ARCHAEOLOGICAL SERVICES WYAS

Church Walk (formerly Askew's Print Shop) Doncaster South Yorkshire

Archaeological Post-excavation Report Volume 1

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CLIENT

Doncaster Metropolitan Borough Council

Church Walk (formerly Askew's Print Shop), Doncaster South Yorkshire

Archaeological Post-excavation Report

Summary

This post-excavation report summarises the 1994 excavations conducted in advance of the North Bridge Relief Road by the now defunct South Yorkshire Archaeology Field and Research Unit at Church Walk, Doncaster, on the site of the former Askew's Print Shop. Following the temporary abandonment of the road engineering scheme and the subsequent closure of SYAFRU, Archaeological Services WYAS were contracted to complete post-excavation processing and assessment work, prior to eventual full publication of the results.

The open-area excavation and subsequent analyses have identified four main phases of activity representing nearly two millennia of occupation, from early Roman occupation through to the post-medieval or early modern periods. The archaeological remains included features associated with phases of the Roman fort; medieval tanning pits, crop-processing structures and domestic occupation; and also post-medieval tanning or tawing pits. Two large ditches of uncertain date and function were also recorded, relating to either phases of the Roman fort(s), or early medieval/medieval boundaries. Despite a high degree of disturbance, residuality and intrusion, the excavation results have provided important evidence of the chronological development of this key historical centre of Doncaster. The relatively large pottery assemblage recovered from Church Walk is of great local and regional significance. It has produced many new insights concerning ceramic trade and consumption during the Roman and medieval periods, and has facilitated the development of a medieval ceramic typology for Doncaster.

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Report Information

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Acknowledgements

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Many thanks must also go to the original SYAFRU staff and volunteers who took part in the Church Walk excavation project, but who at the time never got the chance to see the results of their efforts which have now finally been written up and presented here. Their hard work and enthusiasm has contributed much to the understanding of the development of this historical centre of Doncaster.

1 Introduction

Archaeological Services WYAS was commissioned by Doncaster Metropolitan Borough Council to undertake a post-excavation assessment of an archaeological archive from investigations on land off Church Way and Grey Friars Road, Doncaster (Figs 1 and 2). The site (DCW 94) was excavated during July-September 1994 by the now defunct South Yorkshire Archaeology Field and Research Unit (SYAFRU), in advance of the proposed North Bridge Relief Road scheme, and was funded by the Borough Engineers Department of Doncaster Metropolitan Borough Council. This post-excavation report outlines the excavated features and the stratigraphic phasing for the excavation, along with specialist artefactual and palaeo-environmental analyses. This assessment and analysis was carried out between October 2003 and November 2007.

Site location and topography

The excavation (hereafter referred to as 'the Site') was centred on SE 5749 0359, on land formerly occupied by Askew's Print Shop. The Site consisted of a roughly L-shaped open-area approximately 800m^2 in extent located to the north-east of the Minster Church; and bordered to the south-east by Church Way, to the north-east by Grey Friar's Road, and to the north-west by Church Street. The modern, heavily landscaped ground surface sloped gently to the north-east, from approximately 13m AOD at the western end of the Site to 10m AOD at the eastern end. The Askew's premises were built within a revetment into this slope in 1965, and along with early modern buildings and cellaring this caused considerable disturbance to some areas of the Site, particularly adjacent to the modern street frontage.

Soils, geology and land-use

The Site lay on a gravel ridge south-east side of the River Cheswold, a former southern subsidiary channel of the River Don. The River Cheswold was diverted into a culvert during the early 20th century, and the current course of the River Don north of the Site is the Doncaster New Cut, a 19th-century canalisation (Pollington 2007). The underlying solid geology is Sherwood Sandstone with sand and gravel drift deposits above, and alluvial silts and clays along the River Don and the former River Cheswold (BGS 1969a, 1969b).

2 Archaeological and Project Background

Archaeological and historical background

Prehistory

Although there have been isolated finds of Upper Palaeolithic and Bronze Age artefacts in Doncaster, mostly in the 19th or earlier 20th centuries (Buckland 1986; Magilton 1977; Manby 1973), the material has been predominantly unstratified, and much of the Bronze Age evidence is indicative of cremation burials with ceramic urns and associated material. To

date, there has been little evidence for Iron Age occupation in the Doncaster locale (Buckland and Magilton 1986: 17), despite the extensive evidence surrounding Doncaster for landscapes of field systems, trackways and enclosures originating in the late Iron Age and continuing in development and use throughout the Romano-British period (Chadwick 1999, 2004; Riley 1980; Roberts *et al*. 2007). There have been recent important finds of Iron Age roundhouses and enclosures at Balby Carr on the southern edge of modern Doncaster (Rose 2003; Rose and Roberts 2006), and a small section of gully containing impressions from a wattle fence was sealed underneath a Roman road surface at Hallgate (Richardson 2004), and may prove to be late Iron Age or very early Roman in date.

Roman Doncaster

Roman *Danum* consisted of a fort probably established around AD 70/71 to guard the highest navigable point on the Don and a possible crossing place, centred around the area of St George's Church (Fig. 2); and an associated civilian settlement or *vicus*. A *Danum* is mentioned in a few Roman documentary sources such as the 3rd-century AD *Antonine Itinerary*, the 5th-century *Notitia Dignitatum* and the 7th-century *Ravenna Cosmography*, but it is not clear if these even refer to Doncaster (Richmond and Crawford 1949; Rivet and Smith 1979: 329; Smith 1961: 29). The later 1st-century Flavian-period fort may have been approximately 3.7 hectares in area, and within an area broadly defined by the modern lines of Market Place and Baxter Gate to the south-east, High Fisher Gate and Grey Friar's Road to the north-east, Church View to the south-west, and the site of the former Doncaster College to the north-west (Pollington 2007, figure 5) (Fig. 2). The earliest fort probably had earth, turf and timber ramparts. A large ditch thought to be the defensive *fossa* of the Flavian-period fort was identified at High Fisher Gate in 1972 (Buckland *et al*. 1989), but much of the fort interior was probably destroyed by later Roman rebuilding, and the construction of the Norman castle and St George's Minster Church. During the 1960s and 1970s the construction of Church Way and buildings including Littlewoods Department Store removed archaeological deposits across an extensive area and often to a considerable depth.

Fragments of metalled surfaces that may have been internal roads within the fort were recorded east of St George's Church in the 1970s, including a possible road leading out of the north-east gate of the fort, found at Church Way in 1970-71 (Buckland 1978). The settlement and fort at Doncaster were served by a north-west to south-east aligned road broadly perpetuated by the lines of French Gate, Hall Gate and High Street, and then leading past the vexillation fortress at Rossington Bridge, the possible fortlet and river crossing at Scaftworth near Bawtry, and then on to Lincoln. The Don itself might have been crossed in the same area as the medieval Greyfriars Bridge (Buckland and Magilton 1986: 30), and this road ran past the different phases of fort at Robin Hood's Well, Burghwallis (Buckland 1986), and on to Castleford. The potential western route through the *vicus* is more problematic, although a road was identified in French Gate at right angles to High Street. A later replacement road may lie beneath St Sepulchre Gate and Baxter Gate, although this is still unproven.

Evidence for burning within the area of this fort and the find of three coins of Domitian minted in AD 86-87 at Church Way in 1971 has led to the suggestion that there was controlled demolition followed by refurbishment associated with reorganisation of Roman military occupation in northern Britain (Buckland 1978: 247, 1986). The fort may have been abandoned again during the AD 120s, due to the movement of units from the south up to the line of Hadrian's Wall (Buckland 1986: 13). It has been suggested that in the mid to late second century AD, the fort was substantially rebuilt with a stone rampart, although smaller in plan at *circa* 2.3ha (Buckland 1986; Hartley 1980: 5-6). Antiquaries noted the presence of large sections of masonry thought to be part of this Roman wall on St George Gate and in the garden of Clergy House (e.g. Miller 1804: 34; Sheardown 1868), and re-excavation of these areas in the 1960s and 1970s identified parts of the south-east and north-east and north-west later fort wall respectively. A large stretch of the lower courses of this fort wall was revealed at Church Way and other sites east of St George's Church in 1970-71 (Buckland and Dolby 1972; Buckland and Magilton 1986; Buckland *et al*. 1989), and this is now a Scheduled Ancient Monument (SAM, no. SY1216). Later robber trenches following the line of this masonry were found north of Baxter Gate. The line of the south-west wall was only found at one small site in 1986, in the car park of what is now a large supermarket (Little 1986). Occupation of the fort continued until *c*. AD 350, after which it might have been gradually abandoned. The coin evidence ends around AD 390 (Parker 1987: 31).

The distribution of artefacts suggests that the civilian settlement was concentrated to the south and east of the fort between Market Place, Silver Street and Cleveland Street, and Printing Office Street and St Sepulchre Gate (Buckland and Magilton 1986: figure 3; Pollington 2007). Three parallel ditches identified in St Sepulchre Gate might indicate different phases of defences for this settlement (Buckland and Magilton 1986: 31). Finds made in the Market Place area during the 19th and early 20th centuries included tessellated floors, Roman pottery and coins (Buckland *et al*. 1989: 52), and during the construction of the Arndale Centre (now the Frenchgate Centre), Romano-British pits, wells and possible traces of timber buildings (Buckland and Magilton 1986). A Roman altar was found on St Sepulchre Gate in 1781, and several archaeological excavations to the south of High Street and between High Street and Market Place found well-preserved Romano-British deposits including remains of stone and timber buildings with finds including intaglios, brooches, oil lamps and gaming counters suggesting high-status occupation (ASWYAS forthcoming; Atkinson 1992; Buckland and Magilton 1986; Sydes and Barkle 1991).

Ditches, gullies, pits and inhumation and cremation burials found near Wood Street, Hall Gate and Christ Church may indicate civilian occupation extending eastwards along the road, with cemeteries presumably outside of the main *vicus* limits (Atkinson 1994, 1995; Belford 1996, 1997). Coins of 4th-century date and other artefacts testify to inhabitation continuing in the *vicus* until this date, but the extent and nature of occupation within the fort and the civil settlement from the late 4th-century AD is largely unknown.

Post-Roman, Anglo-Saxon and Anglo-Scandinavian settlement

There is very little historical and archaeological evidence for this period within Doncaster, yet discussions of it are critical to past and current interpretations of the evidence from both the 1970-71 and 1994 Church Walk excavations. Doncaster may have fallen within the territories of Mercia to the south and Elmet to the north at different times, but by the 7th-century it might have been incorporated within the Anglo-Saxon kingdom of Northumbria (Buckland 1986; Buckland *et al*. 1989). East of Doncaster, metalwork finds from the River Don gorge at Cadeby and Edlington Wood include metalwork of Northumbrian design or influence (P. Robinson pers. comm.).

Viking Jorvik was established in AD 876, and by AD 886 Doncaster was within the area of northern Britain called the Danelaw, under Scandinavian control. Many place-names around Doncaster and across South Yorkshire may derive from this period (Buckland *et al*. 1989: 25-29; Parker 1987: 35; Smith 1992: 65), but this form of evidence is usually problematic, and there is very little archaeological evidence for such settlement. A recent excavation at Adwick-le-Street to the north-west of Doncaster found a probable ninth century burial of an adult woman accompanied by two copper-alloy 'tortoise' brooches, a bronze bowl, and an iron knife and latch-lifter (Speed and Rogers 2004). Isotope analyses indicated that she had grown up in Scotland or Scandinavia, and thus may have been of Viking descent. By AD 955 the Scandinavian kingdom in northern Britain had disappeared with the re-emergence of Northumbria as the main political and military power in the region. Citations of possible early 8th to 10th-century references to Doncaster in historical documents (Parker 1987: 33-35) are highly dubious. Only one literary source is relatively reliable – Doncaster is named (but not otherwise described) as part of the bequest in the *c*. AD 1002-1004 will of Wulfric Spott, a wealthy Mercian nobleman who seems to have owned lands there.

It has been proposed that the post-Roman and Saxon period saw continued occupation of the area of the Roman fort (Buckland *et al*. 1989: 15), but there is virtually no archaeological evidence for occupation of this date in Doncaster. At Site DT east of St George's Minster Church, a small hearth of sandstone flags was associated with late Roman pottery, Roman roof tiles and just one sherd of 6th-century pottery (Buckland *et al*. 1989: 178). In a recent reassessment of the Anglo-Saxon pottery evidence from Doncaster, this sherd has been confirmed as part of a stamp-decorated early Anglo-Saxon Greensand-tempered ware urn (Vince 2003: 2). A decorated bone handle and a twisted silver ring are isolated finds of 7th to 8th-century date (Pollington in prep.).

Two large, parallel ditches were recorded during excavations east of St George's Church and on Church Way during the 1970s (Sites DV 72 and DQ 70), and also in 'watching briefs' to the north-west of Baxter Gate (Site DA 72) and at St George Gate in 1967 (Site DB) (Figs 2-4). These were on either side of a smaller ditch thought to be of later Roman date and associated with the fort. Somewhat confusingly though, to the south a ditch in between stretches of the two large ditches at Baxter Gate Site DA 72 was interpreted as probably

contemporary with the 'inner', putative post-Roman ditch (Buckland *et al*. 1989: 82), or perhaps even with the recut of the 'inner' ditch observed at Church Way Site DQ 70. The 'inner' large ditch was interpreted as being of Anglo-Scandinavian origin, the 'outer' large ditch of Anglian construction (Buckland *et al*. 1989: 74, 84, fig. 12).

The two ditches had differing archaeological 'signatures', and it is worth outlining these here because of the importance placed on these features for phasing the development of this part of Doncaster. The 'inner' ditch was generally V-shaped in profile, 6.5-7.4 metres wide and 2.5-3m deep. The deposits were notably asymmetrical, and had appeared to have silted, slumped or been dumped from the south-west side or innermost edge of the ditch (Buckland *et al*. 1989: 75-76, 78-79). It was thought that the differential infill was due to slumping from a bank on the inner edge of the ditch, thrown up on top of the remnants of the Roman wall, although there was no stratigraphic evidence for this. The primary silts contained a few abraded Romano-British pottery sherds at DV 72, but no artefacts at DQ 70. Secondary fills at DV 72 lacked finds, but the upper fills contained Hallgate B and A pottery of 12th to 13th-century date, then 14th-century material. A recut was identified at DQ 70 that contained mortar and limestone rubble, Romano-British pottery, 'Saxon grass-tempered ware' and 12th-century pottery. A large later truncation event was also recorded. However, recent re-appraisal of the pottery evidence including thin-section analyses concluded that the 'grass-tempered' sherds were in fact Romano-British coarsewares, primarily hand-made calcite-tempered vessels from the Vale of Pickering or wheel-thrown shell-tempered wares from the south-east midlands (Vince 2003: 2-3).

The 'outer' ditch was more U-shaped in profile and varied between 7.3-8.5m in width, and was at least 2m deep. In contrast to the many layers of silting, slumping or backfilling in the 'inner' ditch, the 'outer' ditch contained just a few fills including very thick and homogenous deposits (Buckland *et al*. 1989: 79-82). There were a few abraded Romano-British sherds recovered from the fills at Sites DV and DQ, with four 'grass-tempered' sherds identified as deriving from a supposed Anglo-Saxon vessel at Site DQ. Once again though, re-analysis of this pottery has demonstrated that it is actually vesicular calcite or shell-tempered coarse Romano-British ware (Vince 2003: 2-3).

One or both of these ditches may have been post-Roman defences, used by or against Scandinavian forces (Buckland and Magilton 1989: 84; Hall 2003: 177; Parker 1987: 35), but this suggestion was based on little stratigraphic evidence, and the ceramic data have been comprehensively re-interpreted (Vince 2003). What was originally a tentative hypothesis has become a 'factoid' or an erroneously established fact that has unduly influenced subsequent interpretations. For example, a 15th-century gilded strap mount depicting a horse and rider found at the Askew's Site (see Cool below) was rather fancifully misidentified as a 'ninth century dress ornament depicting a valkyrie figure' (Webster 1996: 35). Prior to the 1994 Church Walk excavation, only one sherd of pottery found in Doncaster was earlier Anglo-Saxon in date, and there was no conclusive evidence to place any of the large ditches excavated during the 1970s into the Anglo-Saxon or Anglo-Scandinavian periods.

Norman and medieval occupation

A Norman castle was constructed on the site of the Roman fort, although due to later disturbance including the construction of St George's Minster, its precise size and location are unclear. Medieval literary references and the descriptions by antiquaries such as Leland and Camden of castle ruins may have confused Roman fort and Norman castle remains (Buckland *et al*. 1989: 86-87), and the archaeological evidence for its existence rests on a large ditch interpreted as a bailey ditch or ringwork, recorded at Sites DX 72 (Church Street), DS 70 (the former Children's Library, now under Church Way) and DT 72. The only complete section excavated though was at Site DT 72 to the east of St George's Minster Church, and this revealed a feature up to 9.70m wide and nearly 4m deep, with a possible recut (ibid.: 88-90, figure 15). These ditch sections produced sherds of Stamford Ware and Hallgate A pottery, suggesting infilling during the 12th-century. The extent of the castle and the line of its ditch or ditches are still conjectural, however, although it is proposed as extending southwards to Church Way and perhaps as far west as Church View (Pollington 2007). On the some 18th and 19th-century town maps the curving line of the south-eastern boundary of St George's churchyard follows the alignment of the proposed bailey ditch (Alexander 1840; Ordnance Survey 1852; Townsend *c*. 1769). It is presumed to have been constructed in what would have been the north-west corner of the early Roman fort and within the area of a putative burh, but it is not clear what upstanding wall and bank remains and/or ditches may have remained from earlier phases, and how (if at all) these were incorporated into the castle defences (Buckland *et al*. 1989: 96). It is not even known if it was a ringwork or of motte-and-bailey construction.

It is not known if St George's Minster Church had an Anglo-Saxon foundation, or originated as the chapel of the Norman castle. The present church was rebuilt after 1853 when the medieval church was destroyed by fire, and the architect of the new church Sir George Gilbert Scott surveyed the medieval remains, including what he thought was mid-13th-century architecture (Buckland *et al*. 1989: 98; Jackson 1855). A grave marker or headstone with a simple incised cross of 11th or 12th-century date was found re-deposited at the Low Fishergate site (Lilley 1998). Doncaster itself is not mentioned in the Domesday Book of *c*. 1086, but probably fell within the manor of Hexthorpe (Buckland *et al*. 1989: 31).

Around AD 1200 the castle was demolished, and at Site DT east of St George's Minster Church a large medieval building (possibly the moot hall) was constructed across the backfilled presumed bailey ditch. This was a time when the town began to expand and prosper, with the granting of a market charter by Richard I in AD 1194. It is possible that the town's defences were constructed during this period, consisting of large ditches and ramparts with gateways situated on four of the principal roads (Hey 1979: 52). A second church (St Mary Magdalene's) was situated within the market place, and this seems to have acted as the parish church (Hey 2003: 130). By *c*. 1320 the church was downgraded to the status of a chapel and St George's became the parish church, having greater space for an expanding graveyard away from St Mary Magdalene's crowded position (Hey 2003; Slater 1989: 5). St

Mary's was dissolved in 1547, and by 1575 had been converted for use as a town hall and grammar school. The remains of St Mary Magdalene's medieval church were re-discovered during demolition works in advance of the construction of the new Market Hall in 1846. Illustrations show the remains of the nave of the Norman Church, though this too was subsequently demolished. In the late 19th-century, numerous burials were found in the area of Market Place, which had formed part of St Mary's graveyard, and more recently in a series of archaeological investigations (e.g. Belford 1996; Bell and Mincher 2002).

In 1284, a Franciscan Friary was founded to the north of the Church Way on the north-west side of the River Cheswold along Marsh Gate (Fairbank 1893; Page 1913: 297). At the friary's dissolution in 1538, the site was around 2.6 hectares in area, including fish ponds and a cottage in French Gate. In 1346, a Carmelite Friary was established to the west of High Street and a request for the consecration of the ground was made in 1351 (Page 1913: 267; Slater 1989: 53-55). The friary was located in the southern part of the town in an area bounded by High Street, St Sepulchre Gate and the medieval town ditch. At the time of its dissolution the walled friary precinct was approximately 1ha in extent and enclosed several buildings and houses, as well as a tower, dovecote, a garden and an orchard (Buckland *et al*. 1989: 106; Page 1913: 269). After the dissolution the friary passed into private hands.

Most of the medieval buildings within Doncaster were demolished from the late 18th-century onwards, although some were probably also thoughtlessly destroyed during the 1960s and early 1970s. Later buildings still occupy the front of narrow burgage plots of medieval origin, particularly on both sides of Hall Gate and Baxter Gate. Archaeological excavations since the 1960s have provided evidence of domestic medieval buildings and structures across the town centre, but along the southern side of the line of the River Cheswold a number of sites have produced remains of buildings and tenements as at the excavations at Church Street in 1967 and Low Fishergate in 1994 (Lilley 1994).

As usual within a medieval town, a range of commercial and industrial activities were undertaken in Doncaster, many organised at the household level and in close proximity to dwellings. Some surviving street names attest to these with Baxter Gate and Fisher Gate the streets of the bakers and fishermen respectively, but lost names include 'Roper Rowe', the rope-makers street, and 'The Shambles' – the street of the butchers (Smith 1961: 30-31).

One important medieval industry in Doncaster was pottery manufacture. At the corner of Market Place and Baxter Gate a kiln was discovered associated with late 11th to early 12th-century pottery wasters (Buckland *et al*. 1989), whilst at Bradford Row near Hall Gate two kilns and associated pits excavated in 1964-1965 produced pottery thought to be late 12th to late 14th century in date (Buckland *et al*. 1979). A similar but slightly earlier kiln in use from the mid-11th century to the 12th century was excavated at 53-54 Hall Gate in 1995 (Atkinson 1995; Cumberpatch *et al*. 1998-99). Another kiln was briefly described further to the west within the area of the Tesco supermarket car park (Little 1986).

Tanning also appears to have been a major industry in Doncaster during the medieval period, and these decidedly noxious practices were carried out within the town walls. The tanners had their own guild, and related activities such as horn and leather working were taking place at Low Fishergate (Lilley 1998, see below). A later medieval horn-working pit was also recorded at Site DX on Church Street (Buckland *et al* 1989: 204), and a possible medieval tanning pit was recently found on Hall Gate (Richardson 2004).

In the vicinity of the Church Walk Site, during the 1970s excavations at sites DT, DQ and DR revealed medieval features including a key-hole shaped oven and the pitched stone footings of the medieval Moot Hall. This was built by the civic authorities as an administrative centre, and was probably the building described by Leland in the 1540s as 'an olde Stone House at the Est Ende of the Church of S. George now usid for the Town House' (Brayshay 1887: 238). It was probably abandoned by the early 17th-century and may have been leased to tanners, but in 1767 it was sold off for its stone and demolished (Buckland *et al*. 1989: 68). Research excavations in 1978 within the garden of St George's House (also called the Clergy House) north of the church revealed a medieval lime-kiln cut through the possible line of the Roman fort wall (DCH) (ibid.: 205-208). More recent excavations on the site of Doncaster College found traces of a 13th or 14th-century building with an internal mortar floor and an external cobbled surface (Richardson and Whittaker 2004). Large-scale excavations by SYAFRU at Low Fishergate in 1993-1994 found a series of well-preserved medieval tenements around 4m below the modern street level. Early plots had clay sills for timber walls, which were superseded by street frontage, stone-footed buildings with yards behind them leading to the bank of the River Cheswold. Here there were draw-docks for small boats and timber revetments, some of the latter re-using medieval clinker-built boat timbers (Allen *et al*. 2005). There was also evidence for industrial activities such as iron working during the 11th or earlier 12th centuries, and horn and leather working including shoe manufacture during the 14th and 15th centuries (Lilley 1998).

Post-medieval and early modern Doncaster

Post-medieval Doncaster prospered through the 16th and 17th centuries, acting as a staging post on the Great North Road and continuing as an important inland port and market centre. Eighteenth and early 19th-century maps of Doncaster indicate that the town preserved much of its medieval character up until this time, with many narrow burgage plots fronted by timber-framed buildings, and narrow streets following the medieval street plan (Alexander 1840; Colbeck 1820; Townsend *c*. 1769). The earliest surviving buildings in the town centre appear to be two shops at 4 and 5 High Street, which probably originally date to the 17th century (Pollington 2007). From the later 18th century, however, there was extensive rebuilding across Doncaster, and many existing shops and houses in the town centre date from this period. One building of this period close to Church Walk is the Clergy House north-east of St George's Church, built in 1786 for Edward Miller, the organist at the Minster church and historian of Doncaster (Miller 1804).

A late 18th-century wooden-lined tanning pit was found north of Church Street at Site DX (Buckland *et al*. 1989: 192-194), and a 17th or 18th-century pit full of horn-cores at Low Fishergate (Lilley 1998). During the construction of the foundation trenches for Askew's Print Shop in 1965 (Site DL, since partly incorporated within the 'footprint' of DCW 94), it was noted that although the majority of the stratigraphy was truncated by the remains of 18th-century street frontage buildings, behind these were at least six pits lined with oak planks and containing large quantities of post-medieval pottery. One pit lay below the water table and contained waterlogged oak chips. These pits were possibly associated with tanners to whom the disused Moot Hall was rented in the 17th and 18th centuries (Buckland *et al*. 1989: 105).

From the late 18th century, Doncaster began to transform from a medieval and post-medieval market town into an important industrialising centre within South Yorkshire. Large-scale tanning continued in the north-eastern part of Doncaster, however, with a tannery located on the south bank of the River Cheswold, but demolished with the construction of Grey Friars Road in the early 20th century (Ordnance Survey 1893). Another tannery was situated further west between Friendly Street and Low Fisher Gate, but again went out of use in the first half of the 20th century. Brewing was also a major industry in Doncaster, and a malt kiln was operating on the north side of Factory Lane from the early 1850s (Ordnance Survey 1852). Late 19th-century malt kilns were also situated to the north of High Fisher Gate and Friendly Street (Ordnance Survey 1893).

In the vicinity of the Site, there was late 18th-century clay pipe production north of Church Street (Buckland *et al*. 1989: 200). This is the only known clay pipe kiln of the period known from the whole of Yorkshire, belonging to Samuel Lumley from *c*. 1768-1782 (White 2004). Significant quantities of clay pipe fragments and production waste were recovered close to the Site during evaluations and watching briefs undertaken by Gifford and Partners associated with the North Bridge Relief Road scheme, at Church Way, Grey Friars Road and underneath the multi-storey car park that was once opposite Church Walk (MSCP3-01). These remains were predominantly 19th and early 20th century in date, suggesting that pipe makers were continuing to operate in this part of Doncaster, and/or dispose of their waste well into this period (White 2005). Some products were the work of John Sharratt (working in 1820-1850), one of a series of pipemakers listed in trade directories for the area.

Project background

In 1989, the Department of Transport made an order under the Highways Act 1980 to significantly improve the A638 trunk road, as part of the proposed North Bridge Relief Road project. Due to the impact of this scheme upon surviving archaeological remains, and following archaeological evaluations that established the presence of well-preserved archaeological deposits, two excavation projects ensued at Low Fishergate and Church Walk. The Low Fishergate excavation was carried out over six months during the winter and spring of 1993-1994 by SYAFRU, and was directed by Ms J. McOmish (née Lilley), subcontracted

from the York Archaeological Trust. Following this project, Church Walk was then excavated by SYAFRU over three months during July-September 1994. This project was co-directed by Mr Stephen Webster and Mr Adrian M. Chadwick. A watching brief was also maintained on a pipe trench being dug along Grey Friars' Road. Due to changes in government plans, the road scheme was cancelled soon after the excavation ceased, and although basic archive checking was undertaken and some archive plans and section drawings prepared, post-excavation work was not completed and detailed specialist analyses were not begun. With the closure of SYAFRU in 1996, post-excavation work was halted indefinitely.

After this cancellation, one of the co-directors (AMC) left SYAFRU to work elsewhere, but in 1996 the remaining co-director Stephen Webster prepared a short interim report of the Church Walk project for *Archaeology in South Yorkshire 1994-1995* (Webster 1996), and this remained the only written description of the Site until this reassessment. The Low Fishergate excavations were partly written up as a very basic Level III report by the York Archaeological Trust (Lilley 1998). In 1999, a new and more extensive North Bridge Project was initiated, and as part of the archaeological commitment to this scheme, Doncaster MBC made funds available to complete the post-excavation for both sites, with a view to full academic and popular publication of these two tremendously important projects. York Archaeological Trust staff are currently working towards the publication of Low Fishergate in the *Yorkshire Archaeology Journal* (J. McOmish pers. comm.). This report represents post-excavation analysis of the Church Walk site (DCW 94) only.

3 Aims and Objectives

Archaeological Services WYAS prepared an evaluation proposal for the post-excavation assessment and this outlined the aims and required methodology to assess the archive and produce a written report.

The aims of the Phase 1 assessment were:

- to establish the locations of all parts of the archive;
- to establish the nature, current state and integrity of the archive;
- to lay out and describe the work required to enable the completion of analysis of each part of the archive;
- to propose and describe discard and retention strategies and make recommendations, where appropriate;
- to prepare a summary statement of the above points that includes detailed recommendations for work required in Phase 2 (detailed analysis of the archive to publication standard), with justifications.

The aims of the Phase 2 post-excavation work have been to:

- to provide a brief written description of the archaeological features identified at the Church Walk Site;
- to compile a complete and phased stratigraphic matrix for the Site, and to establish and describe the stratigraphic relationships between the features;
- to undertake more detailed specialist analyses of the different categories of artefacts and materials recovered during the excavation, and assess the local and regional significance of these;
- to propose and describe the principal phases of development and human activity on the Site, based on stratigraphic relationships and artefactual data;
- to place the excavated features and artefacts within a broader interpretative framework relating to the historical development of Doncaster, and with regard to other local and regional evidence for key archaeological issues such as craft and production activities or industry, agriculture, trade, social practice, environmental conditions and inhabitation.

4 Methodology

The site archive contains all the data collected and retained during the excavation, including records (written, drawn, photographic and digital data), finds and environmental samples. In accordance with English Heritage's *Management of Archaeological Projects 2* (English Heritage 1991) the archive has been quantified, ordered, indexed, checked and cross-referenced to be internally consistent. Catalogues of the archive, context drawn and photographic records, artefacts, ecofacts and samples were reproduced in Appendices I-VII of the assessment report (Martin and Richardson 2005). The written, drawn and photographic records were assessed in order to produce a summary of the Site's archaeology by phase, supported by a stratigraphic matrix and preliminary phase plans (Martin and Richardson 2005). All available finds, environmental samples and residues were assessed and analysed by suitably qualified and experienced staff. Recommendations regarding retention or discard policies were also made in this earlier report.

Some artefacts and drawn sections and plans were missing from the archive, the latter presumed to have been mislaid when Doncaster Museum staff moved the archive from the old SYAFRU premises in Darnall, Sheffield. On a number of occasions, staff at Doncaster Museum were contacted regarding these absences, but no response was forthcoming. As a result, all artefacts and records not currently held by Archaeological Services WYAS are deemed to be missing. In addition, a series of architectural fragments stored outside the Darnall premises were never moved to Doncaster Museum, and were left until 2007 when

they were moved directly to ASWYAS. The string securing waterproof labels to these stones had by this stage rotted off, thereby mixing up the labels and leaving the fragments without a secure context. The entire archive is currently held by AS WYAS, but with appropriate approval a discard policy will be implemented prior to its return to Doncaster Museum.

5 Results

Assessment of the primary archive and the production of a comprehensive stratigraphic matrix have identified four broad phases of activity at the Site (Fig. 4). These four are: Roman (three sub-phases), Roman/medieval, medieval (four sub-phases) and post-medieval/modern. This summary account of the stratigraphic record provides a description of each phase/sub-phase and describes the features in more detail. Only selected sections and detailed plans of principal features and a range of feature types have been reproduced.

Phase 1: Roman

Phase 1A: Early Roman (1st to 2nd centuries AD) (Fig. 5)

The earliest phase of occupation on the Site comprised two truncated ditches, pits and evidence of structures in the form of linear timber settings or beam slots and stake/post-holes. The majority of features have been assigned to this phase on their stratigraphic associations, but the small quantity of dateable artefacts recovered from these features indicate a date range spanning the 1st to 2nd centuries AD.

Ditch 253 (Figs 5-6, S.53)

This ditch was situated in the central area of the Site and was orientated on a north-west to south-east alignment. It was up to 2.50m wide and 0.70m deep, and had a broad, U-shaped profile. It contained three deposits ranging from mid brown orange to green brown sandy silts. The asymmetrical accumulation of deposits hints at the presence of a bank on the western side of the ditch. The primary fill of the ditch contained pottery including samian dating to approximately AD 80-110, rusticated greywares and 'native' jars. This assemblage indicates a mid-1st to early 2nd-century AD date for the primary infilling of this ditch.

The ditch appears to have been open and/or utilised for a several centuries, with the single pottery sherd recovered from a secondary deposit (252) suggesting a mid to late 2nd-century date. The upper fill (219) yielded a much larger Roman pottery assemblage, which although containing earlier material such as mortaria from northern France dated to *c*. AD 65-100, also produced sherds attributed to the later 3rd and 4th centuries, indicating deposition in the second half of the 4th century (see Leary below). Deposit 219 also contained a Postumus coin dated to AD 259-268 and a frit melon bead of mid-1st to mid-2nd-century date (see Cool below, No. 4). Two sherds of medieval pottery recovered from deposit 219 were probably intrusive, perhaps from later pit cut 152. Oat grains and oak charcoal were recovered from one of its fills (227).

The relatively shallow depth of this ditch and the lack of Roman features in this north-eastern part of the Site might be associated with the extensive later truncation observed in section by the excavators and believed to be associated with medieval activity (see below Phase 3, Webster 1996: 33). The northern extent of this feature could not be determined as this lay underneath the area set aside for spoil stockpiling, and it was also truncated away by early modern cellaring. It is possible, however, that ditch 253 originally continued to the north-west underneath the disturbed central part of the Site, but then turned at right-angles to the south-west, where ditch 530 might represent its continuation (see below).

Ditch 530 (Figs 5-6, S.137)

Situated at the north-western corner of the Site was a possible north-west to south-east aligned ditch (530), cutting into natural deposits. This feature was heavily disturbed by later activity, but was least 1.20m wide and 2.00m deep. It contained four deposits, the primary fill (375/529) consisting of grey-black clay containing angular limestone blocks and rubble up to 0.30 long, 0.30m wide and 0.25m thick, which might indicate deliberate backfilling. The only artefacts were found in the primary fill and included a Vespasian/Titus coin of AD 69-81, a fragment of samian dated to AD 70-110 and a glass vessel fragment of the late 1st to mid-2nd-century AD (see Cool below, No. 20). These artefacts, together with the alignment of this feature, suggest that it was related to the earlier Roman activity on the site. Oat grains and oak charcoal were recovered from one of its fills (529).

Pit 174 (Figs 5-6, S.44)

To the east of ditch 253 was a sub-circular pit (174) 2.1m long, 1.05m wide and 1.65m deep. It had traces of some form of sticky clay lining (209) and material that may have formed within voids left by rotted timber or wattle lining, perhaps indicating that it was used for storage or even holding some form of liquid. Pottery was recovered from the majority of fills in this pit and included samian dated to AD 70-110 from deposits 209 and 217. The upper fill of the pit (173) produced nineteen sherds of Romano-British pottery and a fragment of a glass beaker (see Cool, No. 17). This assemblage can be dated to the mid to late 1st to early 2nd century. A sherd of Torksey ware retrieved from deposit 173 might have been intrusive, reflecting later disturbance. Interestingly, palaeo-environmental analysis of soil samples found concentrations of barley and wheat grains in two of the fills (173 and 234) of this feature (see Alldritt below), but probably not in sufficiently high quantities to represent cereal storage. Rather, this may represent dumped cereal waste.

Pits and stake-holes

To the south-east of ditch 530 was a group of nineteen stake-holes (598-614 and 641-642) and three pits or post-holes (645-647), all filled with similar dark grey-brown silty sands. The majority of these features were truncated by construction cut 629 for wall 411 (see below). Artefacts recovered from the shared fill (562) of features 614 and 645 included an enamelled seal box lid (Cool, No. 26), a linch pin (No. 28), a glass vessel fragment (No. 20) and pottery

sherds all dating to the late 1st to early 2nd-century AD. Post-hole 646 also produced fragments of a late 1st to mid-2nd-century glass bottle (Cool, No. 17). Although the alignment of these stake-holes and post-holes with later wall 411 may be coincidental, it suggests that there was a linear boundary or spatial division in this area prior to the construction of the wall, and/or that later Roman fort constructions followed the orientation of earlier features. These features may have formed part of an unknown structure. Levelling deposit 521 (Phase 1C) sealed many of these features.

'Beam slots' 745 and 750, and discrete features 720/722, 743, 747, 754 (Fig. 5, Plate 3)

A series of linear features were identified at the south-western corner of the Site. Feature 750 extended for 7.60m in length from the south-western edge of excavation to where it was truncated by the construction cut (629) for the later Roman wall footings. It was 0.5-0.6m wide and 0.42m deep with a U-shaped, flat-based profile, and contained three deposits all with Romano-British pottery of mid-1st to early 2nd-century date that included early Flavian samian (see Leary below, Nos. 2-6). The primary fill (752) contained burnt clay.

Extending for 1.90m at a right angle from feature 750 was a further linear cut (745). It had a similar profile to cut 750 and was 0.35m wide and 0.40m deep, and the deposits within 745 and 750 indicate that they were both contemporaneous, and these were possibly linear 'beam slots' for horizontal timbers, a common form of Roman timber building construction (e.g. Goodburn 1995). These two slots were truncated to the north-west and west, although it is possible that the truncated linear feature 722 may be associated with these features. This was 0.60m long, 0.25m wide and 0.25m deep, but was cut by a sub-rectangular pit or post-pit (720). This was 1.20m long, 0.90m wide and up to 0.35m deep, and its single fill (719) produced another frit melon bead of mid-1st to mid-2nd-century date (see Cool below, No. 3). Within the beam slots were several associated stake or post-holes.

Only two of these features (sub-rectangular post-holes 743 and 754) can be assigned to this phase on artefactual or stratigraphic grounds. Post-hole 743 was cut by Phase 3B feature 728, whilst the single fill (753) of post-hole 754 contained Roman pottery of Flavian date (see Leary below). The remaining features could easily belong to either Phase 1A or 1B and hence have been discussed below as unphased Roman features. The only other feature that can be assigned to this phase is a truncated post-hole (747), situated to the west of slot 750, which contained late 1st to early 2nd-century pottery.

Phase 1B: Roman (mid-2nd century) (Fig. 7)

The ceramic assemblage suggests a mid-2nd-century AD phase of activity between the occupation of the Flavian and the 3rd-century fort. This included two linear slots and associated stake-holes or post-holes forming a possible structure in the south-western corner of the Site, in addition to a truncated pit, cess pit and possible well.

'Beam slots' 728 and 740 and associated stake-holes (Fig. 7, Plate 3)

Truncating Phase 1A feature 750 was a short linear slot (728), which together with linear feature 740 might represent the remains of further beam slots for a small structure or upright frame of unknown function. Feature 728 was 1.75m long, 0.40m wide and 0.15m deep, and 740 was at least 2.40m long, 0.55m wide and 0.32m deep, and extending southwards beyond the limit of excavation. These had gently concave and flat bases respectively, and the base of slot 740 contained sixteen rounded stake-holes and five rectilinear plank slots (866-884), believed to be contemporaneous with it. Two further stake-holes 734 and 886 alongside slot 740 were also probably associated with it.

Both slots contained a single fill, and deposit 739 (the fill of feature 740 and associated stake-holes) contained evidence of burning in the form of burnt clay and charcoal flecks. This deposit 739 contained Romano-British pottery dating after *c*. AD 120 (Leary, Nos. 7-8). A copper-alloy terret ring of early 2nd-century date (Cool, No. 27) was also recovered from this fill, perhaps a placed deposit. Situated between slots 728 and 740 were four further stake or post-holes (715, 732, 738 and 764), which despite not producing any dateable artefacts are also likely have belonged to this phase.

Pit 730 (Fig. 7)

Pit 730 was situated to the north of slot 728, and cut Phase 1A feature 750. This sub-rectangular pit was 1.00m long, 0.80m wide and 0.15m deep, and had a stepped base into which two stake-holes had been cut, perhaps the support for some form of timber structure or cover. Pottery recovered from the single fill of this pit (729) dated between the mid-1st to early 3rd century AD (Leary, No. 9), and this feature was truncated by the Phase 1C wall foundation cut 629.

Pit 672 (Fig. 7)

This sub-circular cut was approximately 1.60m in diameter with near vertical sides, but was only partially excavated. It was filled with large angular limestone rubble blocks within a sandy clay matrix (671), suggesting that it had been deliberately backfilled prior to the construction of Phase 1C wall footings 467. This feature may have been a well or a cess pit, although no traces of any lining were recorded. Two sherds of late 2nd to 4th-century AD pottery were recorded from this feature, and this may imply that this feature was backfilled during construction of the later fort wall.

Pit 441 (Figs 7, 11, S.158)

Pit 441 was located to the north-west of pit 672, and was an irregular feature at least 2.10m long, 1.40m wide and 1.60m deep, with a concave U-shaped profile. Its full extent could not be determined as it lay partly outside the limit of excavation. Its lower fill (591) consisted of lenses of grey-brown clays and sands interspersed with sticky olive green or dark green cessy deposits containing mineralised lumps that were probably coprolites, which together with the

green-stained sides of the cut suggest it was a cesspit. Its upper fill (415) was sticky grey-brown sandy clay with clay lumps that might have been degraded turfs capping the pit, or part of a bank or rampart associated with the later fort wall (411). A small sherd of medieval whiteware was recovered from the primary fill 591, but this was probably intrusive as deposit 415 contained a Vespasian coin dated to AD 72-73 and pottery of Antonine or mid to late 2nd-century date. The footings of wall 411 were deepest at this point, probably because this pit represented a 'soft patch' requiring firmer foundations.

Phase 1C: Later Roman (mid-2nd century onwards) (Fig. 8)

This later phase of Roman activity is dated to the post mid-2nd century and relates to the construction of the 3rd-century fort. It is marked by the construction of a substantial limestone wall 411 and associated deposits.

Wall 411 (Plates 5-6)

Cutting several Phase 1A/B features was a rectangular construction cut (459/629), which contained the remains of limestone and cobble foundations forming wall 411/467-470. These foundations were recorded along much of the western edge of the Site, on a north-west to south-east alignment. Due to time and logistical constraints, it was not possible to fully excavate the masonry of the footings and the wall construction cut, and only selected sections were investigated in detail.

In most places only one course of the wall footings survived as a result of later robbing (see phase Phase 3C below), generally between 0.20-0.30m thick and up to 2.70m wide, and consisting of pitched angular and sub-angular limestone blocks up to 0.50m long and 0.30m wide. These blocks were generally laid in rows with a matrix of re-deposited natural sand and smaller stones packed around them, but there was some variety in these foundations, perhaps indicating their construction by different work gangs. The later robbing removed entire sections of the wall footings leaving only intermittent sections in place. Next to pit 441, the surviving footings were 1.80m thick as here the construction cut had been dug much deeper, presumably to add greater stability to this 'soft spot'.

The pottery recovered from within the construction cut or in between the stones of wall 411 included samian dated to AD 120-160 and Dales ware of the 3rd to 4th century. Layer 588, deposited against the edge of wall 411/468 and partly filling construction cut 629, produced pottery indicating at least a mid-2nd-century date for this context.

Layers 484/521 and 857 and pits 340, 428 and 486 (Fig. 8)

Deposit 857 was greenish brown sandy silt up to 0.06m thick, perhaps indicating a cessy or organic component to the layer. This was only seen in section, and was cut by feature 428, a shallow pit at least 0.60m wide and 0.15m thick, although it was not bottomed and again was only recorded in section. Its single fill (171) of dark brown sandy clay contained nineteen

sherds of mostly mid-2nd-century pottery but also a few small medieval sherds introduced via worm or frost action, or during truncation by medieval robber cut 427.

Post-hole 638 was 0.80m long, 0.24m wide and 0.11m deep; whilst post-hole 640 was 0.40m long, 0.24m wide and 0.10m deep. These cut deposit 588 associated with wall 411 (see above). Both these post-holes, deposit 857 and pit 428 were all sealed by an orange brown sandy clay layer (484/521) at least 9.90m long, 1.38m wide and 0.35m thick, with dark grey or reddish brown lenses, some formed by charcoal and daub. This layer extended westwards beyond the limit of excavation. A patch of burnt pink to reddish brown clay 1.80m long, 0.40m wide and 0.10m thick associated with or on top of these deposits suggested *in situ* burning, perhaps a small hearth. This was truncated by the later robbing cut (427) of wall 411, so it is possible that this hearth was located up against the inside of the fort wall. Deposit 521 yielded 36 sherds of Romano-British pottery mid-2nd-century or later date (Leary, Nos. 13-14). A copper-alloy stud was also recovered from it (Cool, No. 40).

To the south, deposit 484/521 was truncated by a pit excavated during the 1970s as part of Site DV 72, originally numbered as feature 910 (Buckland *et al*. 1989: 175, 181, figure 41) (see below). Cutting into the northern side of deposit 484 were the slight traces of a heavily truncated pit (486). Although its fill (485) contained late 1st to early 2nd-century AD pottery, on stratigraphic grounds this feature is likely to be later and these finds residual. A further heavily truncated pit (340) also cut deposit 484, and again contained probably residual 1st to 2nd-century pottery.

Unphased Roman features and deposits

This section details features or deposits that could not be definitively assigned to a specific Roman phase, but where stratigraphic relationships or spatial associations suggested that they were of Romano-British date. These contexts include nine stake or post-holes (736, 756-762, and 888-894) that appeared to be spatially linked with the phase 1A/B structures identified in the south-western corner of the Site, but which contained no dateable material.

The remaining features or deposits that can be broadly attributed to Roman-period occupation were only exposed in the westernmost section of the edge of excavation (Fig. 9, Plate 4); following the removal of backfill within robber trench 427 at the south-western corner of the Site. These are described in more detail below.

Pits 817, 818, 791, 812, 813, 864 (Fig. 9, S.290, Plate 4)

One of the stratigraphically earliest features noted in this section was a shallow pit (817), 0.60m wide and 0.20m deep, partly filled by a clayey layer slumping into it from the south, but also containing a dark red, possibly scorched sand deposit. This cut was subsequently truncated by pit 818 (0.60m wide and 0.25m deep) and post-hole 829. South of these features was a layer of dark grey brown silty clay (819), either a former ground surface or makeup layer, and a similar deposit to the north partially filled cut 817. Deposit 819 was cut by pit

791, a large feature that was not bottomed but which was at least 0.60m wide and 0.50m deep, filled by a series of grey brown silts and yellow orange sand layers. Pit 791 was cut by pit or post-hole 813 that was 0.50m deep and 0.35m wide, and contained dark grey sandy gravel with a green tinge, perhaps indicating cessy or other organic material. This in turn was cut by 864, another pit or post-hole 0.90m wide and 0.65m deep and containing a grey-green clayey silt that again might have had an organic component. It is possible that these features were associated with the Phase 1A/B pits and post-holes identified in plan to the east.

A series of horizontal orange brown gravel deposits (797, 798, 802, 824, 825) overlay these earlier pits and post-holes, and in places sunk or slumped down into these underlying softer fills (Fig. 12). Between the extremely similar deposits 797 and 798 for example, a narrow silt filled crack suggests a slumping and shearing episode occurred when 797 sank into the softer silts within cut 864, and that originally 797 may have been contiguous with 802 as well. These compact, iron panned deposits may represent the remains of one or more surfaces to the west of fort wall 411. It is even possible that they formed part of the *agger* of a Roman intervallum internal fort road on a north-west to south-east alignment. Two stake-holes (826 and 827) either pre-dated or were associated with these surfaces.

Possible post-hole 812 might have cut these layers and was 0.35m deep, but its southern edge was unclear and it may be that this 'cut' was in fact a depression caused by the earlier slumping that then filled up with silty deposits. It is clear from the section that the earliest deposit 819 and the upper fill of post-hole 812 were all cut by Phase 3C robber cut 463, but without finds they cannot be securely placed in the Roman period. It is not clear how these layers relate to surface 200.

Phase 2: Roman to medieval (Fig. 10)

This 'phase' actually represents a series of features that have ambiguous or contradictory evidence for their date, and may have originated in either the Roman or medieval periods.

Deposits 396 and 397 (Fig. 11, S.158)

To the east of and abutting or partially overlying the footings of wall 411 was a series of layers identified in section and all grouped and recorded as deposit 397. Within the matrix of this layered, mottled brown deposit were rectangular lumps of sticky grey clay interpreted as the bases of degraded turves. This substantial deposit was only recorded in section but was up to 0.90m thick, and also appeared to be slumped into or backfilling the upper part of Phase 1B pit 441. Deposit 396 lay above 397 and had a similar mottled appearance, again with rectangular clayey lumps that might have been part of decomposed turves. This deposit was at least 6.00m long, 2.00m wide and 0.40m thick, though only one 0.50m wide section was hand excavated through it. To the east it had been truncated by the later robber cut of wall 411, and its western extent lay beyond the edge of excavation. The similarity of deposits 396 and 397 suggest that they were both part of the same depositional sequence.

During the excavation and initial post-excavation work by SYAFRU, it was thought that these two layers might have been a deliberately dumped deposit behind wall 411, and may even have formed a bank or rampart, in addition to backfilling and stabilising the upper part of features such as cut 441. They were thus suggested as being later Roman in date. A cobbled surface (200) lay on top of deposit 396, and this was thought to be a medieval surface constructed on top of the remains of a Roman rampart. There are problems with this interpretation, most notably that all of the pottery recovered from deposit 396 was 11th to 13th-century AD in date. Only one sherd of possible Roman pottery was found in deposit 397. It is possible that this medieval material was intrusive, particularly given the disturbance by the later robbing cut 427 which contained 13th to 15th-century pottery. Even allowing for the small volume of 396 that was actually excavated by hand, however, it is odd that no Roman material was recovered, and the medieval sherds included a substantial vessel base. It may be that 396 and 397 were levelling deposits in advance of the construction of a medieval cobbled surface. Only medieval pottery was found in cobbled surface 200 (see below). This surface would have had to pre-date robber cut 427 though, and it is still noteworthy that deposits 396 and 397 had such a distinctive appearance.

Pit 552 (Fig. 10)

Cutting deposit 396 was rectilinear pit (552), at least 1.90m long, 0.90m wide and 0.30m deep, although part of it extended beyond the limit of excavation. It contained a single olive brown deposit (551) with lumps of clay possibly derived from deposit 396. Five sherds of mid-1st to 2nd-century pottery were found in this pit, but if deposit 396 is much later in date than initially thought, than clearly these finds are residual too.

Post-holes 540, 542 (Fig. 10)

These two sub-square features seemed to be closely associated and had similar profiles and fills. Post-hole 540 was 0.44m long, 0.44m wide and 0.50m deep, whilst cut 542 was 0.34m long, 0.30m wide and 0.40m deep. No dateable artefacts were recovered from 542, but the fill of 540 (deposit 539) contained 48 hobnails (see Cool, Nos 5-6), some corroded together and suggesting that a complete Roman shoe or sandal. One sherd of second century date and one sherd of twelfth to thirteenth century pottery were also found in post-hole 540. The hobnails suggest that a complete Roman shoe or sandal was originally deposited. The medieval sherd was small and may have been introduced through worm or frost action, but the excavator of the feature noted that these post-holes may have both been cut *through* layer 200 but were only recognised once this had been removed. They might thus have been associated with post-holes 187 and 208 in the same area (see below), forming part of a structure. If 200 was medieval in date, this might also explain the presence of the medieval sherd. The hobnails would thus then be residual in a later medieval context. If this was a medieval feature disturbing a Roman deposit or containing residual artefacts, however, it might be expected that the hobnails would have been more scattered (see Cool below).

Sub-rectangular post-hole (497) was located in the north-central part of the Site and was 0.50m long, 0.38m wide and 0.30m deep, with a U-shaped profile. This contained a late 1st to early 2nd-century AD dragonesque brooch (Cool, No. 1) from its single fill (496). A single sherd of late 10th to 12th century AD pottery was also recovered from this fill. This post-hole cut the fill of the unexcavated northern section of ditch 253, and therefore must be at least 3rd-century AD in date, suggesting that the brooch was residual. When considered with other features in this part of the Site, however, it is likely that it too was medieval and might linked to gully cut 296 and associated post-holes and stake-holes.

Ditches 325 and 492 (Fig. 10)

The most prominent features included within this artificial phase are two wide ditches (325 and 492), situated 13m apart and both orientated north-east to south-west (Fig. 10). These ditches represent the 'inner' (325) and 'outer' (492) ditches identified during previous excavations at sites DA 72, DB, DQ 70 and DV 72 (Buckland *et al*. 1989), and that were proposed as being of Anglo-Scandinavian and Anglian construction respectively (see above, Buckland *et al*. 1989: 74, 84, figure 12). The phasing and dating of these features at Church Walk has proved very difficult. The stratigraphic and artefactual evidence, whilst indicating that the previous culture-history interpretations were probably incorrect has not allowed any definitive conclusions regarding their dating.

Ditch 325 (Fig. 12, S.104, Plate 7)

Ditch 325 cut Phase 1A/B features 745 and 740, and associated post-holes. This feature was up to 5.40m wide and 2.30m deep, with steeply sloping sides and a V-shaped concave base, and it contained up to seven layered deposits of sands and gravels. The infilling sequence suggests that these fills accumulated or slumped in from the western side, perhaps indicating the presence of a bank that weathered and eroded into the ditch. This is very similar to the ditch sections recorded at Sites DQ 70 and DV 72. At least one, possibly two recuts were visible in section. Only a 4.20m wide section of this feature was hand excavated down to the base of the cut, due to the need to step it for health and safety reasons, and also because of the intrusive presence of Buckland's DV 72 trench backfill, which was only partially re-excavated. Even this was a considerable undertaking given the size of the feature. A probable northern section of this ditch was identified and recorded as cut 851 (see below).

The primary fill of ditch 325 (283/437) was a dark grey brown pebbly gravel up to 0.50m thick, and both Romano-British (43 sherds) and medieval (two sherds) of pottery were recovered from this deposit. The Roman pottery included Flavian-Trajanic material, but mostly dated to the late 3rd and 4th-centuries AD (see Leary below). A copper-alloy finger ring of 1st to 3rd-century AD date was also found (Cool, No. 2). The medieval assemblage comprised sherds dating from the late 10th to early 13th century, and this perhaps suggests that the ditch began silting up during the mid-11th to late 12th centuries. The secondary fills comprised a series of sand and gravel deposits, most deriving from the west but with some slumping or in filling from the east. Deposit 270/416 produced 43 sherds of mainly 3rd to

4th-century Roman pottery and two sherds of medieval pottery dated to the mid-late 11th to late 13th century. Deposit 148/431 contained twelve sherds of 13th-century pottery and three sherds of Roman pottery.

A distinct recut is visible in section that appears to have been cutting deposits 270 and 431, although no separate cut number was assigned to this. This recut would have been at least 5.50m wide and nearly 2.50m deep and was filled with three deposits (163, 150 and 149), although deposit 150 consisted of at least five lenses of material grouped together for convenience. These deposits consisted of yellow to mid-brown sands and pebbles, and pottery was recovered from all three with fill 163 having a single sherd of mid to late 3rd to 4th-century pottery. Deposit 150 contained 37 sherds of mostly 3rd to 4th-century AD pottery and one sherd of 11th to early 13th-century pot.

A broad, much shallower recut was observed cutting deposit 149, at least 4.75m wide and 0.75m deep, filled with a mid-brown sandy clayey loam with darker lenses of material within it (145/355/366/444/458). The pottery assemblage from this deposit was highly mixed with both Roman late 1st to 4th-century material (78 sherds), late 12th to late 13th-century wares and post-medieval pottery (56 sherds) all represented. The later medieval and post-medieval pot included the base of a 19th-century vessel and the base of a later medieval Orange Gritty ware jar. A late 3rd-century AD coin, a medieval or post-medieval copper-alloy needle and a 1st to 3rd-century glass vessel fragment were also retrieved from this fill. The fill of this later recut was clearly a very mixed and potentially reworked deposit (see Discussion below).

Ditch 851 (Fig. 12, S.287)

Ditch 851 probably represented the northern continuation of ditch 325 in the north-western part of the Site. Medieval truncation and post-medieval cellars had removed much of this feature and as it could not be bottomed for health and safety reasons, only a few finds were recovered from it. It was at least 2.30m deep, had a very steeply sloping western edge and contained at least eleven fills. The earliest fill identified comprised mottled grey brown sand and gravel (850). Above this was a sequence of silty sandy fills (675, 846-849), many containing large quantities of angular limestone rubble and mortar. This material may have derived from a robbing episode associated with the earlier fort wall 411. Deposit 675 also contained a hone stone, possibly of Roman date (see Cool below, No. 36).

Some of the uppermost silty ditch fills (676, 723, 841-842, 844-845) had grey-green staining, perhaps from cess or tanning waste deposited into the ditch. Deposit 676 contained a single sherd of 3rd to 4th century pottery and nine sherds of later 12th to late 13th-century pottery, whilst 723 had one sherd of 12th to late 13th-century pottery.

Ditch 492 (Fig. 10, Plate 8)

Ditch 492 was located to the north-east of ditch 325, and was up to 6.70m wide and 2.5m deep. Up to seven fills were recorded within the U-shaped profile of this ditch, although no

information on the filling sequences was available as all of the plans and sections of this ditch were missing from the primary archive. A smaller volume of this feature was excavated by hand. No detailed photographs of the section exist, but oblique views (Plate 8) indicate a step on the western side of the ditch, perhaps reflecting a later recut.

The primary fills 448/451 were yellow brown sands with slightly greasy greenish grey brown silty sands – some of the latter may reflect an organic component. A single sherd of 3rd to 4th-century AD pottery was recovered from deposit 448, with deposit 451 yielding 28 sherds of 3rd to 4th-century pot, and a single sherd of 13th-century pottery. Deposit 448 also contained a copper-alloy barbarous radiate coin of AD 287-294, well-preserved and unworn (see Barclay below). Layers 447, 449 and 456 were orange or mid-brown silty sands, with 447 containing eight Roman pot sherds and 456 three Roman sherds.

The later fills 434/465/648 contained 30 sherds of Roman and medieval pottery, the former of mid-3rd to later 4th-century wares, and the latter mostly of 12th to 13th-century date. A copper-alloy barbarous radiate of post-AD 270 date was also found in fill 465. Deposit 417 was a discrete dump of ashy silt in the top of the ditch and contained 31 sherds of 14th to 15th-century pottery, in addition to a copper-alloy gilded strap mount in the form of a horse and rider, the latter holding a sword (see Cool, No. 7). This object probably ranged in date from the late 13th to earlier 15th centuries, but was previously erroneously described as a 9th-century valkyrie figure (Webster 1996: 35). Ditch 492 was heavily truncated by a series of medieval pits, and one especially deep well or pit cut (feature 450, see below) had been dug right through the base of the ditch (see Plate 8).

'Hearth' 218

A deposit of red, scorched sandy silt (218) lay above the upper fill (219) of ditch 253, and this may represent *in situ* burning, perhaps the remains of a small hearth. This layer contained a sherd of samian ware dated to AD 80-110, and a sherd of 1st to 3rd-century AD pottery. This feature was thus stratigraphically at least 3rd century AD in date, but in spatial terms might have more in common with later, medieval features in the vicinity.

Phase 3: Medieval

A comprehensive analysis of the finds assemblage has enabled four medieval sub-phases to be identified. A description of the features assigned to each sub-phase is presented below.

Phase 3A: Medieval (mid-eleventh to later twelfth century) (Fig. 13)

This phase contained one definite feature, the truncated remains of a ditch.

Ditch 377 (Figs 13-14, S.187, Plate 9)

This heavily truncated feature was exposed at the very north-west corner of the Site. It was at least 1.60m wide and 2.45m deep, but much of it lay beyond the western limit of excavation. It had steep sides and an apparently narrow, flattish base, although it could not be fully

bottomed. It contained six fills, with the primary and secondary deposits (477-478) of light brown sandy silts probably derived from silting and the natural erosion of the ditch sides. Fill 464 was a brown sandy clay containing significant quantities of angular limestone fragments up to 0.22m long in addition to cobbles and mortar, and some of this material may have been deliberate backfill, possibly derived from the robbing of wall 411. Deposits 454, 369 and 371 were further brown silts or silty clays. Fills 371, 454 and 464 contained 47 sherds of mixed Roman pottery and late 10th to 12th-century sherds including Lincoln Fine Shelly wares. This ditch truncated the infill of Phase 1A ditch 530, and was cut by the construction trench for Phase 3C wall 380. Feature 392 was a possible continuation of it.

Truncation of the north-eastern side of the Site

During the excavation it was noted that significant truncation of the deposits at the north-eastern side of the Site (up to 1.50m in depth) had created a distinct step in the main east-west section, and was also visible as a horizontal interface in the south-western section of the Site (see Fig. 9). This truncation has been tentatively assigned to this phase of activity, and may explain the absence of Roman deposits at the eastern side of the Site. It probably represents a major phase of landscaping (see Discussion below).

Phase 3B: Medieval (mid to late 12th to late 13th century) (Fig. 15)

The majority of the features identified in the eastern side of the excavation were assigned to this phase, and these consisted primarily of possible tanning pits and related features, and other occupational evidence including post-holes and ovens.

Pits

A summary of the twenty-seven pits assigned to this phase and their interpretation is presented in Table 1 below, with further stratigraphic explanation and/or additional description of some features outlined below.

Tanning pits

Of the 27 pits assigned to this phase, 22 were probably associated with some stage in the tanning process. These pits were sub-square or sub-circular in plan, with green-stained, concreted sides and sometimes undercutting edges. Many pits contained organic-rich green and grey fills, which like the staining and mineralisation might have been derived from the lime, urine, faeces and oak chippings used in the tanning process (see Discussion below). Evidence of burning was also noted within many of these features, and this may have been used to clean out the pits before their next use or to reduce smells.

Two broadly linear groups of these pits were identified in the central and eastern part of the Site. In addition, many of the pits either displayed evidence of recutting or had been cut by the creation of new tanning pit features. A distinction between tanning pits and cesspits has been made where possible, based on the physical characteristics of the pits.

The pits in this phase varied in size from 0.54m to 3.95m long, 0.54m to 3.4m wide and 0.21m to 2.31m in depth. Most had near-vertical sides dropping to rounded or flat bases. Some of the pits had undercut sides, perhaps a result of the swirling action of liquid within them. The filling sequences within the pits varied from singles fill to up to fifteen layered deposits. Several pits had evidence that they had been lined – pit 231 had traces of clay and possible stone lining, and pits 206, 555 and 668 were probably originally timber-lined. The majority of these features contained pottery, which in addition to medieval wares also included residual Roman sherds from earlier features.

Pits and associated features: stratigraphic discussion

Group 1 (Fig. 16)

This group of features was located in the central northern area of the Site and comprised intercutting pits 677, 592, 596, 658 and 660; pits 555 and 558, and eight post-holes.

Pits 658, 660, 596, 677, 592 and associated post-holes

The earliest of the intercutting pits (658) was a shallow sub-rectangular pit 1.00m long, 0.70m wide and 0.30m deep after truncation. This was dug into natural sand and gravel deposits and contained a single green stained friable brown silty sand fill (657) that contained one sherd of 12th-century pottery. Its southern side was cut by sub-square pit 660, 1.40m long, 1.40m wide and up to 0.40m deep, with two friable fills, one (673) a variable mid-dark brown or green colour, the uppermost (659) a light reddish brown silty clayey sand that contained three sherds of Roman and medieval pottery. Pit 596 cut this, and was a sub-rectangular feature 1.30m long, 1.10m wide and 0.40m deep. It too contained a single greenish fill (595) with both Roman and 11th to 13th-century pottery.

Deposit 677 was a pit fill from a sub-rectangular or trapezoidal shaped pit 2.20m long and 1.70m wide, which restrictions of time and resources meant it was not possible to excavate. It was overlain by a reddish burnt patch, and surrounded by eight post-holes (615-627, 670), four of which cut the deposit, and some of which also showed signs that posts had been replaced. Pottery of 12th to 13th-century pottery and some residual Roman material was found in post-holes 617 and 625. These post-holes might have been associated with a fenceline around the pits, or supports for a timber superstructure.

The latest in the sequence of intercutting pits was feature 592, which cut deposit 677. This was sub-rectangular in plan and 1.56m long, 1.18m wide and at least 1.27m deep, although it could not be fully excavated. It had stained and concreted sides, and was the most convincing tanning pit in this group of features, as opposed to shallower pits filled with green stained material, which could have been dumped cessy waste. The fill of pit 592 (563) was recorded as a single deposit but had evidence for several tip lines of material within it, and it contained late 10th to 13th-century pottery. One of its upper fills (679) was a patch of reddish burnt material that may represent *in situ* burning.

