

A MID-SAXON SITE AT ANDERSON'S ROAD, SOUTHAMPTON

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ABSTRACT

Excavations and a watching brief were undertaken during redevelopment at Anderson's Road, Southampton in 2003–4. The Site lies on the southern edge of mid-Saxon Hamwic, close to the river, and incorporated SOU 14 which had been excavated in 1973. There was slight evidence for late prehistoric and Romano-British activity, but the majority of features on the Site comprised pits of mid-Saxon date which contained domestic and a limited range of craft/industrial waste. Medieval features were restricted to a few ditches, probably field boundaries, sealed by salt marsh deposits that have now been shown to be of post-medieval date.

INTRODUCTION

Project background

In 2003 Wessex Archaeology was commissioned by Persimmon Homes (South Coast) Limited to undertake an archaeological excavation and watching brief in advance of housing development on a site to the south of Chapel Road, Southampton (site code SOU 1240, centred on NGR 442800 111400) (Fig. 1). The Site covers c. 2.2 hectares, and is bounded to the north by Chapel Road, to the east by Anderson's Road and Paget Street, to the south by Chantry Road, and to the west by a railway line.

The Heritage Conservation Unit of Southampton City Council (HCU SCC) had earlier identified that there was a high potential for encountering archaeological remains within the proposed development area, particularly as part of the Site lies within the 'Nationally

Important' mid-Saxon town of Hamwic. Excavations in 1973 at SOU 14 in the north-east corner of the Site (Morton 1992, 142–153), and a later series of archaeological evaluations (Russel 1999a and b, Mead 2001, Leivers and Mead 2001) recorded a number of features, mostly mid-Saxon pits, apparently confined to the northern part of the Site. A subsequent desk-based assessment used this information and the results from surrounding investigations to identify zones of differing archaeological risk within the Site (Wessex Archaeology 2001).

On the basis of this work a mitigation strategy was devised to preserve, where possible, archaeological remains *in situ*, but elsewhere to undertake excavation and a watching brief as appropriate. This entailed detailed excavation within the footprints of the proposed new buildings in the northern part of the Site, along with a watching brief during the installation of services. In the southern part of the Site, a watching brief during groundworks was stipulated, and some limited detailed excavation, if possible, during service connections within Chantry Road. In addition, a programme of palaeo-environmental sampling within and at the interface between the wet and dry land was proposed, if appropriate.

The aims of this programme of work were:

- to identify, investigate and record any significant archaeological features and deposits that occur within the footprint of the proposed new residential units. Significant features and deposits would constitute remains, including evidence for past environments, relating to pre-19th century use of the area;
- to establish the presence, extent, nature and

function of mid-Saxon features and deposits associated with the settlement of Hamwic. Features and deposits of all archaeologically-defined periods would also be examined and recorded;

- to establish through palaeo-environmental and artefact sampling the date and function of these features;
- to place the results of the work in the context of recent archaeological research on the mid-Saxon settlement of Hamwic.

Geology and topography

The Site lies some 150m west of the current shoreline of the River Itchen, and is fairly level at around 2.4–2.6m above Ordnance Datum (aOD). The underlying geology for the immediate area comprises Brickearth over Quaternary River Terrace deposits—predominantly gravel (British Geological Survey, sheet 315).

The palaeotopography of the area is thought to have been an important factor in determining the sequence and nature of settlement and other activity on the Site up to the 19th century. Much of the evidence for this was put forward in some detail in a scheme of investigation for a field evaluation of the Site (Morton 1998), and this evidence forms the basis of the outline presented here. Information from subsequent archaeological and geotechnical investigations has enabled our understanding of the palaeotopography, particularly the extent and date of the Little Salt Marsh, to be refined and this is discussed further below.

The northern part of the Site was dry land, though subject to occasional flooding at least up to the 18th century. To the south of the Site, south of what is now Chantry Road and Marsh Lane, was a salt marsh which was not reclaimed until the 19th century and which was protected from regular inundation by sea banks.

Between the dry land and the salt marsh, and possibly occupying the southern part of the Site (i.e. between what is now Anglesea Terrace and Chantry Road/Marsh Lane), was what was sometimes called the Little Salt Marsh. Historical descriptions include a reference to its existence in 1505, and again in 1613 when,

although not described as salt marsh, a marginal zone subject to regular flooding is indicated.

The Little Salt Marsh had apparently disappeared before 1770 when it was mentioned by Speed '*Near Cross House, to the south-east of St Mary's Church and Gardens, was a smaller piece of ground known as the Little Saltmarsh*'. Certainly, a map of 1771 does not show its existence and it may have been reclaimed by the early 18th century.

Archaeological and historical background (see Fig. 2 for sites mentioned in the text)

Prehistoric

Evaluation of the Site recovered a small quantity of finds of probable prehistoric date, but perhaps only one or two features that might indicate occupation (Russell 1999d and e; Leivers and Mead 2001; Mead 2001). The evidence all came from the northern part of the Site, within 50m of Chapel Road. The finds comprised almost wholly flint, mostly burnt flint, and the only diagnostic artefact is a fragment of a tranchet-type flint axe of Mesolithic or early Neolithic date from a mid-Saxon pit; this is likely to represent a curated item. A single, residual sherd of pottery of probable Bronze Age or Iron Age date was also recovered. An undated shallow curving ditch or gully running approximately east–west, containing burnt flint, was provisionally interpreted as of prehistoric date and is discussed further below.

The small quantity of prehistoric material, comprising almost entirely burnt flint, is in keeping with the evidence from surrounding sites which is best interpreted as representing a 'background scatter'. However, a few sherds of Iron Age pottery were recovered from SOU 8, approximately 75m north of the Site, and one feature there has been interpreted as 'perhaps part of an Iron Age field enclosure' (Morton 1992, 94).

Roman

The most recent evaluation (Mead 2001) revealed part of a relatively substantial ditch running east to west, parallel with and approximately 65m to the south of Chapel Road. This

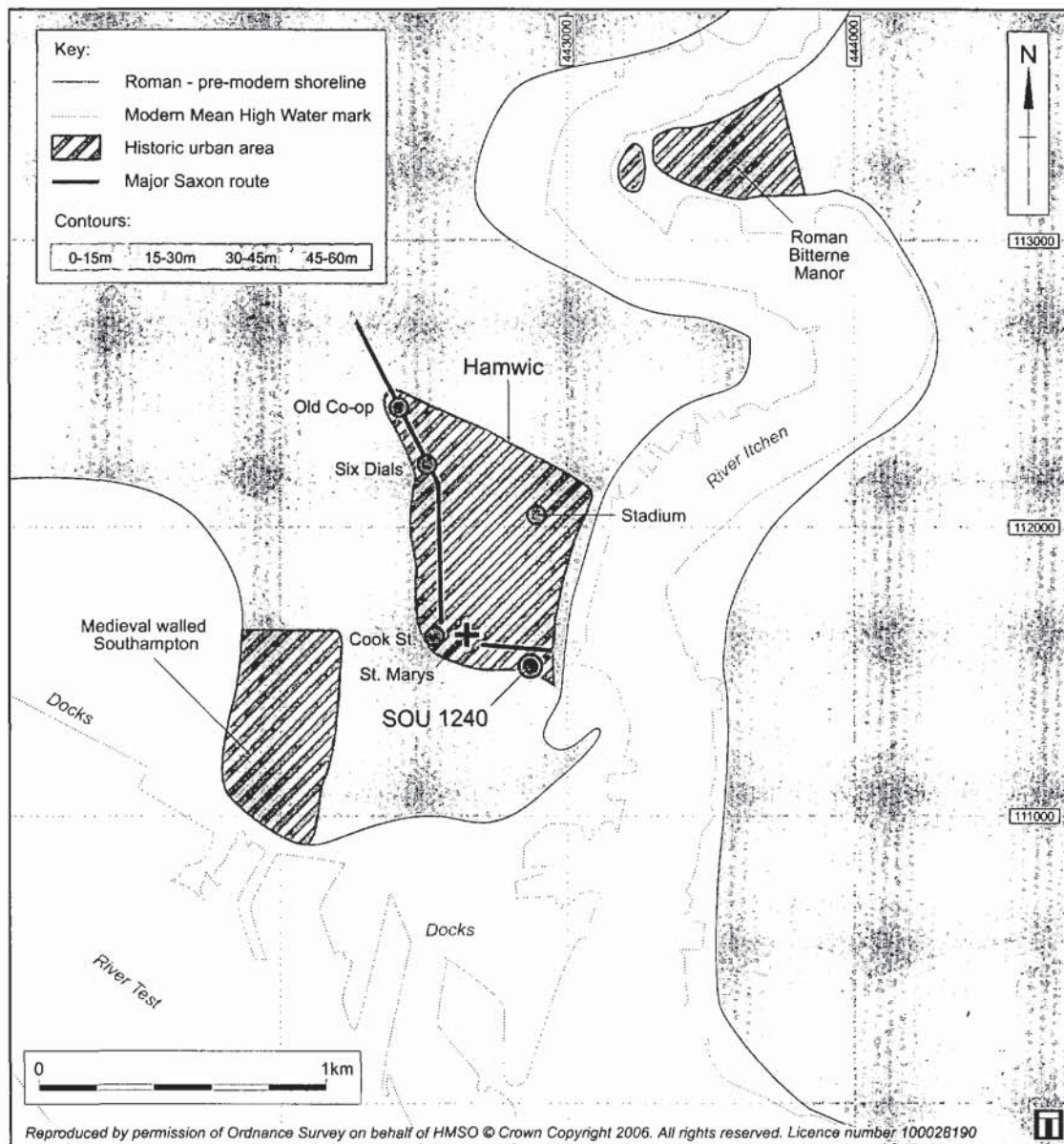


Fig. 1 Plan showing Hamwic in relation to the Roman and medieval towns. A solid circle indicates the Anderson's Road site (SOU 1240); other sites mentioned in the text are shown as open circles

was 1.5m wide, produced Roman pottery and was thought to date to this period. However, excavation in 2003 showed it to be medieval.

Small amounts of Roman pottery came from

SOU 184 (to the west of the Site), and from SOU 8 (to the north), and rather more from SOU 11 just to the south of this (2% of the total ceramic assemblage from this site). A hoard of

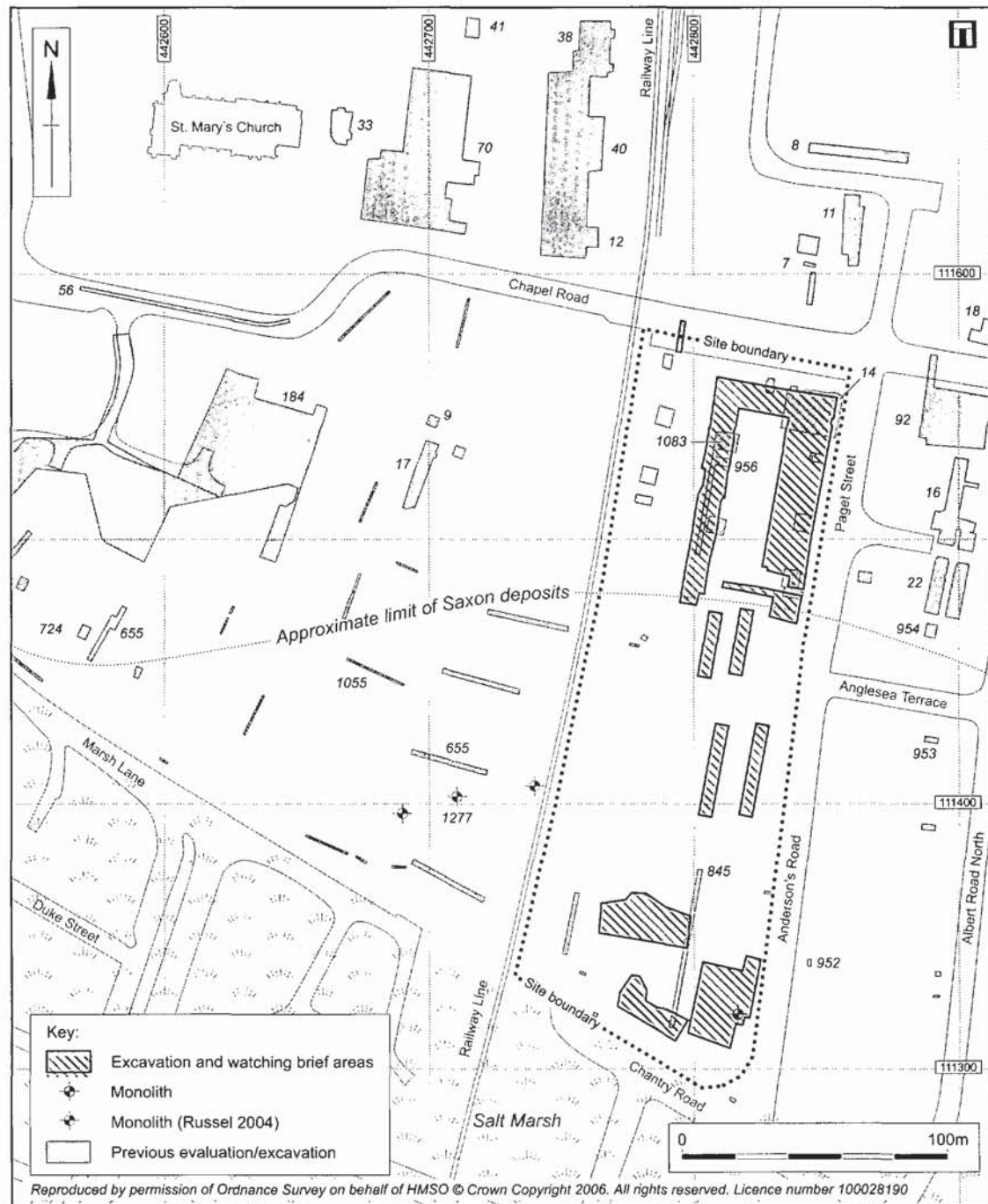


Fig. 2 Site location plan, showing excavation and watching brief areas and other sites in the vicinity (SOU prefixes omitted)

five Roman coins also came from SOU 11, but whether they were deposited in the Roman or Saxon period is uncertain (Morton 1992, 94 and 118–9). Overall, the features and finds may be interpreted as representing agricultural activity rather than settlement.

Mid-Saxon

The Site straddles the southern limit of Hamwic (mid-Saxon Southampton), a major town and trading centre of the late 7th–mid-9th centuries AD which covered approximately 50 hectares at its maximum extent (see Fig. 1). Chapel Road along the northern edge of the Site is likely to have originated in the mid-Saxon period, linking St Mary's Church to the west of the Site with the waterfront on the River Itchen to the east (see Fig. 2). This was probably an important route and a focus of occupation in the area (Morton 1992, 36–40).

The excavation of SOU 14 (within the Site), as well as more recent evaluations, appears clearly to indicate a greater density of Saxon features in the northern part of the Site, within approximately 80m of Chapel Road. To the west, on the other side of the railway line, Saxon features have been recorded at least 160m south of Chapel Road in recent evaluations (Russel and Leivers 2000). Morton (1998, 3) concluded '... that Saxon occupation in this area was concentrated towards Chapel Road and thinned out as it approached the saltmarsh'.

SOU 14 covered an area of approximately 345m², and was excavated in 1973 (Morton 1992, 142–53). This revealed fragmentary traces of three probable structures represented by post-holes and a shallow gully, two wells and 14 pits (one assigned to the medieval period). Only five pits were more than one metre deep and the deepest feature, a well, was just over 1.5m deep, too shallow for any waterlogged deposits to survive. A substantial quantity of bone working debris (1,668 fragments) came from the pits (*ibid* 1992, 150–2), one of which also contained a whale vertebra which had been used as a chopping block. Detailed study of the bone working debris and the unworked animal bone from SOU 14 has raised an interesting possibility:

'Do the excavations at SOU 14 afford a glimpse of several adjacent properties beside Chapel Road each of which was devoted to the processing of one part of the animal—a *de facto* production line beginning perhaps with butchery and ending with the making of leather and bone objects? The possibility is intriguing, but it depends on very little direct evidence' (Morton 1992, 150).

In addition to the bone working debris, SOU 14 also produced a relatively large quantity of vessel glass (147 fragments) and human skeletal remains representing at least two individuals redeposited in later pits (*ibid* 1992, 152–3). A single feature may have been a child's grave, although no bone was found in it and no further evidence for a cemetery has come from the recent evaluations in this area.

These more recent evaluations (SOUs 956 and 1083) revealed a similar range of (mainly) Saxon features concentrated in the northern part of the Site (Russel 1999a and b; Leivers and Mead 2001). They comprised limited structural evidence, up to ten pits, one possible well, two (undated) gullies and three groups of east–west aligned shallow gullies interpreted as ploughmarks. Few finds were recovered although one pit close to Chapel Road contained 28 sawn animal bones. Holes observed at SOU 845 were of insufficient depth to reveal pre-modern deposits (Russel 1997).

Excavations to the east of the Site at SOU 16 and SOU 22, and a watching brief at SOU 92, perhaps also indicate a greater density of features, including structures, in the northern part of the area, and uncovered a probable boundary stream to the south (Morton 1992, 154–66, MF: C4–7). Traces of as many as five structures were recorded (comprising three probable buildings and a succession of fence lines), although there were no pits. Evidence from SOUs 16, 21 and 22 have suggested the existence of an early, perhaps semi-rural property, rebuilt and eventually succeeded by two phases of Late Saxon structures, one or both of which may have been associated with iron smithing (*ibid* 1992, 166). However, despite their close proximity to the waterfront, there was no clear evidence for mercantile

activity on this group of sites. Evaluation immediately to the south of SOU 22, at SOU 954, revealed a ditch, perhaps a boundary or drainage feature of possible mid-Saxon date (Russel 1999c).

