrasts with the adjacent HRN3457 excavation where enclosure system SL28 covered over c.1.3ha and (with modifications) was still in use during the Roman period (SL31) (figs 3.9 and 3.12).

Roman field system ditches were identified across the investigation area. Much of the evidence is piecemeal, although coherent plans of field systems L6/L7 and L14/L53/L54 were recovered. As most of the field systems were on an E–W/N–S alignment, they did not correspond with their middle Bronze Age counterparts. Ditch L11, which did not appear to be part of a field system, was also unusual in that it was aligned NE–SW. The HRN3486 investigation area was located away from three known Roman settlements in the area: within HRN3455 and HRN3457 both situated adjacent to the Ouzel Brook (Chap. 3), and within HRN3206 to the south (Luke and Barker 2021).

No evidence for Anglo-Saxon activity was found within the investigation area. The medieval furrows followed a similar alignment to the Roman ditches

without corresponding exactly, suggesting a degree of landscape continuity.

Late Mesolithic large pits

A total of 12 large pits (L4 and L46) are believed to date to the late Mesolithic period. Four contained suitable material and returned late Mesolithic radiocarbon dates but the similarity in form and location of the other eight pits suggests that they are likely to be contemporary. The presence of features of this date had not been predicted by the evaluation and, due to the absence of typologically late Mesolithic artefacts, the pits' dates were not known at the time of excavation. Had the late Mesolithic date been known, the pits would have been 100% excavated and subject to more extensive palaeoenvironmental study, and the adjacent palaeochannels would have been investigated in more detail. Following the radiocarbon dating, a preliminary report (Albion Archaeology 2020c) was produced in advance of the Assessment/Updated Project Design for circulation to other organisations undertaking fieldwork in the area to flag up the significance of the results. Partly because of this, MOLA identified a further 13 large pits on an adjacent excavation, three of which were radiocarbon-dated to the late Mesolithic (R. Atkins pers. comm.). Where the combined evidence from both projects is described below, it is referred to as HRN1 in order to distinguish it from just the HRN3486 evidence.

Mesolithic pits are now being increasingly recognised in Britain, largely as the result of development-led excavation and the application of radiocarbon dating. However, as Pollard has proposed 'a number of these features can be isolated from the rest by virtue of their substantial size (generally in excess of 1m in diameter and 0.5m in depth), complex fills, occasional grouping into linear arrangements, and virtual absence of material culture' (2017, 167). This description fits well with the twelve large pits excavated at HRN3486. When Pollard wrote his article only five sites with large pits radiocarbon-dated to the Mesolithic were known in Britain, with none in eastern England (2017, table 1 and fig. 1). Of these sites, only two (Stonehenge car park and Warren Field, Crathes, Aberdeenshire) contained multiple large pits. Subsequently, the excavations at Milltimber on the Aberdeen Western Peripheral Route added a third site with multiple pits and HRN1 has now added a fourth (Fig. 4.24). The pits at Milltimber and HRN1 extend over 5ha and 8ha respectively. While the numbers being identified in Britain are increasing, they are still tiny in comparison to those in Continental Europe (see below). The following represents a provisional discussion of the HRN1 evidence, integrating preliminary information on the pits from the adjacent MOLA excavation. It is intended that a separate article on all known Mesolithic pits at HRN1, including any new radiocarbon dates and scientific analysis, will be produced in collaboration with MOLA and Josh Pollard/University of Southampton.

Dimensions and form

All the HRN3486 pits were large and their creation would have required considerable effort (Figs 4.4 and 4.5). The four pits of G8 were circular, 2.1–3.2m in diameter, with steep to near-vertical sides and fairly flat bases; they were 1.0–1.7m deep. The two pits of G10 were similar but with more rounded profiles. Although three of the G19 pits had diameters of 2.2–3.1m, one (SG19.04) was c.5m in diameter; all had steep sides but with a mix of concave

and flat bases. The two pits of G50 were c.2.7m and 4.3m in diameter, with steep sides and flat bases. Two similarly large, but undated, pits in the earlier excavation area (HRN3456 G105 and G106) (fig. 3.5), c.250m west of G8, may also be late Mesolithic in date.

The pits share some similarities in dimension and form with the four found in Stonehenge car park (Vatcher and Vatcher 1973; Allen 1995), the 12 found at Warren Field, Crathes, Aberdeenshire (Murray *et al.* 2009) (Fig. 4.25) and the 30 found at Milltimber, Aberdeenshire (Dingwall *et al.* 2019). The former were c.1.5–2.0m in diameter and c.1.3m deep (Allen 1995, 45 and figs 25–6). The pits at Warren Field were c.1.0–2.6m in diameter and c.0.55–1.30m deep (Murray *et al.* 2009, 5 and figs 3–5). Those at Milltimber were c.1.4–2.9m in diameter and c.0.60–2.02m deep (Dingwall *et al.* 2019, table 2.02).

At HRN3486, no recuts were identified during hand-excavation but the recorded fill patterns may suggest their presence in SG8.02, SG50.01 and SG50.02 (Figs 4.4 and 4.5). Evidence for recutting was proposed for 6 of the 12 pits at Warren Field (Murray *et al.* 2009, fig. 3) and for 11 of the 30 pits at Milltimber (Dingwall *et al.* 2019, table 2.02).

Fills

The HRN3486 pits were typically filled by light-coloured, chalk-rich primary and secondary fills, with darker, siltier, tertiary fills. The lower fills of some pits, e.g. SG8.02, formed light and dark 'bands'. Six pits produced animal bone (described below) and two produced struck flint. With the exception of the fragmentary remains of a bovid horn core in the primary fill of SG8.04, all the finds derived from secondary or tertiary fills. The patterning of the pit fills displayed no obvious evidence for the presence of an associated mound of up-cast. Slightly more complicated fill patterns were identified within the pits at Stonehenge car park and Warren Field (Fig. 4.25), but again there was no evidence for the presence of an adjacent mound of up-cast. Of course, the differences in fills that can be identified by the naked eye will not always fully reflect the complicated, and sometimes lengthy, infilling process – especially in the case of large pits.

Flint

The flint assemblage from the HRN3486 pits was small (15 pieces) and only comprised blades; none is closely dated but all could be late Mesolithic/early Neolithic in date. Only four flints (all in the same pit) were found at Stonehenge car park (Allen 1995, 43, 47), eight flint flakes and blade fragments from Warren Field, five derived from the same pit (Warren 2009, 99), and 54 pieces of worked flint from the MOLA pits (Y. Wolfram-Murray pers. comm.).

Animal bone

The majority of the HRN3486 animal bone assemblage (8kg, c.400 fragments) derived from pits SG8.02 and SG50.02. It was dominated by aurochs but many other bones could only be broadly identified as bovine/domesticated cattle; however, they were probably also from aurochs. These animals became well-established in north-west Europe after the Last Glacial Maximum, with bones found on Mesolithic and Neolithic sites until the mid-2nd millennium BC (Lynch *et al.* 2008). Other identified species at HRN3486 comprised red deer, roe deer and pig, represented in all cases by just one bone or tooth.

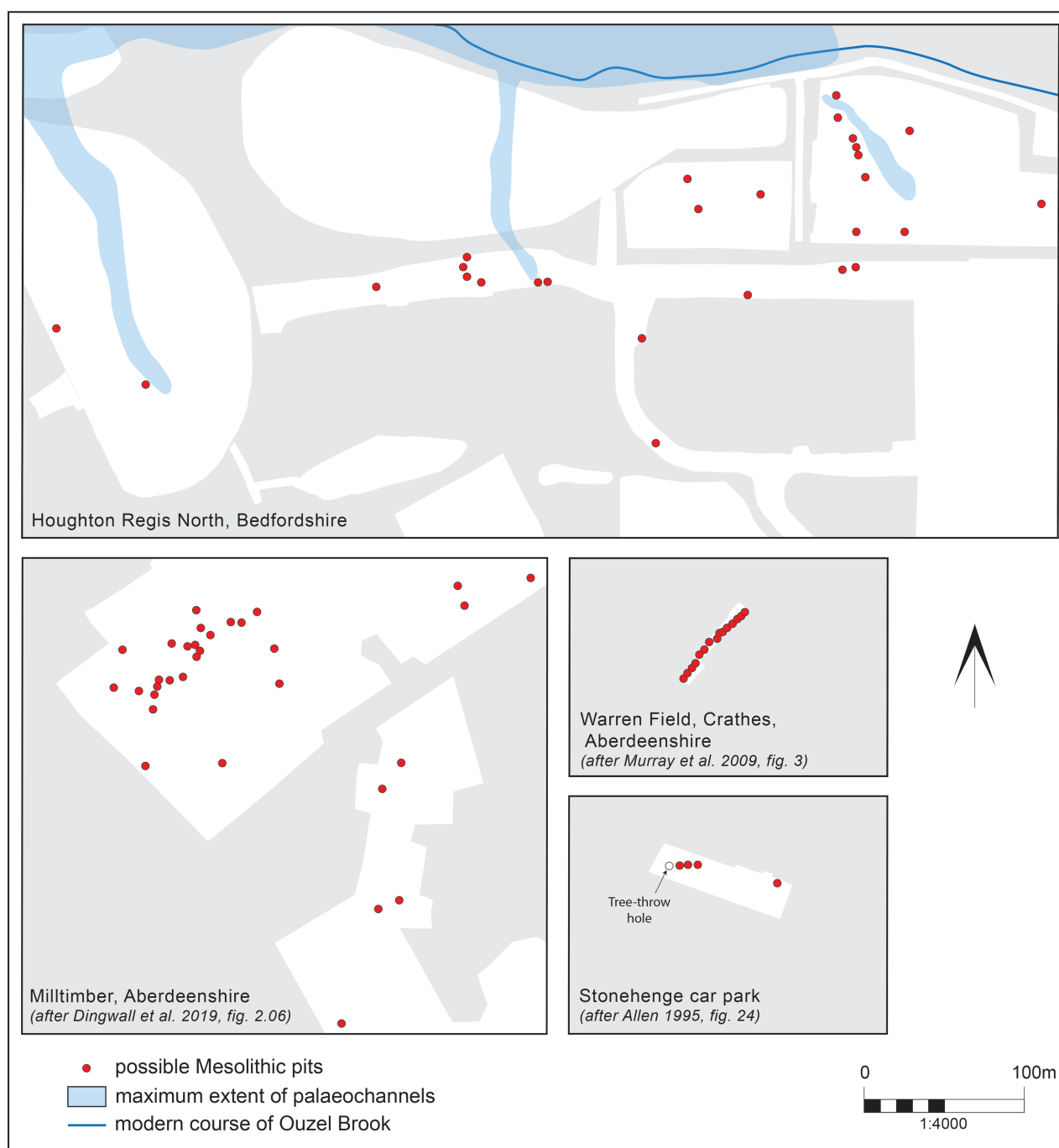


Figure 4.24 Comparative plans of large Mesolithic pits at HRN1, Milltimber, Warren Field and Stonehenge car park

Faunal assemblages from other Mesolithic large pits in Britain are either small or non-existent: a single piece of burnt bone from the Stonehenge car park pits (Allen 1995, 43); none at Warren Field (Murray *et al.* 2009) or Milltimber (Dingwall *et al.* 2019); and 54 pieces from the MOLA pits (Y. Wolfram-Murray pers. comm.). The dominance of aurochs within the identified bone assemblage at HRN3486 is unusual for any Mesolithic sites in Britain, *cf.* 57% at Blick Mead (Rogers *et al.* 2018), 39% at Cherhill (Evans and Smith 1983), and 16% at Star Carr (Legge and Rowley-Conwy 1988). The assemblage from Blick Mead (totalling 155 fragments) was considered to be 'unique in both Britain and the adjacent parts of the European mainland' (Rogers *et al.* 2018, 135). Of the five sites in southern England with Mesolithic bone assemblages referenced by Rogers *et al.* (2018, table 5.5), three

are dominated by one species, which might suggest that different sites were utilised to exploit different animal resources.

The HRN3486 assemblage indicates the exploitation and deposition of bones from several different aurochs. It is possible that many of the bones from pit SG50.02 were from the same sub-adult or young adult female. Substantial parts of the skulls (probably from a male and a female, both adults) were found in pit SG8.02. The absence of some teeth and signs of weathering indicate that the skulls were not deposited immediately after death. There was no clear evidence that these skulls had been processed, which suggests there may have been a symbolic significance to their deposition. Fragments of skull and/or mandible were also found in pits SG8.04 and SG50.01. The deliberate deposition of aurochs skulls

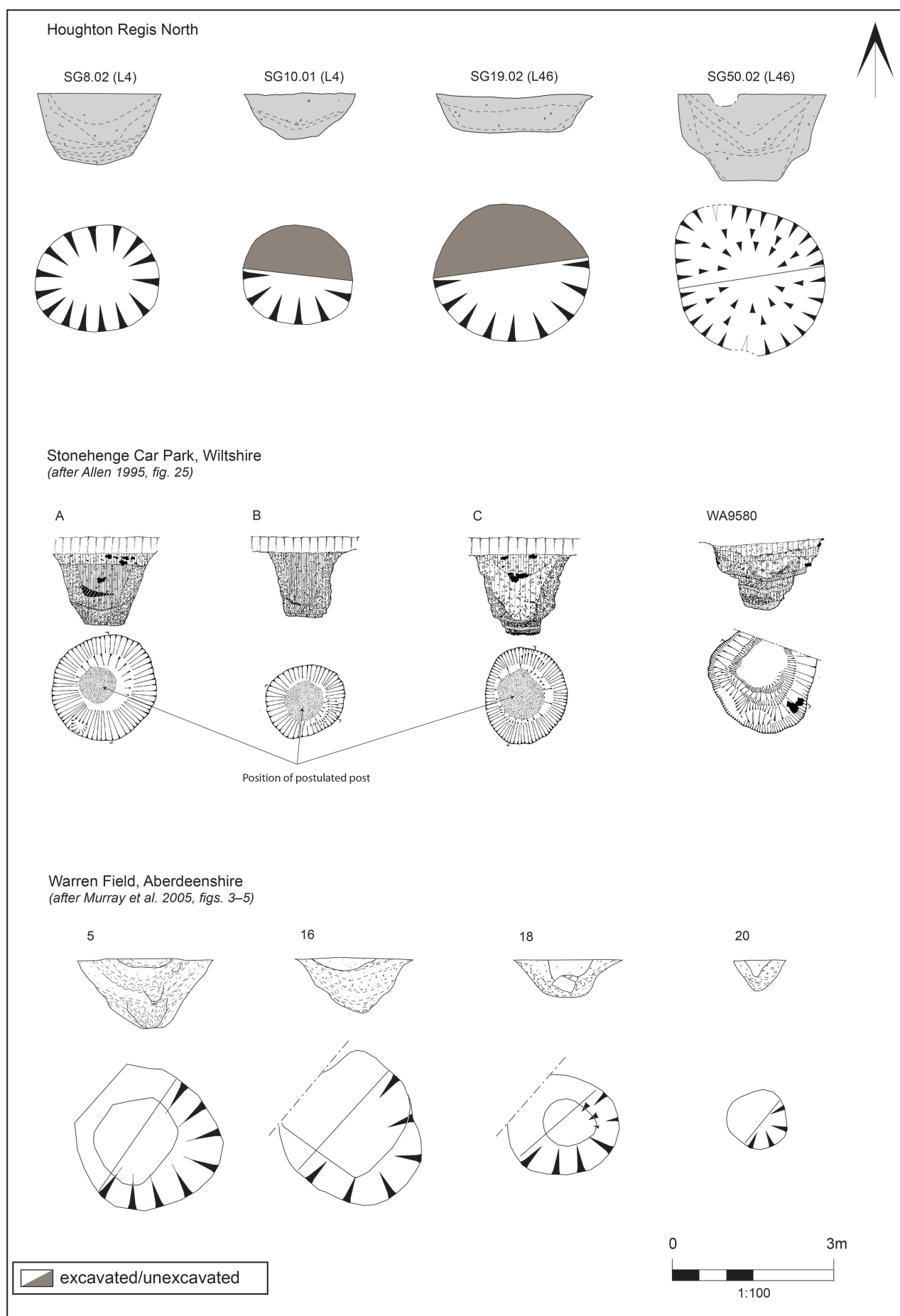


Figure 4.25 Comparative plans and sections of selected late Mesolithic pits at HRN1, Stonehenge car park and Warren Field

is known from several Neolithic sites, e.g. Biddenham Loop, Beds. (Maltby 2008, 92), Etton, Cambs. (Armour-Chelu 1998), and Irthlingborough, Northants. (Davis and Payne 1993).

Substantial parts of the skulls of two aurochs (including horn cores) were found in pit SG8.02 at HRN3486. This might suggest that the pits are associated with a 'kill site', as these skeletal elements would have probably been discarded and not returned to the 'home base'. However, some caution is needed as the absence of some teeth from the maxillae and slight signs of weathering indicate that the skulls were not deposited immediately after death. This leads to the possibility that there was some symbolic significance to their deposition in the pit. There was some evidence for carcass-processing on some of the bovid remains, including deliberate breakage to extract marrow, and cut marks on two other bone fragments are suggestive of dismemberment and possibly filleting.

Radiocarbon dating

Four HRN3486 pits yielded five fragments of animal bone that were suitable for radiocarbon dating and all returned late Mesolithic determinations (Table 4.13): four in the mid-7th millennium and one in the later 6th millennium. It is striking that (at 95% confidence) there is no chronological overlap between the four dated pits. The bone derived from secondary and upper fills (Figs 4.4 and 4.5), but as discussed above the filling sequence may have been more complicated than recorded on site and, of course, it is uncertain how long the interval was between the death of the animal and the deposition of the bone.

The radiocarbon dates from the Warren Field pits mainly derived from charcoal with some from charred plant remains. Analysis of the dates 'strongly suggests two chronologically separate periods of pit-digging in the first half of the eighth millennium cal BC' (Marshall 2009, 76). The radiocarbon dates from the Stonehenge car park pits, all from charcoal, range from 8820–7730 cal BC to 7480–6590 cal BC (Allen 1995, tables 3 and 4) – again, suggesting that they are not necessarily contemporary.

The radiocarbon dates from the HRN3486 pits suggest that they were infilling at a later date than those at Stonehenge car park and Warren Field (and in France (see below)). They are, however, within the range of dates achieved from charcoal within the Milltimber pits: from 8210–7820 cal BC to 4690–4500 cal BC (Dingwall *et al.* 2019, table 2.02). However, at HRN3486 – with only five dates from the secondary/upper fills of four pits – it is impossible to draw any firm conclusions about when the pit-digging started and how long the infilling process took.

Spatial distribution

The HRN1 pits were spread across an 8ha area and were clustered around the three palaeochannels. As discussed above (p. 114–5), the precise nature, origins and dating of the palaeochannels are uncertain. However, they appeared to lead down to the Ouzel Brook, suggesting that they may have been created by seasonal springs or run-off from the higher ground to the south. An association between the palaeochannels and the large pits seem highly likely as, despite extensive investigations within HRN1, no such pits have been found away from this part of the Ouzel Brook.

Two potentially significant spatial arrangements can be tentatively proposed in the overall distribution of the HRN3486 pits: a loose cluster L4 of pits near the south end of palaeochannel G3 (identified as G68 within HRN3457); and a possible alignment of pits L46 to the east (Fig. 4.3). The clustered L4 pits were assigned to different Groups based on their spatial positioning: G8 was a broad arc of four pits, c.30m west of the end of the palaeochannel; and the two pits of G10 were c.45m to either side of this arc. Pit G50.01 was similar in size to pit G50.2 (c.130m to the south-east) but was unique in that it was actually dug into the remnant of the beginning of palaeochannel G2, suggesting that this part, at least, was infilled by the late Mesolithic. Possible alignment G19 (L46) was a c.270m-long row of five pits that included the previously discovered pit described above (HRN3457 G76) (p. 115). Some of the large pits within the adjacent MOLA excavation also appear to form alignments one of which is located along the west side of another possible palaeochannel/mire (Fig. 4.26).

The contemporary environs

As discussed above the HRN pits were located near three palaeochannels which are presumed to have fed into the Ouzel Brook. The precise location and length of the latter at this time is unknown. However, its maximum width in this area can be estimated as its southern limit was found within the HRN3486 excavation area (Fig. 4.2) and its northern limit must have been to the south of the A5–M1 Link as, other than one area within Site J which contained 'former marshland', it was not present (Brown 2019, 382). Historical maps suggest that the source of the brook was located in this general area, although it may, of course, have had multiple sources, as evidenced by the three palaeochannels. Figure 4.26 shows the postulated maximum width and extent of the Ouzel Brook in the late Mesolithic.

It is presumed that the pits were dug in woodland clearings but the extent of these is impossible to determine (Plate 4.24). As described above (p. 115), the distribution of tree-throw holes recorded during the HRN3486 investigations (Fig. 4.2) while useful in reminding us

Pit	Fill	Material	Date range (at 95.4%)	Lab ref
SG50.02	Secondary	Bovine astragalus	6636–6498 cal BC	SUERC-95058
		Aurochs humerus	6595–6469 cal BC	SUERC-97773
SG8.02	Secondary	Aurochs horn core	6443–6271 cal BC	SUERC-95057
SG50.01	Upper	Aurochs mandible	6232–6086 cal BC	SUERC-97772
SG19.02	Secondary	Large mammal fragment	5712–5627 cal BC	SUERC-95055

Table 4.13 Radiocarbon determinations from large pits (Phase 2)

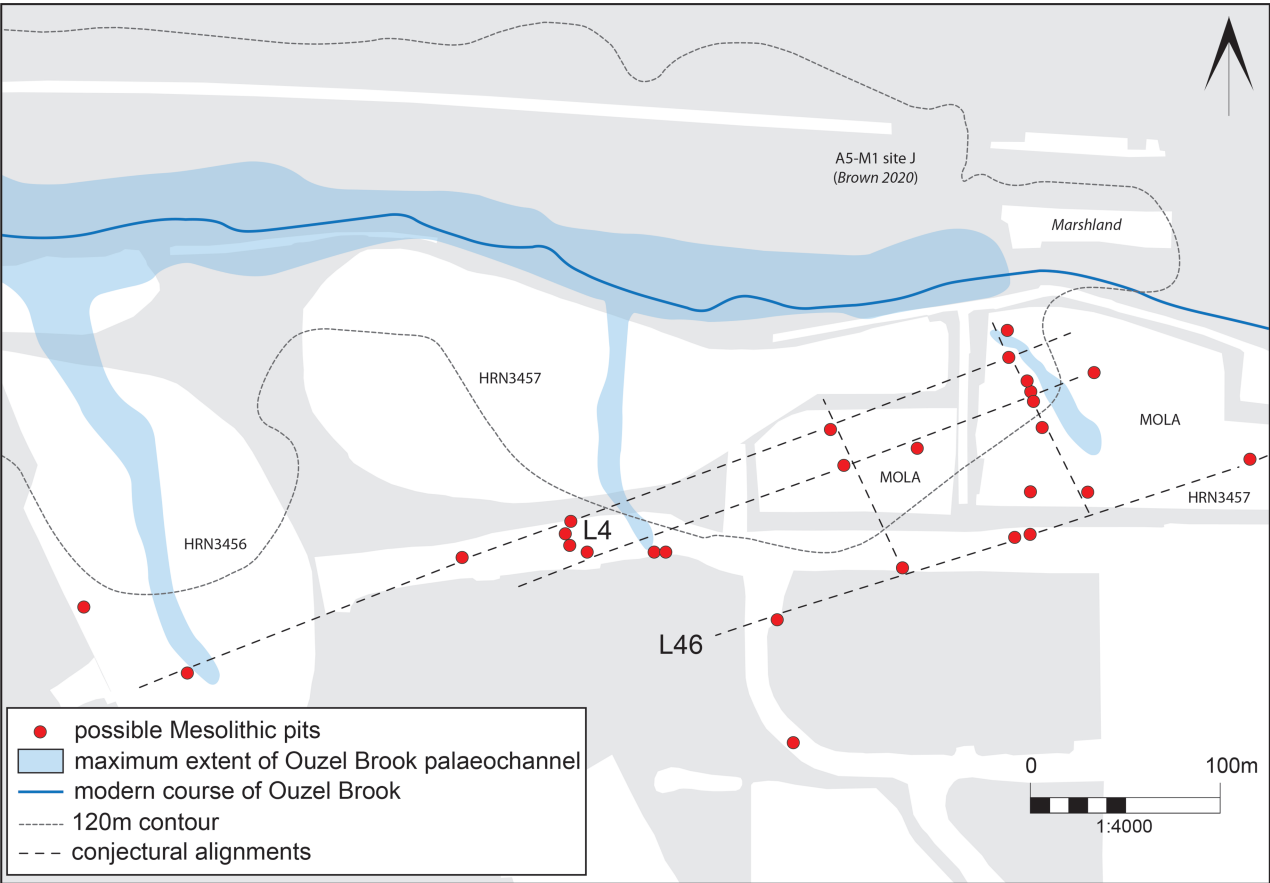


Figure 4.26 Plan of late Mesolithic pits at HRN1 with palaeochannels and postulated alignments



Plate 4.24 Reconstruction of the late Mesolithic landscape looking along the Ouzel Brook (by Cecily Marshall)

that this area was once heavily wooded, does not assist in determining the extent of woodland in the late Mesolithic because they cannot be closely dated – only one of the c.550 tree-throw holes contained a flint blade (of probable late Mesolithic/early Neolithic date) and it was located c.125m from the nearest large pit (Fig. 4.3).

As described above, the small flint assemblage, the nature of most of the animal bone assemblage and the absence of burnt deposits derived from hearths, suggests that the pits were not located at or near a 'home base'. This appears to be confirmed by the results of extensive fieldwalking undertaken by the Manshead Archaeological Society during 1988–90 across land that included the future HRN1 development area. No Mesolithic flints were found in the ploughsoil overlying the area of the HRN3486 pits (Hudspeth 1991). However, a large scatter (possibly up to 4ha in extent) of Mesolithic flint was found on the ridge to the north of the Ouzel Brook (Hudspeth 1991, fig. 3), c.600m from the HRN3486 pits. The scatter included mainly broken blades, waste flakes and a few cores. This site may represent the location of the 'home base'. The only large pit site in Britain where an adjacent flint scatter has been identified was at Milltimber (Dingwall *et al.* 2019). Here c.10,000 pieces covered a c.65 × 24m area, which appeared to contain five zones of activity related to tool preparation and production. Adjacent to this were the large pits and also a handful of smaller pits, hearths and fence lines that were thought likely to pre- and post-date the scatter (Dingwall *et al.* 2019, 43–6).

Large Mesolithic pits on the Continent

In contrast to Britain, hundreds of large Mesolithic pits have been found in France and, to a lesser extent, in the Netherlands and Germany. Details on these, and smaller pits, were published after a conference on Mesolithic pit-digging held in 2016 (Achard-Corompt *et al.* 2017a). The large pits are similar to those in Britain in terms of morphology and a general absence of material culture, although many feature a 'post-like' setting in their base. Three sites in particular – in north-east France – are comparable to HRN1 and are briefly described below. (It should be stressed that much of this information is derived only from the English abstract in the relevant publication.)

Extensive excavations at Recy/Saint-Martin-sur-le-Pré, Marne located 280 pits, a small number of which contained finds: 34 yielded lithics (dominated by blade/bladelet products and projectiles); and 17 produced animal bone (including roe deer, aurochs and wild boar) (Achard-Corompt 2017). The pits were assigned to seven morphologies and appeared to be arranged in four principal groups forming NW–SE alignments (*ibid.*, fig. 8). These were broadly parallel to the River Marne, relatively dense and regular. The longest was traced for 330m and extended beyond the excavated area (*ibid.*, fig. 3). Wood charcoal at the bases of the pits and animal bone produced 123 radiocarbon dates, ranging from 9200–7540 cal BC.

Excavations at Chouilly, also in Marne *département*, revealed 21 large pits, most of which were arranged in a broad arc that appeared to continue beyond the limit of the excavation area (Rémy 2017, fig. 1). All were devoid of flint artefacts but radiocarbon dates span the period 9667–8233 cal BC. Finally, six large pits at Lesmont, 'Pôle Scolaire', Aube were arranged in a huge arc, spanning the excavated area (Sanson and Onfray 2017, fig. 2).

Radiocarbon dating of wood charcoal from the basal fills produced dates in the range 9220–7750 cal BC.

Overview

The nature and spatial arrangement of the HRN1 pits demonstrates that they were deliberately dug and were not re-used natural features such as solution holes. They contained a small assemblage of flint and animal bone but the absence of burnt deposits in their fills (and of smaller pits, hearths or structures in their vicinity) suggests that they were not associated with a hunter-gatherer 'home base'. The digging of the pits near the palaeochannels with the creation of alignments and a broad arc would appear to be examples of designed placement.

Alignment L46 extended for at least 140m and other possible alignments can be postulated when all HRN1 pits are considered (Fig. 4.26). Three of the Stonehenge car park pits appeared to be aligned on a fourth feature, which was interpreted by the excavators as a tree-throw hole (Allen 1995, 56); the 12 pits at Warren Field formed a slightly sinuous alignment (Murray *et al.* 2009, 5). On the Continent, alignments extending for at least 330m are known at Recy/Saint-Martin-sur-le-Pré (Achard-Corompt 2017), although there the spacing of the individual pits was much closer than at HRN3486. The radiocarbon dating evidence (see above) from HRN3486 and the other sites suggests that not all the pits were dug at the same time, although this would be difficult to prove given the limited number of dates from a small number of pits. Nonetheless, the impression given is that the digging of these large pits was an activity that endured for millennia. The broad arc of four pits G8 (L4) appears, like the alignment, to be the result of deliberate design, with similar arrangements observed on the Continent at Chouilly (Rémy 2017) and Lesmont (Sanson and Onfray 2017).

At Stonehenge car park, it was suggested that three of the pits contained 'definite evidence of having held large pine posts' (Allen 1995, 55). It was considered that these 'represent some formal display such as a series of totem poles or other possibly symbolic or ceremonial posts which pre-date Stonehenge' (*ibid.*, 56). This interpretation is not universally accepted. Pollard has argued that 'the morphology of the features and a close reading of their fills supports an alternative view that these are pits with complex staged fills and recuts which never held timbers' (2017, 72–4, fig. 2). The nature and positioning of the fills within the pits at Warren Field did not suggest to the excavators the presence of post-pipes (Murray *et al.* 2009, fig. 3). Similarly, the fill patterning of the HRN3486 pits did not suggest that any of them had contained posts (Figs 4.4 and 4.5) and the large diameter of some makes it very unlikely that they were dug for that purpose; therefore, other interpretations should be considered.

On the Continent, there is a wide-held belief that these pits were dug as animal traps. This is partly because of their size, topographical location, absence of nearby habitation and, in contrast to the British examples, the presence of a central stake/post (Achard-Corompt 2017, fig. 4; Rémy 2017, fig. 2; Sanson and Onfray 2017, fig. 2). They may have been dug as animal traps *per se* or as part of a pattern of obstacles to confuse and wear out the hunted animal. The association of the HRN1 pits with palaeochannels could suggest that they were deliberately dug here because such areas would have attracted

watering animals, specifically aurochs. However, if this was the case then one might have expected pits to have been dug nearer the Ouzel Brook. In addition, some of the HRN3486 pits were relatively shallow compared to their diameter, e.g. SG19.1 and SG19.2, which might cast doubt on their effectiveness as animal traps; while others, e.g. SG10.1 and SG10.2, had concave profiles (although this could have been the result of weathering over time). Others have suggested that the animal-trap interpretation is only one of a number of possible explanations (Achard-Corompt *et al.* 2017b, 12). The form of many of the Continental pits when compared to storage pits of later periods has suggested to some that a silo function is possible, e.g. to store nuts (Verjux 2017). The apparent lack of association between pit sites and nearby habitation could be explained by practical considerations such as the disjunction between storage areas and encampments (Achard-Corompt *et al.* 2017b, 12). The topographical location and the spatial organisation of pit sites do not appear to be decisive for either of the two basic hypotheses: their linear or arc-like layout could simply derive from their position within woodland clearings or along animal tracks (Achard-Corompt *et al.* 2017b, 12). Pollard believes that it is 'inherently unlikely they served a purpose as pit-fall traps, extraction or storage features' (Pollard 2017, 167). Similar functions were also discounted for the Warren Field pits (Murray *et al.* 2009, 22–3), but hunting traps was thought to be a reasonable explanation for the Milltimber pits (Dingwall *et al.* 2019, 131).

Based on his re-examination of the pit fills at Stonehenge car park, Pollard suggested that 'rather than acting as containers for 'marker' posts, or decorated timbers, or some form of wooden structural setting, they can instead be seen as pits which were the focus for repeated returns and intervention (i.e. filling, recutting). The pits may not have been particularly visible, although mounds of up-cast from their digging perhaps remained for some considerable time' (Pollard 2017, 74). The HRN3486 pits did not appear to contain the complicated fill sequences or the firm evidence of recutting seen at Stonehenge car park and Warren Field, where it is easier to interpret the repeated digging and recutting of pits as a spiritual rather than a strictly practical act – for example, to connect people to the underworld or water spirits. While it is of course possible that the HRN3486 pits were dug once and filled up naturally over time, it is perhaps more likely that the combination of the difficulties of distinguishing fills by the naked eye and the nature of the local soils hindered the identification of recutting. With the alignment(s) and arc, the HRN1 pits certainly display design in terms of their layout. It is noticeable that the profiles and bases of the pits were all slightly different, which tends to contradict the animal-trap interpretation and perhaps suggests that they were dug by different people or at different times. In addition, they were sited close to the probable source of the Ouzel Brook and many were clustered adjacent to beginnings of short lengths of palaeochannels which may have been created by seasonal springs or run-off. While practical reasons associated with hunting could be a possible explanation for digging pits in this location, these are also likely to be locations favoured for ceremonial activities. The significance attached to natural features by both hunter-gatherers and farmers alike is well attested (Carmichael *et al.* 1994; Bradley 2000). It would not

be unreasonable to suggest that such a location – where springs occurred on a seasonal basis near the head of a watercourse – would have been a significant location to Mesolithic hunter-gatherer communities. Whether this was because it and the pits conferred a sense of place, calendrical functions or spirituality (or a combination thereof) can only be speculated. Gaffney *et al.* (2013) proposed that the Warren Field alignment 'appears to possess basic calendrical functions', appearing 'to mimic the phases of the Moon' and aligning on a prominent topographic point.