Table 1. Pits assigned to Phase 3B

Cut	L (m)	W (m)	D (m)	Shape	Base	Lining	Notes	Interpretation
107	2.50	2.50	1.57	Square	Rounded	N	Green primary fills	Tanning
111	1.80	1.60	2.40				Green and stained edges	Tanning
140	2.86	1.20	2.05	Rounded	Rounded	N	Primary and tertiary fills green stained. 4th fill suggest fire/cleaning. Sides stained and concreted	Tanning
141	2.20	1.30	0.45	Irregular	Flat	N	Single fill with green tinge. Sides stained and concreted	Tanning
142	1.40	1.30	0.48	Sub-rounded		N	Single fill with green tinge. Sides stained and concreted	Tanning
160	2.15	1.55	0.25	Sub-rectangular	Flat	Y – Grey clay	Three internal stake-holes and a slot	Liquid storage?
203	1.40	1.10	0.65	Sub-rectangular	Flat	N		Pit
206	1.60	1.35	1.80	Sub-rectangular	Flat	? Possibly – timber mentioned in the interpretation, but with little evidence.	Fill accumulated from collapse of gravel sides	Pit
231	*c*.2.36	-	1.16	?Circular	Flat	Y – Clay/stone	Sides stained green and concreted. Possible stone lining pit heavily disturbed. Primary fills green upper fills burnt	Tanning
236	2.20	1.80	2.70	Sub-circular	Flat	N	Cut ditch 253	Tanning?
277	1.86	1.70	1.38	Semi-circular	Flat	N	Edges stained green and concreted	Tanning
293	1.75	1.55	1.30	Sub-oval	Flat	N	Green stained fills suggest tanning. Cut into ditch 253	Tanning
368	1.40	0.95	0.21	-	Sloping	N	Evidence of burning, ash layers within pit.	Oven/hearth Tanning
410	1.40	1.40	1.00	Sub-rectangular	Sloping	N	Edges stained green and concreted	
471	3.95	3.40	2.31	Rectangular	Rounded	N	Organic stained fills	Tanning/well
473	2.36	2.22	1.62	Circular	Flat	N	Concreted and stained edges	Tanning
500	2.72	2.54	0.70	Sub-square	Sloped	N	Post-holes in base suggest timber structure	Tanning
523	0.54	0.54	1.10	Sub-square	Sloped		Green sides and concreted edges. Undercut	Tanning

Cut	L (m)	W (m)	D (m)	Shape	Base	Lining	Notes	Interpretation
550	2.31	2.00	2.25	Sub-rectangular	Flat	N	Concreted and green stained sides	Tanning?
555	1.44	1.40	0.95	Rectangular	Undulating	Y – Evidence of timber lining	Concreted sides but not green stained	Tanning?
558	1.86	1.73	1.84	Sub-square	Concave	Y	Sides stained green	Tanning
592	1.56	1.18	1.27 exc.	Sub-rectangular	-	N	Sides hard and concreted but not stained	Tanning?
596	1.30	1.10	0.30	Sub-rectangular	Concave		Single fill stained green	Tanning?
597	6.30	1.20-1.74	0.10-0.20	Irregular	Uneven	N	Filled with crushed bone	Processing?
658	1.00	0.70	0.30	Square	Uneven	N	Single fill stained green	Tanning?
660	1.40	1.40	0.30-0.40	Sub-square	Flat	N	Primary fill stained green	Tanning?
668	1.60	1.42	0.90	Circular	Sloping	Y – Timber lining	No finds but cut by Phase 3D feature so must be earlier	Tanning?
677	-	-	-	Sub-rectangular	-	-	Unexcavated pit fill	Unexcavated pit
766	1.60	1.10	0.25m	Sub-rectangular	Flat	Y – Stone and clay	Has coursed stone lining, but also a clay lining. May be Phase 3C rather than 3B.	Storage of liquid?

Pit 558 (Fig. 17, S.273)

Pit 558 was 1.86m long, 1.73m wide and 1.84m deep. It was basically sub-rectangular in plan, but its southern edge had two rounded extensions that might have been associated post-holes, although these were not excavated. The cut had steep, concreted, green-stained edges, and its two primary fills were mottled green and dark brown clayey sands, superseded by a greasy, grey-black charcoal rich deposit (536) that might represent evidence of burning or cleaning. Late 10th to late 13th-century pottery was retrieved from all five fills.

Pit 555 (Fig. 17, S.271)

Pit 555 was 1.44m long, 1.40m wide and 0.95m deep, with steep sides and a flattish base with possible post-hole bases. Its primary fill 554 was yellowish-red sand in near vertical bands that may indicate slumping into voids left by a decayed timber lining. Internal post-hole 560 may have formed part of this lining. The fills were not green-stained or cessy, but this feature might have been used to store liquids, possibly water, for use during the tanning process. Only the upper fill (499) contained finds, both Roman and late 9th to 11th-century pottery. Given the close spatial relationship of this feature to the other pits containing 12th and 13th-century material, it is probable that all this pottery may be residual.

Group 2 (Fig. 18)

Located to the south-east of Group 1, this cluster of features comprised eight pits (203, 236, 293, 140, 141, 206, 160 and 142), a possible hearth (368), a linear gully (296) and two groups of twenty stake or post-holes (124, 127, 130; 309-322, 344-350, 497). Many pits truncated the fill of the earlier Phase 1A ditch 253, some penetrating through the base of the ditch.

Cut 368

This heavily truncated feature (368) was 1.40m long, 0.95m wide and only 0.21m deep, and cut through the upper fill of ditch 253. It was filled by distinctive bands of grey red and brown clay silt with ash lenses, charcoal flecks and limestone fragments and cobbles. The function of this feature is unclear but it may have been a disused oven or hearth. To the west of this was a group of three post-holes (124, 127, 130) might also have been part of this group – the fill of cut 130 (129) contained 13th-century pottery.

Pit 293 (Fig. 17, S.100)

Sub-oval pit 293 truncated the majority of feature 368, and was 1.75m long, 1.55m wide and up to 1.30m deep with steep sides and a flat base. Its green, silty primary fill (281) probably indicates that it was either used for tanning or as a cess pit. It cut circular post-hole 322 that also had a green-stained fill and was 0.48m in diameter and 0.55m deep. Roman and late 10th to early 13th-century pottery was recovered from the primary fill, along with a 13th to 14th-century copper-alloy lace tag of date (see Cool, No. 8). This was sealed by a dump of re-deposited natural (294), perhaps to reduce odours.

Pit 236 (Fig. 17, S.45)

This deep pit was semi-circular in plan and 2.20m long, 1.80m wide and 2.70m deep. Although it was bottomed, the great depth meant that the full width of the feature could not be excavated for health and safety reasons. It cut feature 368 and pit 293 and contained at least eleven deposits, with primary fills of organic, greasy greenish grey silts. The edge of the pit was concreted and stained orange and green, and there were some indications in section of possible recuts or cleaning-out episodes, suggesting that this was a tanning pit. Its fourth fill 232 contained six sherds of 12th to early 13th-century pottery and a fragment of a coin of Edward the Confessor from 1059-1062. An upper deposit of re-deposited gravel may have sealed the pit to reduce the smell, and this contained three sherds of late 12th to 14th-century pottery and residual Roman wares. The uppermost fills may have been later dumps to level up and fill in the hollow left by this feature, and whilst 13th-century pottery was found in deposit 237, the uppermost fill (165) had five sherds of 17th to 19-century pottery in addition to medieval and Roman wares. The post-medieval and early modern material might have been derived from later pit 495 that partially truncated pit 236 (see below), or alternatively may indicate that this pit remained a slight hollow in the ground until this later period.

Gully 296

Immediately north-east of pit 236 was linear gully 296, 2.70m long, up to 0.55m wide and 0.11m deep with a broad, gently concave profile. The purpose of the gully is not clear, although it may have supported a timber fence. Its single fill (295) contained two sherds of 13th-century pottery. Its southern end respected post-hole 322 but truncated two earlier stake or post-holes – cut 319 was square in plan, 0.14m across and 0.15m deep, and had an uncertain relationship with 298, a possible post-hole 0.44m long, 0.34m wide and 0.34m deep, but with irregular, uneven edges perhaps indicating that it was not an anthropogenic feature. There were five stake-holes to the east of this gully (309, 310, 311, 312, 313) and four to the south. Along with post-holes 322 and 497 (see above) these might have been linked to small fences or lightweight structures surrounding and/or covering the pits. This gully was parallel to and immediately east of the line of Phase 1A ditch 253, perhaps suggesting that the earlier ditch still remained as a shallow depression or visible discolouration in the ground.

Pits 140, 141, 142

North-east of gully 296 were intercutting pits 140, 141 and 142. The earliest was pit 141, probably originally sub-rounded in plan and 2.20m long, 1.30m deep and 0.45m deep. The sides were partly stained green and mineralised, and it contained mottled mid-brown and green sandy silt (120), deposited fairly rapidly but with tip lines formed by limestone fragments. This fill contained residual Roman and possible late Saxon sherds, in addition to 11th to 14th-century material. Pit 141 was cut by both of the other two pits. Pit 140 could not be fully excavated but was broadly sub-rectangular in plan, at least 2.86m long and 1.20m

wide, and 2.05m deep with a rounded base and partially undercut sides. Two of its lower fills (189 and 133) were greenish brown silty sands that contained 12th to 13th-century pottery, whilst a thin purple-brown layer with charcoal (188) may represent material thrown in to neutralise odours. This suggests that the feature had a tanning function. Pit 142 was sub-rounded in plan, 1.40m long, 1.30m wide and 0.48m deep, similar to pit 141. Its single green stained fill (134) produced 11th to 13th-century sherds, and residual Roman pottery.

Pit 206 (Fig. 17, S.10)

This was sub-rectangular in plan with rounded corners, and was 1.60m long, 1.35m wide and up to 1.80m deep, and dug through the gravel fills of Phase 1A ditch 253 penetrating its base. It had near vertical sides that were undercut in places, and stained green near the bottom of the flat base. The reddish-brown to olive green primary silt (202) contained 63 late 10th to late 13th-century pottery sherds, and had been followed by material partly derived from the collapse of the pit sides. This suggests movement of liquid within the pit, although the gravels this pit was cut into would not have retained liquid for long without a timber lining. The tertiary fill (156) was a mixed deposit, perhaps a deliberate levelling dump, and this yielded 12th to 14th-century pottery and residual Roman sherds.

Pit 160

This feature cut pit 206 and earlier Phase 1A ditch 253, and was a shallow, regular rectangular cut 2.15m long, 1.55m wide and 0.25m deep, with circular settings or stake-holes in three of its corners, and a shallow rectilinear slot too. It contained light grey compact clay, and this suggests that this feature was designed to hold liquids, or was a standing or a base of some sort, perhaps for a wooden-lined trough or tank.

Pit 203

This small pit cut the upper fill of the Phase 1A ditch 253, and was sub-rectangular in plan with rounded corners. It was 1.42m long, 1.10m wide and 0.64m deep, but its single homogenous dark grey sandy silt fill did not exhibit any green staining, though it produced late 10th to mid-13th-century pottery, in addition to residual Roman sherds. The medieval sherds recovered were in poor condition, and so it is possible that even they were residual within the fill of a later pit but in the absence of any other dating evidence this feature has been assigned to this phase, largely on spatial grounds.

Group 3 (Fig. 19)

This group of pits was located further to the east, and many cut through the upper fills of Phase 2 ditch 492.

Pit 550 (Fig. 20, S.204)

Pit 550 was sub-square in plan, 2.31m long, 2.00m wide and 2.25m deep. It had steep, concreted and green-stained sides, slightly undercut towards the base. Its primary fill 547 was

dark brown, greasy silty sand that may have been a use deposit, and which contained early to mid-thirteenth century pottery. This layer was followed by a light brown sand with tabular limestone slabs (546), and a dark brown to black silty sand with quite large quantities of charcoal (528). This may indicate some burning or sterilising of the pit prior to further use, indicated by a possible recut. Further greenish-brown use deposits (545, 520, 549 and 515) filled this, some containing 11th to 13th-century pottery, and these were in turn probably recut again. The second recut's primary fill was greasy reddish-brown silty sand with a large quantity of charcoal, possibly reflecting a burning or sterilising episode, and this was followed by a brown or light grey-green use deposit. There was then a third possible recut filled with a lime mortar-rich greasy deposit (518), probably from liming (see Discussion below). Deposit 518 was then sealed with a grey clay layer (548) prior to further use.

Deposit 516 was another dark brown/black greasy charcoal rich deposit, from which late 11th to early 14th-century pottery was recovered. Above 516 and within another possible recut was more grey clay (525), sealed by cream-coloured organic-rich sand. Tertiary mixed brown deposit (498) contained limestone fragments, charcoal and burnt clay, and produced a mixed assemblage of Roman and medieval pottery, and a stone mortar of 13th to 15th-century date (Cool, No. 23). This suggests the final phase of this feature actually belonged to Phase 3C. Overall, the use of this pit seems to have been as a tanning or cess pit with some liming, punctuated by dumps of charcoal and/or *in situ* burning to neutralise smells. Phase 3D Layer 361/362 sealed this feature.

Post-holes 571, 573, 575, 577, 579, 581

West of pit 550 was a group of five or six post-holes (571-581), forming a possible sub-rectangular structure. They were up to 0.32m in diameter and 0.43m deep, though most were shallower due to truncation. They all contained similar dark brown grey sandy silts, but the only finds were from post-hole 573 that contained late 12th to 14th-century pottery.

Pit 597

This feature was probably originally at least two interlinked, shallow and irregular pits, 6.30m long overall, up to 1.74m wide and between 0.10m-0.20m deep. It contained fairly homogenous grey brown silt (593) with large pebbles and crushed bone, in addition to pottery of late 10th to late 13th-century date. The southern part of this feature was truncated by pit 550, and thus also sealed by Phase 3D Layer 361/362.

Pit 277 (Fig. 20, S.94)

This sub-rounded feature was 1.86m long, 1.70m wide and 1.38m deep, with steep concreted sides stained green and orange. The first three of the four deposits filling this pit were grey or grey brown greasy organic use deposits, and included a dark grey/black lens of charcoal. The final deposit 276 was probably a dump or disuse deposit. All four fills contained 13th-century pottery. Phase 3D deposit 361/362 covered this feature too.

Pit 668

Although no dateable artefacts were recovered from pit 668, its stratigraphic position below features dated to Phase 3C indicates that it probably belongs to this phase. It was sub-circular in plan, 1.60m long, 1.42m wide and 0.90m deep, and its primary fill 667 of fine yellow orange sand might have filled the void left by a decayed wooden lining. Green or grey-black organic silts were observed above this deposit, and the mottle reddish and grey-black upper fill (663) contained burnt clay, and may reflect *in situ* burning after use.

Pit 471

This was a large, irregular and amorphous feature situated towards the southern edge of the Site and extending beyond it. It was heavily truncated by later cuts 251, 420 and 422, but might originally have been sub-rectangular in plan. It contained up to twelve deposits, the majority grey-brown organic and greasy in appearance and texture. Green staining was only noted in the secondary fill (787), and some lenses were orange-red and contained high proportions of charcoal, indicating *in situ* burning. Only the upper fill (273/436) contained artefacts, comprising residual Roman and medieval pottery suggesting a 12th to 13th-century date for this infilling. This feature was cut by Phase 3C pit 422. Although this feature had different fills to other tanning or cess pits, its organic fills suggest its use for another part of the tanning process, perhaps for soaking hides in bark or wood chippings.

Group 4 (Fig. 21)

This group comprised seven pits (111, 410, 473, 107, 500, 523, 231) and associated post-holes (569, 570) located in the eastern and south-eastern part of the Site.

Pits 410, 107 and 473

Truncating the eastern edge of Phase 2 ditch 492 were three intercutting pits 410, 107 and 473. The earliest of these (410) was a heavily truncated sub-rectangular pit at least 1.40m long and up to 0.41m deep, with a post-hole cut into its base. It contained a single olive green silty sand fill but no dateable artefacts, and has been placed in this phase primarily due to its spatial associations although it is conceivable that it could be slightly earlier. Pit 107 cut the upper fill of pit 410 and also cut the edge of ditch 492. It was sub-rectangular in plan with rounded corners, and was at least 2.50m wide and up to 1.60m deep with steep sides dropping to a rounded uneven base. Some of the lower deposits consisted of lensed or mottled grey, yellow brown and olive green sands, partly sealed by a reddish brown dump (305). Two further organic sand deposits (302 and 303) filled a possible recut, sealed by disuse deposit 108. All fills had medieval pottery of late 11th to 14th-century date.

The last pit in the sequence was cut 473, sub-circular in plan and 2.36m long, 2.22m wide and 1.62m deep, with concreted edges stained orange and green. It was filled by nine orange red, greenish brown and olive green deposits of sands and organic silts. At least one recut was

noted, although unfortunately no section was recorded. Within the possible recut, only the upper fill (333) contained pottery, of 12th to 13th-century date.

Pit 500 (Fig. 20, S.207)

Pit 500 was sub-rounded in plan, 2.72m long, 2.54m wide and 0.70m deep, with quite steep green-stained sides, and two post-holes up to 0.28m in diameter and 0.25m deep (569 and 570) cutting into the base of the pit, with a further two indicated in section. This suggests a possible timber structure or frame within the pit. Two shallow hollows in the unexcavated half of the feature might also indicate where upstanding posts had been removed after the fill had built up around them. The primary fill (503) was dark green silty sand, and a layer of limestone fragments derived from the western side of the feature might have been dumped into it, but may result from the collapse of a stone structure next to the pit. This fill produced 38 sherds of 10th to 13th-century pottery were recovered from this fill, overlain by two backfill deposits also contained 10th to 13th-century pottery.

Pit 523

The south-east side of pit 500 was cut by a smaller sub-square pit 523, 0.54m across and 1.10m deep, with a partly undercut, green-stained edge. Its primary fill (537) was grey-green silty sand containing residual Roman and early medieval pottery. The upper backfill deposit (524) had some green staining and had late 11th to 13th-century pottery.

Pit 111 (Fig. 20, S.57, Plate 10)

This sub-square pit was 1.80m long, 1.60m wide and 2.38m deep, with near-vertical, green-stained concreted sides and a flat base. The primary fill (235) was grouped as one deposit, but consisted of a series of compacted brown sand and green-stained cessy layers. A single sherd of late 11th to 12th-century pottery and residual late 3rd to 4th-century Roman pottery was recovered from this context. The upper fill of the pit (110) comprised at least nine layers of grey-brown and orange sandy fills, with some dark grey and green cessy fills. Thin lenses of charcoal were also noted. This context contained 57 pottery sherds of mid-11th to 13th-century date. Five further sherds of Roman pottery and a polishing stone of 10th-century or later date (Cool, No. 38) were also recovered, as well as herring and eel bones and a bone ice-skate made from a horse metatarsal (see Richardson below).

Pit 231 (Fig. 20, S.31)

This large circular pit was located at the south-eastern edge of the Site, and extended beyond the limit of excavation. It was at least 2.36m long and 1.16m deep though, with green-stained concreted sides and a flat base. Traces of a possible clay lining (250) were noted around the northern and southern edge of the cut, though these were not visible where the section was drawn. This layer was overlain by a series of green or grey-brown sand deposits with organic components (249, 247, 230, 248, 244, 246 and 245), some containing late 10th to 14th-century pottery. Some limestone fragments found in deposits 230 and 249 might have been

derived from a collapsed lining, but there was no clear evidence for this. The upper fills (243, 242, 241 and 229) all consisted of mottled red sands which may indicate some scorching or hot material placed in the pit to counteract odours. Medieval pottery was also recovered from 229 and 241, a roach fish bone from 249; and a possible stone hone or whetstone of Anglo-Scandinavian or later date (Cool, No. 37) was found in 229.

Additional features

Well 267 (Fig. 18, Plate 12)

A stone-lined well located near the centre of the Site had been previously investigated during the excavation of Site DV 72 (Buckland *et al*. 1989: 189), and was found to be 1.50m in diameter and at least 3.10m deep. Pottery recovered during the earlier excavation indicated infilling during the 14th century, but the well has been assigned to this slightly earlier period on the basis of a single sherd of 13th-century pottery recovered from the stone packing (260) between the well cut (267) and limestone lining (259). The well was located just to the west of the Group 2 pits, but may have been used as part of the same practices.

Ovens

Two well-defined ovens (510/566 and 565) were uncovered in the south-western and south-eastern parts of the Site respectively.

'Pit' 510 and oven 566 (Fig. 22, S.219)

Feature 510 was a large, sub-rounded cut 2.69m long, 2.47m wide and 1.05m deep, and it cut the fill of Phase 1A Pit 720. It had fairly steep sides and a gently concave base, although it had been severely truncated by the later oven 566 (see below). Six or seven small, shallow depressions recorded on the southern edge and base of the cut may indicate where some wooden or stone fixtures were originally located, but had then been removed. This feature contained a single slightly concreted yellow/red silty sand backfill, with some mottles of manganese and possible greenish cessy material. It produced no finds.

Originally, this feature was thought to be a backfilled pit, later recut by oven 566. The excavator then suggested that this could have been the bowl of an earlier oven, which had later been comprehensively re-modelled. There is some evidence to support this – it was located well away from other large cess or tanning pits, and although some cessy material was noted in the fill, this might have been incorporated into general backfill rather than being associated with a cess pit or tanning function. The small depressions visible on the base of cut 510 might also have been associated with some form of internal oven structure.

Oven 566 (Fig. 22) was a 'keyhole'-shaped cut with a sub-rounded bowl 2.00m long and 2.20m wide, and 1.20m deep. This was integral with a rectangular north-south orientated cut 3.70m long, 2.20m wide and between 0.85-1.00m deep, becoming shallower towards the north. This may have been the flue of the oven, and contained three distinct banded deposits

of burnt organic material, charcoal and ash grouped as one deposit (543) up to 0.10m thick. This material inter-digitated with silty sand deposits representing different phases of use and/or the abandonment or backfill of the northern part of the feature. The base of the bowl of the oven had some burnt limestone that might have been the remains of a stone floor, though little of this survived. Deposit 543 also filled the bowl of the oven, and was followed by deposit 509, light grey-brown silty sand containing a high proportion of charcoal and ash. Deposits 543 and 509 included large quantities of carbonised oat grains, and although this feature was interpreted by the excavator as a malting oven, it was probably a multi-purpose feature (see Alldritt below). The secondary fill 509 contained three sherds of 12th to 13th-century pottery, whilst the mottled brown silty sand upper backfill deposits (483 and 531) produced residual Roman sherds and 12th to 14th-century pottery.

Oven 565 (Fig. 23, S.209, Plate 11)

This second 'keyhole'-shaped oven was cut into the line of Phase 2 ditch 492, and extended beyond the south-east limit of excavation. It consisted of a sub-rounded bowl 2.50m long and 3.30m wide, and up to 1.80m deep; with a north-south orientated flue 2.50m long, 1.40m wide and 1.15m deep. Within the bowl or firebox was a thin bedding layer of sand (586) containing a single sherd of later 1st to mid-2nd-century pottery. Above this was flagged limestone surface 443, which had been heavily burnt. The sides of the firebox and part of the flue were lined with walls of roughly coursed and unbonded limestone blocks and river cobbles (512). The primary fill (435) of the oven was confined to the stokehole and was a black ashy deposit with a high percentage of charcoal, indicating that it was a use deposit.

This feature then seems to have been modified with the construction of a limestone-blocking wall (583) between the flue and the stokehole. Despite later disturbance of this masonry, it was suggested by the excavator that a channel survived in the centre of the wall that allowed heat to penetrate through from the stokehole. An organic, dark brown/black silt (466) lying over and within the stones of 583 contained 13th-century pottery, and a series of brown sandy silt disuse deposits (479-482) filling the stokehole and flue produced 11th to early 13th-century sherds. Deposit 480 was a thin burnt orange lens between 481 and 479 that may have represented a brief episode of *in situ* burning. A second phase of modification was then identified with the construction of a new blocking wall (584), creating a small sub-oval oven at the western end of oven 565. This smaller oven was lined with a new base (568) and compact gravel lining (356) over which an ashy use deposit had accumulated (329). This contained abundant charred oat, barley and traces of bread wheat (see Alldritt below). A light brown sandy silt disuse deposit (265) filled the oven, and this contained 12th to 14th-century pottery. The oven may have been associated with a small burnt patch or hearth (275) and a post-hole (210), and was cut by Phase 3D tanning pit 364 (see below).

Pits 766 and 717 (Fig. 12, S.287, Fig. 15)

At the extreme north-west corner of the Site was a shallow stone-lined pit or tank (766) that cut the fills of ditch 851 and layers 741/751, but was itself truncated to the north by early

modern cellar cut 702, and horizontally by modern activity probably associated with the construction of Askew's Print Shop. The cut was 1.60m long, 1.10m wide and 0.25m deep, and had a stone lining of coursed angular limestone fragments in a silty clay matrix (765), with an internal facing. A grey-brown clayey lining (713) that contained some herring and eel bones covered the base of the cut and abutted the masonry, suggesting the storage of liquids. The single fill of the feature (712) was mottled brown clayey silt with mortar fragments, and this backfill contained 13th to 15th-century pottery. Two sherds of 13th-century pottery were recovered from stone lining 765, but it is of course possible that these were residual in a slightly later feature. In spatial terms, this pit would fit better in Phase 3C where it may have been associated with buildings of that phase in the north-west corner of the Site. It is even possible that this feature was internal to a larger building (see below).

The partial remains of a later sub-rectangular pit (717) cut stone lining 765. This feature was 0.90m long, 0.45m wide after truncation, and 0.25m deep. It contained dark brown sandy silt with light yellow, brown and orange lenses of more clayey or sandy material, and also included 12th to 13th-century pottery, burnt daub, frequent charcoal and small 'droplets' of copper-alloy that may represent casting waste. Some of the copper-alloy material was also found in deposit 713 within pit 766 (see Cool, Nos 49-50). This suggests industrial activity, possibly smelting, somewhere near the pits but not within them. Both these features were filled in at approximately the same time, even if they had different origins.

Phase 3C: Medieval (early to late 14th to early 15th century) (Fig. 24)

This phase comprised a robber trench, a stone wall, twenty discrete features including tanning and cess pits and post-holes, and two wells. They have been assigned to this phase on stratigraphic grounds and/or the ceramic evidence.

Surface/layer 200

This deposit was a grouped context consisting of two layers – a lower compacted orange brown gravel, with an upper mostly of gravel but with more mottled brown silt mixed with it. They proved difficult to distinguish on Site, and so were planned and excavated together, although their relationship was recorded in section. Both deposits extended beyond the western limit of excavation and were 4.50m long, 1.80m wide and up to 0.35m thick. The deposits were truncated to the east by robber cut 427, and by other cut features including pit 164. These two deposits lay on top of possible turf-built layers 396 and 397.

Deposit 200 was interpreted as two phases of an external cobbled surface and contained fourteen sherds of 12th to 14th-century pottery, with some modern glass fragments probably intrusive from later features. What this surface represented is not clear, and it pre-dated the Phase 3D structures and the major robber episode 427 (see below). Several post-holes cut the upper part of 200 (187 and 208), and post-hole cuts 540 and 542 may also have been dug from this level, but were only recognised once 200 was removed (see above). Post-hole 413, possibly cut through the backfill of 427, may have been associated with these.

Robber trench 427

This feature (378/427) was a linear cut along the western edge of the Site and extending across the entire north-south extent of the excavation, and 30m of its length and 2.80m of its width was exposed. It was truncated along its entire eastern side, although a small remnant of the base of the eastern side survived. The cut was usually 1.00m deep with a vertical western edge, except at the possible rounded terminal. It followed the line of the earlier Phase 1C Roman wall (411), and was dug to rob and remove masonry for reuse elsewhere, some of it possibly for the construction of wall 380 (see below). The base of the cut was generally flat, except where the stone footings of the Roman fort wall 411 had survived. In places it was 0.05-0.10m away from the edge of the original wall construction cut, though for much of its length it had obliterated this. It also cut through earlier cobbled deposit 200.

The backfill of 427 (211/261/401) contained residual Romano-British pottery and glass, and medieval pottery of 13th to 15th-century date. However, some of these finds may have also been intrusive too, as a large number of later features were cut into this backfill. It may have been this robbing activity that led to the deposition of such large quantities of mortar in the upper fills of Phase 2 ditch 325/851. The backfill was not obviously layered and no tip lines were visible in sections across it, suggesting rapid backfill.

Wall 300/380 (Fig. 6, S.137, Fig. 15, Plates 16-17)

At the north-western limits of the site a substantial construction cut (391/445) was noted, cutting the backfill of robber trench 427. This cut was at least 1.30m wide and up to 0.78m deep, but only two small sections of it both approximately 2.00m long had survived truncation by later cut features and the early modern cellar.

The construction cut contained limestone wall footings (380), comprising large angular limestone blocks up to 0.45m long and 0.20m high that formed a north-south structure 1.30-1.40m wide and 0.60-0.75m high. The base of the foundations consisted of more irregularly pitched stones, but the upper courses were mostly horizontal. Only the eastern side of the wall was faced with a 'step' at its base, whereas the western side had un-faced and more random courses. This might suggest that the western side of the footings or wall were not exposed at this level, but rather acted as a revetment to a higher ground surface on the western side. Only the eastern side of this wall was exposed to a greater depth, due to a lower original ground surface, and this may indicate that this wall was a boundary structure.

Alternatively, the eastern face of the wall may have been the 'inner' side of a substantial building whose inner floor level was lower than the external ground to the west. If so, the 'step' could have supported a timber floor. The original southern extent of the wall is not clear due to later truncation and disturbance. The limited pottery evidence associated with the wall and backfill of the construction cut suggested an earlier medieval construction date more in keeping with Phase 3B (see Cumberpatch below). A masonry extension appears to have been added to this structure during Phase 3D (see below).

Pits (Figs 24-25)

A series of heavily truncated pits and post-holes were located in the western part of the Site along robber trench 427, cutting into its backfill. The majority of these were heavily truncated and are not discussed further than the outlines presented in Table 2 below. Most were shallow, probable extraction pits later backfilled with a variety of materials including household refuse and cess, and with some exceptions noted below were unlikely to have been purpose-dug cess or tanning pits. All these features apart from 214, 290, 331 and 342 contained 13th to 15th-century pottery, and only some need further comment.

Pit 185 (Fig. 26, S.17, Plate 15)

Pit 185 was sub-circular in plan and roughly 1.58m in diameter and 2.38m deep, with very steep sides and a flat base. Its lower fills consisted of a series of grey or green silty cessy deposits, some containing lenses of charcoal, perhaps to neutralise odours. Two upper light green cessy deposits (178 and 180) had very steep, almost vertical tip lines, and adhered to the sides of the cut. Further cessy fills followed, and the tertiary fill (112) was mottled dark brown sandy silt containing frequent charcoal and iron residues, probably representing industrial rakeout and/or a final attempt to combat smells. The shape and depth of this feature make it unlikely to have been a tanning pit, and the lower and upper fills seem to have been dumps of cess. Cat bones were also recovered. The cessy deposits with very steep tip lines may indicate a phase of use as a latrine pit, before it returned to use as a cess pit. Although late 10th to mid-13th-century pottery was recovered from secondary fill 225, the stratigraphic sequence and ceramic data suggest a Phase 3C date. Roman and medieval pottery was found in deposits 180, 177, 175 and 112. Deposit 112 also contained intrusive early post-medieval window glass (Cool, No. 32), probably from the machining.

Pit 290 (Plates 13-14)

Pit 290 was a sub-square cut 1.70m long, 1.60m wide and 1.80m deep, with a lining (289) of coursed, roughly hewn limestone blocks, river cobbles and millstone grit fragments, loosely bonded by some sandy and gravel material. Four 'put' holes or, more likely, mortice slots were noted on the northern and southern elevations roughly 1.00m above the base of the cut, and this might have supported a wooden platform or seat. The primary deposit consisting of a thin layer of white lime, probably introduced to accelerate the decomposition of cess rather than to lime skins prior to tanning. The presence of herring and eel bones suggests cess deposits. Two greyish yellow and grey-brown sticky, cessy fills were followed by a possible recut 204. This contained sticky green-brown silty clay containing frequent limestone fragments, possibly a capping or sealing deposit. Dateable artefacts were only recovered from this upper fill within the recut, and comprised a residual Roman glass bottle fragment (see Cool, No. 22), 45 sherds of late 13th to early 17th-century pottery and some clay pipe. This second phase should thus belong to Phase 3D (see below). Both pit 290 and the recut 204 were truncated by later Phase 4 well 193.

Table 2. Pits assigned to Phase 3C

Cut	L (m)	W (m)	D (m)	Shape	Base	Lining	Notes	Interpretation
152	1.70	-	0.60	Rounded	Concave	N	Green-stained sides and a single green-stained fill. Roman and 10th-15th-century pottery in fill. Previously partly excavated and recorded as pit 72 in DV 72 excavation.	Cess pit?
170	1.40	0.80	0.20	Irregular	Irregular	N	Hollow filled with cobbles and rubble- levelling? 10 sherds of late 12th-14th-century pottery from fill.	Levelling/ Cobbled surface?
185	1.58	-	2.38	Rounded	Flat	N	Cessy fills, some with steep interfaces.	Cess/latrine pit?
196	1.10	-	0.70	Unknown	Flattish	Y – Clay	Clay-lined pit only seen in section.	Storage pit?
198	1.40	0.50	0.45	Sub-rounded	Flattish	Y - Clay	Blue-grey clay lining. Filled with crushed mortar/lime. Recut of earlier but similar pit 214.	Mortar/lime production?
214	2.00	0.60	0.70	Sub-rounded	Flattish	Y – Clay	Blue-grey clay lining. Recut by 198.	Liquid storage/lime production?
255	2.58	2.15	3.00	Rectangular	Flat	N	Gravelly/stony fills with mixed artefacts, some residual. Stratigraphy and later pottery suggest a 13th to 15th-century date (No. 29).	Quarry/extraction pit
290	1.76	1.56	1.8	Rectangular	Flat	Y- Limestone	Concreted sides. Evidence of recutting.	Cess pit
331	0.60	0.60	0.20	Rectangular	Flat	N	Red grey single fill with burnt clay and charcoal.	Pit
335	2.00	0.70	0.30	Sub-round	Uneven	N	Single fill stained green possibly indicating cess pit. Contained 2 sherds of late13th to14th-century pot. Wall 307 slumped into soft fill.	Cess pit?
342	0.73	0.65	0.14	Oval	Bowl	N	Pit probably associated with 331 and 352. Single fill contained burnt clay inclusions.	Pit
352	-	-	0.07	Rectangular	Sloping	N	Very truncated pit. 5 sherds of late 10th to 15th-century pot.	Pit?
354	-	-	-	-	Flat	N	Heavily truncated pit. Green flecked single fill.	Pit
360	1.80	1.70	0.31	Rectangular?	Irregular	N	Heavily truncated by cuts 164, 290 and 306. Sticky grey brown fill. Contained residual Roman pottery and medieval sherds.	Pit.

Cut	L (m)	W (m)	D (m)	Shape	Base	Lining	Notes	Interpretation
422	1.65	1.60	2.05	Sub-rectangular	Sloping	N	Green-stained near vertical sides, with grey-brown or yellow-brown organic fills. Contained sherds of 9th-16th century pottery.	Cess pit?
433	1.90	0.40	1.08	Subrect.?	-	Y- Stone	Stone lining/revetment (681) on E side of feature. Dark grey-brown organic fills. 2 sherds of 12th-13th-century pottery.	Uncertain.
453	1.20	1.20	0.60	Irregular	Rough	N	Single fill, 12 sherds of 13th to 14th-century pot.	Uncertain-pit?

Pit 422

This was probably originally sub-rectangular in plan, 1.65m long, 1.60m wide and 2.05m deep with a slightly sloping base, but was heavily truncated to the north by cut 251. The near vertical sides were stained green, and it was filled by nine successive layers of grey brown or light yellow brown organic sandy silts that probably represent dumps of cess material. Its fills contained 9th to 16th-century pottery.

Pit 433

This cut was 1.90m long and 1.08m deep, and was also probably originally sub-rectangular in plan, but had been heavily truncated by cuts 255 and 472 which had removed its northern and western extent, leaving just 0.40m of this feature's width. Nevertheless, it did contain a stone lining of unmortared, roughly dressed rectangular limestone blocks and river cobbles, irregularly coursed and tied into some of the masonry of the exposed Roman wall footings. These stones did not appear to extend down to the flat base of the cut, and it was not even clear if this lining had originally extended all the way around the pit, or was just a revetment wall confined to its eastern side. This feature was not fully excavated, but its fill was dark grey-brown silty sand that probably had a high organic content. Only two sherds of sherds of 12th to 13th-century pot were recovered, but as the feature cut the backfill of robber trench 427 it should be placed in this slightly later phase.

Clay-lined pits 198 and 214 (Fig. 26, S.2)

In the southern corner of the Site were two intercutting clay-lined pits (198 and 214). Pit 214 was sub-circular in plan and 2.00m long, 0.60m wide and 0.70m deep. It cut the backfill of robber trench 427, but extended beyond the limit of excavation. Pit 198 was a recut of 214, also sub-circular in plan but 1.40m long, 0.50m wide and 0.45m deep. Both had linings of grey-blue clay, and whilst 214 was backfilled with light brown silty sand, the fill (195) of pit 198 was mainly crushed cream-coloured limestone, either reflecting mortar production or perhaps liming as part of the tanning process. Both pits produced 13th to 14th-century pottery, and their clay linings indicate a use involving the storage of liquids.

Pit 152

Pit 152 was located in the central part of the Site where there were few features dating to this phase. It cut the upper fill of ditch 253, and consisted of a circular cut approximately 1.70m in diameter and 0.60m deep, with near vertical green-stained sides, a gently concave base and a single olive green fill (144). This yielded a mixed assemblage of residual Roman pottery and 10th to 15th-century sherds. The southern half of this feature was truncated by Buckland's DV 72 excavation trench where this feature was recorded as pit 72 (Buckland *et al*. 1989: 189). As residual Roman pot and fourteenth century or later material was found during that investigation, these results accord with the phasing presented here.

Wells 589 and 656 (Fig. 26)

In the north-east corner of the Site were two sub-circular stone-lined features 589 and 656. Cut 589 was approximately 2.92m in diameter, with regular, vertical edges, and backfilled by orange brown silty sands derived from the natural subsoil. Roughly hewn limestone blocks had been laid in courses to form a circular well shaft 1.10m across. The backfill of this shaft (564) was only excavated to a depth of *c*. 0.70m, and consisted mostly of limestone rubble, with some 13th to 15th-century pottery, in addition to a 17th-century clay pipe fragment. The latter finds could easily be intrusive or date from the backfilling or from cellar cut 709 which truncated the northern edge of the well construction cut, and this feature can be interpreted as a medieval well that was only infilled during the post-medieval period.

Feature 656 was a sub-oval stone lining 2.30m long and 1.80m wide, but this feature could not be fully excavated so the dimensions of the cut are unknown. The stone lining consisted of roughly dressed limestone blocks and some river cobbles, and the western side was probably a later rebuild (Plate 18). The cut was 0.40m deep on its western side but 1.44m deep on the eastern side, with an initially steep profile dropping near vertically after a break in slope. The base shelved gently to the east. The fill (590) was grouped as one deposit by the excavator but actually consisted of a series of grey-green and grey-brown sandy clay and silty sand deposits, with a dark grey-black organic layer near the base. Of note were the remains of two cats found near the bottom of this feature. Artefacts comprised residual Roman sherds and 11th to 15th-century wares. The well cut unexcavated pit fill/deposit 674.

Phase 3D: Late medieval (mid-15th century to 16th century) (Fig. 27)

These features included an extension to wall 380, pits and post-holes, two gullies and a deposit.

Wall 307 (Plate 19)

Abutting the south-eastern edge of Phase 3C wall 380 was a later length of walling (307), 9.00m long and 0.60m wide, and formed of limestone flags bonded with mortar. It was built within construction cut 324 that post-dated two pits (335 and 453, see Table 3 below), which cut the backfill of the construction cut of wall 380. Both pits contained late 13th to 15th-century pottery, and it is likely that wall 307 was at least 15th-century in date. A single sherd of 15th to 16th-century pottery found in association with this wall may support this. If 307 was an extension to wall 380, this suggests that the latter was still upstanding, even if its function had changed. It was unclear if 307 comprised footings for a timber building and originally had an east-west return, or if it was a boundary feature that incorporated earlier wall 380. No associated structural features or surfaces were noted, although later truncation was severe. The lower course of 307 had partly slumped into the soft and cessy fills of pit 335, and it was partially robbed or truncated to the west and south by cuts 146 and 306.

Pits

Ten pits were assigned to this phase and their details are presented in Table 3. They comprised four possible tanning pits, two possible cess pits, two further pits, a possible well and a clay-lined storage pit.

Tanning pits (Fig. 28)

Tanning activities seem to have continued into the later medieval period, and pits 251, 364, and 439 have been assigned to this phase. These features are summarised in Table 3. Once again they varied in their shape, size and form, although their concreted sides, green-stained fills and evidence of burning/cleaning suggests that they were used for tanning. Pits 251 and 439 also had some evidence of timber or wattle linings revealed by indentations in the sides of their cuts.

Other features

Feature 430 was 1.00m long, 0.80m wide and 1.00m deep, and cut the upper fill of pit 439. Its single grey-brown sandy silty fill (423) contained 13th to 16th-century pottery. Rather than a pit, this seems to have been a large post-pit or post-hole, with a concave depression 0.23m deep in its otherwise flat base probably representing the setting for an upright timber, later removed rather than being left to rot *in situ* as no post pipe was visible. This was in turn cut by pit 418 which was 3.22m long, 1.06m wide and 0.40m deep. Its dark brown sandy silt fill contained an assemblage of residual Roman and earlier medieval pottery. Post-hole 725 contained two sherds of later medieval pottery, and may have been a later intrusion into earlier feature 754.

Pit/well 450 (Plate 8)

This feature near the eastern side of the Site cut the fills of ditch Phase 2 ditch 492, and was 2.25m long, 2.00m wide and 3.35m deep, with steep sides initially dug at approximately 70° that then dropped almost vertically to a flat base that had penetrated below the bottom of the earlier ditch cut. Only one relatively homogenous grey-brown organic sandy clayey silt fill was identified (440) that became more grey and silty towards the base of the feature. The significant depth of this feature and its very narrow funnel-shaped profile suggests that it might originally have been dug as a well, and the bottom of the feature was certainly waterlogged and filled readily with water.Once it was abandoned, however, it may then have been backfilled fairly rapidly with cessy material. Pottery of 11th to 14th-century pottery was recovered from deposit 440, in addition to herring and eel bones. It has been placed in this later phase, however, as it cut through the upper fill of ditch 492 which itself contained 15th-century artefacts.

Table 3. Pits assigned to Phase 3D

Cut	L(m)	W(m)	D (m)	Shape	Base	Lining	Notes	Interpretation
162	1.60	-	0.60	Sub-circular	Flattish	Y- 2 phases	Lined with 2 phases of blue-grey clay. Contained Roman and late medieval pottery.	Liquid storage?
164	-	1.40	0.50	Sub-rectangular	Flat	Y – Stone	At least 1.70m long, but extended into western edge of Site. Contained two cessy, green-stained fills, 12th-17th-century pot, a copper-alloy tie loop and a sewing pin.	Cess/latrine pit.
204	1.00	0.60	0.20	Irregular	-	N	Later recut of Phase 3C pit 290. A single sticky green cess deposit and 2 sherds of 15th-16th-century pot.	Cess pit.
251	4.00	2.90	2.15	Sub-rectangular	Flat with dip in centre	N	Concreted, green-stained sides. Very large if for tanning. Many deposits grouped as a single fill. 11th to 16th-century pottery.	Tanning? Partly excav. in DV72 as pit 40.
306	3.00	1.00	0.40	Irregular	Flattish	N	Single fill of mid grey-brown clayey silt.	Robber cut for stone from wall 307?
364	1.23	0.83	1.20	Sub-circular	Concave	N	Green primary fill suggests tanning. Red secondary fill indicates burning. All finds from upper fill 336 (13th to 16th-century pottery, lead stud No. 45).	Tanning.
418	3.22	1.06	0.40	Sub-rectangular	Flattish	N	Contained a single dark brown sandy silt fill, and Roman and earlier medieval pottery.	Uncertain.
430	1.00	0.80	1.00	Sub-circular	Flat with depression	N	Small pit or post-pit/post-hole containing a single grey-brown sandy fill and 13th-16th -century pot.	Uncertain.
439	1.40	1.20	1.18	Square	Flat/concave	Y – Traces of timber lining	Possible evidence of fire/cleaning. Secondary fill (432) may be more than 1 fill 11th to 16th-century pot).	Tanning.
450	2.25	2.00	3.35	Sub-rounded	Flattish	N	Steep sides, filled with a homogenous grey-brown organic sandy fill. Waterlogged. Cut fills of ditch 492.	Well? Possibly reused as a cess pit.

Recut 204 and pit 164

Feature 204 was probably a later intrusion or recut into the fills of Phase 3C pit 290, possibly for cleaning. It contained a single sticky green cess deposit (205) with frequent limestone inclusions, indicating deliberate backfilling (see above). This deposit contained two sherds of 15th to 16th-century pottery.

Pit 164 was a rectangular cut at least 1.70m long, 1.40m wide and 0.50m deep, but it extended westwards into the section beyond the limit of excavation. It had a lining of roughly dressed limestone blocks with some river cobbles (153), laid in rough, unbonded courses, and this structure had partially collapsed in the south-eastern corner. It contained two cessy green-stained fills (154 and 143). Residual pottery of 12th century date was recovered from the stone lining (153), and the upper fill (143) contained 15th to 17th-century pottery, a tie loop that could belong to a late 13th century to 18th-century date range and a copper-alloy sewing pin of post-13th-century date and (Cool, Nos 9 and 14).

It was initially thought by the excavator that pit 164 truncated well 193, but post-excavation analysis and subsequent study of photographs indicates that the well may have been dug up against this feature undercutting it slightly, thereby causing the partial collapse of stone lining 153. This also makes better sense of the artefactual evidence (see below). Pit 164 was thus probably constructed in the late medieval period, but might have been in existence as a partly open feature for some time. A 19th-century sewer pipe appeared to drain into it, suggesting that even though largely backfilled by then this pit nevertheless continued to function as a soakaway.

Clay pit 162

This pit was observed close to Phase 3C clay-lined pits 198 and 214. It was roughly circular in plan, 1.60m in diameter and 0.60m deep. It truncated Phase 3C robber cut (427) backfill deposits, and had two possible phases of blue-grey clay lining (137 and 136), separated by brown silty sand backfill. Later medieval pottery was recovered from upper fills (135 and 138) and medieval window glass from 135 (Cool, No. 31), in addition to residual Roman pottery. The clay lining again indicates the storage of liquids and/or industrial activity.

Layer 361/362 (Fig. 27)

These dark brown sandy silts were numbered separately due to slight texture differences, but were probably formed by the same processes. They sealed many features, but were themselves cut by later features. Both contained late 11th to 13th-century pottery, but as 361 sealed a number of Phase 3D features (418, 430, 439 and 450) these finds were probably residual. These deposits may mark a period of relative inactivity in the area of the Site, allowing soil to accumulate, and were cut by gully 280 (see below).

Gully 280 (Fig. 28)

North of tanning pit 251 and cutting deposit 362 was a linear gully or ditch (280) orientated roughly north-south. It was at least 5.80m long and up to 1.75m wide and 0.41m deep. At the base of cut 280 were five stake-holes in a north-south line, perhaps part of a hurdle fence, although perhaps from a slightly later phase of use. This feature may have been previously excavated on Site DV 72 (Buckland *et al*. 1989: 184) as part of pit 40, and this gully might have been linked to pit 251 (probably the same feature as pit 40) in order to drain water or other liquid into it. The 1970s Site DV 72 trench had removed any relationship between these two features, although a northern extension to the pit was recorded during the earlier 1972 excavation, and this was also associated with several stake-holes (Buckland *et al*. 1989: 184-186, fig. 47). The northern extent of this feature could also not be satisfactorily established, and unfortunately the plan of the northern excavated section of gully 280 was missing from the archive. This ditch cut layer 361 and hence has been assigned to this phase, although its single fill (291) only contained residual Roman and earlier medieval pottery.

Ditch/gully 653

This feature at the northern part of the Site had been heavily truncated by pit 507 (see below), and also by modern disturbance and during the machining of the Site. It was exposed for 3.11m and was up to 1.56m wide and between 0.05-0.54m in depth, tapering to a rounded terminal at its southern end. Its single fill yielded twelve sherds of later medieval pottery and a post-medieval sherd, the latter probably intrusive from later disturbance. This feature may have been a drainage or boundary ditch on a roughly north-south alignment.

Phase 4: Post-medieval and early modern (Fig. 29)

A small number of the features on Site were assigned to this phase, including several timber-lined tanning or tawing pits and associated features, a well, a ditch and a series of nineteenth and early twentieth century cellars.

Pit 507 (Fig. 30, Plate 20)

Pit 507 was up to 0.48m deep. Unfortunately, much of it was accidentally removed during initial machining, but it would originally have been a T-shaped pit c. 3.50m long and 2.20m wide containing three timber plank-built 'tanks' surrounded by sticky grey clay (506), which was also underneath the tanks. One wooden tank and much of another (533) was destroyed, but the near-complete example consisted of six planks 1.16-1.23m long, 0.27-0.30m wide and 0.03-0.04m thick (505), laid flat on the clay lining of the base of the cut. The sides were formed by planks laid upright along their horizontal axes, *c*. 1.60m long, 0.39m wide and 0.03m thick, and these had bowed inwards under the pressure of the clay packing. The ends of the tank were formed by timbers 1.07m long, 0.34m wide and 0.03m thick. These timbers could not be stored at the end of the excavation, so it is not known what the type of wood was and whether the planks were made for the tanks, or reused from another structure.

The backfill of the tanks was probably similar. The primary fill of tank 505 consisted of a layer of semi-waterlogged bark chips (527), probably waste associated with the tanning process (see Discussion below), whereas the upper deposit (504) within tank 505 and the fill of tank 533 (deposit 532) consisted of a mixed deposit of lime and crushed limestone, sand ash and clinker as well as numerous sheep metapodials (see Richardson below). Pottery of 18th-century date, clay pipe fragments and glass wine bottle fragments were also recovered.

Pit 535

Cut 507 was probably constructed across the top of an earlier backfilled pit, cut 535. This was sub-rectangular in plan, and 1.26m wide, 1.20m wide and 0.16m deep, and had been filled with grey silty sands and small limestone fragments. Its fill (534) contained one sherd of probable 18th-century pottery.

Pit 128

Near the south-eastern corner of the Site was pit 128, a broadly sub-rectangular cut 2.60m long, 2.40m wide and 1.23m deep, and truncated by a possible 19th-century drain or soakaway (cut 166). Pit 128 had irregular, variable sides and an uneven but generally gently concave base. Its single fill (101) was grey brown clayey silt containing large quantities of lime, and numerous animal bones, mostly cattle horn cores, almost certainly waste associated with horn working and/or tanning. The lime may have been used to de-flesh the bones. This pit was not recorded in Site DV 72 (Buckland *et al*. 1989: 184-186, figure 47), and either it was machined away without being recognised, or was situated just beyond the southern edge of the earlier excavation. Machining out the 1972 excavation backfill and the consolidation of those sections just truncated the northern edge of pit 128. The excavator of pit 128 linked it to gully 168 (see below), but the 1970s DV 72 excavation trench removed this relationship.

Gully 168

This was exposed in plan for at least 5.80m, was up to 1.4m wide and 0.35m deep. It was aligned broadly north-west to south-east, but had a slight kink in its length. The primary fill (279) contained a mixed pottery assemblage of 12th to 19th-century date. A copper-alloy stud was also recovered from deposit 101 (Cool, No. 46). Together with pit 128, this gully seems to have formed a later modification of Phase 3D gully 180 and pit 251. This pit was cut by pit 166 and may explain the presence of later artefacts in the fill.

Pit 166

This was a semi-circular cut 2.60m long, 2.00m wide and 1.10m deep, with irregular, uneven sides and an uneven base. Its backfill 109 contained limestone rubble, bricks, ceramic drain pipe fragments and cattle horn cores, the latter possibly derived from the earlier fill (101) of pit 128 which this feature was dug into. Late medieval and post-medieval pottery and cod bones were also found in 109. This pit may have been a later drain or soakaway.

Pit 650

This was a shallow oval cut 1.45m long, 0.85m but only 0.08m deep, and which had been heavily truncated during the machining of the Site. It contained the skeletal remains of what was probably originally a fully articulated pig burial. One sherd of late post-medieval or early modern pottery was found within this feature, although unfortunately this was subsequently lost. The animal may have been kept on a smallholding or in a backyard, the latter a common practice in urban areas until at least the late 19th century.

Pit 105

This sub-square pit was 1.47m long, 1.21m wide and 0.45m deep, with regular sides and a flat base. Its lower cessy fill (455) contained a mixture of 11th to 14th century pottery, but upper fill 106 also contained post-medieval 17th and 18th-century material, glass bottle fragments and a sewing pin. The pit has therefore been placed in Phase 4, although considerable tree root disturbance of the upper fill was noted on Site, and some of the medieval material cross-joined with that from Phase 3B pit 107 (see Cumberpatch below). It might be that this was a Phase 3B feature with much later disturbance.

Pit 655

This feature could not be fully excavated as it extended beyond the limit of excavation. It was a broadly subrectangular pit at least 1.80m long, 0.70m wide and up to 0.31m deep, with a stone lining of coursed, unmortared rough limestone slabs that seem to have been designed to hold liquid. Its single fill was a dark brown sandy silt with some greenish lenses, and this deposit contained a mixture of pottery including 13th and 18th to early 19th-century sherds. It might have been used as a cess pit or latrine and associated with the post-medieval or early modern cottages that were built over this part of the Site, although it is just possible that it may have been constructed slightly earlier in Phase 3D, and had then been reused.

Pit '921'

This feature truncated the southern part of wall footings 411. It was a rounded pit approximately 1.00m in diameter and 1.20m deep with a flat base and was actually excavated as part of Buckland's Site DT between 1970-75, where it was described as being early post-medieval in date, although the actual evidence for this was not outlined (Buckland *et al*. 1989: 181, figures 41, 44). It was backfilled with modern rubble after the excavation, and at Church Walk it was quickly emptied. It does not appear in the final context and finds concordance from DCW 94 (Appendix 16).

Well 193

Well cut 193 was roughly 1.70m in diameter and 2.00m deep. The stone well lining 192 formed a shaft 1.10m in diameter, and consisted of roughly hewn limestone blocks and a few hand-made bricks, laid in rough courses with 'tying' stones. No bonding was recorded,

although black-brown clayey sand associated with the stonework and visible for the lower 1.25m might have been a degraded lining. The lower fill of the well was sticky black silty clay with a high organic content (264). The middle fill (215) was dark brown sticky clay that contained a large quantity of limestone rubble, brick, tile and wood fragments, in addition to an iron fixture (Cool, No. 30) and 17th to early 19th-century pottery. The tertiary backfill 191 was brown clayey sand, and this contained 19th-century pottery and glass wine bottle fragments. Cat remains were also recovered from this feature. As this well seems to have cut into deposit 143, the upper fill of Phase 3D pit 164, it was attributed to Phase 4. It is likely that it was constructed in the post-medieval period, but remained open until the 19th century or later when it was finally backfilled with rubble. It was partly dug through earlier cess pit 290/204, so the quality of the water from this well must have been rather poor.

Gully 146

This was a shallow, rather irregular rectilinear feature approximately 6m long, and up to 0.92m wide and 0.20m deep. It was initially thought to be a robber cut of Phase 3D wall 307, but was on a different alignment, and was more likely to have been a drainage gully that cut across part of the line of the earlier wall. Its mid reddish-brown clayey silt fill contained medieval pottery, but also 18th and 19th-century sherds. It may have been associated with the small, brick-lined cellar cut 263 in the north-west part of the Site.

Early modern cellars and intrusions

There was extensive truncation to the earlier deposits on Site caused created by early modern brick or stone-lined cellars (cuts 263, 420, 587, 701, 702, 706 and 709), which were filled with brick and stone rubble from buildings that had been demolished prior to the construction of the Askew's Print Shop. Cellar 702 had a stone-flagged floor, context 704. Most of these cellars were probably 19th-century in date, and would have belonged to cottages and other buildings shown on 19th-century maps. These cellars contained post-medieval and early modern pottery in rubble backfills.

In addition, a series of early modern or modern intrusions including drain cuts and irregular pit cuts were recorded on Site (131, 155, 408, 711). These contained 19th century and modern material.

6 Artefact Record

Pottery by C.G.. Cumberpatch, K. Hartley, R. Leary, R.S.O. Tomlin, A. Vince, M. Ward, D. Williams and J. Young

Introduction

The pottery assemblage from Church Walk, also known as Askew's Print Shop was examined by the authors between January and March 2007. The pottery assemblage was examined in two principal groups – Roman pottery and post-Roman pottery. The report on the Roman pottery was compiled by Ruth Leary with contributions by David Williams (amphorae), Kay Hartley, Margaret Ward (samian) and Roger Tomlin (graffito). The report on the medieval pottery was compiled by Chris Cumberpatch with contributions by Jane Young (Shell Tempered ware) and Alan Vince (Saxon and Saxo-Norman wares and TS/ICPS analyses). The data are summarised in Appendices 1-6 and in Tables 18-37. Table 38 summarises the abbreviations used in the data tables. The original database and spreadsheet files containing the raw data form part of the Site archive. Illustrated sherds and vessels are denoted by an asterisk.

Type series

The majority of pottery within the Askew's assemblage was wares that have been identified elsewhere, and which in many cases have been the subject of substantial publications. For this reason the type series is largely a guide to existing literature with additional notes added regarding any peculiarities and idiosyncrasies noted of the material from the Site itself.

Romano-British pottery by R. Leary with contributions by D. Williams, K. Hartley and R.S.O. Tomlin (Figs 31-34)

Excavations on the former Askew's Print Shop, Church Walk, Doncaster recovered 924 sherds of Roman-British pottery (19583g in weight) with 165 (3982g) coming from features and deposits that appeared to be of Roman date. There was thus a considerable amount of residuality. All the pottery was catalogued by fabric, form, decoration and condition by context, whilst quantification was through sherd weight, number and rim percentage values.

Taphonomy

The average sherd weight of the assemblage was *c*. 21g, well within the 10-30g sherd weight range of 25 groups from northern military, urban and villa sites (Evans 2002: 495), and contrasting with lower values from rural and highland zone sites of under 10g (Evans 2001a: 173). The average sherd weight increased in Phases 3B and 4 (Table 20). This may simply be the result of the heavier vessels being made in the 3rd to 4th centuries AD at the South Yorkshire kilns and the presence of some large sherds of amphora and mortaria, compared with the generally finer, lighter vessels of the late 1st to early 2nd centuries AD. The pottery was mostly in good condition and was not overly abraded and friable. Around half a fine

white ware bowl of the reeded rim bowl group from the fill of slot 740 may be a deliberate or placed deposit (q.v. Chadwick 2004; Fulford 2001; Woodward and Woodward 2004), but most sherds came from smaller refuse deposits.

Table 4. Summary of Romano-British pottery by phase

Phase	Nos	Weight	Av. sherd weight
1A	60	879	15
1B	27	798.2	30
1C	79	2309.2	29
2	266	5229.6	20
Total	432	9216	21

Pottery fabric descriptions

The fabric of the pottery was examined by eye and sorted into fabric groups on the basis of colour, hardness, feel, fracture, inclusions and manufacturing technique. Sample sherds were examined under an x30 binocular microscope to verify the divisions. National fabric collection codes have been given wherever possible (Tomber and Dore 1998), and full fabric descriptions are listed in Appendix 1. The pottery is illustrated in Figs 31-33.

Phase 1A: Early Roman (1st to 2nd centuries AD)

Ditch 530

Only one small scrap of samian came from the primary fill of this ditch, dated to AD 70-110.

Slot 750

The thirteen sherds (471g) included only two sherds from the lowest fill, a GTA17 native bead rim jar and a samian bodysherd. Similar vessels to the GTA17 series were in use from the mid-1st to mid-2nd century at Lincoln (Darling 1984: Nos 21 and 26) and were also present in a Trajanic pit and a ditch earlier than AD 130 at Doncaster (Buckland and Magilton 1986: Nos 17, 149-152), suggesting a pre-Hadrianic date range. This jar form also has been previously identified in a GRB1 fabric in a cracked and overfired vessel, suggesting the possibility of local manufacture of the form (Leary 2004: No. 98). The GTA fabrics at Doncaster were different in details of firing and fabric to those in Nottinghamshire, Derbyshire and Lincolnshire, the latter tending to be greyish brown with reddish brown margins and given to surface spalling. The forms also contrast with types made in the Trent Valley where, although the ubiquitous bead-rim jar types were present, the distinctive 'Trent Valley' corrugated jar types predominated (Todd 1968a, dated *c*. AD 50-100).

The distinctive jars with grooves below the inside of the rim such as no. 4 (see below) were present at Lincoln in a brown fabric with grey surfaces (Darling 1984: Nos 63, 88). The products of the South Yorkshire kilns had typological similarities to some of the pottery found in north Lincolnshire and Humberside, but although these jars may be derived from there more local manufacture is suggested by differences in the fabric. A programme of fabric analysis would perhaps clarify this. At Doncaster High Street the GTA fabrics were the most common fabric in a small mid-late 1st-century group, but fell to only 5% of the assemblage in the following late first to early 2nd-century group (Leary 2004). A date in the mid-late 1st century is therefore likely. The samian, dated to AD 55-80, supports this.

The secondary fill contained a sherd from a Dressel 20 amphora, samian sherds dated to AD 55-80, and a CT bodysherd from the shoulder of a jar, probably of mid-late 1st-century date. The upper fill contained GRB6, GRA1 and OBA1 sherds and GRB1, GTB17 and CT sherds, probably all of late 1st-century date. The late fill contained sherds from three more GT and CT jars of late 1st-century date and small neckless, everted-rim GRB1 jar of Flavian-Trajanic type that was probably early Flavian in date.

1* Rim of GTA17 jar. Rim has distinctive internal bevelling. 12g. Re 5%. *Context 752; Phase 1A*

2* CT bodysherd from a shouldered jar. The shoulder bears light rilling and the upper body has at least one groove. Probably mid-late 1st century. 16g. *Context 749; Phase 1A*

3* GRB1 neckless everted rim jar. 5g Re 5%. *Context 748; Phase 1A*

4* GTA17 rim and upper body of a 'native' jar with triangular rim. The rim has the distinctive inner groove resulting from being folded over on the inner wall. The rim is rather taller than normal, and reminiscent of the later Dales ware types made at Little London. A similar vessel was found at Chesterfield in a phase dated to the Neronian period (Ellis 1989: fig. 19, No. 4). Re 10%. *Context 748; Phase 1A*

5* CT upright rim with inner groove. This may relate to the Dales ware series but lacks a flat rim and is also similar to much earlier types known from the 1st-century at sites such as Scratta Wood Site 1 (Challis and Harding 1975: 94) *Context 748; Phase 1A*

Pit 174

Bodysherds of GRA1, FLA2 and OBB1 from the earlier fill 209 of this pit could not be closely dated but samian sherds suggest a range of *c*. AD 80-110. Further samian sherds from fill 173 date to AD 120-145 and the coarsewares included GRB1 and OBB1 rusticated sherds of late 1st to early 2nd-century date, and a GTA17 jar similar to No. 28 of mid to late 1st to early 2nd-century date. A Flavian date is indicated with some late additions.

Ditch 253

GRB1 rusticated sherds, bodysherds from the GTA17 native jars and undiagnostic OAB1 and GRB1 sherds from fill 227 suggest a mid/late 1st to early 2nd-century date. The samian from 227 was dated to AD 80-110. A single burnished GRB sherd came from fill 252, but a larger group of pottery was recovered from fill 219 including a mortarium Gillam form 239 (1970) from northern France dated to AD 65-100, a Flavian-Trajanic type GRB1 jar (similar to No. 3 above), rusticated sherds and undiagnostic bodysherds in fabrics GRB1, GRB14 and OAB1 with much later sherds of the late 3rd to 4th century which included East Yorkshire calcite gritted ware, a colour-coated developed flanged bowl from the Nene Valley or Swanpool kilns and a hammerhead vessel, perhaps a mortarium or a Crambeck type 10 dish. These suggest deposition of pottery debris in the second half of the 4th century when the East Yorkshire calcite gritted and grey wares were distributed more widely (Bidwell 2005: 15; Evans 1989: 40). Evans has dated occurrences of East Yorkshire calcite-gritted wares in proto-Huntcliff jar forms in South and West Yorkshire to *c*. AD 330-350/55 (Evans 2001a: 159, Nos 30-31) and the undiagnostic sherds from ditch 253 could be as early as these.

6* M16 flanged mortarium (Gillam 1970: No. 239). 237g. Re 7%. *Context 219; Phase 1A*

7* NV2/SWCC bead and flange bowl. Late 3rd to 4th century. 26g. Re 10%. *Context 219; Phase 1A*

8* M15 hammerhead mortarium or dish in white slipped orange ware with brown painted dot within curvilinear swirl on the flange. Late 3rd to 4th century. Compare with Crambeck products (Webster and Booth 1947 type 10). 27g. Re 4%. *Context 219; Phase 1A*

Phase 1A dating

A rusticated sherd from post-hole 747 gives a *terminus post quem* in the late 1st to early 2nd-century AD, and pit 645 contained a GRB1 rusticated jar and an OBB1 jar with a rebated rim of late 1st to early 2nd-century type, and these two features may date to this phase. The samian from the primary fill of ditch 530 dated to AD 70-110. An undiagnostic GRB1 sherd also came from post-pit 754. The samian from Phase 1A provides a date range in the mid to late 1st century, apart from a dish sherd from context 173 dated to AD 120-145. This had a graffito scratched underneath it after firing (see Tomlin below).