No Saxon deposits were recorded in small evaluations (SOU 952 and 953) further to the south (Russel 1999a and b). Two small excavations (SOU 9 and 17) and two recent evaluations to the west of the Site (SOU 655 and 1055) revealed Saxon features, including structural remains and pits, apparently concentrated in the northern part of that area (Morton 1992, 96–100; Russel and Leivers 2000). Further to the west, SOU 184 (1984 phase; Hughes 1986, 33–4), SOU 655 (Kavanagh 1994) and SOU 724 (Gifford and Partners 1996b) indicate a similar fall-off in mid-Saxon features to the south. Approximately 30 Saxon pits, a well, a shallow ditch and several post-holes and stake-holes were recorded at SOU 184 (1984 phase). The southern end of the excavation area had been extensively disturbed by later brickearth digging trenches and a large 19th century pond, but immediately to the north of this was a cluster of shallow pits. The majority of larger pits lay scattered across the northern part of the site, although no structures were identified in this area. It is recorded that 'A wide range of Middle Saxon artefacts was recovered and some of these suggest textile and iron working on or near the site. The pottery evidence indicates that Middle Saxon occupation was restricted to the first half of the 8th century' (Hughes 1986).

Further west again, a larger area was investigated (SOU 184–1987 phase) and this revealed a scatter of Saxon pits, wells and limited structural evidence perhaps bounded to the south by a shallow ditch (Hughes 1988, 19–20). Unfortunately, not all of the features on the site could be investigated and virtually no post-excavation has been undertaken so that no overall feature plan or phase plans have been prepared. Nevertheless, the available information does indicate a fall-off to the south, and this is supported by subsequent small-scale work to the south at SOUs 522 (Smith 1993), 655 (Kavanagh 1994), 713

and 726 (Gifford and Partners 1996a), and 724 (Gifford and Partners 1996b). No definite Saxon features were identified and only a few sherds of possible mid-Saxon pottery from this latter group of sites.

Late Saxon and medieval

Following the decline and widespread abandonment of Hamwic in the latter part of the 9th century AD, the waterfront at the end of Chapel Road appears to have continued in use as the *wic-hythe* (recorded in 1045). There is evidence for at least two Late Saxon structures at SOU 16/21 to the east of the Site (Morton 1992, 164), and the area probably remained as a commercial waterfront into the medieval period.

St Mary's Church, a minster church established in the mid-Saxon period lay at the western end of Chapel Road, with Holy Trinity Chapel (first documented in 1217) at the eastern end. Trinity Fair was held at or about Holy Trinity Chapel from at least as early as 1400, but later extended along Chapel Road. To the south of Holy Trinity Chapel were one or more mills perhaps established before 1220. South of Chapel Road and west of the Site was the medieval Chantry House (the term 'Deanery' was applied to the area in the 18th century) which comprised a group of buildings with a courtyard and a gatehouse to the south fronting onto Marsh Lane. Marsh Lane/Chantry Road is first referred to, as Crompelane, in 1411 (Blake 1981, MF3).

Possibly all of the Site falls within a field known as St Andrew's Croft, its northern and southern boundaries being 'from the way that goes to Holy Trinity Church [Chapel Road] as far as the ditch dividing that croft from the saltmarsh' (Blake 1981, 166). The piece of land later referred to (after 1290) as St Andrew's Croft is specified before 1217 and called 'the land of St Andrew' in 1278. Among the various documents detailing parts of St Andrew's croft, four documents (one datable to the 1260s, two datable to 1290x1303, and one to 1339) give reason to believe that at least three acres and perhaps more than seven acres existed here; and these would have been separated by ditches (Blake 1981, 82–3 and 113).

Evidence for these divisions has come from the recent evaluations, where two shallow ditches, one aligned east–west, the other north–south, produced medieval pottery (Russel 1999d and e; Mead 2001).

It is possible that St Andrew's Croft was also the site of St Andrew's Chapel which is mentioned in documents of 1225, 1392 and 1528. Little is known of this building, which presumably disappeared soon after the Dissolution, and it is unlikely that the chapel had burial rights. No evidence for the existence of St Andrew's Chapel has been found either at SOU 14 or in the recent evaluations, and in all probability it lay outside the Site boundary to the east.

Post-medieval and modern

Much of the evidence for these periods can be gleaned from maps, the earliest of which – the 'Elizabethan Map' – dates to around 1600. This map shows two fields south of Chapel Road, with a single, large field to the south of these bounded by Marsh Lane/Chantry Road. Subsequent maps show a broadly similar layout, with the salt marsh extending right up to Marsh Lane/Chantry Road.

The first references to ditches alongside Chapel Road are post-medieval, the earliest in 1576 referring to a ditch on the north side. Many of the references are to the ditches needing to be scoured, and silting or rubbish disposal in them seems to have been a constant problem. Englefield (1805, 75) describes Chapel Road at the beginning of the century: 'From the church-yard, a road not very wide, and bordered on either hand by a deep and muddy ditch, leads to the ancient mill called Chapel Mill'. A watching brief at SOU 92, just to the east of the Site, recorded a partial section through Chapel Road and this revealed a sequence of five earlier, metallised surfaces together being up to 6.4m wide and 0.5m thick (Morton 1992, MF: C4–7). The southern ditch and part of the northern ditch were also recorded, the southern ditch being approximately 4.3m wide and 1.1m deep and lying mostly beneath the pavement and the edge of Chapel Road.

The railway forming the western boundary to the Site was opened in 1840, and by 1866 all of the street frontages between Chapel Road and Marsh Lane (now known as Chantry Road) were fully built-up, almost exclusively with 'mechanics' habitations' (Brannon nd). However, very little development had taken place to the south of this on the former salt marsh. The Site remained virtually unchanged for almost a century until wartime bombing followed by extensive clearance in the 1960s resulted in the removal of all of the terraced housing. The site at Anderson's Road subsequently became a lorry park which remained in use until redevelopment in 2004.

THE EXCAVATION

The method statement for the archaeological works was prepared in 2003, and full details of the mitigation measures, methodology and post-fieldwork programme can be found in this document (Wessex Archaeology 2003; 2004). The excavation was undertaken from 31 March to 21 May 2003, and watching brief visits were made intermittently from August 2003 until October 2004 during the course of redevelopment. The areas subject to excavation or a watching brief are shown in Fig. 2.

Natural Deposits and Soil Sequence

Gravel

This represents the basal geology of the Site and was characterised by a coarse, moderately well-sorted, compact gravel containing abundant sub-angular gravel components (<50mm, mostly <20mm) within a pale greyish brown sandy silt matrix. The gravel was at least 2m thick and became coarser and more mineral-stained with depth. The gravel was rarely exposed in the northern part of the excavation area, but became more prevalent towards the south as the overlying brickearth thinned out. All archaeological features more than 0.30m deep had been cut into the underlying gravel.

Brickearth

This deposit lay directly over the gravel and was recorded across the whole of the excavation area. Generally it was 0.30m thick although in the south and east of the excavation area this thinned to nothing, resulting in small patches of exposed gravel. The brickearth was characterised by a homogeneous, sterile, pale orange/brown, fine, slightly sandy silty clay with rare sub-rounded and sub-angular gravel components (<30mm) and abundant, pale grey, fine, sandy silt mottles. The brickearth was recorded as extending to the southern boundaries of the Site in the watching brief trenches where it became more clayey and gleyed.

Alluvial gleyed silt

This alluvial deposit directly overlaid the brickearth. The deposit was of a uniform thickness (0.20–0.30m), homogeneous, sterile, and characterised by a pale to mid greyish brown, fine, sandy, silty clay with sparse, sub-angular gravel components (<30mm). All archaeological features (except post-medieval features) were sealed below this deposit (see Soils and Sediments below).

Post-medieval–modern disturbance/overburden

Below modern tarmac and ‘scalpings’, a 0.60–1.05m thick mixed deposit of post-medieval demolition debris was recorded across the whole Site. The deposit was characterised by very dark grey to black sandy clay loam with common coarse components including post-medieval brick and tile, slate, glass, ceramics, coal, shell, clay pipe, clinker and numerous lenses or dumps of ash and burnt material.

Along the northern and eastern sides of the excavation area were a number of drainage pipes and brick-lined features associated with the Victorian terraced housing that previously occupied the Site. The western and southern parts of the excavation area had suffered from contamination by modern services and above-ground diesel tanks.

Archaeological features and deposits

No features or deposits of archaeological interest were recorded during the watching brief in the

southern half of the Site. However, a monolith sample was taken through the alluvial deposits overlying the brickearth in the south-east corner of the Site (see Soils and Sediments below).

Virtually all of the features have been assigned to the mid-Saxon or medieval periods respectively, with a small number remaining unassigned.

Prehistoric (Fig. 3)

A short length of curvilinear gully (Group 2003) survived in the western part of the excavation area. This was only 2.2m long, 0.33m wide and 0.07m deep, but contained Late Bronze Age/Early Iron Age pottery, burnt flint, charcoal and a possible stone lamp. This was the only prehistoric feature recorded in the excavation. The feature is difficult to interpret but may be structural in origin. Two other short lengths of gully recorded in the evaluation may have been part of the same feature, conceivably a ring- or drip-gully between 5m and 6m in diameter.

Ten pieces of undiagnostic worked flint from elsewhere on the Site represent residual prehistoric finds and a small quantity of burnt flint is likely to be of similar date. A fragment of a tranchet-type flint axe of Mesolithic or Neolithic date has been noted above.

Roman

No Roman features were certainly identified though four pits (1628, 2017, 2030 and 2044), all but one at the southern end of the excavation area (see Fig. 3), produced only Roman pottery, albeit in very small quantities and none is closely datable. Although a mid-Saxon date is preferred for these features (see below), a Roman date cannot be ruled out. Altogether, a total of 18 sherds of Roman pottery were recovered from the excavation (with several more coming from the evaluation), along with a few pieces of ceramic building material and a single sherd of Roman glass.

*Mid-Saxon (Fig. 3)**Structural evidence*

A total of 22 post-holes was recorded during the excavation, of which almost 60% (13) lay in the

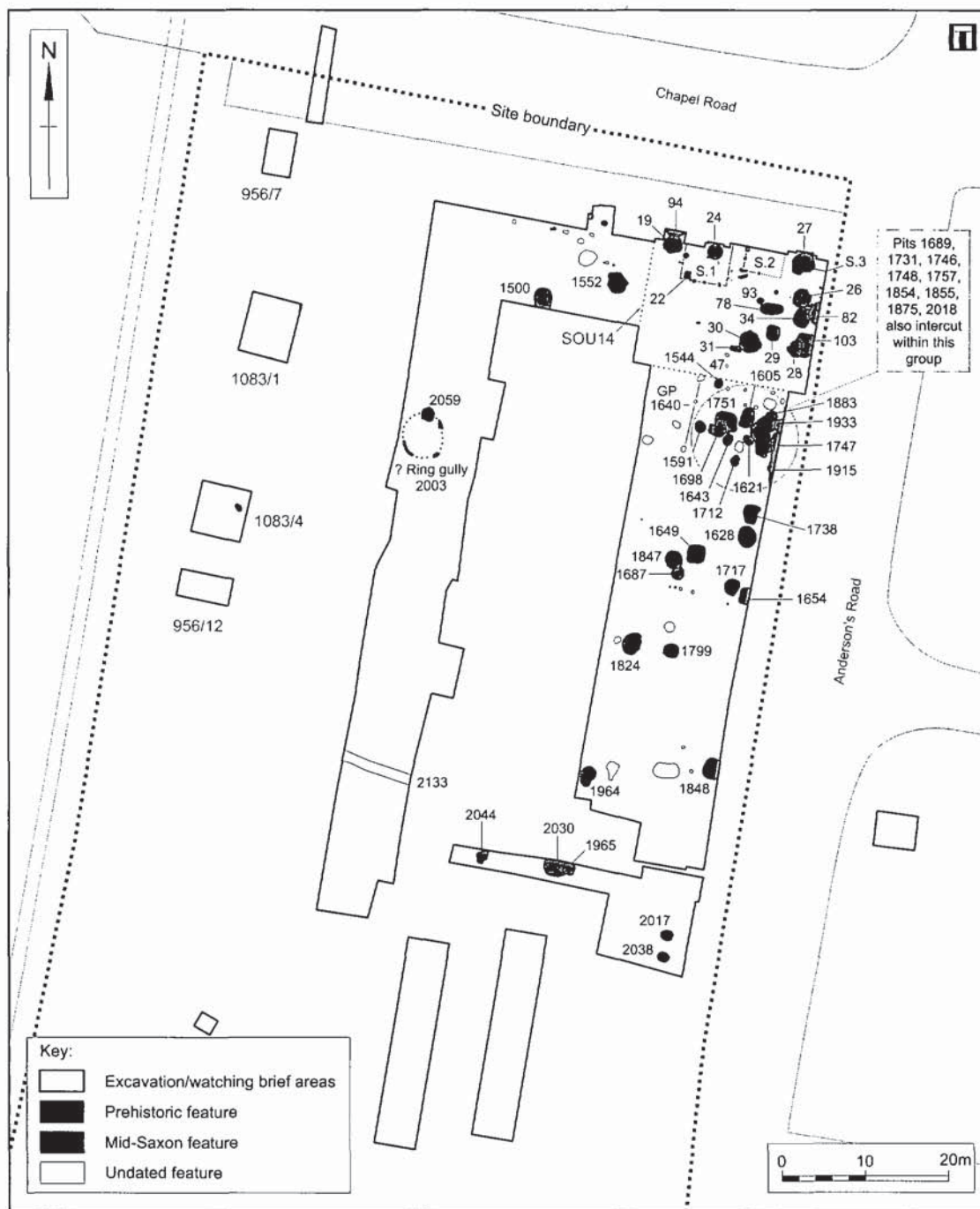


Fig. 3 Plan showing prehistoric, mid-Saxon and undated features within main excavation area, SOU 14 and evaluation trenches

eastern part. These features were 0.16m–0.45m in diameter (generally *c.* 0.40m) with near-vertical or vertical sides and flat or concave bases. Although all were undated, most are probably mid-Saxon, although it is possible that some could be later (*cf.* Morton 1992, 148). No definite structures were discernible in the distribution of post-holes, although three post-holes with similar fill sequences (including post-pipes) in the north-east of the excavation area may have comprised a *c.* 9m long north-south alignment (Group 1640). This alignment probably continued north-west into SOU 14, at least as far as F47, an overall distance of at least 14m (see Fig. 3), perhaps representing a fence line. Pottery recovered from F47 suggests that this was an early mid-Saxon feature (Morton 1992, 149).

Earlier investigations on the Site recorded plough damage that may have wholly removed shallow structural features, although three structures (S1–3) were recorded along the northern edge of the SOU 14 excavation, extending beyond the limit of the Site and presumably fronting Chapel Road (Morton 1992, 148, fig. 54. See Fig. 3). A number of features within the 2003 excavation area contained burnt clay fragments that may be structural in origin, and pit 1605 in the north-east part of the excavation area contained a relatively large quantity of daub composed of lime, with fragments and impressions of chaff and straw.

Pits

A total of 56 features have been interpreted as pits of probable mid-Saxon date. Forty-one of these pits can be confidently assigned to this period on the basis of the finds they contained or stratigraphic relationships, and ten were undated but are thought most likely to be of this date. One pit (1824) had been recut on two occasions. A further three pits contained a few sherds of Roman pottery but these too are thought to be mid-Saxon, and there are two undated and heavily truncated features which were probably the remains of pits. The pits were predominantly located in the eastern half of the excavation area (Fig. 3; not all are numbered), and most were half-excavated where possible. To this can be

added a further dozen or so pits and two wells excavated in 1973 on SOU 14 (where possible, these had been fully excavated). No wells were found within the area excavated in 2003.

The main concentration of pits was towards the north-eastern corner of the excavation area (including SOU 14) where there were two clusters of intercutting pits (one group on SOU 14) which extended beyond the limit of excavation to the east. Away from this area the spread of pits became more dispersed, and they generally contained less artefacts. The pits towards the southern end of the Site contained few and in some cases no finds, although their morphology, fills and fill sequences would suggest that they were mid-Saxon. Pit 1964 is the most southerly example which, on the basis of a single sherd of glass it contained, can be assigned to the mid-Saxon period. Pit 1848 nearby contained a relatively large quantity of animal bone and is also likely to be mid-Saxon. Of the remaining five pits recorded further to the south, three (2017, 2030 and 2044) contained a few sherds of Roman pottery and the remainder (1965 and 2038) produced no finds. Rather surprisingly, only two pits (1500 and 1552) were found in the northern part of the Site, to the west of SOU 14, and only one pit (2059) in the western strip.

On SOU 14, one well and three pits were assigned to the earlier part of the mid-Saxon sequence and the remainder to the middle of the mid-Saxon period or slightly later (Morton 1992, 149). All of these features lay in the northern half of the Site, closest to Chapel Road. At Anderson's Road, the evidence from the finds – particularly the pottery – suggests more pits were dug and filled in the middle and later parts of this period. There are, however, high percentages of imported pottery in some features that may be significant in terms of dating. In particular, there are eight pits which contained only imported pottery. These comprise 1628 (one sherd), 1738 (two sherds), 1630, 1824, 2059 and 2061 (three sherds), 1848 (four sherds) and 1847 (six sherds). These pits were scattered across the excavation area, with no concentrations, but it was noted that none lay within the pit cluster on the east side. In

contrast, nine pits containing predominantly mixed-grit wares, and therefore of likely mid-Saxon date, all formed part of this pit cluster. These nine pits comprise 1605, 1621, 1689, 1731, 1748, 1751, 1757, 1875 and 1933. The majority of the pits which might be assigned a mid mid-Saxon date (on the basis that a mixture of fabrics were present, with sandy wares generally predominating), showed no obvious distribution pattern though the majority lay within the pit cluster. This might suggest that the pit cluster originated at this time, during the 8th century, with continued development in to the 9th century. In addition, three conjoining sherds of Late Saxon pottery came from the top of pit 1915 within this group. This distribution of pottery, along with the overall sequence, is discussed further below.

The pits were generally sub-circular/circular in shape (55%) though a sizeable proportion (19%) were sub-rectangular. Other shapes included sub-oval/oval, irregular and sub-square. The pits measured on average 0.95m by 0.70m (2.6m by 2.3m maximum), or 0.65m diameter, and were generally 0.4–0.8m deep (1.3m maximum) with steep or near-vertical sides. In most cases they were cut through the brickearth and into the underlying gravel, hence, a majority of the pits displayed collapses or lenses of gravel and redeposited brickearth within their fill sequence.