Comparable features, classified as either large pits or shafts – some of which contained unusual animal bone assemblages but of later Neolithic and early Bronze Age date – were found at Biddenham Loop (Luke 2016, 73–83). One possible interpretation of these was that they 'were probably dug, used for offerings and deliberately backfilled as part of ceremonial events undertaken around the monuments' (*ibid.*, 83). What is less clear is whether this was a single event, such as a coming-of-age ceremony, after which the feature was abandoned, or whether it was used repeatedly over a number of years. The question of whether the deposition of aurochs bone within the HRN1 pits was ceremonial remains a matter of speculation but the absence of animal bone from the majority of the pits, as at Biddenham Loop, makes it seem unlikely that its presence was associated with their original purpose. The pits/shafts at Biddenham Loop were only one element of a ceremonial landscape (Luke 2016, fig. 3.3), but based on the evidence from HRN1, it is possible that they reflect a long-lived practice of digging large pits.

In summary, the pits represent a significant discovery in Bedfordshire and nationally. The only other pits in the county tentatively suggested as being Mesolithic in date were found at Ursula Taylor Lower School, Clapham and Kempston Manor (Luke 2007, 27). In both cases the pits were small, dating evidence was poor and there were no supporting radiocarbon dates. In the absence of decisive arguments, and in the presence of sometimes conflicting data, a symbolic role seems most likely for the HRN1 pits. They may have been dug at a location of significance to the hunter-gatherer communities in the area, i.e. at the source of the Ouzel Brook, then becoming the focus for repeated returns and interventions (i.e. filling and recutting) over hundreds and possibly thousands of years.

Early Neolithic

Two small pits located in the vicinity of the late Mesolithic pits were assigned to the early Neolithic on the basis of radiocarbon dating, but they did not contain any pottery or worked flint. Similar pits are increasingly being identified in Bedfordshire, e.g. at both Biddenham Loop (Luke 2016, 85–103) and Land north of Biddenham (Luke and Barker 2022, 31–5). Nationally, small pits have been found on Neolithic and early Bronze Age sites for over a century (Clark 1960, 208–11); their interpretation remains quite broad (Garrow 2006, 3–11), although they are often considered to be associated with settlement. The question of whether they are associated with permanent, long-term settlements or represent sites that were repeatedly occupied for relatively short periods of time often arises (Thomas 1999; Garrow *et al.* 2005; Anderson-Whymark and Thomas 2012). While the nature of the two HRN3486 pits cannot advance this discussion, their proximity to the late Mesolithic large

pits suggests that this area continued to have a significance not least because no other pits of this period have yet been found within HRN1.

Middle Bronze Age–early Iron Age

The most significant remains assigned to the middle Bronze Age–early Iron Age (Phase 3) comprised a possible enclosure L18/20, activity foci and evidence for fields. The majority of the datable pottery was later Bronze Age/early Iron Age in date, but three radiocarbon dates and comparisons with better-dated sites suggest that some of this activity originated in the middle Bronze Age. Excavated as part of the HRN3457 investigation, the contemporary inhumation of a child was found near a short ditch length (fig. 3.6) comparable to those within HRN3486.

Possible enclosure

A possible polygonal enclosure L18/L20 was defined by segmented ditches; they did not form a complete circuit but the surviving ditches suggest that the enclosure would have been c.60m in diameter. Dispersed features L19 were found within the interior, including a large

water-pit and a post-built structure; a cluster of features L24 lay within the north-east part of the enclosure. Although only a small assemblage of later Bronze Age/early Iron Age pottery was recovered, two middle Bronze Age radiocarbon dates were obtained from the north and south sides of the enclosure.

A variety of middle Bronze Age enclosure types are known in Bedfordshire: ditched oval at Bumpy Lane, on the Bedford Southern Bypass (Albion in prep); ditched rectangular at Gold Lane, Biddenham (Dawson 2004, fig. 3.1); and adjacent ditched and palisaded enclosures at Land north of Biddenham (Luke and Barker 2022, 39–44, fig. 3.3.2) (Fig. 4.27). The polygonal arrangement of the HRN3486 enclosure may be unusual, but there is nothing (other than the small quantity of finds) to suggest a non-settlement function, although that interpretation cannot be ruled out. A smaller but slightly sub-circular/polygonal enclosure was found at Horcott Pit, near Fairfield, Glos. (Lamdin-Whymark *et al.* 2009, fig. 14).

Activity foci

Away from the possible enclosure, three loose clusters of features L27, L30 and L47 were interpreted as dispersed

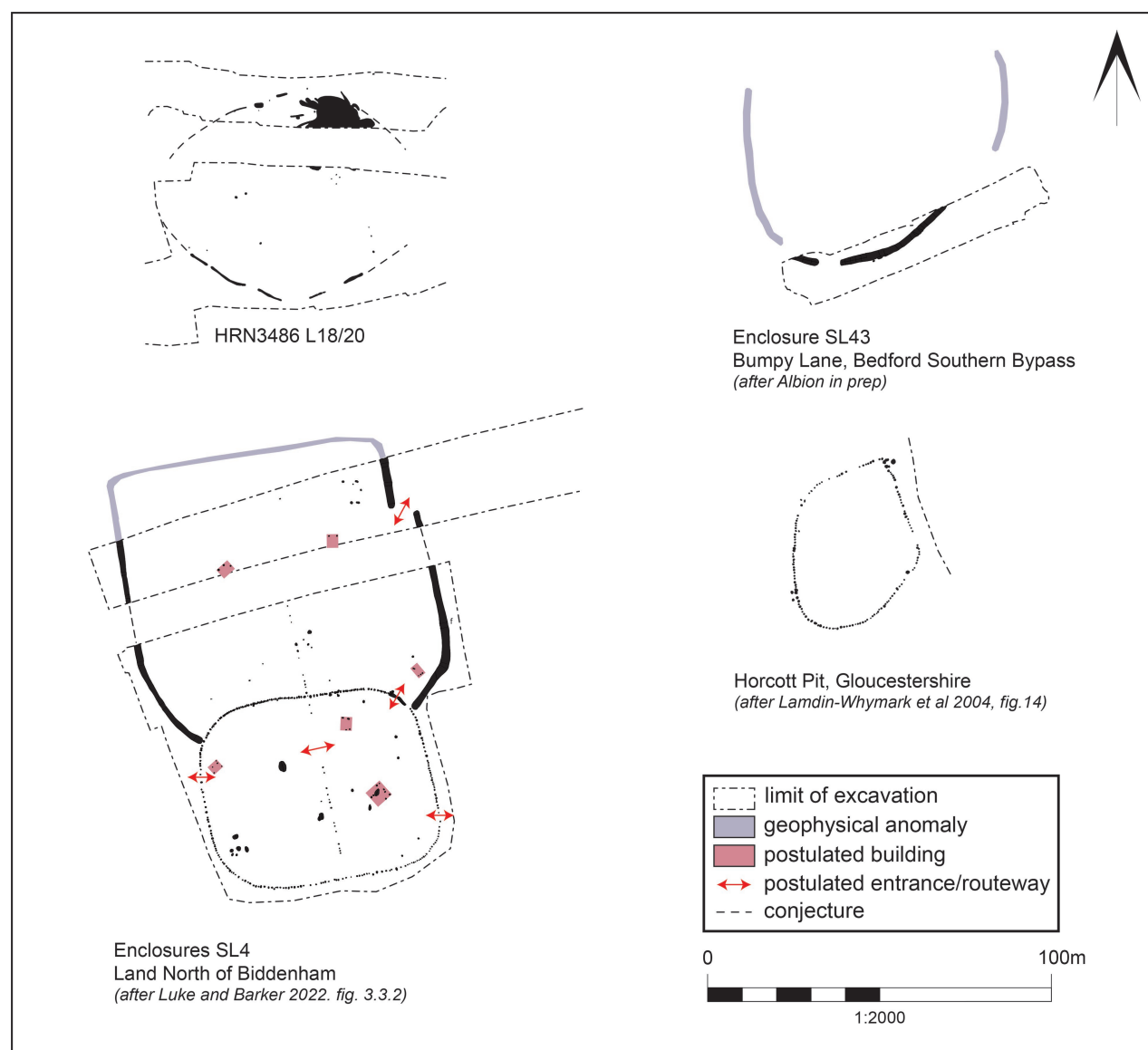


Figure 4.27 Comparative plans of middle Bronze Age enclosures at HRN3486, north of Biddenham, Bumpy Lane and Horcott Pit

activity foci. These mainly comprised pits but some possible post-built structures were identified. The dating evidence is poor as it mainly comprises undiagnostic late Bronze Age/early Iron Age pottery. The small quantity of domestic debris present is not uncommon within settlements of this period and may indicate short-term or seasonal rather than permanent occupation.

Similar, characteristically dispersed, middle–late Bronze Age/early Iron Age settlement evidence was found nearby at HRN3206 (Luke and Barker 2021), on the A5–M1 Link (Brown 2020, 23–9, fig. 2.2) and on the Woodside Link (Chap. 5). Further away, the activity foci at the Biddenham Loop were associated with field systems (Luke 2016, 142–8, fig. 4.1) and the presence of segmented and short lengths of ditch within HRN3486 may suggest similar features.

Possible evidence for fields

In addition to the evidence for rectangular fields L45, three segmented ditches (L5, L8 and L23) and two individual ditch lengths (L26 and L38) were identified. The ditch fills contained few datable finds but one of the segmented ditches was radiocarbon-dated to the middle Bronze Age. Although they represent the first firm evidence of land division within the investigation area, other than L45, they did not form part of a coherent pattern of fields as has been observed at HRN3206 (Luke and Barker 2021, 39, fig. 3.1), Biddenham Loop (Luke 2016, 114–25, figs

4.1–4.3) and at Perry Oaks, Heathrow and other sites in the Upper and Middle Thames (Lambrick 2009, 73–80).

4.11 ACKNOWLEDGEMENTS

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Photographs by Marco Capardoni (Plate 4.11), Jonathan Durman (Plates 4.2, 4.7, 4.8, 4.12, 4.18, 4.19, 4.20), Petros Fountoukidis (Plates 4.3, 4.10, 4.14, 4.22, 4.23), Marcin Kozimiński (Plates 4.1, 4.21), Jonathan Nilsson (Plate 4.6), Sabine Pescheck (Plate 4.4), Arkadiusz Pruchniak (Plates 4.5, 4.9, 4.17), and Adrian Woolmer (Plates 4.13, 4.15, 4.16). Reconstruction (Plate 4.24) by Cecily Marshall.

Chapter 5

Bronze Age to Roman land-use on the Woodside Link road corridor

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Illustrations by Mike Trevarthen (Figs 5.2–5.28) and Joan Lightning (Figs. 5.1 and 5.26)

SUMMARY

Excavations on the Woodside Link road corridor in 2015 and 2016 revealed evidence of land utilisation from the early Bronze Age to the Roman period. The first firm evidence for activity comprised a late Neolithic/early Bronze Age ring-ditch monument and two pairs of small pits. Evidence for activity during the late Bronze Age/early Iron Age was more extensive and included a post alignment, ditched boundaries and pit clusters. During the Roman period field systems, trackways, and a crop-processing area were established; they were associated with farmsteads that lay beyond the road corridor.

5.1 INTRODUCTION

This chapter presents the results of c.14ha of fieldwork undertaken between May 2015 and April 2016 prior to any archaeological work within the adjacent HRN1 development area. An open-area excavation and a watching brief served to mitigate the archaeological impact of the road and associated works, e.g. borrow pits, compounds, etc. (collectively referred to as ‘the road scheme’). The work was undertaken in line with an approved Written Scheme of Investigation (Albion Archaeology 2014) and the results were assessed in order to determine their significance and potential for further analysis (Albion Archaeology 2018b). Historic building recording at Chalton Cross Farm, part of which was affected by the road scheme, is the subject of a separate report (Albion Archaeology 2017c).

Site location and geology

The road scheme consisted of a c.25–46m-wide and c.3km-long corridor that extended from Poynters Road and Park Road North in the south (TL 02945 23460) to M1 Junction 11a in the north (TL 03835 25899), with a link to Sundon Road (Fig. 5.1). Balancing ponds associated with the new road were constructed to the south-east adjacent to the Houghton Brook.

Topographically the area is relatively flat at 125–130m OD; its lowest point is where the road corridor crosses the Houghton Brook, a tributary of the River Lea, and towards the north-west end where it meets the Ouzel Brook. The underlying geology consists predominantly of chalk, with smaller areas of sand and gravel confined to the course of the Houghton Brook.

Archaeological background

Evaluation of the road scheme had identified ten zones of archaeological significance, designated as Cultural Heritage Asset Groups (CHAG). These formed the basis of the Cultural Heritage chapter in the Woodside Link Environmental Statement (Amey 2013). Eight of the CHAGs (nos 2, 3, 5–9, and 10) – containing prehistoric

to the post-medieval archaeological remains – were directly affected by the road scheme.

5.2 SITE SEQUENCE

Six chronological phases were identified, spanning the late Neolithic/early Bronze Age (Phase 1) to the post-medieval period (Phase 6). The Bronze Age/early Iron Age and Roman remains (Phases 1–3) form the focus of this chapter. The most extensive remains pertained to a Roman crop-processing area and field systems, represented by drying ovens, trackways, pits, postholes, and ditches.

Later phases of land-use within the road scheme were represented by the remains of an extensive medieval (Phase 5) open-field system, represented by furrows, and post-medieval field boundaries (Phase 6).

Phase 1 (late Neolithic/early Bronze Age)

The earliest evidence for human activity (SL1) comprised ring-ditch monument L2/L3 and four pits L4, which were located c.80m apart on low-lying ground on either side of the Houghton Brook (Fig. 5.2). The features did not produce any firm dating evidence, other than one late Neolithic radiocarbon determination from one of the pits. The monument could have originated in the late Neolithic but its assignment to this period is based primarily on its similarity to better-dated monuments elsewhere in the region.

Ring-ditch monument L2

L2 comprised a ring-ditch with two internal postholes. It was oval in shape and its NE–SW major axis was 7m long. The ditch G2 was 0.8–1.0m wide and 0.2–0.4m deep (Fig. 5.3, sections a and c). There was no evidence of an associated bank or mound and all of the excavated ditch segments contained a symmetrical, brown-orange, silty gravel main fill, overlying a thin primary band of gravel.

Situated centrally within the interior of the ring-ditch was a horseshoe-shaped gully, open to the south-west.

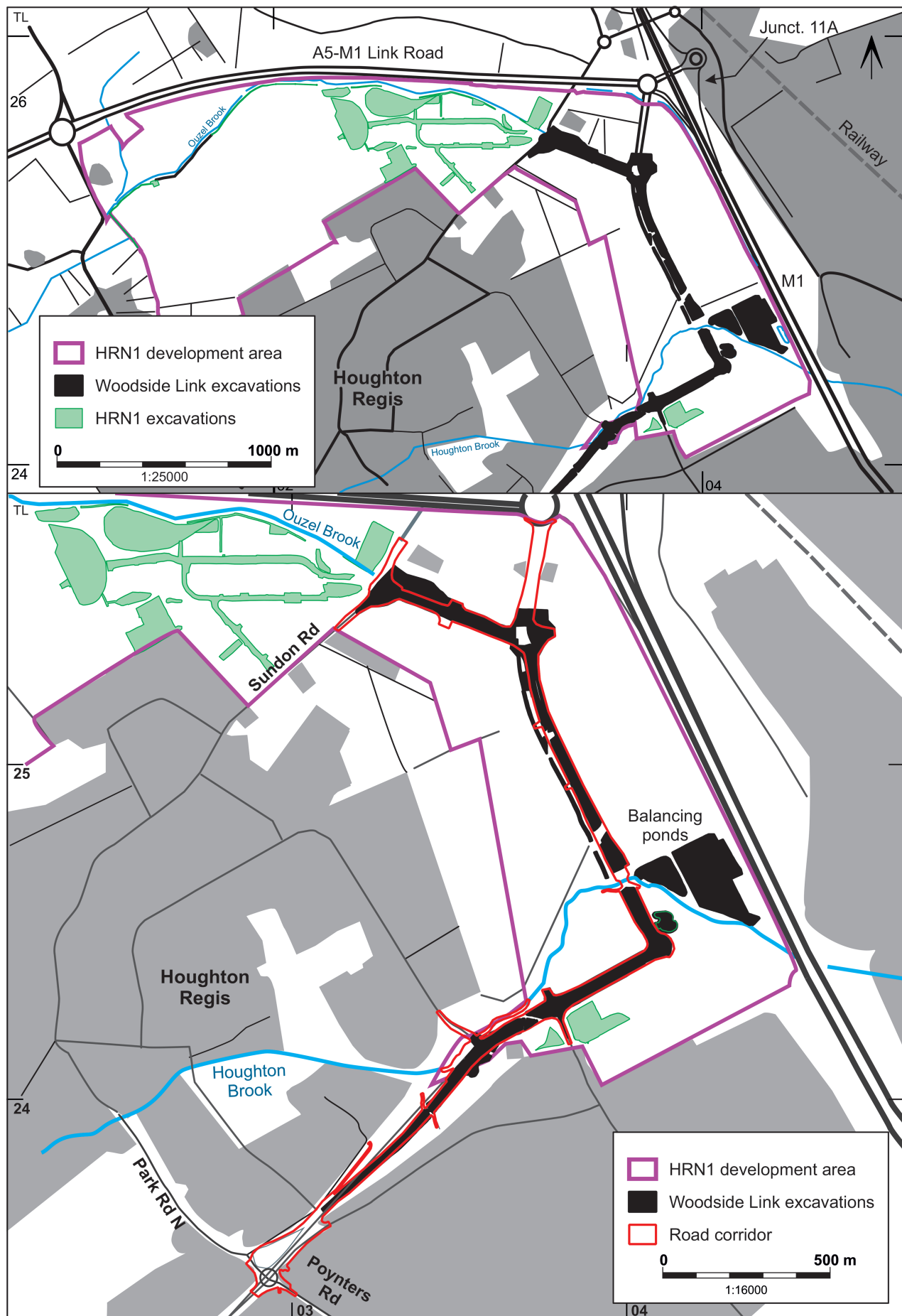


Figure 5.1 Woodside Link location plan

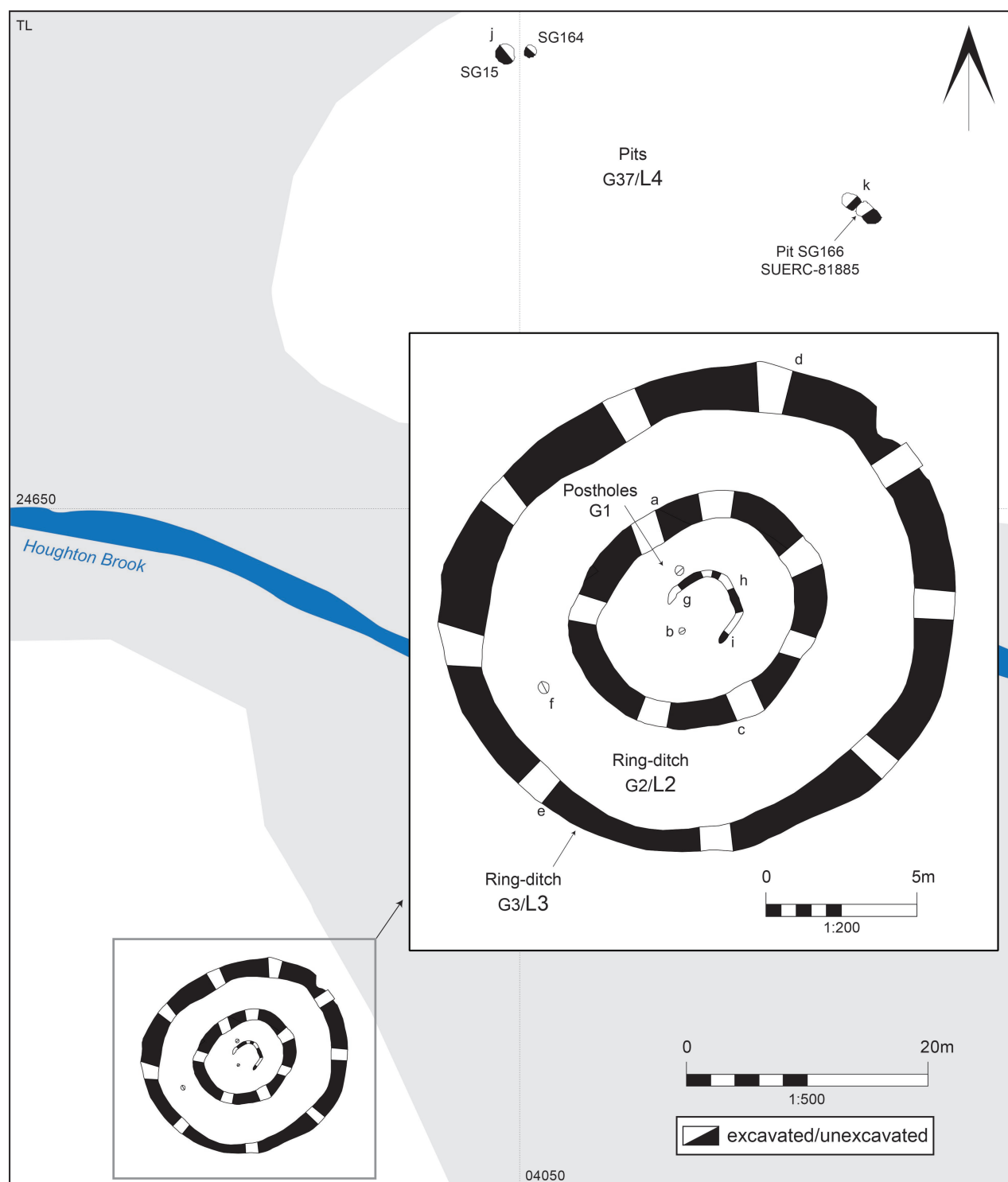


Figure 5.2 Overall plan of late Neolithic/early Bronze Age (Phase 1) and detailed plan of ring-ditch L2/L3

It was 0.2–0.3m wide and less than 0.2m deep, with an irregular profile (Fig. 5.3, sections g, h and i). Its fills were sterile but its shape in plan, its central location, and its open side suggest that it may have been an original part of the monument.

There were two postholes G1 within the interior of the ring-ditch. One was just off-centre and central to the open side of the horseshoe-shaped gully; the other was just to the north of the gully. They were c.0.30m in diameter and 0.15m deep (Fig. 5.3, section b). In the absence of any artefactual or ecofactual evidence their function is uncertain.

Ring-ditch monument L3

L3 comprised an oval ring-ditch (15m long on its major axis), which completely enclosed ring-ditch G2 (Plate 5.1). The gap between the two ditches was up to c.3m wide, reducing to c.2.3m on the north side. There was no stratigraphic relationship between the ditches, but it is presumed that the inner ditch was the earlier of the two – as at HRN3206 (Luke and Barker 2021, 36). In Northamptonshire, few excavations of multiple ring-ditches have been able to demonstrate a sequence but, where they did, the outer ditch was always a later addition (Deegan 2007, 56). A single posthole was found

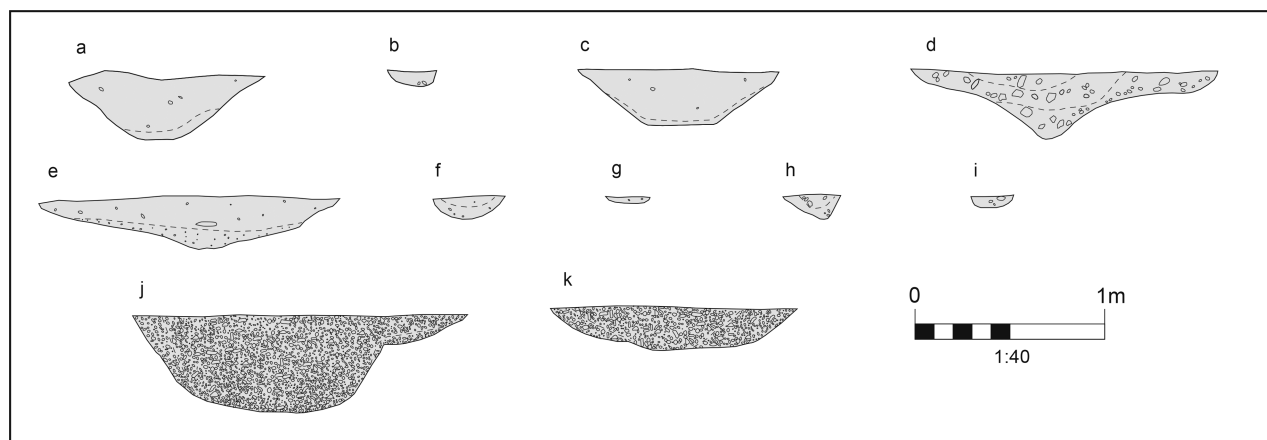


Figure 5.3 Selected sections from Fig. 5.2



Plate 5.1 Ring-ditches L2 and L3 (Phase 1), looking west. Scale 1m



Plate 5.2 Pits SG15 and SG164 (L4, Phase 1), looking west. Scales 0.4m and 1m

between the ditches in the south-west part of the monument (Fig. 5.3, section f).

Although larger in size, ring-ditch L3 was similar in shape to the earlier ring-ditch and mirrored its NE–SW major axis. The ditch defining G3 was generally wider (0.8–1.6m) than ditch G2, but similar in depth (0.2–0.5m) (Fig. 5.3, sections d and e). A series of asymmetrical gravel fills suggest that it had remained open longer than ditch G2; it may have been associated with a bank or mound, although the evidence was inconclusive.

Pits L4

Two pairs of pits G37 (L4) were located c.30m apart on the north side of the Houghton Brook; the east pair were intercutting (Fig. 5.2). Three of the pits were circular and 1.0–1.8m in diameter (Plate 5.2). The other pit (SG166) was sub-rectangular in shape, 2.2m long and 1.2m wide. They were 0.2–0.5m deep (Fig. 5.3, sections f and g) and contained dark greyish/black silty clay, mixed with abundant, angular stones and charcoal flecks. Some of the stones had been burnt, but no evidence of *in-situ* burning within the pits was identified.

Pit SG166 contained c.115g of burnt bone including some identified as human, mixed with charcoal of largely hawthorn, with some hazel and alder. The identifiable fragments of bone could represent more than one adult individual, although no duplication of skeletal elements was evident. Some of the bone was abraded, suggesting that some of the material was residual. The bone was not suitable for radiocarbon dating, but hazel charcoal produced a radiocarbon date of 2620–2473 cal. BC (SUERC-81885).

Phase 2 (late Bronze Age/early Iron Age)

Late Bronze Age/early Iron Age activity was identified in three locations (Fig. 5.4): a post alignment (SL2), two concentrations of pits (SL3), and a ditched boundary (SL4). With the exception of the pits, these features were situated within c.120m of the present course of the Houghton Brook.

Pits SL3 were assigned to Phase 2 on the basis of the recovery of a small quantity of contemporary pottery. No dating evidence was recovered from post alignment SL2 or ditched boundary SL4, but the latter did line up with a contemporary feature in the adjacent HRN3205 excavation (p. 9). Post alignments on other sites have been dated to anywhere between the middle Bronze Age and the middle Iron Age, although they are generally considered to be a 2nd-millennium phenomenon (Evans and Knight 2001, 91).

Post alignment SL2

A broadly NW–SE alignment of 89 postholes was identified c.80m north of the Houghton Brook. It was at least 110m long and, although it appeared to continue beyond the area of excavation to the north-west, it was not found in an evaluation trench in this area (Albion Archaeology 2012a) or in the excavation area further west (Fig. 5.5). The postholes were typically located at c.1.5m intervals with wider gaps probably the result of plough truncation. In one location there was gap of 9m, to the west and east of which the alignment (L7 and L8 respectively) was slightly different. It is uncertain to what extent this

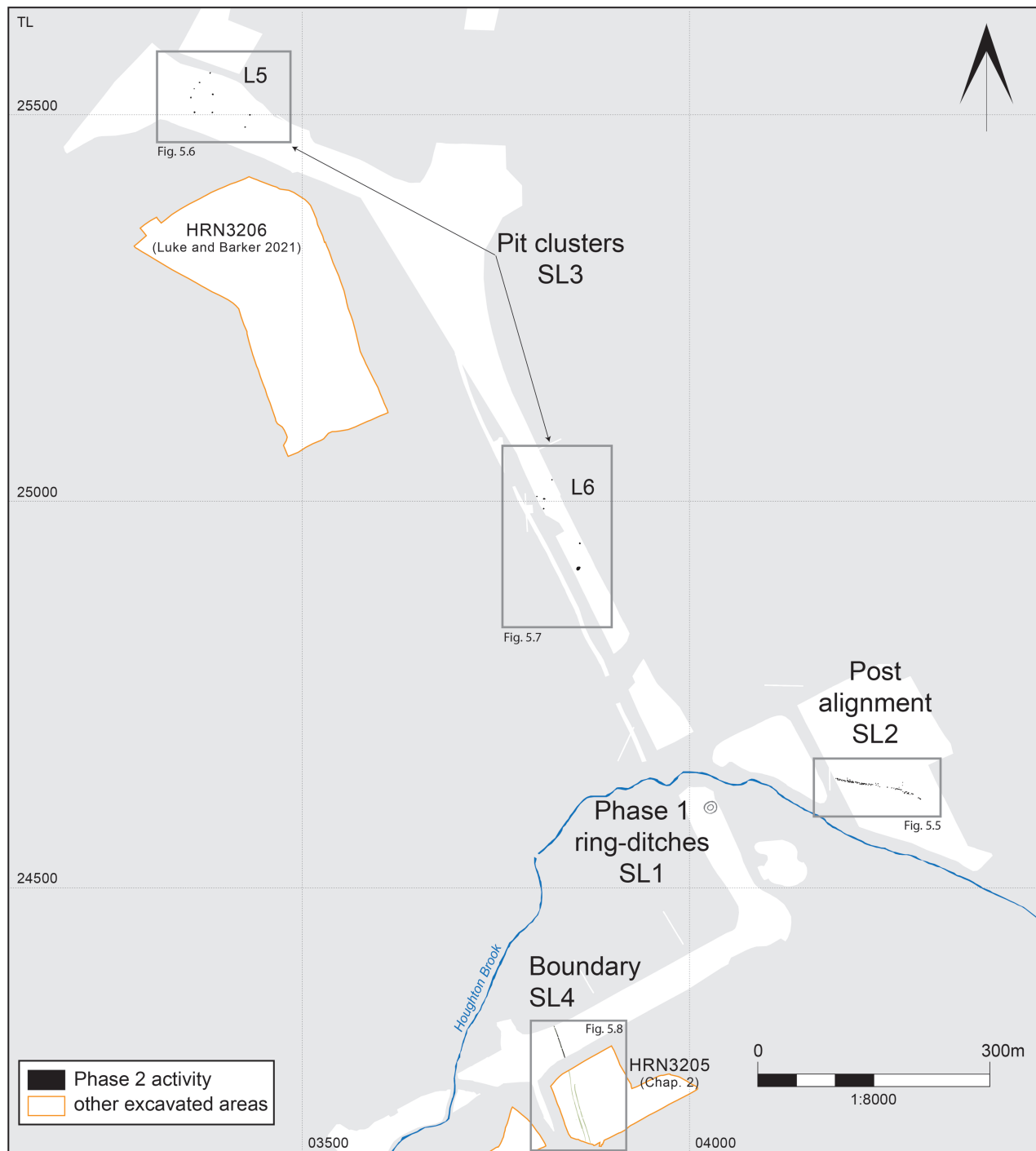


Figure 5.4 Plan of late Bronze Age/early Iron Age (Phase 2)

difference (and the gap itself) is due to truncation rather than design.

Alignment L7

Post alignment L7 was at least 60m long and mostly comprised paired postholes (Plate 5.3). Six postholes (G12 (4) and G18 (2)) were situated 'off-alignment' to the north. The postholes were 0.2–0.7m in diameter and were always less than 0.2m deep (Fig. 5.5, sections a–f). Most of the larger postholes (G11 and G15) were concentrated towards the north-west end and on the north side of the alignment. Occasional smaller postholes (G10 and G13) occurred alongside the larger examples, but overall the postholes became smaller towards the south-east end

of the alignment. In places the postholes appeared to form discrete lengths, which may suggest gang-working and/or several episodes of construction. Evidence for the replacement of posts is indicated by intercutting postholes in G11 and G12 (Fig. 5.5, section b).

Alignment L8

This part of the post alignment was slightly different in character to L7 – it mainly comprised a line of single postholes; paired posts only occurred intermittently along its course. The size of the postholes (0.3–0.5m in diameter and under 0.3m deep; Fig. 5.5, section g) was more consistent than those in L7. Five postholes (G21 (1), G22 (2), and G23 (2)) were positioned 'off-alignment'.



Plate 5.3 Western length L7 of post alignment SL2 (Phase 2), looking west. Scale 1m

A single, irregular-shaped pit G24 within the alignment may represent a later feature or may have been created during the removal of posts.

Pit clusters SL3

Twenty pits formed two separate clusters c.600m apart: L5 to the north and L6 to the south (Fig. 5.4). There were no discernible patterns in the layout of the pits, but the recovery of small quantities of late Bronze Age/early Iron Age pottery and animal bone suggests an association with settlement of this period.

Cluster L5 comprised nine pits across an 80 × 70m area (Fig. 5.6). Cluster L6 comprised nine pits across a

210 × 70m area, including two pits (SG171 and SG172) found in a trial trench to the south-west (Fig. 5.7). It is possible to identify groupings of pits within each of the clusters with G6 and G7 (within L6) perhaps more convincing than G4 and G5 (within L5).

Most of the pits were 1.0–1.5m in diameter and under 0.3m deep (Fig. 5.6, sections a–c; Fig. 5.7, sections a–d; Plate 5.4). The only exception was pit SG5 (G6, L6), which was 3.8m in diameter and 0.4m deep. It also differed in profile from the other pits (asymmetrical sides and an uneven base) and could have been associated with quarrying.

Most of the pits contained single fills of friable dark grey-brown or black silty clay. Charcoal flecks and burnt stones were present in some, although no evidence of *in-situ* burning was identified. Fifteen of the pits contained pottery, totalling c.1kg, characteristic of the later Bronze Age.