Phase 1B: Roman (mid-2nd century)

No samian came from Phase 1B.

Pit 441

The primary fill of this feature contained a small, abraded and discoloured sherd which was probably of fabric FLA2. The upper fill of this pit contained eight sherds (346g) of Romano-British pottery including a bead-rim jar with internal lid-seating of a type found in Hadrianic-

Antonine contexts in the East Midlands (Darling 1984: No. 58). This last vessel was in a greyish/brown shelly ware, GRB7, a fabric used at Blaco, Nottinghamshire (Leary 2003b) in the production of split rim jars of a type made at Little London kilns and dated AD 135-225 by Buckland (Buckland *et al*. 1980: 159; Oswald 1937: type 53, 67-77, 116-124). Sherds of Dressel 20 amphora, grey and oxidised local wares were also identified but do not narrow this dating. Infilling during the Antonine period fits the date range of these vessels.

9* GRB7 rebated-rim jar. 99g. Re 19%. *Context 415; Phase 1B*

Pit 730

10* GRB1 shallow-grooved rim dish. Not closely dated but most likely to be late 2nd-early 3rd century. 11g. Re 2%. *Context 729; Phase 1B*

Slot 740

This feature contained a large quantity of sherds from an FLA1 flat rim carinated bowl that belongs to the reeded rim bowl series of the late 1st to early 2nd centuries, and an unusual platter or dish with flaring walls and internally grooved rim, also in FLA1. The former vessel was scorched on the base while the latter was badly burnt. A BB1 bodysherd from a jar with acute lattice burnish from the fill indicates a date after AD 120.

11* FLA1 carinated bowl with flat rim. The base is scorched. The form is related to the well known reeded rim bowl series of the late 1st to early 2nd centuries (Monaghan 1997 type BC3). Monaghan notes that these bowls were often found at York with sooted bases and a sooting pattern on the rim that indicated a lid had been in position (Monaghan 1993: 706). 321g. Re 50%. *Context 739; Phase 1B*

12* FLA1/GRA1 platter/dish with flaring walls and internally grooved rim. Burnt, probably originally FLA1. Similar to samian form Curle 11, a type most common in the pre-Antonine period, and a series of Hadrianic-early Antonine vessels at York similar to Wetterau vessels made in upper Germany (Swan 2002: fig. 9 no. 107, 109-110, fig. 10 no. 127). 21g. 4%. *Context 739; Phase 1B*

13 Two thick GRB1 bodysherds bearing burnished curvilinear intersecting loop decoration most common in the late 2nd to 4th centuries. *Context 672; Phase 1B*

Phase 1C: Later Roman (mid-2nd century onwards)

Bodysherds of FLA1 and OAB1 came from pit 340 and deposit 397 respectively, but were not closely datable. Deposit 588 contained sherds of Dressel 20 amphora (4), three FLA1 sherds, one GRB1 sherd and six sherds from a BB1 bowl found in pit 428 (No.15).

Pit 428

Several Romano-British sherds came from the single fill 171 including a Flavian-Trajanic jar similar to No. 3 above, and GRB1 rusticated sherds of similar date as well as a group of

Hadrianic-early Antonine BB1 and GRB1 vessels. Some small sherds of medieval pottery may indicate later intrusion into this feature (see feature description above).

14* BB1 necked jar with burnished wavy line decoration on the neck, a feature which disappeared by the mid-2nd century (Gillam 1976). Acute lattice burnish on the girth. Slightly scorched on rim and neck. 57g. Re 18%. *Context 171; Phase 1C*

15* BB1 flat rim bowl/dish burnished all over. 39g. Re 11. This sherd joins one from the same vessel found in context 588. The form is similar to Gillam 1976 nos. 62-4, mid-late 2nd century. Another similar vessel was present. *Context 171; Phase 1C*

16* GRB1 dish/platter with inturned rim. Similar vessels are known from Doncaster kilns in the late 1st to early 2nd centuries (Swan 2002: figure 12 No. 150). 12g. Re 4%. *Context 171; Phase 1C*

Pit 486

The samian from this pit was dated to *c*. AD 70-110.

Layer 521

This layer sealed some of the post-holes of Phase 1A and contained several late 1st to early 2nd-century vessels including sherds from GRB1 rusticated jars and a sherd from a GRA2 ring-and-dot beaker (Gillam 1970: No. 68, late 1st to early 2nd centuries), as well as sherds from a BB1 bowl or dish dating after AD 120 and a BB1 jar with acute lattice burnish dating to AD 120-200. Dressel 20 amphora sherds were also present. This group suggests deposition of Flavian-Trajanic material in the Hadrianic or early Antonine period. The samian dated to AD 70-90 and AD 70-110.

17* GRA1 fine burnished neckless jar with everted rim and shoulder groove typical of the Flavian-Trajanic period. A bodysherd, probably from the same vessel bears a burnished wavy line on the lower body. 41g. Re 10%. *Context 521; Phase 1C*

18* GRB1 shallow bowl with flaring bifid rim, cf. an example from Doncaster dated Flavian-Trajanic (Gillam 1970 type 301 AD 80-130; Swan 2002: figure 12 No. 148) and an Antonine kiln at Roxby (Rigby 1976: figure 68 Nos. 60-62). 24g. Re 11%. *Context 521; Phase 1C*

19* FLA2 lid singed around the rim. 41g. Re 17%. *Context 521; Phase 1C*

Wall 411

This small group of three sherds comprised an undiagnostic GRA12 bodysherd, a samian sherd dated to AD 120-145 and a Dales ware rim of 3rd to mid-4th-century date. Dales ware is dated after the second decade of the 3rd century AD by Swan (May 1996: 577) and given a start date *c*. AD 200 by Evans with a distribution beyond Lincolnshire and the Vale of York in the late 3rd and earlier 4th centuries (Evans 2002: J12.2). In Doncaster, Buckland suggested

Dales ware may have been present in the late 2nd century, whilst at York Monaghan has cited examples at the end of the 2nd century (Buckland *et al*. 2001: 80, No. 376; Monaghan 1997: 897-898). There were small numbers of Dales ware sherds in the late levels at Doncaster High Street (Leary 2004) with material otherwise dating to the late 2nd century. Although these belong to the latest levels and may well have included later ceramic rubbish casually deposited, there was no other pottery of 3rd century type in those layers. At Lincoln, there were few Dales ware sherds before the mid-3rd century (Darling 1999: 131). A date in the first half of the 3rd century thus seems appropriate.

Bedding layer 586 contained undiagnostic greyware sherds.

Phase 2: Roman to medieval

The primary fills of ditch 325 and 492 contained late Romano-British ceramics.

Ditch 325

Pottery from the primary fill included residual material such as a Flavian-Trajanic everted rim jar and an FLA spouted bifid rim flagon, and much later pottery dating to the late 3rd to 4th centuries. These sherds included a bead and flange bowl, two Dales ware jars, South Yorkshire greyware subconical bowls, a Romano-British shell-tempered plain rim dish and a flanged mortarium with tall upright rim similar to those made at the early 4th century kilns at Branton (Buckland 1976: Nos. 6-7). The presence of medieval sherds indicates that whatever the origin of this feature, it was still open well into the medieval period.

20* GRA2 Flavian-Trajanic everted rim jar. 17g. Re 10%. *Context 283; Phase 2*

21* FLA1 spouted flagon with bifid rim, compare with an example at Derby (Birss 1985: figure 40 No. 23). Trajanic type. 34g. *Context 283; Phase 2*

22* M15 flanged mortarium with tall grooved rim and flange with grooved distal end, compare with example from Branton (Buckland 1976: Nos 6-7). Late 3rd to 4th centuries. 94g. Re 12%. *Context 283; Phase 2*

23* CTA2 dales ware jar rim. 3rd to 4th century. Re 6%. *Context 283; Phase 2*

24* CT uncommon plain rim dish, burnished all over. Compare with late 4th-century group at Lincoln (Darling 1977: No. 137). 16g. Re 7%. *Context 283; Phase 2*

25* GRB6 wide-mouthed subconical bowl with everted rim and double shoulder grooves. 43g. Re 3%. *Context 283; Phase 2*

26* GRB6 wide-mouthed subconical bowl with short flat rim and double shoulder grooves. 78g. Re 11%. *Context 437; Phase 2*

27* GRB1 developed bead and flange bowl. Mid/late 3rd to 4th centuries. 16g. Re 9%. *Context 437; Phase 2*

Ditch 492

The primary fill 451 contained mid-3rd to mid-4th-century pottery including Dales ware jars, a Mancetter-Hartshill multi-reeded hammerhead mortarium rim and a South Yorkshire greyware subconical bowl, as well as a residual GTA17 1st-century jar. Fill 447 contained a similar range of South Yorkshire greywares such as bead rim and everted rim wide-mouthed jars, a subconical bowl and a flat rim bowl, probably a colander (Buckland *et al.* 2002: types Hb, Hc/d and Ha), as well as a GRB1 double lid-seated jar of Swanpool type H form. This last vessel was a late 4th-century form at Lincoln (Darling 1999), and was the most recent Roman sherd in this group. A sherd of medieval pottery was also recovered from 451.

28* GTA17 triangular rim jar with characteristic internal groove below rim. A second jar of this type was present. 58g. Re 14%. *Context 451; Phase 2*

29* CTA2 Dales ware jar rim. 9g. Re 5%. *Context 451; Phase 2*

30* MH2 reeded hammerhead mortarium. Very abraded. 35g. Re 5%. *Context 451; Phase 2*

31* GRB1 subconical bowl with flat rim. 28g. Re 4%. *Context 448; Phase 2*

32* GRB1 bead-rim wide-mouthed jar. This form is similar to the East Midlands burnished ware types of the late third-fourth century (Todd 1968b). 68g. Re 6%. *Context 447; Phase 2*

33* GRB1 wide-mouthed shouldered jar with short everted rim. Burnished outside body and inside rim. 35g. Re 10%. *Context 447; Phase 2*

34* GRB1 subconical bowl with short flat rim. 62g. Re 8%. *Context 447; Phase 2*

35* GRB1 subconical flat-rim bowl. 54g. Re 10%. *Context 447; Phase 2*

36* GRB6 double lid seated jar. Compare with Webster and Booth 1947 type H. 28g. Re 5%. *Context 447; Phase 2*

37* CTA2 bowl with lipped rim burnished outside and inside body (Darling 1977: no. 97). Mid to late 4th centuries. 41.5g. Re 15%. *Context 149; Phase 2*

Phases 3-4: Medieval and post-medieval. Re-deposited vessels of intrinsic interest

Some 538 sherds of Romano-British pottery (12092g) were residual in later features. Of these, 143 sherds were from the later fill of ditch 325 and included some of the most recent Roman pottery such as a late Cantley mortaria (Nos 40-41), a painted collared M17 mortarium (e.g. Buckland and Magilton 2005: No. 82-83), CTA2 double lid-seated jars (similar to No. 45 above), a CTA2 bowl with a small lipped rim, Crambeck parchment ware bowls of the late 4th century (No. 47) and a late slit and circular folded beaker with painted decoration, perhaps from Swanpool (No. 46), but no late Nene Valley colour-coated wares.

Romano-British wares from other features in these later phases included a small amount of East Yorkshire calcite-gritted ware unlikely to be reaching South Yorkshire much before the mid-fourth century (Evans 2001a: 159, Nos 30-31). Vessels from the late Nene Valley colour-coated repertoire included developed bead and flange bowls and plain-rim dishes; whilst an Oxfordshire red colour-coated bowl (cf. Young 1977: C51) dated AD 240-400 was also identified. The greywares comprised the normal range of South Yorkshire grey ware types such as subconical bowls, wide-mouthed jars, developed bead and flange bowls, large jars with everted rims, a colander and a long necked beaker as well as earlier rusticated jars and 'native' jars in fabric GTA17. A small amount of Lyons roughcast ware was present dating to the pre-Flavian and early Flavian period, and Flavian-Trajanic mortaria from North France and the *Verulamium* region (Nos 37-38). A sherd from a mica-dusted folded beaker is likely to have been Trajanic in date and compares with imported examples.

38* M 11 *Verulamium* region mortarium. Late 1st to early 2nd centuries. Scorched along flange next to rim. 1108g. Re 32%. *Context 200; Phase 3C*

39* Mortarium flange from the left facing side of the spout. Self-coloured, fine textured, light brown with frequent, miniscule opaque, red-brown and quartz inclusions and few opaque black inclusions with a few slightly larger fragments. This would indicate a source in northern France in Gallia Belgica within the period AD 55-100. 58g. *Context 462; Context sheet missing*

40* M15 multi-reeded mortarium with concave flange, almost wall sided. Late 3rd to 4th centuries. The trituration is hardly worn. 113g. Re 6%. *Context 595; Phase 3B*

41* M15 mortarium with tall upright rim and horizontal flange decorated with red/brown transverse painted stripes. 58g. Re 5%. Later fill of ditch 325. *Context 270; Phase 2*

42* M15 wall-sided mortarium with distal bead. Late third to fourth century (e.g. Buckland and Magilton 1986: figure 39, No. 193). 46g. Re 4%. Later fill of ditch 325. *Context 150; Phase 2*

43* CRA PA Crambeck form 8 double flanged rim mortarium (Corder 1937). Traces of brown slip/paint on rim, flange and upper body. Late 4th century. 32g. Re 5%. *Context 285; Unphased cleaning spit*

44* Dressel 20 amphora rim. 133g. Re 19%. *Context 110; Phase 3B*

45* Dressel 20 amphora handle, stamped. 372g. Part of a handle belonging to a Dressel 20 olive-oil amphora from Baetica, which contains an impressed stamp *in ansa*. Unfortunately, the handle was sawn off through the stamp, leaving only the end part of the stamp remaining. In this area only the letter **E** is visible, and the end section of the stamp has been damaged. There is no sign of another letter or letters following on from the **E** and instead there appears to be a triangular stop. It is just possible that this stamp may represent **S.F.E.**, which sometimes ends in a triangular stop and is recorded from a

number of British sites dated to the middle years of the second century AD (Callender 1965: No. 1617; Carreras and Funari 1998: No. 196). There are a number of other Dressel 20 stamps which end in the letter E, however, and the above should only be regarded as a tentative suggestion. Presumably the amphora handle(s) and neck of this vessel were sawn through to widen the opening area for secondary use after the original contents had been consumed or disposed of. *Context 500; Phase 3B*

46* Swanpool CC or OAB1 CC bodysherd from a late folded beaker with slit and circular folds and circles of white paint applied over brown colour coat. Probably Swanpool, late 3rd to 4th centuries, possibly Nene Valley industry. 7g. *Context 150; Phase 2*

47* CRA PA Crambeck type 5b (Corder 1937), flanged hemi-spherical bowl, scorched on tip of flange. Very abraded. 55g. Re 12%. *Deposit 444, late fill of ditch 325; Phase 2*

48* EBOR rim and upper body of a carinated bowl with triangular reeded rim. A date in the late 1st to early 2nd centuries is suggested (cf. Monaghan 1997 type BC1). 66g. Re 10%. *Oven fill 509; Phase 3B*

Trade and exchange

The small assemblage of Roman period pottery recovered from the excavation at Church Walk, Doncaster nonetheless provides interesting evidence for trade and exchange patterns at Doncaster, principally in the late first to early second and the late third to fourth centuries.

Late 1st to early 2nd centuries

The late 1st to early 2nd century pottery was made up of GTA17 'native' jar types, with a distinctive groove inside the rim formed by the clay being folded in to form triangular shaped rims. In addition, there were GRB1 burnished and rusticated jars (Nos 1, 4, 27, 3, 16 and 19); and a variety of greyware platters or dishes (Nos 15 and 17). The bowl and dish are types that Vivian Swan has suggested were being made by potters working in the Flavian-Trajanic period at Doncaster (Swan 2002: 57-58, figure 12, Nos 148-150). Some of the everted-rim jars and rusticated jars were in a much finer fabric than that used by the potters at Rossington Bridge to make rusticated jars, and these were probably locally produced by the same Flavian-Trajanic potters. A similar tendency to use finer fabrics for these jars was also noted for late 1st to early 2nd-century groups at Doncaster High Street (Leary 2004). To these may be added a small group of fine white ware bowls and dishes of unknown origin (Nos 11-12). The evidence of stamped Parisian ware of Flavian date indicates that potters were working near Doncaster at that time (Rigby 1976: 187, CEN, SACE and REDITAS stamps from Doncaster). These vessels thus probably belong to this phase of pottery manufacture.

In addition to bodysherds from white ware flagons (No. 20), a white ware lid, a carinated, flat rim bowl and a platter were also present at Church Walk (Nos 11, 12 and 18). White tablewares including a lid and a carinated bowl were found at Doncaster High Street and can be compared with small quantities of similar material from Derby (Birss 1985: 91 FLA and

FLB) and Rocester (Leary forthcoming). At Derby and Rocester mortaria were being produced in white ware (Hartley 1985, forthcoming, Rocester Old Shops), so on-site production of white ware flagons and bowls would be possible since white firing clays were clearly available. At Doncaster, no white locally-produced mortarium fabrics have yet been identified and white slips were commonly used on the mortaria to achieve a similar surface appearance. The white ware vessels may therefore have been traded from Derby, Rocester or Mancetter-Hartshill itself. A small number of mica-dusted sherds may include locally made vessels, but one folded beaker is particularly fine and is likely to be an import. Other imported vessels included Lyons ware and mortaria from north France. These date to the Flavian period, the mortarium *c*. AD55/65-100. Dressel 20 oil amphora sherds were identified and the diagnostic rim sherd form suggests a date in the early to mid-2nd century. One bodysherd from the shoulder of a Gallic wine amphora came from a medieval deposit.

Compared with the pottery recovered from Doncaster High Street, this assemblage confirms the importance of the GTA17 group during the first and early second centuries in Doncaster. The distinctive inner groove on the jars can be paralleled in the early jars and bowls in North Lincolnshire and Humberside (e.g. Rigby and Stead 1976: figure 74, No. 11), suggesting possible links with that industry. A local source is possible, and such vessels were present on 'native' sites such as at Topham Farm, Sykehouse (Leary 2003: 20, ring gully 5) where they were associated with samian dating to AD 100-130. This type of jar is also present in contexts dated to the pre-Flavian period at the fort at Chesterfield (Ellis 1989: figure 19, No. 4).

Hadrianic-Antonine

The evidence from the Doncaster High Street excavations and the kilns at Rossington Bridge suggests that the GTA native jars and rusticated jars continued in use into the Hadrianic period with small amounts of BB1 being introduced. A small number of features excavated at Church Walk may belong to this period and these have BB1 jars with rather upright necks bearing wavy line burnish and dishes with flat rims (Nos 13-14), but generally very little Hadrianic-Antonine pottery was present. A single South Yorkshire Derbyshire type jar was identified (Buckland *et al*. 2002 type Eb), characterised by an oxidised fabric with red ironstone temper rather than the coarse quartz grits of true Derbyshire ware. Very few BB1 jars of Rossington Bridge type were present. Although some greyware vessels such as deep bowls, wide-mouthed jars and large jars were long-lived types, features typical of the 2nd century such as club, bead and bifid rims were absent, suggesting a possible break in activity in the mid-2nd century. Imported and locally produced fine wares were rare apart from four imported roughcast sherds from the Argonne region, and two Lyons ware sherds. Only one of the Nene Valley beakers, a scale indented beaker, probably dated to the late 2nd to 3rd centuries. Two mortaria of 2nd-century date were identified, both of local origin. One can be precisely matched at Rossington (cf. Buckland *et al* 2001: figure 35, No. 19). The samian ware also included few mid to late 2nd-century types.

Late 3rd to 4th centuries

The later pottery was predominately long-lived types such as deep, subconical bowls, wide-mouthed jars, large jars and grooved rim dishes (Buckland *et al*. 2002 types F and H). In addition to these, developed bead and flange bowls and Dales ware jars were found that dated from the early/mid 3rd to 4th-centuries AD. A small number of late BB1 jars and bowls indicate some trade with the south-west since there was probably no local manufacture of BB1 vessels after the 2nd century. Traded coarsewares included Dales ware and both shell-tempered and greyware double lid-seated jars (Swanpool type H; Webster and Booth 1947). The Nene Valley colour-coated wares were late 3rd to 4th-century bowls and dishes (Howe *et al*. 1980: Nos 79, 87), and a 4th-century slit indented beaker with painted decoration from kiln R at Billingbrook dated AD 300-325 (Perrin 1999: 96-97, figure 6 Nos 53, 66, figure 8 No. 93). A developed bead and flange bowl and a rouletted beaker sherd in an oxidised fabric with darker colour-coat was probably a product of the Swanpool kilns, whilst the Oxfordshire red colour-coated bowl (Young 1977: C51) was more likely to date to the late 4th century when other sites in the region obtained these wares (Darling 1977: 25).

Material from East Yorkshire was present in small quantities, and included body sherds of East Yorkshire calcite gritted jars, a Crambeck parchment ware bowl and a mortarium (Nos 42 and 46). A rather fine shell-tempered plain rim dish was likely to have been of late 3rd or 4th-century date (No. 23). In addition, several late mortaria of local manufacture dated to the late 3rd or 4th century (Nos 21, 39, 40 and 41). Only one late Mancetter-Hartshill mortarium was present (No. 29). The evidence for local manufacture in this period with fine wares and mortaria coming from the Crambeck industry, Swanpool and the Nene Valley kilns is consistent with the evidence from earlier excavations in Doncaster (Buckland and Magilton 1986: 109-110). Details of changes in pottery supply during this period cannot be ascertained until well stratified groups of this date are excavated and published.

Functional aspects of the assemblage and changes over time

The pottery from Church Walk was examined for changes in the functional characteristics of the assemblages – Evans (1993, 2001b) noted differences in the make-up of ceramic groups from towns/forts and rural sites, as well as differences between the early and late Roman periods. The vessel form chart (see Appendix 2, Table 22) shows two main trends, namely a larger quantity of bowls and dishes in Phase 1A and the appearance in Phase 1B of the wide-mouthed and narrow-necked jars common in the later Roman period. The overall level of drinking vessels at *c*. 5% is comparable to that from urban sites (Evans 1993: figures 7 and 9). The cups were all samian vessels, whilst the beakers comprised Lyons ware and CC8 rough cast beakers, a mica-dusted beaker, fine greyware beakers and late colour-coated beakers from the Nene Valley and Swanpool kilns. The later groups indicate a typical decline in tablewares and increase in deep bowls and wide-mouthed jars. Lids were only present in Phase 1C.

The amphora levels suggested by the EVES (Estimated Vessel Equivalents) values were relatively low, but sherd counts and weights indicate an average of 3.7% overall by count, 24.3% by weight. This is far less than the 16.5% of count and 60% of weight found at Doncaster High Street, suggesting higher status activities at that site (see Archaeological and Historical Background above). It is consistent with the later date range of most of the pottery found with that group.

The samian ware by M. Ward

Methodology

Each sherd of samian ware was catalogued on a Microsoft Access database. Full details of sherds and numbers of vessels, including weights and measurements of rims for EVES were recorded. Vessels selected on the basis of intrinsic interest or significance to the Site are detailed below. The abbreviations SG, CG and EG denote vessels produced in South Gaulish, Central Gaulish and East Gaulish workshops. Vessel types are generally Dragendorff's form numbers unless otherwise stated; for other terminology see Webster 1996. Date-ranges such as *c*. AD 70-110 or *c*. 120-200 were given rather than the use of imperial epochs (e.g. Flavian-Trajanic or Hadrianic-Antonine). These should not be thought more precise than the use of epochs, however, and were employed to facilitate computer analysis of the material.

Table 23 and Graph 1 (see Appendix 2) summarise the forms, fabrics and date-ranges of the material according to numbers of vessels. Although measurements for EVES were recorded, EVES have been so little employed in samian reports that comparisons would be impossible (see Willis 1998: 94). Taking the wider view, provision of measurements for EVES should facilitate the integration of the samian ware into the pottery assemblage as a whole.

Summary of the samian assemblage

The assemblage of samian ware comprised 63 sherds, representing a maximum of 54 vessels (1.93 EVES) and weighing 590.6g. The collection as a whole was in a relatively good state of preservation whose fabrics were little eroded. Most vessels were represented by medium or small-sized sherds with an average weight of 9.4g. Only two dishes were represented by large portions (e.g. No. 50). A relatively small proportion (13%) of the material was of indeterminate form. There were three fragments of potters' stamps (Nos 50, 51 and 56), but only two had letters surviving, neither attributable to a specific potter. The stamps thus formed as much as 3.7% or even 5.5% of the total. The moulded bowls comprised a large proportion of the assemblage (30%) and 34% if the moulded beaker forms are included. Of these moulded forms, most (69%) retained parts of their decoration. Large numbers of stamps and decorated vessels are relatively common on sites with military occupation.

According to maximum vessel numbers, the SG vessels made up 78% of the total, a very large proportion. Thus Central Gaulish products were in the minority (18%), whilst the two late EG vessels constituted 4%. Most of the SG ware could be dated only loosely within the

Flavian or Flavian-Trajanic period. However, two vessels (Nos 49 and 51) may have been produced in the Neronian period. The South Gaulish version of form 29 was produced in general before *c*. AD 90 and there were one or two examples here (Nos 51-52). Their proportion in relation to form 37 was therefore 1: 9 or perhaps 1: 5.5, a ratio that would be closer to Carlisle Millennium site material (1.6%) and also Lancaster *vicus* than at Doncaster High Street 2003 (1: 22) (Ward, all three reports unpublished).

South Gaulish products were certainly predominant in the Church Walk collection, but there were only two products of Les Martres-de-Veyre, products that are usually taken to indicate Trajanic or very early Hadrianic origin. These formed only 4% of the total, compared with 9% at High Street 2003 and 6% at the Carlisle Millennium site; however, they constituted 20% of the small Central Gaulish sample (cf. 15% at the High Street and 17% at Carlisle Millennium site). At the High Street site, there was a high level of activity in the early 2nd-century and particularly in the Hadrianic period. That material also forms the bulk of the Central Gaulish ware in the Church Walk collection (see Graph 1). There was a marked upsurge of Hadrianic products at Carlisle (Dickinson 1990: 214; Ward unpublished), as well as at Lancaster and Walton-le-dale; the same preponderance of early 2nd-century samian ware was evident amongst the Doncaster High Street collections of the 1960s (see Dickinson 1986). As was also noted at High Street 2003, the usual peak of supply in the Antonine period was missing from the Church Walk collection. Only three vessels were manufactured at some point in the range *c*. AD 120-160; another, the moulded bowl (No. 62) may have been produced in the early-Antonine period (*c*. AD 140-160). None of these vessels needs to have been produced after *c*. AD 160 – there was none of the forms such as dish forms 31R, 79 and 79R that were common after *c*. 160 and are usually found abundantly on sites under steady occupation through the Antonine period. There were no cups amongst the small CG sample. Even the typically Antonine flanged bowl form 38 was absent.

A shortfall in the later Antonine samian supply was noted at Annetwell Street, Carlisle and at Carlisle Millennium site, where the supply declined after *c*. AD 155 (Dickinson forthcoming; Ward forthcoming). The absence of samian mortaria from the Church Walk collection (as at High Street 2003) might reflect simply the small size of the sample; the mortarium form was certainly represented in the Doncaster *vicus* (e.g. High Street 1960; Dickinson 1986: 136). The presence in the Church Walk assemblage of two late East Gaulish products, the large enclosed vessels (Nos 60-61), must surely reflect 3rd-century occupation in the vicinity.

Simple traces of use-wear were found on 9% of the Church Walk assemblage, all on vessel footrings. There was also a graffito on No. 50, described by Roger Tomlin below. One attempt at repair-work, possibly unsuccessful, was noted (No. 55); repairs have been noted previously at Doncaster (Dickinson 1986, *passim*). Around 15% of the assemblage was burnt, including all of the stratified examples from Phase 3 contexts with the exception of No. 50 in Phase 1A.

Catalogue of samian vessels

The vessels listed below include all those found in Phases 1A and 1C contexts, catalogued chronologically with plain forms preceding decorated ware. For later phases, the samian vessels have been selected according to intrinsic interest and/or significance to the Site.

Phase 1A: Early Romano-British

49 South Gaulish dish form 15/17 or 18. Basal sherd and flake from a vessel probably produced in the range *c*. AD 60-80, but possibly *c*. AD 55-75 rather than AD 60-80. Another fragment was found in this phase in slot fill 752. Total weight 12.8g. *Slot fill 749; Phase 1A*

50* South Gaulish dish form 18. There remains only the edge of an illegible basal stamp in a swallow-tailed frame. Most probably a Flavian product; the footring was very worn in use. A graffito reading *Adiut(or)* was incised below the base within the footring (see Roger Tomlin's report below). Weight 67.1g. *Pit fill 173; Phase 1A*. Two sherds of the same dish were also found in this phase, one of them certainly burnt, in context 209. A small dish of rim diameter 160mm. Total weight 114.8g.

51 South Gaulish bowl form 29, with a winding scroll in the lower zone with details and general appearance typical of potters working in the Neronian or very early-Flavian period: small spirals were favoured in such styles as Knorr 1952, Taf 9 OFBASSI CO; see Dannell *et al*. 2003, Taf G4.0172; *c*. AD 55-70/75. The basal stamp is not attributable to a specific potter: it reads OF[this being the common abbreviation for OFFICINA … 'the workshop of …'. The footring was worn from use. Weight 43.3g. *Slot fill 749; Phase 1A*

52 South Gaulish moulded bowl of form 29 or 37. The tiny, battered fragment of decoration includes beads. Not closely dateable in the range *c*. AD 70-90. Weight 1.5g. *Pit fill 173; Phase 1A*

53 South Gaulish beaker form Déchelette 67, retaining only a tiny fragment of moulded decoration. *c*. AD 70-110 and most probably a Flavian product. 0.1g. *Ditch fill 375; Phase 1A*

54 South Gaulish sherd of indeterminate form, rim diameter perhaps 220mm. Not closely dateable in the range *c*. AD 70-110. Weight 3.6g. *Ditch fill 227; Phase 1A*

55 Central Gaulish dish form 18/31R – a rimsherd and adjoining fragment of a vessel produced in the Hadrianic or early-Antonine period (probably *c*. 120-145 rather than 120-160). A repair of the cleat type appears at least to have been attempted, though perhaps unsuccessfully; but the sherd was broken across the evidence of its filing. Rim diameter 220mm; weight 6.2g. *Pit fill 173; Phase 1A*

Phase 1C: Late Roman

56 South Gaulish dish form 18. A small fragment of the basal stamp appears to reads …]C and probably represents …]C for […FE]C (an abbreviation for FECIT, made it). A common ending, not identifiable, but by a potter working in the Flavian or Flavian-Trajanic period. The footring was only slightly worn from use. Weight 44.5g. *Pit fill 485; Phase 1C*

57 South Gaulish dish form 18 or, probably, 18R. Two fragments of rim of a vessel presumed to be Flavian rather than earlier. Rim diameter 180mm, weight 8.6g. *Layer 521; Phase 1C*

58 South Gaulish moulded bowl form 37. A rimsherd of diameter 240mm, produced in the Flavian to early-Trajanic period. Weight 5.4g. *Layer 521; Phase 1C*

59 Central Gaulish moulded bowl form 37. A rimsherd, probably produced *c*. AD 120-145 rather than *c*. 120-160. Rim diameter 180mm, weight 6.1g. *Wall footings 411; Phase 1C*

Phases 2-3: Roman to medieval

60 A single sherd from the neck of a large enclosed vessel (flagon or cantharos), probably an East Gaulish product rather than non-samian colour-coated ware, but this fragment is burnt black; the fabric is not the same as in (383) and the interior of the vessel was slipped. Presumed to be a product of Rheinzabern or Trier, more likely in the 3rd century than the late 2nd century (see Bird 1993). Weight 5.9g. *Spit 457; Phase 2*.

61 The rim of a single-handed flagon, whose internal neck was largely unslipped (slip having dripped down the plain interior). Presumed to be a 3rd-century Trier product rather than late 2nd century (cf. Bird 1993). The handle is missing. Rim diameter 40mm; weight 24.5g. *Construction cut fill 383; Phase 3C*

Unphased and unstratified

62 Central Gaulish bowl form 37. The moulded decoration was panelled, with figures – the remains of Diana holding a stag and Pan playing pipes (Oswald types 107 and 710) stand respectively left and right of a vertical beadrow (Rogers A2). The basal border has been smoothed away by the bowl-maker. Each figure-type is recorded in the repertoire of numerous potters (Rogers 1999, *passim*); type 710 was used by Servus (styles III and IV) and type 107 by Servus iv (II); see Rogers 1999, plates 110.1 and 109.7). Of these, the Servus III style seems likely, as it is dated *c*. AD 140-160 by Stanfield and Simpson (1990: 280) and Rogers 1999: 238). Weight 14.5g. *Context 648; Unphased*

63 Central Gaulish form 37 with moulded decoration: a fragment of panelling with beadrows (both Rogers A1 and A2) and part of a leaf (J89) and a badly blurred nude

figure (Apollo? see Stanfield and Simpson 1990 plate 49.581). Les Martres ware in the style of Potter X-13; cf. Stanfield and Simpson 1990: pl. 48.566. Potter X-13 worked at Les Martres in the period *c*. AD 100/110-125 before moving to Lezoux. Weight 10.5g. *Unstratified*

Samian graffito by R.SO. Tomlin

Two conjoining base sherds of a samian dish (S.G. Drag. 18) had part of a graffito scratched underneath after firing. This read:

ADIVT *Adiut(or)*

The graffito ended in a long vertical line, perhaps indicating abbreviation, unless it was part of a previous mark of identification. There was superficial pitting and scoring. The personal name Adiutor may have been fairly common in Roman Britain, and at least four other graffitos with this name are known from Britain. It may be noted that two of these were found at Castleford, the next fort to the north (Collingwood and Wright 1995a: RIB II.7, 2501.22, 1995b: RIB II.8, 1995b: 2503.172, the second probably late Flavian).

64* Graffito on samian. *Pit fill 173; Phase 1A*

Pottery use and repair

Burnt matter was found on a Dales ware jar and some six BB1 bowls and dishes and two jars, one Crambeck Parchment ware bowl, a Dressel 20 amphora sherds, ten white ware sherds including the flat rim bowl, platter and lid, a GRB1 rusticated jar and three GRB sherds. Unfortunately, no residue analysis of this burnt material took place.

An M11 and M4 mortarium, an OBA sherd and five samian vessels were also burnt to some degree, along with three BB1 jars, one GRB1 jar and a GTA17 jar confirming their use as cooking vessels. The CRA PA bowl, the white ware vessels (Nos 11, 12 and 18) and the mortaria were scorched along the rims and flanges. Only one vessel had obvious signs of repair, a BB1 plain rim dish from a late fill of ditch 325.

The pottery in relation to other groups within Doncaster and its surrounding region

The excavation of stratified groups of pottery dating from the late 1st to early 2nd-century and the late 3rd to 4th centuries AD from the Site at Church Walk and their subsequent quantification by fabric and form has provided important confirmation of the character of ceramic production, consumption and discard during these periods.

These data can be compared with previously excavated groups from the civilian settlement at Doncaster, although information for the fort remains unpublished. The pottery can also be compared with other forts in the region, particularly Derby and Rocester with which the Antonine potters had demonstrable links (Buckland *et al*. 2001), and Castleford, Templeborough, Chesterfield, York and Lincoln. The South Yorkshire pottery industries at

Rossington Bridge, Cantley, Blaxton, Bessacarr and Branton supplied the highest proportion of ceramics on rural sites in South and West Yorkshire from the second century onwards (Evans 2001a: 176). Most pottery from rural sites in north Nottinghamshire also came from the South Yorkshire kilns, or kilns producing similar forms near Little London, Lincolnshire (Leary 1987: 44, n.d.). The date of many of these products is lamentably wide (Buckland *et al*. 1980, types F and H; Evans 2001a: 175) but detailed characteristics of individual types are beginning to be seen as chronologically significant (Leary 2005, 2006).

The late 1st to early 2nd-century Phase 1A pottery compares well with the evidence from other forts in the Midlands and Yorkshire. Local pre-Roman potting traditions seem to have consisted of the production of small quantities of hand-made coarsewares, and this was inadequate to supply the needs of the Roman military, necessitating the use of on-site 'imported' potters along with imported pottery, notably samian from Gaul. This pattern can be seen at the forts at Derby, Melandra, Castleford, Templeborough and Chesterfield where the bulk of the Flavian-Trajanic pottery (70-80%) was produced near the forts themselves, in forms foreign to pre-Roman ceramics but paralleled at Flavian-Trajanic forts and fortresses elsewhere in Britain. The manufacture of specialist pottery fabrics and forms such as glazed ware flagons and beakers and white ware flagons at Derby (Birss 1985; Brassington 1971), mica-dusted ware flagons, wine strainers and *tazzes* at Rocester (Leary 1996), mica-dusted ware at Castleford (Rush 2000: 94), mortaria at Templeborough (May 1922) and mortaria of Gloucester-type at Chesterfield (Ellis 1989) probably indicates the movement of potters experienced in producing the table and kitchen wares expected by the military personnel.

Buckland suggested that much of the pottery belonging to this period may have been obtained elsewhere in Britain and abroad, but more recent research suggests that local production is more likely (Buckland and Magilton 1986: 109; cf. Rigby 1998). Evidence from the Doncaster High Street excavations suggests that this included the manufacture of fine tablewares such as mica-dusted vessels (Leary 2004). One early reeded-rim bowl Ebor ware vessel was identified that dated to this period.

During the late 1st to early 2nd centuries AD, imported pottery being brought into forts in the region included *Verulamium*-type mortaria and flagons, mortaria from the Rhineland and France, Lyons ware and imported roughcast wares as well as large amounts of samian ware. Traded coarsewares from southern Britain included ring and dot beakers found at Doncaster, butt beakers from Colchester found at Castleford, shelly ware at Derby and Doncaster possibly from Northamptonshire (Birss 1985: CTA1; Leary 2004; Swan 1984: 125) or Trent Valley ware found at Chesterfield and Derby (Birss 1985; Ellis 1989).

In contrast to this pattern, most of the rural sites excavated around Doncaster and in Nottinghamshire have produced very few Roman ceramics of this date (Chadwick 1999, 2004; Evans 2001a: 174-175; Leary 1987; Robbins 2000). Instead, vessels of essentially Iron Age form and fabric continued in use until at least the early 2nd century in South and West Yorkshire, north Nottinghamshire and Derbyshire with only very small numbers of Roman

sherds of this date found at sites such as Topham Farm, Sykehouse, Dunston's Clump, Scrooby Top and Ockbrook (Cumberpatch, Leary and Willis 2003: 20-22; Darling 1995, 2004; Leary 1987, 2001). There are some similarities between the 'native' jars on these sites to the GTA17 ware at Doncaster, perhaps suggesting that these were produced locally by native potters. Similar jars found elsewhere in Nottinghamshire and Lincolnshire, however, have so far only been found in quantities in post-Roman conquest groups (Darling 1999), arguing against a native origin but nevertheless suggesting locals could acquire these vessels.

In the mid-2nd century, the pottery industry around Doncaster expanded dramatically with the arrival of specialist potters making mortaria and BB1 vessels at locations such as Rossington Bridge and Cantley (Annable 1960; Buckland, Hartley and Rigby 2001; Buckland, Magilton and Dolby 1980: 146). The South Yorkshire BB1 and greyware industry supplied the majority of the coarsewares to Doncaster, in contrast to the situation at Castleford where BB1 wares increased to 18% of the assemblage in the mid-2nd century with around 14% of the greyware attributed to South Yorkshire kilns (Rush 2000: 149, table 15). During this period, the coarsewares used in Derbyshire forts were predominantly Derbyshire ware jars and Derbyshire coarseware bowls and dishes, as at Derby and Brough-on-Noe (Birss 1985; Leary 1993). The main types of jar from the South Yorkshire and Derbyshire kilns were quite different in fabric and form, although cupped-rim and Derbyshire-type fabric were produced at Rossington Bridge suggesting continuing contact between the industries after the move from Derby to the Belper area. In general though, the Derbyshire kilns produced wide-mouthed and narrow-necked jars in the East Midland burnished ware tradition (Leary 2003: 105; Todd 1968b), whereas the South Yorkshire potters favoured deep sub-conical jars and large narrow-necked jars, often lugged. The South Yorkshire products compare more closely with the 2nd to 3rd-century products of the north Lincolnshire and Humberside kilns (cf. Stead 1976: figure 79 No. 2, figure 80 No. 32, figure 83 No. 67), perhaps continuing the influences seen in the Hadrianic period.

Oxidised ware samian copies were only a small percentage of the assemblage at Doncaster High Street (Leary 2004) and can be paralleled in local oxidised wares at Derby (Birss 1985: No. 48; Dool and Wheeler 1985: figure 78, No. 55 kiln 8) and at Castleford (Rush 2000: Nos 330-332). These were augmented by the production of Parisian ware at Doncaster (Buckland, Hartley and Rigby 2001) and at Roxby/Dragonby and Market Rasen in Lincolnshire. Such wares were not made in Derbyshire or at Castleford although the related type, London ware, was found at Castleford in phase 3 of the *vicus* (Rush 2000: Nos 334). At Castleford, BB1 jars and bowls/dishes predominated until the rise in East Yorkshire coarsewares and Dales ware in the 4th-century AD. Unusually, the assemblage from Doncaster Church Walk included a late 2nd to early 3rd-century Ebor jar (Monaghan 1997 type JD). Ebor ware was very rare at Doncaster, whereas South Yorkshire products were correspondingly scarce at York. This vessel might therefore represent a gift or movement of an individual from York to Doncaster, perhaps even a military posting, rather than more regular trade.

Relatively little Antonine coarse pottery was recovered from the Church Walk excavation, and most of the later pottery dated to the mid-3rd to mid-4th centuries. The majority of these vessels belonged to the South Yorkshire pottery industry such as the kilns at Branton and Goodison Boulevard (Buckland 1976; Buckland and Magilton 2005). Some of the bead-rim wide-mouthed jars were closer in form to the East Midlands burnished ware group, produced at Swanpool amongst other sites (Todd 1968b; Webster and Booth 1947). A small number of vessels and wares (such as fabric GRB7and some GRB2) were more likely to have come from kilns situated along the Trent Valley such as Little London (Oswald 1937). Relatively small numbers of Dales ware sherds were identified from Church Walk, and these pre-date the mid-4th century. The mortaria were mostly similar to Cantley products, although they can be difficult to distinguish from those made at Swanpool. A small number of colour-coated sherds from Church Walk may have been from Swanpool, though their rather coarse fabric makes a local origin possible. The arrival of East Yorkshire wares such as the calcite-gritted fabrics and Crambeck parchment wares indicates a mid-4th-century element to the group. One possible sherd of Crambeck ware was noted; a greyware bowl with burnished internal wavy line, but the fabric was atypical so another source is more likely. At least two double lid-seated jars were found at Doncaster Church Walk represented by fabrics GRB1 and CTA2, and these are characteristics of the latest groups found at Lincoln.

Assemblages from rural enclosure sites in South Yorkshire and north Nottinghamshire suggest that these settlements were able to obtain some traded mortaria such as those from *Verulamium*. The Yorkshire sites have a large amount of South Yorkshire mortaria as well as Lincoln, Rhineland and Mancetter-Hartshill products. The north Nottinghamshire site at Dunston's Clump had very few mortaria but these were almost all from the Mancetter-Hartshill industry (Leary 1987). Evans noted that traded fine wares such as roughcast and Nene Valley wares were uncommon on rural sites, which were dominated by South Yorkshire coarse wares until a rise in BB1 in the 3rd century (Evans 2001a: 175-176).

South Yorkshire products were certainly found at Castleford (e.g. Rush 2000: Nos 353, 394, 489 and 488) and were relatively common in a late 2nd to 3rd-century group at Brough-on-Noe (Leary 1993: 84, 35% of the vessel count). Examples were also present in mid to late Antonine groups at Chesterfield (Leary 2001) but were far less numerous at Derby (Birss 1985: no. 148). At Templeborough, although the pottery was not quantified and the fabrics not described in detail, the illustrations include eight deep wide-mouthed jars of the type made at the South Yorkshire kilns, suggesting a significant amount of pottery was sent from there to Templeborough at some point (May 1922: plate 33A No. 215). At Catterick, South Yorkshire mortaria were present, but the coarsewares do not seem to have made a significant contribution (Evans 2002: 244, types J2.2, J2.7 and J12.1). At York, very few South Yorkshire products have been identified (Monaghan 1997: 893), and Monaghan notes how radically different the pottery assemblages from York and Doncaster were, despite being less than 48km from one another. Clearly, there are still many questions concerning Romano-

British pottery production and consumption within the region, but the assemblage from the Church Walk excavation is another important step in addressing these issues.

Anglo-Saxon pottery by A. Vince (Fig. 35)

Two early to mid-Anglo-Saxon vessels were recognised in the Church Walk pottery. Both were examined in thin section and through chemical analysis, and these results confirmed that they were of fabrics known elsewhere in the East Midlands and Yorkshire during the later 5th to 7th centuries AD. Only a few possible vessels dating to this period have been identified in Doncaster, of which the most significant is the single sherd from a stamped urn of 6th-century type excavated from Site DT 72 (Buckland and Hayfield 1989: 258). Thin section and chemical analyses indicated that this sherd contained rock and mineral inclusions that do not occur in South Yorkshire, with the nearest likely source immediately south of the chalk scarp in the Humber Gap. Since this fabric was not common during the 6th century at Sancton, however, the most likely source was in the Lincolnshire Wolds to the west or south of the chalk scarp. Similar fabrics were noted at St Peter's Church, Barton-upon-Humber amongst early to mid Anglo-Saxon pottery associated with pre-church activity. The two sherds from the Church Walk excavations provide limited evidence of activity during the later 5th to 7th centuries in or around the site of the Roman fort. The nature of this activity is unknown. Together with the stamped sherd found in 1972, this pottery indicates activity within Doncaster over a century after the collapse of Roman authority.

In Lincolnshire from the late 7th century onwards, a distinctive hand-made shell-tempered ware was in use termed Northern Maxey ware. Examples have been found in Yorkshire at Fishergate on the outskirts of York (Mainman 1993), and analyses have demonstrated that these sherds originated in Lincolnshire (Vince and Steane 2005). No similar finds have been made in South Yorkshire, and none was present at Church Walk. There is a small amount of later 9th to 10th-century pottery from sites in South Yorkshire at Sprotbrough and Doncaster. The number of sherds involved from Doncaster is again extremely low, however, and consists of two wheel thrown shell-tempered jars, both of types found in Lincoln but not thought to be made there (Vince 2003). This either implies that the inhabitants of Doncaster were not using pottery at this time, or that only casual use was being made of it. No examples of any ware dateable to this period were present at Church Walk.

The post-Roman period substantially represented in the Church Walk assemblage consisted of sherds dating from the late 10th to mid-11th centuries. A number of sherds of Torksey-type ware were present at Church Walk, and their relatively fresh and unabraded condition suggests nearby occupation, possibly within the former Roman fort. Torksey ware was produced at Torksey, on the east bank of the River Trent, where several kilns have been excavated. The area was one of the major suppliers of pottery to the East Midlands and South and East Yorkshire, the distribution probably mainly by river. Despite the presence of late 9th and early 10th-century kiln waste in Torksey, the pottery is rare in Lincoln until the later 10th

century and this could be a consequence of the cutting or recutting of the Foss Dyke (Young and Vince 2005).

There were 27 sherds of Torksey ware present in the Church Walk assemblage, representing no more than 24 vessels. Most sherds were small, featureless body sherds or bases weighing less than 11g. Although four rims were present, none was of a closely dateable form (Fig. 35). Most sherds had a 'sandwich' firing lacking on much earlier Torksey-type ware, and it is likely that the Church Walk sherds were mainly of later 10th to mid-11th-century date. In Lincoln, production probably ceased soon after the Norman Conquest and thus the Church Walk finds were probably of pre-Conquest date. Three sherds were subjected to thin-section and mineralogical analyses, and one matched samples from Kiln 2 at Torksey, suggesting a late ninth to early tenth century date. The other two samples were more similar in chemical composition to Torksey ware than to other comparable examples, but did not closely match products of excavated kilns (Vince 2007).

65* Jar rim. Sample No. V4184. *Pit fill 118; Phase 3B*

66 Jar. Possibly from Kiln 2 at Torksey. Sample No. V4193. *Ditch fill 437; Phase 2*

67 Jar base. The sagging base is very thin, apparently a feature of some Torksey ware (Jane Young pers. comm.). Sample No. V4191. *Pit fill 299; Phase 3B*

Two wares of probable immediately post-Conquest date were identified at Church Walk. These consist of Early Medieval Hand-made Ware (EMHM; Young and Vince 2005: 121-122) and Grimston Thetford-type ware (THETG; Young and Vince 2005: 99). The Early Medieval Hand-made Ware contained similar quartz sand to that found in Torksey ware and even at x20 magnification it can be difficult to distinguish the two. However, samples of EMHM sherds from Church Walk were thin-sectioned and analysed using ICPS (Appendix 3). The results indicate that the ware was probably not produced in the Trent Valley but in East Anglia, where round-bottomed jars typical of EMHM have been found, as on the production site at Woodbastwick. Sixty-seven sherds of EMHM were recovered from Church Walk and these represented no more than 34 vessels, with an average sherd weight of 6g. These figures were skewed, however, by the presence of part of a smashed jar in post-hole fill 503 comprising 30 sherds (Fig. 35). If East Anglia was indeed the source of these vessels, then they were probably distributed around the coast, a pattern found in Lincolnshire where they are much more common on the coast than elsewhere (Jane Young pers. comm.).

68* Jar. Sample No. V4195. *Post-hole fill 503; Phase 3B*

69* Jar. Sample No. V4181. *Layer 361; Phase 3D*

70. Jar. Sample No. V4175. *Pit fill 302; Phase 3B*

71* Jar. Sample No. V4177. *Ditch fill 416; Phase 2*

There were twelve sherds of Grimston Thetford-type ware from Church Walk. These came from no more than eleven vessels, and had an average sherd weight of 51g. This high weight reflects the fact that most of the sherds were from large storage jars with applied, thumbed strips around the neck and down the body. These are typical of Grimston Thetford-type ware (Jennings and Rogerson 1994), and a source in north-west Norfolk is likely. Thin-section analyses of four samples from Church Walk revealed mineral inclusions consistent with a Lower Cretaceous origin, with a high rounded clay/iron grain component typical of Norfolk products. ICPS analyses, however, revealed that the Church Walk samples were slightly different from two examples at Pott Row, Grimston and one at Barton-upon-Humber, although they did match one example from Selby (Vince 2007). These differences may indicate that either several centres in north-west Norfolk were producing Grimston Thetford-type ware, or that chemical differences existed in the clays used at the Pott Row site.

72 Storage jar. Sample No. V4183. *Pit fills 108 and 502; Phase 3B*

73* Storage jar with strap handle joined at rim. Sample No. V4178. *Pit fill 133; Phase 3B*

74* Storage jar. Strap handle applied at rim with thumbing on the rim top. Sample No. V4176. *Pit fill 110; Phase 3B*

75 Jar. Sample No. V4182. *Robber trench fill 401; Phase 3C*

The shell-tempered pottery by Jane Young

Introduction and taphonomy

A total of 468 sherds of shell-tempered pottery representing about 258 vessels were examined. The pottery was identified to ware type and sub-fabric levels where possible. The presence of a number of chronologically diagnostic rim types enabled fairly precise dating for some vessels, although most/all of the pottery seems to have been residual in later features. The identifiable pottery ranged in date from the Late Saxon to medieval periods (Table 28) with one unidentified vessel possibly being of Iron Age, Roman or medieval date.

The pottery was recorded using the fabric codenames (CNAME) of the City of Lincoln Archaeology Unit, developed during the East Midlands Anglo-Saxon Pottery Project (Young, Vince and Nailor 2005) and ongoing archaeological investigations of sites in North Lincolnshire. Fabric identification was undertaken with a x20 binocular microscope and the assemblage was quantified according to the number of sherds, vessel count and weight. Twelve of the shell-tempered vessels were submitted to Alan Vince for thin-sectioning and chemical analysis (see Appendices 3 and 4, Table 26). The resulting archive was entered onto an Access database which forms part of the Site archive. Recording of the assemblage was in accordance with the guidelines laid out in Slowikowski *et al*. 2001.

The assemblage consisted mainly of small to medium sized sherds (below 20g) in a slightly abraded to abraded condition, the majority of vessels only represented by a single sherd.

Most Saxo-Norman and early medieval shell-tempered pottery had leached surfaces and few sherds were in a fresh condition, suggesting most were residual. There were only three obvious cross-context joins amongst the shell-tempered material. Nearly 50% of vessels had external soot residues showing that they were used over an open fire, and several vessels also had internal soot or carbonised deposits suggesting that the contents of the vessel had burnt during use. Unfortunately, no residue analysis of this material was undertaken.

The pottery

A range of seven ware types was identified from the Church Walk assemblage, most Lincolnshire products. The identifiable vessels were of Late Saxon, Saxo-Norman, early medieval and medieval date. Most of the vessels were small, medium or large-sized jars, although some bowls were also present.

Late Saxon

Three vessels, all jars, of probable Late Saxon date were recovered from the Site. All three sherds appear under x20 microscopic examination to be of Lincoln Kiln-type manufacture. The vessels may have been produced at the Silver Street kiln site (Young 1989), or elsewhere in the city. A second production area north of Silver Street and east of the 1972 Flaxengate site (Young 2007) has recently been identified and other waster groups have been recovered from within the suburbs (Young forthcoming; Young, Vince and Nailor 2005: 238-239). Products of this new site (LDG03) are visually and chemically indistinguishable from the Silver Street material, and given the large quantities of LKT recovered from excavations not only in Lincolnshire, but also in East Anglia, the East Midlands and Yorkshire, there must be the potential for other production sites within the city. None of the three vessels recovered could be closely dated, although the small jar base sherd from machining and cleaning context 100 was likely to be of late 9th to mid-10th-century date as it was carefully finished.

Saxo-Norman

All 153 Saxo-Norman vessels shell-tempered vessels recovered from Church Walk were in Lincolnshire Fine-shelled ware (LFS), forming the largest assemblage of this ware recorded outside Lincoln. This hand-made, coarse pottery consisted mainly of undecorated jars and bowls for cooking and storage, and although other forms including lamps, possible mortars, oval dishes and bottles were also made, none was found on this Site. The ware evolved from a Middle Saxon type (Early Lincolnshire Fine-shelled ware - ELFS) during the 10th century and was in use from the late 10th to late 12th centuries. By the mid-11th century it formed the major type on sites in central Lincolnshire, only declining in the mid to late 12th century with the rise of early medieval shell-tempered wares (LEMS and NLEMS). This long period of use, together with little change in form, fabric or manufacture, makes close dating of small or undiagnostic sherds difficult. It was only possible to identify the vessel form of approximately 50% of the vessels recovered from Church Walk due to the poor condition and small size of most sherds. The majority of the identifiable vessels were small to medium-

sized shouldered jars, although there were also four medium and three large-sized bowls and a single dish. Large-sized bowls and jars are rare outside central Lincolnshire, probably because they were difficult to transport far from the production site. Most vessels from Church Walk had external (and sometimes also internal) soot residues suggesting their use with open fires. On several vessels the soot was only on one side of the vessel, suggesting that they had been pushed up against a fire.

Two sherds from cleaning spit 282 and pit fill 563 had been trimmed to form small discs. The smaller disc (*c*. 40mm diameter) was made from a wall sherd of a bowl and was quite uneven. The larger disc (*c*. 60mm from a small jar) was more regular and had a central hole, suggesting it was used as a spindle whorl. Few of the jar and bowl rims from the Site were closely dateable. Only two rims were probably of pre-Norman Conquest date, although the type continued through into the 12th century. The dish rim from cleaning context 100 was of a mid to late 12th-century type (see Young, Vince and Nailor 2005: figure 79, 515) and two of the bowl rims from cleaning context 100 and pit fill 595 were also unlikely to have pre-dated the mid-12th century. The other seven rims were all probably of post-Conquest date too, whilst a ridge-shouldered jar from pit fill 436 belonged to the mid to late 12th century.

Early medieval

From the mid-12th century until the introduction of medieval types between the late 12th and early/mid-13th centuries, the most common shell-tempered coarseware in central and northern Lincolnshire was Early Medieval Shelly ware (LEMS and NLEMS). Lincolnshire Early Medieval Shelly was first identified amongst material from the Flaxengate site in Lincoln (Adams Gilmour 1988), and then reviewed during a wider analysis of Lincoln pottery (Young, Vince and Nailor 2005). The ware was hand-made and first appeared as a minor type in Lincoln in early/mid-12th-century deposits. By the late 12th century it replaced LFS as the major shell-tempered coarseware in central Lincolnshire, continuing in use until the early to mid-13th century when it was replaced by medieval wares.

During analysis of the pottery from St Peter's Church, Barton in North Lincolnshire, sherds with a slightly different visual fabric type and differing form and manufacturing details were noted (Young *et al*. in press). These were classed as a separate ware type (North Lincolnshire Early Medieval Shelly- NLEMS) pending detailed scientific analyses of both types, although it was acknowledged at the time that it was not always possible to place some sherds within one type or the other. Vessels in NLEMS occurred mainly in the north of the county, and were more common on the western side of South Yorkshire. Twenty vessels from Doncaster Church Walk were identified as NLEMS types, whilst seventeen vessels were tentatively identified as LEMS. Subsequent scientific analysis of one of the LEMS sherds from the site (AVAC Report 2007) suggests that it did not differ in chemical analysis from the NLEMS sherds sampled. Until further LEMS sherds from other areas are sampled, this either suggests that all the vessels recovered from the Site were in fact NLEMS, or that the two types were from the same source but perhaps represented different workshops.

Seventeen vessels in LEMS (represented by 42 sherds) and twenty vessels in NLEMS (represented by 61 sherds) were recovered from Church Walk. It was only possible to identify the vessel form of about 50% of the material. Nine LEMS and nine NLEMS jars were present in the assemblage, of which five were large jars more than 0.22 m high. Two large-sized bowls in NLEMS (Nos 77 and 78) are an uncommon find outside of North Lincolnshire. One of these bowls (No. 77) was a large shallow bowl of a type not previously noted elsewhere, and sherds of this vessel were recovered from three pit fills (228, 254 and 271). None of the vessels was decorated, and there were no dateable rims present. Soot deposits were less evident on the LEMS/NLEMS sherds and were concentrated towards the bases of the vessels, possibly suggesting different cooking practices. Two of the vessels had been exposed to higher temperatures that caused the shell-temper to start disintegrating. One vessel had an internal white residue or 'kettle-fur' deposit though this was not analysed, and there were wear marks on the inside of one of the large jars, possibly caused by stirring.

Four other vessels in two ware types (EYQC and NLQS) were also early medieval in date. Three vessels, one represented by twenty-one sherds, were of East Yorkshire Quartz and Chalk tempered type (for discussion see AVAC report 2007). The collared jar from pit lining 536 (No. 83) was in very poor condition as it had been fired at a low temperature. The other sherd was the base of a jar in North Lincolnshire Quartz and Shell-tempered ware. This ware was uncommon and at present can only be dated to the mid-10th to early 13th century.

Medieval

Medieval shell-tempered pots, crudely made and with coarse shell-temper and sanded bases, first appeared in Lincoln deposits from the earlier 13th century but only became common from about 1230 onwards. The main medieval type in central Lincolnshire was Potterhanworth ware (POTT), made at the village of Potterhanworth 10km south-east of Lincoln (Young, Vince and Nailor 2005: 163-170). In the north and south of the county, other medieval shell-tempered wares slightly different in appearance to POTT seem to have been in use, and these have been classified as NLST and SLST respectively. The transition between early medieval and medieval types seems to have taken place at different times, with Potterhanworth ware probably the later introduction.

All the medieval shell-tempered vessels from Church Walk were in a group of fabrics termed North Lincolnshire Shell-tempered ware (NLST). This was common in the north of Lincolnshire, and has been occasionally found on Yorkshire sites as far north as York. There has previously been no detailed fabric analysis of the ware, and it is likely that several different production sites were represented. Vessels were mostly hand-made, although there is some evidence for wheel-throwing or turntable finishing of some forms. Unlike Potterhanworth ware (POTT), there is no evidence that NLST continued in use beyond the fourteenth century, and NLST probably originated sometime in the later 12th century.

Sixty-one vessels (represented by 157 sherds) in NLST were recovered from the Church Walk excavation, the largest group of NLST wares ever found. This suggests that the ware

was directly marketed to Doncaster. Twenty-one large jars(see Nos 8, 12 and 14), twelve small to medium-sized jars and one large bowl were present in the assemblage. No detailed work on the typology of the rim types has taken place, so these cannot be used to narrow the date range for individual vessels. One vessel, however, was a collared jar from pit fill 249, unlikely to post-date the late 12th century. About 50% of the jars had evidence for soot residues and one large jar had internal 'kettle-fur' deposits. The single bowl from the Site (pit fills 228 and 271, No. 79) was large in size, and had an unusual pressed-rim edge.

Site chronology

Shell-tempered pottery was recovered from six phases of Church Walk (see Table 28), and occurred in ninety-two different contexts, although few contained more than a small number of sherds. Much of the material was residual, especially in Phase 3C deposits where at least 44 of the vessels pre-dated the mid-13th century. The LEMS vessel in a Phase 1A deposit was almost certainly intrusive, leaving only six early vessels in LFS possibly contemporary with their deposition (in Phases 2 and 3A). The high residuality on Site in Phases 3B and 3C precluded the use of shell-tempered wares to date individual features. However, the overall number of LFS vessels present in Phase 3B suggests that the early part of this phase belongs in the mid to late 12th century. Three other contemporary shell-tempered ware types (NLEMS, LEMS and NLST) were also present in Phase 3B. Two of these types (NLEMS and LEMS) are unlikely to have been in production after the early 13th century, whilst the third (NLST) probably originated in the last quarter of the 12th century and perhaps continued until the 14th century, although it has been previously stated that 'harsh shell-tempered ware' was a 13th-century phenomenon in Doncaster (Buckland *et al*. 1988: 371-2). By Phase 3C, only the eighteen NLST vessels were likely to have been contemporary with their deposition.

Discussion

A variety of shell-tempered pottery fabrics ranging from Late Saxon to medieval types were recovered from the Site at Church Walk. This is the largest group of shell-tempered pottery from outside Lincolnshire to be studied in detail, and the assemblage suggests that from at least the late 11th century until the beginning of the 14th century shell-tempered wares were a major component of pottery in Doncaster. The range of types is similar to that found on other Doncaster sites such as Hallgate (Cumberpatch *et al*. 1998-1999), but for the first time the group was large enough to distinguish certain differences within the individual wares. Direct comparison with other large assemblages from Doncaster is not possible due to the lack of detailed quantified data, although a brief study of some of the published material (Buckland *et al*. 1988) suggests that the pattern found at Church Walk was repeated elsewhere.

In Lincolnshire the most common late 9th to late 10th-century Late Saxon wares were two Lincoln produced wheel-thrown shell-tempered wares (LKT and LSH). To date, few of these types have been recovered from Doncaster. Quartz-tempered Torksey ware was more common in Doncaster (see Vince above), but this continued in use until the mid to late 11th century, long after production of the LKT and LSH shell-tempered wares ceased. Three main

shell-tempered types (LFS, NLEMS/LEMS and NLST) appear to have been amongst the main cooking vessels used in Doncaster from at least the late 11th century until the late 13th century. Jars predominated, possibly because it would have been impractical to transport the large-sized bowls over long distances, similar to a pattern found at Newark and Nottingham. There was also a difference in the mean size of jars between the ware types. Small to medium-sized vessels were more common in the earlier LFS whilst larger jars were more common in the other types (NLEMS/LEMS and NLST).

This phenomenon may be explained by the different production sources, as the later wares were probably produced closer to Doncaster (Appendices 3 and 4), although it might also reflect chronological factors as large-sized jars in LFS were unusual before the mid to late 11th century. Saxo-Norman to medieval shell-tempered wares (LFS and NLEMS/LEMS) were extensively distributed across Yorkshire and Nottinghamshire, although outside urban centres they have only been found in small quantities. The main medieval shell-tempered type found in Doncaster (NLST) had a much narrower distribution, and apart from sites in Doncaster itself has not often been found outside northern Lincolnshire. The Rivers Trent and Don clearly played an important role in the distribution of all three of these shell-tempered wares to Doncaster, although until more sites on the west bank of the Trent are investigated it is impossible to determine the extent of this distribution pattern.

At least half the shell-tempered pottery was probably used for cooking, as evidenced by the soot residues on the vessels. The absence of soot residues on individual sherds does not preclude this use, as sooting on even more complete vessels is often patchy, or only present on basal or lower body sherds. Pots could also have been heated indirectly within larger vessels containing heated water, placed on hot stones or used in a 'hay box', none of which would leave soot residues. Further fabric work could usefully be carried out to compare sherds of LEM and LFS from Doncaster to those found in Lincoln. Eight vessels have been illustrated. The material should all be retained for future study.