The pits may originally have been quarry pits for brickearth (for daub) or gravel (for hard standings), but the majority were ultimately filled with varying quantities of domestic and craft/industrial refuse. One pit, 1654, which extended beyond the eastern limit of excavation, appears to have been dug for a more specific purpose. This was square or rectangular, measured 2 m by at least 1.3 m, was 1.1 m deep with steeply sloping sides and a flat base, and had two relatively substantial post-holes cut into north-west and south-west corners respectively, near the top of the pit. These are likely to have held posts associated with some form of shelter or cover, and it is possible that this was a latrine pit. Some pits, particularly those towards the southern end of the Site appear to have been left to silt up naturally, probably

reflecting their greater distance from the nearest buildings.

Virtually all of the mid-Saxon finds assemblage was recovered from the pits, and comprised mainly pottery, burnt daub/fired clay, animal bone including worked bone and antler, fragments of quern stones, iron working slag and vessel glass. Quantities amongst this rather limited range were generally small though concentrations of animal bone and slag were noted in the deepest and largest pits. Indeed, it appears that many of the pits originally contained high quantities of animal bone, but in most of these cases at least c. 90–95% of the bone assemblage was in such a poor condition that it could not be retrieved (see Animal Bone, below).

Overall finds distributions, including the evidence for SOU 14, are discussed further below, though a few remarks are appropriate at this point. The vast majority of finds came from the pit cluster towards the north-east corner of the Site, and this is particularly apparent from the distribution of the pottery (see Fig. 6). In addition, ten of the 13 sherds of glass came from this group (with two sherds from pit 1500 and one from pit 1964); concentrations of iron-smithing slag came from pits 1751 and 2018 (with another in 1552), and pit 2018 also produced a sherd of pottery with melted glass residue; seven of the nine lava quern stone fragments came from pit 1731; and the majority of worked bone and antler and one worked bone object also came from pits 1663, 1883, 1933 and 2018 in this group.

Medieval (Fig. 4)

A number of shallow ditches have been assigned to the medieval period. They were generally less than 0.1m deep and c. 1.5m wide, with a maximum width of 3m. Most were east-west aligned and ran across the width of the Site, a distance of more than 40m, some representing the recutting of earlier boundaries, but no clear sequence could be established. These ditches were sealed by the alluvial gleyed silt deposit and were stratigraphically later than the mid-Saxon pits. Some could not be directly dated although a few contained fragments

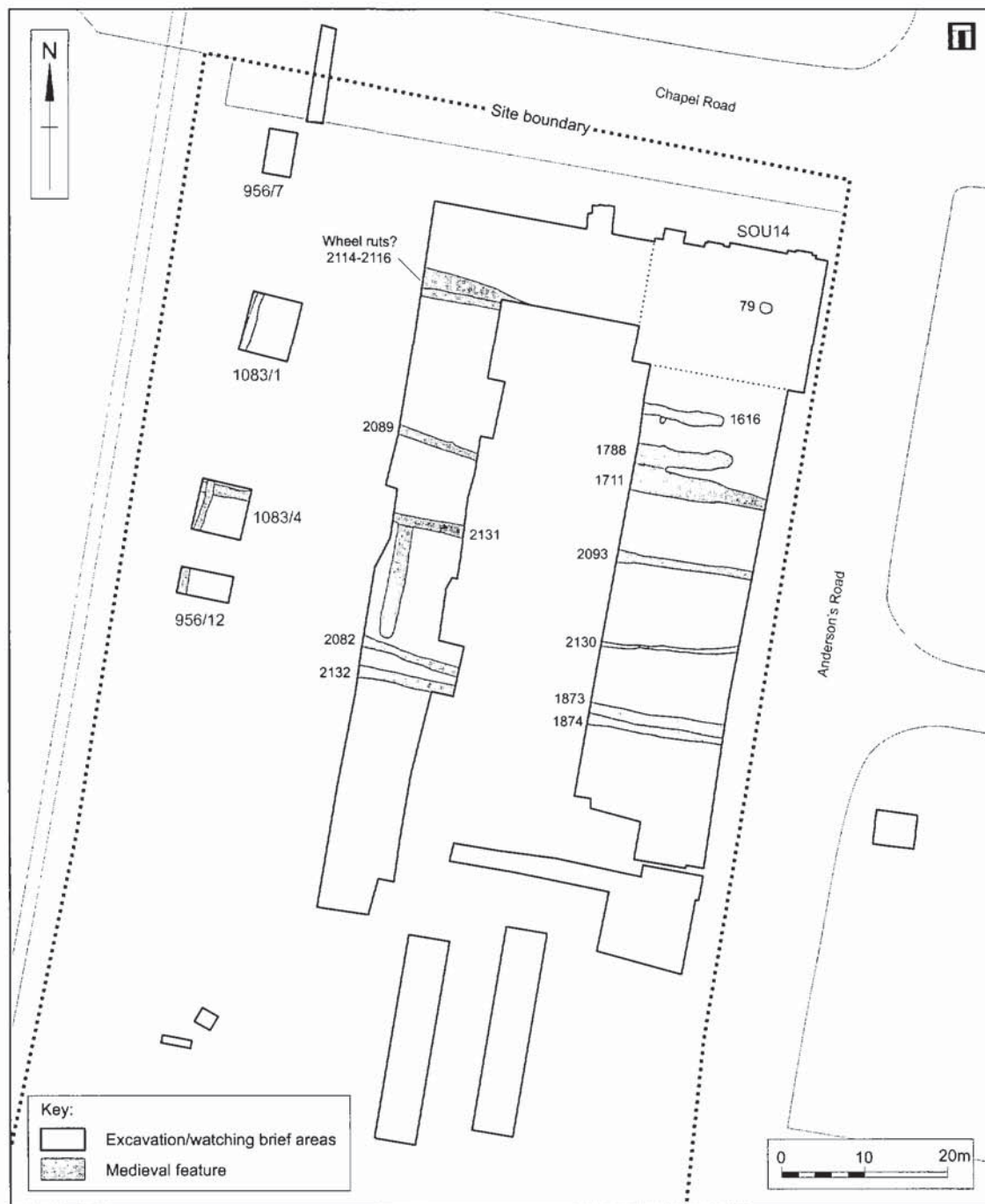


Fig. 4 Plan showing medieval features within main excavation area, SOU 14 and evaluation trenches

of medieval pottery, floor tile and/or slate. Overall, only seven sherds of medieval pottery were recovered including two of earlier and five of later medieval date.

Ditch 1616 at the north end of the Site was undated and did not continue to the west, though it is likely to have been completely destroyed in this area. Similarly, ditch 1711 may have continued to the west but survives only in truncated form as ditch 2089. Ditch 1711 was relatively broad and slightly irregular in plan, with a shallow curvilinear length of ditch (1788) lying immediately to the north. Further south, ditches 2093 and 2131 were certainly part of the same feature which appears to have continued through one of the evaluation trenches to the west, a distance of over 65m. A southerly extension of ditch 2131 extended as far as ditches 2082 and 2132 which continued to the east as ditches 1873 and 1874 respectively. A shallow, undated gully (2130) may have been associated with this group of features. One more, undated ditch (2133) lay further to the south, though on a slightly different alignment from the other medieval ditches (see Fig. 3). Three of the evaluation trenches to the west revealed parts of a north-south ditch likely to have been contemporary with one or more elements of the medieval ditch system.

In the north-western part of the excavation area was a 4m-wide (maximum) band of narrow linear features, aligned east-west, (Groups 2114, 2115, 2116) which were possibly wheel ruts. The 'ruts' were generally 80–100mm wide and 20mm deep. They were well-defined, with steep-sided 'U-shaped' profiles where they cut through the brickearth. These features were not evident in the eastern part of the excavation area, although the natural gravel exposed in this area may not have preserved these narrowly defined features. A lead strip and a fragment of medieval glazed floor tile from Group 2114 suggest a medieval date for these features, although a mid-Saxon date cannot be ruled out.

In addition to the various linear features, one pit (F79) on SOU 14 may have been of medieval (13th century date) date (Morton 1992, 147), and a few sherds of later medieval pottery came from the top of pit 1605.

FINDS by Lorraine Mephram

Pottery

Out of the total assemblage of 287 sherds (6397 g) recovered from the Site, 213 (4302 g) are of mid-Saxon date with the remainder assigned to the late prehistoric, Roman, late Saxon, medieval and post-medieval periods.

Prehistoric and Roman

Two small joining body sherds (from gully 2003) in a sparsely flint-tempered fabric are of prehistoric type, and have been tentatively dated as Late Bronze Age or Early Iron Age on fabric grounds.

A small number of Romano-British sherds (18 sherds/199 g) occurred sporadically across the Site, presumably residually, although four pits (1628, 2017, 2030 and 2044) at the southern end of the excavation area contained only Roman sherds, albeit in very small quantities. Apart from a single, very abraded sherd of samian (1st or 2nd century AD), all sherds are coarsewares (greywares, oxidised wares and grog-tempered wares), and none is closely datable within the Roman period.

Mid-Saxon

The mid-Saxon assemblage has been subjected to detailed fabric and form analysis, following the standard Wessex Archaeology recording system (Morris 1994). As far as possible, fabrics identified have been correlated with the existing Southampton mid-Saxon fabric series (Timby 1988). This has not proved possible for the imported wares (*ibid.*, group IX wares), since the full fabric series for these is not available for consultation. These have instead been defined by basic type, e.g. blackware, greyware, etc, and possible fabric correlations given. Form types have been defined and described using nationally recommended nomenclature (MPRG 1998). Basic data are held on the project database (Access) which forms part of the project archive. Table 1 gives the pottery totals by fabric type (imported wares are grouped by broad type).

Six of Timby's Saxon fabric groups are repre-

Table 1 Mid-Saxon pottery totals by fabric type

<i>Fabric Group</i>	<i>Fabric Code</i>	<i>No. sherds</i>	<i>Weight (g)</i>	<i>% of total (no. sherds)</i>	<i>% of total (wt.)</i>
I	1	2	20		
I	2	3	40		
I	5	1	17		
	<i>sub-total group I</i>	6	77	2.82	1.79
II	40	5	108		
	<i>sub-total group II</i>	5	108	2.35	2.51
III	10	8	128		
III	15	3	129		
III	57	4	36		
III	8	8	207		
III	9	11	250		
	<i>sub-total group III</i>	34	750	15.96	17.43
IV	14	1	39		
IV	59	13	162		
IV	66	77	1195		
	<i>sub-total group IV</i>	91	1396	42.72	32.45
VI	24	2	58		
VI	65	4	65		
	<i>sub-total group VI</i>	6	123	2.82	2.86
IX	blackwares	15	388		
IX	greywares	32	824		
IX	whitewares	9	153		
IX	oxidised wares	6	23		
IX	misc. imports	9	460		
	<i>sub-total group IX</i>	71	1848	33.33	42.96
		213	4302		

sented; those which are absent comprise shelly (Group V), calcite-tempered (Group VII) and igneous rock-tempered (Group VIII). Diagnostic sherds, although relatively scarce, occur in all fabric groups; those in local wares derive exclu-

sively from convex or rounded jar forms, while imported forms include at least one handled pitcher as well as a few other jar/pitcher rims. Two sherds (both in local wares) are decorated with stamped motifs.

The overall size of the assemblage is small, even allowing for the fact that pits were generally only half-excavated while most of those at SOU 14 were fully excavated. The figures are 213 sherds weighing 4.3kg as against 1934 sherds weighing approximately 24kg (or 667 sherds weighing approximately 12kg if the latter figures are halved because the features were fully excavated). Very roughly this equates to eight sherds or 0.19 kg of pottery per pit at Anderson's Road compared with 160 sherds or 2kg of pottery per pit at SOU 14. These figures might be distorted by the fact that 77% by weight of the pottery at SOU 14 came from three features (FF 27, 28, 30), with 39% from F27 alone. However, even allowing for these particular concentrations it is clear that less material was disposed of at Anderson's Road. Taken alone, statistically valid conclusions cannot be drawn from the range of fabrics represented. The assemblage is best considered as part of the Chapel Road East group of sites (SOUs 7, 8, 11, 14, 16, 18).

Bearing the size of the assemblage in mind, it can nevertheless be noted that the proportion (and absolute numbers) of Group I (organic-tempered) wares is low in comparison both to the overall figure for Hamwic as a whole, and to other Chapel Road East sites. Table 2 presents selected pottery data from a variety of sites and areas to enable some basic comparisons to be made. Group I fabrics are considered to be a significant indicator of early mid-Saxon occupation (Timby 1988, 111). However, given its location overlapping the previously excavated site of SOU 14, the results from Anderson's Road are unlikely to indicate any major chronological differences between this site and others in this area.

Again, looking at the Group IV (mixed grit) wares, which Timby uses as a pointer to late mid-Saxon occupation (*ibid.*, 117–8), Anderson's Road appears anomalous in the context of the Chapel Road East sites, producing a higher proportion of these wares (see Table 2), but does not conflict with a conclusion that the density of late occupation increased in the south-east of Hamwic near to the River Itchen (Morton 2005a, 125).

Finally, the proportion of Group IX (imported) wares warrants some comment (see Table 2). Overall, there is a relatively high percentage of imported wares (with approximately equal quantities of greywares and blackwares), but this might be because of the small size of the assemblage which has resulted in an anomalously high figure (at SOUs 7 and 16 the figures are even higher, at 66% and 84% respectively by weight for the Group IX wares). Elsewhere in the vicinity a range of 14% (SOU 14)–23% (Chapel Road East) is recorded; at the Old Cop on the north-west periphery of Hamwic the figure is only 9% (by sherd number), perhaps a reflection of its distance from the waterfront rather than chronological factors. Differences in the proportions of imported wares across Hamwic might indicate a slight bias towards the south-east, but taking into account the amount of imported pottery ending up in the average pit, the figures suggest a fairly even distribution (Morton 2005a, 126–7). Furthermore, if the size and density of the area occupied is taken into account, there is significantly more imported pottery at Six Dials than at Chapel Road East.

Late Saxon, medieval and post-medieval

Three conjoining sherds from a jar rim in Late Saxon Sandy ware (Brown 1995, 131) came from a tertiary fill of a mid-Saxon pit (1915) in the north-eastern part of the excavation area.

Seven sherds are of medieval date. Two sherds are in High Medieval fabric types: one Dorset Quartz-Rich Sandy ware (Brown 2002, 16) and one miscellaneous coarse sandy ware. The remaining five sherds are all in late medieval Well-Fired Sandy ware (*ibid.*, 19).

The remaining sherds are post-medieval, and include coarse redwares, Verwood-type earthenwares, stonewares and modern refined whitewares.

Glass

Of the 15 pieces of vessel glass recovered from the site, 14 are of mid-Saxon date; the remaining fragment (from pit 1600) is a tubular footring of Romano-British date.

Mid-Saxon fragments came from seven pits

Table 2 Pottery: Fabric groups from sites and areas compared by *sherd number (%) / weight (%)*

<i>Fabric Code</i>	<i>SOU 1240</i>	<i>SOU 14</i>	<i>Chapel Road E</i>	<i>Cook Street</i>	<i>Old Co-op</i>	<i>Stadium</i>	<i>Six Dials</i>	<i>Hamwic</i>
sub-total group I	3 / 2	<5	9 / 11	12 / 15	2	5 / 5	7 / 8	6 / 7
sub-total group II	2 / 3	15	?	9 / 7	19	14 / 12	?	17 / 15
sub-total group III	16 / 17	44	?	37 / 36	43	29 / 23	?	31 / 29
sub-total group IV	43 / 32	21	20 / 18	7 / 7	25	24 / 26	27 / 26	27 / 27
sub-total group VI	3 / 3	<5	?	3 / 2	3	7 / 6	?	2 / 2
sub-total group IX	33 / 35	14	20 / 23	31 / 26	9	20 / 25	13 / 15	15 / 18
Assemblage size (where known), and source	213	1934 (Timby 1988)	- (Timby 1988)	799 (excl 167 miscel- laneous) (Pieksma 1993)	341 (Garner 2003)	6375 (Mephram 2005)	- (Timby 1988)	- (Timby 1988)

(1500, 1591, 1600, 1731, 1883/1933, 1964 and 2018), some as single fragments, but with two each from pits 1500, 1600 and 1883 and five (three joining) from 1591.

The mid-Saxon glass includes eight rims deriving from six vessels, all falling within the palm cup/funnel beaker vessel series. Four of the rims are rounded and two tubular (both with cavities). Tubular rims are considered to belong to the earlier part of the mid-Saxon sequence and the finer, rounded rims to the later part – the overall sequence is a little over two centuries (Hunter and Heyworth 1998, 8). In other words, there is an apparent emphasis here on later vessel forms, which generally supports the chronological evidence from the pottery assemblage in suggesting a greater density of later occupation in this area.

The colouring of these vessels, and of the other body sherds (pale blue or pale green) is characteristic of the majority of the Hamwic glass – only one fragment is of another colour, in this instance olive-green. In general vessels from Hamwic with rounded rims are more likely to be decorated (*ibid.*, 12), and of the examples seen here one tubular rim and two rounded rims are decorated, two with marvered, opaque yellow horizontal trails and one with a reticella rod applied to the rim. One other body sherd has marvered, opaque white horizontal trailing.

Melted glass (pale green) was recorded as a coating adhering to the inner face of a sherd of imported Saxon pottery (from pit 2018), perhaps part of a crucible. This provides further evidence for glass working (though not necessarily glass making) in Hamwic (*ibid.*, 26, 61).

Other finds

A small quantity of other finds was recovered, in a restricted range of material types. The date range of the assemblage is predominantly mid-Saxon, with small quantities of earlier and later material (the information on the flint is integrated within the text above). The range of artefacts is well-paralleled within the overall assemblage known from mid-Saxon Hamwic. There is some evidence for on-site craft/

industry in the form of bone and antler-working waste (discussed further in the report on the animal bone), a pot sherd with glass adhering (see above), and some iron working slag.

The metalwork comprises objects of iron (17), copper alloy (2) and lead (3). The iron is heavily corroded which hampers identification; identifiable objects comprise two nails, one heckle tooth and one T-shaped lift-key of Romano-British type (unstratified). The copper alloy comprises one post-medieval coin too worn to identify (from the surface of ditch 1874) and one unidentifiable object in two tiny fragments, while the lead consists of a strip (from a wheel rut in Groups 2114–2116) and waste fragments.

