Excavation Report

A 1st century AD archaeological sequence at the site of the new lift shaft, Shire Hall Cambridge

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A 1st century AD archaeological sequence at the site of the new lift shaft, Shire Hall, Cambridge

Archaeological Excavation

Post-excavation assessment and updated project design

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Summary

Between the 8th and the 15th April 2015 Oxford Archaeology East carried out an archaeological excavation in advance of the construction of a pit for a new lift shaft in the basement of Shire Hall, Castle Hill, Cambridge (Figure 1; TL 44545 59290).

The trench, measuring 2.54m wide by 3.10m long, was surrounded on all sides by the foundation trenches for existing walls in Shire Hall leaving a total undisturbed area of 4m^2 to be investigated.

Archaeology was present up to 1.78m below the modern basement floor level and 3.21m below the current street level. All of the deposits uncovered under the upper construction layers dated to the early to middle first century AD, with the exception of a single undated ditch at the base of the sequence which may have been earlier. Three ditches, each aligned from north-east to south-west, appear to line up with the corner of a Claudian enclosure recorded in 1935 during the construction of Shire Hall. The archaeology uncovered during these excavations was associated with occupation dating to the middle 1st century AD.

The earliest remains were those of two ditches both of which were truncated by a substantial boundary ditch. The latter was probably a re-cut of the earlier boundaries and it was in to this that all subsequent deposits were laid.

After substantial infilling this ditch was partially cleaned and a gravel surface was laid to the north-west indicating that occupation was taking place on this side of it. Another period of in-filling was followed by further cleaning, and surfaces were laid to the north-west. These surfaces were overlain by occupation deposits including pottery, animal bone, charred weed seeds and cereal grains, spilling in to the ditch. Two brooches dating to the 1st half of the 1st century AD were also recovered from these deposits. During the third phase of activity a thick clay surface was laid across the ditch indicating that the boundary was no longer in use; occupation deposits, including spelt and emmer wheat, marine shells and freshwater fish bones continued to accumulate here. During the final phase of occupation a gravel surface was laid over the infill from the south-east indicating that the settlement had spread outside of the original confines of the enclosure.

1 Project Scope and Background

1.1 Introduction

1.1.1 An archaeological excavation was conducted on a new lift shaft at Shire Hall, Castle Hill, Cambridge (Figure 1; TL 44545 59290).

1.1.2 This archaeological excavation was undertaken in accordance with a Brief issued by Kasia Gdaniec of Cambridgeshire County Council (CCC), supplemented by a Written Scheme of Investigation prepared by OA East (Atkins and Wiseman 2015).

1.1.3 This assessment deals with the excavation at the new lift shaft, Shire Hall, Cambridge. The document includes a summary report of the results of these works along with an updated project design and publication plan.

1.1.4 Forward planning for dissemination including project review stages will also be detailed. The aim of this assessment is to set out the method and time-frame for the production of a publication and provide detailed results of the excavation.

1.1.5 The site archive is currently held by OA East and will be deposited with the appropriate county stores in due course.

1.2 Location, geology and topography

1.2.1 Shire Hall lies 14m above the River Cam, at a height of 19.94m O.D. on a deposit of Fourth Terrace River gravels overlying a spur of Lower Chalk (B.G.S. 1978). The excavation area lay within Shire Hall in a basement adjacent to the front entrance of the building. The floor level of the basement lay at 18.31m OD. The excavation area was surrounded on all sides by foundation trenches and walls of the extant building.

1.3 Archaeological and historical background

1.3.1 The presence of the motte and the location of numerous Roman finds in this area of the town has led to a relatively large number of archaeological investigations in the vicinity of Castle Street with some of the earliest archaeological work being carried out in the 19th century. A search of the Cambridgeshire Historic Environment Record (CHER) produced 131 records of finds and features within a 250m radius with 24 recorded archaeological works since 1989. The summary below aims to synthesise this data with particular emphasis given to the Roman period supplemented by the detailed synthesis of this period by Alexander and Pullinger (2000).

Iron Age

1.3.2 Evidence for an extensive Iron Age settlement has been uncovered in the area to the west of Shire Hall comprising segments of ditches along with pits and ring gullies dating from the late 1st century BC to early 1st century AD (Figure 2; CHER05239a, CHER05247a). Pottery of possible prehistoric date was found opposite no.100 Castle Street in 1896 (CHER05026) and more recent finds have come from Storey's Paddock (CHER05243a, CHER05241a), Shelley Row (CHER05249a, CHER05249b, CHER05250a), Gloucester Terrace (CHER05251a) and Castle Street (CB15498). Excavations at Gloucester Terrace uncovered Late Iron Age houses with associated hearths and a well (CHER05251a) whilst evidence of high status occupation was uncovered at 68 Castle Street (Evans and Ten Harkel 2010, 49; CB15498). Excavations at Shire Hall in 1984 uncovered a 3m wide ditch with multiple recuts which may have been a defensive enclosure boundary (CHER08768a). The settlement may have

covered up to 3ha, with a 3m wide defensive ditch, signifying the importance of this area of high ground over looking the river in pre-Roman times.

1st century AD to Roman Period

1.3.3 Sites with Roman features, artefacts and inhumations are common in this area and attest to the consistent occupation of this site from the 1st to the 5th century AD (Figure 3 and Figure 4).

1.3.4 There appears to have been continuous occupation of this area from the Late Iron Age in to the immediate post-Conquest Claudian period. Excavations at 68 Castle Street, located 85m to the west, uncovered a 'V' shaped conquest period ditch truncating Late Iron Age features. The Conquest period ditch was later filled in and superseded by Roman activity (Evans and Ten Harkel 2010, 42-44; CB15498).

1.3.5 Five ditches and a possible structure were uncovered during excavations in Shelley Row and Castle Street and during the construction of Shire Hall in the 1930s (Alexander and Pullinger 2000, 27; CHER05249). The ditch uncovered at Shire Hall (Ditch VIb), located 20m to the north-west of the lift shaft excavation, consisted of two segments at right-angles to each other that may have formed the eastern corner of an enclosure (Figure 3).

1.3.6 To the west of Castle Street the mid 1st century ditches or palisade trenches were replaced in the late 1st century by an enclosure, which may have been a Flavian fort, aligned parallel to the Via Devana Roman road (Figure 2; CHER05239; CHER05249).

1.3.7 During the 2nd century a planned settlement, probably laid out in insula, was built and spread to the west and north-west of the current Shire Hall area. This settlement was known as *Duroliponte*. Features uncovered dating to this period include houses, wells, cess pits and a shrine. A 1983 excavation of the Roman Road uncovered a 7m wide north-west to south-east aligned segment with a well preserved cobbled surface that may have been in use from the mid 1st century AD (CHER08768). First to second century pottery and buildings have been uncovered from excavations at the lower end of Castle Street, nearest the river, indicating that occupation here was located in order to control the crossing and is also likely to have taken advantage of the economic benefits of this thoroughfare (MCB19822, CB15492, CB15716).

1.3.8 The small town continued to develop through the 3nd century, with retting, iron working and kiln sites established (CHER11521; CHER08770; CHER08768) at a time when some of the domestic properties appear to have fallen in to disuse (Alexander and Pullinger 2000, 49). During the 4th century the town's fortunes appear to have revived culminating in the construction of 2m to 3m wide stone wall surrounded by a 12m wide ditch in the 4th century (Figure 4). Part of the defences, consisting of a broken tile and limestone foundation, were uncovered during an excavation at St Peter's Street (CHER08766, CHER05239), and part of the ditch has been excavated in two places to the east of the Shire Hall (CHER01778c; Robinson 1991; Cessford 2008), whilst another segment is reported as having been identified 430m to the north-west (CHER04630).

1.3.9 Buildings from the late Roman period have been uncovered at the Shire Hall site (CHER08768). These tended to be timber framed, although it as been suggested that more substantial stone buildings were located by the river from where tesserae have been recovered (Alexander and Pullinger 2000, 59; CHER04664). Excavations at 4 to 5 Castle Street uncovered evidence of a cobble surface possibly associated with terracing on the slope overlooking the river in 4th century AD. (Cessford 2011, 26; MCB19822).

Saxon

1.3.10 There is an hiatus of archaeological evidence for occupation in the immediate post-Roman period however it is possible that two Saxon settlements developed in the vicinity of the old town (Figure 5). One of the settlements may have been located on the site of the castle mound, and has been associated with the site of a Saxon minster church (Haslam 1984, 17; Oosthuizen 2001, 60; CHER04422) due to the location of finely engraved coffin lids. Finds to the west of Castle Street indicate another small settlement was located there (CHER05239b).

1.3.11 Evidence for the earliest activity in the Saxon period may come from reuse of the Via Devana, based on the cutting of adjacent ditches (CHER08768b). Four skeletons uncovered on Chesterton Lane with cut marks on the back of their necks have been interpreted as part of a Middle Saxon execution cemetery (CB15493).

1.3.12 A sunken floor building from the Late Saxon period was uncovered during excavations at the Folk Museum at the lower end of Castle Street (CB15716) whilst another building was located to the north on Chesterton Lane (CB15494). Other Late Saxon finds include a cess pit at 68 Castle Street (CB15498; MCB17392), a coin at to the north of Shire Hall (CHER10168) and pottery at Pound Hill (CHER08770a). Elsewhere finds include pottery at Storey's Orchard (CHER05243b), Gloucester Terrace (CHER05251b) and St. Peter's Street (CHER08769), a coin at Castle Hill (CHER10168) and carved stone coffin lids recovered in the 19th century from contexts around the castle ramparts (CHER01778a; CHER01778b; CHER04645).

Medieval

1.3.13 Around 1068 William the Conqueror ordered a castle to be built at Cambridge (*Grantabrycge* - the name of the Saxon town). The Domesday Book records that 27 houses were demolished to make way for its construction. Like other Norman castles, Cambridge Castle consisted of a motte and bailey (CHER 01778; CB14). The motte was a central mound of chalk rubble on which would have stood a wooden keep. The bailey was an enclosed area in front of the motte, which would have contained the living quarters and service buildings for the castle inhabitants.

1.3.14 The castle went through several phases of reconstruction in the medieval period with major renovations taking place in the reign of Edward I from 1283 (RCHM 1959, 304). A large stone curtain wall together with an elaborate barbican controlling entrance to the bailey was built at this time, with a large moat around the outside (Salzman 1948, 23). An excavation in the castle ditch in 1989 (MCB16074) found it to be 10m wide and over 4m deep and still waterlogged suggesting that it had been filled by water from a spring. The gatehouse, the last remaining part of the Edwardian castle, was demolished in 1842 during the construction of the courthouse.

1.3.15 Elsewhere the churches of St. Giles, All Saints and St. Peters have their origins in the medieval period or earlier (CHER04755; CHER04845) and inhumations probably associated with graveyards have been found south of the castle ramparts (CHER04645a), at Castle Street (CHER05046; CHER11718), Shelley Row (CHER05079), Comet Place (CHER05246a), Ridgeons Gardens, the Law Courts (CHER05252a) and Kettles Yard (CHER11521a). Evidence of the development of the medieval town has been found at various places along Castle Street and the surrounding roads where buildings, pits and wells have been located (CHER05240a, CHER05241b, CHER05247b, CHER05249c, CHER05251c, CHER11503a, CHER08766a, MCB20287, CHER11880). Two medieval wayside crosses, High Cross and Ashwickstone cross, were also located near by.

Post-medieval and modern

1.3.16 At the outbreak of the English Civil war in 1642, Cambridge Castle was brought back into military use, this time as an artillery fortress and the head quarters of the Eastern Counties Association. The earthworks around the castle were remodelled in 1642-43 (CHER01778; CHER04831, CHER08434) with the only surviving medieval elements being the motte and the gatehouse. A 300m long earthwork survives (CB48) running from the north of the motte to the northeast of the Shire Hall perhaps memorialising the line of the medieval bailey and maybe the Roman town wall. The ditches were re-dug and four large earthen diamond shaped bastions were constructed at the corners of the defensive circuit, also containing a barrack block, the perimeter included the motte. These defences have been uncovered in excavations at 68 Castle Street (MCB17393; Cessford 2008) and Magrath Avenue (CHER04512). The defences were slighted later in the Civil War and the site was not used again as a fortification.

1.3.17 Between 1802 and 1807 a new octagonal county gaol was built on the site, the surface of the bailey was lowered and levelled and the moat was filled with rubble (Figure 6; RCHM 1959, 306). The 1840 Chesterton Inclsoure map shows the plan of the prison lying within 20m of the current excavation area. A latter plan of the prison shows an exercise yard in the location of the lift shaft excavation. This elaborate Italianate building remained on the site until its demolition in 1953. The present Shire Hall was built in 1931-32 to designs by county architect H.H. Dunn and used materials from the demolished County gaol.

Recent Archaeological Investigations

Cambridge Castle Mound, Monitoring 2009 (Fairbairn 2009)

1.3.18 Between the 11th and 12th of March 2009, Oxford Archaeology East carried out an archaeological monitoring on three test pits at the base of a retaining wall skirting the motte on Castle Hill. The skirting wall ran along the southern edge of the base of the castle mound. The monitoring revealed that the ground had been heavily disturbed in the modern period. The disturbed fills contained pottery from the Roman and medieval periods, as well as post-medieval and modern ceramics. No archaeological features were recorded.

Cambridge Castle Mound Archaeological Test Pit and Borehole Evaluation (Fairbairn 2012)

1.3.19 From the 2nd to the 6th of January 2012 Oxford Archaeology East excavated four test pits along the inside of the retaining wall surrounding the castle mound at Castle Hill. Prior to this monitoring was carried out during a bore hole survey conducted on both sides of the castle mound. Evidence of deliberate backfilling and the construction cut for the retaining wall was found in Test Pits 2, 3 and 4 and evidence of the original motte construction material was found in Test Pits 1, 2 and 3.

Cambridge Castle Mound, Monitoring 2013 (Webster 2013)

1.3.20 Archaeological monitoring carried out in 2013 during remedial conservation work at the base of the motte exposed part of the original material for its construction but no earlier deposits. Late Iron and Roman pottery was recovered, this was residual in later contexts. Single fragments of Roman and late medieval/post-medieval tile were also recovered.

1.4 Acknowledgements

1.4.1 The author would like to thank John Clayton, Trevor Farncombe and Ruth Lovesy of Cambridgeshire County Council who commissioned and funded the work. Kasia Gdaniec of CCC wrote the Brief for archaeological works whilst Quinton Carrol of CCC provided guidance during project set-up. The work was managed by Aileen Connor and directed by Gareth Rees with assistance from Andy Greef, Toby Knight, Steve Graham and David Browne. Specialist analysis was provided by Rachel Fosberry, Chris Howard-Davis, Alice Lyons, Rebecca Nicholson, Cynthia Poole, Alexandra Scard and Lena Strid. The author thanks Gwladys Monteil (freelance samian specialist) for her thoughts on the date of this pottery assemblage. Stephen Morgan edited the report.

2 Project Scope

2.1.1 An archaeological excavation was conducted at the new lift shaft, Shire Hall, Castle Hill, Cambridge (Figure 1; TL 44545 59290).

2.1.2 This assessment deals with the excavation at the new lift shaft, Shire Hall, Cambridge. The document includes a summary of the results of these works along with an updated project design and publication plan.

2.1.3 Forward planning for dissemination including project review stages will also be detailed. The aim of this assessment is to set out the method and time-frame for the production of a full archive report and publication including recommendation for further specialist analysis and illustration of artefacts and ecofacts.

2.1.4 The site archive is currently held by OA East and will be deposited with the appropriate county stores in due course.

3 Original Research Aims and Objectives

3.1 Overall Objectives

3.1.1 The main aim of the project was to preserve the archaeological evidence contained within the excavation area by record and to attempt a reconstruction of the history and use of the site.

3.1.2 The work was designed to define the character and extent of any archaeological remains within the development area through excavation and recording of all of the archaeological deposits up to and including the proposed extents of construction for the lift shaft pit.

3.2 Aims

3.2.1 The original aims of the project were set out in the Brief and Written Scheme of Investigation (Gdaniec 2015; Atkins and Wiseman 2015).

3.2.2 The main aims of this excavation were

- To mitigate the impact of the development on the surviving archaeological remains. The lift shaft pit would have severely impacted upon these remains and as a result a full excavation was required.
- To preserve the archaeological evidence contained within the excavation area by record and to attempt a reconstruction of the history and use of the site.