Catalogue of shell-tempered wares

76* Large jar; NLST; Vessel 4. *Pit fill 272; Phase 3C*

77* Large shallow bowl; NLEMS; Vessel 2. *Pit fill 271; Phase 3C*

78* Large shallow bowl; rim; NLEMS; Vessel 2; Sample No. V4139. *Pit fill 228; Phase 3C*

79* Large bowl rim; NLST; Vessel 5. *Pit fill 271; Phase 3C*

80* Large jar rim; NLST; Sample V4158. *Pit fill 303; Phase 3B*

81* Jar rim; LEMS; Sample V4148. *Pit fill 108; Phase 3B*

82* Large jar rim; NLST. *Missing sheet 661; unphased*

83* Collared jar rim; EYQC. *Pit lining 536; Phase 3B*

Medieval and later pottery by C.G. Cumberpatch

Principal medieval and later fabric types and ceramic traditions at Church Walk

As with the Romano-British fabric types, detailed descriptions of the medieval, post-medieval and early modern fabric types and ceramic traditions are described in detail in Appendix 5.

Other objects

A small number of other ceramic objects were noted in the Church Walk assemblage. The most numerous were pot discs; reworked sherds chipped and sometimes ground into rough disc shapes. Such objects are common on archaeological sites throughout Europe and have an extremely wide date range. Although a wide variety of suggestions have been made as to their possible function, to date no satisfactory comprehensive explanation has been put forward. Examples from the Church Walk Site included examples made from vessel sherds (Fig. 37 Nos 48-50) and from roof tile fragments (Fig. 41 Nos 7-8).

One piece of an unidentified decorative item cut from a sheet of clay is shown in Fig. 37 (No. 118) and an unidentified object in a coarse sandy ware fabric in Fig. 37 No. 119.

Discussion

The stratigraphic sequence has, for the purposes of description and interpretation, been sub-divided into four phases, some of them divided internally into a number of sub-phases. This reflexive process involved input from both the results of the analysis of the ceramic data and the stratigraphic data, as described in greater detail above. This discussion focuses on the characteristics of the medieval pottery assemblages from each phase.

Detailed data on the Church Walk ceramic assemblage can be found in the discussion of fabric types (Appendix 5) and data tables (see Appendix 6, Tables 27-37). The data have been tabulated for each phase and are presented in Tables 28-35. A complete list of the data without sub-division by phase forms part of the Site archive.

Phase 1

The earliest phase of activity identified on the Site was of Roman date, but a number of the features identified as belonging to this phase produced small quantities of intrusive medieval pottery, the details of which are summarised in Table 29.

Phase 1A

The upper fill of ditch 253 (deposit 219) produced two small sherds of medieval pottery, probably Hallgate A and Humberware. It is likely that the medieval sherds were intrusive into the earlier feature, which was cut by a tanning pit belonging to Phase 3C (pit 152). Although hardly conclusive, it is notable that although Humberware was relatively rare on the Site, this

pit produced a higher than usual proportion of this type of pottery, making it a plausible source for the sherd in fill 219.

Pit 174 produced a very small sherd of abraded Torksey type ware from its uppermost fill (173). How this sherd came to be incorporated into an earlier feature is unclear, but its small size suggests that it could have been affected by small mammal burrowing or earthworms. The was no other evidence to suggest that the feature was of Late Saxon date.

Post-hole 497 produced a small sherd from the neck of an earlier medieval Lincoln Fine Shelly ware jar. The sherd was in the upper fill (496) of the feature which also produced a 1st or early 2nd-century AD dragonesque brooch (Cool, see below). The brooch may suggest an earlier Roman date for the post-hole, but it is possible that it was residual or curated, and the sherd of pottery indicates a medieval date. As noted in the feature description above, in terms of spatial association the post-hole fits better with a medieval origin.

Phase 1B

Only one Phase 1B feature (pit 441) produced medieval pottery, a small abraded sherd in a soft, micaceous whiteware fabric of uncertain date and attribution from fill 591. Whilst not definitely identifiable as of medieval date, it was not a recognised Roman ware and must remain ambiguous. If medieval then it was probably intrusive in an earlier feature, although there is no obvious mechanism to account for its presence in deposit 591.

Phase 1C

Pit 428 produced three very small sherds of medieval pottery (fill 171; total weight approximately 2g) and these should probably be considered as intrusive in an earlier context. Natural or animal-related processes might explain the presence of these sherds alongside a substantial assemblage of Roman pottery. A similar explanation may be considered to explain the presence of a small sherd of Hallgate A1 pottery in post-hole 540 (fill 539).

Phase 2

Phase 2 was dominated by two large ditches (features 325 and 492) and another feature (851) which probably represented the northward extension of ditch 325 (Table 30). Ditches 325 and 492 both produced assemblages which included Roman and medieval pottery from throughout their various fills. This suggests that, whatever the date of their origin, the ditches remained open well into the medieval period and were eventually backfilled, perhaps even with material derived from mixed deposits. The area of the Church Walk excavation had a lengthy and complex history, and the inevitable result of this was the high degree of residuality on the Site and also the presence of later sherds in earlier features, although the processes responsible for these two outcomes are quite distinct.

Small quantities of late Saxon (Torksey-type ware) and Saxo-Norman pottery (Thetford G ware and Hallgate C ware) were present alongside Roman and medieval material in ditch

325, but there were no deposits in which the Late Saxon pottery occurred alone. The pattern of its presence, characterised by a residual relationship to the later contents of pits and other cut features was broadly similar to that seen across the Site, as can be seen in the data tables. It is not possible to propose a date for the creation of either of the two ditches on the basis of the pottery data alone, and whilst the possibilities may encompass a Saxon date there is no ceramic evidence to suggest that this is any more likely than an earlier or later date. Indeed, with the current sparse evidence for Saxon activity in Doncaster as a whole (Vince 2003), a Saxon date for either of the two large ditches would be one of the more unlikely possible origins for them (see Discussion below). This is not to say that other evidence will be forthcoming which will establish either or both of the features as originating in the Saxon period, but the pottery evidence alone does not support such a conclusion.

When examined in detail, there are some patterns within the medieval and post-medieval pottery groups from ditch 325. The uppermost fill (145/355/366/444/458) produced a small group of pottery which included the base of a 19th-century black Jackfield ware vessel, probably a teapot, the base of a later medieval Orange Gritty ware jar and sherds of unidentified later medieval sandy wares. This deposit was within a recut that was probably much later in date than the bulk of the feature. Earlier fills produced mixed assemblages which included some of the earlier types (Torksey ware, Lincoln Kiln-type ware, Hillam-type ware, Hallgate C ware), but these were nevertheless accompanied by the ubiquitous Hallgate A and B wares in a manner repeated in other features on the Site.

There was little in the medieval pottery assemblage (ten sherds from four vessels in two contexts) to either confirm or refute the suggestion that 325 and 851 were the same feature. The pottery is of types which are familiar from ditch 325 (Hallgate A, Hillam type ware and Gritty wares) but examples of these types are widespread across the Site.

Ditch 492 produced a smaller pottery assemblage from fewer deposits than 325, and the material was in general later in date with the Saxo-Norman and earlier medieval material notable by its absence. With the exception of a sherd of Gritty ware of ambiguous date, the earliest medieval pottery from the feature was Hallgate A ware of 13th-century date. The pattern of deposition within the ditch also differed from that seen in 325. The earlier fills were dominated by Roman material, with only a single small (9g) sherd of Hallgate A ware from the primary fill. It is difficult to determine whether this indicates a medieval date for the whole of the ditch, if this single sherd reached the deposit as a result of natural processes, or through accidental contamination during the 1994 or 1972 excavations. What would seem to be clear is that the ditches should be considered to be individual features in their own right with distinct histories and not necessarily as a pair, in spite of the fact that they run parallel to each other. Again, a Saxon or Anglo-Scandinavian date cannot be sustained on the basis of the pottery data. The earlier suggested date of these two features (Buckland *et al*. 1989) should perhaps be re-evaluated in the light of this evidence and that from re-examination of the pottery from earlier investigations (Vince 2003; see Archaeological and Historical Background above, and Discussion below).

Deposit 396, originally thought to be Roman in date, posed interpretative problems as it contained a larger quantity of medieval pottery than other Phase 1 features including the substantial base of a jug in a reduced sandy fabric (probably a Hallgate-type ware), body sherds in Hallgate A fabrics and part of a Hallgate C ware jar. As the deposit included only small quantities of Roman pottery (Leary above), this deposit and 397 were moved to Phase 2. Rather than the Roman fort rampart, it is possible that this was a medieval layer, perhaps makeup for the overlying cobbled surface (200) which incorporated earlier Roman material alongside medieval material contemporary with the creation of the deposit.

Phase 3

Phase 3 included most of the medieval component of the assemblage and was divided into four sub-phases, 3A to 3D (Tables 31-34). There were no features or deposits that could be unequivocally identified with post-Roman but pre-Norman activity, although late Saxon pottery found across the Site attests to activity in the general area. This pattern is repeated on other sites in Doncaster, and recent re-assessment of the Saxon pottery from South Yorkshire has demonstrated the surprising lack of pottery of Saxon date, in spite of the architectural and documentary evidence for Saxon activity in the county (Vince 2003: appendix 1). Full publication of this excavation and artefact assemblage would offer an opportunity to review the medieval and later ceramic evidence with a view to drawing up provisional ceramic horizons for Doncaster as a whole, based upon the model offered by the recent publication of pottery from Lincoln (Young and Vince 2005). An outline of this scheme is presented below, but for the present purpose it is enough to note that the proposed and currently hypothetical Anglo-Saxon horizons (ASD01 and ASD02) exist on the Site only in the form of stray sherds of pottery, residual within later contexts.

This absence of demonstrable Anglo-Saxon activity on the Site is in line with the evidence from elsewhere in South Yorkshire, but the lack of evidence of the first post-Conquest horizon (MED01) characterised by the products of the Frenchgate kilns (Cumberpatch and Sydes 2004) and the production of hand-made Hallgate wares (Cumberpatch *et al*. 1998-1999) is more surprising. Its virtual absence from this assemblage implies that activities resulting in the deposition of pottery did not take place until the later 12th or early 13th century. A number of minor features at Church Walk did produce small pottery groups that could have been attributed to this phase of activity had it not been the case that for stratigraphic reasons they were assigned to later sub-phases within Phase 3. This suggests that the apparently early date derived from the pottery resulted from differential deposition and chance factors exacerbated by the high degree of residuality.

The reason for the absence of earlier medieval activity is unknown. It may be related to the proximity of the Site to the Norman castle, and the perceived need to maintain a clear area immediately outside the bailey wall for military purposes. There does seem to have been a period of inactivity in the immediate area from the end of the Roman period until the later 12th century, in spite of evidence of activity during this period to the north-west of the Site

(the Frenchgate area) and the south-east (the cattle market and market areas). To the north-east of the Site, the Low Fishergate (North Bridge) excavation produced much larger quantities of pottery and is crucial to interpretations of medieval Doncaster, but until this regionally important site and assemblage are fully published it is unclear whether that evidence will concur with or differ from the data presented here. However, it is probable that further research beyond the scope of this report will identify features and deposits belonging to the MED01 horizon from elsewhere in Doncaster.

Phase 3A

Only ditch 377 was attributed to Phase 3A (Table 31). This feature produced a relatively small medieval pottery assemblage within which a number of small jars in Lincoln Fine Shelly ware fabric of later 10th to 12th-century date were prominent. The latest sherd was a fragment of a Coal Measures Whiteware type significantly later than the remainder of the group. While this may raise the issue of an early phase of production which has yet to be fully documented, it is also possible that it was introduced into the ditch fill during the construction of wall 380, a Phase 3B feature which cut the ditch. The pottery could support the suggestion that feature 377 was the truncated remains of the Norman bailey ditch (see above and Discussion below) but it would be unwise to base such an interpretation solely on the pottery, given the abundant evidence for residuality across the Site as a whole.

Phase 3B

The pottery from this phase (Table 32) was dominated by Hallgate A wares and related types (notably DRS01), with the earlier Hallgate B ware also highly significant. A variety of regional imports were present throughout the phase with Beverley, Scarborough, Staxton/Potter Brompton, Tees Valley and East Yorkshire-type wares indicating connections with north and eastern Yorkshire and neighbouring areas, whilst the various types of Shell Tempered wares and Stamford ware indicate strong links with Lincolnshire.

The presence of a small but significant group of Late Saxon and Saxo-Norman type wares (Late Saxon-type greywares, Thetford ware G, Torksey ware) in a number of features suggested earlier activity in the area, but these sherds appeared to be residual within later deposits, notably in pits 140 and 555. There were nevertheless some indications of possible variation in date within the phase. The groups from tanning pits 203, 206, 293 and perhaps 658 all included pottery with possible earlier Phase 3B characteristics than ceramics from other features. Pit 658 only produced a single sherd of Hallgate B ware, however, which given the residuality on the Site is not secure evidence of an early date for the feature as a whole. Tanning pit 592, in stratigraphic terms the latest of this group of pits, produced an assemblage of pottery scarcely distinguishable from the remainder of the group, indicating the extent to which residuality obscured the chronology of the Site as a whole.

Pit 203 contained a small group (thirteen sherds from nine vessels) of regional imports (Stamford ware, Lincoln Fine Shelly ware, Thetford G ware and an unidentified sandy ware).

These were generally of an early date, only the Stamford ware having a date range which extended into the mid-13th century. Under normal circumstances this would suggest an early date for the feature, but in this case some caution has to be exercised because of the small size of the group and the evidence for residuality elsewhere.

Tanning pit 206 contained sherds of Hallgate A ware from throughout the fill, but also a greater proportion of Hallgate B ware, Thetford G ware and Lincoln Fine Shelly ware than other features along with a sherd of local Hallgate C ware. There was not much difference between the two fills (deposits 202 and 156) of the pit from which pottery was recovered. A single sherd of Coal Measures ware from the upper fill (156) might have been derived from a later feature (160), although this later pit did not otherwise contain any pottery. Tanning pits 596 and 597 both produced small groups of pottery in which early material was common (Lincoln Fine Shelled ware, Late Saxon greyware, Hallgate B and C). Only two sherds of pottery were recovered from pit 555, both fragments of Torksey ware of later 9th to mid to late 11th-century date, although it is argued (see above) that on spatial grounds this feature is likely to belong to Phase 3B.

Tanning pit 293 did not contain any Hallgate A ware, but Hallgate A1-R, Hallgate B and DRS01 were all present along with an unidentified splash glazed Sandy ware. The primary fill (563) of tanning pit 592 produced a group of largely local sherds with a relatively early date. The presence of Hallgate B ware along with splash-glazed Hallgate A ware might suggest that the group could belong to the earlier part of the phase. While it might be unwise to assert that these features were certainly earlier in date than other features in this phase, the possibility must be considered when the intensity of activity and the numbers of pits open at any one time on the Site is considered.

A number of pits produced assemblages with characteristics somewhat different from the norm. The pottery from tanning pit 141 included a group of unusually heavily abraded sherds ranging in date from the later 11th century to the later 13th century with two sherds of somewhat earlier Torksey ware alongside residual Roman material. The distinction between this and other features suggests that the history of individual fills and the formation processes of individual context groups differed significantly even in the same area of the Site and the same phase. Tanning pit 550 had a relatively high proportion of regional imports such as Hillam-type ware, Beverley wares, Nottingham wares and Scarborough wares, the latter including part of a bearded face from a jug. A single sherd of Humberware from the uppermost fill (498) may be derived from the overlying layer 362 (belonging to phase 3D), which itself included a number of sherds interpreted as residual in character and therefore presumably derived from the fill of pit 550. A cross-context join (parts of a Hallgate A1 jug) linked two of the fills, 515 and 520, but no cross-feature links were identified.

Beverley ware (type 1) was also common in the fill of tanning pit 111 and was accompanied by Lincolnshire shell tempered wares and the rim and handle of a Thetford G ware handled jar (Fig. 35 No. 74). The lowest fill (235) produced a sherd of Hallgate C ware together with

residual Roman pottery. The feature also included one of the sherds of the stamp-decorated Brunssum-type ware sherds discussed above and in Appendix 5. Other sherds of this type, perhaps from the same vessel, were found in features 558 (Phase 3B) and 185 (Phase 3C). In broad terms the assemblage from tanning pit 558 resembled that from 111 although the proportion of shelly wares was lower and Hillam-type wares were present in greater numbers. The overall date range was similar, and Thetford G wares were present in both contexts in addition to the sherds of Brunssum-type ware. In both cases Hallgate A ware appeared to be the latest type present in any quantity.

Tanning pit 140 produced a mixed assemblage which included a second Thetford G ware rim and handle similar to that from pit 111, alongside 11th to 12th-century pottery (Lincolnshire Shell Tempered wares, Hallgate C, B and A1 wares) and 13th-century wares (Hallgate A, Beverley 2 ware). A sherd of Coal Measures Whiteware type with an external square rouletted pattern may be an early example of the type, possibly indicating a later 13th or even early 14th century date for the fill (118). This having been said, the generally early date of the material from this deposit should be noted.

A broadly similar if less diverse assemblage was present in pit 236. Thirteenth-century pottery (Hallgate A, Scarborough Phase 2 ware) was accompanied by earlier material, notably Hallgate B ware. A rim from a Gritty ware jar had a distinctive semi-vitrified body, not unknown amongst the West Yorkshire Gritty wares, and may be an overfired Hillam-type ware. The upper fill of this pit (deposit 165) was cut by later Phase 3D pit 495. This is probably the source of the small quantity of later medieval and 18th-century pottery (Coal Measures White and Purple wares, Late Blackware, Creamware and Slipware) amongst the otherwise entirely normal Phase 3B assemblage. The group included Scarborough phase 2, Beverley-type wares and Lincolnshire shelly wares alongside local types.

The contents of tanning pit 277 were distinctive because of the presence of at least four Hallgate A ware jugs represented by substantial body fragments. These sherds occurred in fills 276 and 287 (as noted in the data table with at least one cross-context join linking these contexts), implying that while distinct fills were identified during excavation, these were broadly contemporary and the pit was probably backfilled fairly rapidly, possibly in the latter part of the thirteenth century. Earlier pottery was relatively rare in this feature, again suggesting quick filling of the pit. Similar evidence for rapid deposition came from pit 231 which included an unusually thin-walled vessel in a Hallgate A type fabric from fills 229, 241 and 249 (Fig. 36 No. 85). Cross-context joins linked all three pottery-bearing contexts in this feature (229, 241 and 249).

Well 267 had a lack of pottery from its backfill, unusual for such a context, with just a single sherd of Hallgate A ware. Although included in Phase 3B, the pottery evidence alone cannot conclusively support this, given the extent of residuality across the Site. Tanning pit 473 (fill 333) only contained three sherds of Hallgate A ware and the base of a Hallgate B ware jar. These small quantities of pottery and the evidence for rapid infilling of some pits might

indicate a degree of variation in the ways that the pits were backfilled and the source of the material used for this purpose.

The pottery from tanning pit 107 included sherds from a Staxton Potter-Brompton jar (Fig. 37 No. 107) which joined with sherds from tanning pit 500 (fill 502), implying that these features were backfilled at the same time using material derived from a common source. An additional and unexpected cross-context and cross-phase join was represented by sherds from a Hillam ware jar or cooking pot recovered from fill 108 in pit 107, and fill 106 in pit 105, the latter tentatively attributed to Phase 4. How these sherds became separated and incorporated into two features which were presumably backfilled at entirely different times is unclear, but may support the notion that this feature was a medieval pit that had suffered later disturbance to it. In addition to these sherds, the feature contained a substantial and diverse assemblage of pottery which included Thetford ware G, Stamford ware and a variety of Lincolnshire Shell Tempered wares. The presence of Hallgate A ware suggested a 13th-century date for the backfilling of the feature using a source of material very different to that which filled pits 277 and 231.

Tanning pit 500 produced a typically mixed assemblage with Hallgate A ware the latest type and significant quantities of Hallgate B and Lincolnshire shelly wares with a sherd of Thetford G ware. In this regard the groups from 107 and 500 were broadly similar in their composition, in addition to being linked by the cross-joining sherds.

Pit 471 produced a diverse assemblage from its upper fills 273 and 436, similar to the mixed groups from other contexts with Hallgate A and B wares the commonest types and smaller quantities of Lincolnshire wares. Regional imports were represented by Hillam-type ware and Beverley 1-type ware. Fill 273 included some later Coal Measures Whiteware and Humberware. These may indicate a later 13th or 14th century date for this filling episode, or alternatively they might have been derived from the later intrusive Phase 3C feature 422, though Humberware was not present in lower fills.

Oven 565 consisted of at least three different phases, but there was little in the pottery assemblage to indicate the duration of any of these phases or to distinguish between them. The abandonment deposits produced a small group of sherds no later in date than the 13th century but including some earlier Hallgate B and splash-glazed Sandy ware material. Layer 466 contained only three sherds, all of them Hallgate A ware. The pottery from the base of the second oven (356) resembled that from the rest of the feature, consisting principally of Hallgate wares with one sherd which may be of Humberware type. No reliance should be placed on this sherd as an indicator of a late date as it differed from typical Humberware and may be a superficially similar but unrecognised type. The 'disuse deposit' 265 produced principally Hallgate wares (A and B) with a number of sherds of Beverley 2 type ware and, unusually, a sherd of Tees Valley ware. Although both the latter two types continue after the end of the 13th century, all can be seen as contemporary with the Hallgate A wares and so a 13th-century date for this feature is possible. A second oven (566) contained three deposits

with medieval and residual Roman pottery. Fill 509 produced two sherds of Hallgate B ware and a sherd of the sandy reduced ware DRS01 which is believed to date to the 13th century. Backfill deposits 483 and 531 contained similar material with the addition of a sherd of Stamford G ware.

A small group of features in the north-eastern corner of the Site consisted of two layers (741 and 751) cut by a pit (766) with a stone lining (context 765) and two fills 712 and 713. This feature was in turn cut by pit 717. All these features post-dated the ditch (851), described above as part of Phase 2. The pottery from layer 751 consisted of two sherds of the earlier, hand-made Hallgate type A1-R, while that from 741 was the later Hallgate A (with a small number of sherds of an unidentified Sandy ware). The stone lining of the pit (765) included two joining sherds of Hallgate A ware, whilst the fills (712 and 713) contained only three sherds, all of them unidentified sandy wares of undetermined medieval date.

Small quantities of mostly 13th-century pottery were recovered from context 130 (a cut mis-labelled on Site, whose fill was actually 129) and post-hole 573 while features 142, 322, 368, 473 and 523 produced small mixed groups of 13th-century and earlier material, including a sherd of imported Andenne ware from post-hole 322. Features 616, 624, 660 and 658 all produced single sherds or very small groups of sherds pre-dating the 13th century. Again however, caution must be exercised given that residuality was such a major factor. Post-hole 208 produced one undated sherd and fill 395 a single piece of an East Yorkshire Sandy ware. The small group of pottery from wall construction cut 324 included sherds of early Coal Measures ware, but it is unclear how far this indicates that it dates to late in Phase 3B.

Phase 3C

As with Phase 3B above, the pottery data pertaining to the Phase 3C features are presented in detail in the data tables but certain features of this ceramic group require further discussion.

In terms of the range of pottery types present, Phase 3C resembles earlier Phase 3B more closely than it does the succeeding Phase 3D (Table 33). This is most marked when considering the representation of Hallgate A and related wares and Hallgate B ware which were the most common types in both phases. Coal Measures wares that replaced Hallgate wares in the following phase (discussed below) were present, but with the exception of a small number of Coal Measures Purple ware sherds (discussed in context below) and some typical Coal Measures whitewares, the majority were somewhat finer that the typical Firsby/Rawmarsh types. They were probably from these potteries, however, and are tentatively suggested to be early examples of this group of wares.

It would be unwise to propose a re-dating of the early phase of this industry on the basis of this evidence alone, especially given both the residuality and intrusion on the Site, but it may indicate that the precise relationship between the end of the Hallgate industry and the rise of the Coal Measures ware industry is poorly understood. Rising urban property prices and the potential fire hazard posed by urban potteries may have been significant factors in the move

of potteries to out-of-town locations, but it has yet to be demonstrated that the Hallgate industry ended before the Don Valley industry began. The extreme dissimilarity of the products certainly argues against any simple move of potters from one location (Hallgate) to the other (Firsby Hall Farm, which appears to predate the Rawmarsh site), and the possibility of the arrival of potters new to the area while the Hallgate potters were still working must be considered. An overlap in manufacturing, with both the finer Coal Measures Whitewares and the Coal Measures Finewares in production in the later 13th century might go some way to resolving the apparent problem of the small but significant presence of Coal Measures ware in the features attributed to this phase of the Site.

Robber trench 427 and wall 300/380 both produced small mixed groups of pottery containing substantial residual elements. The stratigraphic relationships of these features were not clear and their attribution to Phase 3C poses a number of problems, relying largely on the pottery evidence and in particular on the presence of one sherd of Humberware and sherds of finer Coal Measures ware alongside earlier material which is assumed to be residual in character. Given the evidence for robbing of the Roman fort wall and the excavation of a construction trench (391/445) for wall 300/380, this is not an unreasonable suggestion, but there is inevitably some doubt and the interpretation should be viewed with appropriate caution.

Wall construction cut 391/445 produced a small assemblage of pottery consisting largely of Lincoln Fine Shelled wares dating to the later 10th and 12th centuries. A very small piece (1g) of Hallgate A ware was the most recent sherd from this trench, but given its size and the evidence for residuality across the Site little can be reliably inferred from it. Indeed, the entire group could be considered to be residual.

Robber trench 427 cut through a deposit of cobbles (layer 200) amongst which were sherds of Hallgate wares and Coal Measures Whitewares, the latter possibly early examples of the type. One artefact from deposit 200 was of particular note; a hand-made sherd in a coarse reduced fabric containing moderate quantities of poorly sorted non-crystalline grit with individual rounded grains of up to 3mm length. In the absence of a positive identification of this sherd as Roman or Anglo-Saxon, it has been listed as possibly pre-Roman. Although there is no definite evidence of pre-Roman settlement in Doncaster, the possibility is not inherently unlikely and given the virtually aceramic nature of the later pre-Roman Iron Age in South Yorkshire, the fact that little pottery of this date has been found (in spite of extensive excavations in the town) is consistent with the evidence from elsewhere in the county.

Three pits (185, 290 and 360) were thought on excavation to be distinct from the bulk of the tanning pits, and they yielded rather different pottery assemblages. Stone-lined cess pit 185 contained a complex series of deposits. The uppermost fill (112) was directly underneath the machining and cleaning context 100 (discussed below), and it is highly probable that the 18th-century slipware and the small chip of Unglazed Red Earthenware and fragments of post-medieval window glass (Cool, see below) were introduced from this. The underlying layers (113, 175, 177, 180 and 225) produced groups of pottery characterised by relatively

wide date ranges (as summarised in Table 33) and individual sherds of Humberware (layer 177) and Coal Measures Whiteware (context 113). The latter suggest that the pit was filled in the 14th century, if the earlier pottery is seen as residual. Nevertheless, on pottery evidence alone the position of this feature remains ambiguous, but the stratigraphy supports a position in Phase 3C.

The upper fill (147) of stone-lined cess pit 290 contained a group of sherds that can, with some exceptions, be regarded as more chronologically homogeneous than many from the Site. The two late sherds from the feature – the handle of a Brown Glazed Coarseware jug or handle jar and a small chip of unidentified post-medieval pottery, together with a fragment of clay tobacco pipe, were probably derived from the fill of later recut 204. Although the Brown Glazed Coarseware sherd belonged to the earlier phases of this industry, it is still considerably later than the Humberwares and Coal Measures wares which made up the greater part of the group, indicating a 14th-century date for the filling of the feature. Pit 360 was heavily truncated by later activity and the small pottery assemblage included Roman material and a single sherd of medieval ware, the former probably residual.

Clay-lined pits 198 and 214, the former post-dating the latter, produced small groups of pottery from fills 195 and 212 respectively. Both features were originally intended to contain water or other liquid, with 198 also used for mixing mortar (deposit 195). The stratigraphic sequence was confirmed by the presence of Coal Measures Fine and White wares from deposit 195 alongside small and probably residual sherds of Hallgate A ware. Both the Coal Measures sherds were interpreted amongst the earlier examples of the types but can be placed within the early to mid-14th century, although a slightly earlier date could also be proposed. Deposit 212, the fill of pit 214, produced a small group of 13th-century wares, principally Hallgate A. Although this could indicate a significantly earlier 13th-century date, this is stratigraphically most unlikely and the sherds are best interpreted as being residual in a later, possibly 14th-century context.

Pit 152 produced a small and very mixed group of pottery, much of it dateable to the earliest phase of medieval activity on the Site and alongside Roman material most probably derived from the truncation of ditch fill 219. The presence of sherds of Humberware suggests a later medieval date though, supported by the presence of small fragments of Orange Gritty ware.

Two stone-lined wells (589 and 656) both contained mixed pottery assemblages, though neither was fully excavated. The group from deposit 585, the upper fill of 589, was exclusively medieval in date and included a sherd of Humberware alongside earlier and unidentified local wares. The upper fill (590) of well 656, produced a sizeable group of Humberware and Coal Measures White and Finewares dating to the 14th century. That said, a number of the Coal Measures Finewares had splashed glaze, suggesting an early 13th-century date, perhaps contemporary with Hallgate A and A-R wares. This group was notable for the variety of regional imports within it (Beverley wares, Nottingham wares, Lincoln-type wares and a possible sherd of an unidentified Flemish ware.

Phase 3C also included further cess pits, tanning pits and post-holes, the details of which are summarised in Tables 2 and 33. In terms of the pottery assemblages, those from features 170, 172, 335, 352 and 433 were relatively small and mixed, including residual Hallgate wares, but in all cases except 433 contained sufficient numbers of Humberwares and/or Coal Measures whitewares to allow them to be allocated to this phase. In contrast, large pits 255 and 422 produced large assemblages of pottery from multiple fills.

The two lowest fills (398 and 394) from pit 255 were linked by cross-context joins – parts of a Hallgate B vessel. In addition, fill 394 of this pit included six sherds from a Rouen ware jug or jugs (Plate 21). Sherds of an imitation Rouen ware jug (probably of London origin) were found in the overlying layer 271 (Plate 22). The upper fill (228) of pit 255 included a sherd of post-medieval Martincamp earthenware. The overall impression was of a relatively early assemblage that included an unusually high number of sherds of Hallgate 95 type hand-made wares (A1 and A1-R) which were generally rare on the Site, alongside the more numerous HaA and HaB wares. This early date, however, was rendered doubtful by the presence of sherds from a Humberware drinking jug and Coal Measures Whiteware from the lower fill (394) in addition to the sherd of Martincamp earthenware. As deposit 228 was the uppermost fill of pit 255 it is possible that the latter sherd could have been derived from an overlying deposit or a later intrusive feature, but this explanation is less easy to sustain with the later medieval sherds from the earlier fills. The presence of cross-joining sherds from the two lower fills argues against the simple assumption of the accumulation of stray sherds over time in a naturally filling feature and would seem to suggest that however distinctive these fills may have been, they were created at about the same time and were derived from the same body of material. This has implications for considerations of the formation processes on Site (see Discussion below).

The pottery from tanning pit 422 was dominated by Hallgate A and B wares, but the presence of Coal Measures Whitewares in fills 403 and 284 suggests a later date for the fill than is indicated by the Hallgate wares, assuming that the Coal Measures Whitewares do in fact, post-date the Hallgate A wares which may still be open to question, as discussed in the ware descriptions above. It may be significant that some Coal Measures Whiteware sherds appeared to be earlier examples of the type, including several with possible splashed glaze. The sherd of Coal Measures Purple ware from fill 284 was probably derived from the later Phase 3D feature 251 that cut into the upper fill of pit 422. The fill of pit 251 contained a substantial quantity of this type of pottery in addition to earlier wares. Pit 422 also contained the spout of a Saintonge ware jug (from fill 284). Saintonge ware is known from elsewhere in Doncaster (Buckland *et al.* 1989: 325-326) and from Bawtry (Cumberpatch 1996: 86), further indication that these inland ports were connected via the Rivers Don and Humber to the east coast trading network. Fill 284 also produced part of an unknown ceramic object (Fig. 37, No. 119) in an unidentified coarse sandy fabric. Other sherds of note included the Torksey ware sherd from fill 358 and two sherds of Lincoln-type ware from fill 284.

Four features (deposit 157/261, 196, 378 and 453) all produced small groups of pottery from their single context fills (197, 379 and 452 respectively). Pit 453 produced the largest group of pottery and the only one to be fully compatible with a place in Phase 3C. With the exception of a single small sherd of Humberware and the base of a Hallgate A ware jug or jar, the group consisted entirely of Coal Measures Whiteware with a single rod handle that might be of a slightly later date. This having been noted, the similarity between over-fired Coal Measures whiteware and Coal Measures Purple ware can be misleading, and this sherd is a good example of the ambiguity that is a characteristic of these wares (Cumberpatch 2004b).

Clay-lined pit 196 contained only four sherds of pottery, two of them Coal Measures Whitewares and the other two of an earlier type. In contrast, the group from deposit 157 more closely resembled the groups from Phase 3B in terms of its composition than it did those from Phase 3C. In this regard it resembles a group of features from Phase 3D (450, 306, 362, 280 and 430) which produced small groups of pottery more compatible with the earlier phases of the Site, stratigraphic evidence of their relative date notwithstanding.

Robber trench 378/427 produced an entirely anomalous group of sherds consisting of nine fragments of fired clay and two sherds of a late Saxon greyware. The small size of the group precludes any particular conclusions being drawn from it; like context 157 and a number of other features, discussed elsewhere, the evidence of the pottery is more informative in illustrating the nature of the formation processes on the site than the chronology of activity.

Phase 3D

Although Coal Measures Whitewares and Finewares were present in small quantities in Phase 3B and 3C contexts, as discussed above, these types did not become common until Phase 3D (Table 34), suggesting that this phase post-dated the end of the Hallgate industry and the start of pottery production at Firsby Hall Farm and Rawmarsh around the early 14th century. Ceramic groups from four contexts placed in Phase 3D on stratigraphic grounds (280, 362, 430 and 450) did not contain any Coal Measures wares or the broadly contemporary Humberware, and on the basis of the pottery alone could be attributed to Phase 3A or 3B more readily than to Phase 3D. That the apparent date derived from the pottery is incompatible with the stratigraphic information indicates the high degree of residuality on the Site. Slot fill 752 produced only two sherds of medieval pottery, one of them no more than a flake, and might also be included in this group of seemingly anomalous contexts, though making any assertions on the basis of such small quantities would be unwise.

There were hints within the individual feature groups of a degree of differentiation between them perhaps indicative of chronological sub-divisions based upon the varying proportions of different pottery types, notably Coal Measures wares. Given problems of residuality, however, these should be treated as indicative rather than absolute.

Post-hole 414 produced a group of fourteen sherds of which only one was definitely Coal Measures Purple ware, and one possibly so. Whether this is sufficient to distinguish the

context from others in this phase though is questionable. Features 204, 251, 364, 418 and 439 all produced significant quantities of Coal Measures Purple ware, accompanied by the inevitable residual earlier pottery. Pits 164 and 653 in contrast included quantities of later wares, early Brown Glazed Coarsewares in the case of 164 and a sherd from a Mottled ware cup in the case of 653. This could indicate that these two pits belonged to the later stage of Phase 3D with the rest of the features being somewhat earlier. However, the Mottled ware sherd from 653 might have been intrusive from later pit 507 which cut 653. If so, then 653 could have been part of the earlier group, the sherd from the Martincamp flask being contemporary with the sherd of Coal Measures Purple ware and possibly with the sherd of Humberware. With regard to pit 164, the ambiguities surrounding the appearance of the earliest Brown Glazed Coarsewares mean that it is impossible at the present time to suggest a definitive date for this occurrence and thus for the feature, although both could be as late as the later 16th or early 17th centuries.

Whilst the pottery groups from the remaining features were coherent internally and with each other, the details of the stratigraphy as set out in the site narrative above present serious problems of interpretation in each case. Features 450, 306, 362, 280 and 430 all produced assemblages of pottery comparable with those from Phases 3A or 3B and lacked any pottery dating to the later phases of activity at Church Walk. They can thus make little contribution to the narrative of activity on the Site, other than indicating that pits and other cut features were backfilled with deposits containing material derived from earlier activities. They have greater significance for overall considerations of the finds assemblage (see below).

Pit 162 produced a small group of pottery from two fills (135 and 138). Context 138, the earlier of the two fills, produced only one sherd of an ambiguous sandy ware with only one surface surviving and was undateable beyond being medieval in character. The Cistercian ware sherd from fill 135 suggested a date from *c*. 1450 onwards but it was very small and might in other circumstances be regarded as possibly intrusive into the earlier context. In contrast, the sherd of Coal Measures Whiteware was large and relatively unabraded. Wall 307 produced only one sherd of pottery, a piece of Coal Measures Purple ware that along with the stratigraphic evidence suggested it belonged to Phase 3D, although this is by no means irrefutable. Post-hole 725 produced two sherds of unusual type, one too small to be identified and the other of later medieval character.

Phase 4

Phase 4 covered an extensive period that included the later post-medieval and early modern periods, and the very late 19th to early 20th centuries (Table 35). As with Phase 3D, it is possible to suggest some degree of chronological subdivision within the phase, but once again problems are posed by the extent of residuality and intrusion, the latter particularly from later 18th and 19th-century activity on the Site. Where necessary, priority has been ascribed to the stratigraphic data.

Pits 128 and 166 were linked by the fact that 166 cut 128, and there had been some incorporation of earlier material into the later feature, represented by cross-context and cross feature joins between fills 101 and 109 and 101 and 114. The material concerned was of later medieval date, an unidentified reduced sandy ware in the first case and a Humberware jug in the second. The Humberware vessel was unusual in that it had been so badly over-fired in the kiln that it was blistered and in part bloated, and it is questionable as to whether it would have been usable. Quite how and why this potential 'waster' came to be deposited is unclear, as this was extremely unlikely to have been post-manufacture damage.

The earlier pit 128 contained a single fill (101) which included a large quantity of animal bone that appeared to have been connected with horn working, alongside largely 15th to 16th-century pottery such as Coal Measures Purple ware, Cistercian ware and Purple Glazed Humberware; together with earlier wares including Coal Measures Whiteware and a sherd of Raeren stoneware. Three sherds from a 19th-century stoneware flagon were anomalous in this context, and their presence is difficult to explain. They might have been derived from later feature 166, although the sherds were late in date even for this feature. Post-excavation contamination should not perhaps be ruled out in this instance.

Pit 166 contained two fills (114 and 109), with 114 containing later medieval pottery such as Coal Measures Whiteware, and early post-medieval Coal Measures Purple ware. A much larger and more diverse group of pottery was recovered from context 109 and this included Cistercian ware and Coal Measures Purple ware, alongside earlier types like Coal Measures Whiteware. Of particular note were sherds of earlier Brown Glazed Coarseware type, ascribed on the basis of their individual characteristics to the 16th and 17th centuries, with one sherd possibly slightly later. Sherds from three large jugs have been described as Cistercian/Blackware – although their fabrics were similar to that of Cistercian ware, their size suggests that they more closely resembled Blackware vessels. The group also included sherds from up to four Martincamp flasks and a variety of later medieval and post-medieval wares. A small (4g) sherd of mid to later 19th-century transfer-printed Whiteware was again anomalous, and may have been derived from the overlying machining and cleaning layer 100. Whether the same is true of sherds of 18th-century White Salt Glazed Stoneware and Yellow Glazed Coarseware is unclear, as the former was not otherwise represented in the assemblage from cleaning context 100 (discussed below).

Five features were tentatively assigned an 18th-century date – 105, 168, 494, 505 and 726. The pottery groups from 105 and 726 consisted of only a few sherds, and in each case the 18th-century date depends on the evidence of single sherds. Deposit 494, the fill of a cellar, produced three sherds of late 17th or more probably 18th-century date. Gully 168 contained medieval and early post-medieval pottery but also a sherd of 17th or early 18th-century Brown Glazed Coarseware, and a sherd of 18th-century Late Blackware.

The wooden tank 505 wthin cut 507 contained a significantly sized 18th-century ceramic group. In contrast with groups excavated elsewhere in South Yorkshire, formal tablewares

were notable by their rarity (one sherd of White Salt Glazed Stoneware) when compared with the vernacular tablewares, a situation also noted in relation to the material from the cleaning layer 100 (discussed below). Three sherds of Tin Glazed Earthenware plates, however, were present in the group (Plate 23). Brown Salt Glazed Stonewares of 18th-century type, Mottled wares, Slipwares and the slightly earlier Redwares were all present in significant quantities, but Late Blackware, normally common in groups of this date was rare, although examples of the superficially similar Slip Coated wares were present. Small quantities of earlier material in the deposit were again probably residual.

Linear cut 146 and well 193 contained mixed but very different groups of pottery, with the latest elements of 19th-century date. The group from fill 119 within cut 146 was largely of medieval date and were it not for a small number of sherds of 18th and 19th-century date would have been ascribed to Phase 3C. The feature has been interpreted as a possible drainage cut truncating earlier wall 307, and this could explain the presence of earlier sherds and the relative scarcity of early modern pottery. Seventeenth-century Coarseware sherds were normally a rare type in South Yorkshire and more common in West Yorkshire (Cumberpatch 2007).

Well 193 produced a much more diverse group of wares than feature 146, and included medieval pottery including two sherds of Lincoln-type ware alongside later 18th and 19th-century wares, and a sherd of somewhat earlier Tin Glazed Earthenware. The composition of this group has much in common with contemporary assemblages excavated in Sheffield (Cumberpatch in prep.). As the well truncated Phase 3D pit 164, the medieval pottery might have been incorporated in the fill of the well shaft during its backfilling, presumably using material obtained from elsewhere on the Site or close by. A number of features produced pottery assemblages consisting of single sherds or very small groups of sherds (features 131, 187, 256, 262, 263, 533 and 535). Details of this material are provided in Table 36 and, given the extent of residuality on the Site, few conclusions can be drawn from this material, although the sherds from features 256, 262 and 263 were from cellars and may indicate an 18th-century date for the use of these structures, and presumably the buildings to which they belonged.

Unphased contexts

A small number of contexts remained unphased and/or could not be assigned to features. The data are summarised in Table 36. The largest group was from 285, a general 'cleaning spit' over pits 471, 422 and 364 (belonging to Phases 3C, 3B and 3D respectively) which in its composition resembled the Phase 3B contexts. Items of particular note were the rim of a Hallgate B ware jar (Fig. 36 No. 92), the sherds of Torksey ware, a sherd of Low Countries Redware (one of the few from the Site) and the sherds of Scarborough ware Phase 1.

Context 102, a missing sheet and 151, an incorrectly attributed number, each produced a single sherd of pottery (Coal Measures Purple and Hallgate-type respectively), while deposits

424, 648 and 661 all produced small mixed groups of pottery comparable in date and range of wares with the larger group from context 285.

Cleaning and machining layer 100

Three contexts constituted the cleaning and machining layer – 100, 115 and 139. Although contributing little to our understanding of the Site as a whole, the pottery from these layers is not without intrinsic interest. The details are summarised in Table 37. Inevitably, this material was highly mixed and included sherds representing all phases of occupation. Notable groups included Cistercian wares (including the cup shown in Fig. 37 No. 111), 19th-century stoneware bottles and flagons, and imported later medieval and post-medieval wares such as German stonewares, a fragment of a Martincamp flask and an unidentified, possibly French, import. The two fragments of Tin Glazed earthenware jars (Fig. 37 No. 113) are of uncertain origin, but following Jennings (1981) they might be termed 'Anglo-Dutch'.

The later 17th and 18th-century wares are of some interest, given the fact that this period of Doncaster's history has been rather neglected in archaeological terms compared with other centres such as Sheffield and Leeds. While utilitarian wares and vernacular tablewares were relatively common in this group, it is notable that formal tablewares (White Salt Glazed Stoneware, Creamware and Pearlwares) are rare or absent. It may be that this reflects the character of the area in the early modern period and the fact that it was not an area in which formal tablewares and all that they symbolised were adopted. That this pattern is not due to chance but reflects the pattern of use of pottery at this time is supported by the evidence of the pottery from Phase 4 feature 505 described above.

Catalogue

84* Bowl; Hallgate A ware; knife trimmed ext.; unusual form. *Pit fill 118; Phase 3B*

85* Hollow ware; Hallgate A ware; base and body sherds. Patchy green glaze, mainly unglazed; very thin walled vessel, sagging base, sooted. *Pit fills 229, 241 and 249; Phase 3B*

86* Dish; Hallgate A ware; rim; undecorated; unusual form. *Ditch fill 431; Phase 2*

87* Distinctive rod handle from jug; Hallgate A ware; lobate handle with green glaze. *Pit fill 403; Phase 3C*

88* Jar rim; Hallgate B ware. Patches of green splash glaze on rim; sharply everted rim with pointed cap. *Pit fill 299; Phase 3B*

89* Jar; Hallgate B ware. Thin yellow glaze on rilled body; thin walled, finely made vessel. *Pit fill 156; Phase 3B*

90* Jar rim; Hallgate B ware; undecorated. Sharply everted rim. *Pit fill 657; Phase 3B*

91* Jar rim; Hallgate B ware; undecorated. Profiled rim. *Pit fill 436; Phase 3B*

92* Jar rim; Hallgate B ware. Distinctive profiled rim. *Cleaning spit 285; unphased*

93* Dish/pancheon; Halllgate C ware. Internal and external patchy green glaze; sooted ext. No exact parallel for form. *Pit fill 358; Phase 3C*

94* Hollow ware rim; Doncaster Reduced Sandy ware 2. External patchy splashed glaze; clubbed rim. *Ditch fill 371; Phase 3A*

95* Jar; Coal Measures Fineware; undecorated. A fine white Coal Measures fabric; an example of the earliest type of CM ware. *Pit fill 161; Phase 3C*

96* Strap handle from jug; Coal Measures Fineware type. Thin pale green glaze on top of handle; very fine white/pale grey fabric with very fine quartz and black grit. *Pit fill 195; Phase 3C*

97* Jug base and body; Coal Measures Whiteware. Patchy green-yellow ?splash glaze; applied handle stump; finer body; one part sherd for TS/ICPS sample no 10. *Pit fill 147; Phase 3C*

98* Pipkin handle; Coal Measures Whiteware. Patchy green-yellow glaze, folded end. *Pit fill 147; Phase 3C*

99* Dish rim; Coal Measures Whiteware. Undecorated; distinctive lid-seated rim. *Pit fill 147; Phase 3C*

100* Pancheon rim; Coal Measures Whiteware. Profiled rim, internal yellow glaze; ?late form. *Pit fill 101; Phase 4*

101* Hollow ware base; Coal Measures Whiteware. Appears to be external yellow-green splashed glaze; Splash glaze suggests an early date. *Stone well lining 192; Phase 4*

102* Pipkin handle; Coal Measures Whiteware. External yellow-green glaze; deep impressions at handle/body join. Sooted ext. *Cleaning and machining context 100; Phase 4*

103* Hollow ware body sherd; Coal Measures Purple ware. Applied and stamped strip. *Deposit 726; Phase 4*

104* Hollow ware body sherd; Doncaster Gritty ware. External rouletted band which is unusual. *Sample no. V4185. Ditch fill 145; Phase 2*

105* Hollow ware base and body sherds; Gritty ware. Rilled profile; very thin walled gritty ware, sooted externally; non-local ware. *Pit fill 133; Phase 3B*

106* Jar/cooking pot rim; Gritty ware. Undecorated; a hard, dense Gritty ware, similar to Moorhouse's Vitrified Gritty ware. *Pit fill 232; Phase 3B*

107* Hollow ware body sherd; Staxton/Potter-Brompton ware. External applied thumb impression strip. Cross-context and cross-feature join (F.500 and F.107). Sample V4138. *Pit fills 108 and 502; Phase 3B*

108* Part of bearded face mask from jug; Scarborough Phase II ware. Dark green glaze. *Pit fill 547; Phase 3B*

109* ?Pitcher rim; N. French whiteware. Undecorated. *Pit fill 407; Phase 3D*

110* Jug; Midlands Purple Glaze 08; Internal and external Purple glaze. Hard, dense purple fabric. *Pit fill 143; Phase 3D*

111* Cup rim; Cistercian ware. Yellow pipeclay design; stylised flowers?; no parallel from Wrenthorpe. *Cleaning and machining context 100; Phase 4*

112* Dish; Redware. Internal clear glaze; unusually small dish. *Cleaning and machining context 100; Phase 4*

113* Jar base; Tin Glazed Earthenware. External blue bands on white; splayed base. *Cleaning and machining context 100; Phase 4*

114* Skillet rim; Low Countries Redware; Internal clear glaze; cf. Watkins 1987, 141-5, fig 103. *Pit fill 336; Phase 3D*

115* Very small pot disc from body sherd; Brown Glazed Coarseware. Internal and external brown glaze; 14mm. *Pit/tank fill 504; Phase 4*

116* Pot disc from hollow ware body sherd; Hillam type ware. Rilled body; 18mm. *Cleaning and machining context 100; Phase 4*

117* Pot disc from hollow ware body sherd; Gritty ware. Undecorated. *Ditch fill 458; Phase 2*

118* Fragment of decorative item, ?roof tile. Cut from a sheet of clay. *Ditch fill 431; Phase 2*

119* Rim/edge; Coarse Sandy ware; internal and external spots of splashed glaze. Hard, dense fabric with quartz and occasional non-crystalline inclusions. *Ditch fill 284; Phase 3C*

The supply of pottery to Doncaster

The bulk of the pottery which comprised the Church Walk assemblage was of local origin. The scheme that suggests production within the town ended during the later 13th or early 14th century and was replaced by the Coal Measures ware potteries of the Don Valley and to a much less extent by the Humberware potteries, receives general support from the data assembled for this report. Nevertheless, there was a small but regular component of the pottery groups from all phases of the Site that reached Church Walk from further afield. The issues surrounding the inland trade in pottery have been discussed in some detail by

Moorhouse (1978, 1983b), and in general the data from Church Walk do not contradict his conclusions. The analyses carried out by Alan Vince demonstrate that from the late 9th or 10th centuries pottery was reaching Doncaster from Torksey and from East Anglia (Appendix 5). The East Anglian wares may have reached the town through the important east coast trade in salt fish which was of great significance throughout the medieval period (Cotter pers. comm.). As an inland port serving a broad hinterland within southern Yorkshire and eastern Derbyshire, Doncaster played a key role in this trade and provided an outlet for products from the region. Pottery probably moved alongside other goods and people.

Other early imports included Stamford wares and Hillam-type wares from West Yorkshire, and Shell Tempered wares from Lincolnshire. Much is now known of the latter class of wares (Young and Vince 2005) but there is still no convincing explanation for the disparity in quantity between the Shell Tempered wares and other Lincolnshire wares found in South Yorkshire and neighbouring areas. Small quantities of Lincolnshire sandy wares were noted amongst the Church Walk assemblage and they are also known from other sites in the area such as Bawtry (Dunkley and Cumberpatch 1996). In comparison to the Shell Tempered wares which form a proportion of virtually every medieval pottery assemblage from South Yorkshire, however, they remain rare.

Why were the visually unimpressive shelly wares apparently more popular than other, normally more elaborate types? The first possibility is that the shelly wares were the containers for distinctive Lincolnshire products, with the pots relatively unimportant in their own right but deemed particularly suitable for transporting these products. The second is that they were valued for some perceived physical property perhaps linked to cooking or the storage of food which made them desirable (if not essential) items in their own right. There is no evidence that the vessels filled a gap in the range of domestic ceramics which could not, in purely functional terms, have been filled by local wares. Ethnographic and sociological evidence, however, indicates that it is the perception of the values and qualities of pottery and other vessels which is often the critical factor in their acquisition and use, rather than notions of economic efficiency which are based upon neo-classical conceptions of economic practice. The explanation may lie in the widespread distribution of Lincolnshire shelly wares. A comprehensive programme of residue analysis designed to investigate the functions of the shelly wares might, if the methodology and the quality of the resulting data were sufficiently robust and informative, cast some light on this aspect of the pottery and the reasons for its virtual ubiquity on sites in South Yorkshire and beyond.

The Hillam-type wares and the much smaller quantities of later medieval West Yorkshire Gritty wares such as Northern and Orange Gritty ware indicate some form of contact between Doncaster and West Yorkshire. Evidence from sites including Sandal Castle and Pontefract Castle has shown that Doncaster and Don Valley wares were both present in West Yorkshire and the broader picture has been discussed elsewhere (Cumberpatch 2002). It is thus unsurprising that West Yorkshire wares featured on sites in Doncaster, although the small quantities suggest that they arrived as incidental elements rather than as goods in their own

right. Whether they originally contained goods intended for sale in the nearby market or were the possessions of individuals with other business in the town is unclear. A similar question may also be raised in connection with the Staxton/Potter-Brompton storage jar or jars. These vessels were considerably larger than the West Yorkshire wares, raising the possibility that they had first reached the coast and then subsequently Doncaster via the east coast trade.

The importance of this trade in fish and other goods along the east coast was again highlighted by the presence of the Beverley, Scarborough, Tees Valley, East Yorkshire Quartz and Calcareous ware and unidentified East Yorkshire Sandy ware sherds. These vessels might have arrived through direct contact, or with other goods. Once again, a comparison can be drawn with the evidence from Bawtry, also an important river port, where examples of similar types of pottery were identified (Cumberpatch 1996: 59). This trade may also have been responsible for the presence of the imitation Rouen ware, probably a London product, and the Surrey Whiteware sherd. Surrey Whiteware was found at Bawtry, whilst imitation Rouen wares are known from Hartlepool and Pontefract.

European wares were present throughout the medieval phases of Church Walk but were more notable for their diversity than for their abundance. In this the Site reflects the general picture in Doncaster; for while the range of wares is generally similar to that found in coastal towns such as Hull, the quantities are considerably less, perhaps reflecting the transhipment of goods from seagoing ships with European crews to locally crewed smaller river vessels. Earlier imports included Rouen ware, Andenne-type ware and French Whiteware whilst later imports were represented by the Rhenish stonewares, the Saintonge ware jug, the Martincamp wares and the small number of sherds of Low Countries Redware. Although the origins of these imports change over time, the quantities seemed to remain broadly stable, presumably reflecting the long-term nature of the North Sea and cross-channel trade which remained important even if it was disrupted by short term fluctuations in the political climate. With the exception of Rhenish stonewares, European imports across South Yorkshire were largely limited in their occurrence to Doncaster and Bawtry. The enormous disparity in the areas excavated in the two towns make quantitative comparisons impossible, but qualitatively there seems to be little difference between the two and it would seem that both participated in well-established medieval and post-medieval European trade networks.

Vessel form and function

A major feature of the Church Walk excavation was the incidence of residuality that made useful comparisons between the pottery groups present in the phases defined on Site difficult, given that a high proportion of groups from individual features or phases were derived from earlier activity. Investigations of the data using the tools provided in the Microsoft Excel spreadsheet programme which forms part of the Site archive confirmed that comparisons between features, Site phases and the ceramic horizons defined in Appendices 5 and 6 produced confusing results that could only be interpreted by making assumptions that themselves invalidated the results of the analysis. The only useful basis upon which

comparisons could be made was between groups of specific ware types. The results of this analysis form the subject of this section of the report.

As noted above, the supply of pottery to Doncaster changed significantly at the end of the 13th or early in the 14th century with the end of manufacture in the town and the establishment of potteries in rural locations in the Don Valley (Coal Measures wares) and to the east of Doncaster (Humberwares). This geographical distinction was reflected in the rather different character of the products of the two areas, with the Don Valley potteries producing utilitarian gritty wares and the Humberware potters producing tablewares and related types (Cumberpatch 1997, 2002).

A series of graphs illustrates the numbers of vessel forms in specific ware types, using the estimated maximum number of vessels (ENV) figure, with the emphasis upon those wares present in sufficient numbers for statistical reliability. In all cases the general 'hollow ware' and 'unidentified' categories were omitted to improve the clarity of the graphs. Graph 20 shows the range of vessel types present within the Doncaster wares (DRS01, DRS02, Hallgate A, A1, B, C and related wares). Jugs and jars stand out as the most common vessel forms, with other forms represented by less than ten vessels in each case. Including only the Hallgate A, A1 and related types gives a different result, with jugs far outnumbering jars and all other forms (Graph 21). The Hallgate B ware shows a slightly different pattern (Graph 22) with jugs still outnumbering jars, but the proportion of the latter being considerably higher than in the case of the Hallgate A wares. This pattern reflects in general terms that at Hallgate (Buckland *et al*. 1979: table 2), implying that the pattern of discarded wasters conforms broadly to the output of the potteries themselves. Minor Doncaster fabrics such as Hallgate C, Doncaster Gritty ware, Splash Glazed Sandy ware and Hallgate-type wares were omitted from this analysis as the number of vessels was too low in each case to yield useful results. The Doncaster Reduced wares (DRS01 and DRS02) are shown in Graph 23, and although the numbers of identifiable vessels are low the general pattern is closer to that of the Hallgate A wares than it is to the B wares. This suggests that these wares were part of the Hallgate A group rather than the B group, a conclusion which reflects the fact that they were also much more similar in visual appearance to Hallgate A wares than to the Hallgate B wares.

In the case of Coal Measures wares it was more difficult to assign sherds to particular vessel types. Cisterns, jugs and some types of jar all had strap handles, thick flat or slightly sagging bases and similar types of rim, precluding easy identification of vessel form (Cumberpatch 2004b) from sherds. Hybrid categories (jar/cistern, jug/jar) were, in consequence, more common than with the Doncaster wares. The data from the two known production sites are less reliable than that from the Hallgate potteries, owing to the circumstances of the excavation at Green Lane Rawmarsh and the absence of excavation at Firsby Hall Farm. It was thus not possible to compare directly the proportions of vessel types from consumer sites such as Church Walk with those from the potteries themselves.

Graph 24 shows the range of vessel types in all the Coal Measures ware fabrics and the wider range of vessel forms when compared with the Hallgate wares. The Coal Measures Finewares are shown in Graph 25, with related Whitewares shown in Graph 26. In the former case the numbers of identifiable vessels were scarcely large enough to be considered significant, but both jugs and jars were present. There was a more complex situation with Whitewares, with jugs a substantial proportion of the total, but with new vessel types not previously represented in the Hallgate wares appearing, such as cisterns and pancheons. The greatest contrast was shown by Coal Measures Purple wares (Graph 27), amongst which jugs were only a minor proportion and were outnumbered by the cistern and jar/cistern categories. These general patterns, although based upon a relatively small number of identifiable vessels, broadly concur with changes in vessel type during the later medieval and post-medieval periods discussed elsewhere (Cumberpatch 1997, 2003). In spite of the problems of residuality, the assemblage from Church Walk can thus still be cautiously used to discuss broader trends in pottery production and use in medieval and early post-medieval Doncaster.

The Lincolnshire Shell Tempered wares spanning the late 9th to later 14th centuries (as discussed in the type series) showed some distinctive and interesting patterns (Graph 28). Jugs were entirely absent, and jars made up the greater part of the group along with bowls, a rather more restricted range of vessel types than that found on Lincoln sites (Young and Vince 2005). This does not fully explain the reasons for the arrival of the vessels in South Yorkshire, but jars and bowls were clearly preferentially selected over other vessel types. A priority for future research should be an examination of the statistical data from Lincolnshire and South Yorkshire with a view to providing a more comprehensive account of what was evidently a regular and long-lasting relationship between communities in the two areas.

Proposed ceramic horizons in Doncaster

The range of types of pottery found on sites in South Yorkshire is now well established (Buckland *et al*. 1979, 1989; Cumberpatch 1996, 2004a, 2004b, 2006b) and while a number of important assemblages remain unpublished (including Sheffield Castle, Sheffield Manor and Doncaster Low Fishergate/North Bridge) it can be argued that the data available are sufficient, in the case of Doncaster at least, to allow the definition of a number of ceramic horizons, following the model provided by recent work in Lincoln (Young and Vince 2005). The publication of the Askew's assemblage appears to be an opportune moment to attempt this. It should be emphasised that the scheme proposed here is a preliminary one and will require both evaluation with reference to assemblages from other sites in Doncaster both already published and to be excavated in the future and the inclusion of the full range of imported wares known from Doncaster. Extending the scheme back into the Roman period is beyond the scope of this section of the report but might be a feasible prospect in the future. For this reason the Roman period has been treated, on a provisional basis, as a single horizon.

Roman: A general horizon covering the whole of the Roman period in Doncaster, to be sub-divided in future.

ASD01: Early 5th to mid-9th century

The early and mid-Saxon periods are poorly represented in South Yorkshire generally and in Doncaster in particular. The information available has been summarised elsewhere (Vince 2003) but as it has only limited direct bearing on the Church Walk assemblage (in that no features dating to this horizon were positively identified), it will not be discussed further here.

ASD02: Mid-9th to mid/late 11th century

This horizon covers a period which is poorly represented in Doncaster specifically and South Yorkshire in general. Discussion of the sparse evidence pertaining to it can be found elsewhere (Vince 2003) and it is to be hoped that at some stage in the future new excavations will cast further light on this obscure but critical period of South Yorkshire's past. Ware types which might be expected to be associated with it include:

Early Stamford ware (E/M – MC10th)

Stamford ware A (C10th – MC12th)

Torksey ware and Torksey-type ware

Local Late Saxon hand-made wares

MED01: Mid-11th century to mid/late 12th century

The immediate post-Conquest period is understood to be characterised by the establishment of the Frenchgate and Market Place potteries and by the appearance of Hallgate C ware and the products of the Hallgate 95 pottery. There is, at present, no independent dating evidence for the Frenchgate or Market Place potteries and the date ranges suggested are based upon the technical characteristics of the pottery itself which is hand-made and splash glazed. The Market Place material is described as 'competently wheel-finished' (Hayfield 1984: 43) while the Frenchgate pottery (Cumberpatch and Sydes 2004) was hand-made and in this regard resembled the products of the Hallgate 95 potteries (Cumberpatch *et al*. 1998-1999) although the fabrics are rather different. The question of which of the two was the earlier remains open.

The Hallgate 95 pottery appeared to be producing counterparts of the Hallgate A and C types (A1 and C1) but not Hallgate B (which petrological and chemical analysis has shown was made from 'quite different clays and tempers'; Young and Vince 2005: 119). The abundant evidence that the products of the pottery were hand made and splash glazed suggests an earlier medieval date although here, as at the other early potteries, there was no dating evidence other than the pottery itself and on this basis a mid-11th to early/mid-12th century date was suggested (Cumberpatch *et al*. 1998-1999: 54). The date of Hallgate C wares from the Hallgate kiln is unclear and, indeed, there does not seem to be any direct evidence that the C wares were actually produced at Hallgate (as opposed to the situation at Hallgate 95 from

where wasters were recovered). As Buckland *et al*. have commented 'Fabric C is the least well represented at Hallgate, occurring as occasional, presumably residual sherds in all features, including the probable kiln …' (Buckland *et al*. 1979: 12). It is suggested here that Hallgate C ware belongs to an earlier ceramic horizon than B and A and that it might have been produced at the Hallgate 95 pottery (or another, as yet undiscovered site in the Hallgate area) and to be residual at the Hallgate site described by Buckland and his collaborators.

Ware types characteristic of the MED01 horizon in Doncaster include:

Frenchgate pottery (Cumberpatch and Sydes 2004)

Market Place pottery Buckland *et al*. 1989: 210; Hayfield 1984: 41-43)

Hallgate 95 hand-made wares (HaA1, HaC1, HaD, HaE, HaF) (Cumberpatch *et al*. 1998-9)

Hallgate C ware (Buckland *et al*. 1979; Cumberpatch *et al*. 1998-9)

Stamford wares (Kilmurry 1980; Leach 1987; Young and Vince 2005) as follows:

Early Stamford ware (EST): E/MC11th

Stamford ware G (E/MC11th – MC12th)

Stamford ware B (M/LC11th – E/MC13th?)

Stamford ware A/G (E/MC11th – MC12th

Stamford ware B/G (MC11th – MC12th)

Stamford ware A/B (M/LC11th – MC12th)

Beverley ware 1A (LC11th – M/LC13th) (Didsbury and Watkins 1992: 108-111)

Hillam type ware (Cumberpatch 2002; Moorhouse and Slowikowski 1987)

Lincolnshire Shell tempered wares: LFS, LEMS, EMHM (Young pers. comm.).

MED02: Mid/late 12th century to late 13th century

While pottery characteristic of the MED01 horizon was rare on the Site, wares defined as associated with the MED02 horizon were abundant.

Since the publication of the first Hallgate report (Buckland *et al*. 1979) the data from Lincoln have suggested a mid to late 12th-century date for Hallgate B ware (Lincoln horizons MH2

and MH3; Young and Vince 2005: 120), which supports the date suggested by Buckland *et al*. on the basis of evidence from Hedon (Buckland *et al*. 1979: 56) and from Doncaster itself.

There does appear to be a chronological distinction between the occurrence of the Hallgate fabrics: 'The overall picture indicates that both A and B fabrics were current by the end of the 12th century and no 'B' fabric vessel has yet been dated to the 13th century although this may be the result of an absence of suitable excavated representative groups' (Buckland *et al*. 1979: 56).

While Hallgate A appears to be of 13th century date there is some contradiction in the Hallgate report as to the date of the end of production, given the statement 'There is no satisfactory archaeological evidence for the continuation of any Hallgate fabric into the 14th century' (Buckland *et al*. 1979: 56) and the conclusion that 'The evidence suggests that the Hallgate potteries occupy a period from the later part of the 12th until the end of the 13th or early 14th century' (ibid.: 59).