A total of 2.31 kg of metalworking (iron) slag was recovered in small quantities from several Saxon contexts, with the majority coming from pits 1751 and 2018. All of this is derived from iron smithing and includes a single smithing hearth bottom weighing 0.99 kg from pit 2018.

Fragments of worked animal bone appear to derive from the end of a pinbeater. This is the only worked bone object from the site, although a moderately large quantity of worked bone offcuts was recovered (see below).

Two fragments of ceramic building material are of Romano-British date, including one *tegula*. Four fragments are coarse and are likely to be of medieval date; these include one curved tile and two possible floor tiles. The remaining eight fragments are post-medieval, including brick and roof tile fragments. The burnt clay comprises small, abraded and featureless fragments which are likely to be of structural origin, although whether from pit/hearth linings or from upstanding structures is uncertain. The date of these fragments is uncertain, although on the basis of associated pottery most if not all is probably of mid-Saxon date.

Part of a possible stone lamp, with burnt residue adhering to the inner cup came from late prehistoric gully 2003. The mid-Saxon objects comprise one piece of sandstone quern and nine fragments of lava, the latter probably all deriving from imported rotary querns; seven of the lava fragments came from the same

context in pit 1731 and may belong to the same object. Also present are a complete whetstone and a small pebble probably used as a polishing stone, both from pit 1747. The stone from medieval and post-medieval contexts comprises two apparently unworked pieces of non-local (igneous) stone and a small quantity of roofing slate.

ENVIRONMENTAL EVIDENCE

Animal bone by Stephanie Knight

Introduction

The existing corpus of animal bone information from Hamwic is substantial and well-documented, especially the large assemblage from Melbourne Street (Bourdillon and Coy 1980). In common with that from earlier excavations at adjacent/overlapping site SOU 14 (Driver 1984), the mid-Saxon assemblage from Anderson's Road is dominated by cattle and horse, in particular sawn offcuts of metapodial, radius and tibia epiphyses. Driver noted that selection for large and mature individuals (for the larger, denser bone pieces that could be obtained from them) was taking place in areas of Hamwic where bone working predominated, and Bourdillon (2003) has elaborated on the biases in bone elements that might be expected. It is clear, therefore, that the potential for the relatively small assemblage from Anderson's Road to provide new information on animal husbandry practice or consumption is limited, especially as it is not well preserved, with a small range of species (even for Hamwic) and a low proportion of measurable bones or bones marked by butchery.

Nor was it thought appropriate to simply repeat the work undertaken for Driver's analysis of bone working at SOU 14, where the much larger assemblage (9417 identified bones compared to the 752 from Anderson's Road) provided a more representative sample for understanding bone working techniques. It should be noted, however, that all pit fills at SOU 14 were fully excavated and coarse sieved to recover animal bone (Morton 1992, 18),

thereby increasing the size of the assemblage available for analysis.

The focus of this study, therefore, is how the contrasting nature of bone groups in individual features and fills may illustrate craft and household activity and disposal patterns on an inter- and intra-site level, and enable better understanding of the nature of settlement on the edge of Hamwic.

Methods

Basic information such as NISP counts, condition, *etc.*, was recorded for the whole assemblage, but the often very poor preservation of bone has led to extensive fragmentation and a large number (64%) of the bones were undiagnostic. This is higher than at Chapel Road (SOU 7, 8 and 11) and Melbourne Street (SOU 1, 4, 5 and 6) where the figure is 55%. Additional, detailed analysis of mammalian remains was, therefore, concentrated on selected pits (1500, 1605, 1883 and 2059, see Fig. 3). These pits were from several locations within the Site, as it was thought that differences in activity areas or between properties might be reflected in the pit contents.

To minimise bias from fragmentation and erosion, conjoining fragments that were demonstrably from the same bone were counted as one. A restricted fragment count was made for the contents of the selected pits following Grant (1975). Mandible wear stages follow Grant (1982) and measurements follow von den Dreisch (1976). No bones were complete enough for withers heights to be calculated, but ages were estimated using Silver (1969). Helical fractures (made when the bone is fresh) were recorded (Outram 2002). The positions of butchery marks and burnt areas were sketched or described, and where bones were sawn, the distance from the epiphysis and direction of sawing were recorded in a manner consistent with Armitage (1982). Details are available in the archive.

Sheila Hamilton-Dyer identified all bird and fish bones and her comments on aspects of the preservation and origin of material from samples have been incorporated here. No fish bone was recovered by hand, either due

to the generally small size of these elements (most are small eel and herring) resulting in their not being recognised on site, or in some cases through deliberate recovery by sampling when contexts were seen to contain fish bone. Fish bones were recorded by frequency and the species present noted, but they have not been fully quantified or measured; this was considered unnecessary considering the large quantity of material already identified from Hamwic and the potentially misleading results of relative proportion analysis where not all contexts were sampled.

Bone condition

The assemblage is in general very poorly preserved and taphonomic biases, such as under-representation of the less robust elements, will therefore have affected the bone elements and species present.

In part this may be due to the nature of the pit fills, for example cess would create a more acidic environment, contributing to bone degradation, but other factors may have contributed to the poor condition of the bone. It may be that some bones were being soaked to soften them and enable easier working; such a suggestion was made for certain Middle Saxon deposits at the Royal Opera House, London, where antler remains were very crumbly in texture (Rielly 2003). The bones that were destined for working may, therefore, have been soaked in water or a weak acid (such as could be obtained by the addition of acidic agents – soured milk, sorrel, etc; McGregor 1985), which could have continued to affect these bones after deposition. This interpretation is supported by the poorly preserved bone from SOU 14, which also contained a large quantity of sawn bone (almost a fifth of the identified assemblage).

If this were the explanation, it might be expected that all offcuts from bone working would be poorly preserved, but this is not the case. Instead it may be that the location of the Site, and especially the pits with poor preservation, near to the waterfront may have led to fluctuating water levels within the pits, which will consequently have resulted in bacterial action

eroding the surface and rotting the bone. This condition was observed on bone from several features, but only seemed to affect the mammal and avian remains; the fish bones were generally in good condition. Since fish bone is generally small and fragile, and does not survive well, this suggests that the bone assemblages came from more than one source (e.g. cess and table waste), with some material less affected by the changing water levels. It might also be noted that the state of bone preservation at SOUs 16/21/22, to the east of Anderson's Road, was also very poor. Virtually no bone survived apart from teeth, and where it did survive it was often not recoverable (Morton 1992, 160 and 164, for example). In contrast, the bones from the excavations north of Chapel Road (SOUs 7, 8 and 11), also close to the waterfront, were often very well preserved (Bourdillon n.d.). The presence of preserved wood at the latter sites suggests that waterlogging was important in this good condition, while at Anderson's Road very few bones had the dark staining and hard texture that are characteristic of waterlogged material (most coming from pit 2059 on the west side of the Site). Post-depositional conditions may, therefore, have been more important than pre-depositional factors in terms of bone preservation, with fluctuating water levels rather than later encroachment of salt marsh being the over-riding factor.

Species represented

Like the assemblage from the earlier SOU 14 excavation, the Anderson's Road assemblage is dominated by large mammals (Table 3), and an unusually high proportion of horse compared to cattle. The proportion, at 1:5 by NISP, is even higher than SOU 14 at 1:9, and significantly different from Melbourne Street where the figure is approximately 1:500. Driver (1984) explains this discrepancy as an artefact of butchery practice, whereby cattle bones were fragmented during butchery (and therefore over represented) but horse bones left intact, since their flesh was not eaten, and their bones were therefore more useful for bone working.

The proportion of cattle and horse at Anderson's Road is much higher than in the large

Table 3 Animal Bone: Species list and number of specimens (NISP and %) from all pits

	<i>Horse</i>	<i>Cattle</i>	<i>Sheep/ goat</i>	<i>Pig</i>	<i>Deer</i>	<i>Bird</i>	<i>Fish</i>	<i>Small mammal</i>	<i>Unident.</i>	<i>Total</i>
NISP assessed fragments (hand recovered)	109 14%	513 68%	64 9%	41 5%	7 1%	2 <1%			1309	2061
NISP assessed fragments (coarse sample recovered)	3 3%	40 35%	30 27%	32 28%		5 4%	1 1%	2 2%	3723	3836
SOU 14	4%	67%	19%	9%	1%	1%				
Melbourne Street	<1%	51%	31%	15%	<1%	2%				

assemblage at Melbourne Street (Bourdillon and Coy 1980) and nearby Chapel Road (Bourdillon n.d.), and that of sheep/goat and pig much lower, more similar to SOU 14. However the proportion of smaller animals is much larger in sampled contexts indicating recovery and/or fragmentation bias. While taphonomic processes will therefore have played a part in the observed differences, it is also likely that spatial variation was a factor, since a high incidence of sawn bone is directly proportional to higher numbers of large mammals at the above sites, suggesting deliberate selection for bone working at certain locations. Lower proportions of sheep/goat (and consequentially high proportions of pig) at Chapel Road when compared to Melbourne Street (Bourdillon n.d.) might indicate some spatial variation, but on what basis is not yet clear; a more meat-based area, higher status, or a butchery site are all possible interpretations. The slightly higher proportion of horse and lower proportion of sheep and pigs at Anderson's Road compared with SOU 14 may simply result from worse preservation at the former.

Goats were not common and the only definite goat element was a sawn horn core from context 1892, supporting the suggestion that whole goats were not generally brought into Hamwic, but that their horns, which may have been valued, were specifically in demand (Bourdillon and Coy 1980, 111). As described

above, sheep/goat and pig remains were more common in the pits that did not contain much bone working waste; these often contained meat-bearing bones and several bore knife cut marks from disarticulation. The bone in these deposits can, therefore, be assumed to have originated from consumption activity.

The proportion of wild animals is very small, in common with the other Hamwic assemblages, and with mid-Saxon settlements elsewhere (O'Connor 1991). No post-cranial deer elements were present, so consumption of venison cannot be implied; most antler was shed and had been worked, so was probably brought into the settlement specifically for craft purposes.

Bird bones were very few in number and domestic fowl and goose were equally represented by just two fragments each (in four contexts) and were a mixture of elements; both species are well attested at other Hamwic sites. The single curlew bone is the only evidence for wild bird at this site, and may have been a chance inclusion in pit 1747, which appeared to contain bone from a range of activities/areas. Curlews are currently summer visitors to the Southampton area, and often inhabit coastal marshes at high tide, when opportunity for wading in coastal mudflats or estuaries is limited, so may have been resident near Hamwic; indeed, a curlew bone was also recovered from the nearby Chapel Road excavations.

The only non-domestic animals found in relatively large quantities are fish, recovered from 28 samples from 17 pits overall, and the frequency of remains indicates that both freshwater and (generally shallow water) marine fish were a routine part of the diet, as for the rest of Hamwic. The deposits that contained fish can often be interpreted as cess, an explanation that is supported by the generally very small size of the fish bones and the signs of crushing, probably from human teeth, on eel vertebrae from at least seven contexts. Most of the fish bones are unburnt, but a few calcined vertebrae may have originated from hearth debris.

Eel bones were most common, found in 16 contexts, with herring/herring family found in nine (five contained both). Gadids were less common; three small and one large gadid bone were found, each in a different context; cod and whiting are both known from other Hamwic sites. Flatfish were even rarer but a thornback ray spine and tooth was noted in pit 1883. Rays were infrequently found at Melbourne Street where it was suggested that they could have been trapped along with the flatfish and especially eel.

As herring are unusually common at this site it could be argued that these fish were more regularly eaten by the inhabitants of these particular properties, which are close to the waterfront and are specialist in nature, and that variety in the diet was not especially important. Alternatively, and more convincingly, conditions in the pits may have favoured the small bones that had been consumed over those that may have been filleted out before or after cooking. The latter were perhaps disposed of on floor deposits where they were subject to mechanical attrition, or into pits with fluctuating water levels where they rotted; the presence of cess will also have created a hostile acidic environment.

Pit 1883 contains by far the most fish bones and greatest range of species, but no gadid remains; gadids may have been processed or consumed in a different manner to other species. For instance, salt fish may have been consumed at times when fresh fish was not available, and in this case remains would be

concentrated where the fish was processed, not where it was eaten. If flatfish had been filleted and perhaps preserved rather than cooked on the bone, this could explain the relative paucity of flatfish remains at Anderson's Road when compared to Melbourne Street.

Size and age of animals

Although the majority of cattle and horse bones were fused, there were some bones from younger individuals, and some very small bones from young cattle had been sawn (in pit 1663). Despite this, fusion data indicates that approximately 90% of cattle had survived to skeletal maturity (over three and a half years for modern animals). Conversely, toothwear indicates a range of ages. Although no complete molar tooththrows were present, the state of wear of the lower third molar indicated two mandibles from individuals of 18–30 months, six of 30–36 months, three adults and a senile adult. This may highlight the discrepancy between the bones used for working, from older animals that were selected for size and density, and the teeth that represent the full range of animal products present at Hamwic, including some sub- and young adults as well as old individuals that had probably served secondary purposes in life for milk or traction. Differential survival that favoured the older, denser bones also probably played a part.

Animals brought in specifically for meat were fairly well-represented at Melbourne Street and Chapel Road, and it seems that the Anderson's Road material does not deviate from this pattern. Sheep/goat were mainly mature at Anderson's Road and the rest of Hamwic, but numbers were too small to assess whether the smaller peaks in deaths at one and three-four years seen at Melbourne Street and SOU 14 was also the case here.

A third of pigs survived to skeletal maturity, the majority being used for meat when reaching a suitable size, as at SOU 14 where a third reached the age of two years and only 16% reached three and a half years. Bourdillon (n.d.) observed that a higher proportion of pigs survived past the eruption of the third molar at Chapel Road than (the otherwise similar)

Table 4 Animal Bone: Measurements of the most common cattle bones, and distance of sawing from the end of the bone (selected pits)

<i>Element</i>	<i>Size (mm)</i> <i>Measurement</i>					<i>Sawing (to nearest mm)</i>			
		<i>Min.</i>	<i>Max.</i>	<i>Mean</i>	<i>N</i>	<i>Min.</i>	<i>Max.</i>	<i>Mean</i>	<i>N</i>
Metacarpal	Bp	37.6	60.5	49.5	6	22	45	30	8
	Bd	51.2	65	58.9	3	33	72	50	5
Metatarsal	Bd	45	58	51.3	5	20	82	55	4
Tibia	Bd	54.1	66.3	58.4	5	43	45	44	2
Scapula	GLP	62.7	65.1	63.9	2	40	43	42	4

Melbourne Street, and that this suggested more efficient husbandry, where animals were only killed once they had attained their maximum weight. Unfortunately the number of pig mandibles or lower third molars recovered from Anderson's Road was too small to provide useful comparison beyond noting that animals again did not seem to be kept much after the initial stages of wear on the third molar.

The complete absence of neonatal and foetal bones may be a result of poor preservation as well as selection for larger bones, and while this does not necessarily inform on consumption preferences or husbandry, it is likely that young animals died or were killed in the rural hinterland rather than near or in the town.

The animals were generally of a relatively large size, typical of Saxon Hamwic, but the sizes were varied even within this apparently specialist area of the settlement. For example, the proximal breadth of cattle metacarpals ranged from 37.6 to 60.5mm (Table 4), the upper and lower ends of the range for proximal metacarpals both coming from sawn waste in pit 1663. Although a small sample, this diversity of sizes suggests that while larger bones may have been preferred for working, they were certainly not used to the exclusion of all others. The mean sizes for the most common measured bone, the metacarpal, are smaller proximally but larger distally than those from Melbourne Street (at 56mm and 56.8mm respectively), and this anomaly is probably a reflection of the small sample.

Pathologies included exostosis on a proximal cattle metatarsal and on a sheep/goat proximal radius, a condition associated with age or stress. Although animal pathology as a whole is not particularly frequent at Hamwic (0.2% of fragments at Chapel Road for instance), this type of condition is among the most frequently observed pathologies at SOU 14 (Driver n.d), Chapel Road and Melbourne Street.

Bone working and bone element representation

Most of the worked bone was of cattle with less than 10% of horse and sheep/goat (sawn horse bone was more common in some pits, especially 1933). Almost 50% of the horse and 41% of cattle bones were sawn, with only 4% of ovicaprids, and these proportions are even higher than at SOU 14 (40%, 23% and 0.4% respectively). Overall, approximately a quarter of identified bones had been worked, similar to the 18% cited by Driver (1984) for SOU 14. However, these figures must be used with caution since the very eroded surface of many of the bones from Anderson's Road had made it impossible to ascertain whether they had originally been sawn. On the other hand, fragmentation will also have increased the numbers of bone and probably skewed the proportions with observable saw marks.

A high proportion of antler in assemblages of bone working waste was suggested to be a feature of the later part of the mid-Saxon period in Hamwic (Riddler and Andrews 1997).

The relatively low proportion of antler (1% of all hand recovered fragments) recognised at Anderson's Road could therefore indicate a slightly earlier phase of activity, although spatial segregation of activities could account for the discrepancy, if certain raw materials were worked in particular areas.

The sawing process was systematic, not only in terms of the species and bone element selected but also in the position and direction of cuts. For metapodials, saw marks were made in more than two-thirds of cases from the posterior of the bone. In most cases the saw had cut part-way through and the remainder snapped, but a few bones had been sawn from both anterior and posterior sides before snapping, and some had been sawn almost the whole way through. The distance from the end of the bone varied considerably for some elements, especially the distal metatarsal (Table 4). Saw cuts near the distal epiphysis often cut through the foramen, but when smaller or younger bones were sawn, the cut was placed proportionately much further from the epiphysis, so as to remove the curved part of the bone and leave the straight. In some cases cuts were made both very close to the epiphysis and some 40–50mm further along the shaft, perhaps during routine segmenting of the bone into pieces suitable for further working into comb plates or teeth. No evidence of this further working was found, and the material from Anderson's Road appears to be from the initial process of blank production, the finishing being undertaken elsewhere. However at SOU 14 many fragments of sawn long bone shaft have been recovered; this type of fragment may not have been recognised at Anderson's Road due to the poor condition of bones, or may have been produced but deposited elsewhere.