3.3 Additional Research Objectives

3.3.1 Given the location of the excavation in the vicinity of the Roman settlements, within the bounds of the Norman castle and in the location of the 19th century prison, the archaeological works had specific aims relating to these periods:

- To establish the character and preservation of any Roman remains on this part of Castle Hill and understand how they relate to the development of the Roman town.
- To understand the extents and nature of the preservation of the medieval bailey and its structures in this area.

- To provide evidence of the survival of and exact location of the 19th century prison which previously stood on the site.

4 Summary of Results

4.1 Introduction

4.1.1 All of the pottery recovered from the 19 Roman deposits uncovered during this excavation dates to the 1st century AD with the exception of two sherds which may date to the 1st century BC (Appendix B2). The sequence of activity is varied and has been divided in to to three phases each representing a change in the character of the occupation. A fourth phase was assigned to the modern disturbance associated with the construction of Shire Hall in the 1930s . All of the deposits excavated below are shown on a Harris matrix on Figure 6 as well as on the northwest to southeast section across the trench (Figure 10).

4.2 Phase 1: Enclosure ditches

Phase 1.1

4.2.1 The earliest activity uncovered was the cutting of two northeast to southwest aligned ditches, one at the northwest (**24**) and one at the southeast (**26**) side of the trench (Figure 7; Plate 2).

4.2.2 Two sherds of sandy grey ware cooking pot, dating to the early to middle 1st century AD were recovered from the upper fill (21) of the ditch **26** whilst no artefacts were recovered fro ditch **24**. Sparse charcoal and occasional charred cereal grains were recovered from environmental samples from both ditches (Appendix C.4).

Phase 1.2

4.2.3 The secondary fills of both of these ditches were truncated by a broad ditch (**27**). This ditch ran on the same alignment as the earlier ditches and is likely to represent the re-establishment of the same earlier boundary.

4.2.4 A single sherd of proto-sandy grey ware was recovered from the primary fill whilst an assemblage of storage jars, jars and bowls was recovered from the upper fill. All of the pottery dates to the late 1st century BC/1st century AD. Charred cereals and charcoal were recovered from an environmental sample. A fragment of fired clay from an oven or hearth structure was also recovered from this feature (Appendix B.3) along with fragments of animal bone (Appendix C.1).

4.3 Phase 2: Occupation

Phase 2.1

4.3.1 The large boundary ditch appears to have filled up completely, at least on its northwestern side, before a cleaning and partial recutting episode (**29**). This event levelled off an area of the fill to the northwest of the earlier ditch whilst also recutting the southeastern side of the original boundary ditch.

4.3.2 A compacted sand and gravel surface (20) was laid on the levelled area to the northwest at this time (Figure 8). No artefacts were found in this context but occasional grains, seed and charcoal were recovered from an environmental sample. This surface may indicate that there was occupation to the northwest of the ditch at this time.

4.3.3 The surface and the ditch fill were then covered by a light orange-brown sandy-gravel deposit (17) which covered the entire trench and may have been a deliberate backfilling episode. It contained animal bone, two sherds of 1st century AD sandy grey ware and a fragment of fired clay and occasional charred grain and chaff.

Phase 2.2

4.3.4 Occupation during this sub-phase appears to have remained predominantly to the northwest of the ditch line although the ditch itself was no longer a prominent feature. The backfilling may have been quickly followed by another levelling episode (**18**) which may have also have perpetuated a run-off gully in the location of the former ditched boundary. It is possible that the deposits recorded in section slumped over time in to the earlier ditches below, emphasising the ditch line in this location. However, surfaces and occupation deposits in the sub-phase originated predominantly to the northwest of the ditch line perhaps indicating that it was still used as a boundary.

4.3.5 A surface (16), measuring up to 0.10m thick and consisting of compacted mortar, clay and stone, was uncovered adjacent to the ditch line on the northwest side. No pottery was recovered from this context but an environmental sample produced an assemblage of cereal grains, legumes and weed seeds. This surface was covered by an occupation layer (15) which may have spilt out of midden deposits with in a settlement to the northwest (Plate 3). This deposit contained sherds of bowls and a storage jar dating to the early to middle 1st century AD along with a fragment of an oven wall and a moderate assemblage of charred grains, legumes and seeds as well as a large amount charcoal and some burnt animal bone.

4.3.6 A light orange-brown clay-sand layer (14) with frequent gravel inclusions began accumulating in on the southeastern side of the ditch at the same time or shortly after the occupation deposit was building up. This layer contained a moderate pottery assemblage (21 sherds, 403g; Appendix B.2) dating to the middle 1st century AD, animal bone including freshwater fish (Appendix C.2) and a moderate assemblage of charred grains and seeds. This layer appears to have derived from the southeastern side of the ditch line and represents the first evidence of occupation on this side of the boundary. However, this material may have have eroded in to the ditch from a midden or bank external to the main settlement.

4.3.7 A deliberate attempt to fill the remains of the ditch was then made (13). This deposit contained a large amount of pottery (66 sherds, 690g) dating predominantly to the early to middle 1st century AD, a fragment of fired clay oven lining and a small assemblage of mammal and fresh water fish bones. A large and diverse assemblage of charred grains and seeds, including wetland species was also recovered from this context. This deposit is likely to have derived from a midden dump.

4.3.8 Layer 11 contained 273g (3.89kg) of pottery dating predominantly to the middle 1st century AD, along with a significant assemblage of mammal and fish bones and 10 fragments of fired clay from an oven. A diverse assemblage of weed seeds, grain and chaff was also recovered from an environmental sample. Spring and pin of mid-1st century iron bow brooch was found in this context (S.f.3, Appendix B.1). The large amount of material in this layer indicates that this area had become an established midden dumping area at this time with deposits banking up against the higher ground on the southeastern side of what remained of the ditch.

4.3.9 Overlying the northwestern side of this midden layer, a dark grey-brown sandy-silt occupation horizon formed (10). This layer contained a partial copper alloy Colchester bow brooch (S.f.1 and S.f.2, Appendix B.1) from the early to middle 1st century AD. A few fragments of mammal and fish bone, and a large amount of grain and chaff and reed and weed seeds were also recovered.

4.4 Phase 3: Post-enclosure occupation

Phase 3.1

4.4.1 This phase is defined by a concerted levelling effort over the remaining slumps in the former ditches. The laying of a 0.30m thick layer of clay and gravel (9) over the former boundary demonstrates that it was no longer required at this time (Figure 9; Plate 4). This layer contained relatively few sherds of pottery (8 sherds, 241g) which dated to the 1st century AD. A small amount of mammal and fish bone was also recovered along with a mixed assemblage of grain, chaff and weed seeds.

4.4.2 Two dumps of refuse or midden material overlay this surface to the southeast. The lower deposit (8) consisted of a mid grey-brown sandy-silt containing a large amount (127 sherds, 1.88kg) of middle to late 1st century pottery along with fish, bird and mammal bone, some of which was burnt. A spindle whorl indicative of domestic activity was recovered from this context along with environmental remains consisting of chaff of emmer and spelt wheat, along with numerous charred grains and seeds. The overlying deposit (6) consisted of a dark grey-brown silty-sand which also contained a large amount of charred remains along with fish bone, mammal bone and a pottery assemblage (85 sherds, 1.58kg) dating the middle to late 1st century BC.

4.4.3 Both of these deposits also contained marine shells (Appendix C.3) along with freshwater fish bones indicating a that a settlement here was involved in wider trade networks/supply routes by this time.

Phase 3.2

4.4.4 This phase is characterised by the final infilling of the ditch and the construction of surfaces over the top of the former boundary.

4.4.5 A compacted layer of sand and gravel (7) may represent another attempt to fill a depression in the layers below caused by subsidence in to the slumping ditch deposits.

4.4.6 Layer 2 overlay the entire trench and contained early to middle 1st century AD pottery (17 sherds, 0.26kg), mammal and fish bones and marine oyster and mussel shells. This layer had not been subject to the slumping of underlying deposits and remained level at 18.30m OD. This deposit may have been a levelling layer or foundation associated with later construction. All later deposits had been truncated by the modern building of Shire Hall (**4**).

5 Factual Data and Assessment of Archaeological Potential

5.1 Stratigraphic and Structural Data

The Excavation Record

5.1.1 All hand written records have been collated and checked for internal consistency, and the site records have been transcribed onto an MS Access Database. Quantities of records are laid out in the table below.

Type	Quantity
Context registers	2
Context numbers	29
Plan registers	1
Section registers	1
Sample registers	4
Plans	14
Sections	2
Black and white films	1
Colour slide films	0
Digital photographs	c.379

5.2 Artefact Summaries

Metalwork

5.2.1 Three fragments of brooches were recovered from the site. Each of the brooches was also subjected to X-Rays in order to reveal features covered by corrosion. The brooches were all recovered from early Roman contexts. A complete copper alloy one-piece Colchester brooch (s.f.2) came from context 10. Small curving fragments (s.f.4) from the same context seem most likely to derive from a second copper alloy brooch, although nothing survives to identify the form. Small find 3, from context 11 has been tentatively identified, from x-ray, as a simple wire brooch with a straight profile and right-angled turn at the head, see for instance, examples from Dragonby (Oliver 1996).

Recommendations for further work: Illustration of S.f2 and S.f3.

Pottery

5.2.1 A total of 622 sherds, weighing 9417g (3.18 EVE) of latest Iron Age and very early Roman pottery fragments were recovered from thirteen contexts during the excavation. The pottery is extremely fragmented and represents a minimum of 77 individual vessels. All the material is certainly pre-Flavian (AD69) in character.

Recommendations for further work: This assemblage is potentially very significant when seen in the context of the archaeologically sensitive area from which it was excavated. It also has the potential to aid with understanding the late Iron Age/ Roman transition in Cambridge – possibly providing a snapshot of high status ceramic use in the last few years before the Roman conquest.

Further detailed analysis of the fabrics and forms, and placing these firmly within the context of their archaeological data, will maximise the possible extraction of useful data. This limited amount of additional work may enable the date of the assemblage to be

refined and therefore contribute to the interpretation of the site within the context of the origins of the urban landscape of Cambridge.

5.2.2 Any additional dating evidence, ie. from radiocarbon dating, would be useful top refine the chronology of this assemblage and other similar assemblages.

Fired Clay

5.2.1 A small assemblage of fired clay amounting to 34 fragments (670g) was recovered from eight contexts. The majority of the assemblage was composed of structural material probably from ovens or hearths and portable oven/hearth furniture apart from a single complete spindle whorl. The character of the assemblage is consistent with the overall dating of the site to the Late Iron Age to early Roman period. The majority of the fired clay derived from charcoal rich deposits. Triangular perforated bricks though traditionally interpreted as loomweights are more likely to have been utilised as some form of oven furniture. The spindle whorl is indicative of domestic activity and can be regarded as a personal item.

Recommendations for further work: None.

5.3 Environmental Summaries

Animal Bone

5.3.1 The faunal assemblage comprises 375 animal bone fragments. The assemblage is dominated by bones from sheep/goat. Urban or military Roman sites are often dominated by cattle and/or pig, suggesting that the Shire Hall assemblage may be more typical of a native British diet.

Recommendations for further work: None.

Fish Bone

5.3.2 Thirty one fish bones were recovered from the excavation, almost all from the sorted heavy residues of flotation samples. All came from deposits dated to the mid 1st century AD.

Recommendations for further work: None.

Shell

5.3.3 A total of 0.066kg of marine shell was recovered from three different contexts during excavations. Oyster shell predominates the assemblage with 92.5% of the total quantity belonging to this species. The assemblage of shell at Shire Hall, primarily oyster, is evidence that marine shell was an exploited food resource. However, a lack of middens or pits on site suggests that only a small quantity of this shellfish was consumed at this site. Oyster consumption was high during the Roman period thus it is not surprising to find evidence of it at this site. Equally, given the nature and small scale of the site, it should not be seen as unusual that more shell, or indeed any waste or debris, was not recovered. The presence of shell within these features represents unintentional inclusions within a 'structural' layer of deposition.

Recommendations for further work: None.

Environmental Samples

5.3.1 Eighteen bulk environmental samples were taken from features within the area of excavation. Preservation of plant remains is by carbonisation and is generally good with exceptionally large assemblages of charred cereal grains, chaff and weed seeds recorded in some of the samples.

5.3.2 The rapid scan of the flots from the environmental samples taken from the Shire Hall lift shaft has shown that there is excellent potential for further archaeobotanical study of the assemblages from deposits 8, 11, 12 and 13. Characterisation of these assemblages, with particular emphasis on the identification of the seed assemblage, will assist with the interpretation of these features and deposits otherwise made difficult by the limited area of occupation.

Recommendations for further work: The rapid scan of the flots from the environmental samples taken from the Shire Hall lift shaft has shown that there is excellent potential for further archaeobotanical study of the assemblages from deposits 8, 11, 12 and 13. Characterisation of these assemblages, with particular emphasis on the identification of the seed assemblage, will assist with the interpretation of these features and deposits otherwise made difficult by the limited area of occupation. Several of the samples contain material suitable for radiocarbon dating.

6 Updated Research Aims and Objectives

6.1 Regional Research Objectives

6.1.1 The post-excavation assessment process identified new objectives and research aims for the project. These are partly based on those detailed in '*Research and Archaeology Revisited: a revised framework for the East of England*' (Medlycott 2011), the relevant sections of which are noted in italics below, and are followed by a brief discussion as to how the results of the excavation can add to the debate on the specific research themes and objectives.

Regional:

6.1.2 *Does the evidence suggest a seamless transition from Iron Age to Roman or a change in use of the land or farmstead, or continued occupation of the site but a change in building-types or agricultural practice?* (ibid, 31)

The sequence uncovered during the excavation dates to the period of the Late Iron Age to Roman transition and as such can add to our knowledge of this period.

6.1.3 *The origins of towns, their role as defensive centres, changes in their internal layouts and housing densities, role as centres of supply and demand all need further study* (ibid, 48).

The excavations uncovered a series of deposits which demonstrate the changing character of the land around then over the sequence. The in filling of the defensive ditch with domestic deposits illustrates the development of occupation in this area.

6.1.4 *The Roman town as an urban centre/central place, 'Romanisation', pre-Roman occupation, and the town's relationship to the traditional 'Boudiccan narrative'* (ibid).

The artefacts, particularity the pottery assemblage, has the potential to shed light on the development of Roman Cambridge.

6.1.5 *Understanding both the continuity of Iron Age into Roman settlement and the 2nd-century 'Romanisation', identifying continuity as well as new settlement structure and land use which develops across the region at this time and explanations for this at site, landscape and political levels* (ibid, 47).

The changing nature of the deposits uncovered along with the artefacts, particularity the pottery assemblage, has the potential to shed light on the development of Roman Cambridge.

6.1.6 The pottery assemblage could contribute to the role of supply and demand, also the development of pottery use and production in the first century AD.

The pottery assemblage recovered from the excavation can add to knowledge of the local and regional economy.

6.1.7 *Further analysis has been undertaken on the crops cultivated. These include the identification of a possible intensification of agricultural production, especially of cereals, from the Late Iron Age to Roman period, as well as evidence for changing agricultural practice through the Roman period* (ibid, 36).

The large and relatively dense assemblage of charred grains and cereals from this site has the potential to add to studies of Roman agriculture as well as diet.

6.1.8 *Murphy (2000) highlighted the need to examine the faunal remains from rural sites in order to establish whether there were changes over time in stock breeding and management* (ibid).

The well stratified and dated faunal assemblage may have the potential to add to current knowledge of pastoral regimes in the Roman period.

Local:

6.1.9 *Since the publication of Alexander and Pullinger's Roman Cambridge in 2000, the only really significant excavation to occur with in the upper Roman town has been at 68 Castle Street in 2005* (ibid, 39).

This excavation, located with in the walls of the later Roman town, and consisting entirely of stratified Roman deposits can build on the work of Alexander and Pullinger to add more definition to the narrative of Late Iron Age and Roman Cambridge.

6.1.10 *Further study on how the fen-edge towns of Cambridge, Durobrivae and Godmanchester developed would be useful* (ibid, 47).

This excavation can specifically address the topic of the origin and development of Roman Cambridge.

6.1.11 The archaeology of high places – the archaeological implication of consistent occupation on Castle Hill from the Late Iron Age onwards. Has this place always been a place for imposing/controlling architecture?

Results from this excavation have the potential to add to broader themes in landscape archaeology due to its location in a prominent site that has been occupied since the Iron Age though to the present day.

6.1.12 Are the Roman conquest and Boudiccan revolt archaeologically visible in Cambridge?

The period in question is evidenced by the pottery recovered from this site.