Plate 5.4 One of the SL3 pits (Phase 2). Scale 1m

Ditched boundary SL4

Boundary L44 (SL4) was defined by a broadly north-south aligned ditch G76. It was at least 0.3m wide and had a V-shaped profile with a narrow, rounded base (under 0.3m deep), which became more concave along

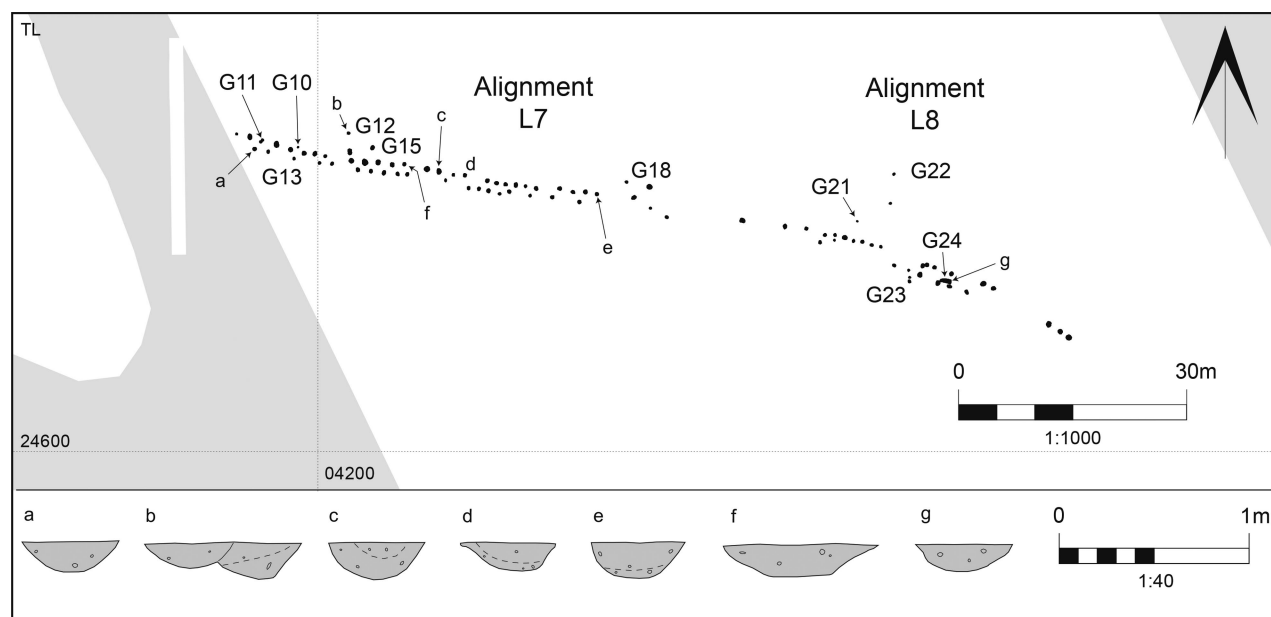


Figure 5.5 Plan of late Bronze Age/early Iron Age (Phase 2) post alignment SL2, with selected sections

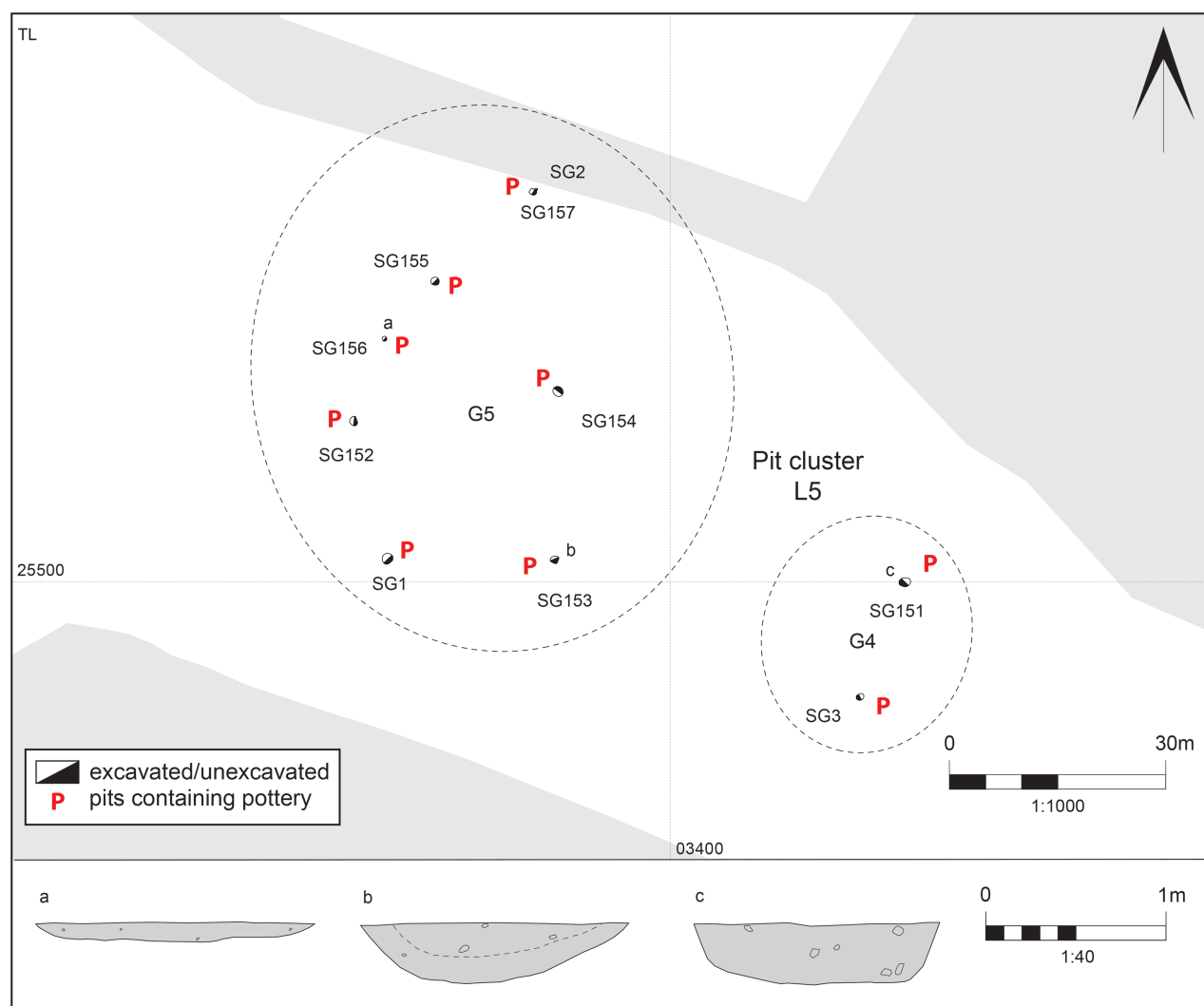


Figure 5.6 Plan of late Bronze Age/early Iron Age (Phase 2) pit cluster L5 (SL3), with selected sections

its course to the south (Fig. 5.8, sections a–c). It had been redug at least once (designated G77) on the same course but somewhat wider (0.6–1.1m) and deeper (under 0.4m). The ditch continued to the south within the HRN3205 excavation area (p. 9) making it c.160m long (Fig. 5.8), but it was also identified as a geophysical anomaly to the north of the road scheme indicating that its overall length was at least 300m.

No dating evidence was found in L44 but within HRN3205 a pit containing late Bronze Age/early Iron Age pottery had been dug into the ditch (p. 9).

Phase 3 (Roman)

Evidence for Roman activity was more extensive than that for previous phases. It comprised field systems (SL8, SL9 and SL10) and, to the south, an activity area (including enclosures with integral trackways SL5–7 (Fig. 5.9)), located on the periphery of farmstead ACA20 (identified by the HRN1 evaluation). A second farmstead, which has been excavated, lies c.850m to the north (Luke and Barker 2021) (Fig. 5.9).

Nearly 8kg of Roman pottery (470 sherds) was recovered. Other artefacts included a significant number of querns and millstones, architectural stone, whetstones, coins, and one possible brooch. Most of this material derived from the peripheral activity area rather than the field systems.

Peripheral activity area SL5 with subsequent modifications SL6 and SL7

Overview

Trackways and enclosures, one of which featured a crop-processing area, were located c.180m north of farmstead ACA20 (Stratascan 2012; Albion Archaeology 2012a) and c.100m to the south-east of the current course of the Houghton Brook. A continuation of one of the trackways and additional crop-processing areas were found to the south of the road corridor within HRN3205 (p. 11 and Fig. 2.6).

The enclosure ditch layout was reorganised once (SL6), although the overall configuration and size did not change significantly. SL7 represents evidence for activity which is later on stratigraphic grounds. The finds assemblage (Table 5.1) from the first modification to the layout (SL6) was mainly dateable to the 2nd and 3rd centuries. The small Roman coin assemblage, including those recovered from the subsoil in the vicinity, tentatively suggests that activity had probably ceased by the 4th century. The date and composition of the pottery assemblage from SL5–7 remained consistent throughout.

Initial layout SL5

Geophysical survey demonstrated that the activity area was located c.20m south of the junction of two trackways L23 and L28 (Fig. 5.10). At least two enclosures/fields

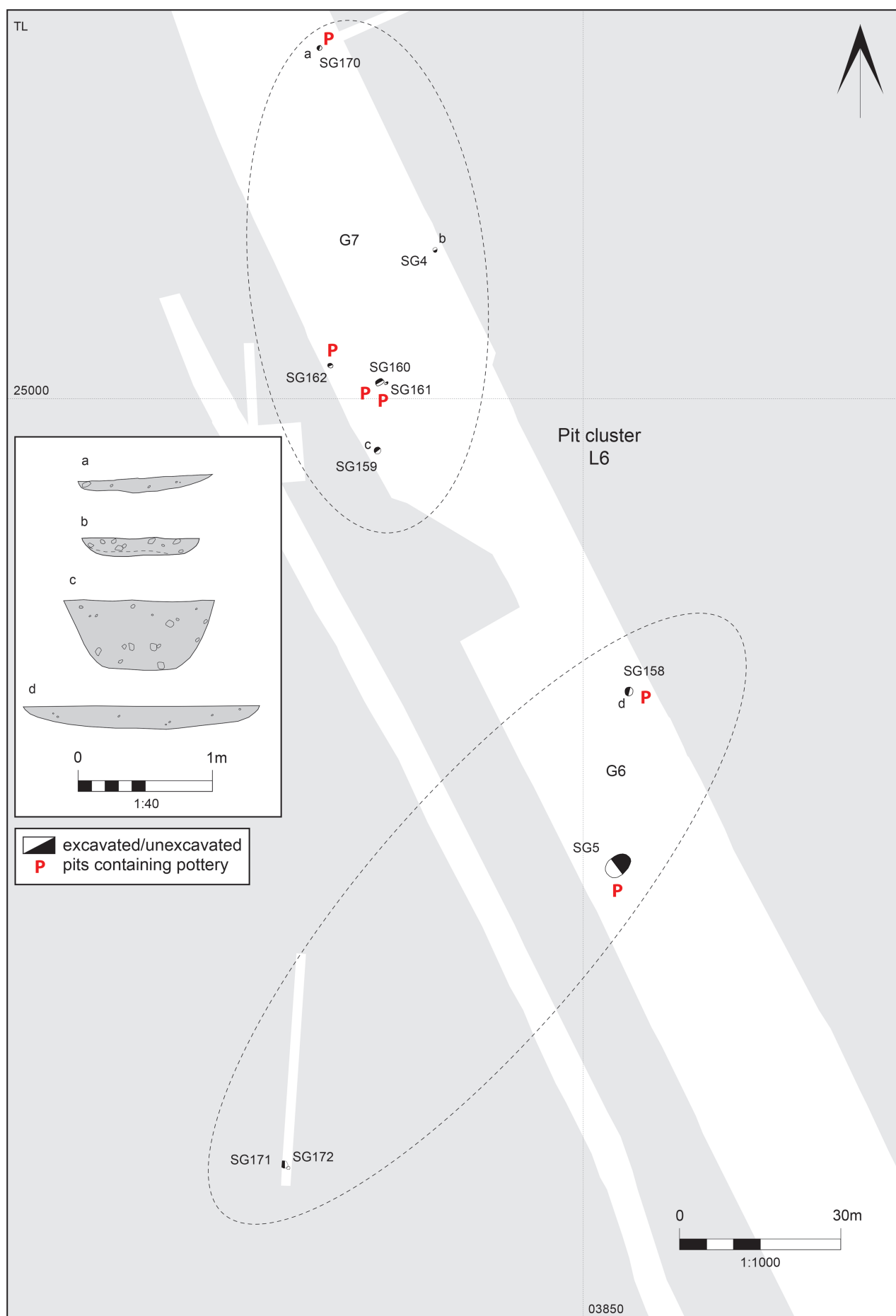


Figure 5.7 Plan of late Bronze Age/early Iron Age (Phase 2) pit cluster L6 (SL3), with selected sections

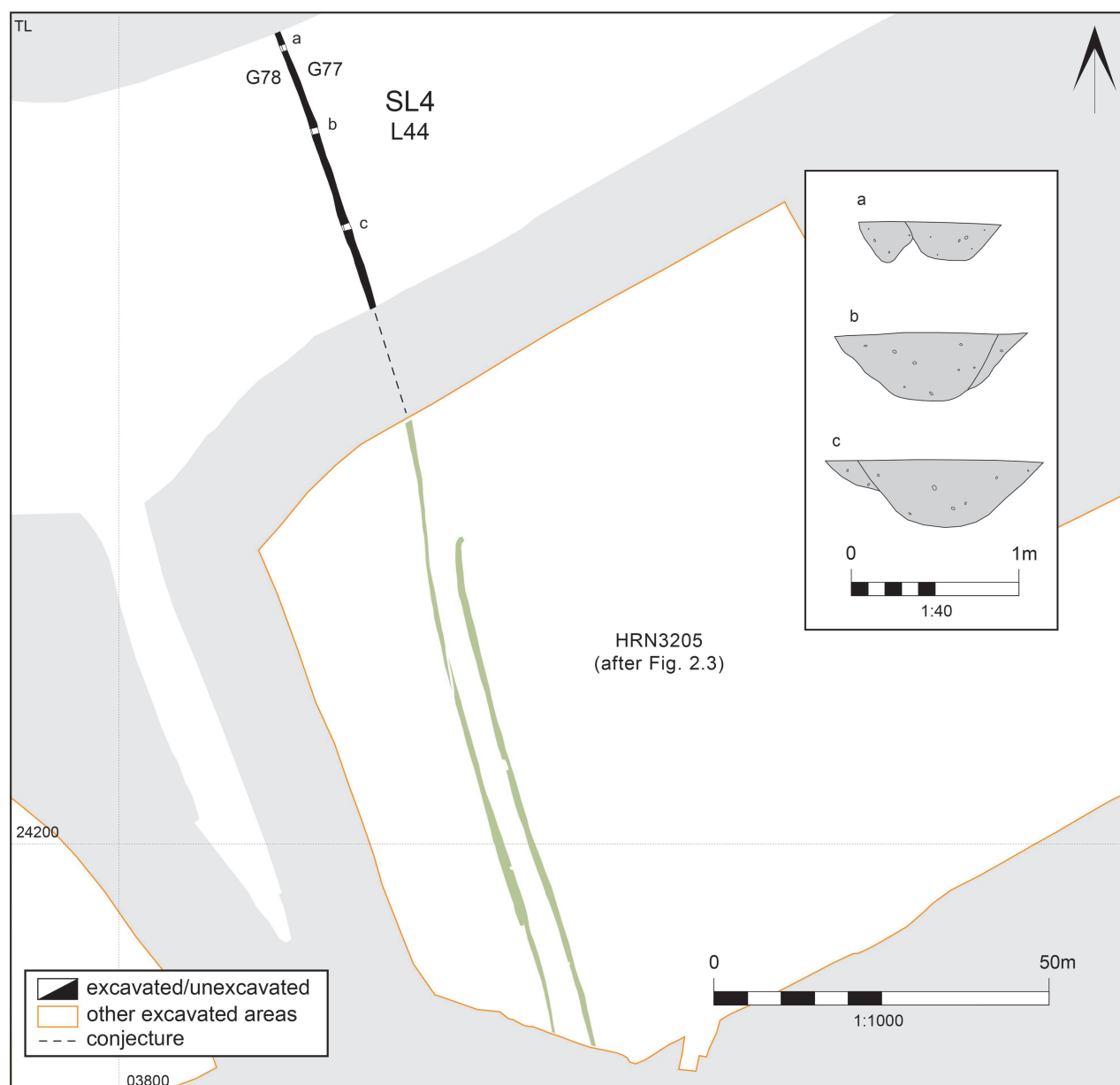


Figure 5.8 Plan of late Bronze Age/early Iron Age (Phase 2) ditched boundary L44 (SL4), with selected sections

were identified: to the south, L25 contained pits G58, G60, G100, water-pit G90, postholes G57, and drying oven G92; to the north, too little of L24 was exposed to know whether it contained any features.

Trackways L23 and L28

Trackways L23 and L28 were defined by *c.*17–25m- and *c.*13–19m-wide corridors respectively.

Trackway L23 was aligned broadly NE–SW and was traceable as a geophysical anomaly for at least 400m (Albion Archaeology 2012a); it ran on the slightly higher ground to the south of the present course of the Houghton Brook. Its north ditch G62 was 2.4m wide and 1.2m deep (Fig. 5.11, section a); it was also found in another part of the road corridor *c.*300m to the east (G105 (L10)) (Figs 5.9 and 5.17). The south ditch G81/G82 was smaller – 1.7m wide and 0.5m deep (Fig. 5.11 sections b and d).

Trackway L28 was aligned broadly NW–SE. It followed the course of the Phase 2 boundary SL4 and continued southwards into HRN3205 (p. 10). On its east side ditch G78 was 1.5m wide and 0.7m deep; towards

the north only, there was a second, parallel ditch G80, which was narrower (1.2m wide) and shallower (0.3m deep). The precise arrangement of ditches G67 and G129 (Fig. 5.12, section c) on the trackway's west side is less clear but they appear to be turning westwards in the vicinity of drying oven G92 (Fig. 5.12).

Enclosures/fields L24 and L25

Enclosures L24 and L25 were located on either side of trackway L23; both extended beyond the excavation area. The north-east corner of L25 was defined by the intersection of the trackway ditches. It is uncertain whether ditch G82 to the west defines the west side of the enclosure and/or the south side of trackway L23. Enclosure L24 to the north of the trackway was defined by ditch G62 (see above). Ditch G63 was perpendicular and may represent an internal sub-division.

The main evidence for internal activity, specifically crop-processing, was situated in sub-enclosure L32 in the north-east part of enclosure L25, closest to the junction of the trackways. It was defined by ditches G65 to

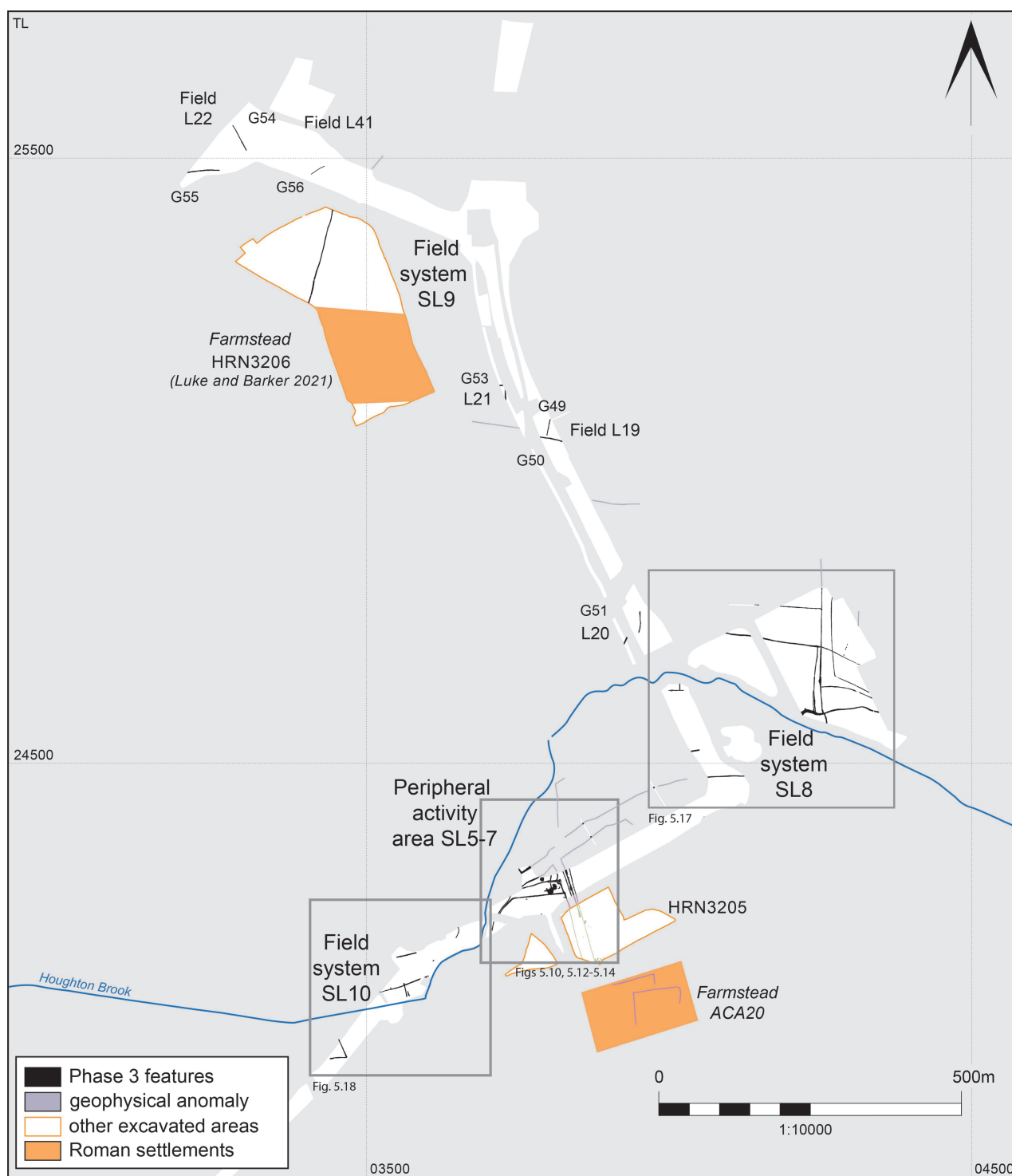


Figure 5.9 Plan of Roman (Phase 3)

the west, G146 (recut as G147) to the south, and track-side ditches G67 and G129 to the east. The ditches were c.1.0m wide and less than 0.5m deep (Fig. 5.12, sections a and c). Entrances were indicated by 11m- and 7m-wide gaps to the north and south-east. Drying oven G92 was located within the sub-enclosure, while water-pit G90, pit cluster G100, and isolated pit G60 were adjacent to it. The pits were of various shapes but were all less than 0.3m deep (Fig. 5.12, sections d and e). The form and clustering of pits G100 may indicate that they were dug as quarries. Further to the west were two postholes G57 and a pit G58 (Fig. 5.10).

Drying oven G92

T-shaped drying oven G92 was situated in the south part of sub-enclosure L32. The central part of the E-W aligned main flue had been truncated by later drying oven G93 (see below) but it linked at its west end to a better-preserved N-S cross-flue. The bowl-shaped stoke-hole survived at the east end of the main flue, which was c.4.0m long and 0.3m deep; the cross-flue was similar in length but 0.4m deep (Fig. 5.12, section b; Plate 5.5). The lining of the cross-flue was constructed principally of flint nodules with fragments of tegula, a quern (OA5), and a millstone (OA6) set in a crushed chalk and clay

SL	Pottery sherd:weight	Animal bone	Human bone	'Other artefacts'
5	79:1.13kg	0.5kg	-	Copper alloy brooch pin (RA 31) Iron strap fragment (RA 34) 5 nails 15.68kg CBM (brick, tegula, imbrex) Stone moulding (RA 35) Millstone (RA 41) Bun-shape rotary quern (RA 39) Rotary quern and millstone fragments (RA 24, 28) Whetstone (RA 29)
6	313:5.6kg	17.16kg	4.45kg (inhumation)	Copper alloy milleflore belt or harness mount (RA 12) Copper alloy pin or needle shank (RA 19) Copper alloy coin (RA 18) Iron socketed bladed tool/handle (RA 23) Iron strip fragment (RA 16) Iron binding strap (RA 17) 13 nails Stone moulding (RA 36, 44) Complete runnerstone (RA 21) Rotary quern and millstone fragments (RA 13–15, 25–27, 32, 37–38, 42–43, 45) 47.16kg CBM (brick, tegula, imbrex, combed flue) 0.78kg burnt clay 0.54kg fired clay 0.04kg shell
7	10:0.15kg	0.08kg	1 fragment	Whetstone (RA 33) Millstone fragment (RA 30) 0.35kg CBM (tegula)

Key: CBM = ceramic building material

Table 5.1 Artefact and ecofact assemblages from Phase 3 peripheral activity area SL5–7

matrix. It is presumed that the main flue would have been of similar construction. A flat surface of brick and tegula fragments at the east end of the main flue probably represents its junction with the stokehole.

The oven was filled with dark grey clayey silt, mixed with frequent charcoal flecks. A rich assemblage of charred grains of spelt, and to a lesser extent hulled barley, was recovered from the fill.

Water-pit G90

Water-pit G90 was located adjacent to trackway L23 and c.20m from drying oven G92. Overall it was c.6m in diameter and at least 2.8m deep. While its upper part had a concave profile, its lower part was a vertical shaft c.1.5m in diameter (Fig. 5.11, section c). There is no evidence to suggest that it had been stone-lined, but a timber lining is a possibility.



Plate 5.5 Aerial view of drying ovens G92 (in background) and G93 (in foreground) (Phase 3), with millstone OA13, looking west. Scale 1m

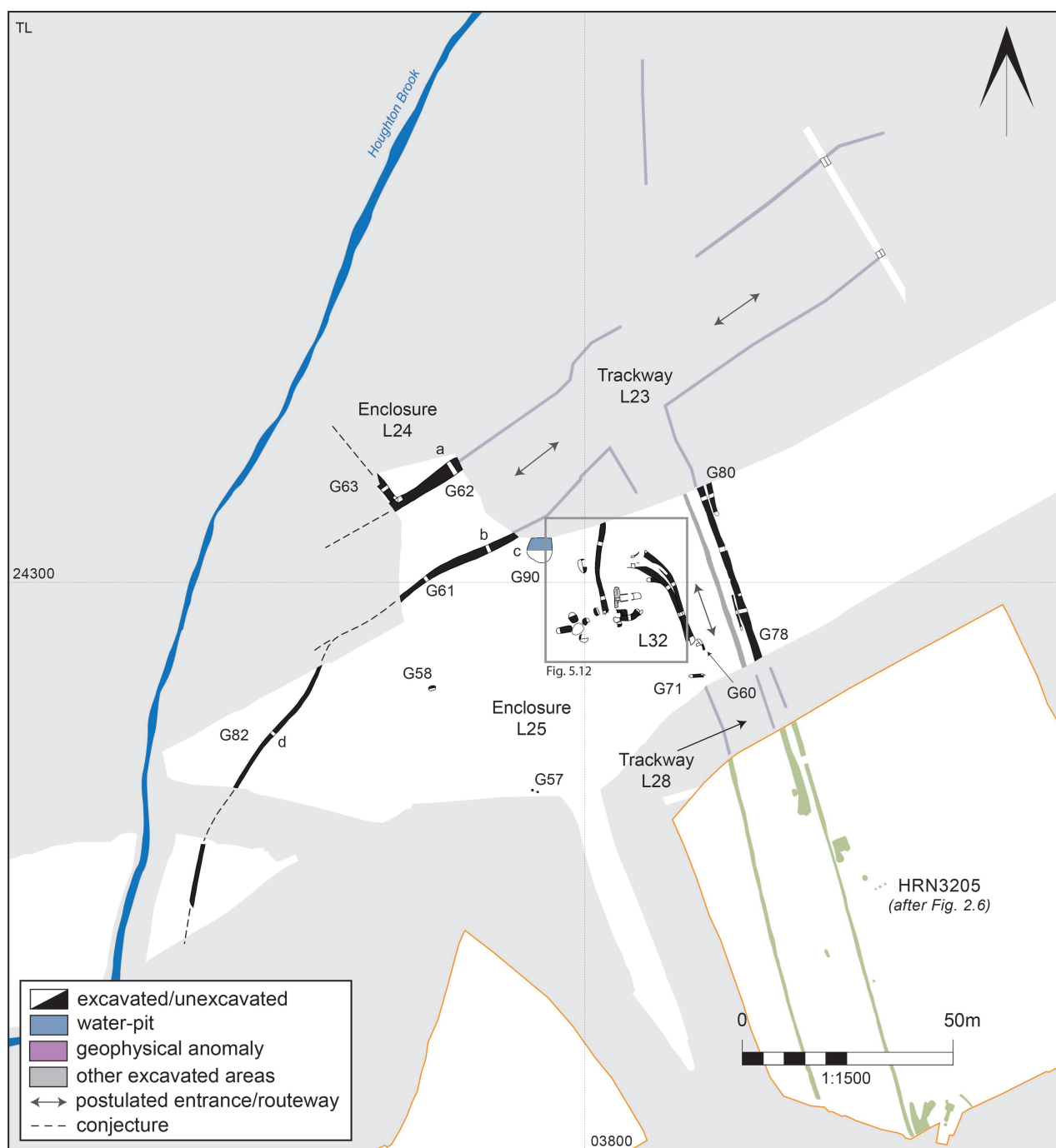


Figure 5.10 Plan of Roman (Phase 3) peripheral activity area SL5

First modification SL6 to the layout

The first modification to the layout of activity area SL5 comprised the re-positioning of some of the ditches defining enclosure L25, the construction of a new drying oven G93, and the redefinition of trackway ditches L28 (Fig. 5.13).

Trackway L29 and pits L37

The eastern ditch of trackway L28 (SL5) was redug as ditch G79 (L29), on the same alignment but c.5m to the east of its original course.

Two adjacent pits L37 were dug within the trackway corridor, adjacent to its west ditch (Fig. 5.14). Pit G106 to the south was c.0.9m in diameter and less than 0.1m deep. The larger pit G59 was 3.3m in diameter and 1.0m deep (Fig. 5.15, section a; Plate 5.6). Its fill contained

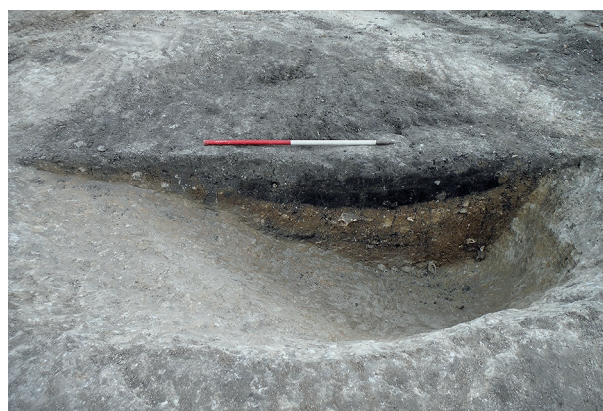


Plate 5.6 Pit G59 (L37, Phase 3), looking north.
Scale 1m

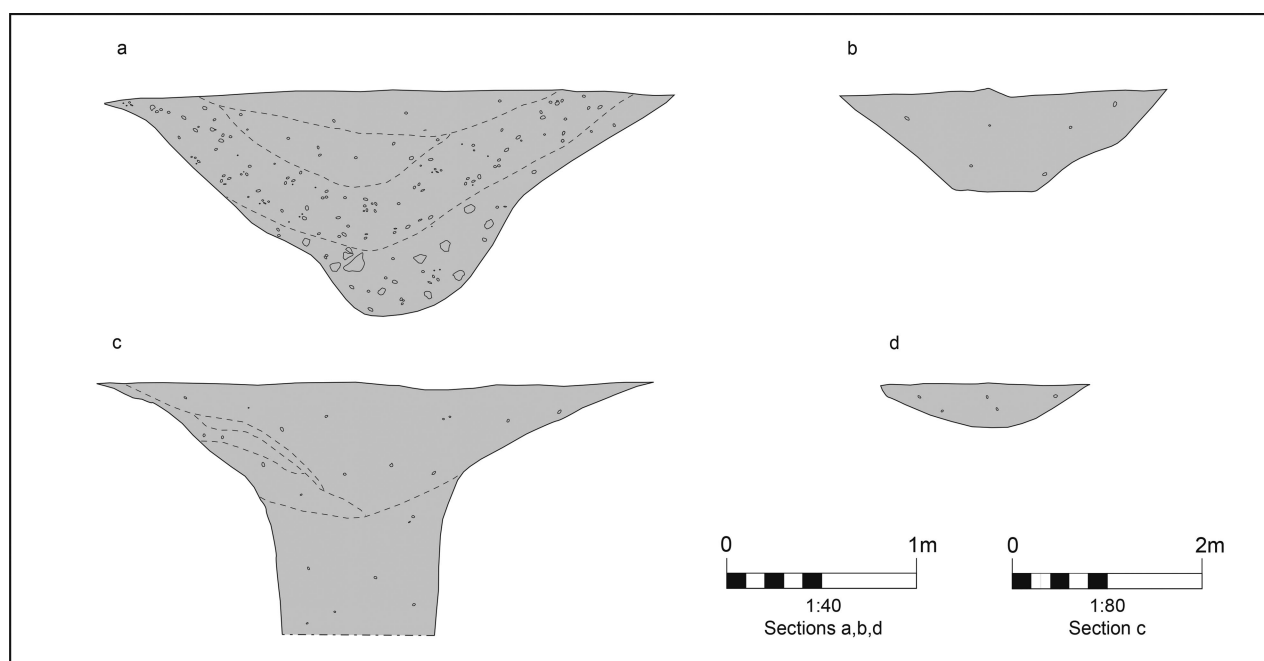


Figure 5.11 Selected sections from Fig. 5.10

pottery, architectural stone (OA8), a socketed tool/handle (OA14), a large quantity of ash roundwood, and 10.9kg of animal bone (almost entirely horse bones from at least two animals, one of which was articulated). Bones from the left elbow of an adult human, some with unusual breakage and scorching patterns, were also recovered from the primary fills. Further human bone, which ranged from fully combusted to unburnt, was found just above the primary fill.

Enclosures L26, L27 and L31

Original enclosure L25 (SL5) was subdivided at its north end by the addition of irregular enclosures L27 and L31, with L26 representing a larger space to the south. The west side of enclosure L26 was dug slightly to the east of the original enclosure ditch (L25), but it followed the same alignment and was similar in width and depth (Fig. 5.13, section a).