Like SOU 14, metapodials were well represented and formed approximately 60% of the sawn cattle bones from the selected pits (Table 5). Radius and tibia fragments were also common and often sawn, as were scapula. These include robust bones that survive well, and this pattern, together with the dominance of large mammal bones, could be explained to an extent by preservation bias, with the destruc-

tion of more fragile parts such as the proximal humerus. However, the mandible, normally the best-represented and most robust element, is almost absent, and it seems more likely that selection processes for bone suitable for working have created this bias. The flat areas of scapula, radius, tibia and metapodials are all preferred for bone comb manufacture, and were also over-represented at SOU 14. Driver (n.d.) suggests that complete feet were brought in and that this accounts for the high numbers of carpals, tarsals and phalanges, but these are not common at Anderson's Road, either because the smaller bones did not survive, or they may have been discarded in another area before sawing took place.

For sheep/goat and pig the distribution of bone elements is more what would be expected of an assemblage that had been biased by poor preservation. The relatively small numbers of waste toe and skull bones could be a result of this, or being overlooked during excavation, but again the lack of mandibles suggests a different reason. It may be that meat parts were being brought into this area of town pre-butchered, and elements removed during primary butchery deposited elsewhere, nearer to the location of slaughter. The bone assemblage from SOU 11 was suggested to be butchery waste (Buckland *et al* 1976), with several fairly complete skulls and very few rib fragments, and segregation of butchery activity as well as bone working may have occurred. This is also the case for London, although Rielly (2003, 161) suggests that itinerant as well as settled butchers may have been operating. There is some indication from Chapel Road and Melbourne Street that cattle meat may have been hung by skewers inserted through long bones (Bourdillon n.d., 16) and this would mean that some meat may have been carved from the bone as required, and perhaps then taken or traded elsewhere. The bone from this activity could therefore have been deposited not at a place of butchery, nor at the location of consumption. However, whilst this may be the case for many urban centres, evidence in the form of pierced bones is relatively rare, except in the Roman period.

Table 5 Animal Bone: Bone elements from selected pits (restricted fragment count of element parts over 50% complete, domestic mammals only)

<i>Element</i>	<i>Horse</i>	<i>Cattle</i>	<i>Sheep/goat</i>	<i>Goat</i>	<i>Pig</i>	<i>Total</i>
Astragalus		4	1			5
Calcaneum		2				2
Carpal		3				3
Femur	1	3	1			5
Fibula					1	1
First phalange		1				1
Horn core				1		1
Humerus		2	5		4	11
Mandible		1				1
Metacarpal	1	14	2		1	18
Metapodial		1	2		1	4
Metatarsal		7	2		1	10
Navicular cuboid		2				2
Patella		1				1
Pelvis		1	1			2
Radius	1	9	3		2	15
Scapula		4	2		1	7
Second phalange		2			2	4
Skull		1				1
Tarsal					2	2
Third phalange		5				5
Tibia		8	4		1	13
Tooth	1	7	1		3	12
Total	4	78	24	1	19	126

Charred, mineralised and waterlogged plant remains
by Chris Stevens

Introduction

Forty-three bulk samples ranging in size from 4 to 20 litres were taken, all but one coming from mid-Saxon features. Of these, nine were processed for mineralised plant remains and

36 were processed for charred remains. Six were also sub-sampled for waterlogged remains. That many of the samples contained relatively few plant macrofossils meant that most could be quantified during assessment and only two were further analysed for charred macrofossils, while five were selected for the analysis of waterlogged/mineralised remains.

Flotation of charred samples was carried out by conventional methods using a 500µm mesh to catch the flots; those samples processed for mineralised remains used a 250µm mesh. The residues were then washed through 1mm and 2mm meshes and sorted for environmental material and other finds, the finer fraction being examined using a low-powered microscope. The flot was dried and sorted for plant material using a low-powered binocular microscope. Plant macrofossils were then extracted, identified and quantified. The plant taxa identified from each sample are shown in Tables 6–9, following the nomenclature of Stace (1997).

Regular reference is made to the plant remains analysed from the St Mary's Stadium site in Southampton (Carruthers 2005; Clapham 2005; Hunter 2005), which represents the most comprehensive programme of archaeobotanical work yet undertaken for Hamwic. Although 'core samples' were taken through every pit fill at SOU 14 these were not subsequently analysed (Morton 1992, 18), and the sources of information for archaeobotanical work prior to the Stadium site are limited (eg. Monk 1977; 1980, Green 1992; Biddle 1997).

Many features produced archaeological plant remains preserved through charring, waterlogging and mineralisation. The range of material preserved by each preservation type was very limited and distinct in character. Almost all of the cereal grains recovered were preserved by charring, with a few preserved through mineralisation. Furthermore, it is probable that most of the wild species recovered that can be considered crop weeds were also preserved by charring. Of the leguminous crop species (e.g. peas, beans etc), most were preserved by mineralisation with a few by charring. More significantly perhaps, most of the other species probably utilised for food were preserved only by waterlogging or mineralisation. It was also noticed that while many of these species were mineralised by calcium phosphate replacement, some of the species associated with salt marsh conditions were preserved by virtue of a combination of waterlogging and high amounts of silica within their seed coats.

The nature of the preservation within several

samples was a mixture of mineralisation and waterlogging. These samples contained some seeds preserved through the mineralised casts of the inside of the seed, and others with the outer seed coat preserved through waterlogging; in some cases both the inner cast and outer seed coat were present. The extent to which much of the mineralised material could be identified was problematic, and often identifications were made only by virtue of the outer seed coat also being present through waterlogging. Such seeds included, in particular, bramble (*Rubus* sp.) and mustard/cabbage (*Brassica* sp.). Many of the mineralised seed casts, especially those of bramble (*Rubus* sp.) had little external diagnostic evidence present.

Cereal crops

As already noted, most of the cereal remains were preserved by charring. The majority of cereal remains represented were of free-threshing wheats (*Triticum aestivum sensu lato*) and hulled barley (*Hordeum sativum sensu lato*). Chaff was very rare, although a single rachis fragment from pit 1649 indicated that six-row barley was present.

Of the other cereals, small numbers of rye grains and occasionally chaff were recorded. While some grains of oat (*Avena* sp.) came from pit 1649, it was not possible to confirm whether cultivated oats were present. A single spikelet fork of hulled wheats emmer or spelt (*Triticum dicoccum/spelta*) was also recovered from pit 1649. Emmer wheat is known to have still been cultivated in the Saxon period within parts of Britain (Pelling and Robinson 2000), although residuality is often proposed for other such Saxon records (Grieg 1991). It is more probable given the total absence of this crop from the St Mary's Stadium site (Hunter 2005) that the example from Anderson's Road is residual from earlier activity within the vicinity of the Site. Further to this, a grain that closely resembled single-grained einkorn (*Triticum monococcum*) was recorded from pit 1883. However, given that only a single grain was recovered it is possible that the grain was an immature or tail grain of free-threshing wheat.

In comparison to the Stadium site where

[illegible][illegible]

quite high numbers of cereal remains were recorded from several features (Hunter 2005), cereal remains were quite rare at Anderson's Road. Of the 43 samples taken, half contained no cereal remains at all. Of the remaining samples only three had more than ten cereal items, with those from pits 1649, 1824 and 1883 all containing between 10 and 25 grains.

The range of cereal crops is otherwise similar to those utilised at the Stadium site (Hunter 2005) and those known from other parts of Saxon England (Greig 1991), with a predominance of free-threshing wheat, barley and rye. The general absence of charred cereal remains at Anderson's Road means that few of the wild species whose seeds were found charred can confidently be ascribed as crop weeds. As such, the information on past cultivation methods and field conditions that may be gleaned from the presence of such species is limited. Of those recovered, goosefoot (*Chenopodium* sp.), vetches/wild pea (*Vicia/Lathyrus* sp.), black bindweed (*Fallopia convolvulus*), docks (*Rumex* sp.), cleavers (*Galium aparine*), brome grass (*Bromus* sp.) and possible oats (*Avena* sp.) are all commonly known arable weeds. Pit 1649 which produced the richest sample in terms of charred remains had relatively few cereal remains and it is probable that this sample relates to activities other than cereal processing (this is discussed further below).

Non-cereal cultigens

Of the other crop remains recovered, those of leguminous species were most common. Remains of pea (*Pisum sativum*), bean (*Vicia faba*) and lentil (*Lens culinaris*) were all recorded. Most of these remains were of mineralised seeds, and in the case of both pea and beans were represented by the mineralised remains of the hilum alone. A few charred remains of pea did, however, come from pits 1500, 1847, 1883 and 1905. High numbers of mineralised and waterlogged leguminous seed remains were noted at the Stadium site (Clapham 2005; Carruthers 2005) where their presence was associated with cess. It would seem that the mineralised remains recovered from pits 1552, 1605 and 1883, given the presence

of quite high amounts of cess-type material in these features, are also likely to be a reflection of similar preservation conditions.

Of the other crop species, occasional possible seeds of flax and capsule fragments came from pits 1500 and 1605. Of perhaps more interest were numerous seeds of probable mustard (*Brassica/Sinapis* sp.). Identification to species level is problematic for Brassicas, making their status as crop or weed uncertain. However, the large and regularly defined cell pattern upon the seeds testa makes white mustard (*Sinapis alba*) or black mustard (*Brassica nigra*) likely. The latter species while a native weed to Britain was also widely cultivated in more ancient times. That the species only occurs in two samples (from pits 1883 and 1605) that both contained relatively few obvious weeds, but many edible seeds, increases the probability that they are from a cultivated mustard. Numerous seeds of Brassica were found within the mineralised samples from the Stadium site and were also argued, on the basis of their numbers, to be from the cultivated species (Carruthers 2005). A further spice represented by only a few seeds was celery (*Apium graveolens*). While celery is most well-known as a vegetable, the seeds can be used as flavouring. That some of those seeds recovered from pit 1605 were mineralised (ie. associated with cess) suggests that it had been eaten as a spice. Other cultivated species included grape (*Vitis vinifera*), plum (*Prunus domestica*) and apple (*Malus sylvestris domestica*).

Wild food remains

As was noted at the Stadium site, remains of species whose berries and nuts were collected from the wild were also common. While the presence of such species may sometimes reflect plants growing in the immediate vicinity of the pits, the fact that they were frequently associated with cess deposits and in charred form supports their interpretation as utilised plant species.

Fragments of hazelnut shells were, given the infrequency of cereal remains, relatively common on the Site and were particularly abundant in pits 1500, 1698 and 1883. Their

Table 7 Charred plant remains from pit 1649 (context 1646) Original sample volume = 10 litres

Cereals		
<i>Hordeum vulgare</i> sl (grain)	barley	2
<i>Hordeum vulgare</i> sl (grain hulled)	hulled barley	1
<i>Hordeum</i> sp. rachis frg. 6-row	6-row barley	2
<i>Triticum dicoccum/monococcum</i>	hulled wheat spikelet fork	1
<i>Triticum</i> cf. <i>aestivum</i> sl	rachis fragment	4
<i>Secale cereale</i>	rye	3
<i>Secale cereale</i>	rye rachis fragment	3
Cereal (grain indet.)	cereal	1
Cereal (grain indet.)	basal rachis indet.	1
Wild Species		
<i>Corylus avellana</i> L.	hazel	5
<i>Stellaria</i> sp.	chickweed	4
<i>Montia fontana</i> subsp. <i>chondrosperma</i>	blinks	1
<i>Crataegus monogyna</i>	hawthorn (thorn)	1
<i>Vicia/Lathyrus</i> sp.	vetch/pea	15
<i>Trifolium/Medicago</i>	clover/medick	5
<i>Persicaria lapathifolium/maculatum</i>	persicaria	1
<i>Rumex</i> sp.	docks	40
<i>Galium</i> sp. (immature)	cleavers	cf.12
<i>Galium</i> sp. (small)	bedstraw	1
<i>Galium aparine</i>	cleavers	22
<i>Viola</i> sp.	violet	1
<i>Lapsana communis</i>	nipplewort	1
<i>Alisma plantago-aquatica</i>	water plantain	1
<i>Eleocharis</i> cf. <i>palustris</i>	common spike-rush	5
<i>Carex</i> sp. (trig and flat 2mm)	sedge	130
<i>Carex</i> sp. (trig and flat <2mm)	sedge	60
Poaceae/Cereal tuber	grass tuber	3
Poaceae (small <2.0mm)	small grass seed	8
Poaceae culm nodes (large)	grass stem	323
Poaceae culm nodes (v. large)	large cereal type stems	11
Poaceae basal culm nodes	grass root	3
<i>Avena</i> sp.	oat	12
<i>Avena</i> sp.	oat spikelet	2
<i>Bromus</i> sp.	brome grass	1
<i>Lolium/Elymus</i> sp.	rye-grass/black-bent	2
<i>Sparganium erectum</i>	club-rush	14
<i>Iris pseudacorus</i>	Iris	1
<i>Viburnum/Isis</i> type	Viburnum/Iris	cf.4
Stems indet.		+

Table 8 Waterlogged plant remains

	Feature	1552			1883			1605		1746	2059		
		1564	1565	1566	1890	1890	1893	1607	1610	1770	2063	2065	2066
	Context												
	Volume (litres)	8	4	10	8	10	10	1	10	7	6	20	18
	flot size (ml)	30	300		500	225	660	50	1400	150	500	1650	1175
Cereal straw and chaff	cereal straw node	-	-	-	6m	-	-	-	++m	-	-	-	-
<i>Secale cereale</i>	rye	-	-	-	1m	-	-	-	-	-	-	-	-
<i>Ranunculus</i> sp.	buttercup	-	-	-	-	-	-	-	2	-	+	-	-
<i>Ranunculus sardous</i>	hairy buttercup	1	-	-	1	-	-	-	-	-	-	-	-
<i>Urtica dioica</i>	common nettle	-	-	-	-	-	-	10	-	-	+	-	-
<i>Urtica urens</i>	small nettle	-	-	-	-	-	-	-	-	-	-	+++	-
<i>Corylus avellana</i>	hazel	-	-	-	-	-	-	-	-	-	+	+++	-
<i>Chenopodium</i> type	goosefoots	1	-	-	1	-	-	+	+	-	-	-	-
<i>Chenopodium album</i>	fat-hen	-	-	-	-	3	-	1	c.15	-	-	-	-
<i>Chenopodium murale</i>	nettle-leaved goosefoot	-	-	-	-	-	-	-	2	-	-	-	-
<i>Chenopodium rubrum/urbicum</i>	red/upright goosefoot	-	+	-	-	-	-	-	-	-	+	-	-
<i>Atriplex</i> sp.	orache	-	-	-	1	-	-	-	c.15	-	+	+	-
<i>Atriplex</i> cf. <i>littoralis</i>	grass-leaved orache	-	-	-	-	-	-	-	?	+	-	-	-
<i>Stellaria</i> sp.	stitchwort	-	-	-	-	-	-	+	-	-	-	-	-
<i>Brassica</i> cf. <i>nigra</i>	black mustard	-	-	-	10m	-	-	-	c.30	-	-	-	-
<i>Agrostemma githago</i>	corncockle	-	-	-	-	-	-	+frgs.	-	-	-	-	-
<i>Persicaria maculosa/lapathifolia</i>	persicaria	-	-	-	-	-	-	-	1	-	+	+	-
<i>Fallopia convolvulus</i>	black bindweed	-	-	-	cf.1	-	-	-	5-10	-	+	-	-
<i>Rumex</i> sp.	dock	-	-	-	-	-	-	1	c.20	-	+	+	-
<i>Hypericum</i> sp.	St. John's wort	-	-	-	-	-	-	-	-	-	-	+	-
<i>Rubus</i> sp.	bramble	1	+	-	450	+++	-	-50m/w	+	-	-	+	+++
<i>Prunus spinosa</i>	sloe berry	-	cf.+	-	-	-	-	-	-	-	-	-	-
<i>Prunus</i> sp.	plum/sloe type	-	-	-	cf.1	-	-	-	4	-	-	-	-
<i>Prunus domestica</i>	domestic plum	-	-	-	-	-	-	-	1frg.	-	-	-	-
<i>Potentilla</i> sp.	tormentil	-	-	-	-	-	-	1min	-	-	-	-	-
<i>Malus sylvestris domestica</i>	apple	-	-	-	-	-	-	+frgs.	-	-	-	-	-
<i>Crataegus monogyna</i>	hawthorn	-	-	-	-	-	-	-	-	-	-	1	-
<i>Vicia</i> sp.	vetch	-	-	-	-	-	-	-	+	-	-	-	-
<i>Pisum/Vicia/Lens</i>	hilum indet.	-	-	-	5	-	-	-	-	-	-	-	-

Table 8 (cont.) Waterlogged plant remains

Feature	1552			1883			1605		1746	2059		
	1564	1565	1566	1890	1890	1893	1607	1610	1770	2063	2065	2066
Context												
Volume (litres)	8	4	10	8	10	10	1	10	7	6	20	18
flot size (ml)	30	300		500	225	660	50	1400	150	500	1650	1175
hilum 3mm cf. <i>Pisum sativum</i>	pea	-	-	cf. 1m	4	4	-	2	-	-	-	-
hilum 5mm cf. <i>Vicia faba</i>	bean	-	-	-	1	-	-	-	-	-	-	-
<i>Lens culinaris</i>	lentil	-	-	-	3	-	-	-	-	-	-	-
<i>Vitis vinifera</i>	grape	-	-	-	-	-	-	2	-	-	-	-
<i>Linum usitatissimum</i>	flax (capsule)	-	-	-	-	-	-	1f	-	-	-	-
<i>Linum usitatissimum</i>	flax (seed)	-	+	-	-	-	-	cf.1	-	-	-	-
Apiaceae indet.		-	+	-	1	-	-	-	-	-	-	-
<i>Aethusa cynapium</i>	fool's parsley	-	+	-	-	-	-	1	-	-	-	-
<i>Conium maculatum</i>	hemlock	-	-	-	1	-	1	-	-	-	-	-
<i>Apium</i> sp.	fool's watercress	-	-	-	-	-	-	2m/ 1w	-	-	-	-
<i>Stachys/Ballota</i> sp.	woundwort/ horehound	-	-	-	2	-	-	-	-	-	-	-
<i>Stachys palustris</i>	marsh woundwort	-	-	-	-	-	1	-	-	-	+	-
<i>Lamium</i> sp.	dead-nettle	-	+	-	-	-	-	-	-	-	-	-
<i>Lycopus europaeus</i>	gypsywort	-	-	-	-	-	-	-	-	+	-	-
<i>Galium</i> sp.	bedstraw	-	-	-	-	-	-	1	-	-	-	-
<i>Sambucus nigra</i>	elder	-	-	-	+	26	+	+	-	-	-	-
<i>Hyoscyamus nigra</i>	henbane	-	-	-	-	-	-	cf.1	-	-	-	-
<i>Arctium</i> sp.	burdock	-	-	-	-	-	-	1	-	-	-	-
<i>Potamogeton</i> sp.	pondweed	-	-	-	-	+	-	-	-	-	+	-
<i>Juncus</i> sp.	rush	-	-	-	+	-	-	-	+	+	-	++
<i>Eleocharis/Scirpus</i> sp.	rushes	-	-	-	-	-	-	-	-	-	+	-
<i>Eleocharis palustris</i>	spikerush	-	-	-	-	-	-	1m	-	-	+	-
<i>Schoenoplectrus lacustris</i>	common club rush	-	-	-	-	-	-	-	-	+	+	-
<i>Carex</i> sp.	sedge	1	+	-	cf.1	-	-	-	+	-	+	+

Key: + = 1-10, ++ = 10-50, +++ = 50-100, ++++ = >100
(m/w - preserved by mineralisation / waterlogging)

frequent presence in charred form probably indicates regular use as a food resource during at least the autumn and winter months. Waterlogged remains were relatively rare, although many fragments were recovered from pit 2059.