7 Report Writing, Archiving and Publication

7.1 Report Writing

7.1.1 Following the production of the Post-Excavation assessment, it is proposed that the results of the excavation will be presented in a full archive report and also published in an appropriate local or period specific referred journal. Possible locations include The *Proceedings of the Cambridgeshire Antiquarian Society*.

7.2 Storage and Curation

7.2.1 Excavated material and records will be deposited with, and curated by, Cambridgeshire County Council (CCC) in appropriate county stores under the Site Code CAM SHL 15 and the county HER code ECB 4415. A digital archive will be deposited with OA Library/ADS. CCC requires transfer of ownership prior to deposition. During analysis and report preparation, OA East will hold all material and reserves the right to send material for specialist analysis.

7.2.2 The archive will be prepared in accordance with current OA East guidelines, which are based on current national guidelines

7.3 Publication

7.3.1 It is proposed that the results of the project should be published in *The Proceedings of the Cambridgeshire Antiquarian Society.* The article would be authored by Gareth Rees with a contribution by Alice Lyons.

Article Structure

Introduction

Background – Project and archaeological background

The Archaeological Sequence – summary of results of the excavation.

The Finds (with an emphasis on the pottery assemblage)

The Environmental Evidence

Discussion - The changing face of Roman Cambridge

7.3.2 The publication will included 12 figures including four tables and four plates.

8 Resources and Programming

8.1 Project Team Structure

Name	Initials	Project Role	Establishment
Aileen Connor	AC	Project Manager/content editor	OA East
Elizabeth Popescu	EP	Editor	OA East
Gareth Rees	GR	Stratigraphic analysis/author	OA East
Alice Lyons	AL	Roman Pottery Specialist/Author	OA East
Rachel Foberry	RF	Environmental specialist	OA East
Illustrator	Illus	Illustrations	OA East
SUERC		C14 dating	
Kat Hamilton	KH	Archives Supervisor	OA East

8.2 Stages, Products and Tasks

Task No.	Task	Staff	No. Days
Project Management			**1**
1	Project management	AC	0.3
2	Team meetings	AC/EP/GR/AL	0.3
3	Liaison with relevant staff and specialists, distribution of relevant information and materials	GR/AL/RF	0.3
Stage 1: Stratigraphic analysis			**0.25**
	Integrate ceramic/artefact dating with site matrix	GR	
	Update database and digital plans/sections to	GR	

Task No.	Task	Staff	No. Days
	reflect any changes		
	Finalise site phasing	GR	
	Add final phasing to database	GR	
	Review, collate and standardise results of all final specialist reports and integrate with stratigraphic text and project results	GR	
Illustration			**1**
	Digitise selected sections	ILL	
	Prepare draft phase plans, sections and other report figures	ILL	
	Select photographs for inclusion in the report	GR	
Documentary research			
	Visit Cambridgeshire HER		
Artefact studies			**1**
	Full report of Romano-British pottery	AL	
Environmental Remains			**2**
	Full report on environmental remains	RF	
	Radiocarbon dating of charred material		
Stage 2: Report Writing			**3.50**
	Integrate documentary research	GR	0.25
	Edit phase and group text	GR	0.25
	Compile list of illustrations/liaise with illustrators	GR/ILL	0.25
	Write discussion and conclusions	GR	0.5
	Prepare report figures	ILL	0.5
	Collate/edit captions, bibliography, appendices etc	GR/ILL	0.125
	Produce draft report	GR/AL	0.5
	Internal edit	AC/EP	0.25
	Incorporate internal edits	GR	0.125
	Final edit	EP	0.125
	Send to publisher for refereeing	EP	-
	Post-refereeing revisions	GR/EP	0.25
	Copy edit queries		0.125
	Proof-reading		0.25
Stage 3: Archiving			**0.25**
	Compile paper archive	KH	
	Archive/delete digital photographs	KH	
	Compile/check material archive	KH	
Total:			**9**

8.3 Project Timetable

8.3.1 On completion of the post excavation assessment it is anticipated that an article will be ready to submit within one year. This is dependant on the other projects encompassed in this publication.

Appendix A. Context Summary with Provisional Phasing

Context	Cut	Category	Description	Phase
1	-	Deposit	Overburden	Modern
2	-	Deposit	Levelling/Surface	3.2
3	**4**	Fill	Foundation	Modern
4	**4**	Cut	Foundation	Modern
5	**4**	Masonry	Wall	Modern
6	-	Deposit	Occupation	3.1
7	-	Deposit	Surface	3.2
8	-	Deposit	Occupation	3.1
9	-	Deposit	Levelling/Surface	3.1
10	-	Deposit	Occupation	2.2
11	-	Deposit	Occupation	2.2
12	-	Deposit	Levelling/Surface	2.2
13	**18**	Fill	Levelling/Surface	2.2
14	**18**	Fill	Ditch	2.2
15	**18**	Fill	Levelling/Surface	2.2
16	**18**	Fill	Levelling/Surface	2.2
17	**29**	Fill	Ditch	2.1
18	**18**	Cut	Recut/Cleaning	2.2
19	**29**	Fill	Ditch	2.1
20	**29**	Fill	Levelling/Surface	2.1
21	**26**	Fill	Ditch	1.1
22	**27**	Fill	Ditch	1.2
23	**24**	Fill	Ditch	1.1
24	**24**	Cut	Ditch	1.1
25	**26**	Fill	Ditch	1.1
26	**26**	Cut	Ditch	1.1
27	**27**	Cut	Recut/Cleaning	1.2
28	**27**	Fill	Ditch	1.2
29	**29**	Cut	Recut/Cleaning	2.1

Appendix B. Finds Reports

B.1 Brooches

By Chris Howard-Davis

Introduction and methodology

B.1.1 Three fragments of brooches were recovered from the site of the new shaft, Shire Hall, Cambridge (Table B1.1). These objects are described below and compared to catalogues of similar artefacts in order to provide a comparative date. Each of the brooches was also subjected to X-Rays in order to reveal features covered by corrosion. The brooches were all recovered fromearly Roman contexts. Details of the objects are provided in the catalogue below.

The Assemblage

B.1.1 A complete copper alloy one-piece Colchester brooch (s.f.2) came from context 10. It is in very good condition, with only slight damage to the catch-plate, and the extreme tip of the pin missing. It is a very plain example, with neither the bow, nor the hook decorated. Although it is not clear, the ends of the wings might have triangular cloisons, which seem to be inlaid with a now crystalline substance. The triangular catch-plate is pierced by three rectangular holes, probably placing it in Olivier's developed form (1996, 242).

B.1.2 Small curving fragments (s.f.4) from the same context (10) seem most likely to derive from a second copper alloy brooch, although nothing survives to identify the form.

B.1.3 Small find 3, from context 11 has been tentatively identified, from x-ray, as a simple wire brooch with a straight profile and right-angled turn at the head, see for instance, examples from Dragonby (Olivier 1996, fig 11.3).

Catalogue

Small Find	Figure	Description	Dimensions	Context
S.F.2	(Plate 5)	Colchester bow brooch, complete except for tip of pin. Bilateral spring of six-coils, the chord held by short forward-facing hook. Spring is part-covered by short wings. Bow appears plain, but slightly faceted, and the hook is plain. Triangular catch-plate pierced by three rectangular holes.	L: 52mm; Ht: 26.5mm: W: 17mm	10
S.F.3		Simple iron wire bow brooch, spring and pin only. The catch-plate is absent (x-r K15/115).	L: 45mm; W: 13mm	11
S.F.4		Five small curving fragments, possibly from brooch spring???	No valid dimensions.	10

Table B1.1: Catalogue of Brooches

Discussion

B.1.1 Mackreth (2010) places brooches with rectangular piercings on the catch-plate as relatively early in the sequence, a likelihood supported by the short hook, which does not reach the top of the bow. Olivier (*op cit*) regards manufacture of the developed form as slightly pre-dating the Conquest, but suggests that they may have remained in use into the latter half of the first century AD. Large numbers of Colchester brooches were present in the King Harry Lane cemetery, St Albans, in use *c* AD1 - AD60 (Stead and Rigby 1989, 98) and Crummy (2012) notes that they are a common Catuvellaunian/Trinovantian type, made in considerable numbers, and are probably the most common pre-Conquest brooch type.

B.1.2 The iron brooch is of broadly similar date-range to the Colchester brooch, focussed on the first half of the first century AD, although they are also found in immediately post-Conquest contexts (Olivier 1996, fig 11.3).

B.2 Romano-British Pottery

By Alice Lyons

Introduction

B.2.1 A total of 622 sherds, weighing 9417g (3.18 EVE) of latest Iron Age and very early Roman pottery fragments were recovered from thirteen contexts during the excavation of a lift shaft at Shire Hall, Castle Hill, Cambridge. The pottery is extremely fragmented and represents a minimum of 77 individual vessels with an average sherd weight of only *c*. 15g.

B.2.2 The majority of this assemblage (341 sherds, weighing 4617g and representing 49% by weight) was recovered from ditch fills and occupation deposits, while a smaller amount (212 sherds, weighing 3465g, representing 37% by weight) were recovered from within a levelling deposit. The remainder of the assemblage (69 sherds, weighing 1335g, representing 14% by weight) was found within a variety of contexts including redeposited gravel and levelling layers.

Methodology

B.2.1 The pottery was analysed following the guidelines of the Study Group for Roman Pottery (Darling 2004). The total assemblage was studied and a catalogue was prepared (Table B2.2). The sherds were examined using a hand lens (x10 magnification) and were divided into broad fabric groups defined on the basis of inclusion types present. The sherds were counted and weighed to the nearest whole gram and recorded by context. Decoration, residues and abrasion were also noted. Local (Farrar, Hull and Pullinger 2000; Anderson with Brudenell 2010), regional (Thompson 1982) and national (Tomber and Dore 1998; Tyers 2006) publications were used for identifying the fabrics and forms. OA East curates the pottery and archive.

The Pottery

Fabrics

B.2.1 A total of six broad fabric groups were recorded during the assessment of this ceramic assemblage (Table B2.1).

Local coarsewares

B.2.1 The majority of the assemblage (74% by weight) comprises sand tempered fabrics with common fine flint inclusions, also sparse grog. This fabric (Sandy grey ware (proto)) was not fired consistently so the vessels are a variety of colours (varying from black to grey) and surface finishes (some are oxidised). This fabric was commonly used to produce wheelmade cordoned jars and bowls (RB pot 1; RB pot 4), also rilled jars (RB pot 5i-v). Handmade combed storage jars are also well represented in this fabric, which were produced in the Iron Age tradition but are contemporary with the wheelmade vessels (RB pot 6). Also found was a very small number of locally made reduced wares with fossilised shell present as a natural component of the clay which was used to make jars, some of which are also rilled.

Fabric	Fabric Description	Vessel (Thompson 1982 type series)	Sherd Count	Weight (g)	Weight (%)

Sandy grey ware (proto)	A broad group of locally produced sand tempered fabrics which are inconsistently fired and range from black to mid grey in colour, some with oxidised surfaces. The fabric also includes common fine flint, sparse silver mica and grog (crushed pot).	Jar (B3-1)(C7-1), bowl (D2-1), storage jar (C6-1)	461	6979	74.11
Sandy grey ware	A group of locally produced sand tempered fabrics consistently fired to a blue-grey colour.	Jar (B3-1), bowl (D2-1), dish, storage jar (C6-1)	107	1246	13.23
Sandy oxidised ware	A group of locally produced sand tempered fabrics consistently fired to a pale buff colour.	Jar	27	914	9.71
Shell tempered ware	A group of locally produced reduced fabrics which contain fossilized clay as a natural component of the clay.	Jar (C7-1)	6	160	1.70
Gaulish Terra Rubra	A variable series of hard off-white to pink or dark red fabrics with applied slip (Tyers 1996, 165)	Butt beaker(G5-2), platter (G1-1)	15	93	0.99
Gaulish Terra Nigra	A variable series of hard off white to dark grey or brown fabrics with highly burnished surfaces (Tyers 1996, 165-166)	Beaker, jar/bowl	6	25	0.26
Total			**622**	**9417**	**100.00**

Table B2.1 The Pottery by fabric, listed in descending order of weight (%)

B.2.2 The second most common fabric (*c*. 13% by weight) is a slightly more consistently produced wheelmade sandy grey ware (with less variety of inclusions). This fabric was used to produce a very similar – but more Romanised - range of cordoned vessels, distinctive as they have slightly less bulging cordons (RB pot 3). It is likely these vessels are chronologically slightly later than the SGW(proto) fabrics described above, although still dated to the mid 1st century AD. A very small number of contemporary undiagnostic Sandy oxidised ware jar sherds were also found.

Imported fine ware

B.2.3 A small number of distinctive imported fineware vessel fragments were recorded. These are fine tablewares produced using ceramic techniques outside of the normal range of local potters (Stead and Rigby 1989, 117). Most common are Terra Rubra (Tyers 1996, 165) fabrics produced in Gaul and imported into Britain between AD1-60/65. Two vessel forms were recognised comprising the decorated body sherds of a butt beaker (RB pot 2) and the remains of a platter. Small fragments from Terra Nigra vessels were also found and are contemporary.

The Forms

B3-1: Cordoned wide mouthed jars (Thompson 1982, 139-142)

C6-1: Storage jars (Thompson 1982, 257-267)

C7-1: Rilled jars (Thompson 1982, 273-281)

D2-1: Cordoned bowls (Thompson 1982, 319-321)

G1-1: Straight-sided platter (Thompson 1982, 441- 445)

G5-2: Decorated barrel shaped butt beakers (Thompson 1982, 511-513)

Illustration Catalogue

RB pot 1. SGW(PROTO). A fine sandy reduced ware fabric cordoned bowl (Thompson 1982, D2-1). Context 11.

RB pot 2. TR1C. A Terra Rubra sandy red ware Butt beaker (Thompson 1982, G5-2) . Context 11.

RB pot 3. SGW. Sandy grey ware cordoned jar (Thompson 1986, type B3-1). Context 11.

RB pot 4. SGW(PROTO). Sandy reduced ware with oxidised surfaces (Thompson 1986, type D2-1). Context 11

RB pot 5i-v. SGW(PROTO). Various sandy reduced ware jar/bowl sherds with distinctive rilled decoration (Thompson 1986, type C7-1). Context 11

RB pot 6. SGW(PROTO). A handmade sandy grey ware storage jar with oxidised scored surfaces (Thompson 1986, type C6-1). Context 22.

Discussion

B.2.1 This is a small assemblage of latest Iron Age and very early Roman pottery recovered from a well defined archaeologically sensitive area within Castle Hill, Cambridge (Alexander and Pullinger 2000). The majority of the assemblage is comprised of locally produced sand tempered wheelmade vessels largely comprising cordoned jars and bowls, also handmade storage jars. This material is supplemented by a small amount of imported Gaulish fine table wares consisting of Terra Rubra and Terra Nigra beaker and platter fragments. As a whole this assemblage is relatively high status in character and distinct from contemporary rural assemblages found in the region (Anderson and Brudenell 2010, 48-49).

B.2.2 Dating this assemblage is an interesting and ongoing process, the difficulty of which has already been referenced in an earlier publication (Anderson and Brudenell 2010, 48). Comparison with the published literature (see Methodology) demonstrates that this assemblage is very similar to other pottery excavated in the area and is therefore consistent with ceramic goods manufactured and used in this region between AD30-60 (Farrar, Hull and Pullinger 2000; Anderson and Brudenell 2010, 46). This assemblage, however, is distinct as it consists of a very limited number of fabrics and forms. Indeed it is noteworthy that no amphora (Tyers 1996, 85-105) or samian (Tyers 1996, 105-116) were found during this excavation as their presence would be expected in a high status Claudian assemblage (G. Monteil pers comm).

B.2.3 It is possible that the absence of these wares are the result of the limited nature of the excavation and the relatively small size of the assemblage. If the absence of samian is ‘real’, however, it could indicate a date before the early 40s when small amounts of

Gaulish samian started to be introduced into the high status British ceramic repertoire (Webster 2005, 2). The absence of samian, therefore, potentially dates the assemblage to *c*. AD 30-40, which is broadly consistent with the two brooches found along side the pottery which dated to AD30-50. If this date is correct it suggests that this ceramic assemblage could be associated with the known Late Iron Age activity on Castle Hill, which is thought to have been abandoned before the Roman conquest (Evans 2000, 255).

B.2.4 If, however, it is accepted that the absence of samian is due to the small size of the assemblage or that the Terra Rubra and Terra Nigra fabrics fulfilled the tableware needs of the community, then the date range becomes broader (AD30-60), although all the material is certainly pre-Flavian (AD69) in character.