The suggestion that there is an early phase of Coal Measures ware production has yet to be established with any certainty and the matter is discussed in greater detail in the type series, above. If it does exist, then it is expected to lie within the MED02 – MED03 horizons and to predate the Coal Measures Whiteware proper. The earliest Humberwares probably occur at the end of this phase but they only become common in the following horizon, MED03.

Wares characteristic of the MED02 horizon include:

Hallgate wares (Buckland *et al*. 1979, Buckland *et al*. 1989: 253-255)

Hallgate B (mid-late C12th)

Hallgate A (LC12th - C13th)

Earliest Humberwares

Beverley ware 1A (LC11th – M/LC13th) (Didsbury and Watkins 1992: 108-111)

Beverley ware 2B (LC12th/M/LC13th – MC14th) (Didsbury and Watkins 1992)

Stamford wares (Kilmurry 1980; Leach 1987; Young and Vince 2005) as follows:

Stamford ware B (MC11th – E/MC13th)

Stamford ware C (MC12th – E/MC13th)

Hillam type ware (until EC13th)

?Coal Measures Fineware / Earliest Coal Measures Whitewares

Lincolnshire Shell Tempered ware; LEMS, NLST (Young pers. comm.).

MED03: Early/mid-14th century to later 14th century/early-mid-15th century

Based on the published evidence (with some caution, given the lack of independent dating evidence), it seems that the Cattle Market group represents the latest evidence for pottery production within Doncaster itself. The report states that the sherds appeared to be later than Hallgate, placing them in the early 14th century (Buckland *et al*. 1979: 60-62).

Humberware production appears to have begun in the later 13th century (Watkins 1987: 98) and the type became common in Hull during the first half of the 14th century. At Lurk Lane, Humberware appears in phase 7C (*c*. 1290- *c*. 1325) and became rapidly more significant in phase 7D (*c*. 1325- *c*. 1340) as Beverley 2 ware declined in quantity. Hayfield has referred to examples of the ware from mid-13th-century contexts but notes that it only started to become common at the end of the 13th century. A documentary reference indicates that manufacture of pottery at Cowick was underway in 1322.

The start of the Coal Measures ware industry of the Don Valley is based largely on Hayfield and Buckland's work on the wasters from Firsby Hall Farm and the dating evidence from Doncaster and elsewhere (Hayfield and Buckland 1989: 21-23). Documentary evidence indicates that production at the farm was underway by 1329, but the industry may have been well established by then and archaeological evidence from Doncaster tends to support an early 14th-century start date (ibid.: 21) while 14th and 15th-century assemblages 'are usually dominated by the Coal Measures fabrics' (ibid.: 22). Other evidence from Hull and Sandal Castle supports this early to mid-14th-century date.

In considering the internal variation in the Firsby Hall Farm material Hayfield and Buckland have established the sequence that is now generally accepted from Coal Measures White to Coal Measures Purple ware and have proposed the dating scheme that has been used in the Askew's report. There remains some degree of uncertainty in dating individual vessels and sherds because of the ambiguity in the character of some of the material from the potteries themselves (as described elsewhere; Cumberpatch 2004b) but the broad pattern seems well established. The earlier wares are 'less hard, thinner and more finely potted … and appear to relate to the tradition of white sand tempered fabrics which appeared in the Vale of York during the thirteenth and fourteenth centuries' (Hayfield and Buckland 1989: 23), a description which could apply to the proposed Coal Measures Fineware category as well as to the finer Coal Measures Whitewares, but is slightly at odds with the earlier suggestion of a 14th-century date for the start of manufacture.

The exact date of the transition from white to purple wares is unclear but it would appear to date to the early/mid-15th century, in line with the wider move towards dark glazed pottery (Cumberpatch 2003).

Wares characteristic of the MED03 horizon include:

?Cattle Market Kiln products (Buckland *et al*. 1979:60-62)

Humberwares (Watkins 1987, 1991; Hayfield 1992a)

?Coal Measures Fineware (Cumberpatch 2004b)

Coal Measures Whiteware (Cumberpatch 2004b; Hayfield and Buckland 1989)

Beverley ware 2C (LC13th/EC14th–M/LC14th) (Didsbury and Watkins 1992)

LMED01: Early/mid-15th century to late 16th century

As discussed in detail elsewhere (Cumberpatch 2003), the later medieval period sees a radical transformation in the colours of pottery and in other characteristics. The date of this change appears to lie in the mid-15th century (following Boyle's re-dating of Cistercian wares), although it is probably not possible to establish an exact date as it represents a change in social attitudes as well as a change in technological practice (even while actual changes in technology are not fundamental) and is likely to have taken some while to establish itself. This may account for the confusing variety of wares seen in assemblages dating to this period (e.g. Cumberpatch 2007) and the proliferation of terms such as Midlands Purple ware, Purple Glazed wares, Coarse Blackware and the like. It is worth noting that this proposed 15th-century date precedes the traditional medieval/post-medieval transition by some years (normally put at *c*. 1485-*c*. 1530, depending on the inclinations of the author) and emphasises the contingent nature of the idea of an 'end' to the medieval period. Cultural, technological and political changes do not necessarily coincide.

The exact date of the adoption of purple glaze and the other stylistic changes is unclear. Boyle has re-dated the start of Cistercian ware to *c*. 1450 and Hayfield and Buckland have dated the two areas of wasters which include the highest proportion of Coal Measures Purple ware at Firsby Hall Farm to 'the 15th or 16th centuries' (Hayfield and Buckland 1989: 23). In their corpus of pottery from Doncaster, Buckland *et al*. note that the Coal Measures Whitewares were replaced by purple glazed wares 'by the late 14th or early 15th century' (Buckland *et al*. 1989: 336). They also note that the medieval to post-medieval transition was 'not a dramatic one' (ibid.: 376) but that it was characterised by the presence of Coal Measures Purple wares. As outlined elsewhere (Cumberpatch 2003), the present author would see the transition as potentially a very dramatic one in which new social attitudes and practices were reflected in changes in material culture. This horizon should be understood as one within which a great deal of change was happening and as a result is considerably less internally homogenous than some of the earlier ones. The decision to denote the horizon with a distinctive code (LMED01) as opposed to linking it with either the medieval horizons or the later post-medieval ones may be contentious but has been done in order to allow for future changes which may see the horizon being split into two or more individual horizons as more data becomes available and existing data is refined.

Wares characteristic of the LMED01 horizon include:

Coal Measures Purple ware

Midlands Purple wares/Coarse Blackware

Cistercian ware (from *c*. 1450+; Boyle, unpublished; Moorhouse and Slowikowski 1992; Spavold and Brown 2005)

Yellow ware (probably contemporary with Cistercian ware but not as common)

Later Humberwares, including Purple Glazed Humberware (later 15th century to 16th century)

Green Glazed Coarseware

PMED01: 17th century

It is, of course arguable that the post-medieval period should be dated to the preceding horizon, but this is a debatable point and, as explained above, the later medieval horizon may be expanded at a later stage to provide greater precision and detail.

The 17th century horizon is characterised by the appearance of Blackwares, developing out of the Cistercian ware tradition and of Redwares and the closely related Slipware type 1. The Brown and Yellow Glazed Coarsewares may have started in the preceding period (see examples of early BGCW which seem to resemble later Humberwares in terms of the pattern of glazing and aspects of vessel form) but probably became common during this period and continue into the 19th century.

It is possible that some of the typical 18th century wares actually began in the later 17th-century (Slipware) but there does not seem to be any evidence for the manufacture of others (Mottled ware, Late Blackware, Slip Coated ware etc) until the 18th century whilst some of the characteristic 18th-century wares (specifically the formal tablewares) did not appear until after *c*. 1720. In the light of this, the distinction between the end of PMED01 and the start of EMOD01 may well be adjusted in future to accommodate these details.

Brown Glazed Coarseware

Yellow Glazed Coarseware

Purple Glazed wares

Redware

Blackware

Slipware type 1

Late Yellow ware

Tin Glazed Earthenware

EMOD01: *c*. 1700- *c*. 1840

The early modern period is characterised by the 'rise of the Georgian order' and in ceramics by a tri-partite split between utilitarian wares, vernacular tablewares and formal tablewares (Cumberpatch in prep.), reflected in the structure of the list above. This horizon could be argued to start in *c*. 1720 if it were not for the evidence that the production of Mottled wares and other distinctive vernacular tablewares belongs to the early 18th century (see the Silkstone report for a summary of the start dates for potteries in South Yorkshire) and precedes the appearance of the formal tablewares by up to two decades. The proposed end date is also potentially contentious as the vernacular tablewares appear to end during the later years of the 18th century and the early years of the 19th century, some time before the Creamwares and Pearlwares were replaced by Whitewares. An entirely independent periodisation covering the 18th and 19th centuries has been proposed for transfer printed wares by Coysh and Henrywood (1991) and in considering assemblages of tablewares, this is of particular value in dealing with assemblages rich in these wares and for which closer subdivision of these proposed horizons is necessary. Marked sherds also allow closer dating of individual contexts.

A variety of refined earthenwares span the EMOD01 and RECENT horizons including Cane Coloured wares, Mocha ware, Slip Banded and Slip Decorated wares etc and this could be the basis for a subdivision of these horizons, but the rapidity of change, driven by the marketing of wares to a sophisticated and discerning public renders the horizon approach problematic. In the context of the Askew's Church Walk Site, where there was relatively little later 18th and 19th-century pottery, this is less of a major consideration and the approach has been employed in order to maintain consistency with earlier periods.

Brown Glazed Coarseware

Yellow Glazed Coarseware

Unglazed Red Earthenware

Slipware (press moulded dishes, feathered and joggled slipware)

Mottled ware

Late Blackware and Slip Coated wares

Brown Salt Glazed Stoneware (18th-century types)

Tin Glazed Earthenware

White Salt Glazed Stoneware (*c*. 1720- *c*. 1780)

Creamware (*c*. 1740- *c*.1820)

Pearlware (*c*. 1780- *c*.1840)

RECENT: *c*. 1840-1900

The huge variety of mid to later 19th and 20th-century ceramics and the closer dating possible on the basis of this makes the horizon approach more or less superfluous in this period, as it is for the latter part of EMOD01. Closer dating is often possible, depending on the nature of the context.

Whiteware (including TP Whiteware and Flow Blue)

Brown Salt Glazed Stoneware (19th-century types)

Stoneware (green-glazed flagons, bottles etc)

Colour Glazed ware

Sponged and Sponge Printed ware (*c*. 1830/1840-early 20th century)

Ceramic building material by J. Tibbles and S. Tibbles

General introduction

Ceramic brick and tiles are common finds on sites within the region throughout the Roman and post-Roman periods, although the natural geology of the area is also conducive to using local stone as a building and roofing material. Substantial quantities of ceramic brick and roof tile were imported into the area within both the Roman and post-Roman periods and were used in conjunction with the local stone roof tile.

Romano-British ceramic building material

Introduction and methodology

Aside from a number of fragments unidentifiable by form, all the material recovered is considered here. All data were recorded in database format, now part of the Site archive. Information regarding type, dimensions and fabric of the material was recorded and catalogued accordingly. The presence of original surfaces was also considered to aid identification. As a result, the ratio of forms originally recorded within the assemblage (Tibbles and Tibbles 2004a) have been amended.

The assemblage

The assemblage of 159 fragments of brick and tile was recovered from 58 contexts (Appendices 7 and 8). The assemblage had a total weight of 22.7kg and a fabric colour range of Grey (GLEY1/6/1) to Brown (7.5YR/5/4). Moulding sand and/or moulding/finger impressions were evident from various stages of manufacture. The assemblage was very fragmentary, and no complete forms were identified.

Fabric types

Four fabrics including two sub-types were identified. It was felt appropriate to subdivide the fabric groups to reflect slight but significant variations within their composition. Munsell colour codes were not specific to fabric type. Fabrics were identified using a low powered (x15) binocular microscope. Scientific analysis of the fabrics (thin-sections) were not considered appropriate. The differences in quantities and types of inclusions between the four main fabrics were not greatly significant and as such, they were more likely to reflect uneven, poorly sorted inclusions as a result of inadequately puddled clay during the manufacturing process. Appendix 7 lists the Romano-British fabric types.

The sources of the fabrics were difficult to determine, but might have originated from known kilns at Grimscar, near Huddersfield or York (Betts 1990: 166). It has been suggested (de la Bédoyère 1991: 224), however, that tile kilns may have been built in close proximity to the site of construction. This would have been more cost effective, as the large quantities of building material needed would not have required transportation. Some fabrics within the Church Walk assemblage may have been of local manufacture, from an as yet unknown source – tiles of possible local manufacture were noted at Castleford (Betts 1998: 226). Roman tiles of fabrics with inclusions of red clay pellets were certainly widespread throughout East Yorkshire (Tibbles forthcoming a; b; c; Tibbles and Tibbles 2003, forthcoming d), but were also noted at Dalton Parlours (Betts 1990: 165) and Castleford (Betts 1998: 226), though again this fabric was also from an unknown source. Unfortunately, the Roman tile from the 1960s and 1970s excavations in Doncaster was not discussed in the available published report of the investigations within the civil settlement (Buckland and Magilton 1986).

Table 4. Distribution of Romano-British CBM fabrics by form

Fabric	Brick	*Tegula*	*Imbrex*/Ridge	Box-Flue	Total (Fabric Type)
Fabric 1	9	11	8	30	58
Fabric 2	2	4	5	3	14
Fabric 2A	-	-	-	2	2
Fabric 3	10	15	11	9	45
Fabric 4	17	14	2	2	35
Fabric 4A	4	0	-	1	5
Total (Form)	42	44	26	47	159

Forms

Table 5. Distribution of Romano-British CBM forms per phase

Phase	Brick	*Tegula*	*Imbrex*/Ridge	Box-Flue	Total (per phase)
1A	2	2	1	-	5
1C	1	1	-	-	2
2	-	1	-	-	1
3B	-	-	-	3	3
3C	23	19	14	24	80
3D	12	19	5	14	50
4	4	-	4	3	11
Un-Phased	-	2	2	3	7
Total (form)	42	44	26	47	159

Tegulae

Forty-four fragments of *tegulae* (weight 7.290kg) represented all fabrics except sub-fabric 2A. Fabrics 3 and 4 were predominant. The assemblage had a fabric colour range of Grey (GLEY1/6/1) to Light Brown (7.5YR/6/4). The majority of the *tegulae* were assigned to Phase 3C and 3D contexts (43% per phase), fills of ditches, pits and robber trenches. Only three fragments were from Roman deposits, however, in ditch fill 227 and deposit 521. The thickness of the *tegulae* ranged from >17mm to >41mm. Joining fragments were noted, though these were not inter-contextual.

The means of attachment recorded on roughly half the assemblage (22 fragments) comprised finger smoothed or knife-trimmed flanges and/or cut-aways, both lower and upper forms. The four flange types identified – Types 2, 4, 6 and sub-variants 2a and 2b; can be paralleled and classified within the regional typology for East Yorkshire (Tibbles 2000). Types 2, 2a and 4 were associated with possible forts and their auxiliary buildings at Doncaster, York and Brough (Tibbles and Tibbles 2004b: 20, 2004c: 8, 2004d: 32, 2004e: 23). Seven flanged fragments could not be assigned a type due to damage in antiquity, although remnants of the finger-smoothed groove of the flange were evident. The flanges ranged in height and width from >36mm to 62mm and 20mm to 40mm respectively.

Two incomplete, knife-trimmed lower cut-aways with a very smooth 'polished' finish and blade 'scars' were noted. Types 5 (Fig. 38 No. 1) as categorised by Brodribb (1987: 16, figure 7) and sub-variant Type 1a. The sub-variant cut-away was flush to the edge of the *tegula* as opposed to being 'stepped in' (ibid.). This may be considered a regional variation or simply a

difference in manufacturing techniques by individual tilers. The dimensions of the lower cut-aways were: length, 35mm and 67mm; width, 38mm and 29 to 33mm; and height 19mm and 34mm. Remnants of upper cut-aways were evident on two tiles. As with the lower cut-aways, the upper cut-aways were knife-trimmed, with blade 'scars' and a smooth 'polished' finish. No dimensions were recorded.

Some *tegulae* displayed knife-trimming in part or along the edges and underside of the tile, resulting in a very smooth finish, of similar ilk to the finish on the cut-aways. The removal of the clay or 'finishing' would have been carried out while the tile was at the 'green' stage of manufacture, prior to firing. Heat discoloration and/or post-breakage burning was evident on eight of the *tegulae*, including over broken edges and on flanged surfaces. Twelve fragments had remnants of cream/white mortar, for the most part, probably from original use. A tile from robber trench fill 419 had remnants of *opus signinum* on the flange and underside.

One tile from the primary fill 451 of Phase 2 ditch 492 was of particular note (Fig. 38 No. 2). It was over-fired, but not 'blown' or warped, characteristics indicative of waste material – with a neatly formed knife-trimmed flange (Type 2b) and remnants of an knife-trimmed upper cut-away. During manufacture the tile appears to have been 'mis-cut', however, the flange having been removed to form an inverted U cross-section _⌐¬_ rather than the typical U-shape, giving a flange height and width of 30mm and 35mm and a tile thickness of 31mm. It might even have been deliberately cut in this manner. With the flange in the 'correct' orientation (height and width: >74mm and 27mm, tile thickness: >37mm), a half-tile would have been formed – cut along the full length – and thus possibly used for infilling narrow gaps within the construction of a roof. The tile is considered to represent lower quality material, a 'second' that still would have been suitable for use. It was of fabric 4.

Signatures

Two fragments bore signatures (Fig. 38 Nos 3-4), from Phase 1A (ditch fill 227) and Phase 3D (pit fill 271), considered to be the personal marks made by the tilers (Brodribb 1987: 99). The Doncaster examples were formed by a single stroke of the following orientation: three concentric rings (three finger strokes – 227) and a curved line at the edge of the tile made up of a single finger tip (271). Both types were noted at Castleford (Betts 1998: 228-230) and Piddington (Ward 1999: 71-72). Three were of fabric 1 and 3.

Imbrices

The assemblage of *imbrices* was smaller than the *tegulae*, consisting of 25 fragments (weight 1.575kg). As with the *tegulae*, the majority of these (52%) were from later Phase 3C fills. Only one fragment was from a Roman deposit (pit fill 173). This form represented all fabric groups with the exception of 2A and 4A. Fabrics 1 and 3 were predominant. The majority displayed finger striations from the method of manufacture and the fabric colour ranged from Reddish Yellow (5YR/6/6) to Light Red (2.5YR/6/8). The remnants of cream/white mortar were noted on the underside of one fragment, probably from original use. Six fragments

displayed heat discolouration on original surfaces, mainly the outer surface, and post-breakage burning. There were some joining fragments and a thickness range between 13mm to 20mm was recorded.

One fragment from Phase 3A ditch fill 454 was tentatively identified as ridge tile. Made of fabric 4, the tile was 30mm thick, significantly more than the *imbrices* within the assemblage. Ridge tiles with a comparable thickness were noted at Melton (Tibbles and Tibbles 2003), Stamford Bridge (Tibbles and Tibbles forthcoming d), Frocester (Price 2000: 142), York (Tibbles and Tibbles 2004c: 9, 2005: 11) and Templeborough (Tibbles and Tibbles 2004f).

Box-flue tile (*tubuli*)

The box-flue tile assemblage comprised 47 fragments (weight 4.340kg) with a fabric colour of Yellowish Red (5YR/5/6) to Light Red (2.5YR/6/8). All fabrics were represented, although fabric 1 was predominant (64%). Joining fragments were noted. Mortar was evident on seventeen fragments, including over broken edges, of which ten combed tiles had remnants within the tine grooves. All these fragments were residual in later Phase 2 or Phase 3 contexts, none came from Romano-British deposits. Primary use within a hypocaust system was indicated by heat discolouration on the inner surface of three tiles. Eight fragments displayed post-breakage burning. The dimensions of heights, widths and thickness were: >61mm to >130mm; >91mm to >120mm and >10mm to 30mm.

Although incomplete, returning sides were evident on sixteen fragments including one example of a knife-smoothed finish to the corner, at a 45° angle. None appears to have been broken at the scarf joint, where the two edges of the tile meet. Original edges (top or bottom) were evident on fifteen fragments. The edges were finished by both finger-smoothing and knife-trimming. Six fragments displayed part knife-trimmed lateral vents with a height and depth dimensions of >32mm to 118mm and 11mm to 30mm respectively. Four over-fired 'seconds' were noted from ditch fill 454 and pit fill 273 (x 2 joining fragments), and deposit 157. Of a grey coloured fabric (GLEY1/6/1), all were of fabric 1.

Of the twenty-nine fragments that displayed keying, twenty tiles were combed. The number of tines per comb ranged between >2 (incomplete track) to 10 (Fig. 38, No. 4). The variation of the groove cross-sections from fine to broader/flatter suggests that at least three different combs were used. Nine patterns were noted (Table 6), though orientation of the combing was difficult to determine due to the incompleteness of the tiles. Those discussed are based on tiles with original top/bottom edges.

Although Brodribb (1987: 109) suggested that scoring was not as common as combing, nine tiles had scored keying. Box-flue tiles with similar incised lattice keying were noted at Catterick (Bell and Evans 2002: figure 227; Isserlin 2002: fig. 226) and High Street, Doncaster (Tibbles and Tibbles 2004b: 21). The 'finish' of the grooves was inconsistent, and included fine single tines possibly from a broken comb (Fig. 38 No. 5) and course scoring, perhaps the *ad hoc* use of material to hand such as sticks. The keying on two joining

fragments from ditch fill 150 was crude, possibly made by finger strokes (Fig. 38 No. 6). This form of keying and the thickness of the tile – it was the thickest of the assemblage at 30mm – may imply that the fragment was an example of a half-box or vertically mounted wall tile (Betts 1998: 228).

Table 6. Keying patterns on Romano-British tile

Keying Type	Combed (No. of fragments)	Scored (No. of fragments)	Total (Per keying type)
Curved (1 track)	2	-	2
'X' & Diagonal (3 tracks)	4	-	4
Curved, 'X' & Vertical (4 tracks)	6	-	6
'X' (2 tracks)	1	5	6
* (6 tracks)	1	-	1
^ (2 tracks)	1	-	1
Lattice: (multiple strokes)	0	3	3
Diamond & Diagonal (5 strokes)	0	1	1
Orientation Unknown	5	-	5
Total (per type)	20	9	29

Brick

Of the 42 fragments of brick (weight 9.495kg), three types were identified – *bessalis*, the smallest of Roman bricks with an average dimension of 198mm square (Brodribb 1987: 34); *pedalis* with dimensions just under a Roman foot, the average size being 281mm square (ibid.: 36) and possibly *tegula bipedalis*, the largest of all Roman bricks (ibid.: 41). Although unidentifiable by form, three fragments of brick were also recorded.

Once again, the majority of fragments were residual in later contexts. Material recovered from Romano-British deposits consisted of one fragment from Phase 1A primary ditch fill 227 and pit fill 173, and deposit 521 from Phase 1C. All fabrics were represented by this group, with the exception of 2A, fabric 4 being the most predominant, followed by fabrics 3 and 1. The fabrics ranged in colour from Grey (GLEY1/6/1) to Brown (7.5YR/5/4).

Bessales

Twenty-five fragments represented *bessales* (weight 3.575kg) with a thickness range between >25mm to 45mm. Some joining fragments were noted. The upper bed surfaces of four fragments from deposits 149, 281, 503 and 524 were very smooth and of a worn appearance. Reuse post-breakage was also evident, the broken opposing bed surface of the *bessalis* from

pit fill 503 was also smooth with rounded arrises. The worn appearance of the brick surfaces would be consistent with use within a floor or hard standing. Taking their stratigraphic location into consideration – fills of ditches and pits – it is difficult to determine whether this was from original use or through subsequent reuse. Overfired wasters or 'seconds' of a grey coloured fabric (GLEY1/6/1) were present within the upper fill of pit 118 and the secondary fill of pit 524. The 'seconds' were of fabrics 4A and 4 respectively.

Nine fragments displayed post-breakage burning and six had remnants of cream/white mortar, including over breaks. Reuse was indicated by the presence of mortar over the broken surfaces of joining fragments. *Opus signinum* was noted on one fragment from fill of robber trench 401. This may have been from original use.

Pedales

Eight *pedales* (weight 2.08kg) with a thickness range between 45mm to 55mm were noted. Two displayed cream/white mortar over broken edges. As with the *bessales* a smooth upper surface was noted on the *pedalis* from Phase 3D deposit 362, perhaps indicating use within a floor or hard standing, though primary or secondary reuse could not be determined. The fragment from ditch fill 464 had a width >156mm. The unidentifiable brick fragment (fabric 1, colour (GLEY1/6/1) had similar characteristics to the other lower quality material noted within the *tegulae*, *bessales*, *?tegula bipedalis*, and was probably also an over-fired waster.

?Tegula bipedales

Based on their comparatively greater thickness between >52mm to 77mm, six possible fragments of *tegula bipedales* were tentatively identified consisting of six fragments (weight 3.510kg). Again, the majority was from medieval deposits. One fragment was noted within Phase 1C deposit 521, with several from Phase 4 well fill 215. Traces of mortar and post-breakage burning was also evident on one fragment.

One fragment from 402, the fill of Phase 3C robber trench 427, was indicative of waster material. It had a grey fabric (GLEY1/6/1) (fabric 4) and was 'blown' and vesicular in appearance. Although categorised as a ?*tegula bipedale*, the increased thickness dimension due to over firing must be taken into consideration, therefore identification as a pedalis waster may be more suitable.

Unidentified brick

These three fragments (weight 330g) had an incomplete thickness of >21mm and >35mm and were of fabrics 1 (1 fragment) and 3 (2 fragments). The brick from ditch fill 355 displayed post-breakage burning. The brick from pit fill 120 had a Grey (GLEY1/6/1) fabric colour due to over-firing, and was similar to the other wasters or 'seconds' within the overall assemblage, though still usable as a building material. It was of fabric 1.

Discussion

Despite its largely fragmentary condition, the Romano-British ceramic building material assemblage was in good condition, exhibiting few properties associated with weathering such as abraded surfaces, and with crisp breaks and joining fragments. This evidence also suggests that the material probably comprised larger fragments on deposition, and that this took place close to source. The presence of post-breakage burning and heat discolouration implies some high temperature activity, either during reuse or at the original source.

There was very little evidence of use of the material during the Roman period, with only 4% ascribed to Roman deposits such as Phase 1A pit fill 173, Phase 1A ditch fill 227 and Phase 1C deposit 521. The diverse range of forms of the overall assemblage, however, did provide some indication of the materials used and suggested that there was a higher status building within the vicinity. This may have related to the Flavian fort, although no evidence of material associated with legionary activity such as stamps was apparent.

Although some mortar adhesions may be attributed to original use, they also strongly suggest reuse, particularly the mortar present over breaks. This might have been in foundations, floors or metalled surfaces, as indicated by the worn surfaces of some of the material. It should be noted that secondary use may also have occurred during later periods (see below). Despite not being the 'classic'orange/red fabric colour, 'seconds' would still have been suitable construction material. Indeed, their dark blue/grey appearance may even have been used for decorative purposes, as at Piddington (de la Bédoyère 1991: 26). The wasters would probably have been used within 'unseen' parts of buildings such as foundations or wall in-fill.

The majority of ceramic building material (84%) was redeposited within later Phase 2 and Phase 3 contexts, mainly fills of pits, ditches and robber trenches, and might reflect their reuse within foundations or floors. A significant quantity of the assemblage was of higher quality material and the range of fabrics suggested several sources of manufacture, though local production cannot be discounted. The presence of wasters and lower quality 'seconds' may indicate a kiln within the immediate area, as the transportation of this lower quality material would not have been economic. This material might have been salvaged from a dump or reclaimed from demolished buildings, at least one of which had a hypocaust system and a tiled roof, though the quantity of the roof tile was far too small to estimate the number of individual tiles or the scale of roofed buildings. These categories made up 44% and 30% of the assemblage as a whole. If the ceramic building material was not derived from kilns or nearby buildings, it could have been transported by either road or river.

Catalogue

1* *Tegula*. Finger-smoothed flange, Type 6. Knife-trimmed lower cut-away. Signature at edge of tile: curved line, single finger tip. Heat discolouration on flanged (upper) surface. Knife-trimmed edges and underside. Oxidised. Fabric 3. Tile dimensions: Thickness: 28mm. Flange dimensions: Height: 44mm. Width: 40mm. Lower cut-away

dimensions: Length: 67mm. Width: 29 to 33mm. Height: 34mm. Weight: 900g. *Pit fill 271; Phase 3C*

2* *Tegula* 'second'. 'Mis-cut' tile/half tile. Knife-trimmed flange, Type 2b. Remnants of knife-trimmed upper cut-away. Reduced throughout. Fabric 4. Tile dimensions: Thickness: 32mm (or 'correct' orientation) >37mm. Flange dimensions: Height: 30mm. Width: 35mm (or 'correct' orientation). Height: >74mm. Width: 27mm. Weight: 180g. *Ditch fill 451; Phase 2*

3* *Tegula*. Signature: three concentric rings (three finger strokes). Oxidised. Fabric 1.Tile thickness: 28mm. Weight: 400g. *Ditch fill 227; Phase 1A*

4* Box-flue tile. Keyed face. Combed: X and a diagonal track (3 strokes - 10 tines). (Three joining fragments). Cream mortar within tine grooves. Finger-smoothed original top/bottom edge. Remnants of return. Oxidised. Fabric 1. Dimensions: Height: >87mm. Width: >120mm. Thickness: 20mm. Weight: 260g. *Ditch fill 434; Phase 2*

5* Box-flue tile. Keyed face. Scored: lattice keying (four strokes – single tine). Knife-smoothed vent on plain face. Post-breakage burning. Fabric 2A. Tile dimensions: Height: >217mm. Width: >53mm. Thickness: 28mm. Vent dimensions: Height: 118mm. Depth: 30mm. Weight: 460g. *Pit lining 536; Phase 3B*

6* Box-flue tile. Keyed face. Scored: lattice keying (crude finger strokes). Finger-smoothed original top/bottom edge. Post-breakage burning. Fabric 1. Tile dimensions: Height: >77mm. Width: >95mm. Thickness: 30mm. Weight: 250g. *Ditch fill 150; Phase 2*

Medieval and post-medieval ceramic building material

Introduction

To date there has been little evidence of the manufacture of medieval brick and tile in or around the Doncaster region. Medieval Doncaster pottery, however, reached the brick and tile producing towns of Hedon, Hull and York (Buckland *et al*. 1979: 54-55), probably by river transport. Return cargoes of brick or tile might have been economically viable. Tileries were well established at Beverley by the 14th century (Miller *et al*. 1982: 32) and were known to be exporting brick and tile via the rivers Hull and Humber to Hull, Grimsby and Boston (Gillett 1970: 2). Broomfleet on the north bank of the Humber was documented as exporting *walteyles* (bricks) to York in 1460 (Reader 1972) and may have exploited markets to the south-west, accessible by waterways such as the River Trent and the River Don.

Brick manufacture

Hand-made bricks were produced by the insertion of a wad of prepared clay into bottomless moulds, moistened and often covered in sand to facilitate the removal of the formed clay. The excess clay would be struck off, the form tipped out onto a palette board and removed to a

prepared area of ground until partially dried, ready for firing. Early machine-manufactured bricks were formed by hand presses which were eventually superseded by steam-powered machinery. Bricks were manufactured to the required shape for their intended use within construction. The standard rectangular brick was for common usage, but more specialised shapes were used to form architectural features around arches, doors, windows and vaults. The dimensions of bricks were subject to periods of legislation. At York in 1505, bricks were standardised at 10" x 5" x 2½". Parliament decreed in 1571 that the size of a brick should be 9" x 4½" x 2¼", in 1725 the size should be 9" x 4½" x 2" and by 1777 8½" x 4" x 2½". By 1850 the size of bricks was generally 9 x 4½ x 3" (Dobson 1850: 33), although by the early 20th century, this size varied slightly across the country (Rivington 1919:113).

The majority of the brick assemblage was hand-moulded, with a few late machine-made bricks in Phase 4. Many bricks were finished with a pale slip, a mixture of clay and water coated on brick and tile to hide blemishes and minor cracks. The absence of moulding sand suggested that the bricks were probably manufactured through 'slop moulding' with a wetted mould, rather than a sanded mould to prevent the clay from adhering to the mould sides. This method was more common south of the River Humber (Tibbles forthcoming a) and with York manufacturers, although the process was used on the north bank but was less common. Most of the slop-moulded and machine-manufactured bricks all utilised similar alluvial clays, a homogenous red clay fabric 7.YR/6/6. The brick assemblage was categorised into four different types based upon dimensions and manufacturing characteristics:

Table 7. Site brick typology

Site Type	Length mm	Width mm	Thickness mm
A	230-240	110	50-60
B	?	115	60-68
C	?	150	42
D	?	101	60

Part-bricks were more difficult to allocate to a category, as their width and thickness often corresponded to more then one category. The majority of the brick assemblage fell within the above categories based upon a best-fit policy. Some examples from the Church Walk assemblage could not be identified due to the abraded surfaces and size of the fragments. The majority of the material appeared to be the result of casual deposition or dumping of demolition material from late medieval structures or dumps nearby, probably imported to the Site for ground raising or backfilling purposes.

No brick structures or demolition horizons were identified from the assemblage with the exception of the several complete bricks and smaller non-diagnostic fragments from the stone

lining of well 193. These were likely to represent either later or less expensive repairs to the well lining or upper sill. The complete bricks (Type A) ranged in size between 230-240mm x 110mm x 50-60mm (9-10¼"x 4 ¼" x 2-2⅜) and may be reused medieval material of 13th to 16th-century date. A small amount of the material was of poor quality, such as over-fired or waster fragments where appearance was not a concern when used within the lining. Fills within the well contained at least one complete brick of this size, and one (Type B) slightly later in date (?" x 4½" x 2⅝").

The bulk of the brick assemblage was retrieved from post-holes, pits, and levelling or ground-raising dumps. Part of the material accumulated from occasional deposition and the abraded material was more likely to belong to this category. Ground clearance would have removed this material into pits and dumps. Phase 3C pit fill 271 produced the largest single brick group. Overall, the assemblage contained both high and poor quality bricks and included abraded, under-fired and over-fired fragments from multiple sources. Eight small non-diagnostic fragments (average 10g) within Phases 1A, 1B and 1C were probably intrusive.

Medieval/post-medieval roof tile

Positions of the nibs and peg holes are usually described from the nib side of the tile – i.e. the underside as hung, not necessarily as made. Demand normally dictated the size and quality of flat roof tile which often varied until a statute was instigated in 1477 (17 Edward IV, c iv) that dictated the size. A flat tile was fixed at 10 inches by 6 inches by ⅝ inch (255mm x 153mm x 16mm), a ridge tile 13 inches long by ½ inch thick and a hip tile 10 inches in length with a convenient width and thickness (Celoria *et al*. 1967: 218). Early flat roof-tiles were suspended by projecting nibs or by peg/nails. Alternatively, flat tiles were often secured by iron nails, as were ridge and hip tiles. Each layer of tiles overlapped the layer below, and to make them weatherproof they were often bedded on moss. The lowest layers, sometimes all of them, were often pointed or rendered with mortar (Salzman 1952: 233).

The classification of roof tile was based on their dimensions, fabric and, where applicable, their methods of suspension. Few complete or near complete examples of roof tile were recovered, therefore all information was heavily biased towards physical appearance, suspension, fabric and thickness.

Flat roof tile

Evidence of manufacturing techniques was still evident on many roof tiles, and some fingerprints and thumb prints were accidentally impressed upon them by their makers. Only a small number of medieval examples bore evidence of moulding sand (2%) suggesting that most were 'slop moulded'. Twelve types of flat roof tile were identified from their suspension methods (see Appendix 9). The majority was relatively common throughout the Humberside and surrounding regions and were recorded from late 12th to 13th century contexts at Hull (Armstrong 1991), Beverley (Armstrong *et al*. 1991), Selby (Tibbles 2006) and unpublished

assemblages at Doncaster (Tibbles 2004). In 1987 excavations at Beverley, East Yorkshire, identified at least one source of manufacture of type 1a tiles on the northern bank of Beverley beck (Atkins 1987).

Tile type 26 was more common within the western regions of the Humber basin, and to date has not yet been identified within eastern Humberside, suggesting that the production centre lay to the west, probably at York. The Phase 3D group contained nine different types of flat roof tile (see Table 40), indicating several different sources or at least suppliers of tile. Tiles were frequently reused within medieval towns, however, and a minimum of fifteen different types of roof tile were recorded at County Hall, Beverley for example (Tibbles 2001), and at least fourteen different types at Lurk Lane, Beverley (Armstrong 1991).

Ridge tile

Ridge or crest-tiles were custom-made to facilitate the joining of the two sides of a roof along its crest or ridge. They were held in place by mortar and/or nails and overlapped the adjacent tiles, although in some cases they were butted up end to end.

A small assemblage of ridge tile representing 1.6% of the total tile assemblage was identified, although none was complete. The majority of fragments (64%) was from Phase 3D. Approximately 28% of the assemblage exhibited either mortar or mortar staining to one or both surfaces, from the construction technique of overlapping. Two different sizes of ridge tile were recorded at Hull within 13th to 14th-century contexts (Armstrong *et al*. 1987). With the Church Walk assemblage it was possible to assess accurately the thickness only, and thus extrapolation of tile size and comparisons could not be undertaken. The thickness range was unusually large (11mm-28mm), resulting in a mean thickness of 19mm which may be considered the norm in this region, despite the 1477 Act of Parliament giving 13mm (⅝") as standard. At the thinner end of the range only a single fragment 11mm thick was identified, and although exceptionally thin for this region this was closer to the standard laid down. An assemblage of ridge tiles from Rewley Abbey, Oxford had 39% that were between 8mm and 13mm thick (Tibbles 2007).

The glaze was identified on three fragments of tile ranged between olive (5Y/4/3) and dark olive brown (2.5Y/3/3) in colour, and all represented plain tiles without crests or decoration. Glazed and unglazed ridge tiles were recorded in medieval deposits at High Street, Doncaster (Tibbles 2004), and were in use by the late 12th century at Beverley (Tibbles 2001).

Hip tile

The hip or bonnet tile was shaped from a triangular slab of clay to seal the junction of two adjacent roof pitches, and was used either convexly or concavely. Partial fragments can often be confused with ridge tiles due to their shape and thickness, and therefore their presence is not always recognised. At Beverley, five different types were identified, the earliest from

12th-century deposits (Armstrong *et al*. 1991). The single hip tile recorded at Church Walk within Phase 3C deposit 157 could not be paralleled due to its lack of diagnostic traits.

Pantile

Although pantiles were imported by the 16th century, as yet there is no evidence for their manufacture in Britain prior to 1700 (Neave 1991). Pantile roof coverings became popular within the eastern counties of Britain during the 18th and 19th centuries and may often be difficult to differentiate from imported Dutch tiles (*Dakpannen*) and English pantiles that were manufactured locally. During the reign of George I, an Act of Parliament was passed stating that a fired tile [pantile] should not be smaller than 13½" inches long by 9½"inches wide and ½" inch thick, which was the accepted size until that date (Lucas 1998). Only five fragments from the Church Walk material bore residual elements of suspension nibs, three of which were within the 45-55mm x 20mm range. Two nibs had elements of 80mm nibs, generally considered to be earlier rather than later in date. None of the 60 fragments displayed evidence of glaze, although some residual moulding sand was present. Thicknesses were between 14mm-20mm although 75% were within the 15-17mm range, which was close to the standard thickness laid down by law. The fabric types are presented in Appendix 9.

Tallymarks

As they were made, green tiles were counted as information for clients and for tax purposes. The many thousands produced would have been easier to count in batches of round numbers or hundreds rather than consecutive numbers, and therefore each batch was recorded with a tallymark made with a finger or by scratching with a knife or a small stick. The resulting marks were usually oblique indentations *c*. 40-90mm long by 10-12mm wide and 2-3mm deep, or sharply defined lines 40-60mm in length and of varying widths, dependent upon the instrument used. Later tallymarks are sometimes found with two to five near-parallel lines or slashes, often with a dot between which may indicate a second batch. The method of counting appears to have been used throughout Britain, and examples are known from Winchester (type 2), Hull (types 1, 2, 3, 4), York (type 1) and Swillington (type 7). The single example from the fill of Phase 3C pit 255, etched into the surface of a flat roof tile was identified as Type 2. A typology of tallymarks has been formulated (J. Tibbles b, forthcoming) and the resulting types applied to this example.

Tile discs

Two crudely carved discs were recovered from Church Walk, manufactured from reused flat roof tile fragments (Fig. 39 Nos. 7 and 8). They ranged from 48-50mm in diameter and 14-16mm in thickness, and weighed between 50-150g. The examples appear to have been chipped at a 45–80° angle from one surface and completed from the reverse side, resulting in several facets. None of the examples had wear or abrasions on any surface or edge from use. Their exact purpose is still unknown, and they have been variously interpreted as pot lids, counters or tallymarkers. Many though were likely to have been gaming pieces from the

medieval game of 'tables' (Tibbles 2005). A worn tile disc was found at High Street in Doncaster (Tibbles 2004).

Tile discs have been recorded within Roman contexts (Ottaway and Rogers 2002; Tibbles 2005), but in East Yorkshire they first appear in 13th-century assemblages (e.g. Armstrong 1987: 45; Watkins 1987b:190), and continue through to the post-medieval period where they were probably residual. Examples have been recorded further afield at Bishop Wilton (Tibbles 1993) and Grimsby (Tibbles 1994: 22), as well as Flaxengate, Lincoln (Mann 1982: 14), Oxford (Tibbles 2005) and Ludgersall Castle, Wiltshire (Saunders 2001: 172). Flat roof tile and ridge tile were the usual raw material, possibly because the standard thickness of 12-20mm could be easily chipped to the desired diameter. Alternative raw materials such as stone were occasionally utilised (Watkin 1993: 146). Discs shaped from potsherds are also known (see Cumberpatch above), but were generally much smaller in diameter (Moorhouse *et al*. 1992: 161).

Impressions

A fragment of type 6 flat roof tile from Phase 3D deposit 200 had a linear, chain-like impression 50mm long impressed into its reverse (upper) surface, 30mm from the upper edge of the tile and 48mm from the right hand side (Plate 24). The marks seemed to consist of nine oval impressions in a series of three complete 'links', then a gap of 8mm, then a further four complete 'links' followed by two partial 'links'. Each link measured 4mm by 3mm. There was a possibility that the impression continued beyond the broken edge of the tile.

Discussion

The lack of manufacturing evidence for medieval brick and tile in Doncaster suggests that they were imported from outside the area, as trade with these production centres was well established. The importation of ceramic building materials into Doncaster, situated close to quarrying sources of quarrying stone for building, would suggest architectural preferences and perhaps status differences in the demand for the more expensive building material.

The majority of the Church Walk assemblage was probably imported to the Site as the result of ground raising and/or dumping, using reused material derived from nearby sources. It is possible to speculate on the form of the buildings from which the material originated. Such a building or buildings would have had a ridge and gable ended roof with at least one projecting wing. The presence of both glazed ridge and flat tiles suggests that the structure had glazed tiles along its ridge, eaves and/or surrounding any smoke vent or 'chimney'. The variety of tiles found indicates that as the building(s) were extended or repaired, the reuse of tiles from elsewhere may have taken place, or different tile suppliers were used. In the post-medieval period these architectural preferences continued with the import of pantiles. With the expansion of brick and tile manufacturing along the Humber in the late 18th century, it is plausible that these tileries were the source of the tiles.

The stone roof tile

Stone slates were often called stone tiles and were common in many areas throughout the Roman and medieval periods. They went under various names such as *sclatestone* (1286), *thakestone* (1368) and *Collywestons*. At Collyweston the fissile limestone could be quarried in large blocks that were allowed to weather over the winter, exposing vertical bedding planes which the actions of water penetration and freeze-thaw would then naturally split the stone into sheets suitable for tile making (Davey 1976:20). Outside areas with nearby suitable stone sources, their popularity waned as transport costs rose, although wealthy owners of stone and slate quarries would often move tiles to another of their estates elsewhere (Moorhouse 1991). Access to transportation by water also often extended the areas where they were used as roof coverings. The occurrence of stone tiles in areas where ceramic roof tiles were predominant such as Hull or Beverley may have been the result of their import at times of low clay tile output (Armstrong 1987).

Stone tiles were hung in the same manner as ceramic tiles through the use of wooden pegs placed through a hole close to the top of the tile. They were then hung over a wooden lath, partially overlapping the tile below. To prevent rain from entering between the tiles, they too were bedded on moss or rendered with mortar. A single hole was bored through the tile close to the upper edge, often from both sides, which gave a slight hour-glass shape to the perforation. Battering of the tile was undertaken to thin down the upper edge of the tile to facilitate the overlap more closely (Salzman 1952). Smaller tiles were usually 'fish-scale' or lozenge in shape. The tiles of stone-tiled roofs close to their quarry source were often much larger. This assemblage contains examples of Jurassic Limestone (thickness range 2mm-25mm), sandstones (thickness range 5mm-22mm) and shale/mudstone (6mm-15mm), but because of the fissile nature of the limestone a significant part of the assemblage represented laminar fragments of broken tile. Eight fragments bore evidence of bored suspension holes ranging between 12mm-14mm, and ten examples displayed mortar adhesions or staining. Five examples with evidence for burning may represent the results of demolition. There was insufficient evidence to suggest that any of the assemblage was of Romano-British origin, although its usage in villas is well attested (Price 2000).

The Church Walk assemblage

The provenance of the Church Walk assemblage is likely to have been the West Yorkshire/Lincolnshire limestone beds. A comprehensive study of the region's slate quarries has previously been undertaken (Moorhouse1991), and need not be repeated here. The assemblage contained examples of Jurassic Limestone (thickness range 2mm-25mm), sandstones (thickness range 5mm-22mm) and shale/mudstones (6mm-15mm), but because of the fissile nature of the limestone a significant part of the assemblage represented thin laminae fragments of once thicker, broken tiles (i.e. fragments <10mm in thickness). No complete or near complete tile was present, and therefore the evidence was biased towards recording their thickness and method of suspension.

Table 8. Quantity and thickness of stone tiles

Thickness range	Quantity
20-25mm	13
10mm-18mm	32
<10mm	24
Total	69

Eight fragments had evidence of suspension holes ranging between 12 and 15mm in diameter. The holes were both straight-bored and taper-bored, the latter forming hour-glass shapes in profile. Only one fragment showed evidence of battering, although further examples may have been present but could not be identified due to the small size of the fragments.

Table 9. Stone tile frequency according to Site phase

Thickness	<10mm	10mm-18mm	20mm-25mm	Totals
Phase				
1	0	0	0	0
2	0	0	0	0
3C	5	5	4	14
3D	10	18	6	34
4	10	7	3	20
UP	0	1	0	1
Totals	25	31	13	69

A significant proportion (70%) of the tiles were recovered from Phases 3C-3D, and the earliest occurrence of stone tile was from Phase 3D. Most of the fragments were reworked contents of earlier deposits, the result of dumping and/or backfilling. None of the deposits suggested *in situ* roof demolition deposits.

Assemblages of stone tiles with similar materials and characteristics have been recorded within the region with particularly large groups from Selby (Tibbles 2006) and Hull (J. Tibbles forthcoming b; Wastling forthcoming). There was insufficient visual evidence to suggest that any of the assemblage was of Romano-British origin, although this was a common roofing material in this period elsewhere in Britain (Price 2000). A more detailed

lithographic examination of representative fragments of stone tile was undertaken by Geoff Gaunt to relate the tiles to the local and regional geology (see Gaunt below).

General discussion

The Romano-British ceramic building material was generally ascribed to the medieval phases of the Site, and was probably associated with reuse within foundations or floors. However, the high quality of some of the material indicated the existence of higher-status buildings in close proximity to the Site, and the presence of wasters suggested that at least some of this material may have been manufactured locally, perhaps within the Flavian fort. Other material may have been imported from York or Castleford via the waterways connected to the River Don. To date, there is little or no evidence of local brick and tile manufacture during the medieval period, and the high quality brick and tile was probably imported from outside the Doncaster area. The ceramic material would have been used for the construction of high status buildings, perhaps in conjunction with local stone tiles. By the 18th century, the technology of tile manufacture and architectural fashions had changed, resulting in cheap pantiles gradually replacing more traditional flat and stone roof tiles.

Stone finds by G. Gaunt

Introduction

This report summarises the lithologies, and where possible the sources, of about 80 stone items from the Church Walk excavation in Doncaster. The Site was adjacent to St George's Minster church, which would place it close to the geological boundary between clayey river alluvial deposits flanking the River Don, and Quaternary sand and gravel deposits forming a low, degraded terrace. The catalogue is divided into 'worked stone' and 'unworked stone' (as identified by ASWYAS), and within these divisions the stone items are arranged in order of their increasing context number and sometimes bag number. To avoid repetition, colours of commonly occurring stone items in the Doncaster area, principally Coal Measures sandstone and Lower Magnesian Limestone (LML) have been omitted unless they were unnatural, such as produced by heat reddening or fire blackening. For the same reason, granular parameters such as dominant grain shapes and degrees of sorting and compaction have been omitted in this report also unless they were diagnostic of lithologies not common in the area. The following notes relate most of the stone finds from the Site to the local and regional geology.

Discussion of geology

Just over half the stone items consisted of Permian Lower Magnesian Limestone (abbreviated to LML below and in the catalogue), which forms a 3 to 5km wide outcrop running north to south on the westernmost side of Doncaster, passing at its closest about 3.5km west of the Church Walk Site. It is variably white to pale grey where unweathered, consists either entirely of dolomite or mainly of dolomite with some calcite and contains a wide range of textures of which relict oolitic and microcellular are the most common. Weathered fragments

of the limestone occur abundantly as 'brash' in the soil and subsoil on the LML outcrop but erratics of the limestone are, with few exceptions, extremely sparse elsewhere in the area. The few exceptions are in gravels marginal to the River Don, including those forming the low degraded terrace close to the Church Walk Site. At least some of the more 'worn' (i.e. non-angular) LML items found there may therefore be of erratic origin, but others may be fragments of constructional stone.

Several stone items consisted of (Carboniferous) Coal Measures sandstones, which outcrop in many parts of the Yorkshire-Derbyshire Coalfield to the west, north-west and south-west of Doncaster and which are generally white to pale grey (weathering to brownish shades) and fine to (less commonly) medium grained. These sandstones occur abundantly as fluvio-glacial erratics in the various gravels in the Doncaster to Hatfield area, but not in the gravels south of a line from the racecourse north-eastwards past Cantley Common. Coal Measures sandstones have been utilised as hones (one from deposit 456 is, from its shape, a possible example) and as querns (one from deposit 749, the smaller of two pieces, may be part of a quern), but most if not all other such sandstone items from Church Walk are considered to be derived from erratics. One of these sandstones (from deposit 502, one of four pieces) was atypical in being slightly coarse grained, suggesting that it was derived from one of several sandstones in the Upper Coal Measures of the Ackworth-Ryhill-Billingley area north-west of Doncaster, notably the Ackworth Rock. The partly reddish colour of this item may be natural, stained by oxidation when these sandstones formed a hot desert surface in early Permian times. Two other items, one of fissile 'shaly' mudstone (deposit 150), the other of siltstone (deposit 502, one of four pieces) were derived from the Coal Measures, and because these lithologies are of little or no human usage it is presumed that both items were also erratic-derived.

One particular type of Coal Measures sandstone was distinguished from the others by being thin bedded, in places laminated, and commonly with muscovite (aka white mica) on the bedding planes and laminae. These characteristics render the sandstone fissile, so that it can be easily split into thin layers suitable for roofing stones, flooring stones and paving stones. There are numerous such 'flaggy' sandstones in the Coal Measures, the thickest, best known and most utilised being the Elland Flags of Yorkshire, equivalent to the Wingfield Flags of Derbyshire. Fragments of flaggy sandstones found on archaeological sites cannot normally be attributed to any particular sandstone, so they are collectively called Coal Measures sandstones of Elland Flags-type, and are assumed to have been transported to the sites by human agencies. Three such items were found at Church Walk in deposits 271, 395 (one of three pieces) and 436 (one of two pieces).

Several stone items from Church Walk consisted of typical (Carboniferous) Millstone Grit sandstones that outcrop in the southern and central Pennines, and in the northern Pennines north of the Craven lowlands and the limestone dales. These sandstones are normally white to pale grey (weathering to brownish shades) and medium to (more commonly) coarse grained, with poorly sorted grains. They occur as erratics from Yorkshire and Lancashire southwards

into the Midlands. Because these sandstones make excellent quernstones, their fragments have been found considerably more widely, even in southern England. However, in some parts of the Yorkshire-Derbyshire Coalfield and especially in the Sheffield area, a few of the basal sandstones in the Coal Measures have lithologies identical to those typical of the Millstone Grit and, moreover, they have also been used to make querns. In order to accommodate the possibility that some quern finds may be from these basal Coal Measures sandstones, they are thus referred to as sandstones of Millstone Grit-type.

'Bunter quartzite' pebbles are derived from the Bunter Pebble Beds Formation of the (Triassic) Sherwood Sandstone Group which outcrops across the northern Midlands, and are generally white to pale greyish shades and fine to medium grained with highly compacted grains. They are the most common erratic-pebble component of the various gravels occurring south of a line from Doncaster Racecourse north-eastwards past Cantley Common. In contrast, they occur only sparsely in the gravels north of this line, but the two 'Bunter quartzite' items found at the Church Walk Site (in deposits 150 and 590) are presumed to be some of those naturally occurring erratics.

The finds

This report is in three parts – the first is concerned with examples of roofing stones from Church Walk, the second comprises a catalogue of other worked stone. The third consists of a catalogue of the fragments of architectural and memorial stonework recovered from the Site.

Roofing stone

This part of the report summarises the lithologies and sources of twelve fragments of roofing stone, representative examples of about 70 fragments found on Site. The fragments are numbered 1 to 12 and arranged in the catalogue in this order, together with their context numbers. Normal natural colours and granular parameters are omitted to avoid needless repetition. The following notes link the roofing stones to the local and regional geology.

Nine of the twelve roofing stone fragments consist of (Permian) Upper Magnesian Limestone (abbreviated to UML below and in the catalogue), although in terms of all the fragments recovered the majority of these were of sandstone. The UML is variably white or pale yellow to pale grey (weathering to brownish shades) and consists either entirely of dolomite or, less commonly, mainly of dolomite with some calcite. The predominant texture is very fine to fine grained, more crystalline than granular and commonly with a porcellanous appearance. However, oolitic (some fossiliferous) and (micro) cellular varieties are present in the Doncaster area near Owston, Newton, Balby and Wadworth (Gaunt 1994: 68-69). The UML is almost invariably thin bedded and 'flaggy' and splits easily into thin layers. This feature allowed it to be widely used as a roofing stone in medieval times, although it does not seem to have been exploited during the Romano-British period. In view of the evidence of roofing stones from the Site having been made from UML with a microcellular texture, some thin bedded dolomitic limestones with this texture originally identified as unworked stone may

well be UML roofing stone fragments, notably from deposit 407 (the smaller of two), deposit 501 (the smaller of two) and deposit 516 (eight of seventeen), but not the example from deposit 271.

Three roofing stone fragments consisted of Carboniferous Coal Measures sandstone of Elland Flags type. The lithology and utilisation of this type of sandstone have been summarised above. Three fragments – from deposit 271, deposit 395 (the middle sized of the three) and 436 (the larger of the two) were of Elland Flags-type sandstone and were probably roofing fragments.

Catalogue (roofing stone)

1 Limestone, mainly dolomitic, with microcellular and, much less commonly, relict oolitic texture, thin bedded. UML. Peg hole present. *Pit fill 101; Phase 4*

2 Limestone, mainly dolomitic, with fine-grained texture, very thin bedded, with a mould of *Schizodus obscurus* (J. Sowerby). UML. Slightly heat reddened. *Pit fill 156; Phase 3B*

3 Limestone, mainly dolomitic, with microcellular texture, thin bedded. UML. ?Slightly heat reddened. *Pit fill 165; Phase 3B*

4 Limestone, lithology as No. 3 (165). UML. Part of peg hole present. *Pit fill 167; Phase 3D*

5 Limestone, lithology as No. 3 (165) with in addition, relict ooliths on one bedding surface, partly covered by (natural) tufa. UML. Heat reddened to reddish brown. *Pit fill 167; Phase 3D*

6 Limestone, mainly dolomitic, with very fine grained texture, very thin bedded. UML. *Pit fill 167; Phase 3D*

7 Sandstone, fine grained, thin bedded. Coal Measures sandstone of Elland Flags type. Slightly heat reddened on one wide surface. *Pit fill 271; Phase 3C*

8 Sandstone, lithology as No. 7 (271). Coal Measures sandstone of Elland Flags type. *Layer 362; Phase 3D*

9 Sandstone, lithology as No. 7 (271). Coal Measures sandstone of Elland Flags type. Heat reddened on one wide surface. *Pit fill 394; Phase 3C*

10 Limestone, lithology as No. 3 (165). UML. *Modern intrusion fill 400; Phase 4*

11 Limestone, mainly dolomitic, mainly microcellular texture (but severe weathering has etched out algal laminated and relict oolitic textures), thin bedded. UML. Slightly heat reddened. *Ditch fill 434; Phase 2*

12 Limestone, lithology as No. 3 (165). UML. Part of peg hole present. Partly heat reddened. *Post-hole fill 446; Phase 3D*

Catalogue (worked stone)

1 Slate (in effect, moderately cleaved silty mudstone), pale to medium grey. Most likely from the Lower Palaeozoic sequences in either southern Scotland or Cumbria. Shape suggests possible erratic, but very slight concavities on both flat surfaces suggest slight ?opportunistic use as hone. *Pit fill 110; Phase 3B*

N.B. In the first catalogue of worked stone from the Church Walk excavation, this item was catalogued as 'Possibly Purple Phyllite'. It was re-examined under higher magnification with a binocular microscope in reflected light. As a result, what was thought to be possibly (metamorphic) lineation was recognised as (sedimentary) grain-size layering, where the grains in each individual layer (which may be only one grain thick) were all the same size, but differed in size from the grains in other layers, producing an extremely fine laminated texture. Moderate (metamorphic) cleavage parallel to the layers enhanced this laminated appearance. In the absence of even minor lineation therefore, item 110/3 is *not* Purple Phyllite.

2 Siltstone, pale grey, calcitic and dolomitic, with thin greyish white, mainly calcitic, laminae, thin bedded. Lower Marl Member of LML, which crops out in lower, western part of Don Gorge. Presumably river-transported erratic. No evidence of working, or of usage. *Pit fill 110; Phase 3B*

3 Lava, vesicular. Mayen Lava. Flat quern. *Deposit 157; Phase 3C*

4 Lava, vesicular. Mayen Lava. Flat quern. *Pit fill 228; Phase 3C*

5 Lava, vesicular. Mayen Lava. Flat quern. *Pit fill 228; Phase 3C*

6 Schist, quartz-muscovite, well lineated but poorly foliated. Eidsborg Schist (aka Norwegian Ragstone). Hone. These hones are considered to be indicators of Anglo-Scandinavian or later age; for background information see AY 17/4, pp. 2484-2485. *Pit fill 229; Phase 3B*

7 Sandstone, pale brown, fine grained, with sparse minute muscovite, thin bedded. Coal Measures sandstone of Elland Flags-type. ?Ex-roofing stone reused as hone (one surface concave). Fire blackened. *Pit fill 271; Phase 3C*

8 Lava, vesicular. Mayen Lava. Flat quern. *Pit fill 272; Phase 3C*

9 Lava, vesicular (x 2, fitting). Mayen Lava. Flat quern. *Ditch fill 355; Phase 2*

10 Several fragments of Sandstone, Millstone Grit-type. One surface flat, but not obviously suggestive of quern. Fire blackened. Compare with 448/2 below. *Ditch fill 448; Phase 2*

11 Sandstone, as 448/1 above. Flat surface similar to 448/1 above. Fire blackened. *Ditch fill 448; Phase 2*

12 Sandstone, Millstone Grit type. One smooth surface. ?Quern. Fire blackened. *Ditch fill 451; Phase 2*

13 Sandstone, pale brown, very fine to fine grained (i.e. almost siltstone). Carboniferous, most probably from Coal Measures. Conceivably fragment of bar hone but could equally be erratic. Black surface colouration is natural manganese 'wad' ($Mn0_2$). *Ditch fill 456; Phase 2*

14 Limestone, white, entirely dolomitic, fine grained with 'dolomite sand' texture. Each 'grain' is a single dolomite crystal; the characteristic slightly curved crystal faces give the individual crystals the appearance of sand (i.e. quartz) grains, hence the term 'dolomite sand' for this type of texture. LML (Upper Division, so probably from eastern part of LML outcrop). White colour implies derivation directly from quarrying. Vessel, ?mortar. *Pit fill 498; Phase 3B*

15 Limestone, white, mainly dolomitic, with fine-grained texture. LML. ?Secondary column architectural feature, i.e. not load bearing. Mortar adhering to one flat (but not smooth) surface. *oven fill 531; Phase 3B*

16 Sandstone, dark grey, medium to coarse grained with variably angular to subrounded grains, poorly sorted, fairly highly compacted, with rock-fragment grains. Lower Palaeozoic greywacke (i.e. 'impure' sandstone), probably from southern Scotland or Cumbria. Hone, with thick square-sectioned bar shape. On evidence from York, hones with this lithology and shape occur in the Anglian and to a lesser extent subsequent contexts. Mortar adhering. *Ditch fill 675; Phase 2*

17 Sandstone (x two), Millstone Grit-type. Larger fragment – quern. Smaller fragment – sandstone, medium grey with abundant small reddened masses, fine to medium grained, with sparse muscovite. Coal Measures. Possible quern. Probably slightly heat reddened. *Slot fill 749; Phase 1A*

Architectural and memorial stonework by J. Prudhoe

Introduction

As noted in the Methodology section above, the fragments of architectural and memorial stonework from the Church Walk excavation were labelled on-site and then taken back to the SYAFRU offices in Sheffield Council premises at Darnall, Sheffield, where they were stored outside the back of the building, most on wooden pallets. Unfortunately, the original North Bridge Relief Road scheme was halted before assessment and analysis of this stonework took place. After SYAFRU was closed and its own staff had moved to other organisations elsewhere in the country, staff from Doncaster Museum came to the Darnall premises to

remove archives from projects that had taken place in Doncaster borough, but rather unaccountably they left all the Church Walk stonework behind. It then sat forgotten outside for over ten years, during the course of which time the pallets rotted and collapsed, and the string attaching the waterproof labels to the finds also rotted away. The stones were still not known about at the assessment stage of this post-excavation project (Martin and Richardson 2005), and by the time the stonework was collected in 2007 it was not possible to assign securely any of the stone fragments to their original contexts. Descriptions of stone fragments on a few of the context sheets from the excavation, however, have allowed some suggestions to be made as to the possible deposits or structures in which they were found, although these must only be treated as possibilities.

Some of the architectural fragments were probably derived from St George's Church after it was badly damaged by fire in 1853, and the gravestone fragment will have come from the adjacent churchyard. The presence of at least one possible Roman architectural fragment again hints that there were higher-status buildings in the vicinity of the Site, possibly within the later stone fort. Many of the stone fragments were found in modern overburden deposits, or within the rubble backfill of cellars, so were not from securely stratified contexts. Two fragments were recovered from Phase 4 well 193 where they had been reused as part of the stone lining. Two samples of stonework were also taken from Phase 3D wall 307. A photographic record was made of Catalogue Numbers 18 and 21 (see Plates 25-26) as part of this final report, but otherwise it is not recommended that these fragments be retained.

Catalogue

1 Architectural fragment, limestone door jamb? Large hollow chamfer and squared portion. Medieval. 0.21m long x 0.12m high x 0.18m wide. Less than 50% complete, some remains of mortar on two surfaces. *Stone well lining 192? Phase 4*

2 Limestone fragment, flat, squared, heat affected. 0.29m x 0.09m x 0.35m, approximately 70% complete.

3 Limestone fragment, flat, heat affected. 0.29m x 0.10m x 0.32m. Lime ash mortar on two sides, less than 50% complete. *Wall 307? Phase 3D*

4 Limestone fragment, heat affected, squared with flat surface. 0.30m x 0.12m x 0.39m, approximately 50% complete. *Wall 307? Phase 3D*

5 Hood mould/string course fragment with hollow chamfer into chamfered beak approximately 50% complete. Fine grain limestone 0.28m x 0.10m x 0.19m. Medieval or post-medieval.

6 Fine grained limestone jamb fragment, squared block with two worked surfaces. Remains of mortar on one face. Moulded corner to form angle bead with line down either side. Some fine mortar on bottom. Approximately 70% complete. 0.19m x 0.32m x 0.17m. Roman.

7 Fine grained limestone door jamb fragment with chamfer and start of splay. 40% complete. Medieval to post-medieval. 0.26m x 0.20m x 0.23m. *Stone well lining 192? Phase 4*

8 Fine grained limestone hood mould/string course fragment with hollow chamfer (same as 5 above). 40% or less complete. 0.21m x 0.10m x 0.18m.

9 Limestone architectural fragment. Two worked surfaces. Mortar on one surface. Fine tooling on one surface. 0.19m x 0.20m x 0.22m.

10 Limestone door jamb fragment with three worked surfaces. Lime ash mortar on one surface. Mortice with iron staining on opposite face. Moulded angle bead with splay, 50% complete. Post-medieval. 0.26m x 0.19m x 0.20m.