Evidence for internal activity was only present at the east end of enclosure L31 in the same location as in the initial layout SL5; it lay partly within a possible sub-enclosure L33 represented by ditches G66 and G101. Postholes G94 may have defined a square building or structure that contained drying oven G93 and pit G96, with water-pit G83 located just outside (Fig. 5.14).

Drying oven G93

Drying oven G93 was built over the earlier T-shaped drying oven G92 (SL5) (Plate 5.5). It was 3.8×3.1 m in extent with a stokehole on the east side and a $c.0.5$ m-wide flue that enclosed three sides of a rectangular central chamber ($c.0.8 \times 1.8$ m) (Fig. 5.15, section c) – very similar to the drying oven found $c.70$ m to the south within HRN3205 (Fig. 2.8). The oven's stone lining survived below ground to a depth of 0.4 m; it was constructed principally of clunch and flint nodules with fragments of tegulae, brick, flue tile, Hertfordshire Puddingstone (OA9), and quern (e.g. OA11), all set in a crushed chalk and clay matrix. The only direct dating evidence was a coin of Gallienus (AD 253–68) but this

came from infill G144 that accumulated after the oven had gone out of use.

The charred plant assemblage from oven G93 was very similar to the grain-rich assemblage recovered from oven G92, i.e. accidentally burnt, cleaned, de-husked spelt wheat grains that were being dried and hardened in readiness for milling.

Pit G96

This feature was situated just north of drying oven G93; its position in relation to earlier drying oven G92 suggests it may have been part of the initial layout (SL5) of the activity area. The pit measured $c.2.0 \times 1.5 \times 0.3$ m and positioned centrally within it was a horizontal, complete millstone (OA13) (Fig. 5.15, section b; Plates 5.5 and 5.7). A small assemblage of rodent teeth was recovered from beneath the millstone.

Possible crop-processing building G94

Four postholes in a $c.5.1$ m square around drying oven G93 and pit G96 may represent the foundations of a timber building. The postholes were $c.0.6$ in diameter and 0.3 m deep; one contained a 0.3 m-diameter post-pipe (Fig. 5.15, section f).

The putative rear wall of the building was parallel to the cross-flue of drying oven G92 (SL5), suggesting that the building may have been part of the initial layout (SL5) of the activity area. Its continued use might explain why drying oven G93 was built over the earlier oven rather than in a different location. As might be expected, the stokeholes of both drying ovens would have lain beyond the front wall of the building.

Possible drying oven(s) G97/G107

Features G97 and G107 may be evidence for one, or possibly two, earlier and therefore heavily truncated drying ovens. They were certainly earlier than oven G93, although construction of the latter had destroyed any evidence for their stratigraphic relationship with T-shaped oven G92 (SL5). The short length of flue G107

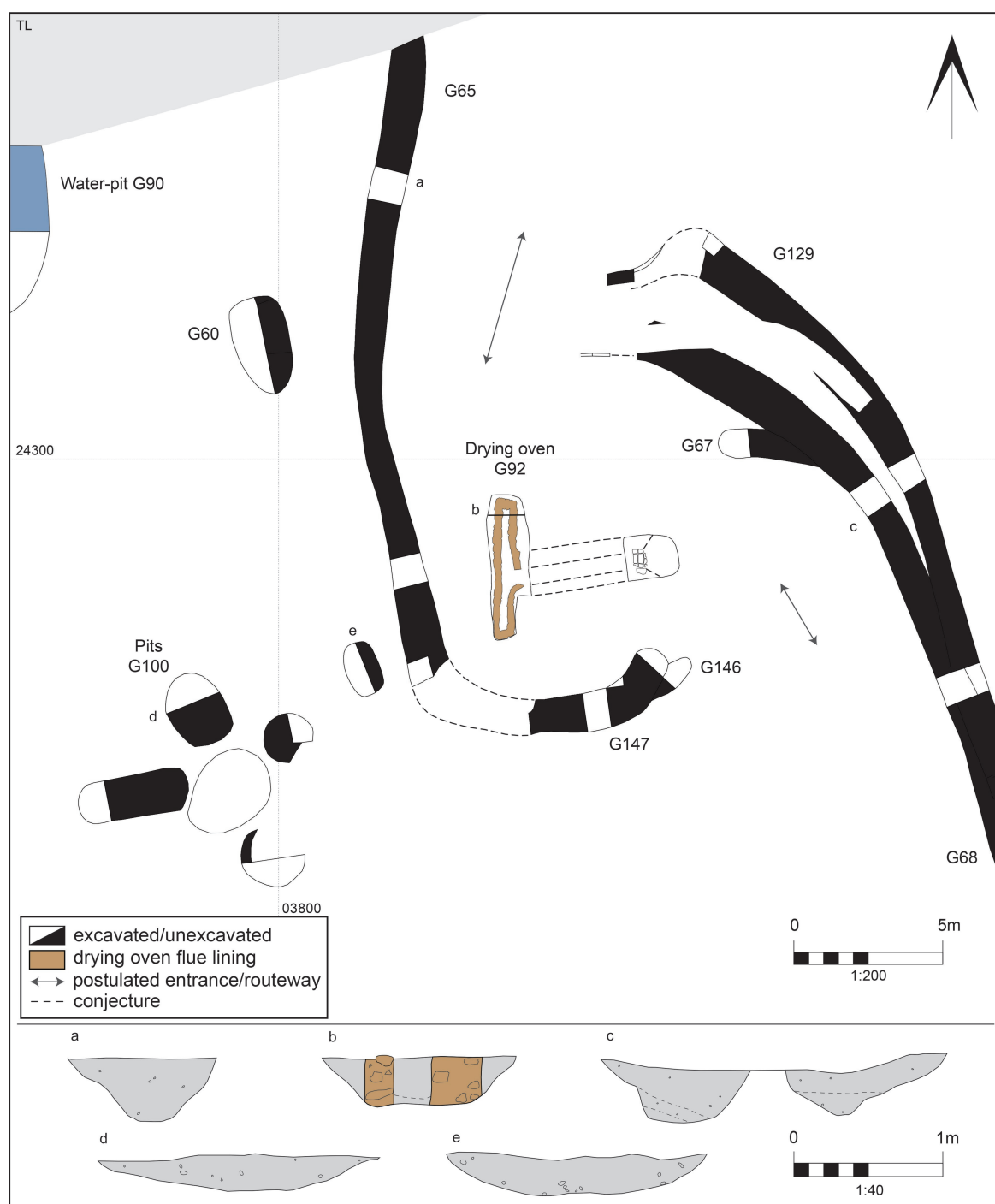


Figure 5.12 Plan of Roman (Phase 3) sub-enclosure L32, including drying oven G92, with selected sections

that survived to the south was of similar construction to ovens G92 and G93. The associated pit-like feature to its immediate south may represent the location of a robbed-out cross-flue, which, if so, would have been 2.3m long. Some 3.5m to the north and on a similar alignment was elongated pit G97 (Plate 5.7). Part of its base had been scorched red by burning, which (together with the bulbous shape of the end of the pit) suggests that it might represent a stokehole. If the two were part of a single drying oven, it would have been c.8m long.

Water-pit G83

Water-pit G83 was located immediately to the south-west of the building that contained drying oven G93. It had a conical profile, c.9m in diameter at the top, narrowing



Plate 5.7 North end of possible oven G97 (Phase 3), with millstone OA13 in pit G96, looking south. Scale 1m

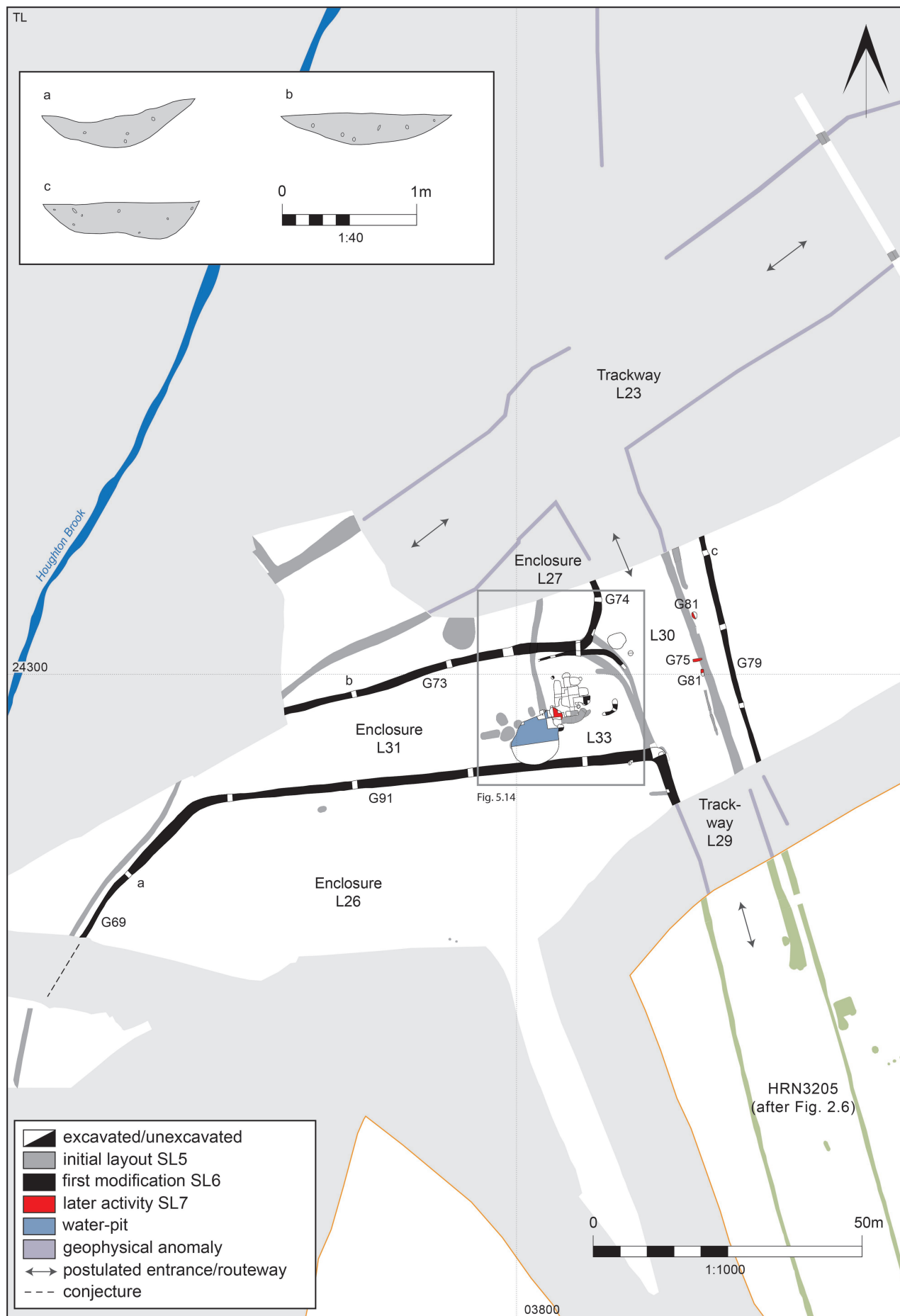


Figure 5.13 Plan of Roman (Phase 3) first SL6 and second modifications SL7 to layout of peripheral activity area

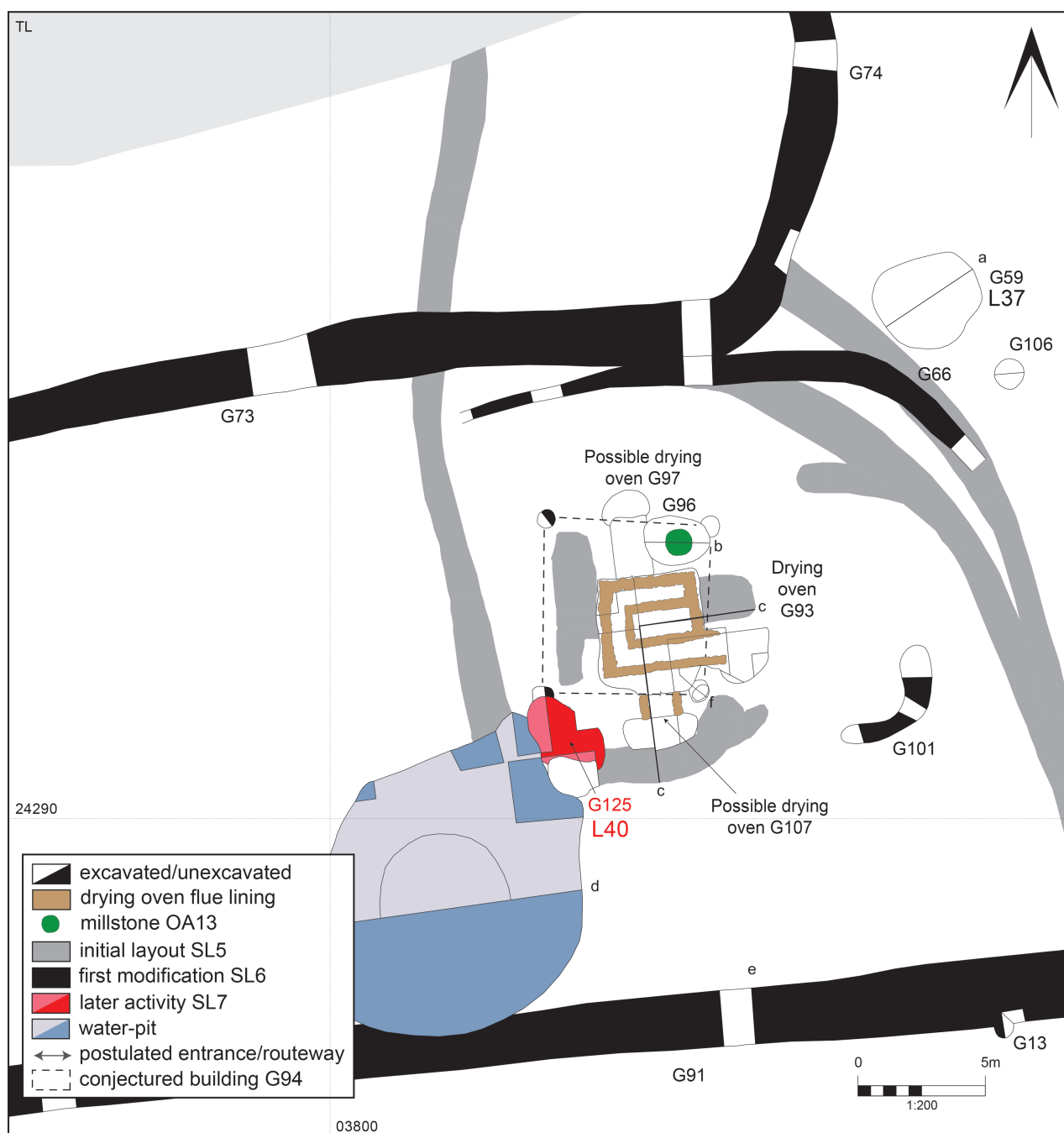


Figure 5.14 Plan of Roman (Phase 3) sub-enclosure L33, including drying oven G93

to c.2m within the central shaft; it was c.3m deep (Fig. 5.15, section d). A varied finds assemblage was recovered, including pottery, animal bone, fired clay and tile, an iron binding strap (OA15), and fragments of querns. The animal bone assemblage was of interest in that it contained a mixture of butchery waste and parts of newborn and diseased animals.

Later activity SL7

Three stratigraphically late pits and an inhumation represent the final phase of Roman activity in this area. L30 comprises two pits G81 and an inhumation G75 dug within the expanded trackway, along the infilled east ditch of the original trackway L29 (SL6) (Fig. 5.13). Shallow (0.2m) pit G125 (L40) was dug between water-pit G83 and one of the postholes of building G94 (SL6). However, its intersection with both features was only

slight and it is possible that the water-pit and building remained in use.

Inhumation G75

This east-west aligned grave was rectangular, 1.7m long and 0.5m wide (Fig. 5.16). It contained a female aged around 20 years, placed in a supine position with feet to the east and head to the west. The grave was just 0.1m deep and this probably explains why most of the cranium was missing. Post-depositional disturbance was indicated by the recovery from the grave backfill of bone representing several areas of the body. No grave goods or evidence for a coffin were identified.

Field systems SL8, SL9 and SL10

Elements of three field systems were identified in the road corridor (SL9 and SL10) and the borrow pit (SL8)

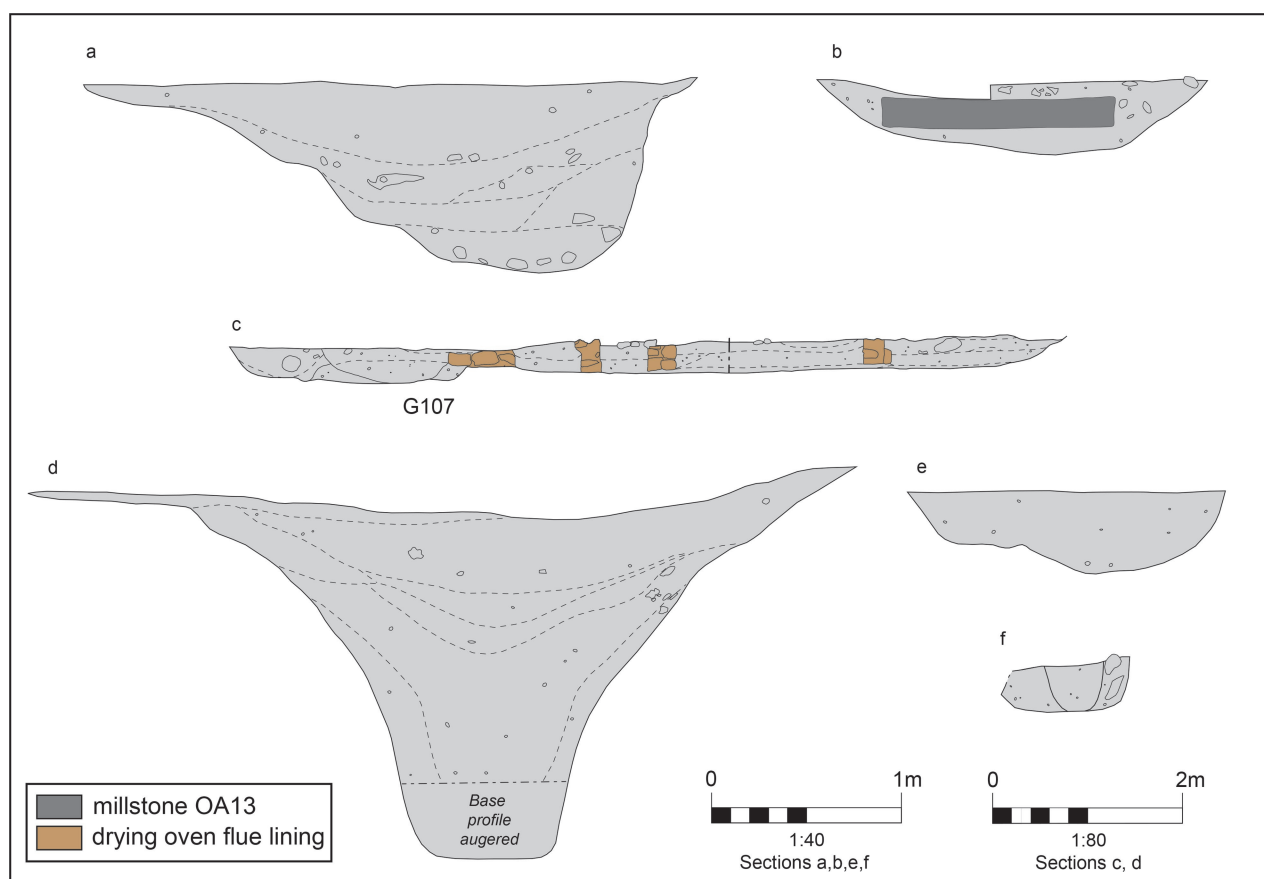


Figure 5.15 Selected sections from Fig. 5.14

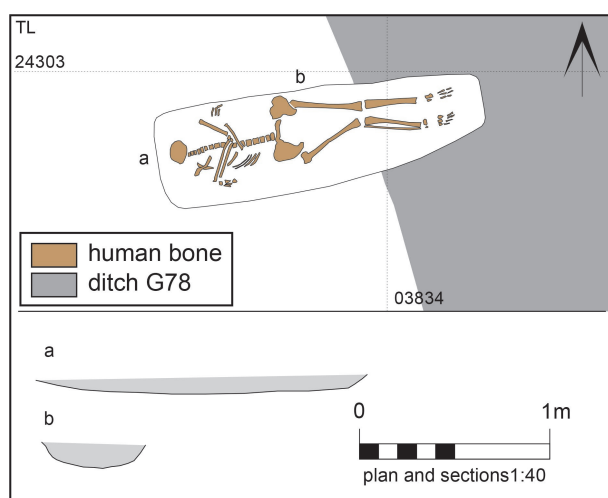


Figure 5.16 Plan of Roman (Phase 3) inhumation G75/L30, with selected sections

(Fig. 5.9). They all extended beyond the limits of the road scheme, although continuations of some of the field boundaries were identified during the trial trenching (Albion Archaeology 2012a). Although located on both sides of the present course of the Houghton Brook, SL10 may be associated with farmstead ACA20; peripheral activity area SL6/7/8 is probably part of the same field system. At the north end of the road scheme, SL9 is probably associated with the HRN3206 farmstead (Luke and Barker 2021, 51–81). Also located on both sides of the current course of the Houghton Brook, SL8 could

be associated with either farmstead or with an, as yet, unidentified farmstead to the east.

The layout of field system SL8 is the best understood as it was investigated within a borrow pit rather than the road corridor (Fig. 5.17). Ditches, which were 0.7–1.1m wide and under 0.5m deep, represent at least nine individual fields L11, L12, L13, L14, L15, L16, L18, L20 and L43 (Fig. 5.17, sections a–d). Most were rectilinear in shape and broadly aligned east–west; they varied in size from 100 × 40m (L18) to 150 × 100m (L13). Few of the ditches showed evidence for redigging, indicating that the layout of the fields remained fairly static during the Roman period. Where the ditches were redug, e.g. field L13 (G44) and field L14 (G48), they generally followed the same course as the previous boundaries. An area of heavily root-disturbed ground either side of ditch G99 (field L14) may suggest the presences of hedges.

A possibly earlier iteration of part of field system SL8 may be indicated by ditch G33 (L9). The latter was stratigraphically earlier than ditch G41; its layout was slightly at odds with the other fields; and it produced a single sherd of late Iron Age pottery. The ditch was 0.6–1.4m wide and under 0.4m deep (Fig. 5.17, section b). Later activity L17 within SL8 is indicated by north–south aligned ditch G46/G47, which diverged from the alignment of ditches G42/G43 and G44 (L13). The ditch was 0.8–1.1m wide and 0.2–0.6m deep with a slightly V-shaped profile (Fig. 5.17, section c). It was at least 220m long but extended beyond the excavation area to the north and south.

A 19m-long line of four postholes G103 in field L15 may represent evidence of internal activity. They were aligned NE–SW, perpendicular to ditch G41. Although

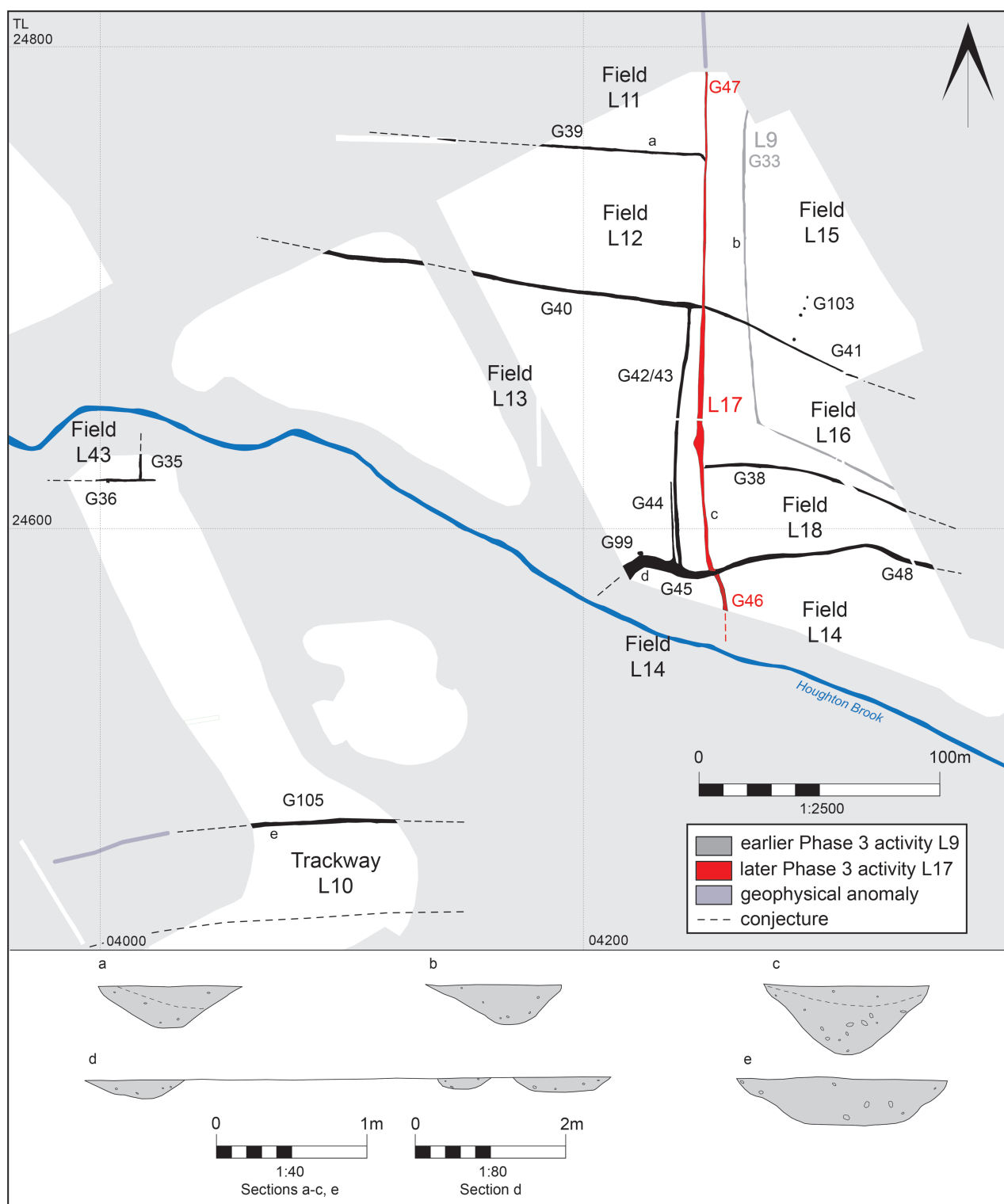


Figure 5.17 Plan of Roman (Phase 3) field system SL8, with selected sections

no dating evidence was recovered, their arrangement suggests that they could be contemporary with the field.

Field system SL9 in the vicinity of the HRN3206 farmstead (Luke and Barker 2021, 51–81) comprised at least four fields L19, L21, L22 and L41 (Fig. 5.9) – as did field system SL10 adjacent to the Houghton Brook (fields L34, L35, L38 and L42) (Fig. 5.18). They were defined

by ditches that were 1.0–1.4m wide and under 0.3m deep (Fig. 5.18, sections a and c). Very little evidence for internal activity was identified – just two small pits G104 and G98 in field L42 (SL10) (Fig. 5.18, section b). The limited finds assemblage recovered from the ditches confirms these field systems' peripheral location in relation to the known farmsteads in the area.

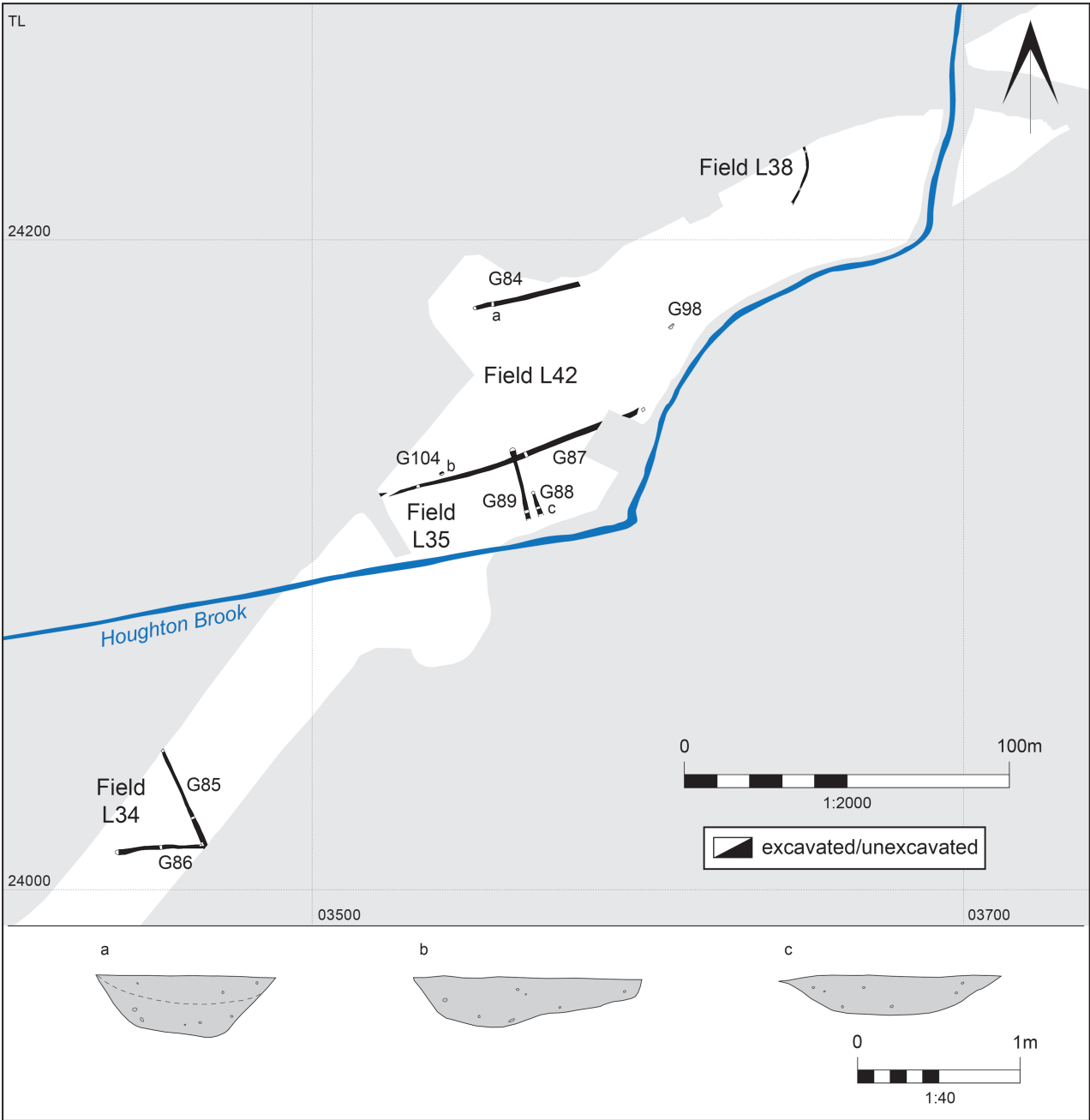


Figure 5.18 Plan of Roman (Phase 3) field system SL10, with selected sections

5.3 POTTERY

Jackie Wells

Introduction and methodology

The assemblage totals 620 sherds (9.1kg), the vast majority deriving from Roman features assigned to Phase 3 (Table 5.2). Pits and ditches represent the main deposition foci, respectively containing 35% and 34% of the assemblage by weight. Water-pits yielded 26% and structural deposits contained the remainder. Most features produced assemblages weighing less than 100g and in many cases contained only single sherds. The pottery is fairly well preserved, although unfavourable soil conditions have promoted surface erosion and leaching of calcareous inclusions. Roman pottery makes up 77% of the assemblage (by sherd count); the remainder is later prehistoric, spanning the late Bronze Age to the late Iron

Phase	Sherd no.	Wt. (g)
2	122	992
3	498	8109
Total	620	9101

Table 5.2 Pottery quantification by Phase

Age. The pottery is discussed chronologically by fabric, form, and deposition.

Methodology is described in Chapter 2 (p. 18–9) and the type series detailed in Table 5.3. No new fabric types were identified. Published descriptions are recorded in Parminter and Slowikowski (2004, 443–55). Wares and forms are common and well-represented from published excavations in the county; therefore, none was selected for illustration.

Fabric type	Common name	Sherd No.	Wt. (g)
<i>Later prehistoric</i>			
F01A	Coarse flint	26	254
F01B	Fine flint	16	89
F01C	Flint and quartz	61	494
F03	Grog and sand	1	23
F06B	Medium grog	2	9
F28	Fine sand	4	48
F29	Coarse sand	10	110
F30	Sand and calcareous	6	44
F32	Sand and flint	14	117
F39	Grog and mica	1	3
F	Non-specific Iron Age	1	17
Sub-total		142	1,208
<i>Roman</i>			
R01 (SA)	Samian	10	155
R02 (ROB MD)	Mica-gilded ware	1	4
R03	White ware	6	81
R03A (VER WH)	Verulamium region white ware	1	36
R03B	Gritty white ware	2	6
R03C	Smooth white ware	3	22
R03E	Fine white ware	4	168
R05A	Oxidised sandy	22	483
R05B	Oxidised fine sandy	7	48
R05C	Oxidised micaceous sandy	2	12
R05D	Oxidised white-slipped sandy	3	65
R06B	Coarse grey ware	66	745
R06C	Fine grey ware	47	695
R06D	Micaceous grey ware	5	81
R06E	Calcareous grey ware	8	114
R06H	White-slipped grey ware	13	130
R06I	Black-slipped grey ware	4	59
R07A	Black-burnished ware	1	14
R07B	Sandy black ware	12	187
R07C	Gritty black ware	3	36
R09A	Pink grogged ware	8	918
R09D	Grog and sand	7	37
R10A	Gritty buff ware	10	117
R10B	Fine buff ware	6	98
R11 (OXF OX)	Oxford oxidised ware	2	28
R11D (OXF RS)	Oxford colour coated ware	6	208
R11E (OXF WH)	Oxford white ware mortaria	2	94
R12B (LNV CC)	Nene Valley colour coated ware	8	129
R13 (HAR SH)	Shell	147	2,338
R14	Sand (red-brown harsh)	23	304
R18A	Gritty pink ware	7	65
R19	Amphora (unsourced)	1	53
R19A (BAT AM)	Dressel 20 amphora	1	34
R31	Lumpy white ware	1	31
R38	Unsourced colour coated ware	2	31
R	Non-specific Roman	19	218
Sub-total		470	7,844

Table 5.3 Pottery type series

Later prehistoric

The later prehistoric material comprises 146 abraded and well-fragmented sherds (1.2kg). Most (103 sherds: 839g) are flint- or flint-/sand-tempered, characteristic of the later Bronze Age and early Iron Age in the region. The remainder are principally sand-tempered early Iron Age wares, with a few grog-tempered mid- to late Iron Age examples. Sherds have a mean weight (MSW) of 8g and are undiagnostic of vessel form. Diagnostic sherds are rims of simple rounded or flattened profile – one

with fingernail-impressed decoration. Two vessels have lightly brushed or scored exteriors.