Statement of potential and recommendation for future work

B.2.1 This assemblage is potentially very significant when seen in the context of the archaeologically sensitive area from which it was excavated and also its potential to aid with understanding the late Iron Age/ Roman transition in Cambridge – possibly providing a snapshot of high status ceramic use in the last few years before the Roman conquest.

B.2.2 Further detailed analysis of the fabrics and forms, and placing them firmly within the context of their archaeological data, will maximise the possible extraction of useful data. This limited amount of additional work may enable the date of the assemblage to be refined and therefore contribute to the interpretation of the site within the context of the origins of the urban landscape of Cambridge.

Task	Detail	Number of days
1	Detailed analysis of the pottery fabrics and forms	1.50
2	Examine the pottery with final site matrix and phasing	0.50
3	Research comparative material	1.00
4	Write an archive report suitable for incorporation into any future publication.	2.00
Total		**5.00**

The Pottery Catalogue

Key: B = base, C = century, D = decorated body sherd, Dsc = description, E= early, L=late, M=mid, R = rim, U = undecorated body sherd.

Context	Cut	Feature	Fabric	Dsc	Form	Quantity	Weight (g)	Date
2	**0**	Levelling layer, below floor foundation	Sandy grey ware	R	Dish	1	9	ADE/MC1
2	**0**	Levelling layer, below floor	Sandy grey ware	R	Jar/bowl	1	16	ADMC1

Context	Cut	Feature	Fabric	Dsc	Form	Quantity	Weight (g)	Date
		foundation						
2	**0**	Leveling layer, below floor foundation	Sandy grey ware	UD	Jar/bowl	2	12	ADMC1
2	**0**	Leveling layer, below floor foundation	Sandy grey ware (proto)	RD	Bowl	4	27	E/MC1AD
2	**0**	Leveling layer, below floor foundation	Sandy grey ware (proto)	R	Jar/ beaker	1	14	ADMC1
2	**0**	Leveling layer, below floor foundation	Sandy grey ware (proto)	D	Storage jar	2	35	ADC1
2	**0**	Leveling layer, below floor foundation	Sandy oxidised ware	D	Storage jar	5	86	C1
2	**0**	Leveling layer, below floor foundation	Shell tempered ware	U	Storage jar	1	7	C1
6	**0**	Dump/ rubble	Terra Nigra	UB	Jar/bowl	1	5	ADM/LC1
6	**0**	Dump/ rubble	Sandy grey ware	RU	Jar/ storage jar	13	79	ADMC1
6	**0**	Dump/ rubble	Sandy grey ware	RUDB	Jar	10	67	ADE/MC1
6	**0**	Dump/ rubble	Sandy grey ware (proto)	D	Beaker	1	18	ADMC1
6	**0**	Dump/ rubble	Sandy grey ware (proto)	RU	Jar	3	48	ADMC1
6	**0**	Dump/ rubble	Sandy grey ware (proto)	DB	Jar/bowl	8	87	ADMC1
6	**0**	Dump/ rubble	Sandy grey ware (proto)	U	Jar/ storage jar	4	33	ADMC1
6	**0**	Dump/ rubble	Sandy grey ware (proto)	D	Storage jar	5	68	ADC1
6	**0**	Dump/ rubble	Sandy grey ware (proto)	RD	Storage jar	20	408	ADC1
6	**0**	Dump/ rubble	Sandy oxidised ware	B	Jar	1	5	ADM/LC1
6	**0**	Dump/ rubble	Sandy oxidised ware	D	Storage jar	13	604	C1
6	**0**	Dump/ rubble	Shell tempered ware	RD	Jar	5	153	ADM/LC1
6	**0**	Dump/ rubble	Terra Rubra	RD	Beaker	1	5	AD1-65

Context	Cut	Feature	Fabric	Dsc	Form	Quantity	Weight (g)	Date
8	**0**	Dump/ rubble	Terra Nigra	U	Jar/bowl	1	5	ADM/LC1
8	**0**	Dump/ rubble	Sandy grey ware	D	Bowl	8	39	ADM/LC1
8	**0**	Dump/ rubble	Sandy grey ware	UD	Jar/bowl	8	131	ADMC1
8	**0**	Dump/ rubble	Sandy grey ware (proto)	D	Beaker	8	52	ADMC1
8	**0**	Dump/ rubble	Sandy grey ware (proto)	RUD B	Jar	25	297	ADM/LC1
8	**0**	Dump/ rubble	Sandy grey ware (proto)	RUD B	Storage jar	56	1030	ADC1
8	**0**	Dump/ rubble	Sandy grey ware (proto)	D	Storage jar	11	237	ADC1
8	**0**	Dump/ rubble	Sandy grey ware (proto)	RU	Jar/bowl	2	15	ADE/MC1
8	**0**	Dump/ rubble	Sandy oxidised ware	B	Jar	2	35	ADM/LC1
8	**0**	Dump/ rubble	Terra Rubra	ROD	Beaker	6	44	AD1-65
9	**0**	Surface	Sandy grey ware	UD	Jar/bowl	2	22	ADMC1
9	**0**	Surface	Sandy grey ware (proto)	UD	Bowl	2	79	ADE/MC1
9	**0**	Surface	Sandy grey ware (proto)	DB	Storage jar	4	140	ADC1
11	**18**	Ditch	Terra Nigra	UB	Jar/bowl	3	11	ADM/LC1
11	**18**	Ditch	Sandy grey ware	UD	Jar/bowl	7	57	ADC1
11	**18**	Ditch	Sandy grey ware	RUD B	Jar/bowl	46	591	ADMC1
11	**18**	Ditch	Sandy grey ware (proto)	D	Beaker	2	11	MC1
11	**18**	Ditch	Sandy grey ware (proto)	RD	Bowl	11	95	ADMC1
11	**18**	Ditch	Sandy grey ware (proto)	RD	Bowl	6	67	E/MC1AD
11	**18**	Ditch	Sandy grey ware (proto)	U	Jar	14	96	ADC1
11	**18**	Ditch	Sandy grey ware (proto)	RUD B	Jar/bowl	132	2103	ADMC1
11	**18**	Ditch	Sandy grey ware (proto)	D	Storage jar	2	59	C1
11	**18**	Ditch	Sandy grey ware (proto)	D	Storage jar	10	268	C1
11	**18**	Ditch	Sandy grey ware (proto)	UD	Storage jar	13	336	LCBC-ADC1

Context	Cut	Feature	Fabric	Dsc	Form	Quantity	Weight (g)	Date
11	**18**	Ditch	Sandy grey ware (proto)	D	Jar/bowl	22	174	LC1BC-ADMC1
11	**18**	Ditch	Terra Nigra	D	Beaker	1	4	AD1-60
11	**18**	Ditch	Terra Rubra	D	Beaker	4	20	AD1-60
13	**18**	Possible ditch fill	Sandy grey ware	RD	Jar/bowl	3	58	ADMC1
13	**18**	Possible ditch fill	Sandy grey ware (proto)	RD	Bowl	13	158	ADMC1
13	**18**	Possible ditch fill	Sandy grey ware (proto)	RD	Bowl	2	23	E/MC1AD
13	**18**	Possible ditch fill	Sandy grey ware (proto)	U	Jar	5	57	C1
13	**18**	Possible ditch fill	Sandy grey ware (proto)	RUDB	Jar/bowl	18	83	ADMC1
13	**18**	Possible ditch fill	Sandy grey ware (proto)	RUDB	Jar/bowl	7	40	ADMC1
13	**18**	Possible ditch fill	Sandy grey ware (proto)	D	Storage jar	6	71	ADC1
13	**18**	Possible ditch fill	Sandy grey ware (proto)	RU	Storage jar	3	122	ADC1
13	**18**	Possible ditch fill	Sandy oxidised ware	D	Storage jar	5	54	C1BC-ADEC1
13	**18**	Possible ditch fill	Terra Rubra	D	Beaker	2	10	AD1-60
13	**18**	Possible ditch fill	Terra Rubra	B	Platter	2	14	AD1-65
14	**18**	Redeposited gravel	Sandy grey ware	D	Jar/bowl	2	60	ADMC1
14	**18**	Redeposited gravel	Sandy grey ware (proto)	RUDB	Jar/bowl	17	198	ADMC1
14	**18**	Redeposited gravel	Sandy grey ware (proto)	RUDB	Jar/bowl	1	15	E/MC1AD
14	**18**	Redeposited gravel	Sandy oxidised ware	R	Storage jar	1	130	ADC1
15	**18**	Occupational debris	Sandy grey ware	D	Bowl	1	9	ADMC1
15	**18**	Occupational debris	Sandy grey ware (proto)	RD	Bowl	3	29	E/MC1AD
15	**18**	Occupational debris	Sandy grey ware (proto)	D	Storage jar	6	92	ADC1
17	**29**	Upper gravel	Sandy grey ware (proto)	D	jar/storage jar	2	36	ADC1
19	**29**	Ditch	Sandy grey ware (proto)	U	Jar/ storage jar	1	10	BCC1-ADEC1
21	**26**	Redeposited gravel (SE)	Sandy grey ware (proto)	D	Cooking pot	1	20	E/MC1AD

Context	Cut	Feature	Fabric	Dsc	Form	Quantity	Weight (g)	Date
22	**27**	Clayey deposit (NW)	Sandy grey ware	UD	Jar	2	28	ADC1
22	**27**	Clayey deposit (NW)	Sandy grey ware	R	Storage jar	1	68	ADC1
22	**27**	Clayey deposit (NW)	Sandy grey ware (proto)	R	Bowl	1	13	E/MC1AD
22	**27**	Clayey deposit (NW)	Sandy grey ware (proto)	U	Bowl	3	67	ADE/MC1
22	**27**	Clayey deposit (NW)	Sandy grey ware (proto)	U	Jar/bowl	1	5	M/LC1-MC2
22	**27**	Clayey deposit (NW)	Sandy grey ware (proto)	D	Storage jar	2	118	C1BC-ADEC1
28	**27**	Ditch	Sandy grey ware (proto)	D	Jar	1	25	LC1BC-ADE/MC1

Table B2.2: Romano-British pottery catalogue

B.3 Fired Clay

By Cynthia Poole

Introduction

B.3.1 A small assemblage of fired clay amounting to 34 fragments (670g) was recovered from eight contexts from the large Roman boundary ditch, its recuts and the overlying occupation deposits. The assemblage has a mean fragment weight of 20g, which is at the upper end of average and abrasion is low to moderate. Several pieces were poorly fired or unfired. The majority of the assemblage was composed of structural material probably from ovens or hearths and portable oven/hearth furniture apart from a single complete spindle whorl. The character of the assemblage is consistent with the overall dating of the site in the Late Iron Age – early Roman period.

Methodology

B.3.2 The fired clay was recovered by hand excavation apart from a single piece from a sieved sample. The assemblage has been fully recorded on an Excel spreadsheet and is summarised in Table B3.1. The fabrics have been characterised with the use of a x10 hand lens and on macroscopic features.

Fabrics

B.3.3 Two fabrics have been identified. Fabric A is a fine smooth micaceous clay, white or cream in colour, with small streaks or mottles of pink or orange when fired. The colour suggests the clay has a high calcareous or marl content; more heavily fired pieces tend to discolour to light-mid grey similar to burnt chalk. No inclusions apart from rare flint grit or pebbles up to 15mm were present. A small number had evidence of a scatter of organic impressions, which has been designated as fabric AV. Fabric Q was generally pinkish brown, red or orange in colour and contained a moderate to high density of medium quartz sand, rounded-sub-rounded and occasional small burnt flint grit 2-3mm. The fabrics are similar to those found elsewhere in the vicinity of Cambridge and reflect the locally available clays.

Forms

B.3.4 Oven or hearth structure is probably represented by the fragments with a single moulded surface. One with a well finished smooth surface, fired grey, (context 22) is perhaps hearth floor, whilst the more roughly finished fragments are more likely to derive from oven wall surface or lining (contexts 6, 11, 15). The fragments range from 4 to 20mm thick.

B.3.5 Oven or hearth furniture is represented by a flat plaque (context 8) and two examples of triangular perforated brick (one from context 8 and one unstratified). Both triangular bricks are fragmentary, but they appear to be of small to average size, one having an estimated thickness of 60mm and the larger fragment having a length of over 90mm. Perforations measured 12-14mm. One corner fragment had a groove moulded over the apex from edge to edge. The flat plaque was sub-rectangular in form with one curved end surviving and two straight sides. It measured 33mm thick, 67mm wide and over 85mm long. The plaque was largely unfired, though one surface had been burnt and blackened and the clay had cracked through contraction of the clay as it dried. A small perforation 7mm in diameter could be a worm hole rather than a deliberately made feature.

B.3.6 A single small object in the form of a spindle whorl of discoidal form was also found in context 8. It had quite a rough crude finish with convex surfaces top and bottom and narrow vertical sides with a discontinuous indented line around the centre. It was pierced by a cylindrical perforation 5mm in diameter placed slightly off-centre. It weighed 16g and measured 33x36mm wide and 14mm thick.

Discussion

B.3.7 The majority of the fired clay derived from charcoal rich deposits (6, 8 and 15), which is consistent with the interpretation of the material as debris from ovens or perhaps hearths. The triangular perforated bricks though traditionally interpreted as loomweights are more likely to have been utilised as some form of oven furniture. Since an association with ovens or hearths was first suggested (Poole 1995) firm evidence has been found on Thanet, Kent indicating their use as pedestals (Poole 2015), though patterns of firing on other examples of such objects suggest they were multifunctional possibly serving as floors, lining or kerbs. The triangular bricks though generally regarded as an Iron Age form, clearly continued to be used well into the Roman period, presumably reflecting the preferences of the indigenous population.

B.3.8 The plaque is not a standardised object that can be assigned to a particular function of period, but flat rectangular plaques and circular discs become increasing common during the later Iron Age and Roman period and it possibly falls within this class of object. Alternatively it could be one end of a flat rectangular fire bar, but the general lack of firing suggests that this is unlikely and some form of small plaque used as an accessory in a domestic oven or hearth is a more likely function.

B.3.9 The spindle whorl is indicative of domestic activity and can be regarded as a personal item. However it is quite crudely finished in contrast to the majority of such objects, suggesting the maker lacked experience or was unconcerned by the quality.

Feature	Cxt	Sample / SF No	Nos	Wt (g)	Fabric	Class	Form	Description
Occupation /refuse layer	6	~	1	8	A	Oven	Indet	Flat rough moulded surface
Occupation /refuse layer	8	~	13	280	AV	Oven furniture	Triangular perforated brick	Two flat surfaces forming edge of triangular brick. Part of rounded corner with external moulded groove across it. Parts of two perforations, one 12x14mm piercing the larger block of clay. Poorly fired.
Occupation /refuse layer	8	~	1	168	A	Oven furniture	Plaque	One end of flat plaque with straight sides and rounded end. Unfired. Cylindrical hole 7mm dia piercing the plate may be a deliberate perforation or wormhole. Size: 67 x >85mm; 33mm thick.
Occupation /re-	8	sf1	1	16	A	Object	Spindle whorl	Circular disc with convex surfaces top and bottom

Feature	Cxt	Sample / SF No	Nos	Wt (g)	Fabric	Class	Form	Description
fuse layer								and vertical side; quite roughly finished with indented line discontinuously around side. Perforation 5mm dia. is slightly off-centre. Size: 36x33mm, 14mm thick.
Occupation /refuse layer	8	~	1	7	A	Indet	Indet	Amorphous
Cut 18	11	~	10	71	AV	Oven str	Wall or plate	Flat well finished even moulded surface, slight irregularities. 4-17mm thick.
Cut 18	13	~	1	2	Q	Oven str	Wall	Roughly moulded flat undulating surface. 8mm thick
Cut 18	15	~	1	12	Q	Oven str	Wall?	Roughly moulded curving undulating surface. 13mm thick.
Cut 29	17	~	1	31	A	Indet	Indet	amorphous
Cut 29	19	~	1	39	A	Oven furniture	Pedestal/ rectangular block	Rough flat moulded surface, possibly curving to an edge but quite damaged here. 32mm thick
Ditch 27	22	<15>	1	3	Q	Oven/ hearth str	Wall/floor	Single well finished surface. 12mm thick
U/S	9999	~	1	18	A	Oven furniture	TPB	Edge fragment from triangular perforated brick with part of perforation 12mm dia piercing rougher side surface. >30mm thick
U/S	9999	~	1	15	Q	Oven str	Wall/floor	Rough undulating moulded surface. 20mm thick

Table B3.1: Summary of fired clay by context

Appendix C. Environmental Reports

C.1 Faunal Remains

By Lena Strid

Introduction

C.1.1 This report encompasses a total of 375 animal bone fragments that were recovered from securely dated early Roman features and layers. Bones from sieved soil samples comprise 16 fragments (4.2%).