While stones of sloe (*Prunus spinosa*) were quite common at the Stadium site, only a single, tentatively identified, waterlogged stone came from pit 1552 at Anderson's Road. Seeds of bramble (*Rubus* sp.) were very numerous in several of the samples. In some pits, in particular 1883 and 1605, seeds were preserved by both waterlogging and mineralisation. In these cases they are most likely to be the remains of seeds derived from cess. The abundant seeds from pit 2059 may also be related to cess, although the seeds had not become mineralised. It is possible that they came from plants growing around the pit edge, although the frequency of hazelnut shells in this sample would suggest that they are more likely derived from domestic waste. Such an explanation might also be applied to pits 1663 and 1747 that had abundant remains of bramble seeds but little evidence for the presence of cess material.

Seeds of elder (*Sambucus nigra*) were also abundant in several samples and may be from consumed berries or from plants growing within the vicinity of the pits. Seeds of elder were most common, like bramble, within pits 1663 and 1747, but were relatively rare in the features that contained more definite cess material. For this reason it might be concluded that these pits contained more material derived from scrub or perhaps hedges rather than cess and domestic waste.

Other, cess-related material

As noted above, pits 1605 and 1883 contained along with mineralised seeds further evidence for the presence of cess. Both features contained several mineralised insect remains including fly pupae and, more commonly, arthropod remains. There were also numerous fragments of material incorporating quite high quantities of grass stems, probably including cereals, preserved both through their impressions and mineralisation. While this material was not conclusively identified it seems most probable

it represented flattened coprolites, into which straw and stems had become incorporated, preserved by calcium phosphate replacement.

Straw was also very common in pits containing cess deposits at the Stadium site, as it is in cess pits on later medieval sites (Greig 1981), and it has been suggested that straw was used to soak up liquid and suppress odours (Carruthers 2005). Such measures would also help limit flies, and contribute to the formation of manure destined for spreading on agricultural fields.

A further find possibly related to the presence of cess were fragments and a single small clump of probable Sphagnum moss. The occurrence of moss within cess deposits at Bergen, Norway led to the suggestion of it having been used as 'toilet paper' (Krzywinski *et al.* 1983), and its presence within pit 1605 at Anderson's Road may have been for similar reasons. Relatively little moss was recovered from the Stadium site although, as noted by Carruthers (2005), this might be a result of poor preservation.

As at the Stadium site there was a general absence of seeds from species that might have been expected to have been very common around pit edges, and this may imply that some pits, particularly cess pits, were covered.

General environment

Several features contained elements or assemblages of plant remains likely to be derived from the surrounding 'natural' environment. As noted above, while the seeds of weed species that might be expected to have been growing around the settlement were relatively rare, those of wetland species were by comparison quite common. This was especially the case for pit 2059 where quite a number of seeds of rush (*Juncus* sp.) were present, along with those of sedge. This same sample also had many seeds of marsh woundwort (*Stachys palustris*), spikerush (*Eleocharis palustris*), common club-rush (*Scheuchzeria palustris*), gypsywort (*Lycopus europeus*), pondweed (*Elodea* sp.) and small nettle (*Urtica urens*). While the pit has been interpreted as a domestic refuse pit, it would also appear that it was receiving a high input, probably from the local environment, of

Table 9 Waterlogged plant remains

Feature	Context	Volume (litres)	Flot size (ml)	Goosefoots	Grass-leaved orache	Bramble	Vetch	Flax (capsule)	Flax (seeds)	Apiaceae	Hemlock	Fool's watercress	Woundwort/black horehound	Elder	Burdock	Pondweed	Insect Remains
<i>Chenopodium</i> type																	
<i>Atriplex</i> cf. <i>littoralis</i>																	
<i>Rubus</i> sp.																	
<i>Vicia</i> sp.																	
<i>Linum usitatissimum</i>																	
<i>Linum usitatissimum</i>																	
Apiaceae																	
<i>Conium maculatum</i>																	
<i>Apium</i> sp.																	
<i>Stachys/ Ballota</i> sp.																	
<i>Sambucus nigra</i>																	
<i>Arctium</i> sp.																	
<i>Potamogeton</i> sp.																	
Indet. Seeds																	
Insect Remains																	
1500	1512	10	300	-	-	1	-	If.	cf. 1m	1	-	-	-	-	cf. 1	-	-
1536	1536	10	175	-	-	+	-	-	-	-	-	1	-	-	-	-	-
1621	1622	8	400	-	-	-	-	-	-	-	-	-	-	+	-	-	-
1628	1599	10	500	-	-	+	-	-	-	-	-	-	-	-	-	-	-
1646	1646	10	400	-	-	2m/wl	-	-	-	-	-	-	-	-	-	-	-
1654	1662	5	300	+	-	+	+	-	-	-	-	-	-	-	-	-	-
1663	1665	4	100	-	-	+	-	-	-	-	+	-	-	+	-	+	+
1663	1666	10	120	-	1	+++	-	-	-	-	-	-	-	++	-	-	-
1668	1668	10	30	-	-	-	-	-	-	-	-	-	-	+	-	-	-
1689	1694	9	250	-	-	+	+	-	-	-	-	-	-	+	-	-	-
1698	1700	8	400	-	-	-	-	-	-	-	-	-	-	+	-	-	-
1747	1779	4	100	-	-	++	-	-	-	-	-	-	-	++	-	-	+
1782	1782	10	350	-	-	+++	-	-	-	-	+	-	-	++	-	-	-
1824	1816	8	750	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1848	1853	8	100	-	-	-	-	-	-	-	-	-	-	+	-	-	-

Key: + = 1-10, ++ = 10-50, +++ = 50-100, ++++ = >100
(m/w – preserved by mineralisation / waterlogging)

wetland plants that must have grown around the edge of the salt marsh and Solent estuary.

One sample from pit 1649 (context 1646, see Table 7) produced a high number of charred monocot stem fragments. Some of these were relatively large with culm nodes and, therefore, from grasses, possibly cereals. However, charred seeds of sedges, along with some of club-rush (*Sparganium erectum*) were very common and so it is probable that at least some of the monocot stem fragments are from sedge as well. While the sample contained some cereal remains and possible seeds of arable weeds, for example nipplewort (*Lapsana communis*) and cleavers (*Galium aparine*), these were relatively few in comparison and do not suggest that the sample relates to crop processing waste. A similar assemblage was recovered from one of the pits at the Stadium site, although in this case more species indicative of meadow type conditions and few stems were recovered (Hunter 2005). The Anderson's Road assemblage would certainly appear to be derived from the burning of local vegetation. However, whether this was deliberate choice of such material for fuel is unclear.

Charcoal by Catherine Chisham

All charcoal >2mm from the bulk samples was collected and dried, weighed, and scanned at $\times 50$ magnification. Charcoal from six samples, all from mid-Saxon pits, was selected for further analysis. These samples contained large quantities of charcoal and a 30–35ml sub-sample was, therefore, taken from each (equivalent to *c.* 50 fragments) and fragments prepared for identification according to the standard methodology of Leney and Casteel (1975; see also Gale and Cutler 2000). Identification was undertaken according to the anatomical characteristics described by Schweingruber (1990) and Butterfield and Meylan (1980). Identification was to the lowest taxonomic level possible, usually that of genus and nomenclature is according to Stace (1997).

Results and discussion

A wide range of woody taxa was recorded, as shown in Table 10, with some notable differences between the assemblages. Preservation

was generally good, although some mineralisation/redeposition of sediment and minerals along vessels was evident. Most fragments were fresh but a few from all contexts were friable and somewhat rounded, notably context 1512 (pit 1500).

All taxa represented are native deciduous taxa with the exception of the single fragment of horse-chestnut (*Castanea sativa*) in context 1969 (pit 1905), a non-native having been a Roman introduction. While it is unsafe to draw conclusions on the source woodland composition from the relatively small sub-samples used, the taxa represented are common deciduous woodland and scrub/hedge tree and shrub species, often found in association with each other. The single occurrence of gorse/broom (*Ulex/Cytisus*) suggests at least the local presence of more open scrubland in addition to open woodland, while the importance of alder (*Alnus glutinosa*) attests to the close proximity of the Site to wetland (salt marsh).

No single taxon dominated the samples, with the exception of the assemblage from context 2065 (pit 2059), which was somewhat species-poor and dominated by oak (*Quercus* sp.). The remainder showed a wide range of taxa, with mature oak and roundwood of hazel (*Corylus avellana*) and alder most common. A range of available taxa were therefore selected and used as fuel. This range compares very well with the taxa identified from the mid-Saxon features at St Mary's Stadium (Gale 2005), though the samples from Anderson's Road are of greater volume and perhaps consequently a slightly greater number of taxa are represented.

Mature wood dominated the charcoal assemblage with the notable exception of context 1646 (pit 1649), which contained substantial quantities of twigwood and small roundwood (including hazel, ash (*Fraxinus excelsior*), birch (*Betula* sp.) and gorse/broom) and of charred (unidentified) bark.

Gale (2005) has suggested that a variety of domestic and 'industrial' activities in Hamwic would have required copious amounts of wood, necessitating large expanses of managed woodland in the area, dominated by oak. Four to five year old branchwood of hazel and alder

Table 10 Wood charcoal identifications (no. of fragments)

Pit	1500	1605	1649	1965	2059	2059
Context	1512	1610	1646	1969	2065	2066
Sample wt (g) / vol (ml)	33g / 120ml	6g / 25ml	9g / 48ml	127g / 398ml	127g / 608ml	25g / 125ml
<i>Fagus sylvatica</i>		1				
<i>Corylus avellana</i>	19	14 (1 of small branching roundwood, 1 of 5 yr roundwood, most >6yr)	5 (1=4yr)	12	9 (1=4yr, 2=5yr)	22
<i>Acer campestre</i>				3		
<i>Alnus glutinosa</i>	12	7	8	5	8	18
Twigwood of <i>Alnus glutinosa</i>		1				
<i>Betula pendula</i> / <i>pubescens</i>	1	1	4	8	3	5
twigwood cf. <i>Betula</i> sp.			2			
Betulaceae twigwood			4			
<i>Castanea sativa</i>				1		
<i>Cornus</i> sp.			1			
<i>Corylus avellana</i> twigwood			1			
Cf. <i>Euonymus europaeus</i>		1				
<i>Fraxinus excelsior</i>	2	2	7	4	2	
<i>Fraxinus excelsior</i> twigwood			4			
<i>Ilex aquifolium</i>						1
Pomoideae			1	3	3	3
Cf. Pomoideae				1		
<i>Prunus avium</i>		2			1	1
<i>Prunus spinosa</i>				1		
<i>Quercus</i> sp.	11	20 (3=sap)	7	11	24	2
<i>Quercus</i> sp. juvenile	2	1				
<i>Salix</i> / <i>Populus</i> type	1	1	1	3	2	1
<i>Tilia</i> sp.			1			
<i>Ulex</i> / <i>Cytisus</i> sp. twigwood			1			
<i>Ulmus</i> sp.	4			2		
Cf. <i>Viburnum</i> sp.		1				
Unidentifiable	1	3	3 (knotwood)		3	2
Unidentifiable twigwood and parenchyma			3	1		
TOTAL NO.	53	55	53	55	55	55
Bark			20			

Table 11 Monolith description and interpretation (see Fig. 2 for location)

Context	Depth (cm)	Description and Interpretative comments
802	0–7	Very dark grey silty clay (10YR 3/1) structureless with small rounded stones at contact (washed in or truncation horizon), abrupt boundary. <i>Ah</i>
803	7–15	Dark grey (2.5YR 4/1) stonefree silty clay, few very fine mottles, structureless clear boundary. <i>A horizon of alluvial gley soil</i>
804	15–27	Grey (2.5Y 5/1) firm silt to silt loam, structureless, with few small/fine distinct mottles towards base, clear boundary <i>B horizon of alluvial gley soil</i>
805	27–35	Mixed greyish brown (10YR 5/2) silty clay with large clay and strong brown (7.5YR 5/6) mottles. <i>Rw</i>

was common at Anderson's Road and while there is no direct evidence of woodland management, this is suggestive of the use of some wood from coppiced trees. However, mature wood from taxa that are not normally managed was also present in significant quantities and could equally have come from semi-natural or managed woodland (e.g. *Prunus* sp., willow/poplar (*Salix/Populus* sp.)).

Soils and sediments by Michael J. Allen

A possible salt marsh soil was investigated in four locations spread from north to south across the Site. In each location a monolith of undisturbed sediment was taken through the 'alluvial gleyed silt' to facilitate description and interpretation of this horizon. The descriptions (following terminology outlined by Hodgson 1976) presented above (Table 11) are from the southernmost sampled location (see Fig. 2) and exclude modern overburden.

The alluvial gleyed silt became progressively thicker and more developed (clearer pedological horization) towards the south of the Site, and represents a soil typical of salt marsh conditions (cf. Allen and Gardiner 2000). This overlay both mid-Saxon and medieval features, and suggests increased marsh conditions after the 14th or

15th century in this area. The sediment sequence is not closely dated (there is no artefactual data), and is undatable in absolute terms (there is no included charcoal or organic material suitable for dating). However, the results of pollen analysis of these deposits to the west of the Site, at SOU 1277 (see Fig. 2) has been used to tentatively suggest that the development of salt marsh is likely to have taken place no earlier than the mid-18th century (Scaife 2004). Although not a dating technique *per se*, pollen analysis indicates a slight increase in pine, which can be compared with other dated sequences along the south coast of England (e.g. Long *et al.* 1999).

In addition, it can be suggested that none of these soils represent full salt marsh of the lower or middle tidal range, rather they are all soils in the upper, dryer tidal frame.

Pollen by Robert Scaife

Pit 1605 (see Fig. 3) was approximately 1m deep and was fairly typical, in terms of its size and fill sequence, of the mid-Saxon pits within the cluster in the north-east part of the Site. A monolith was taken from the lower 0.68m; the upper 0.35m was not sampled. The pit sequence covered by the monolith comprised a locally-waterlogged very dark brown greasy clay

(context 1610) resting on a compact, brown fine silty sand (context 1607), and sealed by a sequence of upper deposits of mainly dumped material probably including cess (contexts 1612, 1613 and 1614). Preliminary pollen analysis demonstrated that abundant pollen was present throughout much of the sequence. Given the paucity of pollen data from Hamwic, a more detailed analysis of this material was undertaken to provide information on the local habitat(s) existing over the time-span during which these sediments accumulated.

Methods

Pollen sub-samples of 1–2ml volume were taken from the monolith section. These were processed using standard techniques for the extraction of the sub-fossil pollen and spores (Moore and Webb 1978; Moore *et al.* 1992). Absolute pollen numbers were calculated using an added exotic spike (*Lycopodium* tablets) (Stockmarr 1971) to the known volumes of sample. The sub-fossil pollen and spores were identified and counted using an Olympus biological research microscope fitted with Leitz optics. A pollen sum of 400 or more grains of dryland taxa per level was counted for each level where preservation permitted. Fern spores and miscellaneous elements were counted outside of the basic pollen sum. A pollen diagram (Fig. 5) has been plotted using Tilia and Tilia Graph. Percentages have been calculated as follows:

Sum = % total pollen (tp)
 Spores = % tp + sum of spores
 Misc. = % tp + sum of misc. taxa.

Taxonomy, in general, follows that of Moore and Webb (1978) modified according to Bennett *et al.* (1994) for pollen types and Stace (1997) for plant descriptions.

Results

The recovered pollen and spores can be divided into three zones or units that broadly correlate with the stratigraphy of the pit fills. These comprise the lower silty sand (= context 1607), an overlying fine-grained organic material (= context 1610) and an upper, more

coarse and rather mixed unit (= contexts 1612–1614). Pollen was present from the base of the sampled sequence at 68cm (ie at *c.* 1m below the top of the pit) to mid-way through the upper unit. Pollen became too sparse to count in the upper 10cm where the sediments were oxidised. Three pollen assemblages have been constructed around these changes and are characterised and discussed as follows.

Zone 1: 68cm to c. 48cm (= context 1607). This basal silty sand is considered to have been a primary fill of fine minerogenic sediments deriving from collapse of the pit sides and material washed-in from the immediately surrounding area. Absolute pollen frequencies are small compared with the overlying humic material, with values ranging from 4.4k to 8k grains/ml. As with all samples from this pit, trees and shrubs are present in negligible quantities and herb taxa dominate. However, degraded *Tilia* (lime) and more sporadic occurrences of other taxa are considered important in that they suggest residual pollen within the earlier sediments. Poaceae (grasses) are dominant with small numbers of cereal pollen, Lactucoideae (dandelion types), other Asteraceae (daisy family) and *Plantago lanceolata* (ribwort plantain). There are greater numbers of *Pteridium* (bracken) spores than in Zones 2 and 3 above.