SL3 pit clusters L5 and L6 yielded the majority of the Phase 2 assemblage – 120 flint- or flint-/sand-tempered sherds (991g), representing a minimum of 40 vessels. Two tiny undiagnostic crumbs (1g) were collected from SL2 post alignment L7. Most vessels are represented by single sherds and weigh less than 100g; the largest example comprises 18 base and lower body sherds (251g) from an indeterminate vessel.

Roman

Roman pottery totals 470 sherds, weighing 7.8kg (MSW 16g). The assemblage spans the entire Roman period, with the bulk of the material dating from the 2nd and 3rd centuries. The basic, utilitarian wares represented – coupled with the relatively small amount of both regional and continental imports – are indicative of a low-status, domestic assemblage. The majority of the pottery comprises coarse wares, represented by a standard range of locally manufactured, reduced, sand-tempered vessels (40% by sherd count) and a smaller quantity of shell-tempered vessels (31%). Reduced wares are known to have been produced at a series of sites to the south-east of Bedford (Simco 1984; BCAS 1995). The shelly wares are comparable to vessels produced at kilns in Harrold (Brown 1994, 19–107).

Regional imports include products from the Lower Nene Valley (colour-coats), the Verulamium region (white and pink wares), Bucks./Northants. (pink-grogged ware), and Oxfordshire (oxidised fine wares and white ware). Two pieces of amphora and ten undiagnostic Gaulish samian sherds are the sole continental imports.

A limited range of standard Roman forms occur. Jars of varying size and function are dominant (44 examples) and range from cooking pots (some rilled) to large storage vessels, the latter occurring in shell-tempered and pink-grogged fabrics. Sand-tempered, open forms are bowls (16 examples: plain-, bead-, and reed-rimmed; flanged) and straight-sided dishes (ten: one with an obtuse burnished lattice motif). Colour-coated folded beakers (four: one with rouletted and barbotine decoration) and a small number of ‘specialist’ forms (flagons, amphorae, and mortaria) also occur.

A total of 497 sherds (8.1kg) representing a minimum of 213 vessels derived from Phase 3 features. The largest assemblage (5.5kg) was associated with the first modification SL6 of peripheral activity area SL5 – principally enclosure L31, which contained the crop-processing area (Table 5.4) and included a pink-grogged storage jar rim sherd weighing 763g. Most Land-use Area assemblages weighed less than 1kg and in many cases contained fewer than 20 sherds.

SL description	Land-use Area	Sherd no.	Wt. (g)
SL5 Peripheral activity area	Enclosures L24, L25	64	909
	Sub-enclosure L32/drying oven	15	225
SL6 First modification of peripheral activity area	Enclosures L26, L27, L31	184	3722
	Sub-enclosure L33/drying oven	87	1187
	Unenclosed activity L37	42	683
	Pits L30, L40	10	148
SL7 Later features within peripheral activity area	Fields L13, L17, L18	71	1042
SL8 Field system	Fields L10, L21	7	25
SL9 Field system	Field L42	17	165
SL10 Peripheral fields			
Total		497	8106

Table 5.4 Roman (Phase 3) pottery quantification

5.4 CERAMIC BUILDING MATERIAL

Jackie Wells

Deriving entirely from features assigned to Phase 3, the assemblage totals 251 pieces of Roman brick and tile (64.9kg) and fired clay fragments weighing 614g. The building material is of standard form (Table 5.5) and comprises well-fired fragments, with a mean weight of 260g. The majority are sand-tempered, with 58 shelly examples. Surviving tegula flanges are either D-shaped or shallow square-shaped; 13 have knife-cut rebates and five have knife-trimmed edges. Semi-circular signatures occur on nine tegulae.

Form	Frag. no.	Wt. (g)
Brick	28	25,352
Flue tile	2	115
Fragment	40	1,009
Imbrex	17	1,714
Tegula	164	36,796
Total	251	64,986

Table 5.5 Roman (Phase 3) building material forms

The majority of the assemblage derives from peripheral activity area SL5 and its first modification SL6 – principally drying ovens G92 and G93, and water-pit G82. Thirty-seven tegula fragments (several joining) and two pieces of brick (14.9kg) derived from the lining of the G92 flue. Drying oven G93 also evidenced the use of ceramic building material; brick (20 fragments), tegulae (22), and combed flue tile (2) (total weight 25.6kg) were used in the construction of the flue. As with the material from G92, many fragments derive from single bricks/tiles and are joining. Forty-seven pieces of brick, tegula, and imbrex (7.1kg) from the fills of nearby water-pit G82 are likely to originate from the drying ovens.

The remaining assemblage was collected mainly from disparate spreads and layers; it displays greater fragmentation and abrasion than the pieces associated with the drying ovens.

Fired clay fragments occur in a well-fired, coarse, oxidised, sandy fabric. Most pieces are amorphous, although a few retain traces of flat or slightly undulating, finger-smoothed surfaces. The assemblage derived mainly from enclosures L27, L31 and L33 (537g) associated with SL6, with the remainder from field system L8.

5.5 OTHER ARTEFACTS

Holly B. Duncan, with coins identified by Peter Guest

Introduction

The investigations produced an assemblage of 65 other artefacts. Each object was assigned to a functional category and was quantified by number and/or weight.

The bulk of the assemblage (53 items) – and the focus of this report – derived from Roman deposits (Phase 3). Modern and post-medieval deposits accounted for the other 12 items. The assemblages are discussed mainly by Site Landscape (SL) with a catalogue of selected items at the end of each section. Catalogue entries are pre-fixed by a catalogue number, followed by identification, material, and description. Selected items have been illustrated

and these are indicated by an asterisk and figure reference. The following information is appended to each entry in the catalogue: Phase (P); Site Landscape (SL); Land-use Area (L); Group (G); and registered artefact (RA) number (if relevant).

Results

The bulk of the assemblage (51 items) derived from peripheral activity area SL5 and its subsequent modifications SL6 and SL7; only two artefacts were recovered from contemporary field system SL8 (Table 5.6).

Peripheral activity area SL5

Ditches defining enclosure L24 produced fragments of worked clunch (OA1; Fig. 5.19) and lava quern (OA2), the latter indicating access to markets with imported goods. Lava querns were a standard item of legionary equipment, which in East Anglia became a regular part of civil trade (Buckley and Major 1983, 75–6). It was previously thought that the trade in lava querns was concentrated in the 1st and 2nd centuries and that it had fallen away by the 3rd century; however, as increasing numbers have been found on later Roman sites, continuity throughout the Roman period seems more probable (Peacock 2013, 153–4; Shaffery 2015, 59). The enclosure also produced a small fragment of brooch pin (OA3) (from pit G60) – probably an accidental loss.

Features associated with enclosure L25 produced two nails, only one of which retained a head (Manning's type 1b; Manning 1985, 134) and a perforated iron strap (OA4). These were likely to have been used to fix or bind wood on, for example, furniture, tools or larger objects such as gates, wagons or buildings.

Sub-enclosure L32 (in the north-east part of enclosure L25) contained drying oven G92; the lining of its flue incorporated the remains of a Hertfordshire Puddingstone quern (OA5; Fig. 5.19) and a millstone of Millstone Grit (OA6) from the Pennine region. The use of Puddingstone to manufacture 'bun-shaped' querns is thought to date from early in the Roman occupation, continuing into perhaps the later 2nd century (Peacock 2013, 161). Millstones of Millstone Grit are typically found in 2nd–4th-century deposits but Shaffrey notes that enough examples from 1st-century contexts are known to suggest a 1st-century origin for their production (2015, 61). Enclosure ditch G147 produced degraded fragments of a lava quern (311g), a single flat-headed nail, and a primary whetstone (OA7; Fig. 5.19) of Upper Greensand, possibly of Reigate Stone from Surrey.

Catalogue

*OA1 Architectural stone. Clunch. Moulding fragment retaining one worked face, all other surfaces/edges broken. In profile flat top, angled out, and then angled down. Possibly a cornice or impost/plinth? L71mm; w. 64.4mm; th. 34.2mm. P4; SL5; L24; G62; RA35. Fig. 5.19

OA2 Quern. Lava. Highly fragmented remains of rotary quern, retaining part of grinding surface. Upper surface does not survive. Max. th. 51mm; indeterminate diameter; wt. 1091g. P4; SL5; L24; G62; RA24

OA3 Brooch? Copper alloy. Brooch pin? Sub-square in section (1.4 × 1.6mm) tapering shank, tip and upper shank missing. L. 29.2mm. P4; SL5; L25; G60; RA31

OA4 Fragment. Iron. Rectangular strap, broken both ends, with a rectangular, near-central perforation (10 × 9mm). Rectangular in cross-section. L. 47.4mm; w. 37mm; th. 4.5mm. P4 SL5; L25; G68; RA34

*OA5 Quern. Hertfordshire Puddingstone. About half of an upper stone from a bun-shaped rotary quern. Surfaces smoothed, flat worn grinding surface, tapering central feeder hole. Estimated diameter c. 270mm; th. 97.5mm. P4; SL5; L32; G92; RA39. Fig. 5.19

OA6 Millstone. Millstone Grit (Pennines). Fragment of outer edge of millstone, pecked grinding surface, straight edge, upper surface dressed. Estimated diameter c.720–740mm; thickness 53.4mm. P4; SL5; L32; G92; RA41

*OA7 Whetstone. Upper Greensand (Reigate Stone? Surrey). Pentagonal fragment of rectangular section, one right-angle corner and one curved original edge survive. Surfaces smoothed, curved edge worn smooth, both surfaces have V-shaped sharpening grooves. Edges upright. L. 65mm; w. 50.5mm; th. 16.5mm. P4; SL5; L32; G147; RA29. Fig. 5.19

First modification SL6 of the peripheral activity area

This assemblage had a similar profile to that from initial layout SL5 (Table 5.6): hints of a masonry structure, based on the presence of worked clunch (OA8) and Hertfordshire Puddingstone (OA9; Fig. 5.20); and 13 nails. There was a higher proportion of quern fragments, some found in the fill of water-pit G83 (L31), others reused in the lining of drying oven G93 (L33). All three stone types represented in SL5 were present (e.g. OA10; Fig. 5.20) and a single example of Quartz Conglomerate quern (OA11; Fig. 5.20) was also recovered; its likely source is Devon or the Wye Valley/Forest of Dean area. Although this stone type was not

identified in King's survey of querns and millstones in Bedfordshire, Buckinghamshire, Hertfordshire and Middlesex (1986), several examples have been found in more recent years, including 14 quern fragments from excavations along the route of the Bedford Southern Bypass (BCAS 1995); two from Marston Park, Marston Moretaine, one of which was from a threshing floor of earlier Roman date (Albion Archaeology 2012b); and one from excavations along the route of the A505 Baldock Bypass from late Iron Age to earlier Roman deposits (Duncan 2009, 79).

In addition to the evidence for hand-processing of grain, SL6 also produced possible evidence for an intensification of milling activity. A total of six fragments (e.g. OA12; Fig. 5.20) and one complete millstone were recovered, as opposed to the single example in SL5; all were of Millstone Grit. A complete runner stone (OA13; Fig. 5.21) was found in pit G96 (L33). It was 875mm in diameter, larger than the one found at Bromham, Beds. (Tilson 1973, 61 and fig. 31 no. 318). The latter was also of Millstone Grit and, like OA13, had rynd-chases cut into the grinding surface (underdrift). However, OA13 has an unusual, asymmetrical configuration of five rectangular channels, one of which is shallow possibly indicating an error during dressing.

SL6 produced no tools per se, although part of a socket with a strengthening bar (OA14; Fig. 5.21) was

SL	L	G	Description	Material	Object type	No.		
5	24	62	Enclosure ditch	Clunch	Architectural fragment (OA1)	1		
				Iron	Nail	1		
		63	Enclosure ditch	Lava	Quern (OA2)	1		
	25	60	Pits	Copper alloy	Brooch pin (OA3)	1		
		68	Enclosure ditch	Iron	Nail	1		
				Iron	Strap (perforated) (OA4)	1		
	100		Pit cluster	Iron	Nail	1		
		32	92	Drying oven	Iron	Nail	1	
					Hertfordshire Puddingstone	Quern (OA5)	1	
	Millstone Grit				Millstone (OA6)	1		
	Iron				Nail	1		
	Sandstone (Upper Greensand)				Whetstone (OA7)	1		
	147	Enclosure ditch	Lava	Quern	1			
			Iron	Nail	2			
			Copper alloy and <i>millefiori</i>	Strap mount (OA16)	1			
6	26	91	Enclosure ditch	Iron	Nail	2		
		73	Enclosure ditch	Copper alloy and <i>millefiori</i>	Strap mount (OA16)	1		
		74	Enclosure ditch	Iron	Nail	2		
	31	83	Water-pit		Strip fragment	1		
				Iron	Binding strap (OA15)	1		
				Iron	Nail	2		
				Hertfordshire Puddingstone	Quern	2		
				Lava	Quern (OA10)	2		
				Millstone Grit	Quern	1		
				Millstone Grit	Millstone	1		
				93	Drying oven	Iron	Nail	6
						Hertfordshire Puddingstone	Architectural fragment (OA9)	1
						Lava	Quern	1
				Millstone Grit	Millstone	4		
				Quartz Conglomerate	Quern (OA11)	1		
		96	Pit	Iron	Nail	1		
				Millstone Grit	Millstone (OA13)	1		
				Millstone Grit	Millstone	1		
		144	Infill of drying oven G93	Millstone Grit	Millstone (OA12)	1		
				Copper alloy	Coin	1		
				Copper alloy	Pin/needle shank	1		
	37	59	Large pit	Clunch	Architectural fragment (OA8)	1		
				Iron	Socket with strengthening bar (OA14)	1		
				Coarse sandstone	Millstone (OA17)	1		
7	40	125	Pit	Totternhoe Stone (chalk)	Whetstone (OA18)	1		
				Glass	Bottle (OA19)	1		
8	13	43	Field ditch	Glass	Bottle (OA19)	1		
	18	48	Field ditch	Flint	Flake	1		
Total						53		

Table 5.6 Roman (Phase 3) other artefacts

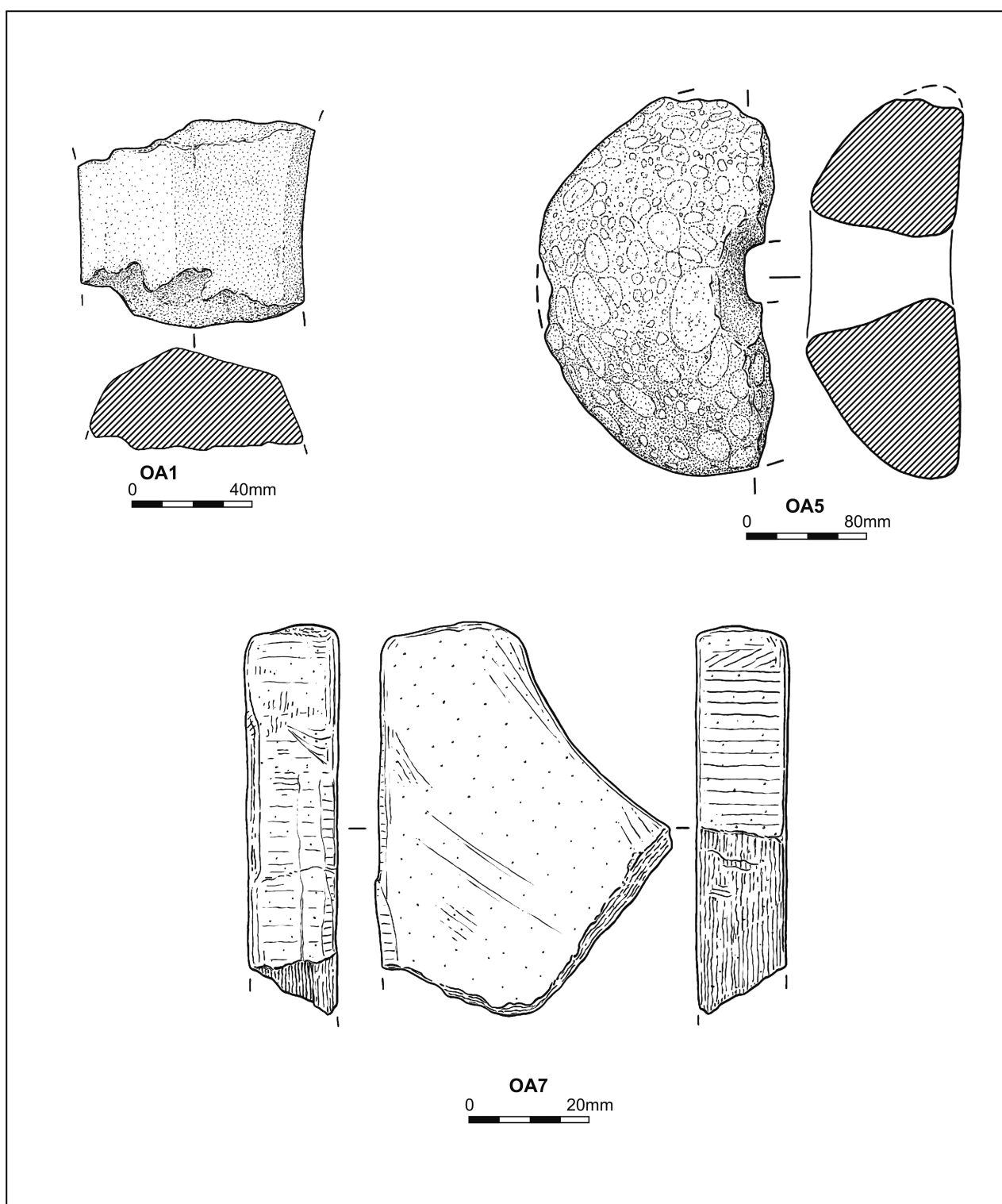


Figure 5.19 Other artefacts OA1, OA5 and OA7 from Roman (Phase 3) SL5

recovered from pit G59 (L37) (see Manning 1972, fig. 72 no. 152 for parallel); it could have been used in conjunction with a variety of tools. A robust iron binding strap with a flattened and perforated, sub-oval terminal (OA15; Fig. 5.21) was found in water-pit G83 (L31). Comparisons can be made with similar objects from Coldham Common, Cambs. (Manning 1985, 141; pl. 68 S104) and Verulamium (Manning 1972, fig. 70 no. 134). As Manning notes, a great deal of Roman woodwork was strengthened and protected by iron plates and bindings, usually made for a specific purpose; without

the woodwork their exact use is unclear, nor can exact parallels be found (Manning 1972, 189–90).

As with SL5, the bulk of this assemblage relates to grain-processing/milling, with little evidence for other activities, whether domestic, craft-related, or personal. The lower portion of a tapering, oval-sectioned ($1.7 \times 1.3\text{mm}$), copper alloy shank (from the fill of drying oven G93) may derive from a needle or hairpin, but too little survives to be certain of its function. A *radiate* coin of Gallienus (AD 253–68) was also recovered from the infill of drying oven G93. In contrast to these rather mundane

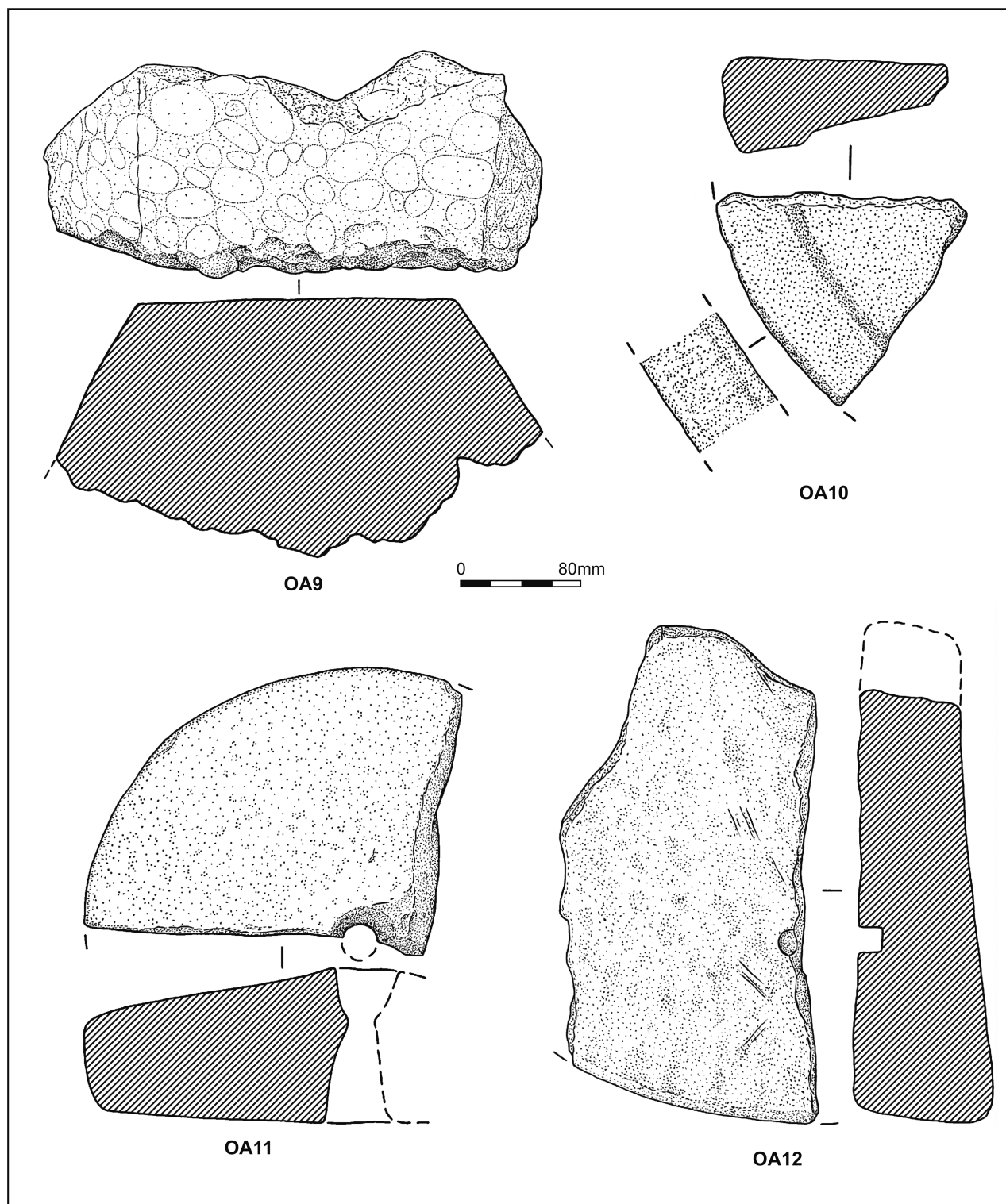


Figure 5.20 Other artefacts OA9, OA10, OA11 and OA12 from Roman (Phase 3) SL6

items is a copper alloy and *millefiori* mount (OA16; Fig. 5.21) from enclosure ditch G73 (L27). It has a central openwork wheel with five radiating spokes surrounded by a band of blue, red, and white *millefiori*. It could have been worn on a military belt or harness and is dated to the 2nd to early 3rd century. A mount from Corbridge has a similar wheel motif but no *in-situ millefiori*; it was suggested that the wheel motif might be associated with the Celtic worship of Taranis whose cult was particularly popular in the 2nd century (Bishop and Dore 1989, 183 and fig. 87, no. 202.).

Catalogue

OA8 Architectural stone. Clunch. Moulding, possible corner fragment of a roll or chamfer? In poor condition, outer surface of roll/chamfer damaged. L.72mm; w. 61mm; th.50.5mm P4; SL6; L37; G59; RA36

*OA9 Architectural stone. Hertfordshire Puddingstone. Fragment retaining two cut and polished flat surfaces, one at 45 degrees to the other. Back, top, and bottom surfaces broken off. Cut and polished surfaces: flat face 205mm long, 105mm wide; angled surface 120mm long, 100mm wide. Dimensions 330mm long; depth 180mm; ht. c. 120mm. P4; SL6; L33; G93; RA44. Fig. 5.20

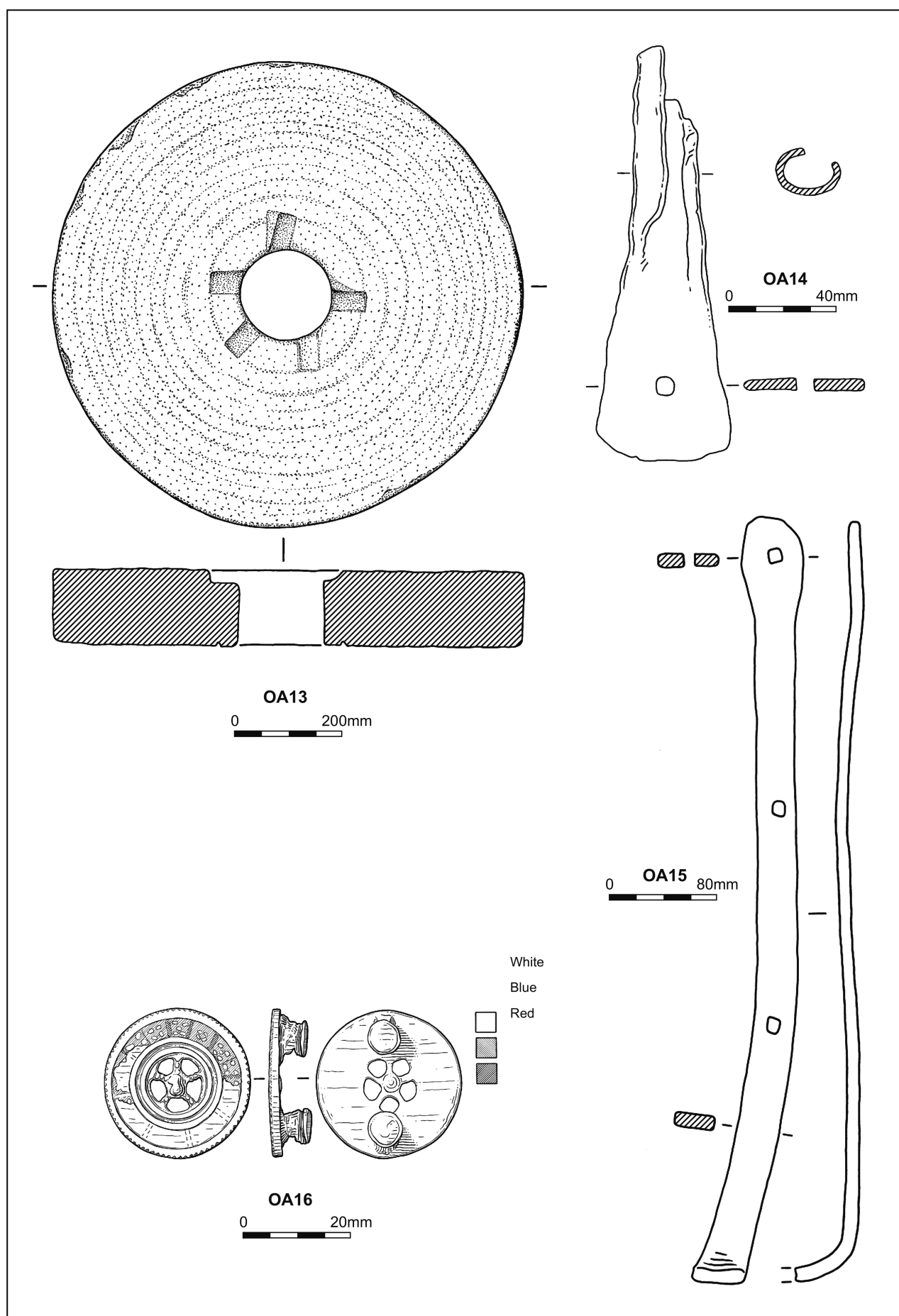


Figure 5.21 Other artefacts OA13, OA14, OA15 and OA16 from Roman (Phase 3) SL6

*OA10 Quern. Lava. Fragment, straight skirt with rough vertical grooves, raised flat collar, pecked upper surface. Grinding surface worn. Est. diameter c.500mm. Max. th. 64mm; P4; SL6; L31; G83; RA42; Fig. 5.20

*OA11 Quern. Quartz Conglomerate (Devon, Wye Valley/Forest of Dean). Upper stone, estimated diameter 400mm, pecked top and sides. Sides straight and also have worn narrow linear grooves. Remains of central hourglass-shaped feeder. Grinding surface worn smooth, no furrows or pecking, and almost flat. Maximum thickness 102mm; skirt/edge thickness 63mm; central feeder hole c. 40mm diameter. P4; SL6; L33; G93; RA38; Fig. 5.20

*OA12 Millstone. Millstone Grit (Pennines). Fragment, upright edge with vertical groove tooling, upper surface roughly pecked, grinding surface worn concentric grooves, possible depression for handle on broken edge. Est. diam. 660mm; th. 64.8mm. P4; SL6; L33; G144; RA43. Fig. 20

*OA13 Millstone. Millstone Grit (Pennines). Complete runnerstone, rynd set into milling face. Four deep rectangular channels, asymmetrically set, and one shallow channel (a possible error in dressing). Three of the rynd channels have one side which is angled and stepped (a possible error in dressing). Concentric wear pattern on grinding surface. Upper face worked flat (possibly pecked) with an incised groove (c.2–3mm wide) and set 5–10mm away from and encircling the central perforation. Diameter 875mm; th. 135mm; diameter central perforation 160mm; channels c.3.5mm wide and 5.5–6mm long. P4; SL6; L33; G96; RA21; Fig. 5.21

*OA14 Uncertain. Iron. Socket with strengthening bar. Part open socket leading to flat blade of sub-triangular plan, the ends slightly flared. A rounded perforation (diameter 8mm) situated 24mm from blade edge. L. 149mm; blade w. 49.6mm; th. 3mm; socket 22.5 × 19.5mm. P4; SL6; L37; G59; RA23; Fig. 5.21

*OA15 Binding. Iron. Robust rectangular sectioned strap, one end flattened into sub-oval shape with central squared perforation. Strap has two further perforations. Opposing end bent at right angles before break. Slight curvature to strap towards bent end. L. 485mm; w. 29mm; terminal w. 45mm; th. 7mm; ht. c. 40mm. P4; SL6; L31; G83; RA17; Fig. 5.21

*OA16 Strap mount. Copper alloy and glass. Flat, circular mount with two integral circular sectioned rivets with 'upset' or flattened ends. The centre of the obverse face has a small, raised boss, which forms the hub for five radiating, openwork spokes. The 'wheel' motif has a narrowed 'grooved' circle, the groove possibly originally enamelled? A wider outer band has *millefiori* enamel, comprising a repeating pattern of squares made up of small blocks of blue and white glass – chequer-board or flower? Alternate blocks of these blue and white motifs are bordered by red. The outer edge of the mount is continuously 'nicked'. Diameter 27.4mm; ht. (including integral rivets) 6.9mm. P4; SL6; L27; G73; RA12; Fig. 5.21

Later activity SL7

This assemblage is more modest but retains similarities with those from SL5 and SL6, e.g. a quern/millstone OA17, in this instance of coarse sandstone (source unknown), and a whetstone/sharpening stone in local Totternhoe Stone (OA18).

Catalogue

OA17 Quern/millstone? Coarse sandstone (source unknown). Upper stone? Very worn furrow pattern on convex grinding face. Th.27.5mm; diameter indeterminate. Two joining pieces. P4; SL7; L40; L125; RA30

OA18 Whetstone? Chalk (Totternhoe Stone). Rhomboid in plan, rectangular in section, fragment. One straight-sided edge worn smooth from use and slightly dished, upper and lower surfaces flat, one with very narrow irregular grooves. Broken at both ends and one side. L. 90mm; w. 57.5mm; th. 31mm. P4; SL7; L40; L125; RA33

Field systems SL8

One of the ditches defining field L13 produced part of the base of a prismatic bottle (OA19), commonly found on 1st–late 2nd-/early 3rd-century rural sites (Price and Cottam 1998, 195).

Catalogue

OA19 Bottle. Blue-green translucent glass. Fragment of prismatic bottle base, retaining small area of base surface and curved band in relief, possibly near corner of bottle. Th. 11mm. P4; SL8; L13; G43

Roman artefacts from overburden

Modern overburden deposits yielded a small collection of Roman artefacts, including seven coins. Four of the coins are *radiates* struck between AD 269 and 274, while a fifth is almost certainly another *radiate* of the same period (Table 5.7). While *radiates* are common finds from Romano-British settlements, the paucity of issues from the 4th century is unusual and might suggest that occupation at the site did not continue into the late Roman period.

A silvered copper-alloy finger-ring bezel containing a toffee-coloured glass paste intaglio (OA20; Fig. 5.22) was also found; the intaglio is poorly preserved but may represent a quadruped. Due to its incomplete survival certain ascription to type is not possible, but it may equate to a Guiraud type 3/Henig type VIII and be of late 2nd–3rd-century date (Flynn 2016). A fourth example of a rotary quern of Hertfordshire Puddingstone (OA21; Fig. 5.22) was also recovered.