Methodology

C.1.1 The bones were identified at Oxford Archaeology by the author using a comparative skeletal reference collection, in addition to osteological identification manuals, such as Cohen and Serjeantson (1996), Hillson (1992) and Schmid (1972). Sheep and goat were identified to species where possible, using Boessneck *et al.* (1964) and Zeder and Lapham (2010). They were otherwise classified as 'sheep/goat'. Mammal ribs and vertebrae, with the exception of atlas and axis, were classified by size: 'large mammal' representing cattle, horse and deer; 'medium mammal' representing sheep/goat, pig and large dog; and 'small mammal' representing small dog, cat and hare.

C.1.2 Bones from sieved soil samples were only recorded if they could be identified to taxon, genera or family.

C.1.3 The condition of the bone was graded on a 6-point system (0-5), grade 0 equating to very well preserved bone, and grade 5 indicating that the bone had suffered such structural and attritional damage as to make it unrecognisable (Table C1.1).

C.1.4 For the calculation of the number of identified fragments per species (NISP) all identifiable fragments were counted, although bones with modern breaks were re-fitted. The minimum number of individuals (MNI) was calculated on the most frequently occurring bone for each species, using Serjeantson's (1996) and Worley's (Strid 2012) zoning guides and taking into account left and right sides. The weight of the bone fragments has been recorded in order to give an idea of their size and to facilitate an alternative means of quantification.

C.1.5 For ageing, Habermehl's (1975) data on epiphyseal fusion for domestic animals were used. Tooth wear for cattle, sheep/goat and pig was recorded using Grant's tooth wear stages (Grant 1982) and correlated with tooth eruption (Habermehl 1975). In order to estimate an age for the animals, the methods of Halstead (1985), Payne (1973) and O'Connor (1988) were used for cattle, sheep/goat and pig respectively.

C.1.6 Sex estimation was carried out on morphological traits on cattle and sheep/goat pelves, sheep horn cores and pig maxillary and mandibular canine teeth, using data from Boessneck et al. (1964), Hatting (1983), Prummel and Frisch (1986), Schmid (1972) and Vretemark (1997). The presence of medullary bone in birds was used to indicate the presence of female birds.

C.1.7 Measurements were taken according to von den Driesch (1976), using digital callipers with an accuracy of 0.01 mm. Large bones were measured using an osteometric board, with an accuracy of 1 mm. Withers' height of horse was calculated using May (1985).

The assemblage

C.1.8 Bone preservation was good, with no bones being poorly preserved. A total of 52 bones had gnaw marks by carnivores, probably dogs. Traces of burning occurred on 20 bones, ranging from partial charring to full calcination. Further burnt bones were found in the sieved soil samples, but as they were unidentifiable, they are not included in the report.

C.1.9 Of the 375 re-fitted fragments, 156 (41.6%) could be identified to species (Table C1.1). Most of the bones belonged to domesticates: cattle (*Bos taurus*), sheep/goat (*Ovis aries/Capra hircus*), pig (*Sus domesticus*), horse (*Equus caballus*), dog (*Canis familiaris*), and domestic fowl (*Gallus gallus*).Wild animals comprise raven (*Corax corax*) and frog (*Rana* sp.). The assemblage also included one bone from frog/toad. Four bones could be identified as sheep, and none to goat. Goats are rare animals in Britain throughout the Roman period, which suggests that most, if not all, the sheep/goat remains from Shire Hall are sheep.

C.1.10 The assemblage is dominated by bones from sheep/goat. Urban or military Roman sites are often dominated by cattle and/or pig, suggesting that the Shire Hall assemblage may be more typical of a native British diet. However, the total number of bones from livestock is less than 300, the optimal minimum number for a secure inter-species analysis (cf Hambleton 1999, 39-40), and any analysis of species proportion must be interpreted with care.

C.1.11 Judging by epiphyseal fusion, tooth eruption and wear, the sheep/goat assemblage is dominated by young and sub-adult animals (Table C1.2-C1.3), a common pattern for Iron Age animal husbandry. It has been hypothesised that this represents a cull of animals before their first winter in order to preserve fodder for the rest of the flock (Hambleton 1999, 70-74). The slaughter patterns for cattle and pig are also focussed on sub-adult animals (Table C1.2-C1.3), although probably due to a smaller sample size, neither species show any peaks in slaughter. Cattle were usually kept for a variety of products, with an emphasis on secondary products such as dairy and traction. This kind of animal husbandry usually results in slaughter of young surplus animals and/or young animals reared for meat and older animals past their prime. Since pigs are efficient meat producers with high fecundity and rapid growth rate they are usually slaughtered before or when they reach their full growth. Remains from juvenile animals, whether natural mortalities or deliberately slaughtered for meat, include one cattle radius, one sheep/goat radius and two large mammal long bones. The other domestic animals, horse, dog, domestic fowl, lived to adult or sub-adult age, judging by epiphyseal fusion and bone surface structure.

C.1.12 The limited sex sample comprised one female fowl-sized bird, two female cattle pelves, one male pig mandible, one male sheep skull, one sheep/goat pelvis from a castrate and one from an indeterminate male.

C.1.13 A withers' height of 115.3cm (*c.*11 hands) could be calculated on one horse metatarsal.

C.1.14 Butchery marks were found on a total of 13 bones from cattle, sheep/goat, pig, medium and large mammal. Axial splitting of the carcass is indicated by two medium mammal vertebrae and two sheep/goat skulls. Skinning marks were absent, but this is likely to be associated with a limited sample size and/or careful butchers rather than an absence of tanning. Two sheep/goat pelves had been chopped off at the ilium, suggesting dismembering of the hind leg at the spine. Other indications of portioning include two chopped off transverse processes on large mammal lumbar vertebrae and one medium mammal rib that had been chopped in two parts. Cut marks on one distal pig humerus, one cattle mandible near the articulate process and on the pubis of one sheep/goat

pelvis may derive from disarticulation or from filleting. The only certain indication of filleting was a transverse cut mark on a large mammal rib.

C.1.15 A saw mark near the base of a cattle horn core suggest that the horn sheath was removed for horn working. Another possible indication of bone working is a horse metatarsal where the fused lateral metatarsal – a natural age related occurrence – had been chopped off, possibly to turn the bone into a suitable shape for bone working.

C.1.16 Very few bones displayed evidence of pathological conditions. One cattle proximal metatarsal had minor exostoses on the lateral side of the bone. Exostoses are often associated with muscle strains but may also be age related. A sheep/goat mandible had a swelling of porous pathological bone growth on both the lingual and buccal side of the mandible, from the third premolar to the second molar. There were some bone absorption at the gum line and the teeth were loose in their sockets. Minor bone absorption between P4-M1, probably caused by impacted food below the gum line, are common in sheep (Bartosiewicz and Gál 2014, 178). The size of the swelling suggests that this was a severe infection that would have caused major tooth loss among the cheek teeth, had the sheep not been slaughtered. A large mammal thoracic vertebra had layers of smooth pathological bone growth on both sides of the dorsal process. The aetiology is unclear, but may relate to an infection.

	Fragments	**MNI**	**Weight (g)**
Cattle	35	3	2125
Sheep/goat	95	10	876
Sheep	4		60
Pig	9	2	290
Horse	2	1	279
Dog	4	1	41
Domestic fowl	4	1	1
Raven	1	1	0
Indeterminate bird	3		2
Frog	2	1	0
Frog/toad	1		0
Micromammal	6		0
Medium mammal	86		216
Large mammal	23		242
Indeterminate	100		199
TOTAL	375	20	4332

Table C1.1: Total number of fragments per species, including Minimum Number of Individuals (MNI) and weight.

Species	dp4	P4	M1	M2	M3	MWS	Estimated age
Cattle	j		d	V		10-12	8-18 months
	j		g	b	C-V	20-21	18-30 months
	k		g	b		20-21	18-30 months

Species	dp4	P4	M1	M2	M3	MWS	Estimated age
Sheep/goat	c		V			2	2-6 months
	g		b			8-10	6-12 months
	g		b	C		8-9	6-12 months
	g		c	C-V		9-10	6-12 months
	g		e	C		11	6-12 months
	g		e	C-V		11-12	6-12 months
	g		f	C		13	6-12 months
	h		c	C-V		9-10	6-12 months
	h		d	C-V		10-11	6-12 months
	h		d			10-17	6 months – 2 years
	h		g	b		20-21	1-2 years
		E	g	g	b	31	2-3years
			g	g	PM	31-36	2-6 years
			k	g	PM	37-39	3-6 years
			m	j	g	43	4-6 years
Pig			f	c	E	24-25	Sub-adult
		PM		e	PM		

Table C1.2. Tooth wear and estimated age of cattle, sheep/goat and pig, following Grant (1982), Halstead (1985), Payne (1973) and O'Connor (1988).

		Unfused	Fusing	Fused
Cattle	Early fusion			4
	Mid fusion			2
	Late fusion			1
Sheep/ goat	Early fusion			5
	Mid fusion	1		
	Late fusion	3		1
Pig	Early fusion			2
	Mid fusion	1		1
	Late fusion			
Horse	Early fusion			1
	Mid fusion			
	Late fusion			

Table C1.3. Epiphyseal fusion of cattle, sheep/goat, pig and horse, following Habermehl (1975) and Serjeantson (1996).

C.2 Fish bone

By Rebecca Nicholson

Introduction

C.2.1 Thirty one fish bones were recovered from the excavation, almost all from the sorted heavy residues of flotation samples. All came from deposits dated to the mid 1st century AD, including occupation/refuse layers (6), (8) and levelling layer (9) and ditch fills (10), (11), (13) and (14).

Methodology

C.2.1 The bones were identified at Oxford Archaeology by the author using a comparative skeletal reference collection. With the exception of a single bone from clayey levelling surface (9) and bones from (8) the remains are in good condition. Measurements were taken on a single eel cleithrum (chord length), using digital calipers to 0.1mm, following Libois *et al*. (1987).

The assemblage (Table C2.1)

C.2.2 Virtually all of the identified fish bones came from species likely, or certain, to have been caught in freshwater rivers and streams, although the remains of fishponds have been discovered at some villa sites (Zeepvat 1988). Species identified include barbel as well as indeterminate cyprinids, pike and eel. Eel is a euryhaline fish, which migrates from freshwater to the sea to spawn, but in this case the fish is very likely to have been caught in freshwater, where they spend much of their young and adult lives. An eel cleithrum from (8) sample 2 came from an adult fish of around 0.39m long; eels are generally considered to be adult at about 0.3m but mature eels vary greatly in size with males usually smaller (under 0.5m) and females up to 1m (Bark *et al*. 2007). A barbel hyomandibular and four caudal vertebrae from barbel or bream came from a fairly large fish, around or in excess of 0.5m, while the other, cyprinid remains, undiagnostic to species, came from much smaller individuals. Pike was identified by a tooth in (8) sample 2, and a small, chewed vertebra in (9) sample 3 was also probably from pike.

C.2.3 A single herring vertebra from (8) sample 2 may have come from a salted or pickled fish, since they are oily, herring spoil quickly.

Discussion

C.2.4 Fish remains from Roman rural sites are fairly rare. Where fish have been recovered from Roman sites in the midlands, eel is generally the most common species with salmonids the next most frequent followed by cyprinids, pike, plaice/flounder, perch and herring, together suggesting a strong reliance on freshwater fisheries (Locker 2007). Sites further inland unsurprisingly have a greater proportion of freshwater fish, but it seems that the Romans generally favoured marine fish over those from freshwater, as demonstrated by Diocletian's price index of AD 310 where marine fish appear to be double the price of freshwater fish (Alcock 2001, 49 cited in Locker 2007). To what extent the consumption of fish can be seen as an indicator of staus is unclear, but the lack of fish remains from Iron Age sites in England (Dobney and Ervynck 2007) suggests that fish eating was part of a new, Romanised, culture.

Context	6	8	9	10	11	13	14	Total

Eel (*Anguilla anguil*la)		9		3	2			14
Herring (*Clupea harengus*)		1						1
Cyprinid (Cyprinidae)	1	2		2	1	1	2	9
Barbel *(Barbus barbus*)				1				1
Barbel/bream (*Barbus barbus/Abramis brama*)				3				3
Pike (*Esox lucius*)		1						1
cf. pike			1					1
Unidentified				1				1
Total	**1**	**13**	**1**	**10**	**3**	**1**	**2**	**31**

Table C2.1: Number of Fish bones by Context

C.3 Shell

By Alexandra Scard

Introduction and Methods

C.3.1 A total of 0.066kg of marine shell was recovered from three different contexts during excavations (Table C3.1). This shell was quantified and examined in order to assess the diversity and quantity of the ecofacts, as well as their potential to provide useful data as part of archaeological investigation.

Species	Common name	Habitat	Total weight (kg)	Total number of contexts
Ostrea edulis	Oyster	Estuarine and shallow coastal water	0.061	3
Mytilus edulis	Mussel	Intertidal, salt water	0.005	1

Table C3.1. Overview of identified, quantified shell

C.3.1 This assemblage is the result of shell collected by hand on site.

C.3.2 Only shell apices were counted in order to obtain the minimum number of individuals (MNI) present for each species, noting that, with regards to most species, each individual originally had two apices. With this in mind, the MNI was arrived at by different means, depending on the species.

C.3.3 *Ostrea edulis* (oysters) have a defined left and right valve. The left is oval and more concave in shape and displays radiating ribs on the outer surface. The right is generally more flat and lacks the formerly described ribs, though concentric growth rings are often visible (Winder 2011, 11). To obtain the MNI for oyster shell, the number of left and right valves were counted. The largest number was then taken as the MNI.

C.3.4 In the case of *mytilus edulis* (mussel), it is much more difficult to identify the left and right valves so the MNI is calculated by taking the full number of valves and then halving it.

C.3.5 All bivalve shells were unhinged. Apices were noted in contexts 2 and 6 along with a number of left and right oyster valves. The left and right valves were not observed to be matching in any of the contexts.

C.3.6 In order to obtain the average size of shell per species, the length of each shell from its apex to the outer edge has been measured, the average measurement per context and species was then been recorded. Size is significant with regards to shell, as it can be indicative of the age of each individual upon harvest. Using oysters as an example, if the oyster shell is found to be of uniform size it would suggest that they were harvested at the same, rather particular time. The larger the oysters, the longer they have been left before harvesting. Smaller oysters might suggest a greater need for food or perhaps a period of bad harvest.

C.3.7 Details of interest, for example man-made damage such as 'shucking': the process of prising open the oyster for consumption, or evidence of parasitic activity, such as polychaete worm infestation (PWI), have also been noted.

Results

C.3.8 Tables of quantification for each of the shell species; oyster and mussel, can be seen below (Table C3.2 and Table C3.3). Each context containing shell dates back to the Roman period, with features dating from the mid-late 1st and early 2nd century AD.

Context	Feature type	Weight	Left valve (kg and quantity)	Right valve (kg and quantity)	MNI	Average size (cm)	Comments
2	Layer/deposit	0.028	0.013/1	0.015/1	1	5.9	Small amount of PWI and potential shucking.
6	Layer/deposit	0.031	0.031/1	-	1	7.1	Possible shuck mark, not prominent.
8	Layer/deposit	0.002	-	0.002/1	1	U/K	No apex, nor any other diagnostic marks.

Table C3.2: Quantified oyster shell

Context	Feature type	Weight	Total apices	MNI	Average size (cm)	Comments
2	Layer/deposit	0.005	1	1	5.5	Good preservation.

Table C3.3: Quantified mussel shell

C.3.9 As can be seen in the tables above, oyster shell predominates the assemblage with 92.5% of the total quantity belonging to this species.

C.3.10 The average size of shell is large, with the smallest oyster shell measuring just under 6cm, the largest measuring just over 7cm.

C.3.11 Though the quantity of shell recovered from site is low, the preservation of said shell is moderate. Aside from a small amount of evidence for PWI and potential shucking on the oyster shells, there is no further evidence of taphonomic or man-made damage, deliberate or otherwise.

Discussion

C.3.12 As previously established, oyster shell predominates the assemblage. This is not surprising for a site of Roman date as, during this period, oyster was a staple within the diet. That being said, the quantity of shell recovered from site does not suggest heavy consumption of oyster, certainly not a feast on site.