11 Limestone fragment. Flat. Mortar on surface. Chamfered surface, possible string course/plain. 0.39m x 0.10m x 0.18m.

12 String course. Fine grained red sandstone with hollow chamfer. Medieval/post-medieval. 0.32m x 0.09m x 0.45m.

13 Flat heat affected sandstone? 0.34m x 0.05m x 0.40m.

14 Limestone fragment, one finely tooled surface. Medieval/post-medieval. 0.39m x 0.23m x 0.23m.

15 Limestone, string course or hood mould fragment (same as 14 above). Medieval/post-medieval. 0.30m x 0.12m x 0.25m.

16 Architectural fragment, limestone. Flat with corner chamfer. 0.35m x 0.11m x 0.22m. Medieval/post-medieval.

17 Architectural fragment. String course or hood mould. Plain with simple chamfer. Limestone. 0.21m x 0.09m x 0.40m.

18 Grave slab fragment (Plate 25). Incomplete – approximately 35% survives. Sandstone fine grain. Approximate size 0.55m x 0.30m x 0.10m. Date '21, 1839 and 1826' visible and words '…of the…'. A second incomplete and joining gravestone fragment. 0.51m x 0.50m. The partial inscription reads:

Wise

his second wife

departed this life May

22 1826 aged 80 years

of the above named

George Bingham who died

21 1839 aged 73 years.

The remainder is incomplete. There was a third small fragment from this gravestone.

19 Gravestone fragment, sandstone, fine grain. 'John M.' visible, remainder illegible. 40% complete. 0.50m x 0.44m x 0.09m. Plus remainder of fragment. Second fragment 0.60m x 0.46m x 0.09m. Makes an inscription reading 'John Middleton'. Early nineteenth century.

20 Limestone architectural fragment. Fine grain, jamb/arch with angle bead and remains of mortice 0.28m x 0.43m x 0.25m. Roman? Plus remains of mortice. Larger than remainder of stone.

21 Architectural fragment (Plate 26). Former millstone? with grinding surface, tower piece. Internal grinding surface with parallel but angled furrows 25mm apart on the inner face of angled hole. Coarse limestone. 0.50m x 0.50m x 0.24m. Corner with large hollow chamfer. The internal grinding hollow is 0.31m in diameter at the top, and 0.13m in diameter at the bottom.

Lithics by A.M. Myers and J. Dodds

Sixteen pieces were analysed. The assemblage was dominated by irregular chunks with no clear indications of intentional working. Of these, two from deposits 118 and 145 were of exotic volcanic materials (Nos 2 and 3), probably derived from ship ballast. Flint nodules derived from ship ballast were incorporated into the walls of medieval buildings at Low Fishergate (McOmish in prep.). Otherwise, the range of raw materials was generally representative of the area. The translucent and semi-translucent materials were probably from East Yorkshire boulder clays. The Wolds flint had its parent source in the Burnham and Welton series of the East Yorkshire and North Lincolnshire Wolds, but there are deposits of chalky till containing nodules of Wolds material in the Doncaster area. Nevertheless, at least some of the unworked fragments were also probably from ship ballast.

Table 10. Lithic assemblage by artefact type and raw material

Artefact	Translucent flint	Semi-trans flint	Wolds flint	Misc. flint	Uncertain	Volcanic	Total
Chunk	2	3			1	2	8
Flake	1			1	1		3
Blade			1				1
Knife/Leaf	1						1

Arrow							
Scraper		1					1
Core Fragment		2					2
Total	4	6	1	1	2	2	16

The two retouched tool types represented are both difficult to discuss. The first (No. 5) was a bifacially thinned piece, which may have been a bifacial knife or an unfinished leaf-shaped arrowhead. The former would tend to be later Neolithic or early Bronze Age in date, whereas the latter would be earlier Neolithic. The shape of this piece would exclude the possibility of it being a part finished 'Kite-form', a variety of leaf-shaped arrowhead that continued in use into the later Neolithic (Green 1980: 97). It is worth noting that the piece appears to have been made on a large, quite regular blade of translucent flint. Given current knowledge of Neolithic and Bronze Age lithic technology, it is generally thought that earlier Neolithic assemblages contain a more bladed element (Pitts and Jacobi 1979). Certainly, unfinished leaf-shaped arrowheads are occasionally identified on earlier Neolithic sites (Myers 1992: 25). It is impossible to be certain of the age of this piece, however. The second retouched tool was a scraper (No. 8), probably a variant of the 'thumbnail' type. Normally such pieces would be assigned to the Late Neolithic or Early Bronze Age. This piece is unusual, however, in having moderately angled opposed retouch on part of its circumference forming a sharper working edge than is usually found on thumbnail scrapers.

Given that the entire assemblage was from derived contexts and was very small, the range of raw materials and of artefact types offers little firm evidence for further discussion, other than to note that there was some Neolithic to Bronze Age activity in the general area.

Catalogue

1 Tertiary chunk, grey/brown semi-translucent with slight patination. *Pit 107; fill 108; Phase 3B*

2 Tertiary chunk, volcanic material (see No. 3) with 'sugary' micro-crystalline texture. *Pit 140; fill 118; Phase 3B*

3 Tertiary chunk, dense black obsidian (see No. 2), very smooth surfaces and sharp edges. *Ditch 325; fill 145; Phase 2*

4 Tertiary core fragment with deep negative scars of hinge fractures on dorsal face, grey/brown semi-translucent flint with slight patination. *Ditch 325; fill 149; Phase 2*

5 Bifacially flaked knife or unfinished leaf-shaped arrowhead tertiary blade snapped laterally, bifacially shaped and thinned with shallow, quite regular invasive retouch,

some steep abrupt retouch on part of one margin, light brown translucent flint. 39.5 x 22.5mm. *Robber trench 427; fill 402; Phase 3C*

6 Blade, with simple platform and incipient cone of force, slightly plunging and skewed distal end, negative scar of step fracture on dorsal face, cretaceous 'wolds' flint. 41.0 x 15.0mm (max. length, breadth at right-angles). *Pit 441; fill 415; Phase 1B*

7 Chunk, burnt, uncertain material. Opaque grey with some inclusions. *Pit 430; fill 423; Phase 3D*

8 Scraper (possible thumbnail), steep abrupt retouch for two-thirds of circumference, and opposed moderately angled retouch on remaining one-third, semi-translucent brown flint. 23.0 x 22.0mm (max. length, breadth at right-angles). *Pit 439; fill 432; Phase 3D*

9 Tertiary lump, burnt, semi-translucent flint. *Ditch 492; fill 434; Phase 2*

10 Tertiary flake, broken, both margins heavily chipped (probably post-depositional), brown translucent flint, patinated. *Ditch 492; fill 434; Phase 2*

11 Secondary core fragment, brown semi-translucent flint, patinated, with smooth, iron stained, water-rolled cortex. *Oven 566; fill 483; Phase 3B*

12 Tertiary flake, broken, burnt (with pot lids), uncertain material - opaque, grey with some inclusions. *Pit 550; fill 498; Phase 3B*

13 Primary chunk, brown translucent flint, part patinated, with smoothed cobble cortex. *Deposit 521; Phase 1C*

14 Primary chunk, brown semi-translucent flint part patinated, sharp nodular cortex. *Pit 596; fill 595; Phase 3B*

15 Secondary flake, simple platform, burnt, flint with thin sharp cortex. 26.5 x 24.5mm (max. length, breadth at right-angles). *Ditch 750; fill 752; Phase 1A*

16 Secondary flake, simple platform, red/brown translucent flint with very thin, sharp cortex. 25.0 x 15.0mm. *Pit 791; fill 767; Unphased Roman*

Coins by C. Barclay

In total, eight coins were recovered from the excavations and were X-rayed. They are catalogued below, and consist of seven Roman coins and one medieval penny.

Catalogue

1 Vespasian; AE dupondius

AD 72-73; Lyons

Obv) radiate bust right

[IMP CAESAR VESPAS]IAN AVG COS IIII

Rev) Pax standing left, sacrificing over altar

[PAX] AVG; S – C

RIC 740

94/71; Pit 441; context 415; Phase 1B

This coin showed little sign of wear, and was probably a near contemporary loss.

2 Vespasian/Titus; AE as

AD 69-81

Obv) bust right

Rev) Standing female deity(?)

94/92; Ditch 530; fill 529; Phase 1A

The coin was covered with a heavy surface concretion, but otherwise appeared to be only moderately worn. It was probably a late 1st-century AD loss.

3 Postumus; AE radiate

AD 259-268

Obv) Radiate bust right

Rev) Salus standing sight

S[ALVS POSTVMI AVG]

RIC 328

94/73; Ditch 253; fill 219; Phase 1A

The coin was unworn and well-preserved. It was probably a near contemporary loss.

4 AE barbarous radiate; imitating posthumous issue of Claudius II

Post AD-270

Obv) Radiate bust right

[DI]VO CL[AVDIO]

Rev) Eagle

[CONSECR]ATIO

cf. *RIC* 266

94/75; Ditch 492; fill 465; Phase 2

This coin was weakly struck, but was otherwise only moderately worn. It was probably a near contemporary loss.

5 Tetricus I (?); AE radiate

c. 270-273 AD

Obv) Radiate bust right

Rev) Pax standing left

94/72; Pit/well 450, fill 440; Phase 3D

The obverse of this coin was concealed by heavy encrustation. It was an issue of the Gallic Empire, and can probably be attributed to Tetricus I. The coin was only moderately worn and was probably a near contemporary loss, but was residual in a Phase 3D pit or well (albeit one that cut ditch 492).

6 AE barbarous radiate

Later 3rd century AD

Obv) Radiate bust right

Rev) Standing figure, possibly Hercules

94/74; Ditch 325; fill 355; Phase 2

This coin was a comparatively large and well-produced piece, having been struck from unofficial dies. It was similar in size and fabric to issues of the Gallic Empire, and probably dated from the AD 260s to 280s.

7 AE barbarous radiate

AD 287-94; London

Obv) Radiate bust right

Rev) Pax standing left

PAX AVG; in exergue ML

RIC 119

94/76; Ditch 492; fill 448; Phase 2

The coin was unworn and well preserved. It was probably a near contemporary loss.

8 Edward the Confessor; penny (fragment)

Hammer Cross type; York; AD 1059-1062

Obv) Crowned bust right, with sceptre

[…]AR[…]

Rev.) Short voided hammer cross, annulet in one angle

[…]EOFRPI […]

94/77; Pit 236; fill 232; Phase 3B

Although broken, the coin is unworn and otherwise well preserved. It may have been a near contemporary loss, but was residual in a Phase 3B pit.

Finds of metal, glass and stone by H.E.M. Cool (Figs 40-41)

Introduction

The finds from Church Walk considered here were from phased contexts, and exclude material from unphased 'cleaning' deposits. Much of the latter was either modern or undiagnostic and so need not be considered further. One fragment of Roman vessel glass from an unphased context whose form can be identified is included. Appendix 11, Table 41 summarises all the phased items by material, excluding the obviously modern material in the Phase 4 contexts. Table 42 summarises the diagnostic items by function and broad period. Where it has been possible to identify the date of an item typologically, it has been placed in the appropriate date band irrespective of the date of its context. Where such typological dates are difficult to assign, as for example with tools and fasteners, the date of the context has been used to assign the item. As the tables illustrate, whilst the majority of the material came from medieval contexts, Romano-British material was also strongly represented. This introduction summarises the assemblages for each broad period, and then the material is discussed in more detail according to function. Illustrated finds are in Figs 40-41.

Where the Romano-British material could be dated independently, it was of 1st to mid-2nd-century date. Later material, including that of the later second century, was noticeably absent and much of the Roman material could have been associated with the first fort. The assemblage included several artefacts from Phase 1A contexts that have not always been well-dated, including a dragonesque brooch (No. 1) and an uncommon form of seal box lid (No. 26). The contexts of these will contribute usefully to an understanding of when they were in use. Another Romano-British find that deserves special mention here is the triangular loomweight (No. 11), a rare find so far north or so late in date. The Romano-British assemblage was too small, however, to draw any significant conclusions from. In general, many of the items were typical of what might be expected on a 1st to 2nd-century fort in the region, though it is notable that explicitly military material was absent, with the exception of

one military fitting (no. 48) of unusual form. The absence of this class of material contrasts with Doncaster High Street where, despite being outside the fort area, part of the harness for a cavalry horse and two spearheads were found (ASWYAS forthcoming).

Only one item was found in a Phase 2 context, a hone made of a stone not used on British sites until the Anglo-Scandinavian period (No. 36). Two other stone items (Nos 37-38) may also belong to this period based on their lithology.

The medieval material was generally not closely dateable, as it did not contain any of the diagnostic buckles that tended to be fashionable for a relatively short period (though see No. 41). Other notable finds were a small gilded strap mount in the form of mounted knight of the 15th century (No. 7) and a contemporary lead alloy stud depicting a bird (No. 45). In as far as it is possible to interpret the later medieval assemblage from so few finds, some artefacts do suggest a degree of affluence in the area. They cast no light on the type of activities being undertaken in the area though, and the fragments of possible copper-alloy casting waste from Phase 3C (Nos 49-50) were too small for certain identification. Post-medieval finds generally consisted of items connected with dress or the mending of it (e.g. Nos 9, 13-14 and 16).

Personal ornaments

This category was dominated by items of Romano-British date. Number 1 belongs to what Kilbride-Jones described as the East Brigantian style of dragonesque brooch (Kilbride-Jones 1980: 174). In general, dragonesques were in use during the second half of the 1st century and into the early part of the 2nd century (Bayley and Butcher 2004: 171-172; Cool and Philo 1998: 32). The discovery of this example in a deposit possibly associated with the first Flavian fort (despite its possible redeposition) is a welcome addition to the corpus, as it underlines the attraction that these 'native' brooches may have had for the soldiers associated with the Flavian advance to the north (but see Discussion below). The finger ring No. 2 is of a form that was typical of the 1st and 2nd centuries (Henig 1974, 47 Types II and III), and was clearly residual in a later context. Melon beads such as Nos 3 and 4 are an extremely common find on Romano-British sites, with the Frenchgate site at Doncaster, for example, producing five (Lloyd-Morgan 1986: 93-95). They may be dated from the mid-1st to mid-2nd-century AD.

The hobnails Nos 5-6 were found in the fill of post-hole 539 which also contained medieval pottery. Many of the hobnails were found corroded together and, in one case, a group of eight retained the curve appropriate for the side of a shoe. This suggests that a complete shoe was deposited in the feature, arguing for it being of Roman date as medieval shoes were not hobnailed. Had it been a medieval feature disturbing a Roman deposit, it might be expected that the hobnails would have been more scattered (see Results above). As it is, this was the only context at Church Walk where hobnails were found. The nails were bagged as two groups but it is not known whether they were found in two discrete areas.

The medieval items in this category were the small mount No. 7 and the lace tag No. 8. Small mounts of copper-alloy used to decorate leather straps, girdles and belts appear to have been most fashionable in the later 14th to earlier 15th-centuries, though they had started to appear in the later 13th century (Egan and Pritchard 2002: 162). The large numbers recovered from stratified contexts in London clearly show that this was a fashion that had passed by the early 16th century (Egan 2005: 39). Examples such as No. 7 are rare, and both the subject matter and the fact that it was gilded would suggest that it came from some expensive item of personal equipment. Lace tags started to appear in the 13th century, and become common in the 14th century when clothes fashions made use of many laces, and tags such as these sealed the ends (Egan and Pritchard 2002: 284). Number 8 was from a pre-14th-century context which perhaps explains the unusual ribbing seen on it, as normally they were of plain sheet clenched around the end of the lace.

When found on Roman sites, tie loops such as No. 9 have been identified as the fastenings for scale armour, but as Brewer has pointed out these tend to be smaller than the example found here (Brewer 1986: 184 no. 147). Both the context and the size of No. 9 point to it belonging to the sort of tie loop which had come into use by the late 13th century, judging from an example from a context of that date at Exeter (Goodall 1984: 347), and there is an example at Leicester in a late 14th-century context (Clay 1981: 137, No. 55). They were most common during the 16th and 17th centuries, and though clearly associated with clothing, it is possible that they also had other uses. Egan (2005: 62) suggests that they may have been used on purses, whilst Gardiner has drawn attention to their curious distribution on the Mary Rose where more than 80% were found in the carpenters cabin (Gardiner and Allen 2005: 95-96). The Debenhams site at Chester (unpublished excavations, Chester Archaeology) has provided valuable clues to when they passed from fashion. There, lace tags, sewing pins and tie loops such as these were found in very large numbers associated with the activities of mercers on the site from the late 15th century. Tie loops continued to be common up to the early 18th century but declined markedly thereafter, at the point when buttons became far more common on that site. Illustrated items marked*.

Catalogue

1* Dragonesque brooch. Copper-alloy. D-sectioned body with central projecting ridge down ears; small pit in each snout; D-shaped cell on front part of ears with decayed enamel now yellow green; central circular cell on body with decayed, now brown, enamel either side of central spine; curved triangular cell on either side with decayed, now yellow green enamel. Upper part of pin wrapped around one neck. Length 44mm, maximum width 19mm. *Post-hole fill 496; Phase 3B*

2* Finger ring. Copper-alloy. D-sectioned hoop expanding to empty oval bezel setting. Approximately half extant. Diameter 19mm, section at bezel 6 x 2mm. *Ditch fill 437; Phase 2*

3* Melon bead. Frit. Complete. Length 12mm, diameter 15mm, perforation diameter 6.5mm. *Pit fill 719; Phase 1A*

4 Melon bead. Frit. Approximately one-eighth extant. *Ditch fill 219; Phase 1A*

5 Hobnails. Iron. 30 individual examples, and four groups still corroded together (8, 2, 3 and 9). *Post-hole fill 539; Phase 2*

6. Hobnails. Iron. Eighteen individual or corroded together in pairs. *Post-hole fill 539; Phase 2*

7* Strap mount. Copper-alloy. Openwork in form of horse and rider with rider holding sword. Front legs of horse missing. Gilded. Dimensions 22 x 16mm, thickness 2mm. *Ditch fill 417; Phase 2*

8* Lace tag. Copper-alloy. Cylindrical sheet, horizontally ribbed. Length 12mm, diameter 3mm. *Pit fill 281; Phase 3B*

9* Tie loop. Copper-alloy. Wire, twisted ends. Diameter 9.5mm. *Pit fill 143; Phase 3D*

Toilet equipment

The only item in this category was a glass base fragment. It did not appear to have had a pontil scar and so belonged to a form of tubular unguent bottles that was very common in the mid-1st-century AD (Price and Cottam 1998: 169). They have been found on forts associated with the earliest Flavian expansion to the north, and so this unphased fragment was probably from the first Roman fort at Doncaster. This is one of the most common unguent bottle types found in Britain, probably as it was used to contain the oil needed for bathing, a function more commonly served from the later 1st century by the bath-flask.

10* Tubular unguent bottle; lower body and edge of base fragment. Blue/green. Maximum body diameter 30mm. *Missing sheet 462; Unphased*.

Textile equipment

Where they could be independently dated, the majority of items in this category were medieval or post-medieval, although there was one unusual earlier find, the triangular loomweight No. 11 from a Phase 1C context. It is unusual because such loomweights are primarily an Iron Age form that survives into the early Roman period (Elsdon and Barford 1996: 330). It is also a predominantly southern form and would not normally be expected as far north as Doncaster, though a possible fragment of one was recovered during pipeline excavations at Goodmanham, East Yorkshire (unpublished excavations, Humber Archaeology Partnership). Several examples have been excavated in the Trent Valley of Nottinghamshire at sites such as Gamston and Aslockton (Knight 1992; Palmer-Brown and Knight 1993).

The needles Nos 12-13 were clearly intended for fine sewing. It is not possible to typologically closely date them, and they may be contemporary with their contexts. 'Sewing'

pins with wound heads such as No. 14 were in use from the 13th century onwards for a range of functions including fastening clothes. Solid-headed ones such as No. 15 first appeared in 1824, but wound headed pins continued in use until the later 19th-century (Biddle and Barclay in Biddle 1990: 560-65). The pattern in which the hand-made pits on the thimble No. 16 were made, suggest it was probably late medieval to early post-medieval in date. At Winchester, examples with similar features were found in contexts spanning the 14th to early 16th centuries (Biddle and Elmhurst in Biddle 1990: 811 nos. 2484-2488).

11* Triangular loomweight. Fired clay. In four pieces and retaining two corners. Perforation across each corner. Some evidence of burning. Complete face length 165, width 63mm, extant weight 926g. *Layer 521; Phase 1C*

12* Needle. Copper-alloy. Very thin circular-sectioned wire, one end pointed, other broken across circular perforation occupying almost entire width. Length 40mm, section 1mm. *Ditch fill 145; Phase 2*

13* Needle. Copper-alloy. Circular-sectioned flattening to broken perforated head. Bent out of shape. Length 67mm, section 2mm. *Gully fill 119; Phase 4*.

14 'Sewing' pin. Copper-alloy. Broken wire shank with wound wire head. Length 7mm. *Pit fill 143; Phase 3D*

15 'Sewing' pin. Copper-alloy. Wire with solid head, vertically channelled. Length 41mm. *Pit fill 106; Phase 4*

16* Thimble. Copper-alloy. Slightly conical crown, sides sloping out slightly. Individually made pits spiralling around crown; approximately vertical lines on sides. Diameter 18mm, length 18mm. *Cleaning context 282; Phase 3C?*

Household

Household items, primarily consisting of glass vessels, were associated with all three of the main occupation phases. Numbers 17-22 were all fragments from Roman glass vessels of the type associated with cooking, eating and drinking. There was one example of a facet-cut beaker (No. 17, Price and Cottam 1998: 80-83), one example of a globular jar with collared rim (No. 18, ibid.: 137-138) and several fragments from prismatic bottles (Nos. 21-22, ibid.: 194-200). All of these were relatively common types with the beaker and the jar indicating a later 1st to early to mid-2nd-century date. None of these vessels would have been out of place on a Flavian fort, and whilst only a few fragments were actually stratified in Phase 1A deposits it is likely that the majority of the vessel glass was originally associated with the first fort.

Fragments of Mayen lava were found in Phase 3C deposits 157, 228 and 272. Lava quernstones are a common find on Roman military sites of the 1st and 2nd centuries AD (Buckley and Major 1998: 243-245), and were imported from quarries in what is now

northern Germany. Rotary quernstones of the same stone were also imported in the middle to late Anglo-Saxon periods. Numerous fragments were found in Anglian contexts at Fishergate in York where they were unlikely to be residual from the Roman period (Rogers 1993: 1322-1329). At Church Walk where there was little evidence of Anglian and Anglo-Scandinavian activity, the fragments were probably residual Roman items.

The medieval material consisted of a stone mortar (No. 23) and a fragment of a glass vessel of unknown form (No. 24), the latter probably residual. The mortar had the typical deep form of a medieval mortar. In the medieval period there were a number of prohibitions on the use of hand querns as landowners sought to increase revenues by obliging people to use their mills. At Winchester, for example, the distribution of querns and mortars were complementary with the use of mortars rising from the 13th century as that of querns fell. There mortar use appears to have peaked in the 15th century (Biddle and Smith in Biddle 1990: figure 266). Though fragments from large stone artefacts can often be found reused for other purposes long after they were broken, in this case this mortar is likely to have been broadly contemporary with the context in which it was found.

There were some post-medieval wine bottle fragments. Such bottles can only be dated closely if a large part of the profile is preserved – the nature of the tooled string, the relatively short neck and the sloping shoulder suggest that No. 24 probably belonged to the earlier 18th century (see Hume 1961: 103 Nos. 9-10).

17 Facet-cut beaker; body fragment. Colourless. Externally ground. Parts of four adjoining facets. Dimensions 14 x 11mm. *Pit fill 173; Phase 1A*

18 Collared jar; rim fragment. Blue/green. Rim edge rolled in, then out and out down, rim folded out. Rim diameter *c*. 70mm, present height 10mm. *Deposit 157; Phase 3C*

19 Base fragment. Blue/green. From centre of concave base. *Pit/well fill 440; Phase 3D*

20 Blue/green body fragments (three). *Ditch fill 375, pit fill 562; Phase 1A; Ditch fill 145; Phase 2*

21 Bottle; shoulder fragment. Blue/green. *Robber trench fill 402; Phase 3C*

22 Prismatic bottle body fragments (six). Blue/green. *Pit fill 513; Phase 1A; Deposit 588; Phase 1C (heat- affected); Pit fill 498; Phase 3B; Pit fills 147 and 271; Phase 3C; Wall construction cut fill 370; Phase 3C*

23* Mortar. White dolomitic limestone. Flat rim, slightly convex-curved wall sloping in slightly with vertical tooling marks externally; flat base. Fragment retains rectangular lug channelled on upper face. Height 206mm, wall thickness 35mm, base diameter c. 185mm. *Context 498 Phase 3B*.

24 Body fragment; potash glass. *Pit fill 112; Phase 3C*

25 Wine bottle; complete rim, neck and part of shoulder. Mid-green glass with heavy flaking iridescence. Sheared rim with string below tooled to a sharp edge; neck sloping out to side. Rim diameter 30mm, present height 85mm. 504 Phase 4. Also three other body fragment from a similar bottle. *Context 191, 106 (2 frags.) Phase 4*.

Writing equipment

The only item in this category was a Roman seal box. Square ones such as No. 26 are one of the less commonly encountered forms of this type of artefact, and as such are not well-dated. Suggested dates normally rely on the popularity of enamelling in the 2nd century (e.g. Crummy 1983: 103 No. 2522). The recovery of this example from a Phase 1A context is a very useful addition to the corpus of known examples, as it shows that elaborately enamelled square boxes were in use in the later 1st to earlier 2nd centuries.

26 Seal box lid. Copper-alloy. Square with broken hinge loop on one side and small projecting lug on other with articulating pin on underside. Upper face enamelled. Central ring, now pale yellow/green around deep blue dot; triangular cells around edges produce a starburst pattern in reserved metal, cells infilled with decayed yellow/green enamel. Reserved metal and outer edge of lid decorated by very fine punched dots. Length 28mm. *Pit fill 562; Phase 1A*

Transport

Both of the transport items belong to the Roman occupation. Knobbed terrets such as No. 27 were a very common northern type which appear to have been most numerous in the first half of the 2nd century (MacGregor 1976: 46-47), which supports the proposed date of the context. The linch pin No. 28 is an example of Manning's type 1b form (Manning 1985: 74), a common Roman type not used in Britain prior to the conquest. This example shows an unusual feature at the base of the stem. Though rebating was not uncommon on the stems, probably as an aid to fastening the pin securely, the rebate was normally on the other side of the pin to the head loop. In this example it was on the same side as the head loop, and in addition the end formed a further loop, perhaps an additional security measure.

27* Terret. Copper-alloy. Approximately circular with straight bar; three collared knobs with double collar on either side of bar. Dimensions 59 x 53mm. *Slot fill 739; Phase 1B*

28* Linch pin. Iron. Crescentic head with a turned over loop formed from the metal of the head. Base of the stem is rebated and the end turned up to form another small loop. Length 160mm. *Pit fill 562; Phase 1A*

Buildings

The most common items associated with buildings were nails. These are summarised in Table 43, using the number of extant heads as the unit of quantification. The table also shows the number of complete nails in each phase, and it can be seen that though far more nails were

identified in the medieval contexts than the Romano-British ones, proportionately more of the Roman ones were found complete – 30% of the total compared to the 14% from the Phase 3 contexts. Roman sites, especially timber forts, tend to produce large numbers of nails and the differential breakage rate noted probably indicated that many fragments from Phase 3 contexts were residual Roman items. Other building items were scarce but include fragments from late medieval (No. 31) and early post-medieval (No. 32) window glazing.

29 Split pin (?). Iron. Oval loop with broken arms. Length 95mm. *Pit fill 254; Phase 3C*

30 Bracket. Iron. L-shaped retaining three fastening nails and mineralised wood. Length 140mm. *Well fill 215; Phase 4*

31. Window fragment. Potash glass. Pointed end of quarry. *Pit fill 135; Phase 3D*

32. Window fragment. Pale green, flaking iridescence. *Pit fill 112; Phase 3C*

Tools

This category was dominated by hones and polishing stones. Three of these (Nos. 36-38) had lithologies typical of the Anglo-Scandinavian period (see Stone report). Number 37, a schist Norwegian Ragstone, had the form of a hone from that period or later (see Mainman and Rogers 2000: figures 1208-1209). Other items such as the blades (Nos 33-35) and the polishing and grinding stones (Nos 38-39) cannot be dated typologically.

33 Blade, fragment. Iron. Back straight with edge sloping up to point. Present length 60, maximum width of blade 15mm. *Phase 143; Phase 3D*

34 Blade. Iron. Fragment. Present length 60mm, blade section 27 x 2.5mm. *'Tank' fill 504; Phase 4*

35 Blade fragment (?). Iron. *Pit fill 112; Phase 3C*

36* Hone. Lower Palaeozoic greywacke – see Stone report). Rectangular with square-section; one end broken. Length 70mm, section 31 x 28mm. *Ditch fill 675; Phase 2*

37 Hone. Norwegian Ragstone – see Stone report. Triangular section with both ends chipped and broken. Widest face has small conical depression close to one end with channel running into it from both sides. Length 94mm, section 14 x 7mm. *Pit fill 229; Phase 3B*

38* Polishing stone. Slate – see Stone report. Flat rectangular slab with bevelled ends. One face shows high gloss as if used to polish or burnish items. Length 110mm, section 44 x 7mm. *Pit fill 110; Phase 3B*.

39 Grinding stone. Coal measures Sandstone of Elland Flags – see Stone report. Part of flat slab with concave upper face with polishing marks around edge of concavity and on edge that cuts across concavity. Upper face and side with polishing shows evidence

of burning. Length 120mm, maximum width 68mm, maximum thickness 18mm. *Pit fill 271; Phase 3C*

Fasteners and fittings

There were two interesting items in this category, both of medieval date. The iron buckle and plate No. 41 was an unusual find because it is rare to find this form in iron and in such good condition. Neither the extensive series of medieval buckles from Winchester (Goodall in Biddle 1990: 526-36) nor London (Egan and Pritchard 2002: 50-123) include such a buckle. This apparent rarity may in part, however, be because a broken fragment of the frame would simply be regarded as part of an iron ring. Even if complete, as this one is, it would only be recognised after radiography. This example was probably 14th-century in date given its context, and would have been used with a strap approximately 30mm wide. This perhaps argues against it being a belt buckle as the common belt buckles of that period (e.g. Egan and Pritchard 2002: 76-82) were generally designed for narrower belts *c*. 20mm wide. This example was therefore probably designed for some other function, such as horse harness.

The other item of interest was the lead alloy stud No. 45 from a 15th to 16th century deposit. It is tempting to link this with the strap mounts to which No. 7 above belonged, but the weight of the piece and the depth of the shank indicate that it would not have decorated a leather or cloth strap. Equally though, it cannot have decorated anything that needed heavy hammering to fix it in place as that would have damaged the moulding on the front face. These mouldings have similarities with the religious device of the 'pelican in her piety', but as the beak was not bent towards the breast this probably suggests a more secular device.

The other items call for little special comment. Number 42 may have been one side of a buckle plate, and No. 46 might have been the eye of a child's toy.

40* Stud. Copper-alloy. Broken hemispherical head, stump of shank. Diameter *c*. 11mm. *Layer 521; Phase 1C*

41* Buckle and plate. Iron. Circular frame with cross bar which retains pin and sheet strap plate. Diameter 40mm, thickness *c*. 5mm. *Post-hole fill 207; Phase 3C/3D*

42* Mount. Copper-alloy. Rectangular sheet, three sides original, one broken. Complete end has three perforations. Width 55mm, present length 40mm, thickness 0.5mm. *Pit fill 271; Phase 3C*

43 Mount. Copper-alloy. D-sectioned bar with circular perforated element and openwork end. Bent out of shape. Length 59mm; section 4 x 2.5mm. *Ditch fill 366; Phase 2*

44 Mount. Copper-alloy. Rectangular sheet with two rectangular slots. Length 25mm, width 13mm, thickness 0.5mm. *Pit fill 241; Phase 3B*

45* Stud. Lead alloy. Circular with moulded device of a bird on front, long billed and facing right with out-stretched wings. Area in front of bird's breast and feet obscured

but there appear to be additional mouldings. Short shank at back, off-centre and bent to one side. Diameter 26mm, thickness of head 2mm, total depth 12.5mm. *Pit fill 336; Phase 3D*

46 Stud. White ceramic disc with central copper-alloy rivet with shallow domed head. Diameter 16mm. *Pit fill 101; Phase 4*

47* Ferrule? Iron. Circular-sectioned, conical head. Socketed with expanded head, possibly broken point. *Post-hole fill 186; Phase 3C/3D*

Military equipment

There was only one item that could be securely identified as a piece of Roman military equipment. Mount No. 48 had obvious similarities with the types of mounts used on harness fittings such as the junction loops found on a phalera from Newstead (Curle 1911: plate LXXIV No. 6). Examples that just consisted of the spectacle element are known, as for example from Dura-Europos (James 2004: 84 Nos 127-128), but the addition of the half moulding between the elements is unusual. It occurs on a fitting from Caerleon which had an additional loop designed for a pendant (Webster 1992: 127 No. 113). This came from a early to mid-2nd-century context broadly contemporary with No. 48. This style of fitting is not common in the military metalwork from Britain, perhaps because it was more typically found in the equipment of the army stationed further to the east. James, in discussing the Dura-Europos fittings, observed that the best comparisons were to be found in the Balkan provinces.

48* Mount; copper-alloy. Spectacle-shaped with two recessed perforated fields for rivets and central projection. Length 27.5mm, section of moulding 11.5 x 9mm. *Pit fill 171; Phase 1B*

Metalworking

49 Copper-alloy. Fragments. Highly corroded, possibly small fragments of casting waste (fourteen). *Pit fill 713; Phase 3B*

50 Copper-alloy. Fragments. Highly corroded, possibly waste (twelve). *Pit fill 716; Phase 3B*

Miscellaneous

51 Ring. Copper-alloy. Circular-section; four fragments making up approximately half of circumference. Diameter *c*. 40mm, section 5mm. *Pit fill 217; Phase 1A*

In addition, unidentified fragments of metalwork came from the following contexts:

Phase 1A slot fill 744 (iron and copper-alloy)

Phase 1C pit fill 171 (iron)

Phase 1B slot fill 739 (iron)

Phase 1C pit fill 339 (copper-alloy, fragment of bar and perforated sheet)

Phase 1C deposit 521 (iron)

Phase 2 ditch fill149 (iron)

Phase 3B pit fill 276 (iron)

Phase 2 ditch fill 355 (copper-alloy)

Phase 3B oven lining 356 (iron)

Phase 2 ditch fill 366 (copper-alloy, iron)

Phase 3B pit fill 436 (iron)

Phase 3A ditch fill 454 (lead alloy sheet)

Phase 3A ditch fill 464 (iron)

Phase 3B pit fill 563 (iron)

Phase 3B pit fill 593 (iron)

Phase 3B pit fill 716 (copper-alloy)

Phase 3C deposit 741 (copper-alloy sheet fragment)

Phase 3C pit fill 175 (copper-alloy with repoussé decoration)

Phase 3C robber trench fill 211 (copper-alloy wire fragment)

Phase 3C pit fill 254 (iron)

Phase 3C pit fill 271 (iron)

Phase 3C pit fill 284 (iron)

Phase 3C deposit 326 (iron)

Phase 3C robber trench fill 379 (lead alloy runoff)

Phase 3D pit fill 167 (copper-alloy; iron)

Phase 3D pit fill 199 (lead alloy sheet)

Phase 3D pit fill 336 (iron)

Phase 3D construction cut fill 337 (lead alloy)

Phase 4 pit fill 101 (iron)

Phase 3C pit fill 112 (copper-alloy, 2 wire fragments)

Phase 4 modern intrusion fill 400 (copper-alloy)

Phase 4 'tank' fill 504 (iron)

Phase 3C/3D post-hole fill 186 (iron)

Missing objects

The original conservation report on the metalwork (Cox 1995) listed and described several artefacts that are now missing from the Site archive, and presumably were mislaid after conservation. Due to some misidentifications of objects in this initial report, which for example persisted in erroneously interpreting the 15nth-century strap mount of a horse and rider as an Anglo-Scandinavian 'standing female figure with flared skirt and pigtail' (Cox 1995: 4-5), great caution must be exercised when considering these descriptions. Nevertheless, notable missing items include a lead ingot or weight from ditch fill 424 (Phase 2 ditch 492) and a copper-alloy Roman brooch from fill 145 in the probable later recut of Phase 2 ditch 325, missing its pin and bar. Part of a set of iron tweezers and a putative iron rowel spur fragment were also identified, both from cleaning/machining context 100.

In addition, the original assessment report of the animal bone assemblage (Mulville 1995) described four items of worked bone. Again though, these objects seem to have gone missing during or following conservation in Doncaster Museum. They included two red deer antler tines, sawn at both ends, from fill 167 in Phase 3D pit 251; a bone dice from fill 653 in Phase 3D ditch or gully 653, and a bone needle from Phase 4 pit 166.

Metalworking debris and fired clay by J. Cowgill

Recording methodology

The 350 pieces weighing 12.65kg of fired clay, daub, slag and associated finds were recorded on *pro forma* recording sheets after they had been washed. The soil from washing the slag was kept and dried and the magnetic element extracted using a magnet, which was subsequently checked for the presence of hammerscale. Each piece was visually examined and identified on morphological grounds, sometimes with the aid of a x10 binocular microscope. The records were entered into a Microsoft Access database and the entries consist of the following encoded fields: Context; Bag Number; Type; Quantity; Weight; Craft; Fuel; Condition; Comments (including sample number if relevant). A note of probable fuel type was recorded when fragments were incorporated within the slags or imprints identifiable. The catalogue forms Appendix 12, Table 44.

Fired clay and daub

Two main groups of daub were recovered, both from Romano-British contexts. One was from the fill of Phase 1B pit 428 (23 pieces weighing 471g), while the second was from

Phase 1C deposit 521 and weighed just over 1.5kg (45 pieces). They consisted of oxidised fired clay, tempered with organic material (straw, hay or dung?), and had the imprints of the wattle framework that supported the structure. Too few surface pieces survived to allow the identification of the structures, but both groups include pieces that may have been formed by being pushed up against wooden shuttering, although no grain pattern was identifiable on the daub. The use of shuttering perhaps implies that most, if not all, were originally from wattle and daub buildings, rather than being part of hearth or oven structures.

Amongst the daub from deposit 521 were two possible 'bars' or objects made from well-wedged fired clay. One had a smooth, possibly knife cut surface (weight 22g), while the second is now in fourteen pieces (weighing 46g + 174g). The latter had two very smooth (almost polished) surfaces that joined at a right angle. The nature of these objects is unclear.

Only small quantities of daub or fired clay were found in medieval and post-medieval contexts, the largest from post-hole 187, eighteen pieces weighing 192g). These again were mainly oxidised fired and many also had imprints from wattles.

Metalworking

Most of the slag recovered from Church Walk was a by-product of iron smithing – the production, repair or recycling of iron objects. Most of the pieces were fragmentary, and only six were complete enough to measure, and these ranged from 62g in weight to 995g, the latter the heaviest piece recovered from the Site. Few could be recorded as being in a 'fresh' condition, partly because so many were encrusted with soil and corrosion products that masked the surface. Many were abraded, some extremely so, as for an example from pit fill 523, which suggested frequent redeposition and/or surface weathering.

Very little slag was recovered from Romano-British contexts, even though it is likely that smithies probably existed within the different phases of forts. The majority of the assemblage was derived from medieval Phase 3B deposits, but none of these has produced a significantly large group and very little hammerscale was recorded. There was a small group from Phase 3B pit 140 consisting of four pieces and another of similar size from pit 141, but the slags had few characteristics in common and may not have been by-products of a single smith. The greatest quantity was from the fill of Phase 3B pit 500, and although these were all morphologically similar the general paucity of hammerscale suggests that it was not a primary deposit of smithing waste, and that there need not have been a smithy nearby. A very small disintegrated piece of lead was found with this slag.

Two copper-alloy droplets were identified; one from the Phase 3C stone-lined tank 765 and a second from a Phase 3D pit 251 fill which was embedded in a tiny piece of iron-smithing slag. The pieces were so small that they have little significance for understanding activities that might have taken place on the Site.

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CLIENT

Doncaster Metropolitan Borough Council

Clay pipes by S. White

Introduction

The excavations at Church Walk produced 36 clay tobacco pipe fragments comprising five bowls and 31 stems, one of which was marked. No mouthpieces were recovered from the excavations. The majority of the assemblage (83%) was plain stems, which are less easy to date and most of them could only be given a broad date range. Nearly all of these stems were likely to have come from pipes made between *c*. 1750-1850. There were only six more diagnostic fragments that could be dated with more accuracy. These were:

Table 11. Clay pipe fragments according to context and likely date

Context	Date	Bowl fragments	Stem fragments	Total
585	*c*. 1640-1660	1		1
504	*c*. 1690-1750	2 (joining)		2
504	*c*. 1720-1770		1 (marked)	1
504	*c*. 1740-1800	1		1
191	*c*. 1830-1860	1		1
Totals:		5	1	6

Methodology and treatment of the material

The pipe fragments from the excavations were individually examined and details of each fragment logged on an Excel spreadsheet. The layout of the spreadsheet was based on the draft pipe recording system developed at the University of Liverpool (Higgins and Davey 1994). A copy of the full catalogue is presented in Appendix 13, Table 45, together with a copy of the draft guidelines. Stem-bores for the bowl fragments and marked stems were measured to the nearest 64th of an inch using a ruler. In the case of the plain stems, only the surface treatment and a count were noted, with the bores not measured. A plaster cast was made of the roll-stamped stem mark and entered into the National Clay Tobacco Pipe Stamp Catalogue, a copy of which is currently held by the National Clay Tobacco Pipe Archive (NCTPA) at the University of Liverpool.

An assessment of the likely date of the plain stem fragments has been given in broad date ranges. Stem dates should be used with caution since they are much more general and less reliable than the dates that can be determined from bowl fragments or marked stems.

The pipes

Diagnostic fragments

The excavations at Askew's Print Shop, Church Walk, produced a small number of more diagnostic fragments in the form of five bowls and one marked stem. The earliest of the bowl fragments was recovered from a fill (585) of well construction cut 589. This particular bowl (Fig. 42, No. 1) dated from *c.* 1640-1660. It was a neatly produced Civil War period pipe with a heart-shaped heel. The rim was bottered and was fully milled.

Deposit 504, a fill of timber-lined tank 505 in pit 507, produced four of the six more diagnostic fragments from the Site (three bowl fragments and a marked stem), which suggested that this pit fill dated from the 18th century. The earliest bowl (*c.* 1700-1770) comprised two joining fragments (Fig. 42, No. 2). The bowl had clearly been very highly fired and its surface was covered with slaggy material. The spur of this fragment had been neatly trimmed, a feature that went out of fashion after *c.* 1800. On the right side of the spur (as viewed by the smoker) was a moulded ring and dot motif. The left side of the spur was obscured by slaggy material adhering to the pipe. The other bowl fragment from fill 504 was another spur (not illustrated). Although only fragmentary, it was clearly burnished and was most likely to date from the second half of the 18th century, *c.* 1740-1800.

Fill 504 also produced the only marked fragment from the excavations, a burnished and marked stem dated *c.* 1720-1770 (not illustrated). The mark comprised two lines of incuse lettering reading RIH:SCORA/ROMARSH. Above and below the lettering was a distinctive frieze comprising running animals, possibly foxes, and this particular mark has been allocated Die Number 1508 in the National Clay Tobacco Pipe Stamp Catalogue. There are at least 32 examples of this particular die known from sites throughout Yorkshire, including three other examples from Doncaster. There were two recorded pipemakers from Rawmarsh with the name Richard Scorah (White 2004: 180). The first is known to have been working from *c.* 1718 when he got married, to at least 1767. The second was working from *c.* 1783-1793. On stylistic grounds it is most likely that the example from Church Walk, and indeed the other 32 examples from the county, can be attributed to the first Richard Scorah. It is interesting to note that the only burnished bowl fragment recovered from the excavations appeared in the same context as the burnished and marked stem. It is tempting to suggest that they might even have come from the same pipe.

The final diagnostic fragment, and the most recent chronologically, was a mould-decorated bowl of *c.* 1830-1860 from fill 191 in well 193 (Fig. 42, No. 3). The design was the same on both sides of the bowl but was poorly moulded, making it difficult to interpret all of the elements. There appeared to be a heart at the centre of the design, flanked by two scrolls and 'scallops' and both seams were decorated with leaves. On the seam away from the smoker there was also a sprig of foliage. There was some moulded lettering around the rim that appeared to read SHARROTT/DONCASTER. A pipemaker called John Sharratt was known to have been working in Doncaster from *c.* 1834 until at least 1851.

This particular design has not been recorded in Doncaster before, but interestingly bowls with an almost identical design were recovered from Steyning, Bramber and Pulborough in Sussex (Atkinson 1977: plate 2). The examples from Sussex had a rose and thistle in place of the heart as on the Doncaster example, but they also had a maker's name and place of manufacture around the rim. In the case of the Sussex examples this read LEIGH / CHICHESTER. Stephen Leigh was a pipemaker working in Chichester from *c.* 1845-1855, which corresponds closely with the time that Sharrott was recorded in Doncaster. These pipes were so similar that there is little doubt that despite being from almost opposite ends of the country, both Sharratt and Leigh obtained their moulds from the same mould-maker.

Catalogue

1* Heel bowl dating from *c.* 1640-1660; rim bottered and fully milled; no internal bowl cross; not burnished; stem bore 7/64". *Well fill 585; Phase 3C?*

2* Spur bowl dating *c.* 1700-1770; no rim surviving; no internal bowl cross; highly fired with surface covered with slaggy material; stem bore 5/64". The spur has been trimmed. On the right side of the spur, as viewed by the smoker, there is a relief-moulded ring and dot motif. The left side of the spur is covered with slaggy material. '*Tank' fill 504; Phase 4*

3* Mould-decorated spur bowl dating from *c*. 1830-1860; rim cut; no internal bowl cross; stem bore 4/64". Both sides of the bowl are decorated with the same design comprising a heart within a scalloped motif, and both seams are decorated with leaves. Around the rim is moulded lettering, SHA..RRT / DO……, which would originally have read SHARROT / DONCASTER. *Well fill 191; Phase 4*

Plain stem fragments

The vast majority (83%) of the clay tobacco pipe fragments recovered from the excavations were plain stems. Plain stems are difficult to date accurately. The use of stem bore dating techniques presents a number of difficulties as they are based on the assumption that all pipemakers from any given period used the same diameter wire in the pipe-making process. These methods also require samples of several hundred fragments in order to produce a reliable date. The dates for the plain stems are therefore given simply as broad date ranges within which the fragments are likely to have been produced.

Stems with a burnished surface almost certainly date from the 17th or 18th centuries. Although some 19th-century pipes were burnished in some production centres, in Yorkshire it was not common practice to burnish pipes during this period. Most of the stem fragments from Church Walk were small and fragmentary, but all appeared to be from long-stemmed pipes and therefore most likely to be no later than the third quarter of the 19th century. However, one fragment from cleaning and machining context 100 and one from fill 191 in well 193 had traces of a brown glaze. Glaze was applied to the mouthpiece end of some

pipes. A lead-based glaze was popular throughout the 19th century but went out of use *c.* 1910. It is therefore possible that these fragments with the brown glaze were as late as *c.* 1910.

Summary and conclusions

The clay tobacco pipe assemblage from Church Walk was a small but interesting group, ranging from the 17th-century English Civil War period bowl (Fig. 41, No. 1) through the 18th century with the ring and dot marked bowl (No. 2) and the burnished bowl fragment and marked SCORA stem; and to the mid-19th-century SHARRATT bowl (No. 3). The 17th-century bowl was probably intrusive in an earlier feature, but the decorated bowl sheds light on mould-making practices during the 19th century. Very little is known about the mould makers themselves, so it is interesting to note the similarities between a local maker's products, Sharratt of Doncaster, with the products of Leigh of Chichester. The same specialist mould maker must have supplied both of these moulds. This suggests that by the 1840s, mould makers supplied moulds to pipe manufacturers all over the country, marking a weakening of the strongly regional pipe styles that emerged and developed over the previous two centuries. This was an early example of two such similar moulds from so far apart, although it is unfortunate that for the time being at least, the individual responsible for making these two moulds remains unidentified.

Mortar and plaster by D. Bostwick

All fragments of plaster were examined and are described below.

Catalogue

1 This was a tiny fragment of medieval lime plaster of fine quality, with no visible aggregate or hair additives. There was no visible smooth surface to identify a likely context, other than this may have been a piece of intermediate plaster applied over a backing layer, itself overlain by a surface layer. *Ditch 325; fill 149; Phase 2*

2 This large lump of post-medieval plaster had a surface layer, quite easily visible, about 10mm thick coated with layers of creamy-white limewash, as with the sample in 256(b) below. The backing plaster was extruded between a riven oak lath (impression on reverse) and stone or brick. The curvature of the surface plaster face was caused by hand-pressure of the plasterer's float, and usually indicates that a small area was being plastered, as between the timber studs on a timber-framed building. Perhaps this piece was from a stud wall with lath and plaster infill. The backing layer of plasterwork ceilings in the 16th century onwards normally contained significant amounts of cow hair as a binding material – this sample contained no visible hair and the plaster 'key' formed by the extrusion was rather larger than is normally found on the reverse of ceilings. *Well 193; fill 191; Phase 4*

3 This was not plaster, daub or cob, but rather appeared to be degraded bone, with a sandy deposit and an iron 'rod' at its centre where it had become detached. This might originally have been a bone-handled tool of some sort. *Pit 206; fill 202; Phase 3B*

4 a) One piece of plaster with reed or straw impression on the reverse. Reed or straw was commonly used in bundles for forming a layer over ceiling joists, in place of riven oak or chestnut lath, onto which a screed of 'lime ash' could be spread to make smooth plaster floors. On the underside such reed or straw, visible between the ceiling joists, could then be plastered and the whole ceiling, joists and all, was given a coat of reflective limewash. This piece of plaster was not thick enough to have come from a lime-ash floor laid over reed bundles, as these were normally at least 40mm thick. It was likely to have come from a ceiling, or from an interior stud wall that had been reeded and plastered. The plaster consisted of two layers – the top or finish coat consisting of a creamy lime plaster about 2mm thick, laid over a coarser backing plaster containing impurities such as coal/charcoal. *Cellar backfill 256; Phase 4*

b) This piece of plaster had the impression of a lath on the reverse. Laths applied vertically were often used to secure the edges of the straw/reed against the vertical oak studs of a wall. This sample had a thin surface coat of fine plaster painted with successive coats of creamy-white limewash. *Cellar backfill 256; Phase 4*

c) The remaining portions of plaster were originally attached to a brick-built wall, as there was evidence not only of brick dust but also of brick impressions on the reverse. Again, the samples displayed a thin surface coating of fine plaster that had been painted with several coats of traditional coloured limewash/distemper in whites, blues, green and pink. *Cellar backfill 256; Phase 4*

5 The smaller piece of plaster in this bag was a piece of backing plaster originally attached to a brick wall, with a finer plaster surface layer 10-20mm thick. This was limewashed before being reskimmed with a thin layer of fine plaster which itself had then been limewashed. This reskimmed layer had broken free of the sample. The larger piece of plaster had evidence of being attached to a reed/straw backing (see also backfill 256, No. 4a). Like that sample, this piece must also have come from a ceiling or stud wall. The plaster appeared to consist of three layers, with a backing layer applied to a reed/straw matrix, then a slightly pinker coarse layer screeded on top of this, then a 20mm thick creamy surface layer applied. This was in turn limewashed several times before another thin skim of fine plaster was added at a later date, which also had layers of surface limewash. *Cellar backfill 256; Phase 4*

6 These samples of Roman period plaster were from Phase 1B beam slot 740. The four smaller pieces were fine quality smooth finish-layer plaster with a grey/white surface. The fifth, and larger, piece was intermediate plaster, judging from the surface, originally between a backing layer and the surface layer. *Cut 740; fill 739; Phase 1B*

7 Environmental and Osteological Record

Carbonised plant macrofossils and charcoal by D. Alldritt

Introduction

A total of 41 flots together with twelve small bags of sorted retent material were examined in order to identify carbonised plant material including charcoal. Samples were taken from a range of features and phases. Interestingly, samples from a number of ovens, including one possibly used for malting, and a series of tanning pits, were also analysed. These may prove useful in establishing the agricultural regimes in practice locally, in particular the varieties of cereals under cultivation, and any changes taking place over time. Most of samples analysed for the purposes of this report were assigned to Phase 3B.

Charcoal fragments of suitable size and preservation were identified in order to establish the range of fuel types in use at the site, with particular relevance to the types of wood used as fuel in the various ovens.

Methods

Bulk environmental samples were first processed by SYAS, with additional processing of some samples by ASWYAS using an Ankara style water flotation system (French 1971). The floating remains (the flot) were collected in a 300μm sieve and the heavy fraction (the retent) was collected in a 1mm mesh. The flot, once dry, was scanned using a low-powered binocular microscope and the results are presented in Appendix 14, Tables 46-48. The retent was scanned by eye for both ecofacts and artefacts by ASWYAS prior to disposal. This included a scan with a magnet to recover any hammerscale present.

All charcoal suitable for identification was examined using a high powered Vickers M10 metallurgical microscope. The reference photographs of Schweingruber (1990) were consulted for charcoal identification. All charcoal was bagged separately by type. Plant nomenclature utilised in the text follows Stace (1997) for all vascular plants apart from cereals, which follow Zohary and Hopf (2000).

Results

Most samples proved rich in carbonised plant remains, in particular cereal grain and weed seeds. The majority produced from <2.5ml to up to 80ml of charred fragments, with one exceptional sample, oven sample 95 (509) containing 500ml of plant material, most of which was oat cereal grain. Oven sample 329 (54) was also notable, producing 80ml of material which included grain and weed counts over 500. Modern root material was also in evidence throughout the samples, but generally scarce at <2.5ml to 15ml in volume. Charcoal fragments were scanned during sorting with up to twenty pieces suitable for identification taken from each flot where possible in order to establish the range of types present.

The samples are tabulated in Appendix 14, Tables 46-48 by phase and context and are summarised below in Table 12. The large number of weed seeds recovered enabled an ecological analysis to be carried out, and based upon descriptions provided by Stace (1997) six separate habitat categories and one miscellaneous category were identified (Table 13).

Discussion

The 41 flots produced large amounts of carbonised material, mainly cereal grain together with a significant range of weed seeds. In addition, the samples contained a good quantity of well-preserved identifiable charcoal, and a small amount of burnt peat, coal/clinker and bone fragments. The majority of remains were recovered from medieval deposits.

Table 12. Summary of cereals and charcoal by Site phase

	1A	**1B**	**1C**	**3A**	**3B**	**3C**	**3D**	**4**
No. of samples	6	2	1	1	25	1	3	2
Carbonised cereal								
Oat: cultivated					22			
Oat: indeterminate	3	2			4296	1	2	
Barley: hulled		10	22		119			1
Barley: indeterminate	6		12		196	2	3	1
Wheat: bread type			10		53	1	3	3
Wheat: spelt type			6		10			
Wheat: indeterminate	3	7			18		3	
Indeterminate cereal	84	24	38	3	1444	10	29	5
Charcoal								
Oak	2 (0.24g)	15 (6.78g)	13 (17.73g)	1 (1.02g)	42 (9.25g)	1 (0.08g)	17 (5.83g)	6 (0.31g)
Hazel			1 (0.23g)		17 (2.98g)		2 (0.74g)	2 (0.43g)
Birch					3 (0.71g)			1 (<0.01g)
Alder					11 (9.98g)			
Willow/poplar			6 (1.51g)		8 (0.78g)			
Blackthorn					1 (0.13g)			

Phase 1

Although samples were analysed from Phases 1A-1C, there were too few were available to discuss each phase individually. Samples dating to the Roman period in general, therefore, produced a small amount of *Avena* sp. (oat), *Hordeum vulgare* var. *vulgare* (hulled barley) and *Triticum spelta* (spelt wheat) and *T. aestivum* (bread wheat) cereal grain in varying states of preservation. These types were common in the pre-Roman Iron Age in Britain, with evidence of their continued use throughout the Roman period, typically with spelt wheat as the dominant cereal (Greig 1991). Here the evidence suggested that barley had a greater role to play than spelt wheat. It was not possible to distinguish grain that had been roasted for use in brewing from grain for general consumption, as no sprouted grains were present.

The recovery of oak charcoal, with lesser amounts of hazel and willow/poplar from sample 11 (171), indicates the cutting of fairly substantial oak woodland as well as the use of lighter, more open woodland edge habitats. Sample 11 also produced the greatest quantity of weeds, in conjunction with the main concentration of barley and wheat. This deposit is indicative of a cereal-processing waste concurrent with remains from a corn drier. The dominance of weeds of wetland environments may indicate the use of wetland environments as an additional fuel source to charcoal, with weeds of *Carex* sp. (sedges) and *Scirpus* (*Isolepis*) *setaceus* (bristle club-rush) suggesting the cutting of peat (Table 13). Oak would have been a preferred fuel for processes such as metalworking, producing a high and sustained heat, but peat would have provided a useful low-level heat for domestic fires and in corn-drying kilns.

Table 13. Summary of ecological groups based on number of weed seeds by phase

	1A	**1B**	**1C**	**3B**	**3D**
No. of samples	6	2	1	25	3
Cultivated plants (non-cereal)/garden types				33 (5 sp.)	
Sandy arable, damp sand, ditches and dunes			2 (1 sp.)	87 (3 sp.)	
Non-sandy arable/waste and disturbed ground	1 (1 sp.)		2 (2 sp.)	1374 (11 sp.)	2 (1 sp.)
Grassland, grassy meadows/pasture	1 (1 sp.)			57 (7 sp.)	2 (1 sp.)
Wetland: aquatic, waterside, marsh and mire (base-rich)		7 (1sp.)	111 (2 sp.)	15 (1 sp.)	
Moors, bogs and heath/dry heath			1 (1 sp.)	14 (2 sp.)	

Cultivated plants (non-cereal)/garden species: *Brassica* sp. (cabbages), *Prunus* sp. (cherry stone), *Sambucus nigra* (elder), *Lathyrus* sp. (peas), *Vicia* sp. (vetches), Fabaceae (pea family).

Sandy arable land, damp sand, ditches and dunes: *Chenopodium album* (fat hen), *Spergula arvensis* (corn spurrey), *Stellaria media* (chickweed).

Non-sandy arable/waste and disturbed ground: *Fallopia convolvulus* (black bindweed), *Polygonum aviculare* sl. (knotgrass), *Polygonum arenastrum* (equal-leaved knotgrass), *Persicaria lapathifolia* (pale persicaria), *Fumaria* sp. (fumitories), *Galium aparine* (cleavers), *Galeopsis tetrahit* (common hemp-nettle), *Lithospermum arvense* (field gromwell), *Chrysanthemum segetum* (corn marigold), *Chrysanthemum coronarium* (crown daisy), *Anthemis cotula* (stinking chamomile).

Grassland, grassy meadows/pasture: *Prunella vulgaris* (selfheal), *Silene* sp. (campions), *Plantago lanceolata* (ribwort plantain), *Lapsana communis* (nipplewort), *Bromus* sp. (bromes), *Cirsium* sp. (thistles), Small Poaceae (grass family), Large Poaceae (grass family).

Wetland: aquatic, waterside, marsh and mire (base-rich): *Scirpus* (*Isolepis*) *setaceus* (bristle club-rush), *Carex* sp. (sedges).

Moors, bogs and heath/dry heath: *Calluna vulgaris* (heather), *Danthonia decumbens* (heathgrass).

Miscellaneous: *Ranunculus* sp. (buttercups), *Rumex* sp. (docks), *Polygonum* sp. (knotgrasses), Asteraceae (daisy family).

Phase 3

Although samples from Phases 3A, 3C and 3D have been included in the analysis (Tables 47-48), too few samples were available and the resulting environmental remains too meagre to warrant further study. In contrast, Phase 3B deposits were much more extensively sampled and produced abundant carbonised plant remains, with evidence for cultivation of hulled barley, bread and spelt wheat (Table 12), primarily on non-sandy arable land, although some evidence for sandy arable land was also indicated by the weed flora (Table 13). The dominant cereal identified from these samples, however, was oat, with recovery of *Avena* sp. far outweighing the presence of the other cereal types. Indeed, a number of very well preserved grains were found which still had the floret bases and glumes attached, allowing the identification of *Avena sativa* (common or cultivated oat). This is important as it shows oat was grown as a crop in its own right and was not occurring merely as a weed of another crop.

The largest quantities of oats were recovered from ovens 565 (fills 329, 435 and 482) and 566 (fill 509). From oven 565, high numbers of barley and traces of bread wheat were also recovered, and a mixed cereal economy with a heavy reliance upon oat is indicated. The oven was probably multi-purpose with the recovered plant remains reflecting a number of drying episodes occurring over time. The fuel used is likely to have been oak with some birch. If its sole purpose was for malting one would expect predominantly barley or wheat grains, with at least some sprouted grains, of which there were none. In contrast, fill 509 of oven 566 produced almost 3000 oat cereal grains, with a small number of these still enclosed within the floret indicating the cultivated or common type of oat. Trace amounts of poorly preserved barley and cf. wheat were present, but in such small amounts as to lead to the conclusion that

this was primarily an oat-drying oven. A few weeds of non-sandy arable land were also recovered. The recovery of hazel charcoal from fill 509 may indicate the main source of fuel for this particular oven.

Analysis of the weed ecology from Phase 3B produced a large amount of agricultural indicator weeds, dominated by non-sandy arable types (Table 13), which would be concurrent with an oat crop grown on rougher, perhaps more marginal agricultural land, or in very grassy/weedy fields. Grassland or pasture weeds were also present in small amounts. Large amounts of *Chrysanthemum segetum* (corn marigold), indicating very weedy fields, were recorded mainly from the oven 565 (fills 329, 435 and 482). This was considered a particularly noxious weed of cornfields during the medieval period, with an enactment for its destruction made by Henry II in the 12th century (Mabey 1996: 374). A small amount of *Anthemis cotula* (stinking chamomile) suggested heavy clay soils, more suited to oat cultivation than to wheat crop. The sandy arable weeds may be indicative of the type of land utilised for wheat and barley crops. Other seeds from this phase suggested the use of resources from both wetland and dry heath habitats, perhaps indicating the cutting of peat or heathy turves.

Importantly a small number of non-cereal cultivars or possible garden species were identified, including *Vicia* sp. (vetches), *Lathyrus* sp. (peas), Fabaceae (pea family) and possibly also *Brassica* sp. (cabbages). None of these types appeared in the earlier phases at the site, and some (such as the vetches) may have been cultivated for animal fodder in addition to human consumption.

Charcoal fragments from this phase were identified as mostly *Quercus* (oak), with smaller amounts of *Alnus* (alder), *Salix/Populus* (willow/poplar), *Corylus* (hazel), *Betula* (birch) and *Prunus spinosa* (blackthorn). As with the Roman period, oak, willow and hazel are the main woods being exploited, although the presence of alder and birch suggests an increase in the use of open scrub areas, perhaps the edges of bog or moorland. Blackthorn also suggested open scrub areas or perhaps hedgerows.

Phase 4

Two samples from post-medieval pits 128 and 507 contained scant trace evidence for barley and cf. bread wheat, no weed seeds, and small fragments of oak, hazel and birch charcoal. Fill 101 of pit 128 also produced over a thousand non-carbonised elder seeds, indicative of modern contamination.

Conclusions

The samples indicate that hulled barley and bread wheat with small amounts of spelt wheat were utilised during the Romano-British phases. It is perhaps a reflection of regional variation that spelt wheat does not dominate the Roman assemblage. The medieval phases saw a reduction in the importance of barley and wheat and an expansion into possible fodder

production with very large amounts of oat cereal grain recovered from the ovens. Vetches and legumes were also grown and may have had a duel purpose as animal and human food. Barley and bread wheat continued to be recovered throughout the medieval period and probably formed the staple cereals for human consumption. The transportation of large amounts of agricultural produce throughout the countryside is attested by the presence of both sandy and non-sandy arable weeds in these deposits, in particular from the medieval phases. Oats were most likely grown on the heavy clay and rougher grassy fields, while wheat and barley would have preferred lighter more fertile arable soils.

Analysis of the charcoal remains has shown the use of oak woodland, with lighter more open areas supporting hazel and willow/poplar woods during the Romano-British period. The use of similar woodland resources occurred during the medieval period, as well as the use of wider habitats, including alder and birch from scrub or peat/heath land edges. The cutting of peat or heath for fuel is also indicated indirectly by the presence of abundant weeds of wetland and dry heath during the Romano-British period, and directly by the combination of weeds and burnt peat fragments from the medieval samples.

Biological remains by D. Jaques and J. Carrott

Introduction

Five bulk sediment samples ('GBA'/'BS' *sensu* Dobney *et al*. 1992) were submitted to Palaeoecology Research Services Limited (PRS), County Durham, for an assessment of their bioarchaeological potential.