Catalogue

*OA20 Finger ring. Copper alloy and glass. Intaglio ring, raised rounded bezel (9.7 × 9.4mm), with moulded toffee-coloured glass intaglio raised slightly above bezel. Intaglio's outer edges flat, centre of intaglio sunken, possibly containing impressed ?quadruped. Hoop incomplete, silvered, start of one tapering shoulder with two incised converging lines. P7; SL14; L58; G178; RA9. Fig. 5.22

*OA21 Quern. Hertfordshire Puddingstone. Slightly less than half of an upper stone with hourglass-shaped feeder hole. Outer surfaces not as well-finished as OA5, irregular grinding surface (damaged or unfinished?). Estimated diameter 270mm; th. 135mm. P20; L1; G77; RA40. Fig. 5.22

Discussion

The relatively high number and concentrated nature of querns and millstones, combined with low-level evidence for general domestic activity, suggests a specialised function for peripheral activity area SL5–SL7. The stone types represented imply access to regionally (Hertfordshire Puddingstone), extra-regionally (Pennine Millstone Grit and Quartz Conglomerate from Devon or the Wye

SL	L	G	Description	Material	Denomination	Date	Obverse	Reverse
6	33	144	Drying oven	Copper alloy	AE3	253–68	Gallienus	illegible
14	58	178	Topsoil/subsoil	Copper alloy	Radiate	260–90	Uncertain	Uncertain
					Radiate	269–71	Victorinus?	Salus?
					Radiate	269–74	Victorinus/Tetricus I	illegible
					Radiate	271–74	Tetricus I?	SALVS AVG
					Radiate	271–74	Tetricus I	illegible
					AE3	Late 3rd–4th C	Uncertain	illegible
					AE3	4th C	Uncertain	illegible

Table 5.7 Roman coins

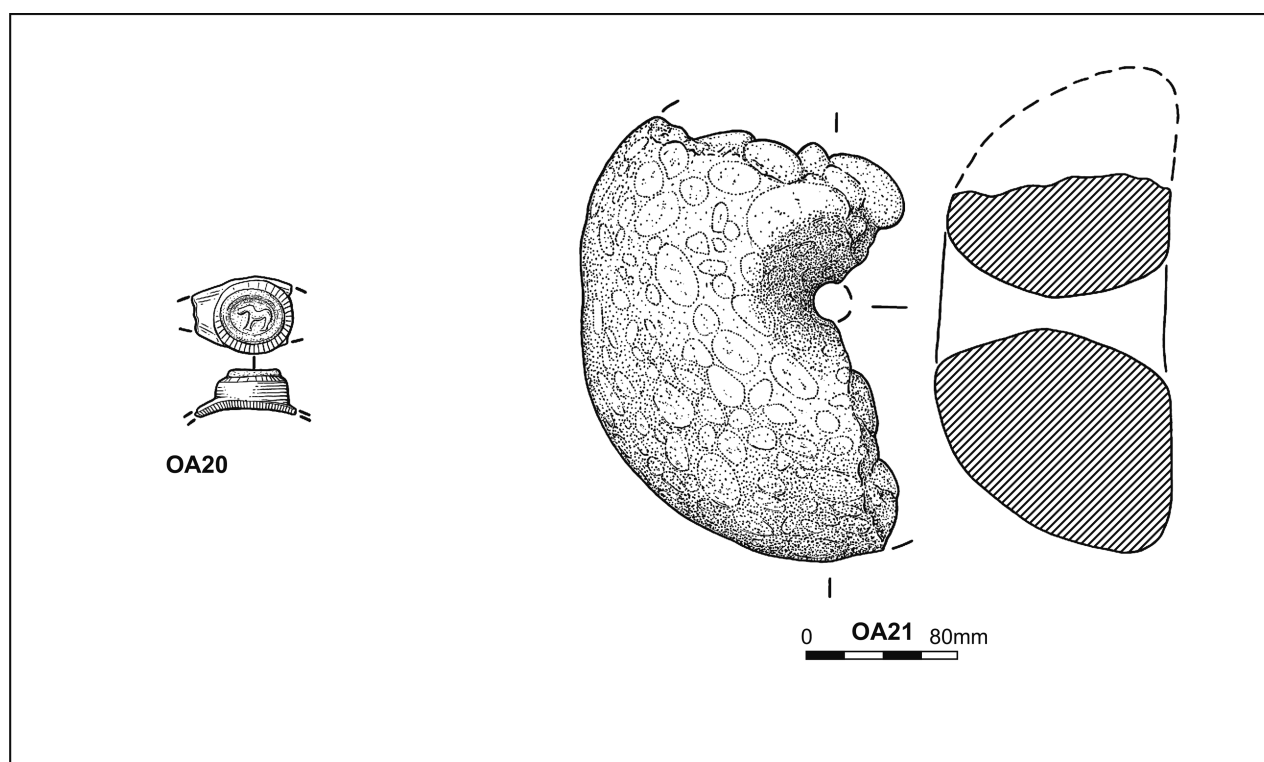


Figure 5.22 Other artefacts OA20 and OA21 from overburden deposits near SL5 and SL6

Valley/Forest of Dean), and internationally traded goods (lava from Germany or France).

The complete runner stone (OA13) could suggest the presence of a nearby mill. Shaffrey notes that the presence of a mill is indicative of wealth, status, and control of resources (2015, 71). However, there is little amongst the assemblage that is suggestive of wealth – possibly because the excavation areas were located away from the known Roman settlements in the vicinity.

The assemblage features very few closely dated objects. Querns of Hertfordshire Puddingstone are known to have been in use from the 1st century into perhaps the later 2nd century. Querns and millstones of lava are now thought to have been in use throughout the Roman period. Querns and millstones of Millstone Grit are most commonly found in 2nd–4th-century deposits, although a 1st-century origin for their production is likely (Shaffrey 2015, 61). The *millefiori* mount could suggest that the activity associated with SL6 was occurring sometime in the 2nd to early 3rd century, which could perhaps imply a late 1st–2nd-century date for the preceding activity associated with SL5. The single coin of Gallienus (AD 253–68) from the infills of drying oven deposited after drying oven G93 had gone out of use provides a *terminus ante quem* for its use.

5.6 ANIMAL BONE

Mark Maltby

Methodology

All the bones and teeth recovered from the excavations by hand and from the sieved samples were recorded individually onto a relational database. In the main database table the following data were recorded where appropriate for each specimen: species; anatomical element; zones of bone present; approximate percentage of bone present;

gnawing damage; erosion; weathering; concretions; burning (charring and calcification); fusion data; associated bone group (ABG) number; sieved sample number; other comments including observations of pathology. Separate tables linked to the main table by an individual identification number were created for metrical, butchery, and tooth ageing data. Tooth eruption and wear descriptions for cattle, sheep/goat, and pig follow the method of Grant (1982). Most measurements followed those described by von den Driesch (1976). All fragments, including loose teeth, shaft fragments, rib heads, and vertebrae were recorded to species level where possible. The method of recording was identical to those carried out by the author in analyses of other assemblages excavated by Albion Archaeology.

Overall sample size and bone preservation

Animal bones were collected from 65 contexts, from Phases 2 and 3, providing a total of 472 individual specimens (NISP), of which 206 were identified to species. Sieved samples provided 117 of the recorded fragments but 91 of these were unidentified mammal fragments and the remainder were teeth and bone of unidentified small mammals.

The assemblages from each context were assigned to one of five potential preservation grades. No assemblage was assigned to the highest grade (excellent preservation) and only ten (15%) were graded as good, containing bones with good surface preservation and relatively little fragmentation or other damage. Most of these came from pit G59 and water-pit G83 in Phase 3 peripheral activity area SL6. Three (5%) contexts produced moderately preserved assemblages. Bones in these assemblages generally had fair surface preservation but were much more fragmentary and included more bones damaged by weathering. Eleven (17%) assemblages were assigned to the quite poorly preserved category, which included

more weathered and burnt specimens. However, 40 (62%) assemblages were very poorly preserved, usually consisting entirely of heavily eroded bones. Only the more robust parts of the skeleton survived in these contexts. Taking account of the sizes of the assemblages, 194 (41%) of the fragments came from contexts whose assemblages were graded as good and 97 (21%) from those graded as moderately or quite poorly preserved. A total of 176 (37%) fragments were from poorly preserved assemblages. A total of 41 fragments (9%) were burnt, including one each of cattle, sheep/goat, and horse. Most of the burnt fragments were recovered from sieved samples. Amongst the identified elements, 46 (22%) were recorded as eroded and 28 (14%) showed signs of weathering. Gnawing damage was only observed on two cattle bones but the severe erosion will have obliterated such evidence. The same applies to butchery marks, which were observed only on three cattle bones from water-pit G83. Many of the bones had modern breaks and were recorded as a single element.

Results

Phase 2 (late Bronze Age/early Iron Age)

Pit clusters L5 and L6 (SL3) and post alignment L7 (SL2) produced a total of 27 fragments, including three each of cattle and sheep/goat and two of pig. All the bones were heavily eroded and two of the unidentified fragments were charred. The cattle elements consisted of a complete first phalanx, a tooth, and a pelvis fragment. Sheep/goat was represented by two fragments of tibia and one of radius. Fragments of a scapula and tibia were identified as pig.

Phase 3 (Roman)

A total of 433 animal bone fragments were recovered, including 196 identified to species (Table 5.8). Three groups produced unusual assemblages which are discussed separately.

Large pit G59 (L37, SL6) produced an assemblage consisting almost entirely of horse bones. These belonged mainly to one animal, but at least two horses were represented by pelvis and femur fragments (Table 5.9). Site photographs indicate that at least some of the main horse skeleton was articulated. All parts of the body were represented, although some of the ribs and vertebrae and

	L37 G59	L27 G83	L33 G96	Other	Total
Cattle	-	33	2	19	54
Sheep/goat	4	3	-	2	9
Pig	-	1	-	2	3
Horse	90	27	2	7	126
Dog	1	2	-	-	3
Roe deer	1	-	-	-	1
Total identified	96	66	4	30	196
Small mammal	-	-	26	-	26
Unid. mammal	51	69	13	78	211
Total unidentified	51	69	39	78	237
Total	147	135	43	108	433

Counts are of numbers of individual specimens (NISP) and include bones in associated groups
Total includes bones from sieved samples

Table 5.8 Roman (Phase 3) animal bones from peripheral activity area SL6

	NISP	MNI
Skull fragments	3	1
Maxilla	3	1
Mandible	3	1
Loose teeth	3	1
Hyoid	1	1
Scapula	2	1
Humerus	2	1
Radius	3	1
Ulna	2	1
Pelvis	6	2
Femur	4	2
Patella	1	1
Tibia	4	1
Carpals	3	1
Astragalus	1	1
Calcaneus	1	1
Other tarsals	1	1
Metacarpal	2	1
Metatarsal	2	1
Peripheral Mt	1	1
Phalanx 1	2	1
Phalanx 2	1	1
Atlas (VC1)	3	1
Axis (VC2)	1	1
Other cervical vertebrae	2	1
Thoracic vertebrae	11	1
Lumbar vertebrae	5	1
Sacrum	1	1
Caudal vertebrae	1	1
Costal cartilages	1	1
Ribs	14	1
Total	90	-

Counts include parts of same bones found in different contexts.

NISP = number of identified specimens

MNI = minimum number of individuals represented

Table 5.9 Roman (Phase 3) horse elements from pit G59 (L37, SL6)

many of the foot bones were not recovered. However, there was no evidence of skinning, butchery, gnawing or weathering, indicating that the horse had been deposited probably without carcass-processing soon after death. All the bones were fused, indicating that both the main skeleton and the other bones came from adult horses. All the mandibular teeth were in heavy wear, indicating that the skeleton belonged to a mature horse that was over ten years of age and possibly substantially older. Metrical data indicate that the horse was quite large by Roman standards (Table 5.10). Its withers height estimate based on the length of the radius (Vitt 1952) was 139.7cm (13.8 hands).

Other animal bones in pit G59 included a charred astragalus and fragments of a tibia and mandible and a loose tooth of sheep/goat. A dog rib and the distal end of a tibia of a sub-adult or adult roe deer were also identified.

Water-pit G83 (L27, SL6) produced 135 animal bone fragments, 66 of which were identified (Table 5.8). As in the case of pit G59 (L37), bone preservation was much better than in other features. More of the bones survived in a more complete state. Cattle were the best-represented species, including seven mandible fragments (from at least three jaws) and five humeri (Table 5.11). Three of the humeri from the same context bore fine knife cuts near the distal end and/or on the shaft, made during disarticulation from the radius and ulna and filleting respectively. Three of the mandibles belonged to calves that died during their first year; two others belonged to young

	G59	G83
Astragalus GH	50.1	-
Humerus BT	73.8	-
Metatarsal Bp	48.7	-
Metatarsal Bd	-	47.9
Radius Bp	83.8	89.3
Radius BFp	75.2	82.8
Radius GL	340	-
Scapula GLP	92.3	-
Scapula LG	58.1	-
Scapula BG	51.3	-
Tibia Bd	73.1	76.5

GH = Greatest height

BT = (Greatest) breadth distal trochlea

Bp = (Greatest) breadth proximal end

Bd = (Greatest) breadth distal end

BFp = Breadth proximal articular surface

GL = Greatest length

GLP = Greatest length glenoid process

LG = Length glenoid cavity

BG = Breadth glenoid cavity

Table 5.10 Roman (Phase 3)
measurements (mm) of horse bones
from pit G59 and water-pit G83

adult cattle. Sub-adult cattle were represented by at least one of the humeri, and by a complete tibia and radius. Other calves were represented by porous specimens of a metatarsal and thoracic vertebra and a deciduous fourth premolar in an early stage of wear. Therefore, none of the cattle bones were definitely from mature adults.

The 27 horse elements included nine loose teeth, some of which would have been from the same adult maxillae. Two of them, almost certainly from the same jaw, had been grossly expanded and distorted by a growth that had infiltrated the roots. The horse must have been in considerable pain but appears to have survived for a lengthy period after the onset of the condition (Plate 5.8). At least three different radii and tibiae were represented by four and five fragments respectively. At least one of the radii and one of the tibiae were from adult horses. In contrast,



Plate 5.8 Expanded and distorted horse tooth from
water-pit G83 (SL6, Phase 3). Scale 0.1m

a pair of very porous metacarpals and a metatarsal probably belonged to the same neonatal foal. A dog tibia and fibula had suffered a fracture near the distal end of the shaft. The resulting exostoses had caused the shafts of the bones to fuse together.

The assemblage from water-pit G83, therefore, is derived from a mixture of butchery waste and parts of newborn and diseased animals.

A sieved sample from pit G96 (L33, SL6) produced 26 elements of rodents, mainly incisors (Table 5.8). The teeth were of a species the size of short-tailed voles, house mice or wood mice. The origin of the assemblage is unclear.

A total of 108 animal bone fragments were retrieved from 24 other Phase 3 groups, but nearly all the assemblages were very poorly preserved containing a large proportion of unidentified mammal fragments (Table 5.8). Given the preservation, the bias towards the robust elements of cattle and horse is to be expected (Table 5.12). The few bones that provided more than basic information included a complete cattle metacarpal from enclosure ditch G73 (L31, SL6). It had a greatest length of 186mm

	Cattle NISP	Cattle MNE	Sheep/Goat NISP	Pig NISP	Horse NISP	Horse MNE	Dog NISP
Horn core	1	1	-	-	-	-	-
Skull fragments	2	1	-	-	1	1	-
Maxilla	-	-	-	-	1	1	-
Mandible	7	3	-	-	-	-	-
Loose teeth	6	-	1	-	9	-	-
Scapula	1	1	-	-	-	-	-
Humerus	5	5	-	1	-	-	-
Radius	1	1	-	-	4	3	-
Ulna	-	-	-	-	1	1	-
Femur	-	-	1	-	2	2	-
Tibia	3	1	1	-	5	3	1
Fibula	-	-	-	-	-	-	1
Astragalus	1	1	-	-	-	-	-
Calcaneus	1	1	-	-	-	-	-
Centroquartal	1	1	-	-	-	-	-
Metacarpal	-	-	-	-	2	2	-
Metatarsal	3	3	-	-	1	1	-
Peripheral Mt	-	-	-	-	-	-	-
Phalanx 1	-	-	-	-	1	1	-
Thoracic vertebrae	1	1	-	-	-	-	-
Total	33	-	3	1	27	-	2

Counts include parts of same bones found in different contexts.

NISP = number of identified specimens

MNE = minimum number of elements represented

Table 5.11 Roman (Phase 3) identified elements from water-pit G83 (L27, SL6)

	Cattle NISP	Sheep/Goat NISP	Pig NISP	Horse NISP
Horn core	1	-	-	-
Skull fragments	1	-	-	-
Maxilla	1	-	-	-
Mandible	2	1	-	1
Loose teeth	3	1	-	1
Scapula	2	-	-	-
Humerus	1	-	1	-
Radius	1	-	-	-
Pelvis	-	-	-	1
Femur	2	-	-	1
Tibia	-	-	1	2
Calcaneus	2	-	-	-
Metacarpal	2	-	-	1
Metatarsal	1	-	-	2
Metpodial	1	-	-	-
Lumbar vertebrae	1	-	-	-
Total	21	2	2	9

Counts include parts of same bones found in different contexts.

NISP = number of identified specimens

MNE = minimum number of elements represented

Table 5.12 Roman (Phase 3) identified elements in other Groups

and a distal breadth of 68.5mm; it probably belonged to a bull with an estimated withers height of 113.9cm, a height fairly typical of Roman cattle from the Bedford region. Possible drying oven G97 (L33, SL6) produced a sizeable portion, albeit very fragmented, of a cattle skull. Sub-enclosure ditch G147 (L32, SL5) produced a fairly complete horse metatarsal. A cattle mandible from field boundary ditch G47 (L15, SL8) had very heavy wear on all the molars and belonged to a very mature adult.

5.7 CHARRED PLANT REMAINS

John Giorgi

Twenty-five environmental bulk soil samples were collected for the recovery of charred plant remains for potential information on the agrarian economy of the site, mainly during the Roman period.

Methodology

Two samples were taken from late Neolithic/early Bronze Age (Phase 1) ditch fills and three from a late Bronze Age/early Iron Age (Phase 2) pit fill and post-hole fills. The other 20 samples were from Roman (Phase 3) deposits: from contexts associated with drying ovens (eight samples), pit fills (five samples), ditch fills (two samples), grave fills (two samples), and single samples from the fills of a posthole and a water-pit.

Sample size ranged from 5–40l. Each sample was partially or completely processed using a Siraf-style flotation tank and meshes of 0.3mm and 1mm for the recovery of the flot and residue respectively. The flots were then dried along with the residues, which were sorted for biological and artefactual remains. The flots were assessed for all biological materials including charred plant remains and charcoal. This showed the presence of identifiable charred plant remains in 20 samples, the flots of which were sorted using a binocular microscope (with a magnification of up to x40) and the material identified with the aid of modern and charred reference material and manuals (Cappers *et al* 2006; Jacomet 2006). Five samples produced very rich charred plant assemblages, of which only fractions of the

flots (from 6.25% to 25%) were sorted and quantified, although the remaining parts were scanned and estimated plant item frequencies made for the species in these fractions along with small cereal grain fragments (<2mm), indeterminate items and charcoal using the following rating system: + = 1–10; ++ = 11–50; +++ = 51–150; ++++ = 151–250; +++++ = >250 items.

Results

The results are shown in Tables 5.13 and 5.14. The 20 productive samples collectively produced a large charred plant assemblage (over 5000 quantified items), including several very rich and dense concentrations of charred material. The remains were dominated by cereal debris, consisting of almost equal amounts of grains (50% of the quantified remains) and chaff (45%) with few wild plant/weed seeds (5%). Preservation of the charred material was variable but generally poor; 65% of the grains were not identifiable, while fragmentation meant that there were large amounts of small (<2mm) unquantifiable grain fragments in all the productive samples. Virtually all the charred plant remains were from Phase 3 (Roman) contexts except for a very small amount in a late Bronze Age/early Iron Age posthole fill. Nomenclature and taxonomic order for the wild plants follows Stace (2005), also used for ecological data together with Hanf (1983) and Wilson and King (2004). There follows a description of the charred plant remains by Phase and Site Landscape and then a general discussion on the results in terms of the Roman agrarian economy, including evidence for crop husbandry and processing activities and specifically the function of the drying ovens.

Phase 1 (late Neolithic/early Bronze Age)

The two samples from ring-ditches L2 and L3 produced no charred plant remains.

Phase 2 (late Bronze Age/early Iron Age)

Post alignment L7 (SL2)

At the east end of the post alignment, posthole G17 contained a little hulled wheat chaff, including evidence for spelt wheat (*Triticum spelta*) (debris from the de-husking of this cereal) together with traces of unidentifiable grain and a charred weed seed of *Euphrasia/Odontites* (eyebright/bartsia) (Table 5.13).

Ditched boundary SL4

Ditch G76 (L44) produced a few unidentifiable grains, a little spelt wheat chaff, and two wild grass (Poaceae) seeds. These represent intrusive cereal debris from activities taking place further to the west during Phase 3.

Phase 3 (Roman)

Virtually all the charred plant remains from the site were from this phase and virtually all were from features within peripheral activity area SL5–7 (Table 5.14).

Drying oven G92 (SL5)

A sample from a fill of T-shaped drying oven G92 produced a fairly good-sized charred plant assemblage, albeit with a fairly low item density of 9.5. The remains were made up mainly of charred grains (76%), with smaller amounts of chaff (12%) and weed seeds (12%) (Table 5.15; Fig. 5.23). The cereal remains (grains and chaff) suggest that spelt wheat was the main grain with

	Site Landscape	2	4
	Land-use Area	7	44
	Group	17	76
	Feature type	Posthole	Ditch
	Sample number	4	28
	Vol (l) processed soil	10	9
	Vol flot (ml)	34	<1
Latin name	English name		
Cereal grains			
Cerealia	indet. cereal (estimate)	1	5
Cerealia	indet cereal fragment < 2mm	+	+
Cereal chaff			
<i>T. spelta</i> L.	spelt glume base	1	2
<i>T. spelta</i> L.	spelt rachis fragment	-	1
<i>Triticum</i> sp(p).	wheat glume base	4	-
<i>Triticum</i> sp(p).	wheat spikelet fork/base	1	-
<i>Triticum</i> sp(p).	wheat rachis fragment	2	-
<i>Euphrasia/Odontites</i> sp(p).	eyebright/bartsia	1	-
Poaceae indet.	grasses (large seed)	-	1
Poaceae indet.	grasses (small seed)	-	1
indeterminate	wood charcoal	+++	++
Total		10	10
Item density (per litre of processed soil)		1	1.1

Table 5.13 Late Bronze Age/early Iron Age (Phase 2) charred plant remains

just several free-threshing wheat (*Triticum aestivum/turgidum*) grains and one of hulled barley (*Hordeum vulgare*). The few weed seeds were from a limited range of species, mainly wild grasses (Poaceae), particularly small-seeded ones and occasional characteristic arable weeds, for instance *Fallopia convolvulus* (black bindweed) and *Bromus* (brome).

These remains largely represent clean spelt wheat grains that may have been accidentally burnt while being dried in the oven to harden the grain before milling, soft

grain often clogging up the querns (van der Veen 1989, 303). The small amounts of chaff and weed seeds may represent the burnt residues of fuel used in the oven or poorly cleaned grains.

Enclosure L27 (SL6)

Samples were taken from the south G73 and east G74 sides of enclosure L27. Ditch G73 produced a fairly good-sized charred plant assemblage (item density of 15.2), consisting mainly of hulled (spelt) wheat chaff (74%), fewer (hulled) wheat grains (24%), and virtually no weed seeds (Table 5.16; Fig. 5.24). These remains mainly represent debris from the de-husking of spelt wheat, accidentally burnt during the process or subsequently as fuel.

The sample from enclosure ditch G74 produced a fairly good-sized assemblage (item density of 18.6), consisting of fairly equal amounts of poorly preserved grains (44%) and chaff (50%); there were a few wild plant/weed seeds (6%), mainly from wild grasses, both large-seeded (including *Bromus*) and small-seeded types (Table 5.16; Fig. 5.24). The identifiable cereal remains were virtually all from hulled (spelt) wheat, while there was also a possible free-threshing wheat grain and a few barley and oat (*Avena*) grains. The almost equal amounts of grains and chaff suggest that these remains may represent spelt spikelets, accidentally burnt and broken up while being heated to facilitate de-husking or from accidents while in storage.

Water-pit G83 (SL6)

A sample from this feature (at the east end of enclosure L31) produced a very rich and dense concentration (projected item density of 622) of charred plant remains. Of the flot, 12.5% was sorted and quantified with chaff dominating and accounting for 73% of the quantified remains; very poorly preserved grain made up 19%

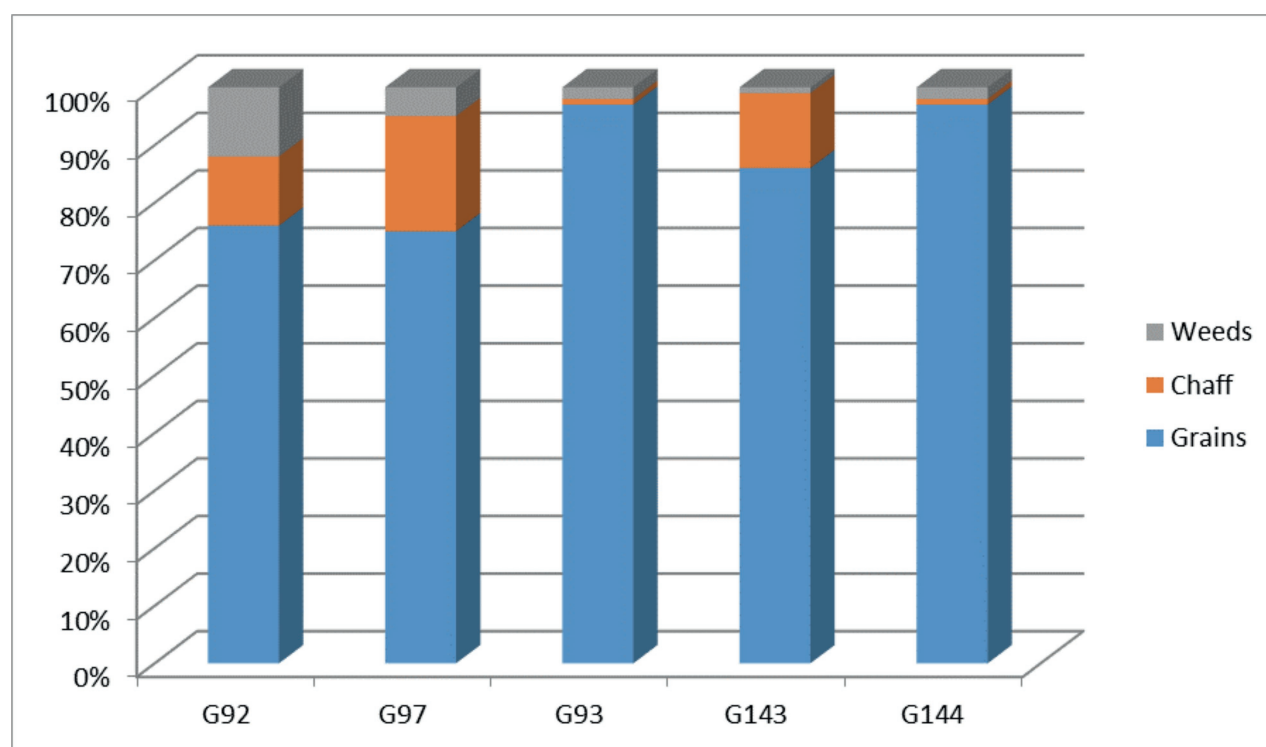


Figure 5.23 Proportions of grain, chaff and weed seeds in the Roman (Phase 3) rich (>100 quantified items) oven samples

Site Landscape Land-use Area		5 32	27		31						
Group	Feature type	92 Drying oven	73	74	83 Water-pit		97 Possible oven	93 Drying oven			
Sample number		19	10	11	26		12	25	24	20	21
Vol (l) processed soil		20	10	10	16		18	16	9	20	7
Vol flot (ml)		15	13	18	91		14	144	3	8	30
%sorted					12.50%						
% scanned						87.50%					
Latin name	English name										
Cereal grains											
<i>Triticum spelta</i> L.	spelt wheat	1	-	-	-	+	5	2	-	-	1
<i>T. dicoccum/spelta</i>	emmer/spelt wheat	3	2	5	10	+++	7*	9	6	3	7
<i>T. cf. dicoccum/spelta</i>	?emmer/spelt wheat	8	3	7	9	-	11	18	7	4	2
<i>T. aestivum/spelta</i> type	free-threshing/spelt wheat	-	-	-	-	-	-	-	-	-	-
<i>T. aestivum</i> type	free-threshing wheat	1	-	-	2	+	-	1	-	-	-
<i>T. cf. aestivum</i> type	?free-threshing wheat	2	-	1	2	-	-	1	-	-	1
<i>Triticum</i> spp.	wheat	14	6	5	30	++++	15	24	6	4	3
cf. <i>Triticum</i> spp.	?wheat	11	7	5	7	-	20	27	3	4	3
<i>Hordeum vulgare</i> L.	barley, hulled twisted	-	-	-	2	-	-	-	-	1	-
<i>H. vulgare</i> L.	barley, hulled straight	-	-	-	1	++	-	-	-	-	-
<i>H. vulgare</i> L.	barley, hulled indet.	1	-	-	-	-	-	1	-	-	-
<i>H. vulgare</i> L.	barley, indet.	-	-	3	5	-	-	-	1	-	1
cf. <i>H. vulgare</i>	?barley	-	-	1	4	-	-	-	2	-	2
<i>Avena</i> sp(p).	oat	-	-	4	-	++	-	4	-	-	2
cf. <i>Avena</i> sp(p).	?oat	-	-	-	-	-	-	4	-	-	1
Cerealia	indet. cereal (estimate)	102	19*	50*	166	+++++	56	254	35	55	28
Cerealia	indet cereal fragment <2mm	+++	++	++	+++		+++	++++	++	+++	+++
Cerealia	indet cereal coleoptile	2	-	-	3	+	-	-	2	-	-
Cereal chaff											
<i>Triticum dicoccum</i> Schubl.	emmer wheat glume base	-	-	-	1	++	-	-	-	-	-
<i>T. cf dicoccum</i>	?emmer wheat glume base	-	-	-	-	-	-	-	-	-	-
<i>T. spelta</i> L.	spelt spikelet fork	-	-	-	12	++	-	-	-	-	-
<i>T. spelta</i> L.	spelt glume base	5	39	22	144	+++++	5	-	2	1	7
<i>T. spelta</i> L.	spelt rachis fragment	2	5	8	25	+++	1	1	3		2
<i>Triticum</i> sp(p).	wheat glume base	8	55	36	284	+++++	14	-	8	1	5
<i>Triticum</i> sp(p).	wheat spikelet fork/base	6	5	15	376	+++++	8	-	-	-	-
<i>Triticum</i> sp(p).	wheat rachis fragment	2	8	12	58	+++++	3	-	4	-	1
<i>Triticum aestivum/turgidum</i> type	free-threshing wheat rachis	-	-	-	1	+	-	-	-	-	-
<i>Triticum</i> spp.	wheat awn fragment	-	-	-	-	+	-	-	-	-	-
<i>Hordeum vulgare</i> L.	barley rachis	-	-	-	1	+	-	-	-	-	-
<i>Avena</i> sp(p).	oat awn fragment	-	-	-	-	+	-	-	-	-	-
Other plant/weed seeds											
<i>Fumaria officinalis</i> L.	common fumitory	-	-	-	-	+	-	-	-	-	-
<i>Urtica urens</i> L.	small nettle	-	-	-	-	-	-	-	-	-	-
<i>Chenopodium</i> sp(p).	goosefoot etc.	-	-	-	-	-	-	-	-	-	-
<i>Atriplex</i> spp.	orache	-	-	-	-	+	-	-	-	-	-
<i>Atriplex/Chenopodium</i> spp.	orache/goosefoots etc.	-	-	-	-	-	-	-	-	-	-
<i>Fallopia convulvulus</i> (L.) A Love	black bindweed	1	-	-	-	-	-	-	-	-	-
<i>Rumex</i> sp(p).	dock	1	-	-	1	+	1	2	-	1	1
Polygonaceae indet		-	-	-	-	-	-	-	-	-	-
<i>Malva</i> spp.	mallow	-	-	-	-	-	-	-	-	-	-
<i>Prunus domestica</i> L.	wild plum/bullace	-	-	-	-	-	1	-	-	-	-
	vetch/tare/vetchling	-	-	-	-	-	-	-	-	-	-
<i>Vicia/Lathyrus</i> sp(p).	(seeds>2mm)	-	-	-	-	-	-	1	-	-	-
	vetch/tare/vetchling	-	-	-	-	-	-	-	-	-	-
<i>Vicia/Lathyrus</i> spp.	(seeds<2mm)	-	-	-	-	-	-	-	-	-	-
	vetch/tare/vetchling/pea	-	-	-	-	-	-	-	-	-	-
<i>Vicia/Lathyrus /Pisum</i> spp.	(seeds>2mm)	-	-	-	-	-	-	-	-	-	-
	medick/clover	-	-	-	-	-	-	-	-	-	-
<i>Medicago/Trifolium</i> sp(p).	(seeds <1mm)	-	-	1	-	-	-	-	-	-	1
<i>Daucus carota</i> L.	carrot	-	-	-	-	-	-	-	-	-	-
<i>Hyoscyamus niger</i> L.	henbane	-	-	-	-	-	-	-	-	-	-
<i>Lithospermum arvense</i> L.	field gromwell	-	-	-	-	-	-	-	-	-	-
<i>Prunella vulgaris</i> L.	self-heal	-	-	-	1	-	-	-	-	-	-
<i>Plantago lanceolata</i> L.	ribwort plantain	1	-	-	-	-	-	-	-	-	-
<i>Euphrasia/Odonites</i> sp(p).	eyebright/bartsia	2	1	1	-	-	1	1	-	-	-
<i>Rhinanthus minor</i> L.	yellow rattle	-	-	-	-	-	-	-	-	-	-
<i>Galium aparine</i> L.	cleaver	-	-	-	-	-	-	-	-	-	-
<i>Anthemis cotula</i> L.	stinking chamomile	-	-	-	-	-	-	-	-	-	-
<i>Tripleurospermum inodorum</i> (L.) Sch. Bip.	scentless mayweed	-	-	1	-	+	-	-	-	-	-
<i>Eleocharis palustris/uniglumis</i>	spike-rush	-	-	-	-	-	-	-	-	-	-
<i>Carex</i> sp(p).	sedge	-	-	-	-	-	-	-	-	-	-
<i>Lolium</i> sp(p).	rye-grass	-	-	-	-	-	-	-	-	-	-
<i>Lolium/Festuca</i> sp.	rye-grass/fescue	-	-	-	-	-	-	-	-	-	-
<i>Poa</i> spp.	meadow-grass	-	-	-	-	+	-	-	-	-	-
<i>Bromus</i> sp(p).	brome	2	-	4	29	+++++	-	1	-	2	-
cf. <i>Bromus</i> sp(p).	?brome	1	-	1	32	-	1	1	-	2	1
Poaceae indet.	grasses (large seed)	-	-	-	37	++	-	-	-	4	2
Poaceae indet.	grasses (small seed)	15	1	4	-	++	4	1	2	3	1
Poaceae indet.	cereal/grass culm	-	1	-	1	+	-	-	-	-	-
	node/internode	-	-	-	-	-	-	-	-	-	-
indeterminate	thin ribbed stem	-	-	-	-	+	-	-	-	-	-
indeterminate	wood charcoal	++	++	++	++	+++	+++	+++++	+++	+++	++++
indeterminate		-	-	+	+	+	+	+	-	-	+
Total		191	152	186	1244		153	353	81	85	72
Item density (per litre of processed soil)		9.6	15.2	18.6	622e		8.5	22.1	9	4.3	10.3