C.3.13 The percentage of mussels (7.5%) in this assemblage is extremely low. Mussels were consumed in the Roman period but possibly not as often as oysters were. More probable on this occasion is that the presence of a mussel on site is due to the species being a contaminant: either of the oyster harvest, or within the deposited layer itself, having been collected from another source, potentially containing more mussel.

C.3.14 The low quantity of shell on site indicates that it was not necessarily a location where oyster was prepared or consumed. In such instances, one would expect to find pits and middens, abundant in shell waste would be expected

C.3.15 Each of the oyster shells recovered from site are of significant size. This is perhaps the most reliable source of evidence to suggest that oyster was consumed at, or near, the site. With an average size of 6.5cm, the oysters would have been harvested at an older age, thus being larger and more enjoyable to eat.

C.3.16 Though not prominent, the oyster shells recovered on site present potential evidence for shucking. ‘Shucking’ is the process of prising open the oyster, usually with a knife, to reveal the meat for consumption. Such activity is known to leave a mark on oyster shell, varying from a small 'u-shaped' cut along its outer edge, to a longer, more obvious hole,

usually found on the right valve. During the shucking process of oysters, the right valve is prised off and sometimes discarded separately to the left valve, which contains the meat. Equal numbers of left and right valves within an assemblage may suggest that the oysters were being prepared and eaten together. Whilst the ratio of left to right oyster valves was fairly even, the overall low quantity of shell recovered means that one cannot reliably comment upon whether or not this reflects the oyster being prepared and consumed in the same place.

Further Work and Methods Statement

C.3.1 The assemblage of shell from the site, primarily oyster, is evidence that marine molluscs were an exploited food resource. However, a lack of middens or pits on site suggests that a large quantity of shellfish was not consumed at this specific site, but elsewhere. Oyster consumption was high during the Roman period thus it is not surprising to find it on this site. Equally, given the nature and small scale of the site, it should not be seen as unusual that more shell, or indeed any waste or debris, was not recovered. The presence of shell within these features represents unintentional inclusions within a 'structural' layer of deposition.

C.3.1 The assemblage has been fully quantified and no further work is required.

C.4 Environmental Samples

By Rachel Fosberry

Introduction

C.4.1 Eighteen bulk environmental samples were taken from features within the area of excavation in order to assess the quality of preservation of plant remains and their potential to provide useful data as part of further archaeological investigations.

Methodology

C.4.1 Two buckets (approximately 20 litres) of each bulk sample was processed by water flotation (using a modified Siraff three-tank system) for the recovery of charred plant remains, dating evidence and any other artefactual evidence that might be present. The floating component (flot) of the samples was collected in a 0.25mm nylon mesh and the residue was washed through 10mm, 5mm, 2mm and a 0.5mm sieve. Both flot and residues were allowed to air dry. A magnet was dragged through each residue fraction prior to sorting for artefacts. Any artefacts present were noted and reintegrated with the hand-excavated finds. The dried flots were subjected to a rapid scan using a binocular microscope at magnifications up to x 60 and an abbreviated list of the recorded remains are presented in Table 1. Identification of plant remains is with reference to the *Digital Seed Atlas of the Netherlands* and the authors' own reference collection. Nomenclature is according to Zohary and Hopf (2000) for cereals and Stace (1997) for other plants. Carbonized seeds and grains, by the process of burning and burial, become blackened and often distort and fragment leading to difficulty in identification. Plant remains have been identified to species where possible. The identification of cereals has been based on the characteristic morphology of the grains and chaff as described by Jacomet (2006).

Quantification

C.4.1 For the purpose of this initial assessment, items such as seeds, cereal grains and legumes have been scanned and recorded qualitatively according to the following categories

= 1-10, ## = 11-50, ### = 51+ specimens #### = 100+ specimens

Items that cannot be easily quantified such as charcoal have been scored for abundance

+ = rare, ++ = moderate, +++ = abundant

Key to table x: b=burnt

Results

C.4.2 Preservation of plant remains is by carbonisation and is generally good with exceptionally large assemblages of charred cereal grains, chaff and weed seeds recorded in some of the samples. The lower deposits 16, 17, 19, 20, 21, 22, 25 and 28 contain only occasional charred remains. Deposits 15 (Sample 9) and 14 (Sample 8) contain moderate assemblages of charred grain that includes spelt (*Triticum spelta*) wheat and barley (*Hordeum vulgar*e), occasional chaff items, charred weed seeds such as chess (*Bromus* sp.) and occasional small legumes (*Pisum/Lathyrus/Vicia* sp). Sequential deposits 13 (sample 7), 12 (Sample 6), and 11 (Sample 5) produced large

flot volumes (50-80ml) that are entirely comprised of charred plant remains. Cereals are identifiable as being predominantly spelt wheat with occasional finds of emmer (*T.dicoccum*) , free-threshing bread wheat (*T. aestivum sensu-lato)* and barley. These three assemblages are most remarkable for the density and diversity of charred weed seeds. A quick examination has identified bromes, goosfoot (*Chenopodium* sp.), oraches (*Atriplex* sp), cleavers (*Galium* sp.), several species of docks (*Rumex* spp.), henbane (*Hyoscyamus niger*), several grasses (Poaceae), buttercups (*Ranunculus acris/bulbosus/repens*) including possible tubers of lesser cellandine (*Ranunculus ficaria*), stitchworts (*Stellaria* sp.), meadow rue (*Thalictrum flavum*), clovers (*Trifolium* sp), plantains (*Plantago* sp.) and wetland plants including sedges (*Carex* spp.), leaf and nutlets of Great fen sedge (*Cladium mariscus*) and rushes (*Juncus* sp.).

C.4.3 The four later deposits 6, 8, 9 and 10 contain moderate assemblages of charred grain, chaff and weeds in addition to occasional detached spelt coleoptiles (sprouts). Of the four assemblages, Sample 2 from fill 8 is most noteworthy in that it contains abundant chaff in the form of spelt and emmer glume bases, rachis fragments and spilkelet forks.

Sample No.	Context	Cut	Feature Type	Sample Size (L)	Volume processed (L)	Flot Volume (ml)	Cereals	Chaff	Legumes	Weed Seeds	Wetland plant seeds	Snails from flot	Charcoal	Flot comments	Large animal bones	Pot
1	6		Layer	40	18	50	#	#	#	#	#	#b	+++	Mixed cereals, spelt coleoptile, occasional sseds and reeds	##	##
2	8		Layer	40	15	80	###	####	#	#	##	0	+++	abundant spelt chaff with occasional emmer. Numerous grains, occasional seeds ncluding corn gromwell and rushes	##	##
3	9		Layer	40	13	10	#	##	0	#	#	0	++	mixed assemblage of grain, chaff and weed seeds	#	#
4	10		Layer	40	16	25	##	##	0	##	##	0	+++	mixed assemblage of grain, chaff, reeds and weed seeds. Spelt coleoptile	#	#
5	11		Layer	40	10	50	##	##	#	###	#	#b	+++	Abundant weed seeds with good diversity, moderate grain and chaff mix. Charred woodlouse	#	#
6	12		Layer	15	16	80	###	##	#	###	#	0	+++	Large assesmblage of grain and weed seeds with good diversity and inclusion of wetland species	0	#
7	13		Fill	40	16	60	###	##	##	###	##	0	+++	Large assesmblage of grain, lugumes and weed seeds with good diversity and inclusion of wetland species	#	#
8	14		Fill	40	15	5	##	#	#	##	0	0	+++	moderate assemblage of graing, legumes and occasional seeds	#	#
9	15		Fill		14	20	##	#	##	##	0	0	+++	moderate assemblage of graing, legumes and occasional seeds	0	0

10	16		Fill		14	5	##	0	#	#	0	0	++	Occasional grains and seeds	0	0
11	17	29	Fill	40	13	1	#	#	0	0	0	0	++	Occasional grain	#	0
12	20		surface	20	13	1	#	0	#	#	0	0	++	Occasional grains and seeds	#	0
13	19	29	ditch	40	12	1	##	0	0	0	0	0	+	Occasional grain	0	#
14	21	26		40	15	1	##	0	0	0	0	0	++	Occasional grain	#	#
15	22	27		40	17	5	#	0	0	0	0	0	+	Occasional grain	0	#
16	23	24	ditch	40	14	1	#	0	0	0	0	0	+	Occasional grain	#	#
17	25	26	ditch	40	12	1	0	0	0	0	0	0	+	sparse charcoal only	0	0
18	28	27	ditch	20	13	1	0	0	0	0	0	0	+	sparse charcoal only	0	0

Table C4.1: Environmental samples from CAMSHL15

Discussion

C.4.1 The rapid scan of the flots from the environmental samples taken from the site has shown that there is excellent potential for further archaeobotanical study of the assemblages from deposits 8, 11, 12 and 13. Characterisation of these assemblages, with particular emphasis on the identification of the seed assemblage, will assist with the interpretation of these features and deposits otherwise made difficult by the limited area of occupation.

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APPENDIX E. OASIS REPORT FORM

All fields are required unless they are not applicable.

Project Details

OASIS Number	oxfordar3 - 252526		
Project Name	New Lift Shaft, Shire Hall, Cambridge		
Project Dates (fieldwork) Start	08-04-2015	Finish	15-04-2015
Previous Work (by OA East)	No	Future Work	No

Project Reference Codes

Site Code	CAMSHL15	Planning App. No.	
HER No.	ECB 4415	Related HER/OASIS No.	

Type of Project/Techniques Used

Prompt: Direction from Local Planning Authority - PPS 5

Please select all techniques used:

☐ Field Observation (periodic visits)	☐ Part Excavation	☐ Salvage Record
☒ Full Excavation (100%)	☐ Part Survey	☐ Systematic Field Walking
☐ Full Survey	☐ Recorded Observation	☐ Systematic Metal Detector Survey
☐ Geophysical Survey	☐ Remote Operated Vehicle Survey	☐ Test Pit Survey
☐ Open-Area Excavation	☐ Salvage Excavation	☐ Watching Brief

Monument Types/Significant Finds & Their Periods

List feature types using the NMR Monument Type Thesaurus and significant finds using the MDA Object type Thesaurus together with their respective periods. If no features/finds were found, please state "none".

Monument	Period	Object	Period
Occupation Layers	Roman 43 to 410	Pottery	Iron Age -800 to 43
Ditches	Iron Age -800 to 43	Brooch	Roman 43 to 410
Ditch	Iron Age -800 to 43	Faunal	Iron Age -800 to 43

Project Location

County	Cambridgeshire	Site Address (including postcode if possible)	
District	Cambridge	Shire Hall, Castle Street, Cambridge, CB3 0AP	
Parish	Cambridge		
HER	Cambridgeshire		
Study Area	2.5m x 3.5m	National Grid Reference	TL 44545 59290

Project Originators

Organisation	OA EAST
Project Brief Originator	Kasia Gdaniec
Project Design Originator	Rob Atkins and Rob Wisema
Project Manager	Aileen Connor
Supervisor	Gareth Rees

Project Archives

Physical Archive	Digital Archive	Paper Archive
OA East	OA East	OA East
CAMSHL15	CAMSHL15	CAMSHL15

Archive Contents/Media

	Physical Contents	Digital Contents	Paper Contents
Animal Bones	☒	☐	☐
Ceramics	☒	☐	☐
Environmental	☒	☐	☐
Glass	☐	☐	☐
Human Bones	☐	☐	☐
Industrial	☐	☐	☐
Leather	☐	☐	☐
Metal	☒	☐	☐
Stratigraphic		☒	☐
Survey		☒	☐
Textiles	☐	☐	☐
Wood	☐	☐	☐
Worked Bone	☐	☐	☐
Worked Stone/Lithic	☐	☐	☐
None	☐	☐	☐
Other	☐	☐	☐

Digital Media	Paper Media
☒ Database	☐ Aerial Photos
☒ GIS	☒ Context Sheet
☐ Geophysics	☒ Correspondence
☒ Images	☐ Diary
☒ Illustrations	☒ Drawing
☐ Moving Image	☐ Manuscript
☒ Spreadsheets	☐ Map
☒ Survey	☐ Matrices
☒ Text	☐ Microfilm
☐ Virtual Reality	☐ Misc.
	☐ Research/Notes
	☒ Photos
	☒ Plans
	☒ Report
	☒ Sections
	☐ Survey

Notes:

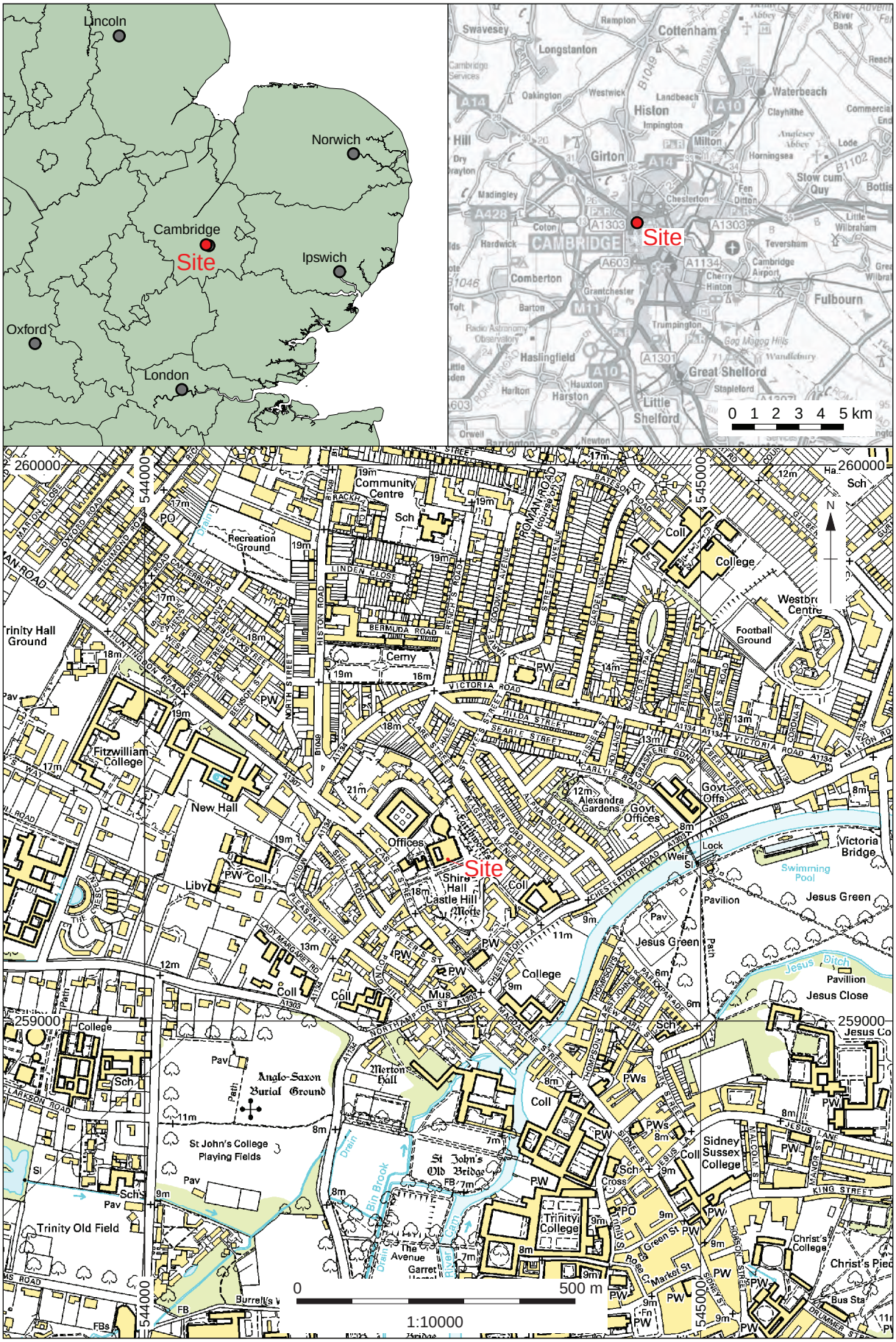


Figure 1: Site location with excavation area shown in red

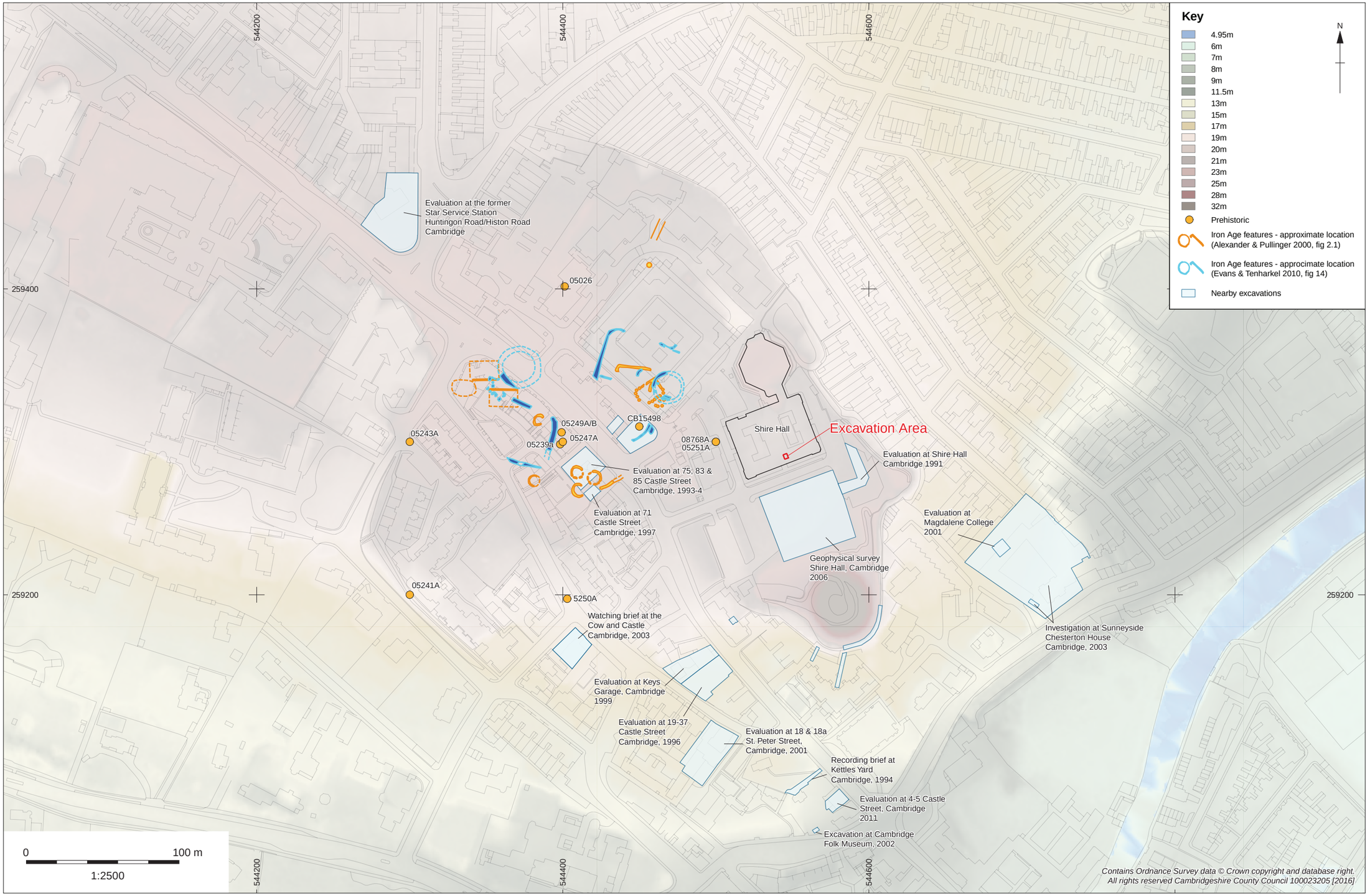


Figure 2: Prehistoric sites within 250m of the development area showing nearby excavations (Lidar 1m dtm data provided by the Environment Agency (http:www.nationalarchives.gov.uk/open-government-licence/version/3/))

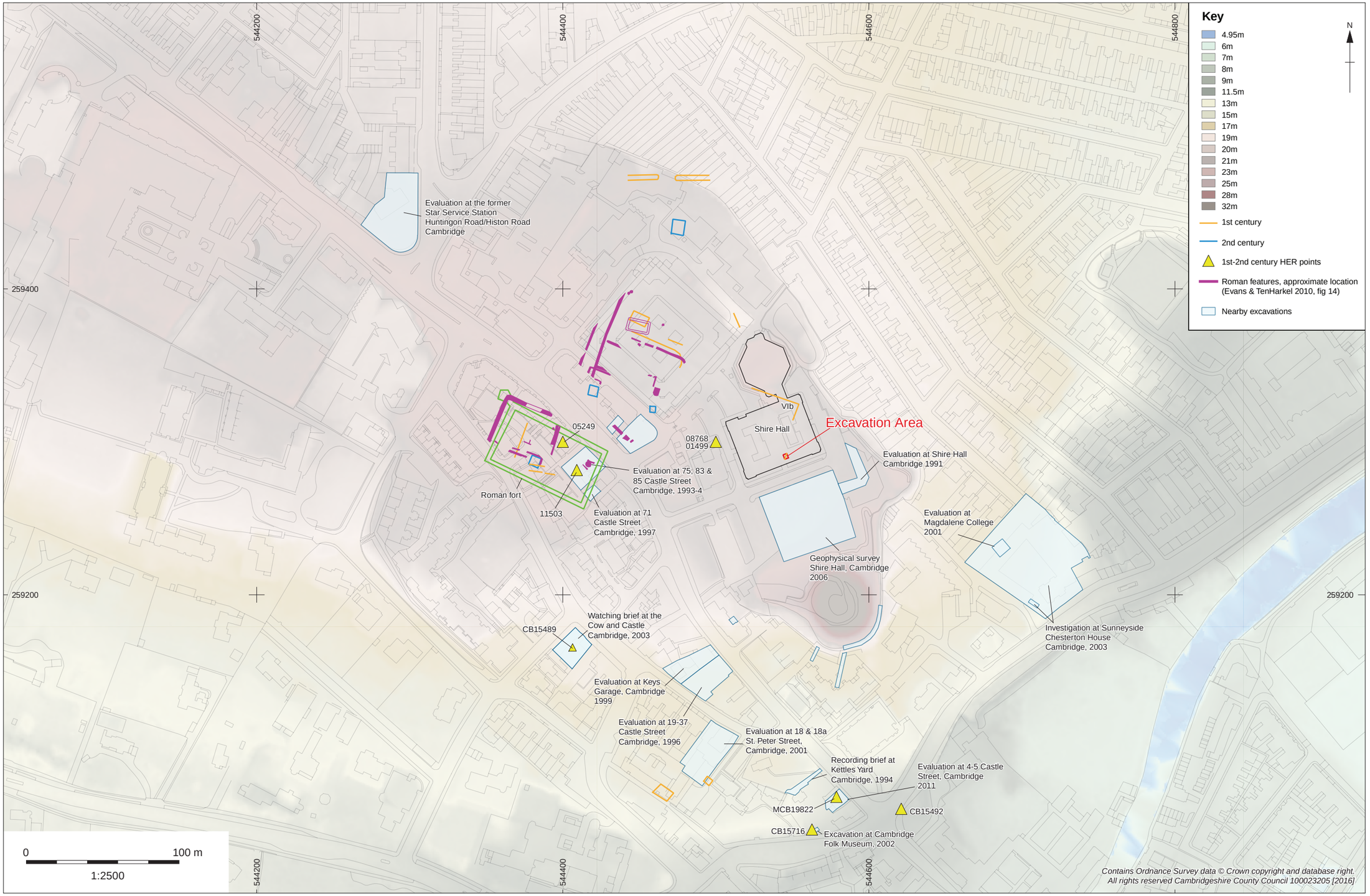


Figure 3: 1st to 2nd century Roman sites in the vicinity of Shire Hall, (Lidar 1m dtm data provided by the Environment Agency (http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/))

Figure 4: 3rd to 4th century Roman sites in the vicinity of Shire Hall. (Lidar 1m dtm data provided by the Environment Agency (http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/))

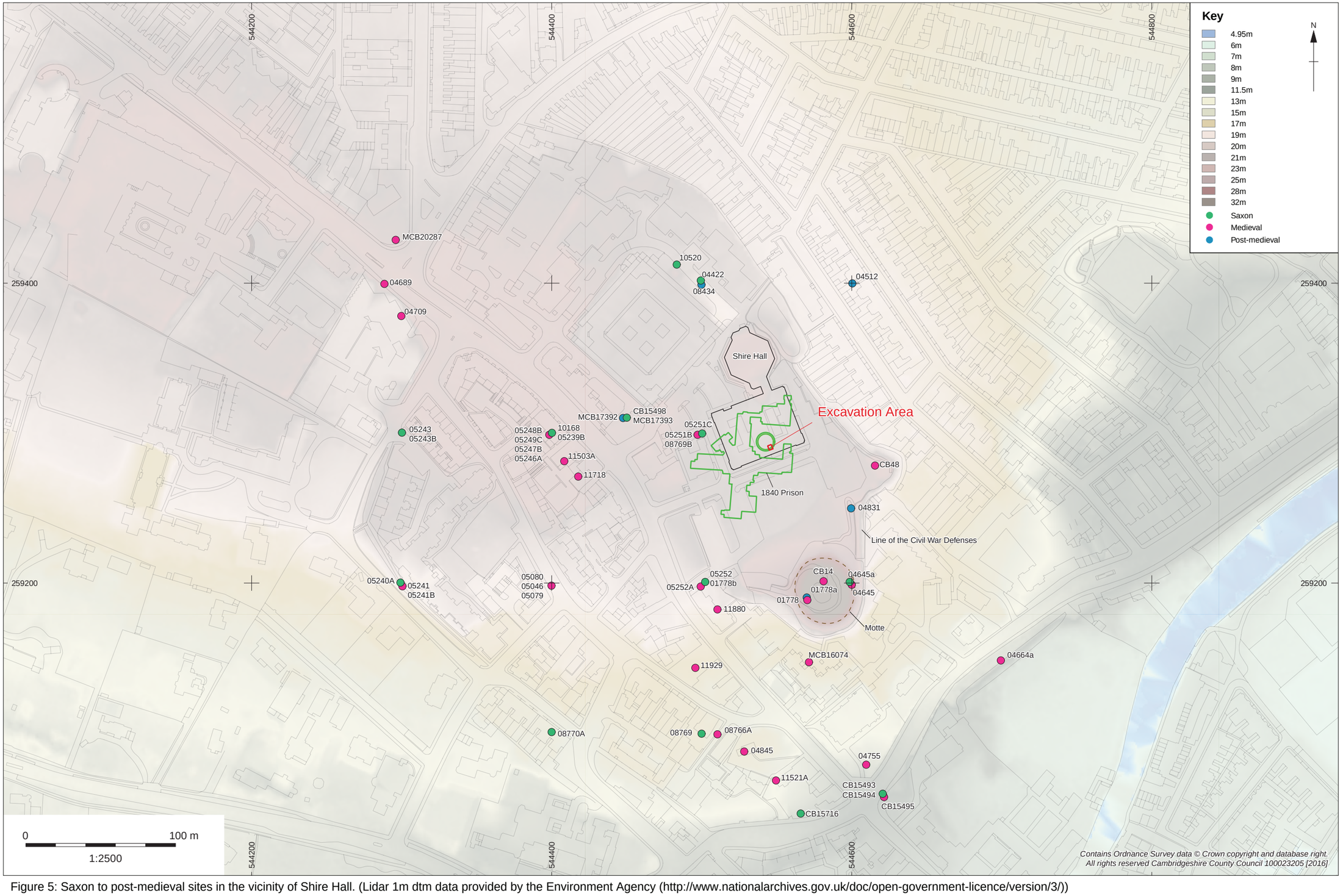


Figure 5: Saxon to post-medieval sites in the vicinity of Shire Hall. (Lidar 1m dtm data provided by the Environment Agency (http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/))

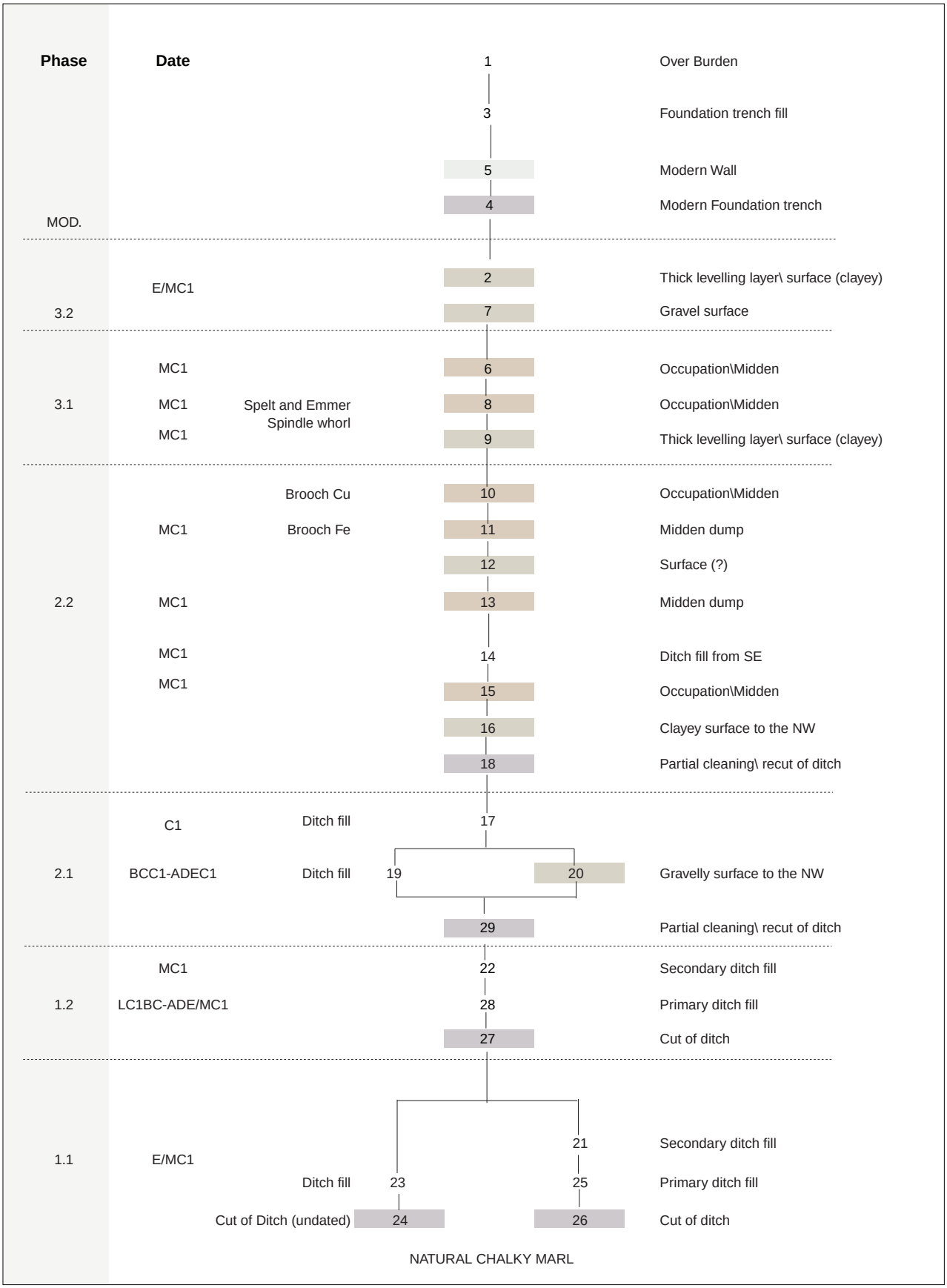


Figure 6: Harris matrix of events recorded during the excavation of the new lift shaft