Methods

Sediment samples were inspected in the laboratory and their lithologies recorded using a *pro forma* sheet. Subsamples were taken and processed following the techniques of Kenward *et al*. (1980) for the recovery of plant and invertebrate macrofossils. Before processing the subsamples were disaggregated in water and their volumes recorded in a waterlogged state. Plant and invertebrate remains in the processed subsample fractions (residues and washovers) were recorded by 'scanning' using a low-power microscope; identifiable taxa and other biological and artefactual components being listed. The residues were mostly mineral in nature and were dried and weighed before recording. Each sample was also examined using the 'squash' technique (Dainton 1992) to assess the presence of any eggs of intestinal parasitic nematodes, pollen and diatoms, which were noted if present. The assessment slides were scanned at 150x magnification with 600x used where necessary.

Results

The results are presented in phase and context order. A brief summary of the processing method and an estimate of the remaining volume of unprocessed sediment follows (in round brackets) after the sample numbers.

Phase 1A: Early Roman (1st to 2nd centuries AD)

Deposit 591 (primary fill of cess pit 441)

Sample 117/T (2.1kg/2 litres) was sieved to 300 microns with washover and microfossil 'squash'. Dry, mid orange, unconsolidated to crumbly, clay silt (to silty clay), with stones (2 to 6mm and over 60mm) and ?charcoal were present. The tiny washover (~5ml) consisted mostly of fine unidentified charcoal (to 6mm, but almost all to just 2mm), with some small (to 2mm) lumps of undisaggregated sediment and modern rootlets (not charred). The medium-sized residue (dry weight 1.13kg) was mostly stones (to 65mm) and sand. Charcoal (four fragments to 5mm; <1g) and four fragments of unidentified bone (to 12mm; <1g), including two burnt pieces, were present. The microfossil 'squash' subsample was almost entirely inorganic, with just traces of organic detritus and fungal hyphae. No eggs of intestinal parasitic nematodes were recorded. This concurs with the original assessment of three coprolite samples from deposit 591 (McLaughlin 1995), which confirmed that coprolites containing plant fibres and pollen were present, but did not find any parasite ova.

Phase 3B: Medieval (mid to late 12th to late 13th century)

Deposit 266 (primary fill of cess pit 290)

Sample 49/T (2.9kg/3 litres sieved to 300 microns with washover and microfossil 'squash'. Just moist, very light grey brown to light grey, crumbly (working soft), slightly clay silt, with stones (2 to 20mm) and some near black brittle ?mineral concretions present. The small washover (~40ml) was almost all of small ?lime concretions or rotted ?mortar/limestone (to 4mm). There was also a little 'filmy' plant detritus, perhaps including a little moss (cf. Bryophyta), a trace of coal (to 3mm) and a single charred ?wheat (*Triticum* sp.) grain.

The fairly small residue (dry weight 0.63kg) was mostly of sand, concretions (to 40mm; 139g) and mineralised rootlets/rhizomes (to 10mm; <1g), with a little ?slag (to 30mm; <1g), two pieces of charcoal (to 7mm; <1g) and 39 fragments of mostly poorly preserved bone (to 7mm; 1g), fifteen of which were fish bones (to 6mm; <1g). The fish bone included eleven eel (*Anguilla anguilla* L.) and three herring (*Clupea harengus* L.) vertebrae. With the exception of a single bird (probably chicken) vertebra, none of the other fragments were identifiable; most being small and of poor preservation, and some showing possible acid-etching. The microfossil 'squash' subsample was almost entirely inorganic, with a trace of ?fungal hyphae. No eggs of intestinal parasitic nematodes were recorded. An additional 'squash' subsample taken from some of the concretion in the residue was almost identical.

Deposit 563 (primary fill of tanning pit 592)

Sample 111/T (3kg/2l sieved to 300 microns with washover and microfossil 'squash'. The very small washover (~10ml) was mostly small lumps of undisaggregated sediment (to 2mm), with a significant component of fine unidentified charcoal (to 6mm), some coal (to 3mm) and very many poorly preserved (but not charred) elder (*Sambucus nigra* L.) seeds.

The rather large residue (dry weight 1.46kg) was mostly coarse sand, with stones (to 80 mm) and traces of brick/tile (to 15mm; 1g), pottery (two sherds to 12mm; 2g) and ten fragments of bone (to 7mm; <1g) including one herring vertebra (to 2mm; ~1g). The last showed evidence of damage consistent with having passed through the gut (human or animal). There were also three small mammal bones and an additional six fragments were present which included three unidentified fish bones. The microfossil 'squash' subsample was mostly inorganic, with some organic detritus and fungal hyphae. There was also a single rather eroded diatom, but no eggs of intestinal parasitic nematodes were recorded.

Phase 3C: Medieval (early to late 14th to early15th century)

Deposit 167 (fill of tanning pit 251)

Sample 29/T (3kg/3l sieved to 300 microns with washover and microfossil 'squash'. Moist, mid to dark grey brown crumbly to unconsolidated (working soft), slightly sandy slightly clay silt, with stones (6 to 60mm) and some almost black brittle ?mineral concretions present. The small washover (~35ml) was almost all of fine unidentified charcoal (to 9mm), with many elder seeds and some earthworm egg capsules; the last probably modern and intrusive. There was a medium-sized residue (dry weight 0.92kg) of stones (to 40mm) and sand, with trace amounts of pottery (one sherd to 30mm; 10g) coal/cinder (to 20mm; 3g), fine charcoal (to 2mm), shell (including five mussel, *Mytilus edulis* L., fragments to 14mm; 1g), and bone (seventeen fragments to 20mm; 4g). All of the bone fragments were rather poorly preserved, most were less than 10mm in maximum dimension and one was burnt.

The microfossil 'squash' subsample was almost entirely inorganic, with just a trace of organic detritus and a few fungal hyphae. A single observation *may* have been a very decayed *Trichuris* (whipworm) egg, missing the entirety of the outer surfaces and clearly not measurable, but no definite records of eggs of intestinal parasitic nematodes were made.

Deposit 281 (primary fill of tanning pit 293)

Sample 50/T (3kg/2.5litres sieved to 300 microns with washover and microfossil 'squash'. Just moist mid to dark brown to mid to dark grey-brown, unconsolidated, silty sand, with stones (2 to over 60mm) present. The very small washover (~10ml) was composed of approximately equal parts of fine unidentified charcoal (to 8mm) and small lumps of undisaggregated sediment (to 2mm), with some fragments of modern rootlet.

The quite large residue (dry weight 1.46kg) was mostly stones (to 70mm) and sand. There were also two pieces of brick/tile (to 30mm; 8g), one sherd of pottery (to 16mm; 1g), coal (to 15mm; 1g), shell (one fragment to 7mm; <1g) and bone (to 55mm; 7g) including two fish bones (to 3mm; <1g). There was a total of twelve poorly preserved bone fragments, all but one very small (less than 15mm in maximum dimension). Identified remains included a vole (microtine) tooth, two eel vertebrae and a large mammal rib fragment (~55mm). The

microfossil 'squash' subsample was almost entirely inorganic, with a trace of organic detritus and some ?fungal hyphae. No eggs of intestinal parasitic nematodes were recorded.

Discussion and statement of potential

Probable ancient biological macrofossils from the Site were restricted to traces of charred plant remains (mostly fine unidentified charcoal), fragments of fish and mammal bone and very small quantities of marine shell recovered from the sediment samples. No useful concentrations of microfossil remains were recorded.

Acid-etching was tentatively identified on bones from deposit 266, consistent with the interpretation of feature 290 as a cess pit, and the primary fill (563) of tanning pit 592 produced a single herring vertebra which appeared to have passed through the gut of a human or animal, which might imply some faecal content to this deposit too, although the damage observed may have been caused in some other manner. In general, however, the ancient biological remains were too few to be of any interpretative value and had no potential for providing further archaeological, archaeozoological or ecological information.

Human bone by M. Holst and S. Boulter

Human skull fragments were recovered from fill 416 of ditch 325. Three fragments of (probable) human bone and a fourth fragment were recovered from a service trench excavated by Murphy's workers next to the Site. All the fragments were from adult skeletons, and while none can be sexed with a high degree of certainty, the skull fragments from cleaning context 100 were probably part of a male skeleton. No pathology was observed on any bones.

All the stratified finds of human remains were of isolated, disarticulated skeletal elements. In addition, two of the fragments were recovered from cleaning context 100 and were probably redeposited/residual. It was not known whether the unstratified human arm bone recovered from the Murphy's pipe trench was part of an articulated burial disturbed by these works, and the research potential of the human remains was thus minimal.

Methodology

For age estimation, as no teeth or pelvic elements were present the remains could only be assigned to the broad age category 'Adult' by macroscopic methods. In addition, ectocranial suture closure was assessed using standards determined by Meindl and Lovejoy (1985), although wide variation in the sequence and timing of suture closure from individual to individual means that this is one of the most imprecise methods of skeletal age estimation.

A sex determination of '?Male' for human remains from context 100 was based on cranial morphology, 'male' versus 'female' traits being detailed elsewhere (e.g. Steele and Bramblett 1988; Ubelaker 1989; White 1991). In sex determination as in age estimation, a lack of pelvic elements means that a high degree of certainty is not possible, and typical accuracies for adult

skeletal remains are 95-100% using whole skeletons, 90-98% using pelvis alone, but as low as 80% using the skull alone.

All the human remains were disarticulated, and as such could be treated in the same way as an assemblage of faunal remains in the calculation of a minimum number of individuals (MNI). Although no skeletal element was repeated (giving MNI = 1), the spatial separation of the finds meant that they were far more likely to represent somewhere between one and four individuals than to derive from a single individual.

Table 14. Human bones by context

Context	Element	Age	Sex	Side	Path
100	femur midshaft	Adult	?	?	-
100	Cranium frontal	Adult	M?	Midline	-
416	cranial vault frags	?Adult	?	?	-
U/S	distal humerus	Adult	?	L	-

Catalogue

1 Probable human midshaft femur fragment (does not correspond with any known faunal morphology). Mid 100mm length of diaphysis: lack of anatomical landmarks/small size of fragment precludes siding/estimation of stature. Preservation very good although periosteum degraded/abraided. Age: ADULT. Sex: ? (midshaft circumference = 83mm, but without (site-specific) comparative data sex cannot be determined from this information alone). *Pit 128, fill 101, Phase 4*

2 Near complete frontal bone of cranium. Preservation excellent: bone has fresh, waxy appearance/texture and is light in colour (soil conditions or relatively recent burial?). Age: ADULT. Coronal suture is only partially fused giving a broad age range of around 25-55 years (midcoronal point <50% closed = 42.6 (s.d. 11.3 yrs), bregma open = 33.6 (s.d. 10.4 yrs) or <50% closed = 43.7 (s.d. 12.0 yrs), based on Meindl and Lovejoy 1985). Sex: ?MALE based on cranial morphology (masculine traits include pronounced glabellar region, fairly pronounced supraorbital ridges, rearward inclination of forehead) although overall size/shape are fairly small/gracile. Non-metric traits: Supraorbital foramen present L side, absent R side. Supraorbital notch present R side, absent L side. No metopic suture. Ossicles not observable. *Cleaning layer 100; Unstratified*

3 Probable human cranial vault fragments (two conjoining) - probably parietal. Preservation very good, ectocranial surface slightly abraided. Age: ?ADULT. Sex: ? *Ditch 325, fill 416; Phase 2*

4 Left humerus, distal two thirds of bone. Condition very good. Age: ADULT. Slight (?age-related) lipping of joint surfaces of elbow (trochlea/capitulum) suggests a prime/mature adult rather than a young adult. Sex: ? (although very pronounced muscle attachments, particularly for triceps and pectoralis major, suggest a possible male – also suggested by overall large size and robusticity. Midshaft circumference = 75mm, bicondylar breadth = 64mm). *Unstratified*

Animal and fish bone by J. Richardson and D. Jaques

Introduction

A total of 6444 bones were examined from the Church Walk excavation, following the exclusion of bones from unstratified deposits (including 'cleaning' layers) and from deposits for which no context record survives. Of these, only 2317 were fully recorded as bone zones – 125 (5%) from Roman deposits, 924 (40%) from medieval deposits and 1268 (55%) from post-medieval deposits. Also included here are 36 fish bones recorded by Deborah Jaques of PRS. All the fish remains were recovered from sieved sediment samples with the exception of vertebrae from Phase 4 pit 166 which were identified and collected during the excavation.

Methods

Animal bones were identified to taxon wherever possible, although lower-order categories were also used (e.g. sheep/goat, large-size mammal). The separation of sheep and goat bones was routinely attempted, using the criteria of Boessneck (1969) and Payne (1969, 1985), but as so few goat bones were identified, sheep/goat bones were assumed to be of sheep.

Recording was limited to diagnostic element zones, which by definition are easily identifiable and non-reproducible. This eliminated the possibility of recording an anatomical zone more than once. Only zones exceeding 50% were normally recorded, although exceptional cases (butchered, pathological and foetal/neonatal fragments) were included (as less than 50% complete). All loose teeth were also noted (again as less than 50% complete). All recorded bones were entered onto an Access database, held with the Site archive.

For age-at-death data, epiphyseal fusion (after Silver 1969) and the eruption and wear of deciduous and permanent check teeth were considered. Dental eruption and wear for cattle, sheep and pig were recorded using the letter codes of Grant (1982) and age stages were calculated using Halstead (1985) for cattle, Payne (1973) for sheep and a similar wear progression was assumed for pig. The sexing of the cattle and sheep populations was achieved with reference to the sexually dimorphic distinctions of the pelvis (after Prummel and Frisch 1986, 575), while the sexually dimorphic tusks of pigs were noted.

Bone condition, erosion, fragment size and fresh breaks were recorded in order to assess bone preservation, while gnawing, burning and butchery marks were noted to determine bone treatment. Butchery was routinely differentiated into chop and cut (knife) marks and the position and direction of these marks were recorded using Binford-type codes (Binford

1981). Finally, pathological bones were described and biometrical data were recorded following the standards given by von den Driesch (1976) and von den Driesch and Boessneck (1974). These data are produced in Appendix 15.

Fish remains were examined and semi-subjective, non-quantitative data were recorded for the material from each context regarding the state of preservation, colour, and the appearance of broken surfaces ('angularity'). Other information such as butchery marks, gnawing, fresh breakage and burning was noted where present. Fragments were identified to species or species group using the modern comparative reference collection of PRS.

Results

Taphonomy

A minority of contexts contained bones that were heavily eroded, probably representing disturbed deposits containing redeposited material. Mixing of occupation debris was inevitable on a stratified urban site such as this. This was confirmed by the presence of both Roman, medieval and/or post-medieval pottery and small finds from the same features. As a result, interpretations of the bone data by phase should be treated cautiously and instead the emphasis is placed on the analysis of animal bones believed to represent primary deposits, such as articulated bones or deposits dominated by a particular body part.

Table 15. Animal bone preservation and treatment by phase

	Roman	Medieval	Post-medieval
Size index	0.23	0.30	0.44
Condition index	0.76	0.95	0.98
Erosion index	0.73	0.91	0.97
% butchered	11.2	10.0	16.2
% gnawed	3.2	7.3	7.1
% burnt	-	0.1	0.2

For size, condition and erosion index, values closer to 1.0 indicate more complete/better preserved bones

Otherwise, the Church Walk bone assemblage was generally well preserved with few eroded bone surfaces, facilitating the identification of butchery and gnawing marks. The bones tended to be fragmentary though, and this reduced the number of bones that were identifiable as zones and that could be measured. Bone condition varied greatly by phase with bones from Romano-British features more fragmented, in poorer condition and more heavily eroded than those in later deposits (Table 15). The post-medieval bones were typically the best preserved,

probably due to the rapid burial of waste bones from more specialised 'industrial' activities (see below). During the Roman period, dogs were either less common or had less access to bones than in subsequent phases, although if some of some of the contexts were associated with the Roman army than dogs may have been scarce within forts. The prevalence of butchered bones was higher during the post-medieval period. The poor preservation of Romano-British bones reduced the usefulness of this very small assemblage still further.

Taxa present

Presenting bone numbers from Church Walk by sub-phase (Table 16) highlights the paucity of the available data, particularly given that the number of bone zones fell well below the minimum reliable sample size of around 500 (with reference to a number of statistical parameters) (van der Veen and Fieller 1982: 296) on all but two occasions. In the analyses presented below therefore, the data were assigned to one of three broad phases – Romano-British, medieval and post-medieval. Even so, the Romano-British assemblage was too small to be statistically significant and after a brief description below, is not considered further.

Analysis of the proportions of taxa by phase indicated that cattle were dominant in Romano-British deposits and thereafter apparently decreased in significance (Tables 16-17). In contrast, the proportion of sheep increased, largely due to the recovery of possible tawyer's waste from post-medieval pits (see below). Relatively high proportions of both pig and cat bones were noted from medieval features, including at least four partial cat skeletons, two from well 656. The presence of domestic birds was limited to a single duck bone, with no other poultry identified. Fish bones were exclusive to medieval and post-medieval deposits.

Romano-British assemblage

The Romano-British assemblage was dominated by cattle (66%) with much lower proportions of sheep and pigs (Table 17). Goat was represented by a single horn core, horse by one tooth and dog and cat by post-cranial bones. High cattle percentages have been noted for Roman sites in Doncaster and across northern England (King 1991; Richardson 2004; Turner 1986: 204). The range of body parts of cattle, sheep and pigs and the butchery of some of their bones suggest the assemblage represents food waste. Adult and sub-adult cattle, sheep and pigs were noted; the sub-adults animals probably slaughtered specifically for meat.

Medieval assemblage

The medieval assemblage was still dominated by cattle bones (36%), but to a much lesser extent than during the Roman period, while sheep, horse and cat bones were more prevalent (Table 17). The latter is due to the remains of four carcasses, one each in pits 107 and 185, and two in well 656. There was no evidence that these cats had been skinned, unlike examples from York (O'Connor 2003: 3233) and Cambridge (Luff and Moreno García 1995: 104). The majority of goat bones were horn cores, but post-cranial elements were also noted. A diet of beef, lamb/mutton and pork might have been supplemented by goat meat, while the

presence of red deer, fallow deer and hare bones suggests that very occasionally game was available. Fish bones were also noted for the first time. It is unlikely that horses, dogs or cats were consumed from any phase due to cultural prohibitions, but while no dog or cat bones were butchered, a few horse bones had been modified. From medieval deposits, a horse metatarsal had been worked, perhaps into an ice skate (Phase 3B pit 111, Plate 27) (see MacGregor 1976), while an atlas vertebrae (Phase 3D pit 162) displayed cut marks indicative of dismemberment. The latter might have represented carcass reduction to facilitate disposal or feeding to dogs, rather than consumption by humans.

Table 16. Taxa/species present by sub-phase

	1A	1B	1C	3B	3C	3D	4
Cattle	56	24	3	221	63	45	365
Horse		1		32	5	18	7
Sheep		2		24	21	11	648
Sheep/goat	11	1	1	76	26	13	68
Goat	1			10	3		
Pig	10	3	2	60	27	12	27
Dog	1	1		5	1		3
Cat	1			18	84	1	61
Red deer				3		1	1
Fallow deer					1		
Deer sp.				1			
Hare						4	
Rabbit							2
Large-size mammal	2	1	2	36	6	6	62
Medium-size mammal				3	3		4
Small-size mammal	2			13	8	3	16
Microfauna				5	16	1	
Amphibian (frog/toad)						3	
cf. Domestic duck				1			
Bird spp.					1		
Clupea harengus L. (herring)				6	4	2	
cf. *Clupea harengus* L. (?herring)						2	

	1A	1B	1C	3B	3C	3D	4
Anguilla anguilla (L.) (eel)				9		3	
Gadidae (cod family)				4			
Gadus morhua L. (cod)							3
cf. *Rutilus rutilus* (L.) (?roach)				1			
Unidentified fish				2			
Crab (claw)							1
Total	84	33	8	530	269	125	1268

Table 17. Proportion of taxa by phase

	Roman	Medieval	Post-medieval
Cattle	66%	36%	29%
Horse	1%	6%	1%
Sheep (and sheep/goat)	12%	18%	56%
Goat	1%	1%	
Pig	12%	11%	2%
Dog	2%	1%	<1%
Cat	1%	11%	5%
Red deer		<1%	<1%
Fallow deer		<1%	
Deer sp.		<1%	
Hare		<1%	
Rabbit			<1%
Large-size mammal	3%	5%	5%
Medium-size mammal		1%	<1%
Small-size mammal	2%	3%	1%
Microfauna		2%	
Amphibian (frog/toad)		<1%	
cf. Domestic duck		<1%	
Bird spp.		<1%	
Fish spp.		3%	<1%
Crab (claw)			<1%

The fish remains from Church Walk were primarily marine species or eels, which migrate between freshwater rivers and streams and the sea. The small collection of fragments included the remains of Gadidae, herring and eel. A single fragment from Phase 3B pit 231 was identified as a cyprinid (carp family), possibly a roach – this is a species which is ubiquitous in all types of freshwater ponds and rivers, and was frequently 'farmed' in stocked ponds during the medieval period, although typically only the upper classes such as the aristocracy and clergy had access to these. Few skeletal elements other than vertebrae were represented, and the remains were probably waste from domestic refuse or consumption.

The fish remains were very typical for urban deposits of medieval date, as at Walmgate in York (Hall *et al*. 2002) and Blanket Row, Hull (Carrott *et al*. 2001). Herring and to a lesser extent eel were a mainstay of the medieval diet, and were cheap and easy to obtain (Locker 2000). Their remains, especially the more robust skeletal elements such as vertebrae, are frequently recovered from cess pits derived from faecal material. This is likely to be their origin here, particularly in the case of the material from cess pit 290. The single fragment representing a ?roach is worthy of comment. During the medieval period, freshwater fish were typically the preserve of the nobility. Maintenance and access to natural resources such as rivers, streams and pools was often in the hands of wealthy landowners or religious institutions and the supply of freshwater fish was carefully controlled (Dyer 1988). This fragment may hint at high status occupation in the area, although, it must be borne in mind that the very small size of the fish assemblage limits its interpretation considerably.

The range of body parts present for cattle and sheep indicate that these animals were likely to have been slaughtered and consumed locally during the medieval period, hence the presence of low-utility parts such as skulls and feet, as well as meat-rich joints. Given that neither horn cores/skulls nor hooves dominated the medieval deposits (Appendix 15, Table 49), it appears that waste typically associated with tanners, tawyers or horn workers was not present. This is somewhat given the interpretation of many of the medieval features as tanning pits. The most convincing bone evidence for the working of skins and horns was from the post-medieval period when tanning on the Site may have been in decline, based on the smaller number of tanning pits. One likely explanation is that during the long use of the Site as a tannery, periodic removal of bone debris was required. Certainly, legislation was passed to control the build up of carrion and bones at tanneries (Thomson 1981: 162), so it was probably not until the final phase of use that industrial bone debris was allowed to accumulate (see below).

Epiphyseal fusion data for cattle, sheep and pigs indicated that sub-adult and adult animals were present, although the husbandry of these animals varied (Appendix 15, Table 50). Greater proportions of cattle were maintained to adulthood, sheep were more likely to be killed earlier in adulthood, while pigs, bred exclusively for their meat, were usually slaughtered when a maximum weight had been gained in relation to the food consumed, typically in their second or third year. This compares well to the slaughter patterns observed on other Doncaster sites (e.g. Smith and Halstead 1989: 438).

In the urban context of medieval Doncaster, sheep and cattle would have been raised on fields beyond the town and driven to market on the hoof. In contrast, pigs might have been kept within Doncaster on a household basis in backplots and yards as a means of converting kitchen waste into useable protein. This might be supported by the recovery of six neonatal pig bones from medieval deposits compared to single neonatal bones for cattle and sheep. Dental eruption and wear data confirmed the presence of some younger animals, whilst it is clear that other, older livestock were only sent to market once their usefulness as breeding stock or their productivity in terms of milk, fleeces or traction was exhausted (Tables 51-53). Unfortunately, it was not appropriate to compare the age data from medieval and post-medieval deposits as residuality on the Site was a significant factor (see Cumberpatch above), and the medieval and post-medieval deposits differed greatly in their composition – the former were largely domestic, the later predominantly industrial (see below). Sex data, regardless of phase, were too scarce for interpretation.

Metrical data from medieval deposits was relatively scarce compared to the data collected from the industrial deposits of the post-medieval period. A comparison of cattle astragali from medieval versus post-medieval deposits revealed that animals tended to be larger (taller) in the post-medieval period, although data from other elements was less conclusive (Appendix 15). A comparison of sheep humeri and metatarsals hinted at a similar increase in size (breadth), but again this observation is based on only a few medieval bones. Given the problems of residuality, little weight should be placed on these possible increases in size.

Pathological bones were relatively rare and this suggests that the livestock was largely healthy. Congenitally absent second premolars (see Andrews and Noddle 1975) were noted on two sheep mandibles from medieval deposits (10.5% of mandibles), compared to no examples from the nine post-medieval mandibles. Similarly, the congenital reduction of the third cusp of the third molar was noted on three out of 24 medieval cattle mandibles (12.5%) but on none of the five post-medieval examples. Perhaps these abnormalities were absent in the animal populations by the post-medieval period. If so, their disappearance occurred much later here than was observed for Roman and medieval Exeter (Maltby 1979: 40).

Post-medieval assemblage

From post-medieval deposits, sheep bones dominated the faunal assemblage at 56%, while cattle bones continued the decline first noted in the medieval period (Table 16; Appendix 15, Table 49). Both pig and horse bones became scarce, while the relatively high proportion of cat bones is due to the remains of most of one individual in well 193. Game species were rare, with the presence of only one red deer limb bone and two rabbit limb bones. The size of the three cod vertebrae from pit 166 and the evidence of possible chop marks suggest that these remains were from processed fish that had been dried or salted and then imported to the Site, rather than being remains of fresh fish. This is further evidence for coastal and North Sea trade (see Cumberpatch above).

Bone deposition as a by-product of domestic consumption seems to have been a relatively scarce occurrence during the post-medieval period. Instead, the majority of bone appears to have derived from industrial contexts, dominated by sheep foot bones and cattle horn cores (Table 49). Butchery marks indicated some meat consumption, and there were filleting marks to cattle and sheep-sized ribs, but most butchered bones seem to have related to tanning/tawying and horn working (see below). A butchered horse metatarsal and axis were indicative of carcass reduction, but again human consumption need not be inferred.

Age data was limited, largely as the bone groups were dominated by only a few elements from industrial processes. Very few juvenile cattle were indicated, although a few sub-adult animals were apparently consumed (Appendix 15, Table 51). Sheep mandibles were rarely recovered, but the few present represented a range of ages from infant to old animals (Table 52). In contrast, fusion data for sheep was commonly observed due to the recovery of so many metapodia (foot) bones (Tables 49, 54 and 55). As these were considered to be a by-product of industry, they may say more about the skins available to the tawyer than they do about food consumption (see below). Of the first and second phalanges, which fuse between six and sixteen months, 163 (75%) were fused and 53 (25%) were not fused. Of the metapodials, which fuse later, 146 (59%) were fused and 103 (41%) were not fused. Clearly, supple, high-quality skins from sub-adult animals were available for working.

Like the bones from medieval deposits, post-medieval bones showed few signs of trauma or disease. Skull fragments were often still attached to the cattle horn cores, and perforations to the posterior portion of crania were noted on at least nine individuals. The latter have been related to possible yoking (Ryder 1970: 424-425) or alternatively the result of congenital traits (Brothwell *et al*. 1996: 484). However, recent observations of similar perforations on a wild bovid appear to exclude the yoking hypothesis (Manaseryan *et al*. 1999: 75). Another commonly observed bone change, albeit poorly understood, is anterior buttressing to sheep metatarsals (Brothwell *et al*. 2005). From pit 507, eight metatarsals (4.3%) displayed a ridge of bone on the proximal anterior shaft, seven medially and one laterally.

Of most significance for the post-medieval phase was the identification of industrial, bone-rich deposits. These were identified from the following features:

- Pit 128 contained cattle horn cores within a lime-rich fill (fill 101);
- Pit 166 included cattle horn-cores within fill 109, although as this pit cut through fill 101 these horn-cores might be residual in this later feature;
- Timber-lined pit 507 was dominated by sheep foot bones within fills 504 and 532. These fills also contained lime.

As the horn cores from pit 166 were probably part of an earlier deposit once contained within pit 128, these two fills were considered together. In total, a minimum number of 235 horn cores was identified, of which 130 displayed chop marks, typically though the skull as

described by Armitage (1990: fig. 1a, 1b), and three displayed cut marks to the skull perhaps indicative of skinning rather than horn removal.

An important question is whether the horn cores represented the waste from a horn worker or a tanner. The answer hinges on which bones were left attached to the skins. Historically, though somewhat unhelpfully, it appears that horns, feet or both were often left attached (Serjeantson 1989: 136; Thomson 1981: 162). The presence of water-tight pits is also common to both the horn working and tanning industries and cannot necessarily be used to differentiate the two. Given the similar requirements, however, it would make sense to site the two industries in the same location (Shaw 1984: 244). Luff (1994: 189) suggests that if horns accompanied the skins on to site that equal numbers of left and right horns should be anticipated. From deposit 101/109, 118 left and 114 right horn cores were identified so skins are a possibility. Meanwhile, undisputed evidence for tanning (pits, lime, oak bark, hides and horns) has been identified in Bruges, Belgium (Ervynck *et al*. 2003: 60). There, distal limb bones were absent (Ervynck *et al*. 2003: 67), while at Church Walk they were scarce (Table 49). Three possibilities thus remain – a horn worker was located here with the cores as waste; a tanner was present and the horns were the un-utilised by-product; or both a tanner (receiving skins with only horns attached) and horn worker were resident.

The cattle horns at Church Walk were classified according to length (Armitage and Clutton-Brock 1976: 331) and all post-medieval adult (non-porous) examples are detailed in Graph 29. These indicate a preponderance of medium and long-horned animals that would have offered larger pieces of workable horn than small or short-horned varieties. Horn is a plastic material widely used in the medieval and post-medieval periods for button, comb and handle manufacture. Certainly horn had a commercial value under the Laws of Ine (*c*. AD 688-694) and the craft was recognised by the formation of guilds (MacGregor 1991: 364, 370).

In addition to horn core length, further measurements and observations were noted in order to assess the sex of the cores (see Armitage and Clutton-Brock 1976: 332). Plotting outer curvature (length) against the basal circumference did not reveal any clear separation of cows, bulls and oxen (Graph 30), but significant overlap between these categories is not surprising particularly given the presence of short, medium and long-horned varieties.

Possible tawyer's waste was identified in pit 507 (fills 504 and 532) in the form of sheep metapodials and phalanges – 152 metacarpal zones, 184 metatarsal zones, 159 first phalanges, 62 second phalanges and 49 third phalanges. During the late medieval and post-medieval periods, the heavy leather trade of the tanner (who dealt exclusively with cattle skins) and the tawyer (who processed the skins of sheep, horses and deer) were normally kept quite separate and each was forbidden to work on skins associated with the other's trade (Cherry 1991: 299; Dobney *et al*. 1996: 29).

While deposits with a high proportion of foot bones (metapodials and phalanges) might indicate primary butchery, the industrial features such as the clay and timber-lined pits reinforced the likelihood that skins were processed at Church Walk. The presence of lime in

pit 507 was also potentially indicative of the skinning industries as it was used as an alkaline liquor to speed up the removal of hair (Cherry 1991: 296). Similar evidence of numerous sheep metapodials and phalanges have been identified from medieval and post-medieval sites in Doncaster (Sites DCH and DT 72, Smith and Halstead 1989: 439-440), late medieval 1-5 Aldwark, York (Bond and O'Connor 1999: 368-369) and post-medieval Walmgate, York (O'Connor 1984: 36) where skinning has been proposed. Site DT 72 was obviously very close to the Church Walk excavation.

The number of recovered metapodials and their relatively complete state allowed a large body of metrical data to be recorded. Some of the data are summarised in Tables 54-55 to allow for a comparison of length and breadth, although further measurements were taken and are stored with the Site archive. Data from Site DT 72, Doncaster; Walmgate, York and Lincoln are given here for comparative purposes. The mean values for metacarpal and metatarsal length indicated that the animals from Doncaster tended to be taller than those from York and Lincoln, although as the length of adult limb bones is influenced by numerous factors including castration, the greater average length could be accounted for by a greater proportion of wethers in the Church Walk assemblage in particular. Study of the distribution of metapodial lengths from the Askew's Site indicated a skewing towards the lower end of the range with relatively few outlying, tall individuals. The metacarpals from Lincoln in contrast, were on average broader than York or Doncaster, although again the largest examples are from Doncaster and this is reflected in, on average, broader metatarsals. Finally, plotting shaft width (SD) against length (GL) failed to produce any clusters indicative of ewes, rams and wethers (Graph 31). This might indicate that several different types of sheep were drawn into the markets of post-medieval Doncaster, with considerable overlap in the sexes. This is unsurprising given the urban context and the relatively recent date of pit 507.

Conclusions

The Romano-British assemblage was too small for detailed analysis, although superficially it appeared to confirm the hypothesis that cattle-rich deposits may be indicative of the Roman military. Of more significance therefore were the larger medieval and post-medieval bone groups, in association with the contextual evidence for clay and timber-lined pits. The medieval assemblage was probably not 'industrial' in nature, and instead appeared to reflect the diet of those people who lived and worked in that part of Doncaster. Beef, lamb/mutton and pork were only occasionally supplemented by fish, goat meat or by game. Livestock would typically have been driven to market on the hoof, although some pigs were apparently raised within the town boundaries. Given the archaeological evidence for industrial activities in this part of Doncaster during the medieval period, the absence of bone debris associated with the skinning and/or horn-working industries was probably related to routine disposal practices. In contrast, a tawyer and tanner and/or horn worker can be clearly identified by the bone waste recovered from a range of post-medieval features. A 'tanner' is also confirmed by documentary sources relating to tanning and the 'Moot Hall', a building that partly occupied this Site or at least was close by (see Discussion below).

8 Recommendations for Publication

Despite the numerous archaeological investigations undertaken in Doncaster in the past two decades, none have been published as academic archaeological reports to allow the results of these projects to be disseminated and discussed by archaeologists. Indeed, there has been no publication of any of the archaeological investigations in the key part of Doncaster around Church Walk and St George's Minster since 1989 (Buckland *et al*. 1989), and even this volume was actually reporting on the rescue archaeological work carried out during the 1970s. Similarly, although work is now proceeding on writing up the results of 1970s investigations of contexts associated with phases of the Roman fort (P. Buckland pers. comm.; Buckland and Magilton in prep.), without any post-excavation funding this process has been delayed for decades and there is no guarantee that it will appear any time soon.

The results of the extremely important Low Fishergate excavations have to date only been produced as a very basic archive report with few useful illustrations (Lilley 1998), together with a short note on reused boat timbers (Allen *et al*. 2005). Fortunately, work has now begun on preparing a full academic publication (J. McComish pers. comm.), but it may be several years before this appears. Despite the excellent preservation of the buildings and deposits at Low Fishergate and the retrieval of one of the largest and most important medieval ceramic assemblages ever excavated within the region (equivalent to assemblages excavated in York, Hull and Beverley), it is regrettable that this report will only be published in the *Yorkshire Archaeological Journal* rather than the stand-alone monograph the site clearly deserves.

Although the Roman and medieval archaeology of Doncaster is of equal significance to that of centres such as York whose long histories and archaeology are better known and more widely publicised, the town has been poorly served by this lack of academic and popular publication. Despite the tremendous local interest in the history and archaeology in Doncaster, there have not even been any popular publications summarising the past thirty years of archaeological work in the town, and the brief description of Roman Doncaster (Buckland 1986) is now out of date. The excavations at Church Walk recorded archaeological features of considerable local and regional significance, and the pottery assemblage in particular has yielded important new evidence for trade and exchange. Given this significance, and the long delay in completing post-excavation analyses caused by the interruption in funding, it is recommended that the results of the project should now be fully published as an academic report as soon as possible. This publication could either be in the *Yorkshire Archaeology Journal*, or more suitably as a relatively slim and cost-effective stand-alone volume, perhaps in the occasional monograph series of ASWYAS. Additionally, given the marked lack of public dissemination regarding excavations in Doncaster, it is also suggested that the archaeology and artefacts from both the Low Fishergate and Church Walk excavations are combined with some of the results and finds from archives of the earlier 1970s excavations in a well-illustrated popular publication with many colour images and photographs. This could be an expanded and more extensively illustrated version of a more general booklet on Doncaster's archaeology currently in preparation (Pollington in prep.).

9 Discussion

In this following section, certain elements of the Site including individual archaeological features and also some of the artefacts recovered from the Church Walk project are discussed in detail from a more interpretative perspective. This is to place the features and finds within a larger framework of discussion and debate, linking the Site to other sites and assemblages excavated elsewhere in Doncaster, throughout the region and across Britain as a whole.

Ditches 253 and 530

In earlier investigations at Site DV 72, the Phase 1A ditch 253 was interpreted as late Roman in date (Buckland *et al*. 1989: 74, figure 12), a reasonable suggestion given the presence of later 3rd and 4th-century ceramics recorded in the upper fills during the Church Walk excavation. The relatively large and unabraded mid to late 1st and early 2nd-century AD sherds in the primary fill, however, suggest an earlier origin and consequently a longer period of use. *If* ditch 530 was originally linked to ditch 253, this might have formed part of a right-angled ditch within the postulated early phase Roman fort. Ditch 530 may even have been dug alongside a possible road that led out through a north-eastern entrance of the fort. It may be significant that they both produced rather similar palaeo-environmental evidence.

The defensive ditch of the early fort itself is thought to have been on the line of Greyfriar's Road and High Fishergate (Buckland and Magilton 1986: 24, figure 3). In the foundation trench for a brick wall being constructed along the pavement edge on Greyfriar's Road, the 'base of a ditch of the large Flavian fort' (Buckland *et al*. 1989: 75) was recorded at the extreme south-eastern end of Site DV 72, although as the Roman fort remains from Doncaster were treated separately and remain unpublished, it is not clear what evidence there is for this proposed date. Nevertheless, a ditch on this alignment was recently investigated in several sections at High Fishergate, where it had been severely truncated by the basement of the former Kwiksave supermarket building (Chadwick and Lightfoot 2007). No finds were recovered from this feature, however.

Post-hole/pit 645

The fill (562) of Phase 1A post-hole/small pit 614/645 contained an enamelled seal box lid (Cool, No. 26), a linch pin (No. 28), a glass vessel fragment (No. 20) and pottery sherds. It is possible that this unusual collection of objects may have been deliberately placed in this feature as a structured or 'placed' deposit. Evidence for similar forms of depositional practice elsewhere is increasingly being recognised as having been an important aspect of Roman and Romano-British life, and part of much wider social beliefs (q.v. Chadwick 2004; Fulford 2001; Woodward and Woodward 2004).

Post-hole 497 and the dragonesque brooch

If post-hole 497 was medieval in date and the medieval pot it contained was not intrusive, then the dragonesque brooch also found within it could merely have been accidentally re-

incorporated into this later feature. Such a distinctive object would surely have been recognised though. It may thus have been a found and curated item that was either lost once more, or perhaps deliberately deposited in the post-hole as part of a medieval good luck or apatropaic practice. Alternatively, if this post-hole was in fact a Romano-British feature, then the deposition of this brooch could be linked to wider patterns of deposition during the period and across the region (e.g. Chadwick 2004). Dragonesque brooches are particularly interesting artefacts not only because of their zoomorphic appearance, but also because they were very much part of changing ideas about personal and communal identity and how people viewed themselves during the earlier Romano-British period. It has been argued (Jundi and Hill 1998) that dragonesque brooches and some other forms might have even been a means of expressing 'native' and/or non-military allegiances during the years immediately following the Roman conquest.

Roman pottery

The incidence of burnt samian within the Roman material is interesting, and is paralleled by similar finds on some rural enclosure sites in the region such as Scrooby Top in north Nottinghamshire (e.g. Robbins 2000). It suggests that samian ware was sometimes used for cooking and food preparation, implying that conventional archaeological considerations of samian as a fine tableware might be too simplistic and may not reflect its actual meanings to Romano-British people and their use of this pottery. It thus follows that there might have been different understandings of Roman material culture that existed amongst the Romano-British population, and that some of these reflected varied social identities and trajectories of 'Romanisation' (q.v. Creighton 2006; Mattingly 2007). Acculturation in Roman Britain is now increasingly recognised as having been a complex two-way process, and not simply the result of overwhelming cultural hegemony on the part of Rome.

Ditches 325/851 and 492

Although it was not possible to definitively link ditches 325 and 851 by stratigraphic means, due to the truncation by early modern cellars and the need to leave an area to stockpile spoil on Site, it is nevertheless extremely likely that these two cuts were part of the same feature. Ditch 325 probably had a bank on its 'inner', western side. If this is the case, such a bank would have had to overlie and thus post-date the line of the Roman wall footings. This indicates that *at the earliest*, 325 must post-date the 3rd-century AD Roman fort wall. It *may* have been open when the Torksey ware was deposited, or shortly afterwards, but some of the deposits within its northern extent (851) contained large quantities of stone and mortar, perhaps derived from the robbing of Roman wall 411. This activity seems to have occurred during the 13th to 15th centuries, during or just after the Phase 3C date for this robbing activity. The cessy fills in the upper layers of ditch 851, together with the medieval pottery assemblage in 325/851 (see Cumberpatch above) might also suggest that the ditch was still open but being backfilled during Phase 3B.

Furthermore, if cobbled surface 200 was 12th to 13th-century in date, and abutting or overlying the earlier fort wall footings, any bank associated with ditch 325 must have either pre- or post-dated this layer. It is conceivable that layers 396 and 397, rather than representing makeup deposits for surface 200, might have been the remnants of a bank associated with the ditch. The lack of later features (in particular Phase 3B pits) cutting into ditch 325 is also intriguing. This might indicate that the ditch was still open and functioning as a major boundary, not altogether surprising given the considerable size of the ditch.

Another notable feature of ditch 325 was the broad, shallow upper recut filled with a dark brown sandy silt deposit (145/355/366/444/458) that contained an extremely mixed assemblage of finds, including post-medieval and 19th-century pottery. This deposit, however, appeared to have been cut by Phase 3C pits 198 and 214, and Phase 3D pit 162. The western edge of ditch 325 was also partly truncated by Phase 3B oven 566. As noted above, it is striking that in comparison to ditches 253 and 492, very little of the extent of this ditch in plan was recut by later features. Although in purely stratigraphic terms these medieval features must have post-dated it, and are indicated as such on the Site stratigraphic matrix, it is possible that much of the length of ditch 325 remained as a shallow, open depression accumulating humic soils and being reworked over time from human and/or biological activities. The depression/recut might have formed a small patch of cultivated ground (which may also explain the lack of later features cutting into it), or it was disturbed by root and animal activity. The shallow recut may have been carried out only along some of its length and thus post-dated the medieval features, but the extent of this later activity was not recognised and recorded in plan so this cannot be conclusively determined.

In marked contrast to ditch 325, the lower fills of ditch 492 contained almost exclusively Romano-British artefacts, with the exception of a single sherd of medieval pottery from the primary fill, probably an intrusive artefact from the deep pitwell cut 450. The coin from within ditch 492 was unworn, and was suggested as being a near contemporary loss (see Barclay below), and there was little or no earlier medieval material, the medieval pottery consisting of 12th to 13th-century wares. The vast majority of the medieval pottery was present in the upper deposits of the ditch, where there was evidence for deliberate backfilling. This overall distribution of finds is also very similar to those recorded in the 1970s investigations (see Archaeological and Historical Background above).

There are three possible interpretations of the two large parallel ditches recorded at the Church Walk excavation in 1994 and in earlier archaeological interventions in Doncaster. Given the distinct physical, stratigraphic and artefactual variations between them, it is necessary to treat them as two separate features. These interpretative possibilities are:

1. *At least one of the large ditches, possibly both, may be Roman in origin, and associated with a phase (or phases) of the Roman fort.*

   If 'inner' ditch 325/851 was Roman in origin, than as noted below its associated bank would have had to underlie or overly the Roman fort wall 411, and there was no clear

stratigraphic evidence for this. Given that significant quantities of medieval pottery were present throughout its fills, this feature was probably not Roman in origin.

The most likely candidate for such a Roman ditch is the 'outer' large ditch 492 recorded at Church Walk in 1994, and also at Sites DA, DV and DQ during the 1970s. Apart from one sherd of potentially intrusive medieval pottery, the lower fills only seem to have produced Romano-British pottery, as recorded during the 1970s excavations at Sites DQ 70 and DV 72, as the putative Anglo-Saxon material found within it in those investigations has been re-interpreted as Romano-British in origin (Vince 2003). This extensive feature may have remained open for many centuries before being deliberately backfilled, this final activity probably occurring during the 12th to 14th centuries.

Recent archaeological investigations at High Fishergate underneath the former Kwiksave supermarket excavated a further stretch of this ditch (ASWYAS in prep., Chadwick and Lightfoot 2007, Figure 2). Once again, Romano-British pottery was recovered from the lower, homogenous primary and secondary fills, with 12th to 13th century pottery from upper fills. This again suggests that this feature could be a large Roman defensive ditch that remained open for centuries before being finally backfilled during the medieval period.

Interestingly, there is a historical reference to men being paid to undertake works on the 'rampart in Fishergate' in 1768 (Hatfield 1868: 291). This is by no means a detailed or reliable historical source and it is not clear whether it refers to Roman or later features, perhaps associated with the Norman castle. Nevertheless, it suggests that large earthworks remained conspicuous in this part of Doncaster until a relatively late date.

At High Fishergate, part of the putative Flavian fort ditch previously recorded at the far south-eastern end of Site DV 72 (Buckland *et al*. 1989: 75) was also excavated. No finds at all were recovered from this feature, so it was impossible to confirm that this was the same ditch partly recorded earlier at DV 72, and it is thus also difficult to compare in date to ditch 492. If 492 was a Roman ditch, than its relationship with this other ditch remains uncertain. They could both represent different phases of the Roman fort, with one (492?) representing the ditch associated with the later fort wall, or they might both indicate a single phase of double-ditched defences. For example, recent work by ARCUS at the Roman fortress at Templeborough, Rotherham, has demonstrated that several defensive ditch circuits were probably open and in use at the same time (McAvoy 2007).

2. *At least one of the ditches, possibly both, might reflect one or more phases of a pre-Norman burh.*

With the re-interpretation of all of the 'Anglo-Saxon' pottery found in these ditches during the 1970s as Romano-British coarseware (Vince 2003) and in the absence of any

features associated with such putative settlement, there is currently *no* convincing archaeological evidence for an Anglo-Scandinavian *burh* in Doncaster. Sherds of late 9th or 10th to 11th-century Torksey Ware were recovered from a primary fill of the 'inner' ditch 325 at Church Walk. Although considerable caution has to be exercised in interpretation when there was clearly so much disturbance, residuality and intrusion on the Site, it *might* be feasible that the 'inner' ditch (325/851) was dug during the later Saxon period. On stratigraphic and artefactual grounds, however, a medieval origin is also possible. The exact function of such a feature of this potential date is by no means certain, such as whether it was a boundary ditch or a defensive feature. There seems to have been a notable lack of activity and occupation in this part of Doncaster between the 5th to late 9th centuries AD.

3. *At least one of the large ditches may represent a hitherto unknown outer ditch of the Norman castle, perhaps an outer bailey ditch, with residual Roman and 10th to 11th-century Late Saxon pottery within it.*

   Sheardown (1868) showed a castle ditch extending this far south on his map of Doncaster, and it is marked as such on the 1st Edition Ordnance Survey map. Buckland, Magilton and Hayfield interpreted one of the ditches at the High Fisher Gate Site DQ 70 as the bailey ditch (Buckland *et al*. 1989: 87). The 'inner' ditch 325/851 at Church Walk (and its associated sections from the 1970s excavations at Sites DA 72, DQ 72 and DV 72) would be a possible candidate, and this would fit the stratigraphic and artefactual evidence. It is not clear how ditch 325/851 would have related to ditch 377 in the north-west corner of the Site (see discussion of 377 below). Unfortunately, it was not possible to extend the Church Walk excavation to the north to explore the relationship between the two features. This would be a useful goal for any future research or developer-funded excavation in the area.

   It is feasible that a pre-existing late Saxon ditch open at the time of the Norman Conquest might have been incorporated into the castle defences. In addition, the recut of the 'inner' ditch (325/851) visible at Church Way and at Site DQ 70 could also have been associated with such activity, although once again there is no convincing archaeological evidence for this.

Early medieval pottery and trade

The large assemblage of shell-tempered wares recovered has proved to be of great local and regional significance, and includes the largest assemblage of Lincolnshire Fine-shelled ware (LFS) recorded from outside Lincolnshire. The evidence suggests that from the late 10th century until the beginning of the 14th century, shell-tempered wares were a major component of pottery in Doncaster, and as Young and Cumberpatch have noted, this must have formed an extremely important aspect of riverine trade and exchange between Doncaster and Lincolnshire. This suggests that long-term trading links were established, and perhaps maintained through close personal relationships between particular individuals. It

also raises the question as to what, if any, goods or products were exported from Doncaster in return. As Cumberpatch has discussed above, it is not clear if the predilection for these shell-tempered wares was based on some perceived functional efficacy of these vessels, on implicit and unstated cultural preferences linked to social factors, or if it was possible goods contained within the pots that were of the most significance. Once again, however, the evidence for Late Saxon trade and exchange must be contrasted with the distinct dearth of any archaeological features that can be attributed to this phase of activity. This disparity must clearly be investigated further in the future.

Ditch 377 and the truncation episode

Ditch 377 could represent the vestiges of the Norman castle bailey ditch, observed in trench DT 72 (Fig. 2). The pottery assemblage may provide some support that the ditch was silting up and was then backfilled immediately after this period.

Earlier investigations at Site DT 72 recorded a full profile across the putative Norman castle ditch, suggesting that at this point it was orientated broadly north-east to south-west (Buckland *et al*. 1989: 90-91, figure 15 feature 731). This would tie in with the proposed orientation of ditch 377 at Church Walk, if the feature had begun to turn towards a NNE-SSW alignment. It has been proposed that a large ditch nderneath a later cellar on Site DX 72 to the north-east of the Roman fort wall, was also part of the Norman ditch (Buckland *et al*. 1989: 87-90, figure 15 feature 18). The ditch diggers would, however, have had to cut through the line of the Roman wall, unless they went through a pre-existing gap in the wall (cf. Buckland 1972: 274), and that would have entailed additional work. It is more probable that the feature recorded at Site DX 72 was actually 'inner' ditch 325/851. If that was the case, then its very close position to the Roman fort wall (less than 1m) is further evidence that 325/851 was unlikely to have been a Roman feature.

It has been suggested that the major truncation event or 'terracing' assigned to Phase 3A was associated with the acquisition of material for the construction of the Norman castle motte (Webster 1996: 35). Although of course the limited archaeological evidence cannot provide confirmation for such a specific historical event, this nevertheless remains a plausible suggestion, although a slightly later date is also possible too. This hypothesis would need to be more conclusively verified in any future archaeological work in the area.

Robber cut 427

Robber cut 427 seems to have been the result of one overall co-ordinated phase of activity, rather than a series of *ad hoc* inter-cutting pits and trenches over time. There was no obvious pattern to the survival of the stone wall footings, although the separate remnants might indicate that several different work gangs undertook the work, or that it took place over a minimum of a few days. Some stone may simply have been left at the end of the work and was then never returned to before backfilling, or the work might have been concluded when enough stone had been found for a particular building. It is not clear how much of the Roman

fort wall survived above ground prior to this robbing, and it may be that much of the upstanding masonry had already been removed for construction, prompting this organised digging for the stone in the footings.

Medieval walls 380 and 307

The large dimensions of wall 380 suggest that it could have formed part of a substantial building, perhaps even part of the proposed medieval Moot Hall fronting onto Church Street (Webster 1996: 35). Certainly, the majority of apparently domestic features on Site were located to the south-east (or rear) of this possible building. It may have been physically or stratigraphically linked to masonry walls excavated in Sites DT 72, DV 72 and DX. Alternatively, this wall was part of a boundary demarcating the church land to the east.

In contrast, later wall 307 was much less well-built, and it is uncertain if this was ever part of a building, unless it was a relatively insubstantial extension or 'lean-to' built against an upstanding structure. It is more likely that this was part of a boundary, and similar irregular lengths of walling on the same general north-west to south-east alignment were excavated at Sites DX and DY (e.g. wall 302/3 at Site DX, Buckland *et al*. 1989: 198-199).

Medieval ovens

Ovens 566 and 565 were very similar in plan and section to two features (27 and 56) recorded at Site DEH in 1976 (Buckland *et al*. 123-124, figures 23 and 24). These were interpreted as malting ovens, but as suggested (see Alldritt above), such a specific function is difficult to confirm and they may well have had a variety of different purposes.

Tanning, tawying and pits

The three main phases of medieval tanning pits and related features from Church Walk are important additions to the growing corpus of examples from across Britain of such features. Tanning and tawing were two related but distinct processes during the medieval and post-medieval periods. Tanners were part of the 'heavy leather' trade and normally only used cattle hides, to produce shoe soles, saddles and heavy-duty belts and straps. Tawyers or *whittawyers* were involved in the 'light leather' trade, and processed the hides of sheep and goats, pigs, deer and even 'casualty animals' including dogs and horses. Gloves and parchment were typical final products. These divisions became formalised during the medieval period, and there were Acts passed in the 14th and 16th centuries to control the trade (Baxter 1998; Clarkson 1960; Thomson 1981: 161-162). Both processes involved a long sequence of rather noxious activities.

Butchers generally sold cattle hides to tanners with the horns and hooves still attached, and these had to be trimmed off. The horns might have been retained or passed on to other individuals for use in horn-working, and the feet either disposed of or perhaps used to produce neat's-foot oil which was ultimately used to dress the leather (Serjeantson 1989: 139-140). Heaps of rotting off-cuts do seem to have accumulated on some tanning sites

though, with bye-laws having to be passed to ensure the regular removal of such waste (Thomson 1981: 162). The hides were washed free of blood and dung, and then treated so that the hair and any adhering flesh could be removed. Sometimes this was achieved simply through putrefaction, with urine occasionally used to accelerate the process, and the rotting flesh and hair was then scraped off the hides. Alternatively, the hides were immersed in alkaline solutions of lime, either in pits or in wooden tubs (Albarella 2003: 73; Thomson 1981: 163). Some of the post-medieval tanning pits excavated at Northampton contained mixtures of lime and ash (Shaw 1984: 242).

Following liming, the hair, fat and flesh were then scraped off, with different knives used for the hair or grain side, and the flesh side. Further liming then often followed, although this was specifically forbidden by the Leather Acts of 1563 and 1566, and many tanners fell foul of these regulations until a new Act was passed in 1604 (Thomson 1981: 164). Two different alkaline or acidic soaking processes then followed. Alkaline *bating*, *puering* or *mastering* involved soaking the hides in a warm solution containing bird droppings or dog faeces, and this removed excess lime and gave the leather a finer, more flexible texture. The acidic *drenching* process necessitated immersing hides in solutions containing rye, barley or ash bark, and/or urine or stale beer (Albarella 2003: 73; Thomson 1981: 164). Drenching was also forbidden under the 1563 Leather Act, as it produced poorer quality leather.

The hides were then washed again, and worked by hand with stone bladed scudding plates to make them supple. At some point, sometimes even months later, the hides were then soaked in pits called *handlers*, filled with tanning liquors containing oak bark to preserve the hides and give them a uniform colour, and during stages were regularly moved around in these pits using long poles. Silver birch bark also seems to have been used on occasion, although proscribed by the Leather Acts as it produced inferior quality leather. The hides were then removed, smoothed out, and transferred to further pits termed *layers* or *layaways*, where alternate horizontal layers of hides and oak bark chippings were deposited in solution and left for between four months to a year (Albarella 2003: 73; Thomson 1981: 166). The hides were rinsed once more and smoothed before sale as *crust leather* either to *curriers* who worked the leather further, sometimes again using immersion in mild tanning liquors; or directly to shoe-makers (*cordwainers*) and other leather workers. It is likely that there were many localised variations in these practices, and some leather may have been produced simply by placing hides in pits of weak tanning liquor and then gradually increasing the strength by adding further tanning agents (Shaw 1996: 119). Interestingly, a mid-13th-century iron currier's knife was recovered from a building in one of the excavated tenements at Low Fishergaye (J. McOmish in prep., pers. comm.).

Tawyers obtained their skins directly from butchers, from casualty animals, or increasingly from the 16th century onwards from *fellmongers*, who removed wool from fleeces. Skins were limed, de-haired, bated, drenched and scudded and washed, and then trampled in wooden barrels or tubs with a mixture of materials that could include alum, egg yolks, butter, oils and oatmeal (Albarella 2003: 73; Thomson 1981: 171-173). After this, they were

stretched out, worked again, flattened and smoothed, then softened by drawing the skins over blunt blades. This leather was then sold to glovers or other leather workers, although from the medieval period tawying, gloving and other leather-dressing were frequently undertaken by the same individuals and families. By the Tudor period, tawyers were also producing *bazils* or roughly tanned sheepskins used for shoe linings, using plant-based tanning processes (Thomson 1981: 171).

Clearly, both tanning and tawying were noxious processes that would have smelt foul and would have produced large quantities of unpleasant residues. Nevertheless, in medieval and post-medieval Britain it seems to have been a largely urban industry. Animal bone evidence for tanning has often proved difficult to interpret – horn-cores from cattle may have been waste products from tanners, or might have been left after horn-working (Albarella 2003: 75-76). Of course, both these activities may have taken place on the same site and by the same individuals. Sheep metapodials were recovered in large numbers from post-medieval pits associated with probable tanneries and/or tawying activities at The Green in Northampton and Walmgate in York (Harman 1996: 95-98; O'Connor 1984: 36), and at Bonner Lane in Leicester (Baxter 1998). Eleventh-century stone-lined rectangular 'troughs' at Lower Bridge Street, Chester, preserved traces of thin wood pieces, and were associated with leather fragments and grey-green organic silt deposits (Mason 1985: 26). Accumulations of cattle and goat horn-cores at Skeldergate were associated with 11th and 12th-century features (Addyman 1984: 11). Sixteenth to 18th-century pits in Birmingham, St Albans and Northampton (Albarella 2003: 76; Saunders 1977: 10; Shaw 1984, 1996) contained cattle horn-cores, some associated with remains of oak bark. At The Gardens, Sprotbrough, recent excavation work found a stone trough associated with a stone-lined cistern and a stone-lined culvert, whilst a pit 20m away had been backfilled with numerous sheep metapodials (Fenton-Thomas 2007: 245-250). This may have been evidence for tawing rather than tanning. At Site DT 72 in Doncaster, the wooden-lined pit or well 123 also contained large quantities of caprine metapodia (Buckland *et al*. 1989: 183), and at Riverside Exchange, Sheffield, five stone-lined pits of 17th to 19th-century date also seem to have been used for tawing rather than tanning (ARCUS 2005).

The many different forms of medieval pits (Phases 3B-3D) excavated at Church Walk may thus have been associated with all or several different stages of the tanning process. They tended to be either sub-rectangular or rounded in plan, but notably most were not as regular in form as some slightly later examples excavated elsewhere in Britain at The Green and St Peter's Street sites in Northampton (e.g. Shaw 1984, 1996; Williams 1979: 99-101) and at Tanner's Hall in Gloucester (Heighway 1983). Although some were grouped in clusters and/or short rows, these were not markedly organised into rows and functionally distinct working zones, unlike 16th and 17th-century tanneries excavated at Tanner's Hall, Gloucester and The Green for example, and 16th to 18th-century tanning pits at Water Street, Stamford (Cram 1982: 48, fig. 26; Heighway 1983: 88, fig. 3; Shaw 1984, 1996: 82, fig. 11). Where tanning pits have been encountered on medieval sites they have tended to be isolated features

or in smaller groups (e.g. Addyman 1984; Allen 1984; Saunders 1977). This may reflect differential preservation and truncation by later features, or that the more 'organised' tanneries were a later medieval or post-medieval development.

It is most unfortunate that the chequered history of the Church Walk excavation project prevented more detailed and comprehensive biological and geochemical analyses of the samples from the various pits taking place. Although a large suite of samples was taken there was over a ten year delay in processing them, most were not investigated in detail, and none through geochemical means. Such analyses did not form part of the eventual post-excavation assessment (Martin and Richardson 2005), and much potential information was undoubtedly lost through the hiatus caused by the initial halt in post-excavation funding.The limited investigation of potential parasite remains proved negative, and this may have idenfied human and/or animal parasites, and thus potentially which had been used for cess and tanning processes respectively. The only positively identified coprolites were from a pit already thought to be a cess or a latrine pit in any case. It is thus not clear what specific functions the different pits had in the overall tanning process. Geochemical analyses of samples from tanning pits at St Peter's Street, Northampton proved inconclusive, and failed to identify even the presence of vegetation or organic materials, whilst no tannin colour reactions or hydroxyproline traces indicative of skin or leather were detected (Williams 1979: 101). Some of the pits at The Green in Northampton did produce high readings for carbonates, phosphates and humic acids (Evans 2006: 103), the evidence suggesting that many pits had just one specific function in the overall tanning process. One phosphate-rich pit even tested positive for uric acid, likely to derive from either bird dung or dog faeces, and two humic-rich pits provided evidence for the presence of tannins. Such potentially valuable information may have been forthcoming from the Church Walk samples had they been tested in time.

From their shape and deposits within them, however, potential functions can be suggested for some of the excavated pits at Church Walk. Pits that may have been used for liming included 550, 128 and 198, although the latter two features may have been too shallow for the actual liming of hides, and may have been used for the production and mixing of lime instead. Pits with noticeably undercut edges included 140, 206, 550 and 523, and these might have been used for bating or drenching, or as handlers, but certainly where hides were stirred around in liquids. This might also explain the concreted and mineralised sides of such features, and this mineralisation must have resulted from exposure to either tannins and/or uric acids.

The gravels into which most of the pits were dug were not naturally waterproof, however, although the mineralisation of their sides seemed to give them a limited form of water retention. It may be that in the past the water table was slightly higher in this area of Doncaster, meaning that the lower parts of the deepest pits may have readily retained water. It is surprising that so few preserved traces of timber or clay linings, although the acidic natural subsoils would not have preserved any actual wooden remains. Slight traces of possible wooden linings, however, were recorded in pits 206, 555, 668, 251 and 439. In addition, pit 500 contained traces of a possible timber structure such as a rack or frame that would have

stood upright within the pit. Some possible tanning pits had stone linings, and these included features 231, 766, 433, 495 and 164. Shallow, clay-lined pits such as 160, 214, 198 and 162 probably held liquids of some sort, and some at least could have been layaways. Pit 231 also had a clay lining, but was notably deeper than the other such features. In Phase 4, the timber-lined tanks within pit 507 were backfilled with both lime and sheep metapodials, and were probably more likely to have been part of the tawing process.

Of course, some pits might have been used for several different stages in the tanning process, and others initially used for tanning may have then been used for cess and refuse, or vice versa. The many variations in pit shape, fill sequences and artefactual assemblages suggest that each feature had its own particular history. As Cumberpatch has discussed above, the formation processes seemed to indicate the rapid infilling of some features, with cross-joining pottery sherds were recovered from Phase 3B pits 107 and 500, and Phase 4 pit 105, the latter presumably residual. Within each broad chronological phase, the inter-cutting of many pits within each spatial group identified on the Site might indicate that sometimes only a few pits had been dug and were actually open at any particular moment in time. Other pits seem to have had much more protracted episodes of deposition, however, and some of these may represent pits where hides had been tanned by gradually increasing the strength of the liquors in which they were soaking.

Although some post-holes and stake-holes were recorded that probably represented fences and/or timber structures associated with the pits, the majority of pits do not seem to have been covered. Presumably any rain that fell was either a welcome 'top-up' to the solutions in the pits, or overflow from them was not normally regarded as a problem (although gullies 280 and 168 might have been dug to drain pits). Although some tanning pits excavated elsewhere at sites such as The Green in Northampton and Water Street in Stamford seem to have been under cover or within buildings (Cram 1982; Shaw 1984, 1996; Williams 1979), others (including some from The Green) were exposed out in yards. There may have been functional and practical reasons for this. Unlike some of these other tanneries no buildings seem to have been closely associated with them, yet there would have had to have been racks under cover for the hides to dry on and to be processed and smoothed. Of course, it is possible that the early modern cellars at Church Walk had removed evidence for such structures to the north of the excavated pits, and in the late medieval and early post-medieval period documentary sources indicate that the old Moot Hall was leased in 1649 to alderman Thomas Lee whose family were tanners, and writing at the end of the 17th century Abraham de la Pryme noted that 'on the east side of the church, bourdering upon the church yard, is a larg old sacred building…now used by tanners' (Buckland *et al*. 1989: 68, 104).

Documentary sources from 1597-1598 record 'a piece of ground called Tanhouse Yard' in the Fishergate area, and although this may not have specifically referred to the Church Walk Site, areas called 'tanyard' were regularly mentioned in documents concerning this general part of Doncaster until the late 17th century (Daniell 1998). During the 18th century Solomon Holmes, a 'feltmonger', leased property in Fishergate including a 'skin yard', and there are

references to tanners throughout the 16th to 19th centuries. Sixteenth-century deposits excavated at Low Fishergate contained cattle leather-working waste and leather shoe fragments (Lilley 1998; McOmish in prep.).