Table 5.14 Roman (Phase 3) charred plant remains

Site Landscape Oven Context type	5 G92 Drying oven	6 G93 Drying oven	G97 Possible drying oven	G143 Infill of drying oven G93	G144 Infill of drying oven G93
Sample	19	25	12	17	18
Grains	143 (76%)	345 (98%)	114 (75%)	166 (87%)	369 (97%)
Cereal chaff	23 (12%)	1 (<1%)	31 (20%)	24 (13%)	3 (1%)
Weed seeds	23 (12%)	7 (2%)	8 (5%)	1 (<1%)	9 (2%)
Total items	189	353	153	191	381
Item density (per litre of soil)	9.5	22.1	8.5	38.2	42.3

e=estimated item frequency based on sorted fraction

Table 5.15 Roman (Phase 3) frequencies and percentages of grain, chaff, and weed seeds from drying oven samples with >100 quantified items

Site Landscape Group Feature type Sample	73 Ditch 10	74 Ditch 11	6 59 Pit 14	15	83 Water-pit 26	13	96 Pit 22	7 75 Grave 9
Grains	37 (24%)	81 (44%)	211 (42%)	171 (20%)	238 (19%)	231 (93%)	228 (87%)	265 (47%)
Cereal chaff	112 (74%)	93 (50%)	267 (54%)	635 (76%)	902 (73%)	7 (3%)	-	295 (52%)
Weed seeds	3 (2%)	12 (6%)	21 (4%)	31 (4%)	101 (8%)	11 (4%)	34 (13%)	9 (1%)
Total items	152	186	499	839	1241	249	262	569
Item density (per litre of soil)	15.2	18.6	25	671.2e	622e	199.2e	52.4e	113.8e

e=estimated item frequency based on sorted fraction

Table 5.16 Roman (Phase 3) frequencies and percentages of grain, chaff, and weed seeds in other samples with >100 quantified items

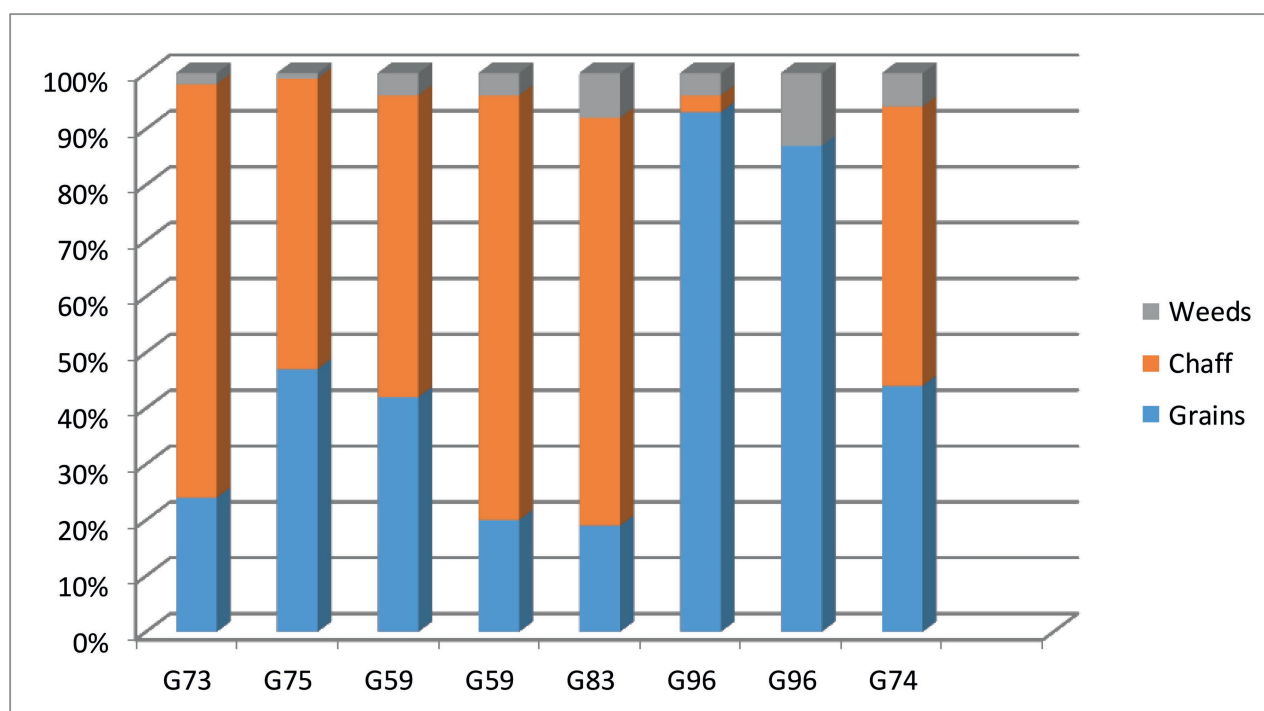


Figure 5.24 Proportions of grain, chaff, and weed seeds in rich samples (with >100 quantified items) from Roman (Phase 3) grave G75, pits G59 and G96, water-pit G83, and ditches G73 and G74

and weed seeds the other 8% (Table 5.16; Fig. 5.24). The grains and chaff showed spelt wheat to be the main cereal with much smaller amounts of evidence for emmer (*Triticum dicoccum*), free-threshing wheat, (six-row)

hulled barley, and oats. There was only a small range of wild plant/weeds represented in the sample with large wild grass seeds (notably *Bromus*) making up the greater part of these remains.

These remains mainly represent debris from the de-husking of spelt wheat, the chaff accidentally burnt (along with the grains) while being parched to facilitate de-husking, and/or from the use of the chaff as fuel following its separation from the grains. These remains were then dumped into the water-pit along with a wide range of other finds.

Sub-enclosure L33 (SL6)

Possible drying oven G97

Sample 12 from the flue of possible drying oven G97 produced a fairly good-sized charred plant assemblage (item density 8.5) with a very similar composition to that found in oven G92. The remains consisted largely of charred grains (75%) and smaller amounts of chaff (20%) and even fewer weed seeds (5%) (Tables 5.14 and 5.15). The cereal remains were all from hulled wheats, probably spelt on the basis of several grains and chaff fragments. Traces of weed seeds included small-seeded wild grasses. A *Prunus domestica* (plum/bullace) type fruit stone was also recovered.

These remains also largely represent clean spelt wheat grains that may have been accidentally burnt while being dried in the oven before milling. The small amounts of chaff and weed seeds probably represent the residues of fuel used in the oven from de-husking activities or poorly cleaned grains.

Drying oven G93

Four samples were collected from drying oven G93 and a further two from its infill G143 and G144. The six samples contained modest to fairly large charred plant assemblages, five producing more than 100 quantified items. However, the concentrations of charred remains were not particularly high, ranging from 4.3 to 42.3 items per litre of processed soil.

Cereal grains were the main component of all six charred plant assemblages accounting for between 71% and 98% of the quantified remains; there were significantly smaller amounts of chaff, less than 1% up to 22% of the counted items in each sample, and wild plant/weed seeds, which made up less than 1% up to 14% (Table 5.14). The composition of the individual assemblages was very similar with the grains and chaff showing that spelt was the main cereal with no definite evidence for emmer and only very occasional grains of free-threshing wheat (in three samples), (six-row) hulled barley (in six samples) and oat grains (in two samples). The relatively few weed seeds represented only a limited range of species, mainly from wild grasses, both large-seeded (including *Bromus*) and small-seeded types.

These remains mainly represent grain accidentally burnt while being dried to harden the grain before milling. The smaller amounts of chaff and few weed seeds may represent the residues of fuel or poorly cleaned grains.

Possible building G94

A sample from one of the building's four postholes produced a modest-sized charred plant assemblage with mainly cereal debris of mostly chaff (66%) and fewer grains (28%) from hulled (spelt) wheat, plus few weed seeds mainly from large wild grasses including *Bromus*. These remains probably derive from accidents during activities carried out in the drying ovens, including the de-husking of spelt wheat and/or from the subsequent use of the chaff as fuel.

Pit G96

Samples 13 and 22 from G96 (located immediately north of drying oven G93) produced exceptionally rich and broadly similar charred plant assemblages; 6.25% and 25% of the flots respectively were sorted and quantified. Sample 13 produced the denser concentration of remains (estimated item frequency of 199.2); the estimate for sample 22 was 52.4.

Both assemblages were dominated by charred grains, accounting for 93% and 87% of the quantified fractions respectively, along with a very little cereal chaff (3%). There were a few weed seeds (4%) in sample 13, and weed seeds (13%) but no chaff in sample 22 (Tables 5.14 and 5.16). The cereal remains were mainly of hulled wheat, probably spelt on the basis of a few grains and cereal chaff, with only a little evidence for free-threshing wheat, six-row hulled barley, and oats. There was a fairly good range of weed seeds in sample 22, including characteristic arable weeds, e.g. *Anthemis cotula* (stinking chamomile), *Galium aparine* (cleaver) along with *Carex* (sedges) and wild grasses, both large-seeded (including *Bromus*) and small-seeded types such as *Poa* (meadow grass).

These remains mainly represent cleaned and de-husked spelt wheat, which may have been accidentally burnt while being dried in the nearby ovens prior to milling.

Unenclosed pits L37

Two samples from different fills of large pit G59 (within trackway L29 but adjacent to the crop-processing area) contained charred plant remains. Sample 15 produced an exceptionally rich assemblage (6.25% of the flot was sorted and quantified) with the highest concentration of remains from the whole site (an estimated item density of 671.2). Sample 14 also produced a fairly rich assemblage with an item density of 25.

The two assemblages were broadly similar, containing mainly cereal debris (96% of the quantified remains in both), but with more chaff (76%) than grain (20%) in the richer sample. More equal amounts of grain (42%) and chaff (54%) were present in sample 14 (Table 5.16; Fig. 5.24). The better-preserved cereal remains showed spelt wheat to be the main grain with only traces of emmer, free-threshing wheat, (six-row) hulled barley, and oats. The relatively few wild plant/weed seeds were mainly from wild grasses, both large-seeded (including *Bromus*) and small-seeded types such as *Poa*. There were also traces of typical arable weeds, including mineralised records of *Lithospermum arvense* (field gromwell).

These remains mainly represent debris from the de-husking of spelt wheat (possibly carried out in the ovens to the west). The grains and chaff were accidentally burnt while being parched, although the chaff may have also been burnt as fuel following separation from the grains. Given the almost equal amounts of grain and chaff in sample 14, some of these remains may also be from spelt wheat spikelets burnt in storage.

Inhumation G75 (L30, SL7)

A fill of grave G75 produced a very rich and dense concentration (estimated item density of 113.8) of charred plant remains; only 12.5% of the flot was sorted and quantified, producing almost equal amounts of grains (47%) and chaff (52%). There were very few wild plant/weed seeds (1%) mainly from *Rumex* (dock) and wild grasses, both large-seeded (including *Bromus*) and small-seeded

types (Table 5.15; Fig. 5.24). The well-preserved grains and chaff show spelt wheat to be the main cereal with only traces of emmer (represented by a few chaff fragments), free-threshing wheat, hulled barley, and oats. These remains represent almost fully processed spelt wheat, the almost equal amounts of grains and chaff suggesting that they may derive from spikelets, accidentally burnt and broken up while being heated to facilitate de-husking or from accidents while in storage. There were probably incorporated into the burial when the grave was backfilled.

Field system SL10

One sample from pit G98 within field L42 produced a solitary charred grain of possibly hulled wheat, on which no further comment may be made.

Discussion

Crop husbandry

The range of cereals

Wheat was by far the best-represented cereal, accounting for almost 91% of the identifiable grains. Almost all the identifiable wheat grains were from hulled wheat and specifically spelt on the basis of the chaff fragments; this cereal was identified in virtually all (19) of the samples. There were only a few definite records for emmer in four samples, based on a few chaff fragments, and occasional grains and rachis fragments of free-threshing wheat in eleven samples.

Two other cereals were represented by occasional or very small numbers of grains: barley (5% of identifiable grains) in 13 samples, the well-preserved grains showing the presence of (six-row) hulled barley with several rachis fragments in two samples indicating both lax and dense-eared forms of this cereal; and oat (4% of identifiable grains) in ten samples, including a few awn fragments in two. However, it is not possible to establish whether the oat grains are from cultivated and/or wild species.

Virtually all the charred cereal remains were from Roman contexts, with the exception of a little hulled (spelt) wheat chaff in a late Bronze Age/early Iron Age (Phase 2) posthole G17 (L7, SL2) and boundary ditch G76 (SL4). Hulled wheat is one of two main cereals found during this period (the other being hulled barley), with spelt becoming more widespread from the Iron Age onwards (Greig 1991, 302, 306). Excavations at Thorn Turn Waste Park c.3.5km to the west showed the presence of hulled wheat in similarly dated deposits (Giorgi 2018b). The Roman cereal remains are similar to previous archaeobotanical evidence from other sites of this period in southern England, which shows spelt wheat to be one of the two main cereal crops (along with hulled barley) during the Romano-British period (van der Veen 2016; Lodwick 2017; Greig 1991, 309) and the dominant grain in this part of the country (Lodwick 2017, 26). Emmer and free-threshing wheat do appear on other Romano-British sites but usually in only small amounts. The evidence from this site suggests that these two cereals, along with barley, probably only played a minor role in the local agricultural economy, while the oat grains may have been weeds.

The uses of the cereals

Spelt wheat, the main cereal in the samples, has excellent baking and milling properties (Jones 1981, 107) and

contains the proteins necessary for making a well-risen loaf (Cool 2006, 70). This cereal was also used for a very common gruel known as *puls* or *pulmentus*, not unlike modern Italian *polenta* (Renfrew 1985, 22). Spelt was also used for the production of malt for brewing, although there was no evidence to suggest that this was taking place on the site (see below). Of two of the two minor crops, free-threshing wheat also has good bread making qualities (Jones 1981, 107) while barley may have been used for flat bread and griddle cakes (Cool 2006, 70–1) as well as for animal fodder.

Other potential foodstuffs

There was no definite evidence for the residues of other cultivated crops with the possible exception of a few large *Vicia/Lathyrus/Pisum* (vetch/tare/vetchling/pea) fragments in four samples which may be from cultivated pulses. The charred plum/bullace fruit stone in possible drying oven G97 (L33, SL6) may represent the residue from consumed wild fruits gathered from shrubby/hedgerow/woodland habitats close-by.

The weed seeds

There were only several hundred charred wild plant/weed seeds, accounting for 5% of all the quantified remains, most of which probably represent crop weeds given their presence in predominantly cereal assemblages. Species diversity in individual assemblages, however, was mainly low (except in G96) and most of the seeds could not be identified to species, limiting investigations into crop husbandry practices.

Several common arable weeds, *Fumaria officinalis* (common fumitory), *Lithospermum arvense* and *Anthemis cotula*, albeit only represented by occasional seeds in few samples, suggest the cultivation of the calcareous loamy soils around the site. *Carex* (sedge) and *Eleocharis* (spike-rush) may indicate the use of damper areas of ground for growing crops, possibly towards the Houghton Brook – the high incidence of wet-ground plants represented on other Roman sites suggests an expansion onto damp ground during the early Roman period (Lodwick 2017, 36). This may have been in response to over cropping – the weed seeds in the samples representing plants indicative of infertile (nutrient-poor) soils, e.g. *Fallopia convolvulus*, *Vicia/Lathyrus* (vetch/tare/vetchling) and *Medicago/Trifolium* (medick/trefoil). However, other weeds indicative of fertile (nutrient-rich) soils, e.g. *Fumaria officinalis*, *Urtica urens* (small nettle), *Chenopodium/Atriplex* (goosefoot/orache), *Galium aparine* and *Anthemis cotula*, suggest that a mix of poor and good land may have been cultivated around the site. Spelt wheat, the main cereal in the samples, is a hardy crop which can grow in a range of soils (Jones 1981, 106); archaeobotanical evidence suggests that it was grown in poorer soils during the Romano-British period (van der Veen 1992).

Lithospermum arvense and *Galium aparine* may point to the winter-sowing of cereals, while *Chenopodium/Atriplex* and *Fallopia convolvulus* are usually found in spring-sown crops. Spelt wheat, being a hardy crop, would have probably been autumn-sown; archaeobotanical research suggests that autumn-sowing of crops was likely to have been the norm during the Roman period (Lodwick 2017, 46).

The height of the weed seeds may provide an indication of harvesting methods; the presence of *Anthemis cotula*, *Tripleurospermum inodorum* suggests that the cereals were probably harvested fairly low on the straw. Archaeobotanical evidence from other Roman sites suggests that this was probably the most usual method of harvesting cereals at the time (Lodwick 2017, 47). Straw would have been an important commodity in its own right, used as fuel, livestock bedding and fodder, thatching, and in basket making. Occasional charred culm nodes and node fragments in three samples possibly represent the burnt residues of cereal straw.

Wild grass seeds accounted for the great majority (c.85%) of the wild plant/weed seeds. They were present in virtually every sample and included both small seeds, for instance *Poa*, and large wild grass seeds, notably *Bromus*. Some of these remains, along with several other potential grassland plants (*Prunella vulgaris* (self-heal), *Plantago lanceolata* (ribwort plantain), *Rhinanthus minor* (yellow rattle) and *Carex*) may be the burnt residues of hay, possibly collected from grassland areas nearer the brook. On the other hand, the presence of these species in cereal assemblages may reflect the opening up of grassy areas for arable cultivation.

Crop-processing

The rich Roman charred cereal assemblages were concentrated within peripheral activity area SL5–7; they were probably mainly associated with activities taking place in the three successive drying ovens. The bulk of the charred plant remains consisted of cereal remains of spelt wheat, represented by almost equal amounts of grains and chaff from the final stages of crop-cleaning (including the de-husking of the hulled wheats) and/or from the remains of accidentally burnt stored spelt wheat spikelets. Over half (55%) of the weed seeds were large wild grass seeds, notably *Bromus*, which together with other large grain-sized weed seeds in the samples (e.g. *Fallopia convulvulus*, *Galium aparine*, and *Lithospermum arvense*) are often found in, and are characteristic of, almost fully processed and stored grain because of the difficulty of separating these large weed seeds from the grains other than by hand-sorting.

Drying ovens G92, G93 and G97

The increase in the number of drying ovens in Roman Britain during the 2nd to 3rd centuries, particularly in the central belt – the site lies in the ‘West Anglian Plain’ – indicates the large-scale processing of cereals and suggests an increase in the scale of arable cultivation during the Roman period (Lodwick 2017, 26, 55, 61). The site is located fairly close to Watling Street, which would have allowed easy access for the transport of cleaned grain to urban centres such as Dunstable and other markets.

Charred plant assemblages from Romano-British drying ovens show that they were used for a number of purposes. The main uses appear to have been for the drying/parching of hulled wheats to facilitate de-husking, the drying of grains before milling or storage, or the heating of sprouted grains to halt germination as part of the malting process (van der Veen 1989). Spelt, represented by both grains and chaff, is the most frequent cereal found in drying ovens in Roman Britain (Lodwick 2017, 57).

The charred plant assemblages from drying ovens G92 and G93 were remarkably similar in their composition, consisting largely of cereal grains (between 71% and 98% of the quantified remains in each sample) with much smaller amounts of chaff (<1% to 22%) and weed seeds (<1% to 14%). This suggests that the ovens in these instances were being used to dry and harden cleaned and de-husked spelt wheat grains in readiness for milling, the grains being accidentally burnt during this process. Milling of the clean grain as an association between the grinding of grain and drying ovens has been noted at other Romano-British sites including Catsgore in Somerset (Morris 1979, 18).

The small amounts of chaff and weed seeds may represent the residues of fuel used in the ovens from de-husking and sieving activities, and/or may be from poorly cleaned grains. As the charred remains in the ovens only reflect the final uses of the features it is possible that the chaff could be residues from previous uses of the ovens for parching spelt spikelets to facilitate de-husking; the low amounts of chaff may reflect the low survival rate of these more fragile remains compared to grains in the poorly preserved oven assemblages in which between 50% and 77% of the grains from each sample could not be identified. The presence of very large amounts of hulled wheat chaff fragments in water-pit G83 (L27, SL6), pit G59 (L37, SL6), and grave G75 (L30, SL7) does show that de-husking activities were taking place, if not in the ovens, then perhaps nearby.

There is no significant evidence from the charred assemblages to suggest that any of the drying ovens were used for malting activities; there were only very occasional sprouted grains and detached coleoptiles in three samples from drying ovens G92, G93 and possible drying oven G97. These remains, along with very occasional sprouted grains or detached sprouts in pits G83 and G96 and in several other features (pit G59 (L37), ditches G73 and G74 (L27), and grave G75 (L30)) are probably the result of accidental germination resulting from damp conditions rather than being from malting activities.

Spatial and temporal distribution of the charred plant remains

The Roman samples produced good and in some instances very rich charred plant assemblages. Thirteen of the samples contained over 100 quantified items. Many of these totals were based on only small sub-sampled fractions, with high item densities – four contained more than 100 and up to 672 items per litre of processed soil, showing dense concentrations of charred plant remains. These assemblages suggest that fairly large-scale agricultural activities associated with the processing of spelt wheat – both the de-husking of spikelets and the drying of cleaned grain in preparation for milling – were being carried out within peripheral activity area SL5–7 or close-by.

Most of the rich assemblages were from features associated with the first modification SL6 of peripheral activity area SL5, with a clean grain assemblage from the earliest oven G92 being the only charred remains of note from SL5. In SL6, clean grain was found in drying oven G93, possible drying oven G97, and two samples from pit G96 suggesting that milling the grain had taken place nearby after being hardened in the oven. Good chaff assemblages from de-husking of spelt wheat were found in water-pit G83 to the south-west of the ovens; while another chaff-rich assemblage, some of which may

represent accidentally burnt spikelets, was found in pit G59 (L37) to the north-east of the ovens. Enclosure ditch G73 (L27) contained mainly chaff from de-husking. SL7 produced just one rich assemblage from grave G75 (L30, SL6), which included good amounts of both spelt grain and chaff from de-husking activities or from part of a storage deposit.

5.8 WOOD CHARCOAL

Dana Challinor

Introduction

The majority of the samples taken during the excavations proved sterile or sparse in charcoal remains and only five merited analysis. These were from pits and ovens dating to the late Neolithic/early Bronze Age (Phase 1) and Roman period (Phase 3) and associated with modifications to peripheral activity area SL6 and field system SL10. The assemblages mostly represented fuel debris associated with crop drying and parching.

Methodology

A number of flots were scanned in the first instance to determine potential for full analysis. Standard identification procedures were followed using identification keys (Hather 2000, Schweingruber 1990) and modern reference material. The charcoal was fractured and examined at low magnification (up to X45), with representative fragments examined in longitudinal sections at high magnification (up to X400). Depending upon diversity, between 30 and 50 fragments per sample were examined. Observations on maturity and other features were made where appropriate. Classification and nomenclature follow Stace 2005.

Results

The charcoal was variably preserved, with abundant material in the analysed samples (Table 5.17).

The assemblage from Roman (Phase 3) pit G59 (L37, SL6) was very well preserved, with large fragments (>20mm) of roundwood and a clear anatomical structure. Notably, the late Neolithic/early Bronze Age sample from pit SG166 (G37, SL1) was heavily infused, with orange and vivianite staining, indicating seasonal or partially

waterlogged conditions. The same assemblage exhibited some insect damage, with small asymmetric tunnels observed in multiple Maloideae fragments. Seven taxa were positively identified:

FAGACEAE: *Quercus* sp., oak

BETULACEAE: *Alnus glutinosa*, alder, *Corylus avellana*, hazel

ROSACEAE: *Prunus spinosa*, blackthorn or *Prunus domestica*, plum

Maloideae incl. *Malus*, apple; *Pyrus*, pear; *Sorbus*, service tree/whitebeam/rowan and *Crataegus*, hawthorn

RHAMNACEAE: *Rhamnus cathartica*, purging buckthorn

OLEACEAE: *Fraxinus excelsior*, ash

The identifications were generally consistent with native taxa, with the possible exception of the *Prunus* charcoal. This exhibited the large rays indicative of both the native *P. spinosa* and the introduced *P. domestica*. The latter was introduced to Britain by the Romans, and a single stone of *P. domestica* was recorded in possible drying oven G97 (L32, SL6).

Phase 1 (late Neolithic/early Bronze Age) pit

The charcoal from pit SG166 (G37, SL1) was in very poor condition, but clearly dominated by fragments of roundwood – largely hawthorn group, with some hazel and alder. Alder prefers wet ground habitats, especially river/stream sides, while the hawthorn group taxa are indicative of woodland margins or hedgerow/scrub. The insect tunnels were consistent with the holes left by the Cerambycidae (long-horned beetles), which commonly inhabit dead wood with bark attached (Mark Robinson, pers. comm.). This suggests that the wood had either been left to season or was gathered as already dead, rotting wood. The assemblage, characterised by small wood, is consistent with residues from domestic waste.

Phase 3 (Roman)

First modification SL6 to the layout of peripheral activity area SL5

The samples directly associated with drying oven G93 (L32) and pit G59 (L37) were characterised by single

		Phase 1	3			
Site Landscape	SL1		SL6			SL10
Land-use Area	L4	L37	L32			L42
Feature type	Pit	Pit	Drying oven		Infill of drying oven	Pit
					G93	
Sub-group	SG166	-	-		-	-
Group	G37	G59	G93		G144	G98
Sample no.	2	14	25		18	23
<i>Quercus</i> sp.	oak	-	-	30 (r)	27 (s)	-
<i>Alnus glutinosa</i> Gaertn.	alder	2 (r)	-	-	-	-
<i>Corylus avellana</i> L.	hazel	6 (r)	-	-	2 (r)	-
<i>Alnus/Corylus</i>	alder/hazel	7 (r)	-	-	1	-
<i>Prunus spinosa</i> /domestica	blackthorn/plum	-	-	-	-	14 (r)
Maloideae	hawthorn group	24 (r)	-	-	-	11 (r)
<i>Rhamnus cathartica</i> L.	buckthorn	-	-	-	-	1
<i>Fraxinus excelsior</i> L.	ash	-	30r (h)	-	-	-
Indeterminate	diffuse	9 (r)	-	-	-	4 (r)
Indeterminate	bark	2	-	-	-	-

r = roundwood, h = heartwood, s = sapwood

Table 5.17 Early Bronze Age (Phase 1) and Roman (Phase 3) charcoal

taxon dominance, indicating preferential selection of fuelwood. Pit G59 produced a large quantity of ash roundwood, ranging in size from 6–26mm diameters. Bark and pith were rarely preserved, but there was clear evidence that tyloses had been laid down in some of the early rings, indicating that heartwood formation had begun. Given the size of the material, this was probably at a relatively young age (max. ring counts were 17 years) and caused by local environmental conditions. The excellent preservation of the charcoal suggests that the assemblage was deposited in the pit as waste debris, relatively soon after burning and most likely representing a single event.

The maturity of the oak, which dominated assemblages in drying oven G93, was difficult to ascertain since the material was heavily comminuted, with less than one growth ring visible (similarly in additional scanned samples from these features). A few roundwood and sapwood pieces were recorded. The paucity of identifiable charcoal in other features in the peripheral activity area shows that the assemblages did not derive from the main fuelling chambers and/or that they had been cleaned of the larger remains of spent fuelwood.

Field system SL10

The sample from pit G98 (L42) produced a markedly different charcoal assemblage to those in SL6. The assemblage was characterised by shrub/hedgerow type taxa (Maloideae, *Prunus*, *Rhamnus*), mostly deriving from roundwood pieces of small diameter, though no complete stems were recorded. The assemblage came from a pit within field L42 and may represent the dumping of waste. Both the location and the character of the charcoal assemblage are distinct from the deliberately gathered fuelwood supplies seen in the charcoal remains from drying oven G93 and pit G59. One possibility is that the charcoal from SL10 represents the burnt remains of hedgerow trimmings and/or includes prunings from fruit trees.

Discussion

The charcoal assemblage from Woodside Link indicates that the Roman farmers used oak and ash as firewood for the parching and drying of crops. In contrast, fuel remains from a contemporary pit in field system SL10 indicate the burning of hedgerow/shrub type taxa. These may represent the burning of hedgerow trimmings, or just general domestic waste. Evidence from other Romano-British settlements in the vicinity, such as Dunstable (Austin 2010), Aston Clinton (Challinor 2013) and Harlington Road, Toddington (Challinor 2020, 260), suggests that oak and ash were preferentially selected for certain activities, specifically cremation; while shrubby and hedgerow taxa were generally used for domestic-type activities. One reason for this is that oak and ash have good burning properties, with long-lasting, high-calorific values, necessary for efficient cremation. The woods from blackthorn, hawthorn, apple, hazel etc.

also provide good heating properties (especially if well-seasoned) but they tend to produce a shorter-lived heat, particularly if small diameter roundwood is used. There would be no particular need to use oak and ash to fire drying ovens, for which a range of available deciduous taxa would suffice. However, there is plenty of charcoal evidence from corn dryers elsewhere in England to indicate a preference for oak, e.g. Cotswold Community, Gloucestershire (Challinor 2010); Yeovilton, Somerset (Gale 2005); and Stansted Airport (Gale 2008). There are also indications for more diverse assemblages, reflecting local preferences and/or temporal change, e.g. at Melksham, Wiltshire (Challinor 2018b) and Peterborough, Cambridgeshire (Challinor 2007b).

5.9 HUMAN BONE

Corinne Duhig

Introduction

Disarticulated human bone was recovered from Phase 1 (late Neolithic/early Bronze Age) pit SG166 (G37, L4) and Phase 3 (Roman) pit G59 (L37). A Roman inhumation was also found in grave G75 (L30) (Table 5.18).

Results

Phase 1 (late Neolithic/early Bronze Age)

A total of 115g of burnt small fragments of bone (ranging up to 3.6 × 2.6cm from skull vault, with some of 3cm from long bone) was recovered from pit SG166 (G37, SL1). The fragments include many from the skull vault, at least three from the vertebrae, one from the rib, long-bone fragments (including from the tibial and fibular shafts), and at least one metacarpal or metatarsal shaft. The root of a third molar is the only tooth present.

The colour of the bone is mostly black or dark grey, although the skull is largely white on the cortices and black within the diploë. There is a small amount of white on some long-bone cortices and the tibial shaft has a patch of unburnt bone. Some of the smaller fragments are somewhat abraded, suggesting that this deposit is residual or discard.

None of the bone can be identified as immature, so adult is assumed, although the sample is so small, fragmented and damaged that this cannot be certain. Although there are no duplicates, the minimum number of individuals (MNI) might well be more than one, especially given the suggestion that this is a residual or discard deposit.

Phase 3 (Roman)

Inhumation G75 (L30)

Inhumation G75 represents later activity L7 associated with peripheral activity area SL5; it was situated within the corridor of trackway L29 (SL6).

The skeleton was approximately 75% complete, lacking the cranium apart from one small flake of vault, but having most of a mandible with the left second

Phase	SL	L	G	SG	Feature	Description	Dimensions (m)	Bone weight (g)	Age	Sex
1	1	4	37	166	Pit	Disarticulated bone	-	115	?Adult	N/D
3	6	37	59	-	Pit	Disarticulated bone	-	118	Adult	N/D
	7	30	75	-	Grave	Inhumation	1.7 × 0.5 × 0.1	-	17–20	Female

Table 5.18 Summary of human bone

premolar, and first and second molars. One heavily worn upper right first deciduous incisor was also present. Despite the presence of the fingers, all 16 bones of the wrist were missing, but many were found in a fill overlying the grave and are described below.

The skeleton was that of a female, shown by the very wide sciatic notch and the small size of the femoral head, and is gracile. These are the only sex-determination features that are preserved. The iliac crest (upper edge of the pelvis) was in the process of fusing to the main bone, which takes place at age 17–20; all the sacral segments are separate, which continues until age 25; and the fine-grained surface of the auricular area is that of age range 20–24. Wear on the molars was less than in the lowest Brothwell age range, 17–25 years, so agreeing with the skeletal evidence that the individual was in late adolescence–very early adulthood, not more than 20 years of age and perhaps a year or two younger.

Both humeri had septal apertures, which are natural piercings of the bone of the elbow joint and which tend to be found in gracile individuals (because the bone is thinner than usual at that point). A third trochanter was present on both femora; this is a skeletal variant of no pathological significance. The last cervical vertebra was transitional in form, slightly resembling the thoracic vertebrae immediately below it in lacking transverse foramina. Again, this is of no medical significance but variations of this kind tend to run in families.

Bone was also recovered from ecofact samples taken from a fill overlying the inhumation, considered at the time of excavation to represent the grave backfill. They consisted of left scaphoid, trapezoid and capitate; right scaphoid, lunate, pisiform (possibly left), trapezoid, capitate and hamate, six hand phalanges (one proximal, two medial, three distal including thumb); small fragments of vertebral body, left scapula, ribs; the distal articulation of the left fibula; possible cortical bone from the talus, four foot phalanges (two medial, two distal); three sesamoids; 13 unidentified fragments; and a small fragment that might be an ossified blood vessel.

These bones match in size and exactly complement those from the main skeleton. The position of the hands in the grave suggests that the wrists were at the highest point, as they ‘draped’ over the shoulders. This would account for most of the wrist bones and a few of the hand bones having been disturbed post-deposition and found mixed with the grave backfill.

Pit G59 (SL6)

Three bones (89g) recovered from the primary fill of pit G59 are those of a left elbow: a distal humerus, terminating halfway down the shaft; most of an ulna, lacking the distal end; the head and a small part of the shaft of a radius. They are adult and large in size. The termination of the humeral shaft has an unusual breakage pattern, with rectilinear breaks that resemble those that have been cut with a saw, or alternatively that are the result of some burning and resultant crumbling of the bone, and it is possible that there is some blackening of the extreme end of the shaft. The terminations of the radial and ulnar shafts are both blackened and appear to have been scorched. Burnt areas of otherwise entirely unburnt bone is extremely unusual. It might be due to these bones falling out of a funeral pyre, but this is unlikely because they would have had to be heavily burnt (not merely scorched, as in this case) before the bones would break

easily across their shafts; or they might have been deliberately broken during an early-stage maintenance of a pyre.