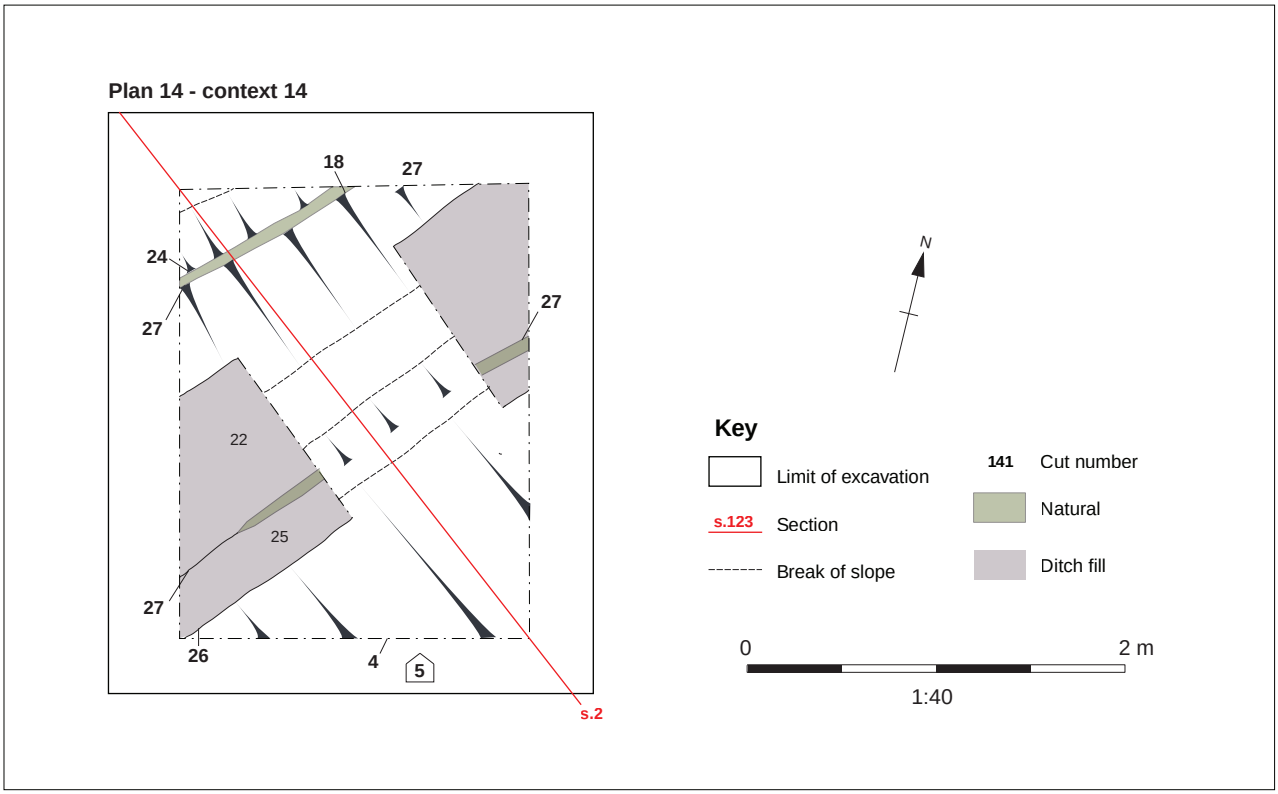
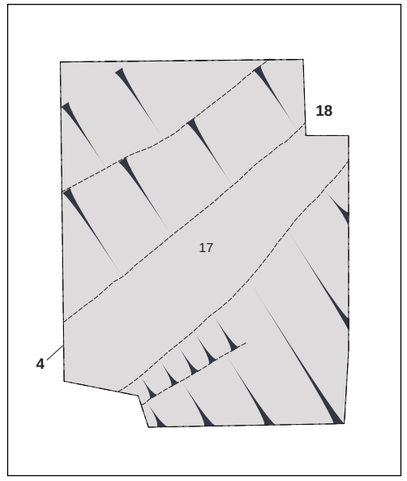


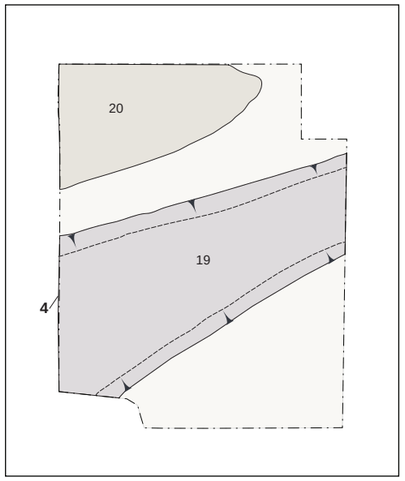
Figure 7: Phase 1 post-excavation plan

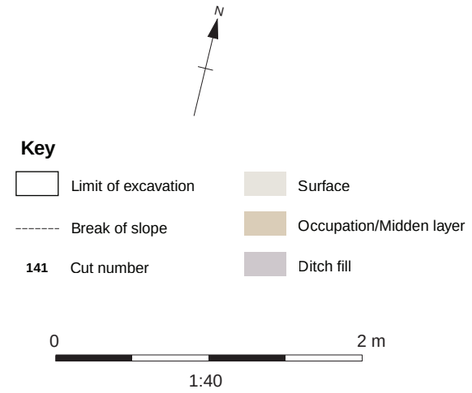
Phase 2.1

Plan 10 - context 17 and cut 18



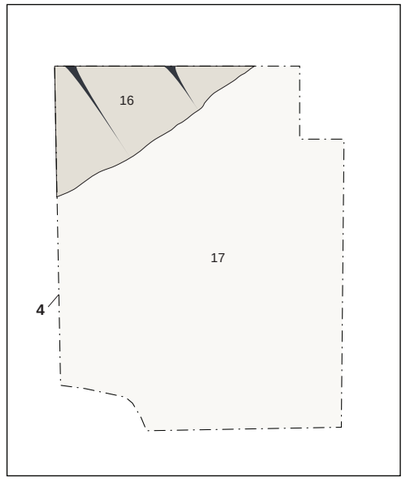
Plan 11 - context 19 and 20



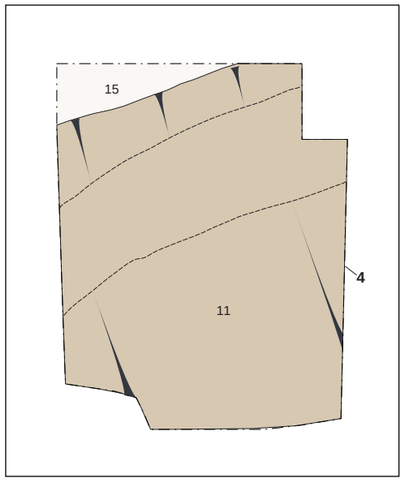


Phase 2.2

Plan 9 - context 16



Plan 4 - context 11



Plan 8 - context 15

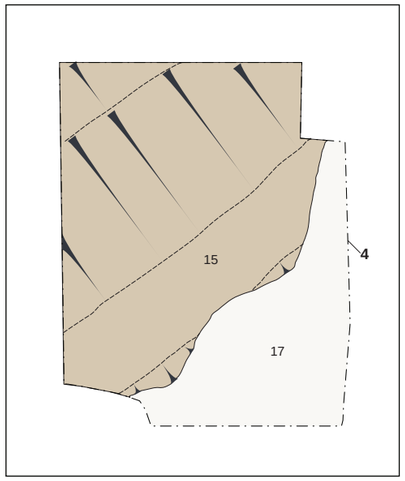


Figure 8: Phase 2 plans

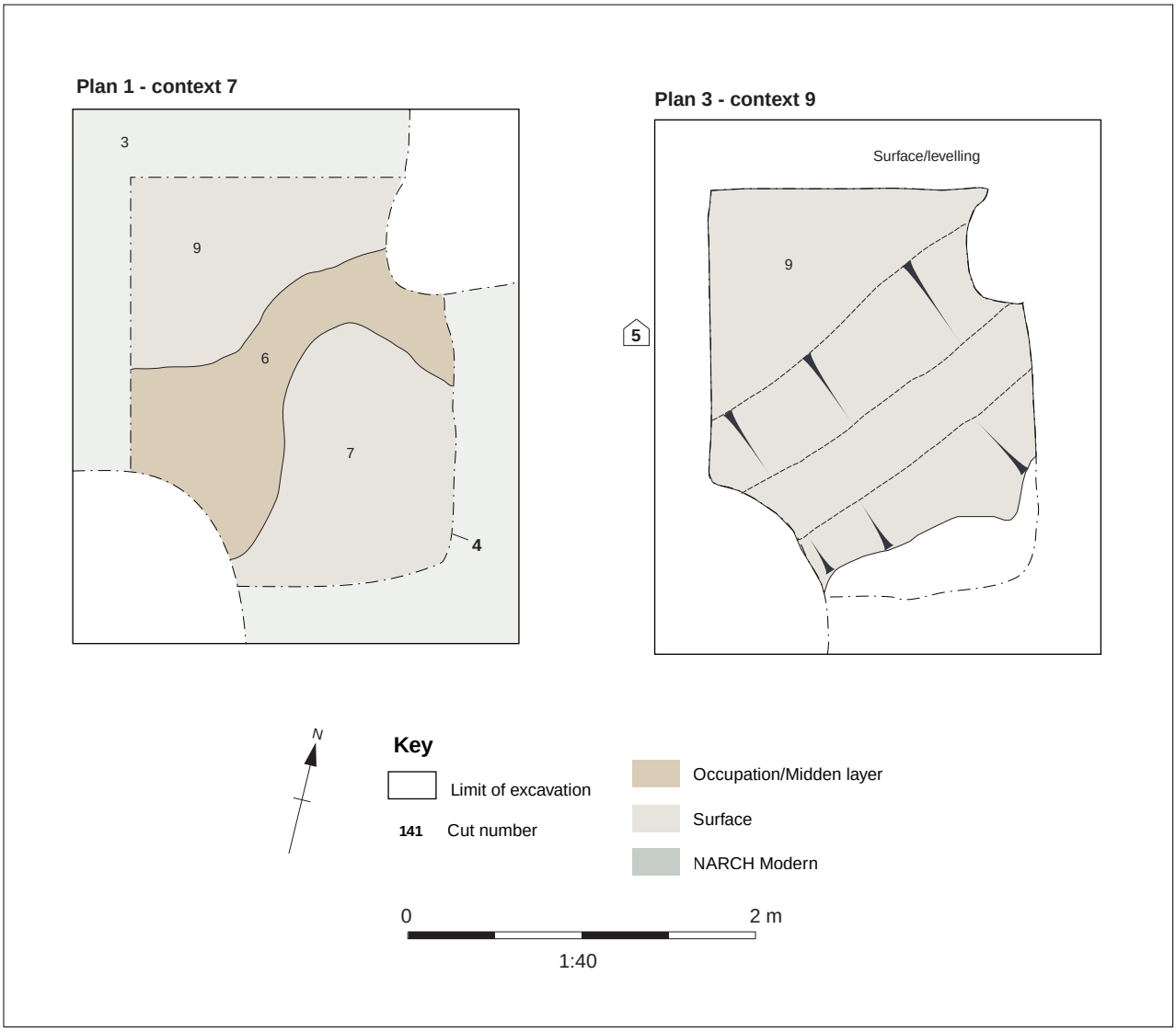


Figure 9: Phase 3 plans

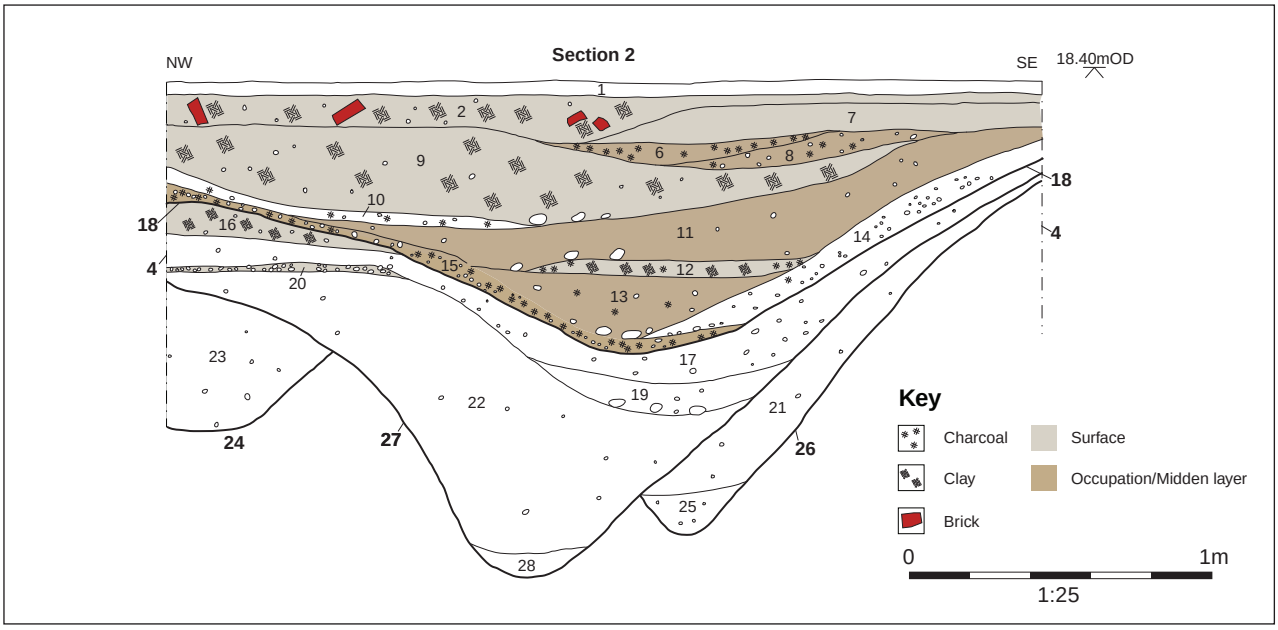


Figure 10: Section showing all deposits uncovered during excavation (north-west to south-east)

Plate 1: Site conditions during excavation

Plate 2: Ditches **24**, **26** and **27**, facing north-west

Plate 3: Occupation layer, Context **15**, facing north-west

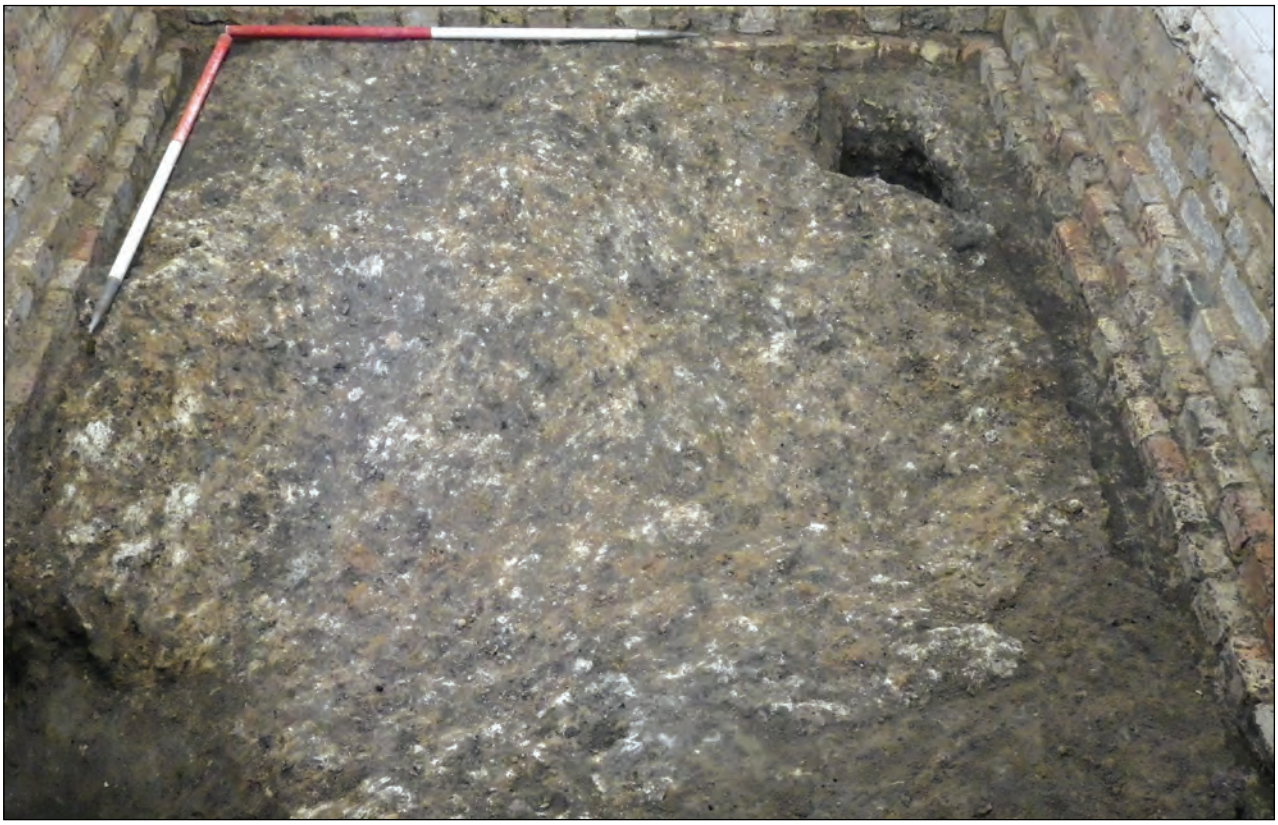


Plate 4: Levelling layer, Context **9**, facing north-west

Plate 5: 1st century Cu alloy bow brooch (SF2)

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