Zone 2: 48cm to 30cm (= context 1610). This comprises a faintly laminated, highly organic unit. Pollen diversity is increased and absolute pollen frequencies are high (with values to 756k grains/ml at 32cm). Pollen in this sediment unit is dominated by Poaceae and shows an increase in cereal pollen and a range of weed taxa. Of specific note at the top of the unit (at 32cm) are substantial numbers of Brassicaceae including *Sinapis*, *Hornungia* type, *Jasione* type (Ivy-leaved bellflower and/or Sheep's bit), increased numbers of *Plantago lanceolata* (ribwort plantain) and Asteraceae types (esp. *Centaurea* spp.). Substantial numbers of Poaceae belie the importance of these taxa in the spectra. A very small number of marsh/aquatic taxa are present at 36cm including possible *Lemna* (duckweed), *Typha angustifolia*/*Sparganium*-type (bur reed and/or reed mace)

and Cyperaceae (sedges), with all but the latter absent at other levels.

Zone 3: 30cm to 12cm (= contexts 1612, 1613, 1614). The upper levels of this unit (0–16cm) were examined but failed to produce sufficient pollen to enable adequate counts to be made. However, small numbers of cereal pollen and wild Poaceae (grasses) were observed. This reduction in absolute pollen numbers up the profile (from c. 146k grains/ml at 25cm to 15k grains/ml at 12cm) clearly relates to the extreme degree of oxidation of these organic sediments. This has also been noted in the sediment stratigraphy, and it has been suggested that there was a stasis horizon at this level. Below this, the microscopic character of the sediments shows a change from the very fine-grained organics of Zone 2 to a coarser material of peat-like character above. The latter appears to consist largely of monocotyledonous remains. This is reflected in the pollen spectra with a dominance of Poaceae (grasses) that include 'large Poaceae' which, although they have large diameters, are not of cereal type as, for example, *Glyceria fluitans* (floating sweet-grass). Cereal pollen is, however, also important. Also present are increasing numbers of Chenopodiaceae (goosefoots and oraches), a single but important occurrence of Plumbaginaceae (thrift and sea-lavender), Apiaceae (umbellifers) and Asteraceae types (daisy family; including esp. *Bidens* type and Lactucoideae). The deterioration in pollen noted is reflected in higher values of Lactucoideae, and *Pteridium aquilinum* (bracken) in the upper samples (16–12cm) and reworked mineral sediments containing some pre-Quaternary palynomorphs. As in the profile as a whole, tree and shrub pollen is minimal, although a single horizon (at 16cm) contains higher values of *Corylus avellana* (it was not possible to differentiate between hazel and sweet-gale). Cysts of the intestinal parasite *Trichuris* (whip worm) are present only in this zone suggesting the presence of faecal debris.

Discussion

It is clear from the pollen and macro-stratigraphy that this short profile has a complex but

short-lived taphonomic history – one which is typical of urban archaeological contexts, especially in pits and ditches where domestic waste and ordure have been dumped. The three broad units described are, in fact, more complex as evidenced by the specific peaks of certain taxa at 32cm (the base of context 1610) in Zone 2. This clearly relates to the character of pollen contained in the dumped material.

The basal unit (Zone 1, = context 1607) is predominantly a clean silty sand which has been interpreted as the primary fill of the pit largely derived from the collapse of the pit sides and material which has been washed in. Pollen contained within this suggests that this is likely to be the case. Above the basal level (68cm) with more abundant pollen, absolute numbers are sparse. These levels, however, contain grasses and other pasture types, and also badly degraded lime pollen that will have been resident in the soil from the late-prehistoric period. The basal level differs from these levels and contains pollen and other elements which are noted from the more organic units above (for example, traces of *Jasione* type, *Centaurea* spp., Lactucoideae and cereals). The plant remains (see above) include apple pips and mineralised fruit stones.

Overlying the sharp contact, the fine-grained, greasy textured sediments are almost totally organic and pollen is extremely abundant (Zone 2, = context 1607). There is little evidence that this represents *in situ* formation of peat though it may have formed under waterlogged conditions. No recognisable plant remains or rooting were observed and the sediment is predominantly of fine minerogenic sediments, with a significant archaeological component. The bulk soil sample (from context 1610) contained daub, wood charcoal, chaff, insects partly mineralised material and animal hairs or bristles, suggested to be animal dung mixed with other midden material; the plant remains included grape, *Rubus*, *Rumex*, and a small legume. Pollen assemblages have a diverse range of taxa which may have a complex taphonomy coming from a range of sources within the urban environment. Greig (1981; 1982) has detailed many of these sources. Typically,

the majority of the taxa present derive from material which has been disposed of in the pit. The dominant group throughout comprises grasses and other pasture taxa that may come from domestic and animal floor coverings, from pollen incorporated in animal dung derived from grazing on pasture, and from other sources such as thatch. Cereal pollen is similarly typically found in such contexts and may derive from human and animal faeces, after passing through the gut and intestines with little degradation (Greig 1981;1982; Scaife 1986; 1995), and from dumped food residues (any farinaceous products). It is not possible to delimit the origins of many of the other taxa recorded. In such contexts, medicinal and other food substances might be found. The former was not present here although small quantities of *Vaccinium* (bilberry) may relate to the eating of these edible berries. However, quantities of other Ericales (heather and ling) were recorded, perhaps coming from floor coverings, bedding or roofing and which may also have contained bilberry. Perhaps the most unusual occurrence is that of *Jasione* type (Ivy-leaved bell flower or Devils Bit) of the Campanulaceae (bell flower family). Whether the latter was a climbing plant around the pit or grew on adjacent walls or in thatch can only be postulated. Occasional aquatic and marsh types at 34cm are enigmatic, but as with other taxa may come from secondary sources rather than growth in or adjacent to the feature and the River Itchen and salt marsh both lay relatively close to the Site.

In the upper and much more oxidised organic unit (Zone 3, = contexts 1612–1614) there is a change in the organic component to one which has more grass and/or sedge remains. There are also significant changes in the pollen spectra observed. Cereal pollen (including possibly *Secale*) remains important and a possible source may be from human and animal faeces. Here, however, small number of intestinal parasites have also been found (whip worm) and are typical of cesspits and other contexts where ordure has been disposed as seen, for example, in Winchester (Pike and Biddle 1966). This lends weight

to this suggested source of cereal pollen and other weed/segetal taxa such as *Centaurea cyanus* (blue cornflower) also recorded in this unit. The increase in large diameter (but non-cereal) grass pollen grains (eg. *Glyceria*) may come from faeces of animals grazed on wetland pasture or possibly from salt marshes that have halophytic taxa also with large pollen grains (eg. *Elymus arenarius* or *Spartina anglica*). It is possible that the increase in Chenopodiaceae (goosefoots, oraches and glassworts), typically common salt marsh (halophytic) taxa, may derive from the same source, and it can also be noted that *Armeria* 'B' line (sea-lavender) is present. However, Chenopodiaceae are also a notable weed of nitrogen-enriched habitats, especially where ordure is present.

Summary and conclusions

Overall, the results of this pollen analysis do not provide any general information on the urban habitats of Hamwic. They are, however, some of the first pollen data obtained from this important mid-Saxon town. Pollen obtained from the pit fills are typical of such urban contexts in containing substantial numbers and a considerable diversity of pollen. The taphonomy of the pollen is understandably complex with inputs from possibly multitudinous sources. Here, the dominance of grass pollen is typical along with pollen of cereals and associated plants of waste and disturbed ground. The former, whilst possibly representing grassland in the local habitat, will more probably have come from domestic refuse such as floor coverings (also including heather and ling) and from animal excrement. Cereal pollen may also have come from these latter sources as well as from human faeces and other domestic waste. The upper stratigraphic levels examined appear to be highly oxidised and largely devoid of pollen. However, this upper sediment unit certainly contains faecal debris as evidenced by numbers of whip worm. Possible halophytes are present including goosefoots and/or oraches that reflect local salt marsh which may have been grazed contributing to the faecal material present.

Recent analysis (Scaife 2004) of the salt marsh deposits at SOU 1277 (see Fig. 2), to the south-

west of the Site, has shown that their development in this area, to the north of Marsh Lane/Chantry Road, probably took place in the second half of the 18th century. Although the sequence could not be dated, the earliest phase was represented by possible woodland, hazel perhaps with oak, though the amount of tree pollen is small. A medieval or Tudor date has been suggested for this horizon. There is evidence that the higher, drier ground in the vicinity (ie to the north) was predominantly pasture, with a hint of cultivated land nearby, indicated by a small amount of cereal pollen, consistent with the archaeological evidence for the medieval period at least in this area. On the lower ground, rising sea level resulted in a salt marsh habitat developing on an earlier floodplain/marsh during the 18th century and extending across the southern part of the Site. This was not true salt marsh because, at 0.30–0.70m above present sea level, it was not inundated at high tide, though it may have been during tidal surges perhaps resulting in the ponding of brackish water. Pollen evidence indicates that this land subsequently reverted to wet floodplain grassland, perhaps following reclamation associated with the construction and strengthening of sea defences, and preceding the railway and housing development from the mid 19th century.

DISCUSSION

Overall, the results of the excavation and watching brief at Anderson's Road have proved very much as anticipated on the basis of previous investigations in the vicinity, the desk-based assessment and small-scale but extensive evaluation work.

The Mesolithic tranchet axe found in a mid-Saxon pit during the evaluation was almost certainly a curated item; another example came from a pit at Six Dials. There is slight but fairly convincing evidence for late prehistoric activity in the area provided by a possible ring-gully of Late Bronze Age–Early Iron Age date, adding to the very few features and limited quantity and range of prehistoric finds recorded from earlier excavations.

No Roman features were certainly identified, but a small assemblage of Roman pottery was recovered, in four cases representing the only finds from pits 1628, 2017, 2030 and 2044 at the southern end of the excavation area. A Roman date for these features cannot be ruled out but, on balance, a mid-Saxon date is preferred. The finds do nevertheless provide evidence for Roman activity on this part of the Southampton peninsula, probably the manuring of fields.

The site excavated at Anderson's Road in 2003 incorporated SOU 14 investigated 30 years earlier and published in 1992 (Morton 1992, 142–53). Any discussion must necessarily take account of the results from that site, and indeed the many excavations and smaller investigations within the vicinity as well as more generally within Hamwic (see Figs 1 and 2). The mid-Saxon town, covering approximately 50 hectares, is the most intensively excavated and probably best-understood *wic* in the country, such that any excavation, however small, can usually make some contribution to furthering knowledge of this important settlement.

The site at Anderson's Road was relatively large, though it lay on the southern edge of Hamwic and it was known that approximately half lay beyond the limit of any settlement activity. For this reason, excavation was confined to the northern part, within the footprint of the new building in that area, and the southern part was subject to a watching brief.

Extent of settlement

Probably the main landing place along the Saxon waterfront lay approximately 75m to the east of the Site, at the end of Chapel Road. The existing road follows an important Saxon route that ran between the landing place and what may have been an enclosure containing St Mary's church. The precursor to this church probably became the main burial place in Hamwic from around the middle of the 8th century (and later the mother church of Southampton) and, with the waterfront, is likely to have formed an important focus within the town. Earlier it may have been the site of a monastery (Morton 1999, 56). It has been generally assumed that

the spread of the mid-Saxon settlement to the south of Chapel Road was restricted by the presence of the Little Salt Marsh (eg Morton 1992, 24; Andrews 1997, 22). However, recent palynological work at SOU 1277 (Scaife 2004) has shown that the salt marsh in this area is not likely to have developed until the post-medieval period and thus would not have been a constraint on mid-Saxon settlement.

Other reasons must therefore be sought to explain the extent of settlement south of Chapel Road in this area. It is certain that there was no early ditch in this area, as at Six Dials to the north-west, probably another focus of early occupation (Andrews 1997). An early, though smaller ditch was also found at Cook Street to the west (Garner 1993), although whether it was part of the same boundary feature as recorded at Six Dials is unclear (see Fig. 1). A further length of relatively shallow ditch was identified near the southern limit of the area of SOU 184 excavated in 1987, apparently delineating the extent of mid-Saxon settlement, but this remains unpublished and the evidence is not conclusive. One cannot entirely rule out the possibility that undated ditch 2133 at Anderson's Road (see Fig. 3) was part of the same feature, some 300m to the east, but this is considered unlikely and it was perhaps a medieval ditch.

Perhaps the explanation for the fall-off in features to the south might simply be that the thinning brickearth overlying gravel in this area made the ground conditions less conducive to settlement, and provided less brickearth for daub. Furthermore, salt marsh lay beyond what is now Chantry Lane/Marsh Lane, only some 200m to the south of the Site, fringing the open water of the Solent. The southern part of the Site may, therefore, have been regarded as marginal land, perhaps used for grazing and perhaps subject to periodic flooding.

Chronology

Some comment on the likely chronology of settlement on the Site can be attempted, largely based on the relative proportions (and absolute quantities) of the different pottery fabric

groups present. At SOU 14 it was suggested that structure S1, well 19 and pits 27 and 34 were early features (Morton 1992, 149) and, therefore, likely to belong to the earlier part of the 8th century, all of which lay in the northern part of the Site closest to Chapel Road. At Anderson's Road (but excluding SOU 14) the quantities of pottery from individual features are too low to enable such fine distinctions to be made. However, the relatively small proportion of Group I (organic-tempered) wares suggest that this area (ie to the south) was not subject to early settlement. A similarly low proportion of Group I wares come from the Old Co-op and adjacent site (SOUs 379 and 1112) on the north-west periphery of Hamwic (see Fig. 1). Although the latter site lay adjacent to an important and early Saxon route (later followed by St Mary's Street and St Mary Road; see Fig. 1) it appears that settlement developed alongside somewhat later. In contrast, the possibility of what may have been an early semi-rural property at the east end of Chapel Road (at SOUs 16 and 22) has been highlighted (Morton 1992, 165–6), and relatively high proportions of Group I wares at Cook Street (SOU 254), Chapel Road East (SOUs 7, 8, 11, 14, 16 and 18) and Six Dials are likely to indicate foci of early occupation.

The chronological significance of the imported wares (Group IX) is less clear. At Six Dials it was noted that these occurred in relatively high quantities alongside Group I wares in stratigraphically early contexts, with the blackwares seemingly an early component of this group. This has not been demonstrated at other sites, however, perhaps largely because of the lack of comparable stratified deposits which might enable this possibility to be tested further. At Anderson's Road the interpretation of the eight pits which contain exclusively imported wares (though in very small quantities) remains uncertain.

Possibly of more significance is the high percentage of mixed grit (Group IV) wares at Anderson's Road (32% by weight) compared with, for example, SOU 14 (21%) or Chapel Road East (18%). This group is assigned a mid to late mid-Saxon date, broadly the second

half of the 8th and the early 9th century, and at Anderson's Road might reflect an expansion or a greater density of occupation in this area at this time (see below). At SOU 14 it was concluded that (bone working) activity spanned most of the 8th century and some part of the 9th (Morton 1992, 150).

Layout

The suggested chronology, with the earliest activity closest to Chapel Road and subsequent development to the south, can be linked to the general pattern of settlement in this area as it is currently understood. Structural evidence appears to have been largely confined to the Chapel Road frontage, the only reasonably coherent building plans being S1 and S2 on SOU 14, but only the rear of these structures lay within the excavated area. Both of these were aligned at 90° to Chapel Road, were post-built, and S1 contained what may have been a storage pit in the south-west corner. Very little of a third structure, S3, was exposed, and the nature of this building, if it was a building, is unclear (Morton 1992, 148–9). Gravel surfaces in pits F30 and F82 may have been remnants of yard surfaces associated with these structures. No buildings were found at Anderson's Road, probably because it lay further away, no closer than approximately 15m from the Chapel Road street frontage (as it was in the mid-Saxon period), and also because it is likely that there were no major structures built further back from this street frontage. Although it is possible that some structural remains may have been completely truncated, a probable north–south fence line represented by post-hole Group 1640 did survive.

It has been suggested that fence line 1640 was an early alignment, on the basis of several large sherds of Group I (organic-tempered) pottery recovered from one of the post-holes (on SOU 14). If projected northwards this alignment broadly corresponds with the south-west corner of S2, and it may have been associated with this building or its likely predecessor, Structure S1 (*ibid* 1992, 149). This fence line also appears to delineate to the west the extent of the two main

pit groups, one on SOU 14 and a denser cluster some 10m to the south on Anderson's Road. The group of pits on SOU 14 seems likely to have been associated with structures S1 and S2, several perhaps defining the east side of the property in which they lay (*ibid* 1992, 149). The alignment may have continued to the south for a distance of at least 12m, as far as pit 1915, which lay on the extreme eastern edge of the excavation. Perhaps this was an early boundary, parallel to fence line 1640 5.75m to the west, with the main pit cluster representing the western end of a pit alignment which itself marked a boundary between two properties that extended back from close to the waterfront some 75m to the east. A strand road may have extended southwards along the waterfront in this area, beneath present-day Albert Road North and just to the east of SOUs 16 and 22. Whatever the arrangement, worked bone and antler waste was being disposed of (or being redeposited) in virtually all of the pits in the northern group and several in the southern group. The presence or absence and quantity of this material may partly be a factor of chronology as well as reflecting the extent of one or more properties alongside Chapel Road. It might be noted that SOUs 16 and 22 to the east revealed very few pits, although there was evidence for various structures spanning the early mid-Saxon to the Late Saxon period.

A rough index of the density of pits at Anderson's Road (including SOU 14) has been calculated which seems to reflect the peripheral nature of the Site and a quite dramatic fall-off in the number of pits in the southern part of the Site. The overall density is approximately 3 pits per 100m², similar to the figure for the Old Co-op site on the north-west edge of Hamwic and the Stadium site towards the north-east, but substantially less than the 11 pits per 100m² at Six Dials which has the greatest density so far encountered. If the Anderson's Road site is divided into four, then the number of pits per 100m² is 7 in the north-east part (adjacent to Chapel Road), 2 in the south-east, less than 1 in the north-west and virtually zero in the south-west (closest to the salt marsh). This compares with an overall figure of 6 pits per 100m² for

the Chapel Road East sites (SOUs 7, 8, 11, 14, 16, 18) just to the north and east of Anderson's Road (Morton 2005b, 197).