Just above the primary fill of the pit, a mixture of burnt bone (29g) was recovered from an ecofact sample. It ranged in colour from white, bluish-grey to black, representing fully combusted through to very poorly combusted bone (just charred) and some that was unburnt. Individual fragments were patched, showing extremely poor pyre technology or, perhaps, no intention to fully cremate the body. Bones represented were those of the hand and foot, some unidentifiable fragments, and the ulna described below. Three large fragments joined to form the mid-shaft of an ulna, which was partly unburnt and partly patched with shiny black charring. In this it resembled the left elbow bones recovered from the primary fill described above. It is suggested that in both cases the bone having been defleshed prior to haphazard burning would account for the condition.

5.10 DISCUSSION

Mike Luke, incorporating ideas from Jo Barker, Dana Challinor, Corinne Duhig, Holly Duncan, John Giorgi, Mark Maltby and Jackie Wells

Evolution of the landscape, continuity, and discontinuity

The road scheme investigations produced evidence for a prolonged period of former land utilisation, spanning the late Neolithic/early Bronze Age to the post-medieval period. The most significant remains relate to the late Neolithic/early Bronze Age, the late Bronze Age/early Iron Age, and the Roman period. Phasing of the archaeological features was largely based on the pottery assemblage, especially for the late Bronze Age/early Iron Age and the Roman period. A single radiocarbon determination provided a more precise date for a late Neolithic pit.

Late Neolithic/early Bronze Age (Phase 2), oval, ring-ditch monument L2/L3 is the first evidence for human activity within the road scheme. It comprised an earlier, smaller ring-ditch, which was completely enclosed by a later ring-ditch (see below). Neither of the ditches, like those of a similar monument on HRN3206 (Luke and Barker 2021, 35), produced firm dating evidence or evidence to suggest any reworking or cleaning of the monument’s ditches after they had been dug. The presence of the monument and pits L4 (c.80m to the north-east on the other side of the Houghton Brook) suggests that some woodland clearance was well underway by this time. Elsewhere in the locality, it is likely to have commenced much earlier, as indicated by the presence of late Mesolithic pits near the Ouzel Brook to the north (Chap. 4). However, the dearth of struck flint and, other than the four pits of L4, the absence of settlement-related features within the road scheme suggests that this part of the HRN1 development area was not settled in the Neolithic/early Bronze Age. Of course, such evidence is notoriously difficult to recognise and this conclusion may change as further investigations take place.

During the late Bronze Age/early Iron Age (Phase 2) evidence for activity was identified in three locations (SL2, SL3 and SL4) with only post alignment SL2 being located near the earlier prehistoric features (Fig. 5.4). The post alignment is so far unique within

the HRN1 development area, but others are known in the region (see below). A more isolated boundary ditch SL4 extended over 300m to the south of the Houghton Brook. It has been identified within the road scheme, to the south within HRN3205 (Chap. 2), and to the north as a geophysical anomaly. Multiple ditches of this period, but often segmented, were also found within HRN3486 (Chap. 4). Possible evidence for settlement in two locations within the road scheme is indicated by pit clusters SL3. There was more extensive evidence for middle–late Bronze Age dispersed settlement and a field system to the west of the road scheme within HRN3206 (Luke and Barker 2021, 39–44) and further north within HRN3486 (Chap. 4). Similar evidence for contemporary settlement was found to the north on the A5–M1 Link (Brown 2020, 23–9). No definite buildings have been identified and Oake has highlighted that for Bedfordshire ‘Bronze Age settlement evidence is often difficult to identify and when encountered it rarely forms coherent and structured patterns’ (2007, 9). More coherent evidence for settlements and field systems has been found in the county at the Biddenham Loop (Luke 2016, 144–7).

No evidence for mid- to late Iron Age activity was identified within the road scheme. However, possible early Iron Age settlement, including six potential round-houses, was found within HRN3206 (Luke and Barker 2021, 45–6). No reliable dating evidence was recovered, but they were in the same area as the middle–late Bronze Age dispersed settlement, suggesting a degree of continuity. Remarkably, the road scheme produced no evidence for significant late Iron Age/early Roman activity. However, this is a misleading picture of the landscape, as such evidence was found at HRN3205 (Chap. 2), HRN3457 (Chap. 3), and within HRN3206 (Luke and Barker 2021, 47–50). The lack of evidence is partly the result of the narrow linear nature of the road scheme. In addition, most of the evidence within the road scheme relates to activity peripheral to settlements, which typically only produces a small assemblage of finds.

Evidence for Roman (Phase 3) activity within the road scheme was more extensive. It comprised field systems (SL8, SL9 and SL10) and, to the south at the junction of two trackways, a peripheral activity area (SL5–7) that became a focus for crop-processing (see below) (Fig. 5.9). One of these trackways followed the same course as late Bronze Age/early Iron Age boundary ditch SL4. The ditch continued into the HRN3205 excavation area where two further crop-processing areas were found adjacent to it (Chap. 2), located on the periphery of farmstead ACA20 (identified as part of the HRN1 evaluation but not yet subject to archaeological investigation). Some of the field systems are probably associated with this farmstead but others will be associated with a second farmstead c.850m to the north within the HRN3206 excavation area (Luke and Barker 2021, 51–81). It is uncertain if field system SL8, in the east part of the road scheme, was associated with one of these farmsteads or, perhaps more likely, an as yet unidentified one outside the HRN1 development area.

No evidence for early Anglo-Saxon activity was found within the road scheme and only two, apparently isolated, buildings of this period have been found to date within the HRN1 development area: within HRN3205 (Chap. 2) and within HRN3457 (Chap. 3).

Late Neolithic/early Bronze Age monument

The discovery of late Neolithic/early Bronze Age ring-ditch monument L2/L3 was unexpected, as the geophysical survey had not identified it. A similar monument was found in HRN3206 (Luke and Barker 2021, 35–7) (Fig. 5.25). The monument comprised an initial, oval ring-ditch G2 (c.7m long on its major axis), later enclosed by an outer ring-ditch G3 that was approximately twice as big and wider (up to 1.6m). Within the inner ring-ditch was a horseshoe-shaped gully and two postholes, which may be the remains of an internal structure (see below). No burials were found, although any within the mound would, like the mound itself, have been destroyed by later ploughing.

No datable finds were recovered from the monument and its suggested date is based on comparison with better-dated ring-ditch monuments elsewhere (Luke 2007, 45). The comparable HRN3206 double ring-ditch (c.1km to the north-west) comprised a smaller inner ring-ditch completely enclosed by a larger outer ring-ditch (Luke and Barker 2021, fig. 1.10). There, however, surviving mound material sealed the inner ditch (but not the outer ditch), conclusively demonstrating that the inner ditch was the earlier. A study of multiple-ring-ditch monuments in Northamptonshire also found that the smallest, innermost ditches were usually the oldest, with the outer ditches representing later additions (Deegan 2007, 56).

The horseshoe-shaped gully may represent the earliest element of the monument. Its shape in plan with a post-hole central to its open side suggests that it may have been part of a small timber structure. Similar structures may have been a feature of this type of monument but either leave no surviving trace or are misidentified as tree-throw holes (see, for example, F108 within ring-ditch 3 at Barton-le-clay (Clark 1991, 9 and fig. 2).

The majority of known ring-ditch monuments in Bedfordshire occur near the rivers Great Ouse and Ivel (Luke 2007, 42), with a smaller number on the chalk uplands nearer Houghton Regis, e.g. Five Knolls, Dunstable (Dyer 1991) and Barton-le-Clay (Clark 1991).

Middle Bronze Age/early Iron Age post alignment SL2

Post alignment SL2 comprised 89 postholes on a broadly NW–SE alignment; it was at least 110m long. It ran roughly parallel to, and c.80m north of, the modern-day course of the Houghton Brook. The postholes were c.1.5m apart and, in places, the posts were clearly paired. A small number of posts off the main alignment may not have all been contemporary.

Post alignments are a not uncommon feature of the late prehistoric landscape but, as with SL2, they are notoriously difficult to date. They comprise small features which produce few datable artefacts and may not contain material suitable for radiocarbon dating. Successfully dated examples range from the middle Bronze Age to the middle Iron Age and they are generally considered to be a 2nd-millennium phenomenon (Evans and Knight 2001, 91) – a time when the enclosure of land was becoming more prevalent. Middle Bronze Age radiocarbon dates were achieved on material from shorter post alignments at west of Bedford (Luke 2016, 126) and at land north of Biddenham (Luke and Barker 2021, 45). A radiocarbon-dated, early Iron Age example near the Fen edge, south-east of Peterborough, preserved timber uprights

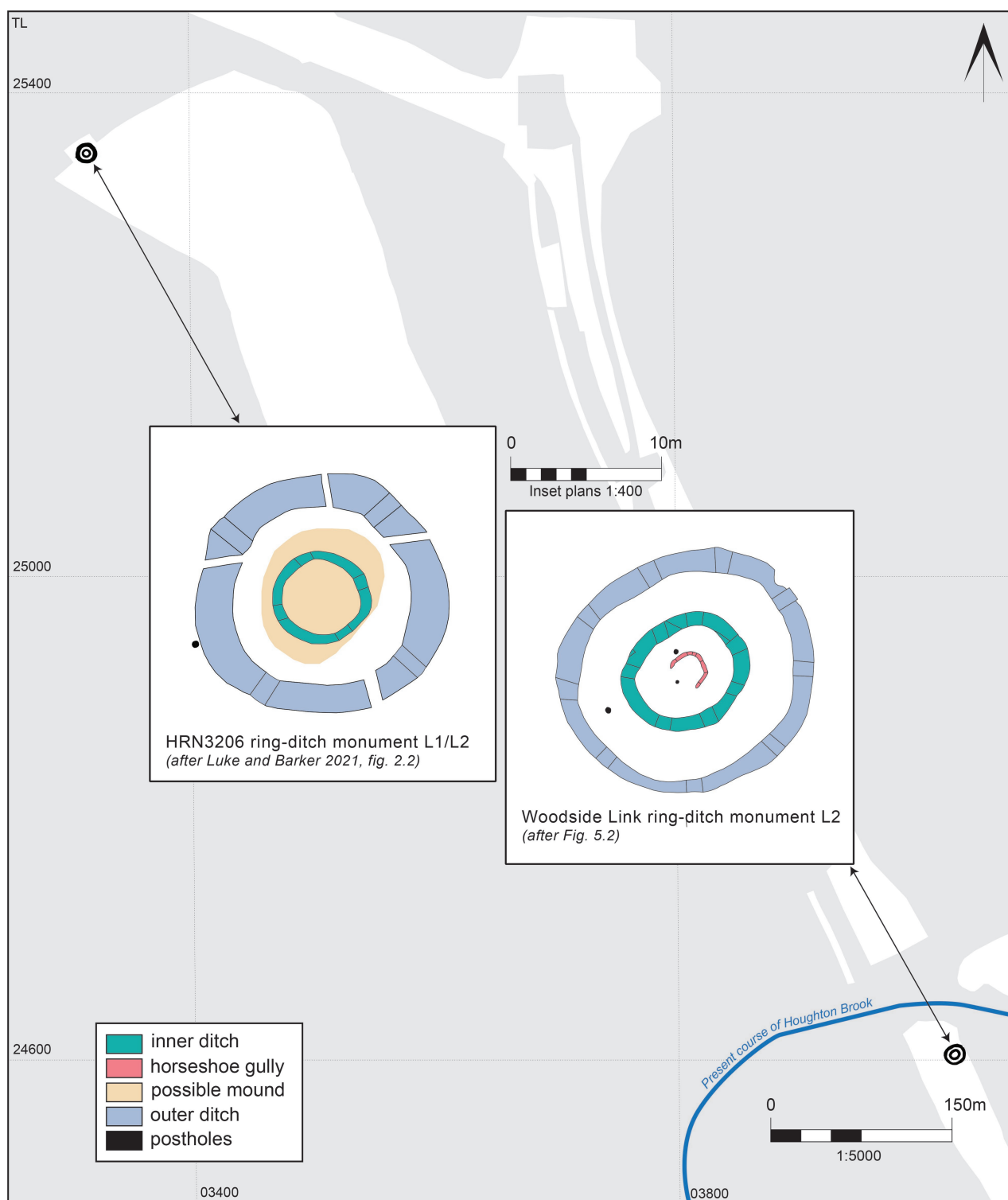


Figure 5.25 Comparative plans of ring-ditch monuments at Woodside Link and HRN3206

that appeared to represent posts reinforcing a planted hedge (Boismier *et al.* 2021, 49, 253–4).

Extensive double post alignments comparable to SL2 are known across the region, e.g. Beauford Farm, Biggleswade, Beds. (Albion in prep.), Bell Language School, Cambridge (Oxford Archaeology 2015, 20–1) (Fig. 5.26) and further away at Bell Farm, Horsford, Norfolk (Oxford Archaeology 2018). Post alignments of all forms are known on a variety of sites in the Thames valley, such as Yarnton, Eton Rowing Course (Lambrick

2009, 61) and Hartshill Copse, Berks. (Collard *et al.* 2006, 372–3).

At all sites the spacing of the posts seems to have varied. It is possible that the wider-spaced alignments may represent post and rail fences, while the closer-spaced alignments may represent palisades or screens. It was suggested that the posts at Barleycroft/Over, Cambs., were set in turf (Evans and Knight 2001, 88) and that those at Hartshill Copse, Berks., were set within an earthen bank (Collard *et al.* 2006, 399).

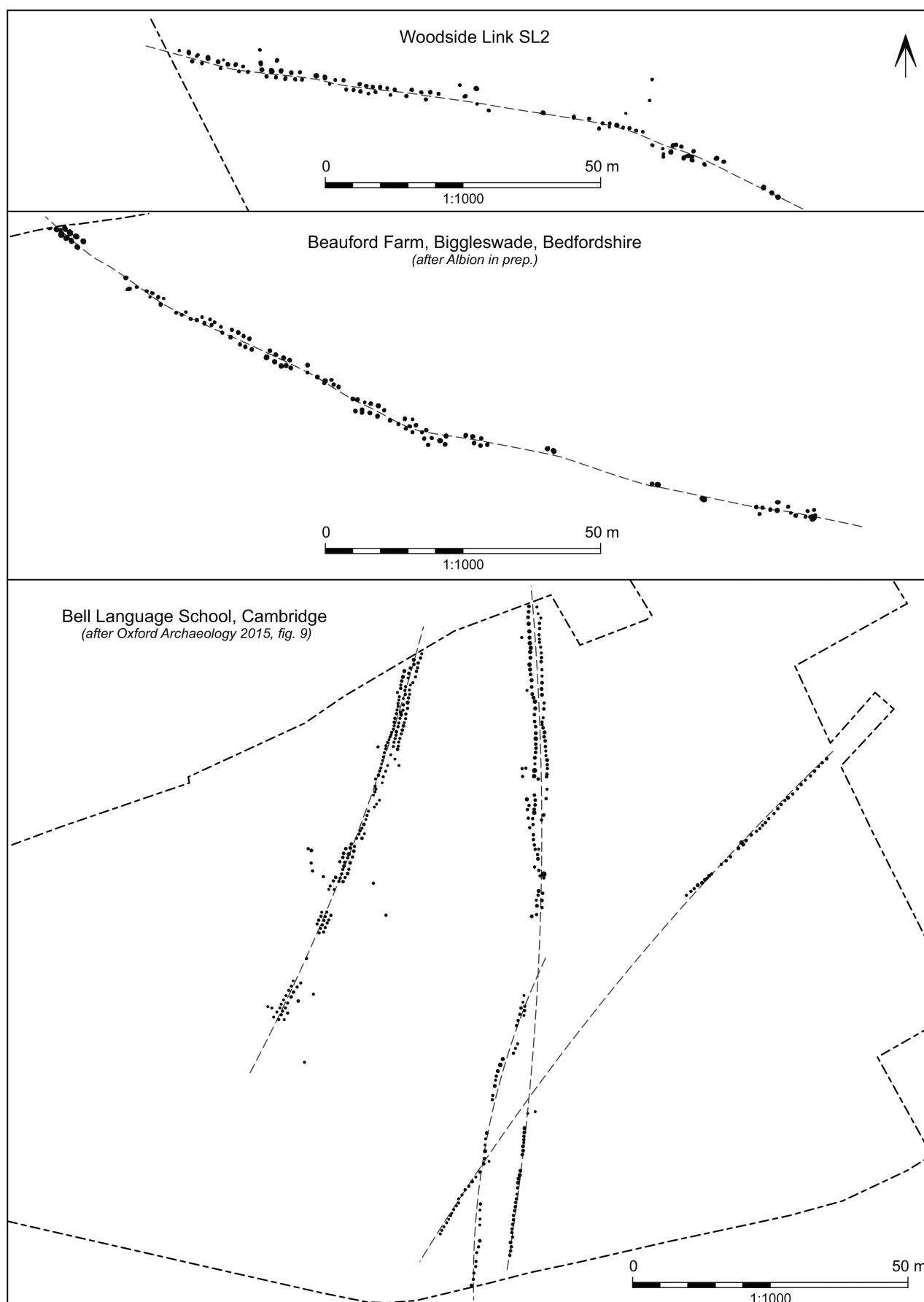


Figure 5.26 Comparative plans of late Bronze Age/early Iron Age post alignments at Woodside Link, Beauford Farm and Bell Language School

Post alignments share some characteristics with pit alignments – they are often extensive and require a considerable investment of labour. At Bell Language School a later pit alignment ran parallel to one of the post alignments (Oxford Archaeology 2015, fig. 9), suggesting that they may have shared a similar function.

As with pit alignments the interpretation of post alignments is uncertain. Some of those found on the Biddenham Loop, albeit shorter in length than SL2, may have served a practical function such as temporary stock control, e.g. one was constructed as part of a possible stock-handling arrangement (Luke 2016, 126 and fig. 4.7). Another on Land west of Kempston appeared to be more complex with a central entrance and posts that were replaced several times (Luke 2016, 126 and fig. 4.6). However, for many, like SL2, the sheer scale of the construction and extravagant use of timber would seem to go beyond the purely functional. It may be significant that they were constructed during a period of settlement and land-use intensification (Dawson 2007, 59–61). Evidence for this within the HRN1 development area takes the form of ditched boundaries and fields; while on the higher ground at the east end of the Chilterns the same processes gave rise to single and multiple dykes (Bryant 1995, 26). The eight post alignments at Barleycroft have been viewed as likely components of a vast Bronze Age ceremonial landscape, ‘... reflective of group construction and possibly related to large-scale gatherings’ (Evans and Knight 2001, 85). It is possible that all of these boundary types represent a new tradition of monument building, related to the middle–late Bronze Age increase in land division and what appears to be a growing concern with landownership.

Roman crop-processing

The road scheme contained a Roman crop-processing area located within an enclosure near the junction of two trackways, c.180m north of farmstead ACA20 identified within the HRN1 evaluation (Stratascan 2012; Albion Archaeology 2012a) and c.100m to the south-east of the current course of the Houghton Brook (Fig. 5.27). Part of the area between the road scheme and the farmstead was investigated as HRN3205 where a continuation of the N–S trackway and two further crop-processing areas were found (Chap. 2).

The crop-processing area was focussed on the corner of an enclosure and on a building that contained a sequence of drying ovens. A number of pits near the building included two water-pits. Not all the features were contemporary and the layout of the enclosure was modified once. The finds assemblage suggests that crop-processing was underway in the 2nd century but had ceased by the late Roman period.

Building G94

Building G94 was located c.10m west of trackway L29. It was defined by four large postholes forming a c.5.1m square (Fig. 5.28; Plate 5.9). It contained two (or possibly three) drying ovens and a millstone set within a shallow pit.

It is known that some drying ovens were covered by purpose-built structures, while others were constructed within larger buildings (Morris 1979, 18–20; Lodwick 2017, 60). Examples of the former have been suggested in Bedfordshire at Manor Way, Flitwick (Fadden 1976, 29–31 and plate 5) and less convincingly at Bromham (Tilson 1973, 29). However, building G94 is slightly



Plate 5.9 Reconstruction of Roman crop-processing building G94 (by Cecily Marshall)



Figure 5.27 Simplified plan showing the location of crop-processing areas in the Roman landscape around Woodside Link and HRN3205

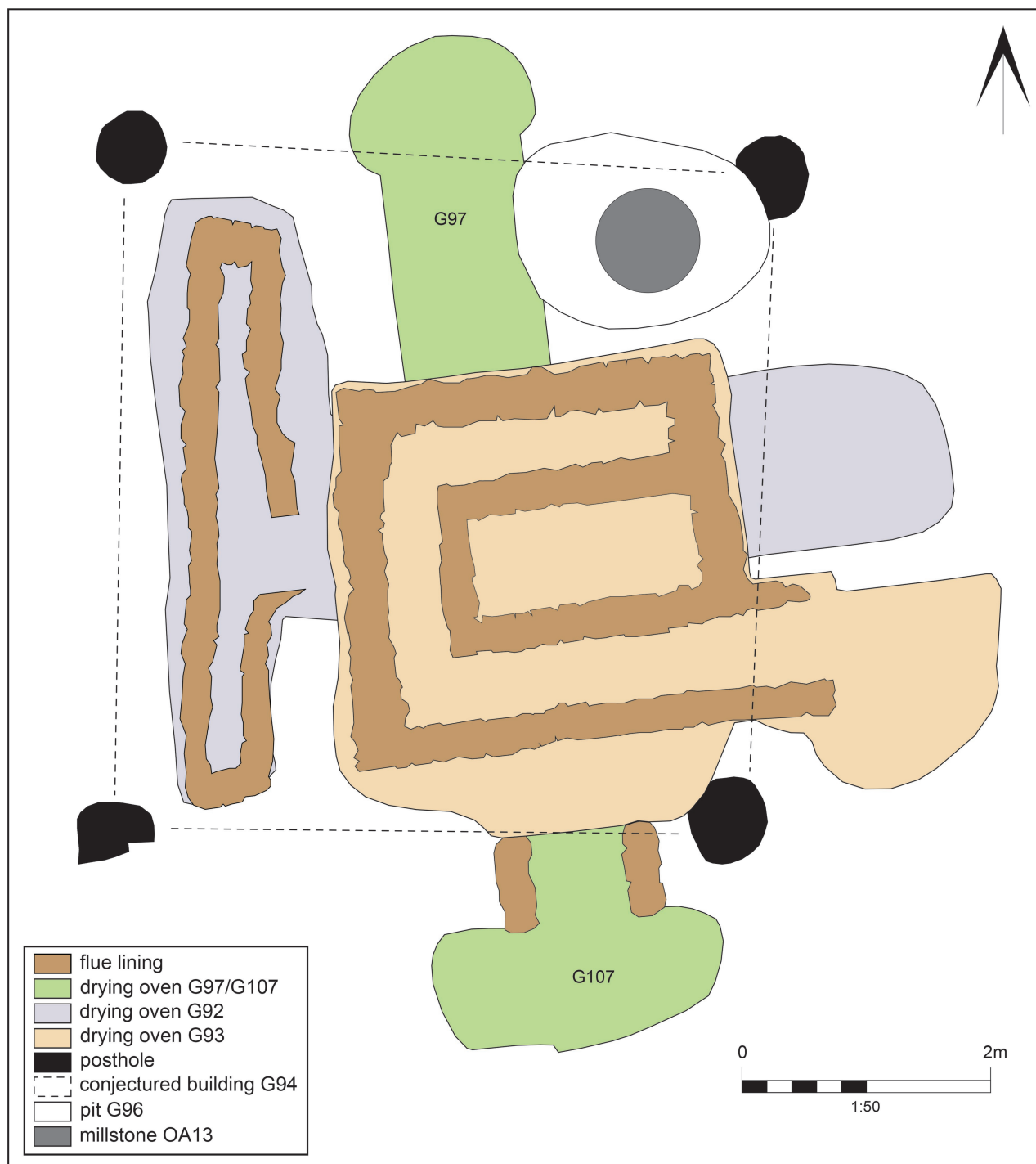


Figure 5.28 Simplified plan showing the sequence of drying ovens and other features within building G94 at Woodside Link

different to these in that it covers a larger area than just the flue and drying chamber of an individual oven. It has some similarities to a presumed rectangular building associated with oven 5 at Foxholes Farm, Herts., where the oven occupied the south half of the building but, apart from the stokehole, the north half appeared to be an open space that may not have been covered (Partridge 1989, figs 19 and 20). Activities such as sieving and storage could have taken place in this part of the building, as was suggested at Orton Hall Farm, Peterborough (Mackreth 1996, 74).

Building G94 was presumably a timber-built, barn-type structure, possibly with a high roof, similar to that

postulated at Foxholes Farm, Herts. (Partridge 1989, fig. 20).

Drying ovens

It is possible that all three drying ovens operated within building G94 (Fig. 5.28). T-shaped oven G92's association with the building is perhaps the most convincing and the two may have been constructed at the same time. G92 was positioned centrally within the building, with its N-S cross-flue adjacent and parallel to the west wall and its stokehole outside the projected east wall of the building. Oven G93, which was clearly the latest in the sequence, was positioned slightly off-centre within the

building, possibly to avoid pit G96 (see below). Like oven G92 its stokehole projected beyond the east wall of the building. The evidence for a third drying oven is hinted at by stokehole-like feature G97 and flue-like feature G107; if contemporary with the building both ends of the oven would have projected beyond its walls. No stratigraphic evidence survived to indicate whether oven G97/G107 was earlier or later than oven G95, but the most logical reason for the construction of the three ovens in the same location is that they were all contemporary with building G94.

The flue of oven G93 turned through 90 degrees; its lining was the best preserved of the ovens in building G94. It was constructed of clunch and flint nodules with fragments of tegulae, brick, flue tile, puddingstone and quern set in a crushed chalk and clay matrix. Where it survived, the flue lining of oven G92 was constructed of similar materials, as was the short length of flue G107.

T-shaped drying ovens like G92 are the most commonly identified type in Roman Britain (Lodwick 2017, 56); examples are known on a number of sites in Bedfordshire, including c.140m to the south within HRN3205 (p. 14), at Manor Way, Flitwick (Fadden 1976, 27–32), and at Bromham (Tilson 1973, 27–9). Several heavily truncated, rectangular drying ovens like G93 were found at HRN3206 (Luke and Barker 2021, 28 and fig. 1.12). However, the example at HRN3205 and oven 5 at Foxholes Farm, Herts. (Partridge 1989, fig. 18) are very similar in form to oven G93 (Fig. 2.10).

If G97 and G107 were parts of the same oven, it would have been c.8m long with a robbed-out cross-flue, of which only 2.3m survived. A possibly comparable oven in the roadside settlement at Kempston Church End near Bedford was c.9m long with a 4.2m-long cross-flue (Dawson 2004, fig. 5.91). It is uncertain if oven G97/G107 was contemporary with building G94 because its flue lay outside the south wall of the building and the stokehole lay partly on the line of the north wall; however, on balance, the two probably were associated.

Roman drying ovens are notoriously difficult to date. Morris's (1979, 20) proposed sequence of T-shaped ovens appearing in the 2nd century followed by more complex/larger ones in the 3rd and 4th centuries is still considered to be broadly correct (Lodwick 2017, 58–9). It corresponds with the sequence of ovens G92 and G93 and with that suggested for the ovens at HRN3205 (p. 38). The only direct dating evidence from the road scheme was a coin of Gallienus (AD 253–68) from the infill of oven G93.

The charred plant remains

Spelt wheat was the main cereal being processed in the drying ovens on the road scheme. This is unsurprising as it 'became the dominant crop in the Roman period in all regions' (Lodwick 2017, 31). The assemblages from ovens G92 and G93 were similar in composition, consisting largely of cereal grains (between 71% and 98% of the quantified remains) with much smaller amounts of chaff (<1% to 22%) and weed seeds (<1% to 14%). This suggests that the ovens were being used to dry and harden cleaned and de-husked grains in readiness for grinding/milling, with the grains accidentally burnt during this process. As at HRN3205, the paucity of sprouted grain indicates that the spelt – at least that recovered in the archaeological samples – was destined for flour and not for malting.

Presence of quern and millstone fragments

Fragments of quernstone and millstone were found in the vicinity of the drying ovens within the road scheme and such occurrences have been noted elsewhere (Morris 1979, 18). Fragments of quernstones and/or millstones were found near the drying ovens at HRN3205 (p. 21), at HRN3206 (Wells 2021, 100 and 103), and at Haynes Park, Beds. (Luke and Shotliff 2004). In addition to fragments, an apparently *in-situ* quernstone was found adjacent to oven F421 at Catsgore, Somerset (Leech 1982, fig. 58). The frequency of this association suggests that drying ovens were used not just to prepare grain for storage but also for immediate milling on site. Millstones were found near the possible mill building at Orton Hall Farm, Peterborough (Mackreth 1996, 72) and the significance of the complete millstone within the road scheme is considered below.

Pit G96 with complete millstone

Pit G96 was situated in the north-east corner of building G94 (Fig. 5.28). Its position suggests that it could have been contemporary with drying ovens G92 and G93 (and potentially even with putative oven G97/G107). It was c.2 × 1.5m in diameter but only 0.3m deep. Positioned centrally within it was a complete, horizontal millstone (OA13).

As found, millstone OA13 was a runner stone with its dressed surface uppermost and was, therefore, clearly not '*in-situ*' in terms of milling. However, its sheer size (very heavy/difficult to move) and complete state suggest that it came from a nearby mill. The Houghton Brook might have supported a mill but its small size and seasonal nature today suggest it would have taken considerable water management to achieve a sufficient head of water to run a mill. Shaffrey (2015, 67) and others have made it clear that the form of a millstone *per se* cannot be used to determine whether it came from a watermill or from a mill powered by horses or humans.

OA13 had an unusual configuration of rynd-chases comprising five arms, one of which was shallower than its counterparts. This may be the result of an error in cutting the rynd-chases but the concentric wear pattern on the grinding surface demonstrates that the millstone had been used. If the site and nature of the original mill are uncertain, so too is the use to which the millstone was put after it had been moved to building G94. Perhaps it simply served a structural function as a firm and solid base. At Orton Hall Farm, Peterborough, three flat, rectangular areas of pitched stones (0.9–1.0m wide and 0.7–0.8m wide) were interpreted as bases for bedstones within a mill-house (Mackreth 1996, 72–4 and fig. 47). Certainly, milling was often carried out at crop-processing areas, e.g. Welton Wold, Humberside, where 'a round base as if for a large millstone' was present in the corner of a sunken area associated with a drying oven (Morris 1979, 18). Whether this was the case at Woodside Link and whether millstone OA13 was somehow reused in that process remains uncertain.

Water-pits

There were two water-pits within the crop-processing area. Water-pit G83 (SL6) was located to the south-west of building G94. Although its construction pit was large and encroached to within c.0.5m of the building, its central shaft would have been c.6m distant. Water-pit G90 was located c.20m from the building, adjacent to

trackway L23. Both had a steep-sided, central shaft and were over 2.8m deep. The sides of the shaft in G90 were almost vertical but there was no evidence to suggest the presence of a robbed-out stone lining. However, a timber lining is a possibility. These features were clearly water-pits and not the sort of 'tanks' designed to hold water that are often found in association with drying ovens (Morris 1979, 15–18).

Environs

Woodside Link and HRN3205 are located within the Central Belt of England, which is believed to have been the heartland of agricultural production in Roman Britain (Lodwick 2017, 26). The high concentrations of charred cereal debris in a number of samples, including from the drying ovens at both sites, suggest that the processing of spelt wheat was taking place on a fairly large scale, possibly not only for domestic consumption but also for external markets.

The crop-processing area within the road scheme and the two crop-processing areas within HRN3205 (p. 13–5 and p. 15–7) were located, presumably deliberately, on the periphery of a settlement and adjacent to a trackway (Fig. 5.27; Plate 5.10). This fits a pattern where some drying ovens are found away from settlements, e.g. at Manor Way, Flitwick (Fadden 1976), Haynes Park (Luke and Shotliff 2004), and Farmoor, Oxon. (Lambrick and Robinson 1979, 75). In contrast, the crop-processing areas within HRN3206 were located within the settlement, albeit on its periphery (Luke and Barker 2021, fig. 1.4).

The full extent of the trackways located within the road scheme has not yet been traced within the wider landscape. However, they are likely to have been part of a network of trackways serving farmsteads in the area and eventually linking with Watling Street, which ran through the Roman small town of *Durocbrivis* (Dunstable), c.3km to the south-west. The latter would probably have been the nearest market and tax collection centre. In addition, Watling Street would have facilitated the transport of cleaned grain or flour to other urban centres and other markets.

5.11 ACKNOWLEDGMENTS

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The photographs used in this report were taken by Matthew Billings (Plate 5.6), Mike Emra (Plate 5.3), Tori Guy (Plate 5.7), Kathy Pilkinton (Plates 5.1, 5.2 and 5.4) and Adam Williams (Plates 5.5 and 5.8). Finds drawings are by Mike Trevarthen (Figs. 5.19–5.22) and the reconstructions (Plates 5.9 and 5.10) by Cecily Marshall.



Plate 5.10 Reconstruction of the Roman landscape south of the Houghton Brook with trackways and crop-processing areas on the periphery of farmstead ACA20 (by Cecily Marshall)

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Between 2015 and 2019, Albion Archaeology investigated several sites north of Houghton Regis, Bedfordshire on the Woodside Link road and nearby housing developments. The highlight was the unexpected discovery of a dozen late Mesolithic, large pits – the biggest group of such features found to date in England. They lay near the source of the Ouzel Brook, next to palaeochannels formed by seasonal springs or run-off from adjacent higher ground.



The Neolithic and early Bronze Age landscape remained open, with a double ring-ditch and a small number of pits along the Houghton Brook. Enclosure began in the middle Bronze Age to early Iron Age, with clusters of contemporary pits and occasional post-built structures, as well as extensive boundary ditches, post alignments and an inhumation. After a middle Iron Age hiatus, extensive late Iron Age settlement evidence included farmsteads and a cremation cemetery.

A large Roman settlement was partially examined and among the finds was a sherd of pottery with rare ink-written graffiti. Three crop-processing areas on the edge of another farmstead contained five drying ovens and a plank-lined pit. Away from the settlement foci there was extensive evidence for Roman field/enclosure systems, trackways, and a block of bedding trenches that may represent an area of horticulture.

The only hint of settlement continuity into the early Anglo-Saxon period came from two isolated sunken-featured buildings.