None of the pits at Anderson's Road were particularly unusual, though one (1654) to the south of the main pit cluster did have two post-holes cut into the side – perhaps evidence for a superstructure, for example a cover. This may have been a latrine pit, though there is nothing in the assemblages of animal bone or plant remains from this feature that would conclusively demonstrate such a function. Another pit (F28) on SOU 14 was surrounded by stake-holes that may have been for a screen. None, apart from two wells on SOU 14, contained evidence for linings or any other indication of specific functions.

The two wells (F19 and F24) on SOU 14 lay close to Chapel Road and were probably associated with Structures S1 and S2 respectively (*ibid* 1992, 149); no features were identified as wells on Anderson's Road. Well F19 was 1.54m deep and well 24 only 1.33m deep, with the bottoms at 0.15m and 0.35m aOD respectively. These wells were 'dry' at the time of excavation indicating that the water table in the mid-Saxon period was somewhat higher than it is today, perhaps at between *c.* 0.7m and 1m aOD. It may be relevant that brown 'fibrous' layers were noted in pit 1605 at Anderson's Road and pits FF 28, 30, 34 and 103 on SOU 14 (though not in either of the wells), in all cases at a depth of *c.* 1m (or *c.* 0.7m aOD). The presence of this material might indicate the former existence of waterlogged conditions at this level, though not apparently stasis horizons within these pits.

The depths of the pits largely reflect the shallow thickness of brickearth overlying the gravel, and virtually all were used for the disposal of domestic rubbish, cess and some craft waste. Cess was often the first fill, and when the contents had settled somewhat, rubbish dumped, in some cases from bone working or a mixture of organic and hearth sweepings and some table waste, including bones that were cooked with meat, such as ribs. Re-fits between pits, known from other Hamwic sites, indicates that several pits may have been

open at any one time and that rubbish was casually deposited or periodically swept or carried away and placed in pits. However not all of the bone waste will necessarily have been deposited in pits. Nevertheless, some idea of the pattern of deposition at Anderson's Road and SOU 14 can be seen from the distribution of pottery and worked bone recovered from the pits (Fig. 6). The quantities from SOU 14 have been halved where necessary to take account of the full excavation of features on that site, but it is still clear that there is a dramatic fall-off to the south reflecting the peripheral location of this area. The very small quantities of debris recovered from most of the pits in the southern part of the Site make interpretation here more difficult, particularly since the poor quality of the brickearth in this area makes it unlikely that they were (small) quarry pits. Similar small pits with few or no finds were recorded at the old Co-op site on the north-west periphery of Hamwic, as were several larger pits which do appear to have been quarry pits for brickearth and gravel (Garner 2003, 127).

It was hoped that 'A larger excavation might also extend the evidence relating to the human skeletal material found at SOU 14' (Morton 1992, 152). However, no further human remains were identified to add to the small but perhaps significant number of disarticulated elements recovered, along with a possible grave (F31) on SOU 14. This would appear to confirm the suggestion that the focus of a cemetery lay not to the south of SOU 14 but towards the north-east corner of that site, perhaps stretching north as far as SOU 7 where another grave was found (Morton 1992, 152–3).

Crafts and industries

The excavation of SOU 14 produced very few small finds but provided some interesting evidence for the area's economy, particularly concerning bone working. The results from Anderson's Road have added to this in providing a further, though smaller assemblage of worked bone. A total of 94% of this was concentrated in four pits (1663, 1883, 1933 and 2018) which

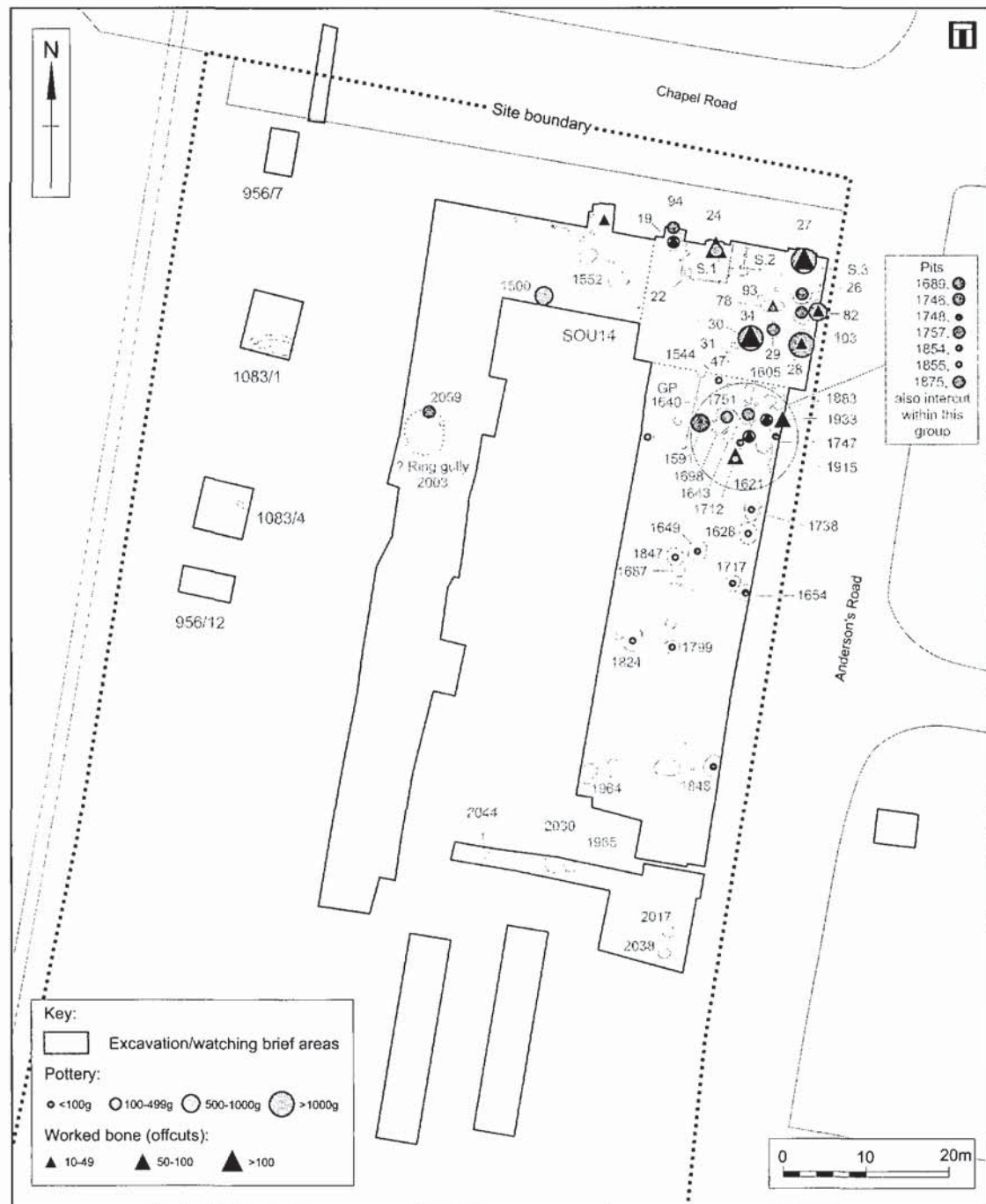


Fig. 6 Plan showing distributions of mid-Saxon pottery and worked bone

lay close together in the pit cluster on the east edge of the Site. The majority came from pits 1663 and 1933 (67 and 59 fragments respectively), with most in one or two middle layers of these pits. On SOU 14 96% (of the sawn cattle bone) came from five pits (FF19, 24, 27, 28 and 30), with 82% from just three (FF 24, 27 and 30) (see Fig. 6). The most recent excavation has confirmed what was found on SOU 14, notably that most of the worked material was cattle bone with virtually no antler present, and is likely to represent activity spanning a period of perhaps 100 years (Morton 1992, 150–2). The very variable amounts of sawn cattle bone in individual pits at SOU 14, where proportions vary from 2% to 44% of the total contents (Driver n.d.), are also seen at Anderson's Road, indicating discrete deposits from specific activities in this area of the Site as well. The evidence also suggests that despite the gap between the pit clusters on SOU 14 and Anderson's Road they probably lay within, or on the edge of the same property and were receiving bone working debris from the same source over the same period of time. The general paucity of antler waste, commoner in later contexts suggests that this activity did not continue long into the 9th century, though pit 1993 has been assigned a late mid-Saxon date.

Blanks for comb production were produced using a standard technique, by sawing specific parts of mostly large, mature horses and cattle, which had been purchased or brought in specifically for this industry. Indeed Bourdillon (2003) suggests that bone from horses was selected and brought in from outside the town, since these animals were not routinely eaten and would not have been brought into the town for slaughter, but not all bones would necessarily have been used (Driver n.d.). The bone blanks appear to have been worked elsewhere – Riddler and Andrews (1997) suggest in buildings or workshops on street frontages – as there is very little evidence of finished objects.

Fragments of only a single finished object were recovered from Anderson's Road, while at SOU 14 there was a minimum of six combs represented, but amongst the worked material was just one unfinished comb connecting plate

and a possible unfinished spindle-whorl. It is perhaps likely that the manufacturing of objects took place in the building(s) alongside Chapel Road, with the disposal of debris in pits to the rear. It is clear, however, that bone working or preparation occurred over several generations in this area, with sporadic deposits of waste into pits spanning much of the 8th century and part of the 9th, though the nature of the offcuts shows that the techniques of bone working employed do not seem to have altered over this timespan.

The evidence from SOU 14, which was comparable to other sites in the vicinity, led Morton (1992) to suppose that a similar density of occupation spread westwards from SOU 14 along Chapel Road; but the excavated evidence clearly demonstrates that this was not the case. Similarly, before the fuller picture was revealed, the nature of the evidence from SOU 14 suggested that there may have been a '*de facto* production line beginning perhaps with the butchery and ending with the making of leather and bone objects' (Morton 1992, 150). It might be remarked, however, that no worked bone came from pit 1552 and only one piece from pit 1500 to the west, though both contained relatively large quantities of animal bone. Of possible significance in this respect was the generally poor survival of much of the bone, particularly from pits in the eastern part of the Site. Because of this there may be biases in the composition of the bone assemblage resulting both from the selection of certain material for working and the survival and identification rates.

For trades that make use of offensive materials, such as tanning, a location on or near the edge of settlement might be anticipated. Bone working is a relatively inoffensive practice, although like the related trades of hide- and horn working, the appropriate parts (hides, horn cores and lower limb bones) may be removed from the carcass early in the butchery process. The trades might therefore be expected to be found in the same locality, although there is no direct evidence of this here, and the presence of sawn scapulae and upper limb bones will have originated from a

later stage in the butchery process. The predominance of sawn antler in several mid-Saxon pits at Six Dials suggests a slightly later date for the activity there, perhaps indicating that there was a shift in focus or foci over time. One could envisage a number of properties across the town where bone workers lived, making use of the raw material provided by local butchers, with some change in availability or procurement strategy in the 9th century when antler became an important, if not the major, raw material for many bone workers. The concentration of bone working in specific properties and the apparently segregated nature of activities (removing epiphyses, forming blanks, finishing, etc.) might also indicate a form of control or certainly very specialised activity, albeit on a small scale, and this was certainly the case in London (Rielly 2003, 182).

Anderson's Road produced relatively little glass in comparison to SOU 14: only 13 fragments as against 147 (plus five beads) from the latter site. Even when the greater percentages (though smaller number) of pits excavated at SOU 14, and perhaps the slower and more meticulous nature of excavation at that site are taken account of, this still represents a significant difference. At SOU 14 no clear spatial or chronological pattern was discovered (Morton 1992, 152), and the assemblage from Anderson's Road can add nothing further in this respect. However, the sherd of imported pottery with a residue of melted glass, perhaps part of a crucible, might suggest that some of the glass may have been brought to the Site as cullet for recycling. Bead making is one possibility, and five beads were found at SOU 14.

Relatively small concentrations of smithing slag came from pits 1552, 1751 and 2018, only the latter of which contained any worked bone. No concentrations of slag are reported from SOU 14, and the recent excavation does, therefore, provide new evidence for iron-working in the vicinity, though the location of this has not been established.

Overall, where there was evidence for industrial activity, the evidence from Anderson's Road and SOU 14, set alongside that from other sites in the vicinity, confirms the general impres-

sion from Hamwic of a patchwork of small-scale crafts and industries carried out side-by-side in different properties. The proximity of the waterfront may have been of some influence, perhaps in terms of the quantities of imported pottery and glass present in the area, and possibly some households may have been involved in intermittent trade-related activities, but this is more difficult to demonstrate. What is perhaps most striking is that although SOU 14 and its immediate surroundings have a comparatively large amount of occupation evidence, the rest of the Site does not. The south-western half of the Site, extending to within a few metres of Chapel Road, appears to have been an open area with little or nothing going on. A few, shallow pits may have been dug to extract brickearth for daub, but no rubbish appears to have been disposed of in them, and it might be surmised that the area was primarily used for grazing, though perhaps not on a permanent basis.

Diet and environment

If the worked bone assemblages are excluded, the consistency of age at death and species proportions between the Anderson's Road animal bone assemblage and other Hamwic sites (and indeed mid-Saxon sites elsewhere) may be interpreted as a result of a centralised food supply, perhaps a tithe payment controlled by an elite (Hodges 1982). This would certainly explain the limited range of animal products, and the even more restricted suite of elements that were available to, if not selected by, bone workers. The inhabitants seem to have been eating pre-butchered joints, domestic fowl and geese, and whole small fish. The main meat source would have been domestic mammals, especially cattle, brought into the town from the immediate hinterland (Bourdillon 1980). Sheep would typically have already been sheared several times although some of these, and many of the cattle, may have been bred for meat and killed at a relatively young age as they reached their maximum size. Pigs may have been tethered in towns, although there is no direct evidence of this at Anderson's Road. Slaughter and butchery probably took place in defined areas, and local

butchers may have supplied the inhabitants of various parts of the settlement. Very little evidence for personal supplement to this diet is present, and it may be that access to land where wild animals could be caught was strictly controlled. Domestic fowl and geese may have been kept in yards, and were small in size, estuarine fish were readily available and marine fish would have been brought to the nearby waterfront or may have been salted. Despite relatively small absolute numbers, fish and domestic fowl and geese (and eggs) were probably a routine source of food, the former perhaps for fast days (Hagen 2002). However, it is worth noting that slightly later documents record that land rent could be paid in hens, geese, salmon and eels as well as domestic mammals, excepting pigs (O'Connor 1991, 283).

Overall, the similarity of the assemblages of plant remains analysed at Anderson's Road to those seen at the Stadium site would suggest that the former are largely derived from a similar range of domestic activities. However, it is notable that evidence for charred cereals, mineralised material and waterlogged material relating to economic plants was much less at Anderson's Road, probably reflecting the peripheral nature of the Site. This is perhaps best illustrated by the comparative paucity of cereal remains, predominantly preserved by charring, which can be related to the processing of cereals for domestic use, the waste from processing frequently being discarded onto the fire. In addition, the wetland species were by comparison quite common, particularly in pit 2059, probably reflecting the Site's proximity to the salt marsh to the south. Pollen analysis (from pit 1605) also suggests the presence of local salt marsh, although the large quantity and diversity of pollen represents a range of sources including grassland, cereal crops and disturbed ground, with much of the pollen probably entering the pit through domestic waste, animal excrement and human faeces.

After Hamwic

Following the decline of Hamwic during the first half of the 9th century, the only indication

of a Late Saxon presence at Anderson's Road comprises three joining sherds of flint-tempered pottery from the top fill of a mid-Saxon pit in the cluster on the east side of the Site. The waterfront lay a further 75m or so to the east, and this is known from documentary sources to have continued in use as the *wic hythe* into the Late Saxon period. Archaeological evidence for this has been provided by a sequence of two bow-sided buildings on SOUs 16/21, both assigned to this period (Morton 1992, 164–5). It seems, however, that this Late Saxon activity was restricted to a small part of the river frontage and apparently did not extend as far west as the site at Anderson's Road.

The medieval remains, comprising mainly shallow ditches, all lay within 80m of Chapel Road, an important route which is likely to have stayed in continuous use from the mid-Saxon period onwards. The majority of the ditches were aligned parallel to Chapel Road and probably represent field boundaries, or perhaps a series of smaller plots or enclosures. From the limited area exposed it is difficult to be more certain, but the probable wheel ruts in the northern part of the Site, parallel and 30m from Chapel Road, might suggest a little more was going on in this area than simply fields. Perhaps the arrangement may have had something to do with Trinity Fair associated with Trinity Chapel that lay at the east end of Chapel Road. There is little dating evidence, but the recutting of some of the ditches and a few sherds of High and late medieval pottery might indicate that the boundaries were maintained throughout much of the medieval period. We know that St Andrew's Croft was divided into several acre-plots in the Middle Ages and the ditches presumably mark some of these boundaries. The so-called Elizabethan map of Southampton, painted around 1600, marks a clear north–south division in the field below Chapel Road (Morton 1992, 24) and a north–south ditch uncovered in the evaluation trenches on the west side of the Site (see Fig. 4) appears to correspond with this. However, none of the other ditches or field divisions appear on later maps. Presumably they had been subsumed into larger fields by the 18th century, or had been obliterated by

the encroaching salt marsh. The development of more extensive salt marsh in this area, to the north of Chantry Lane/Marsh Lane is now thought to have occurred during the mid- or later 18th century (Scaife 2004 and above), rather than prior to the mid-Saxon period as has previously been assumed. Reclamation and new housing development in this area did not take place until the rapid expansion of Southampton during the mid-19th century.

Concluding remarks

In brief, although the picture that is presented for this Site displays many similarities with that of other parts of Hamwic, it is also significantly different in some ways. Much of the Site can be interpreted as a largely peripheral area sometimes given over to grazing. Such a picture is made more remarkable by the fact that the Site lies very near to, and roughly equidistant from, the mother church to the west and the shoreline to the east, and what is taken to be a Saxon street connecting the church to the shore runs immediately to the north of the Site. More settlement evidence might have been expected in such a location, and it is becoming clear that the laying out and the functions of Hamwic were considerably more complex than were previously understood. Any future interpretation of Hamwic will have to take proper account of these facts.

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The site archive (Site Code SOU 1240) has been deposited with Southampton City Council Archaeology Collections.

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