It might have been the case that the medieval tanning at Church Walk was not a highly organised, full-time activity but might have been carried out on a more episodic basis by people engaged in other related craft activities as well. The features might also suggest industrial processes taking place at a relatively small-scale level, perhaps carried out by just one or two families. This is perhaps contradicted, however, by the documentary evidence that suggests tanning was very important in Doncaster by the early post-medieval period, with hides derived from the large livestock markets in the town, but also being imported by river from other areas (Burgess 2002). One Doncaster tanner even left four boats and a share in a fifth vessel in his will of 1686, which would have been a valuable bequest.

Horn-working

Phase 4 pit 128 contained large numbers of cattle horn-cores, probably the waste from horn-working. A medieval timber and clay-lined pit in York filled with cattle and goat horn-cores was interpreted as a soaking pit, where the horny sheaths were softened prior to their removal from the cores (Wenham 1965: 26-27). Sixteenth and 17th-century pits excavated at Stamford also contained cattle horn-cores, although the function of these features was less clear (Cram 1982). Given the uncertainties of attributing animal remains to a specific process as noted above, this need not imply on-site horn-working. It would be odd if this material had been wasted though. Within Doncaster, cattle horn-cores were also found in large quantities in a medieval pit at Church Street (Site DX) and a late 17th to 18th-century pit at Low Fishergate (Buckland *et al*. 1989: 204; Lilley 1998). Pit 128 also contained significant quantities of lime, which might suggest that the function of the pit was for de-fleshing and/or the liming of hides, although it seemed rather shallow for the latter purpose.

Dead cats

The remains of five cats were recovered – one each in pits 107 and 185, one in well 193, and two in well 656. None had cut marks visible on the bones (see Richardson above), which would have clearly indicated that they had been skinned for their fur, although this does not rule out the possibility. Indeed, the association between tawyers and 'casualty' animals is well documented. At The Green in Northampton for example, occasional deposits of cat bones seemed to indicate that cat pelts had been processed there (Shaw 1996: 101). The cats in the pits at Church Walk almost certainly represent instances of the practical disposal of dead animals down handy holes, and/or the accidental falls of animals into cut features. The presence of cat remains in wells is harder to explain unless this was through accident too, or if the wells had gone out of active use, otherwise they would have certainly added an unusual taste to the water, and created a potentially serious health hazard. It is worth noting, however, the apparently deliberate inclusion of cats within medieval and post-medieval walls, perhaps

as part of apatropaic or superstitious rites (Howard 1951). There may have been local, small-scale superstitious practices of this sort prior to wells being backfilled.

10 Conclusions

There are considerable difficulties in trying to closely link archaeological evidence to specific historical events, particularly when the latter are themselves largely a matter of conjecture. Even the most dramatic historical events may often leave little or no tangible archaeological trace, whilst the everyday prosaic activities of people and their engagements with the landscape and material culture were rarely explicitly discussed by contemporary commentators, and until the early modern period the vast bulk of the population were illiterate. Some more self-critical discussions of the relationship between the two disciplines of history and archaeology have stressed the idea of two separate discourses, sometimes complimentary, at other times conflicting (e.g. Austin 1990; Champion 1990; Gerrard 2003; Moreland 1991, 2001). It is thus productive to re-examine the available *archaeological* evidence in order to determine exactly what can and cannot be stated with any certainty about the development of this part of Doncaster.

There clearly was Roman military occupation, and this does seem to have consisted of several different phases of activity. As the information regarding fort contexts excavated during the 1970s still remains unpublished (Buckland in prep.), however, very little can be stated with confidence about the development of the fort. Although two main phases have been proposed to date there may well have been more, and the exact layout of the defensive ditches and details of internal features still remain largely unknown. There is a strong possibility that one of the two large ditches excavated at Church Walk (ditch 492) might have been a Roman defensive feature, perhaps associated with the later fort walls, although there is no conclusive evidence for this. Some of the Romano-British tile suggests that there was at least one higher-status, heated building within the vicinity, and some of the Roman pottery also suggested higher-status occupation.

To date, there is *no* convincing archaeological evidence for the existence of an Anglo-Saxon or Anglo-Scandinavian *burh* centred in or around the Roman fort and the St George's Minster Church area. The three sherds of later 5th to 7th-century pottery recovered in the vicinity of St George's Minster (from Site DT 72 and the Church Walk excavations) are hardly unequivocal support for the notion of post-Roman and early medieval occupation in the vicinity of Church Street and Church Way. *If* there was earlier Anglo-Saxon or Anglo-Scandinavian inhabitation at Doncaster at all, its focus was probably somewhere else within the town. This lack of artefactual and stratigraphic evidence is hard to explain even if there had been military or short-lived defensive occupation in the immediate vicinity. There is then an appreciable gap in dateable ceramics until the late 9th century at the earliest. This might even suggest a hiatus in occupation until this later date. Quite why this was the case is again

unknown, although by the Norman period it is possible that military considerations might have led to the area around the castle being kept clear of structures and thus of occupation in general (see Cumberpatch above).

There was considerable ceramic evidence for Late Anglo-Saxon activity from the late 9th century onwards (see Vince and Young above), and the large number of Saxo-Norman Lincolnshire Fine-shelled ware sherds recovered is especially noteworthy. None of the sherds of Torksey and other Late Saxon wares can be considered to have come from a 'primary' context, however, and thus there are no archaeological features definitively associated with this material. No structures, pits or other evidence of 'domestic' occupation of this period have been identified in the immediate vicinity. The fragment of a coin of Edward the Confessor was also residual in a later context. At Low Fishergate, a deposit of alluvial clay up to 0.50m thick may have represented post-Roman or Anglo-Saxon flood deposits noted elsewhere in Doncaster (Buckland *et al*. 1989: 15), and this was cut by just a few features containing 11th-century pottery, including a wattle-lined pit and a ditch or gully (Lilley 1998; McOmish in prep.). At Church Walk, although the relatively fresh condition of the Torksey sherds might suggest some form of nearby inhabitation, the nature and extent of this activity is still unknown.

The ceramic evidence indicates there were regular contacts with other communities and pottery production sites across the wider region, and this suggests that some level of river trade was still significant during this period. The quantities of Saxo-Norman vessels derived from Lincoln in particular are further evidence of this important trade. It may even be that Doncaster formed one, if not *the* main market for North Lincolnshire Shell-tempered wares during the late 12th to 14th centuries.

Medieval activities at Church Walk included tanning and the use of two ovens for cereal parching and/or malting, the latter perhaps surprising given the close proximity of one oven to tanning and cess pits. At least three stone-lined medieval wells were probably associated with these activities. There does seem to have been some spatial division at Church Walk, with the tanning pits generally located to the east of the Site, and with the Phase 3B group 2 pits perhaps forming the western limit of these more noxious activities. It was also notable how Phase 3B oven 566 and many of the Phase 3C pits on the western side of the Site followed the same north-east to south-west orientation originally established by the Phase 1A ditch 253 and Phase 3C fort wall 411. It was originally proposed that three burgage plots were identifiable on the Site (Webster 1995: 35), and although this remains a possibility, no conclusive evidence for fence or ditch boundaries was found.

No traces of buildings associated with the tanning pits was found, although the large stone wall (380) of what was probably a large medieval stone building was excavated and recorded in the north-west part of the Site, one of a series of buildings that fronted onto Church Street. Given the substantial nature of the masonry, this wall might even have formed part of the medieval Moot Hall, and documentary evidence suggests that in the 17th century this was

leased to tanners. Wall 380 was truncated, however, and cannot be conclusively linked to either the walls found at Site DT 72 (Buckland *et al*. 1989), or even to the stone-lined pit and other features located immediately east of it. The presence of glazed roof tiles and some higher-status artefacts such as the gilded mount nevertheless hint at higher-status medieval occupation somewhere in the vicinity.

The river trade continued to be important during the medieval and post-medieval periods, and many medieval and post-medieval ceramics, livestock, hides, timber and other goods would have been brought in via ship. In the post-medieval and early modern periods, much of the Site was little used and may have formed backyards belonging to the tenements established along Church Street and Grey Friar's Road. Two wells, a ditch and several pits were the features associated with this phase. Corroborative archaeological evidence was obtained for the documentary sources indicating the working of skins during the post-medieval period in the form of structural remains (pits) and bone waste (horns and limb extremities). The pits included clay sealed and timber-lined 'tanks' probably associated with tawing, and another pit backfilled with waste from tanning or horn-working. The ceramic evidence also suggests that people had access to a wide range of pottery from across the region. Although there were clearly many tenements established in this part of Doncaster in the medieval and post-medieval periods, it is noteworthy how 'marginal' activities such as tanning, timber yards and livestock markets continued in the Church Street and Fishergate areas. From once being the centre of occupation and activity in Doncaster, since the later medieval and post-medieval periods this part of the town has remained somewhat liminal. In recent decades the physical isolation of St Georges Minster from the rest of Doncaster by the Church Way dual carriageway has only exacerbated this longer-term trend.

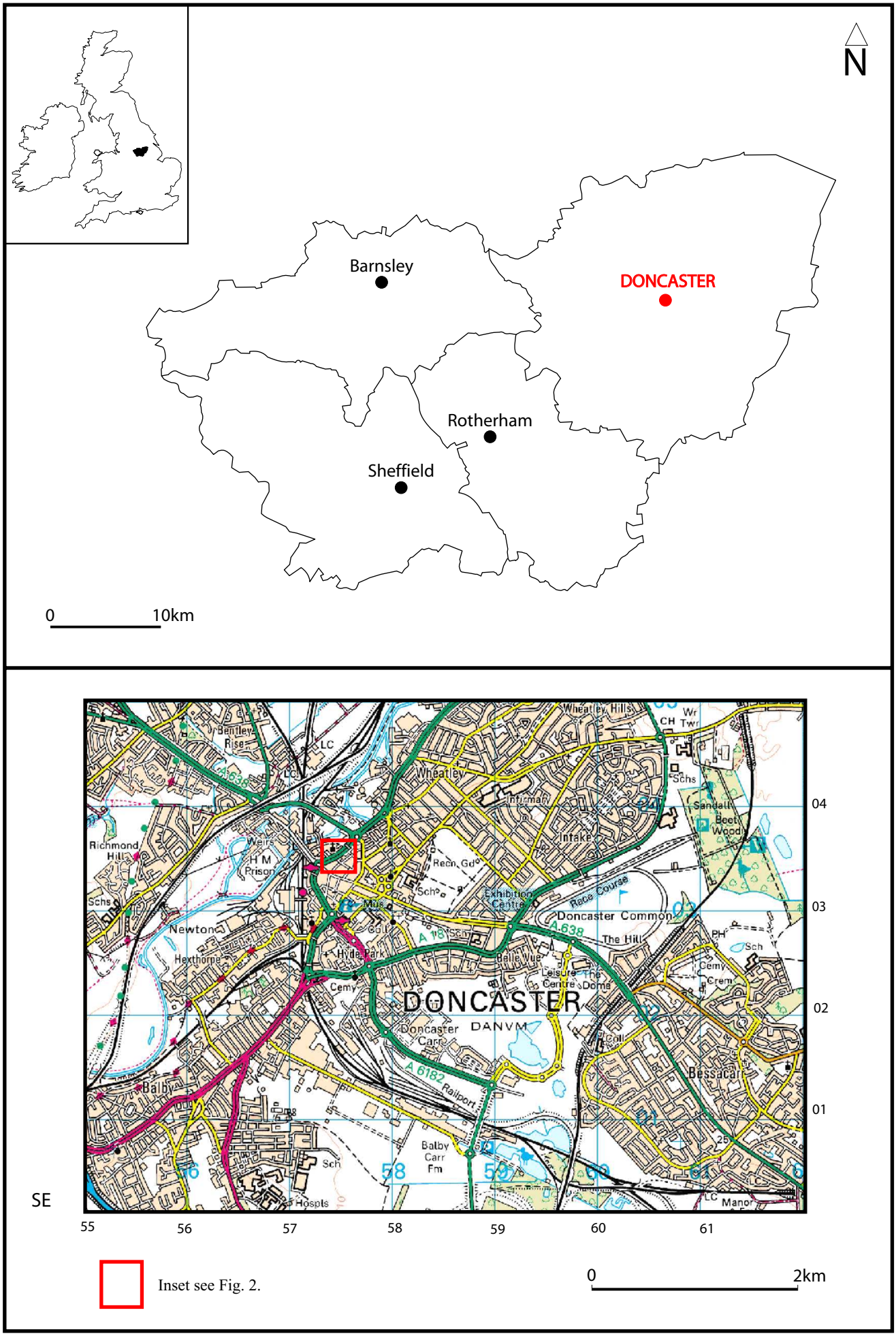


Fig. 1. Site location

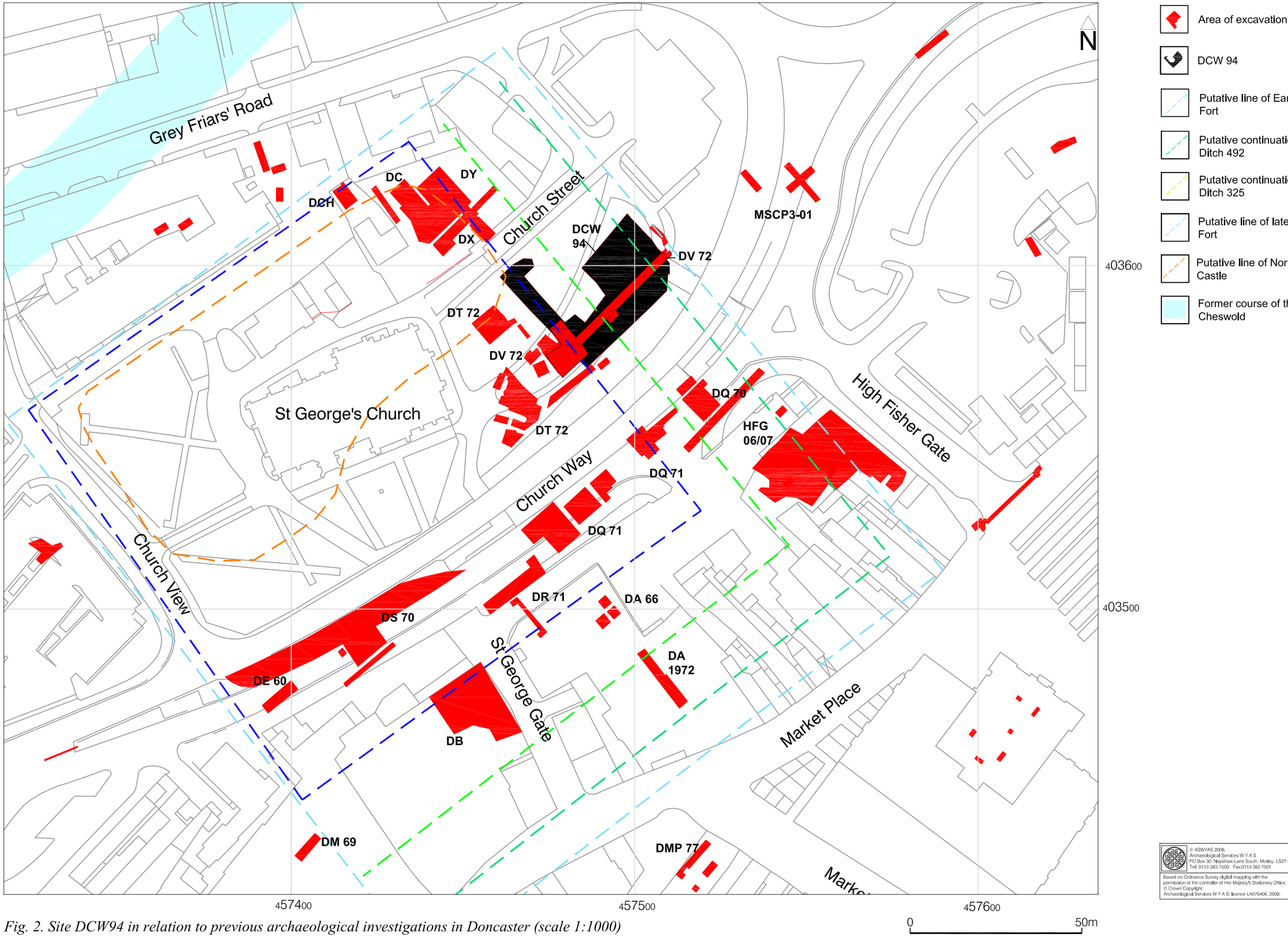
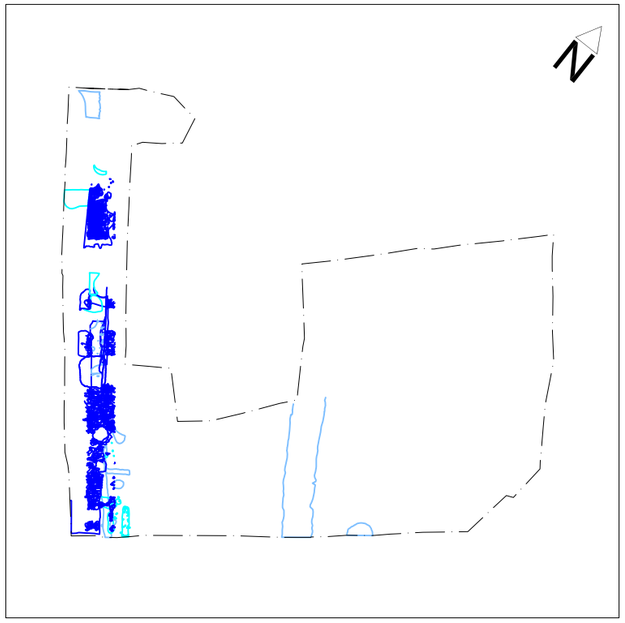
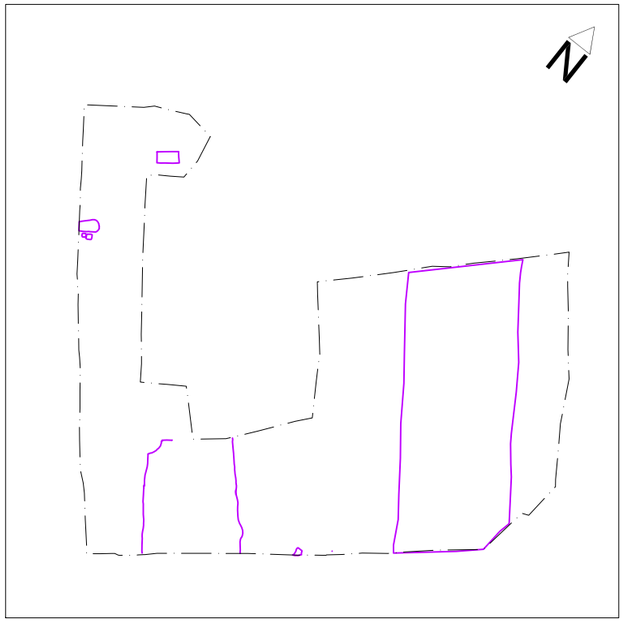


Fig. 2. Site DCW94 in relation to previous archaeological investigations in Doncaster (scale 1:1000)

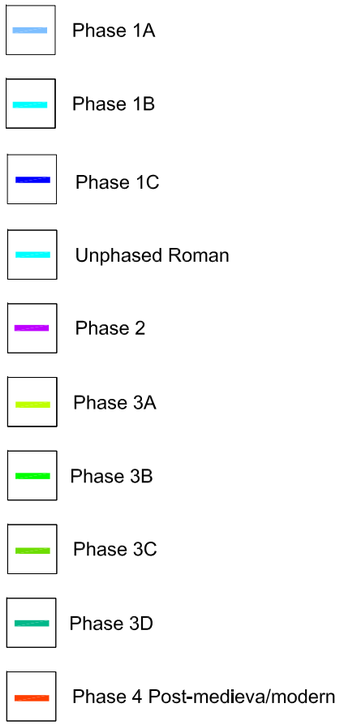
Fig. 3. More detailed phased plan of DCW 94 in relation to Buckland's previous investigations east of St George's Minster (scale 1:250)



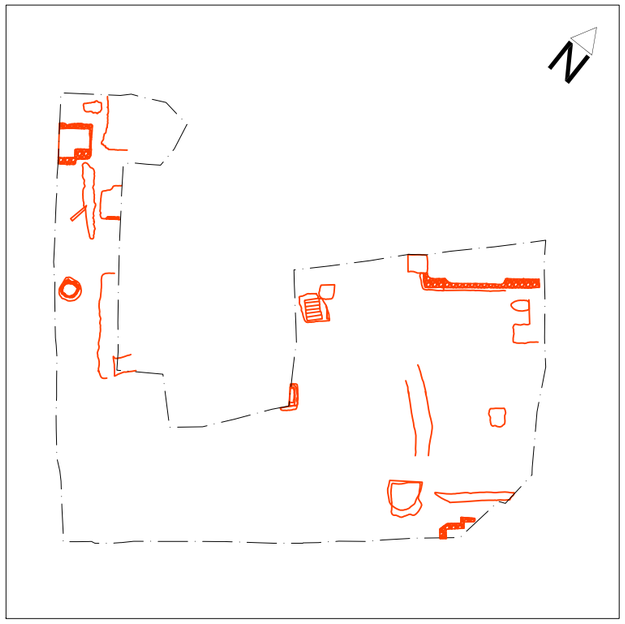
Phase 1 (A-C): Roman



Phase 2: Roman to medieval



Phase 3 (A-D): Medieval



Phase 4: Post-medieval and modern

Fig. 4. More detailed phased plans of DCW 94 (scale 1:500)

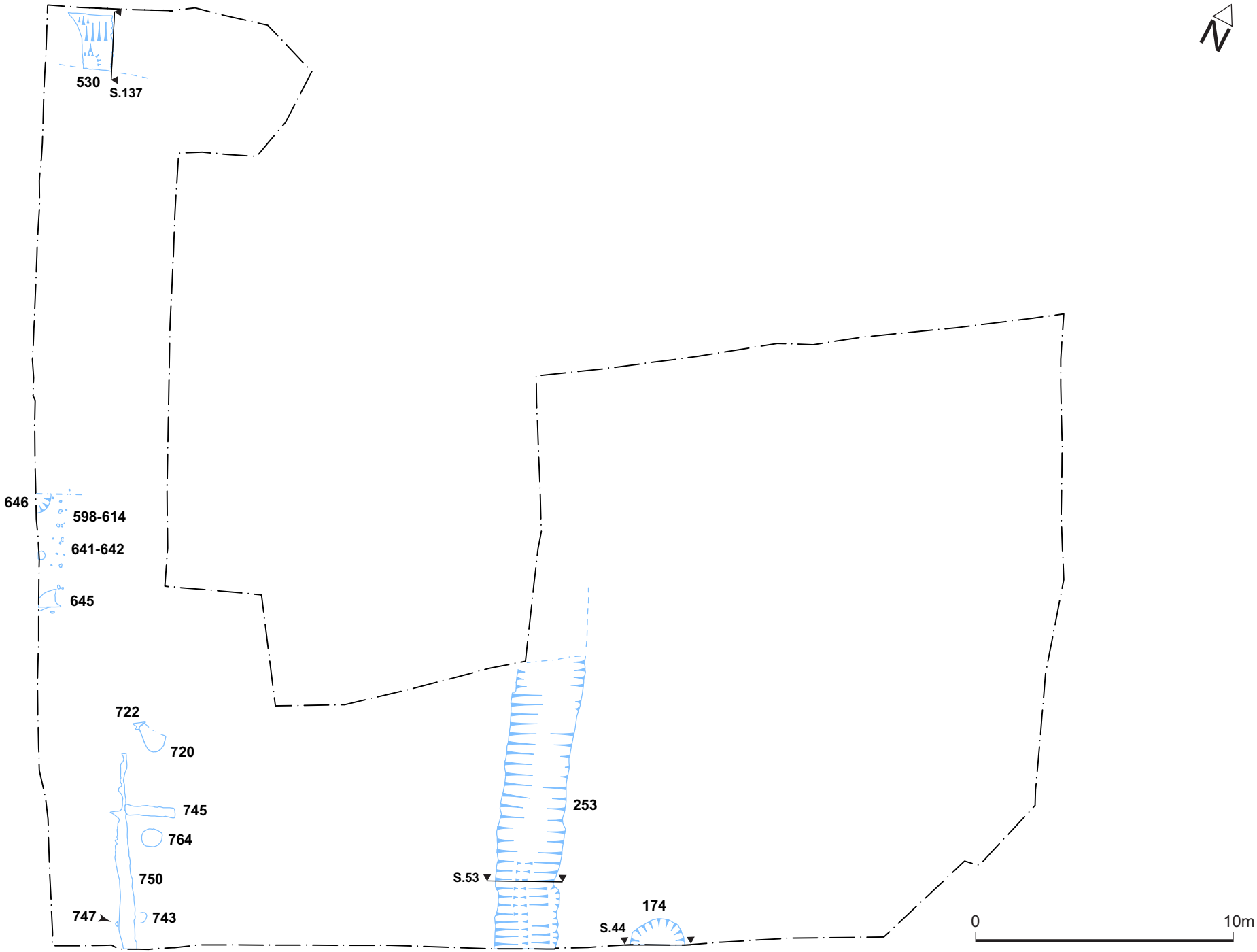


Fig. 5. Plan of Site showing Roman Phase 1A features

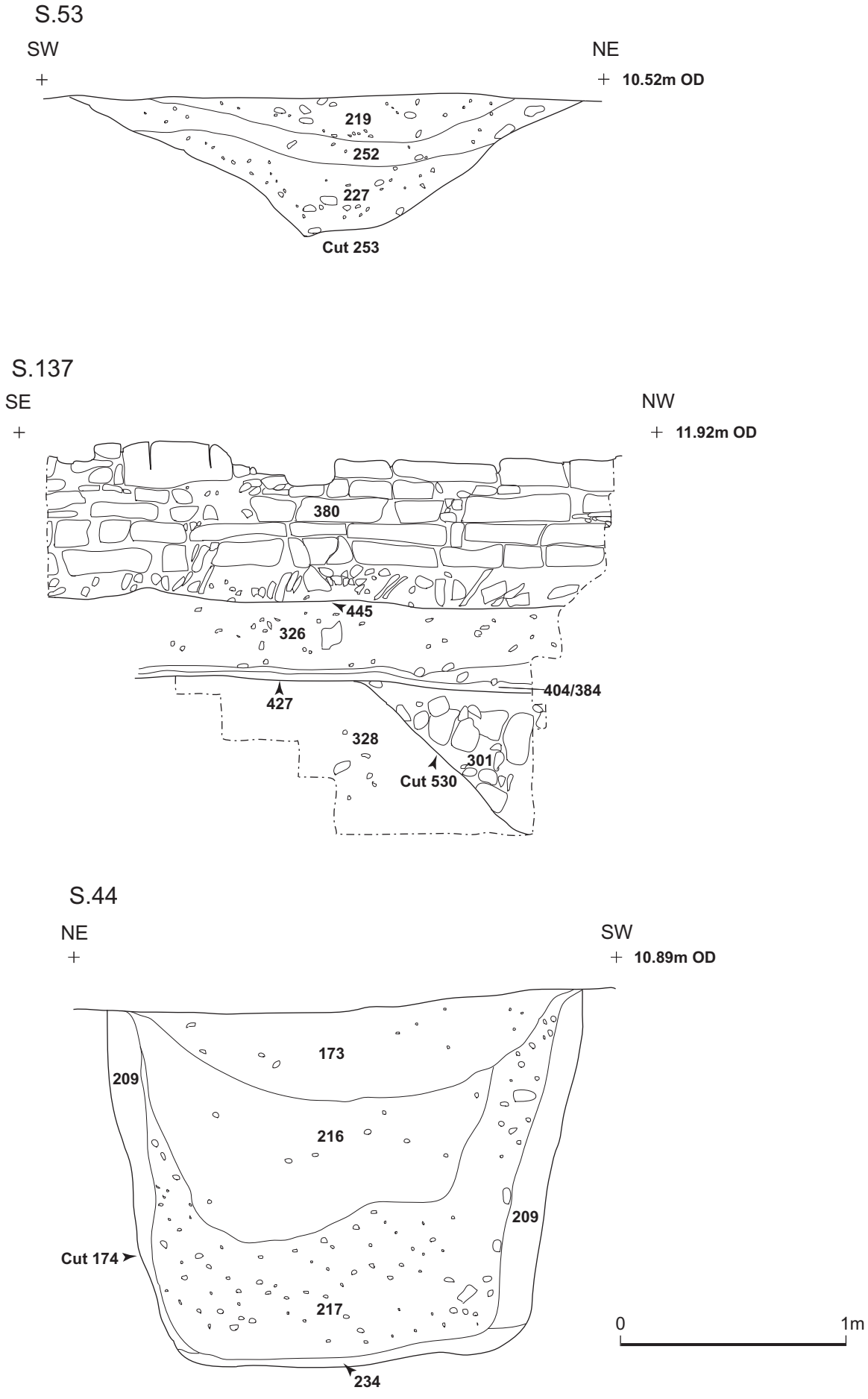


Fig. 6. Phase 1A sections - ditch 253, ditch 530, pit 174

Fig. 7. Plan of Site showing Roman Phase 1B features

Fig. 8. Plan of Site showing Roman Phase 1C features, including wall footings 411 and construction cut 459/629

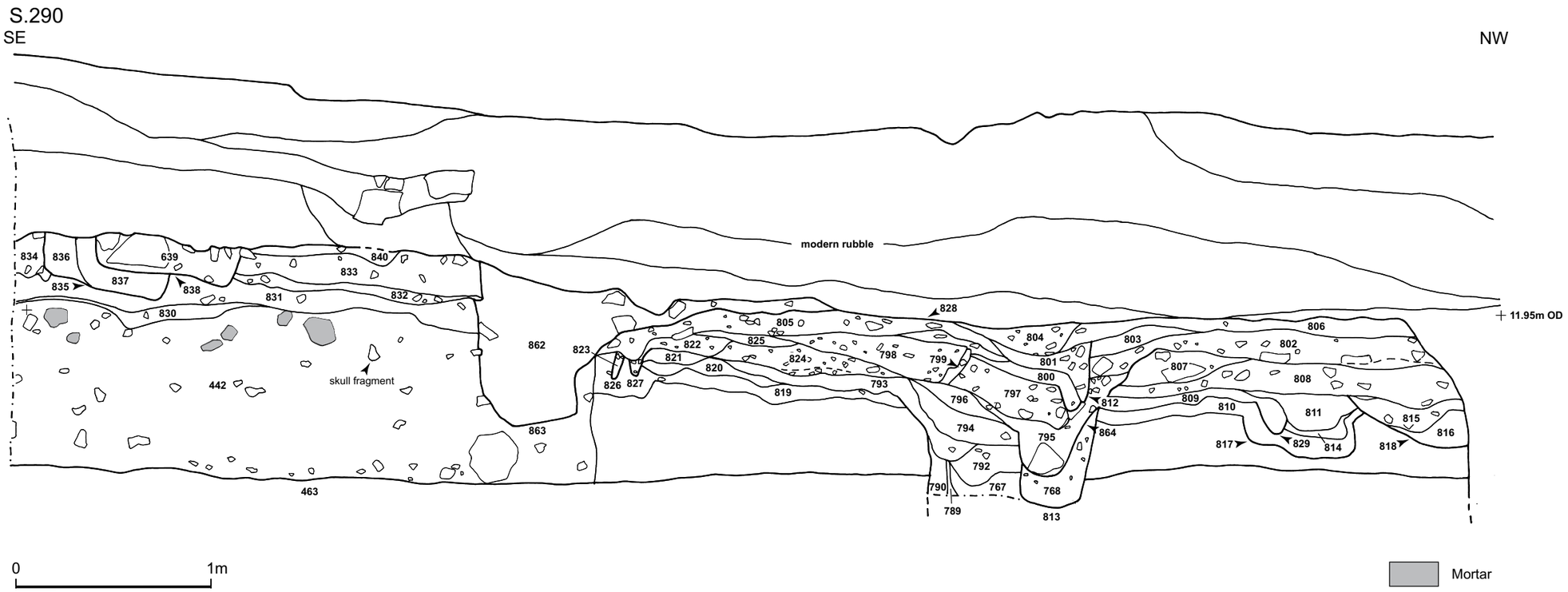


Fig. 9. Detailed section of complex Romano-British stratigraphy exposed in the south-west corner of the Site

Fig. 10. Plan of Site showing Roman/medieval Phase 2 features

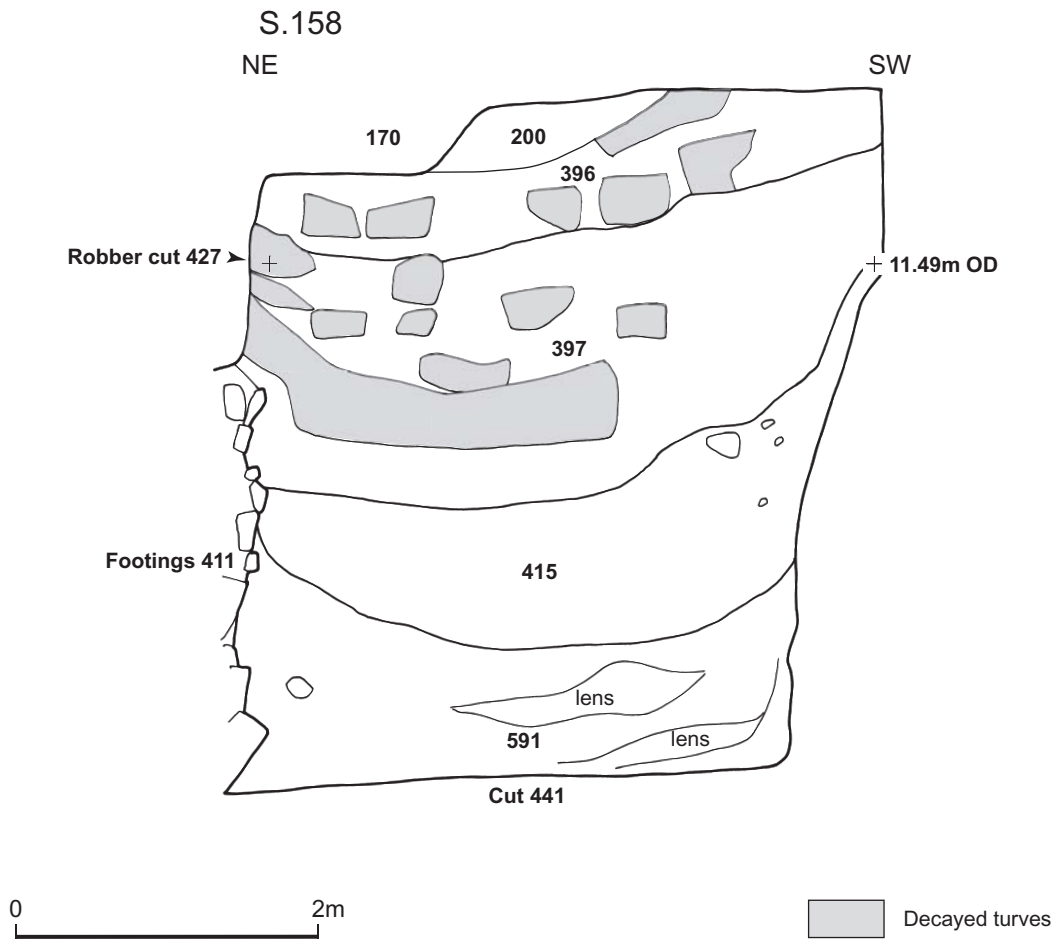


Fig. 11. Section across Phase 2 deposits 396 and 397 (also shows Phase 1B pit 441)

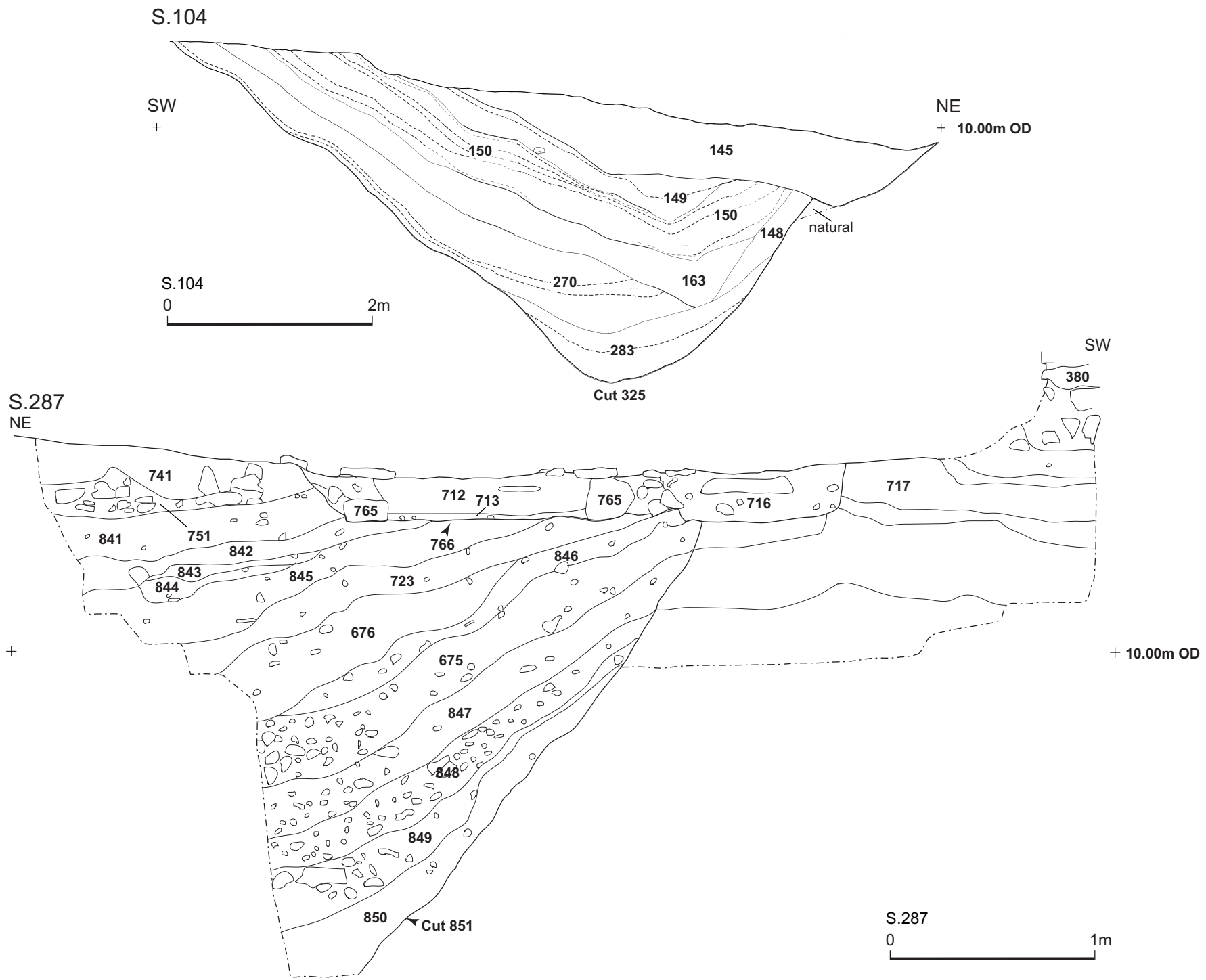


Fig. 12. Sections across Phase 2 ditches 325 and 851. Section 287 also includes later features such as Phase 3B pit 766

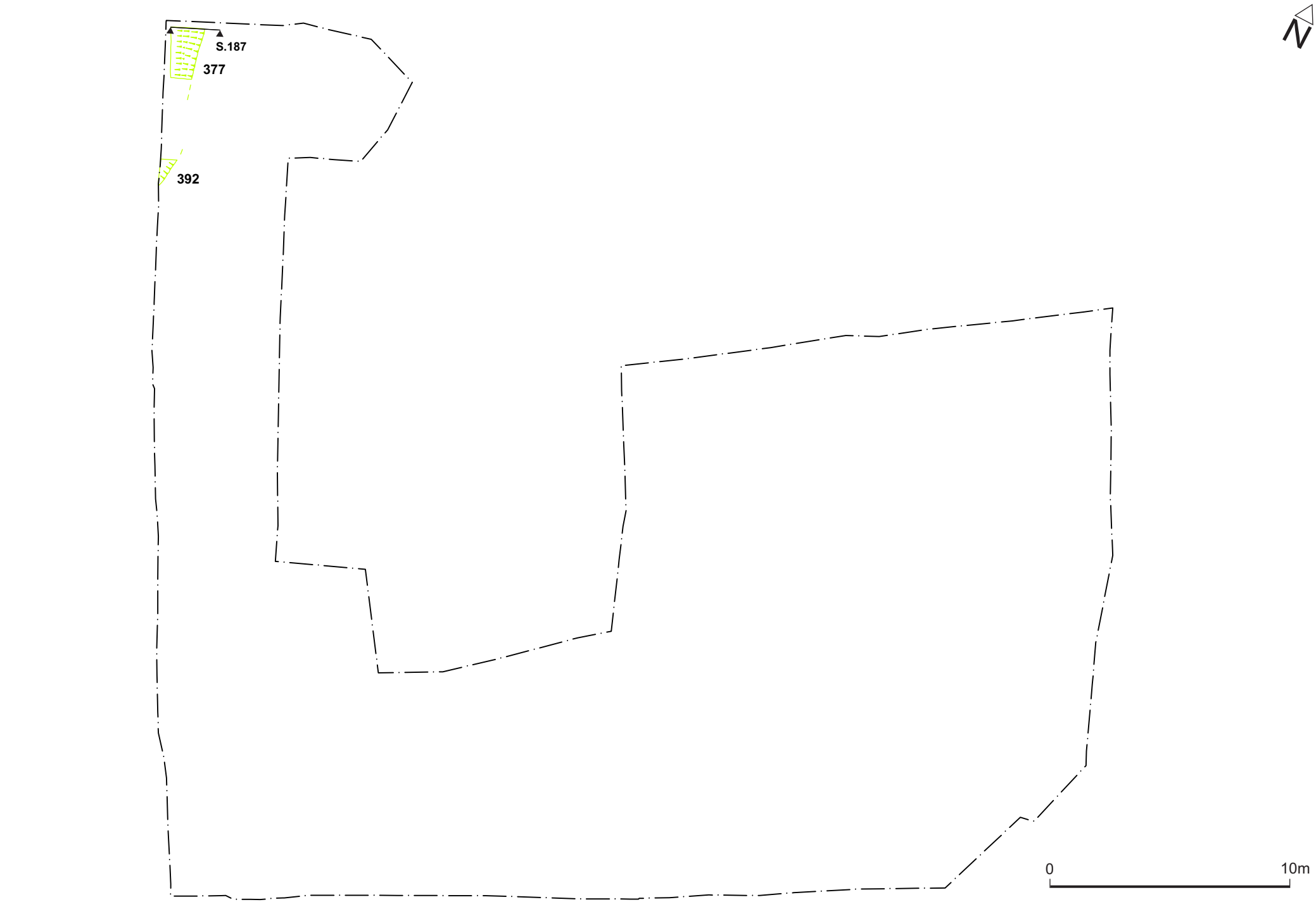


Fig. 13. Plan of Site showing Phase 3A medieval features

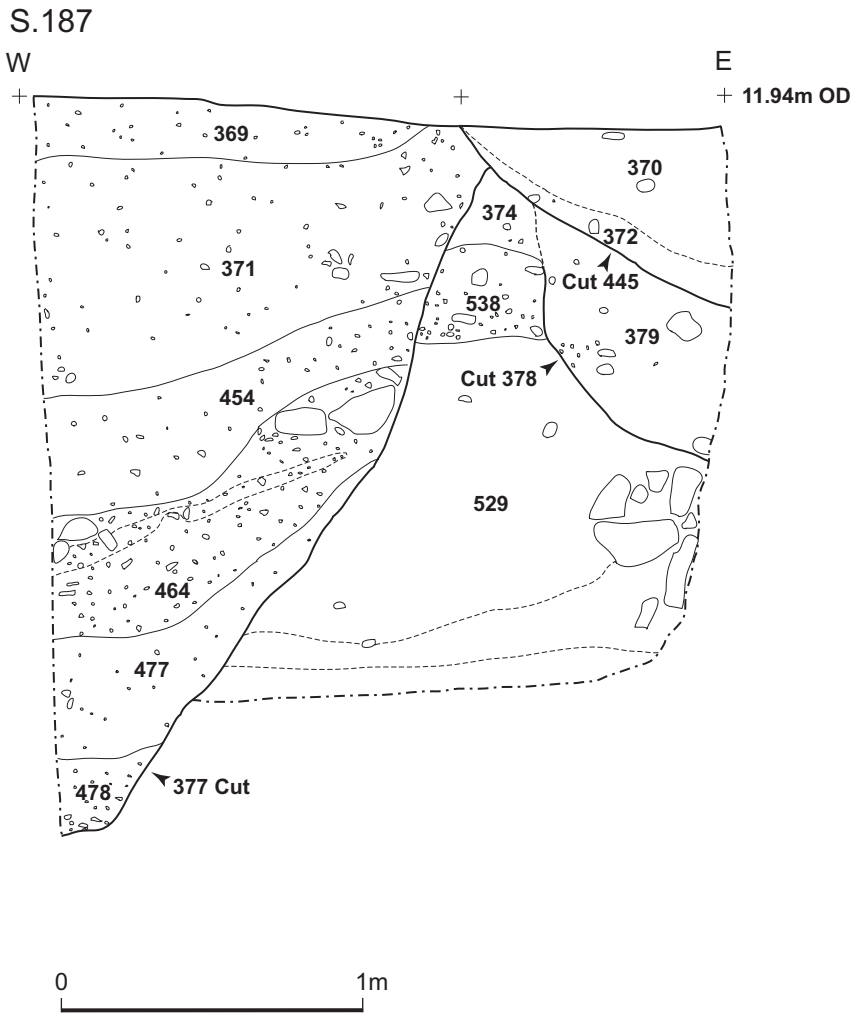


Fig. 14. Section across Phase 3A ditch 377, also showing Phase 3C wall robber cut 378/427, and Phase 3C wall construction cut 445

Fig. 15. Plan of Site showing Phase 3B medieval features

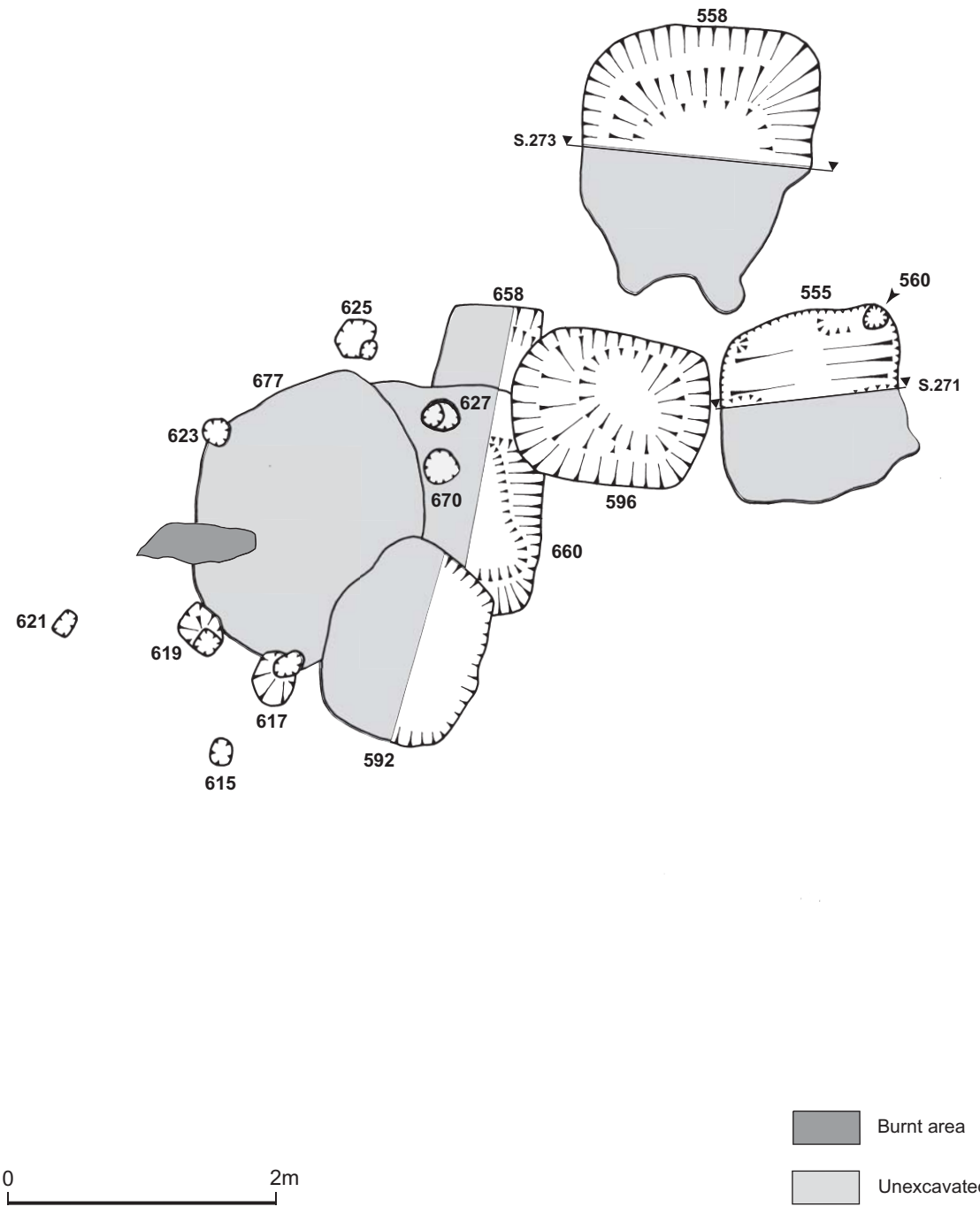
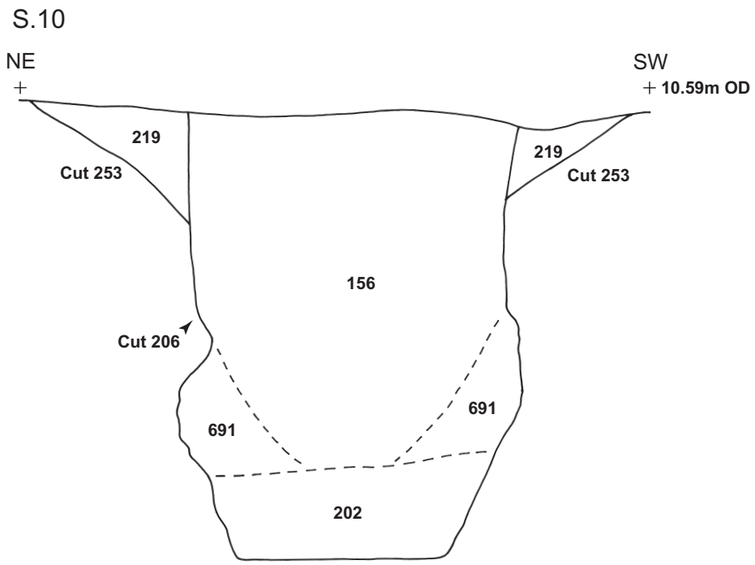
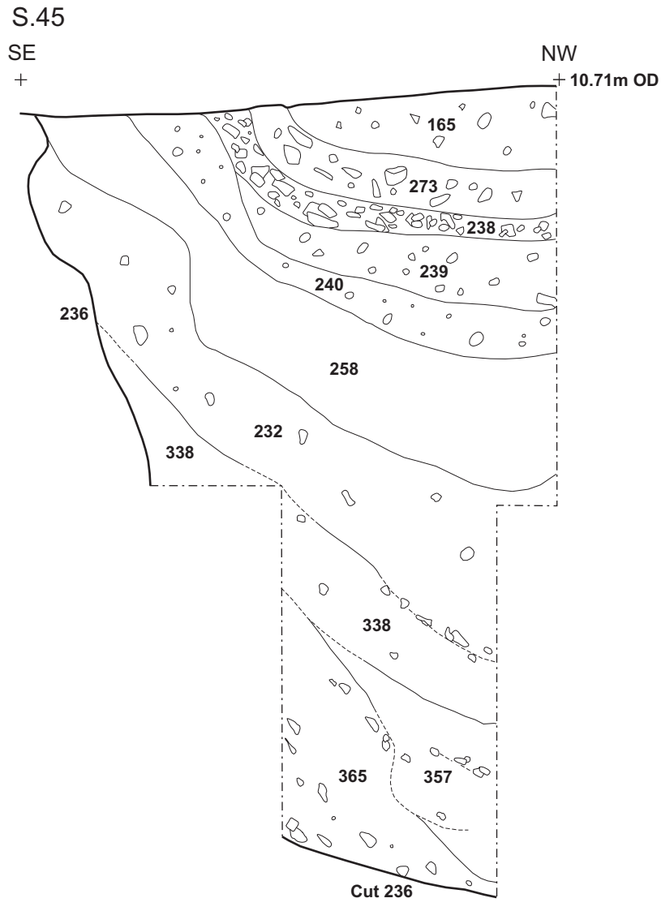
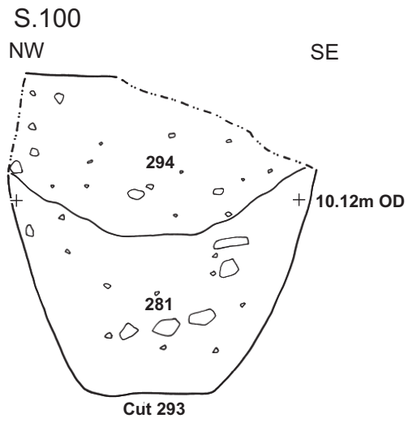


Fig. 16. Detailed plan of Phase 3B Group 1 pits and post-holes







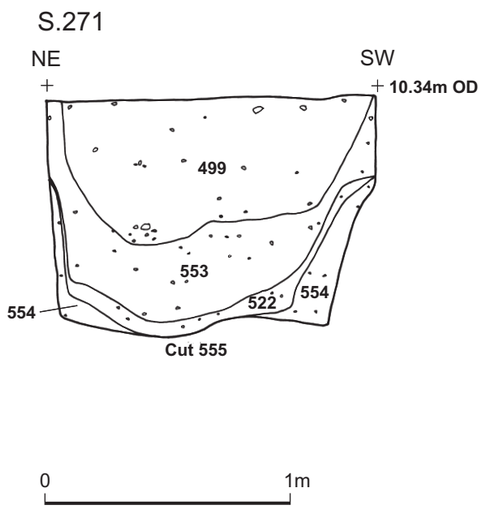


Fig. 17. Sections of Phase 3B pits 558, 555, 236, 293, 206

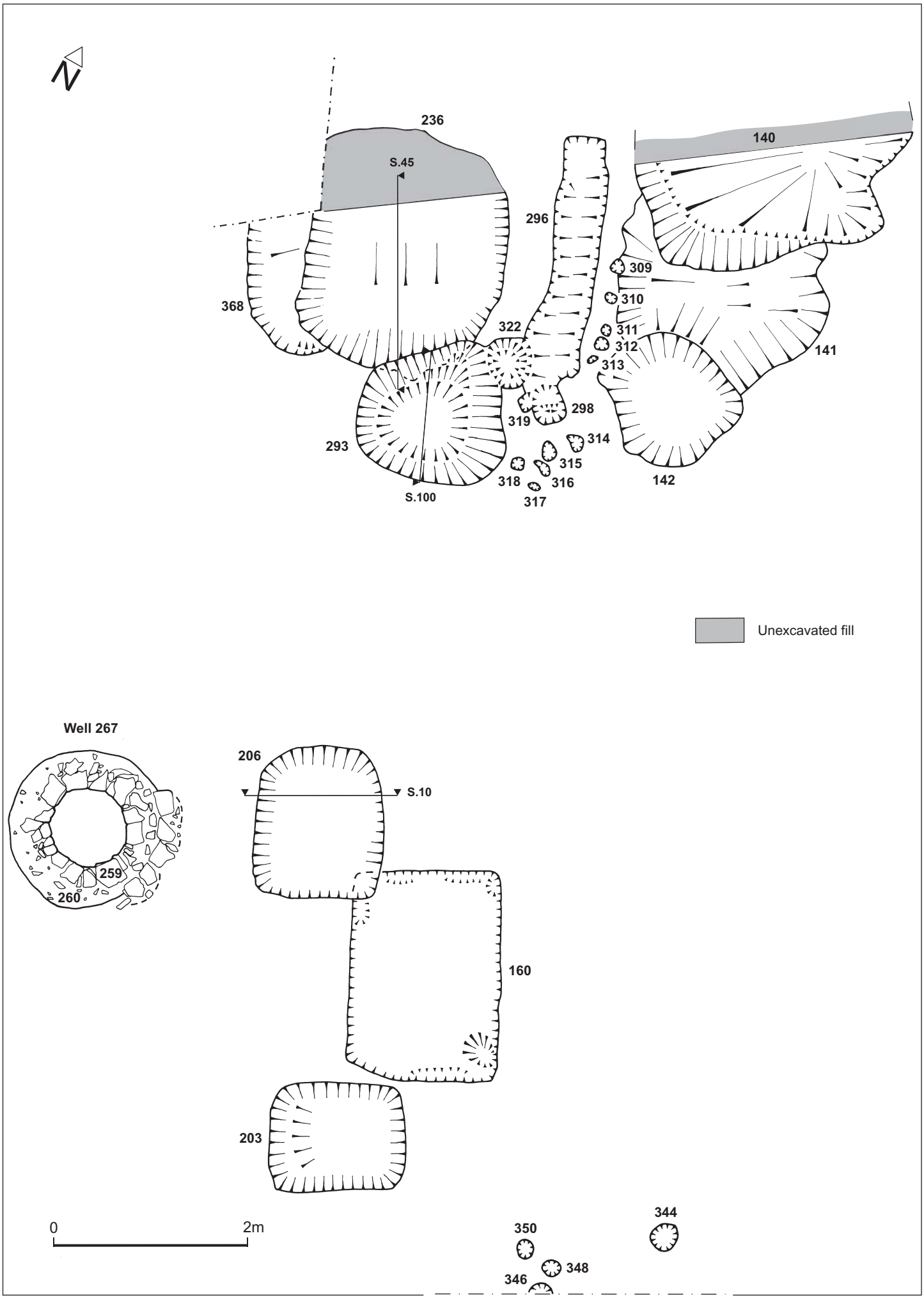


Fig. 18. Detailed plan of Phase 3B Group 2 pits, post-holes/stake-holes, gully and well

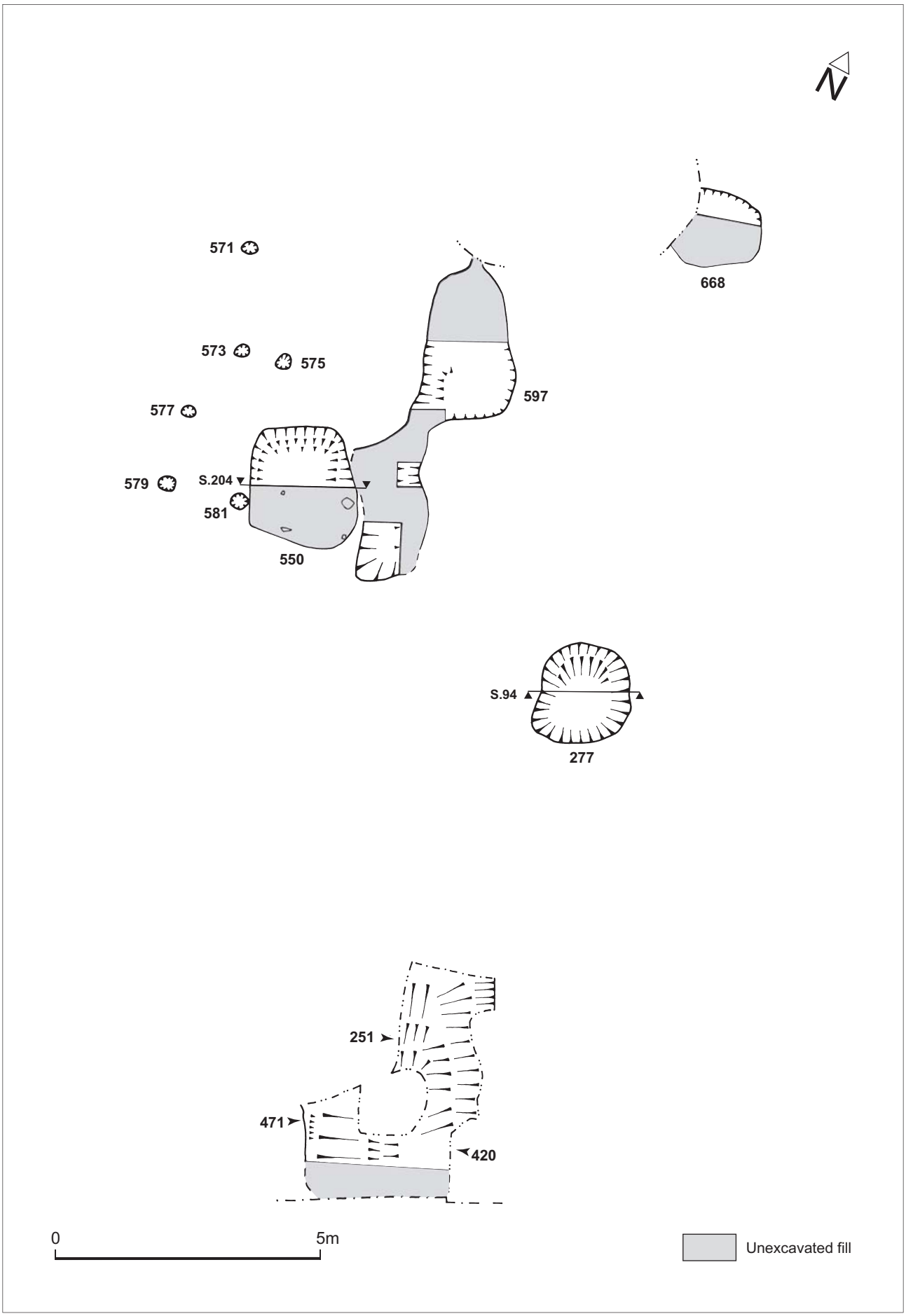
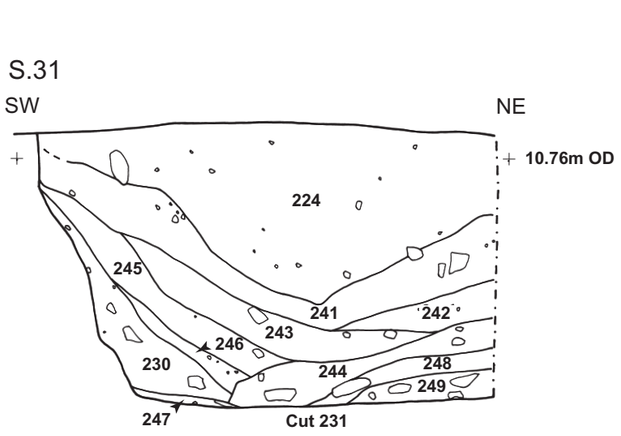
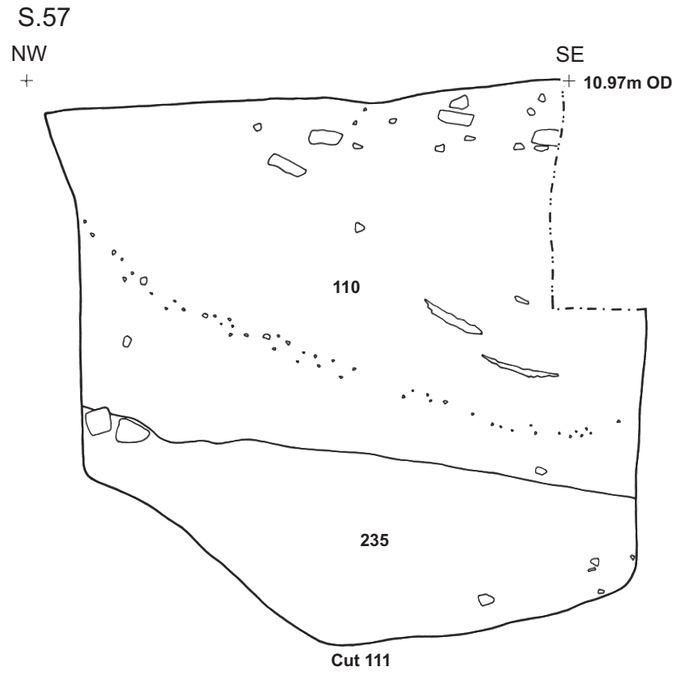
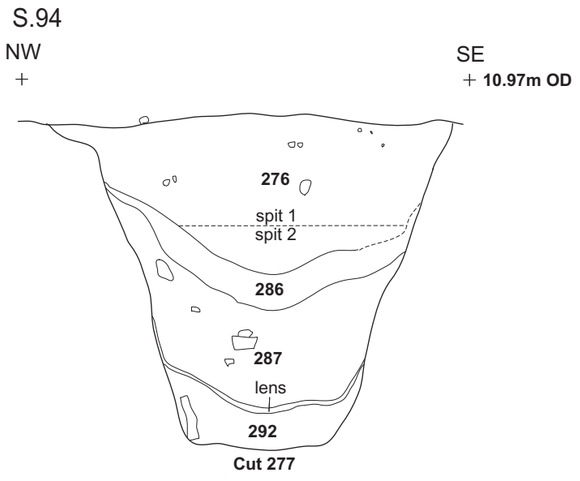
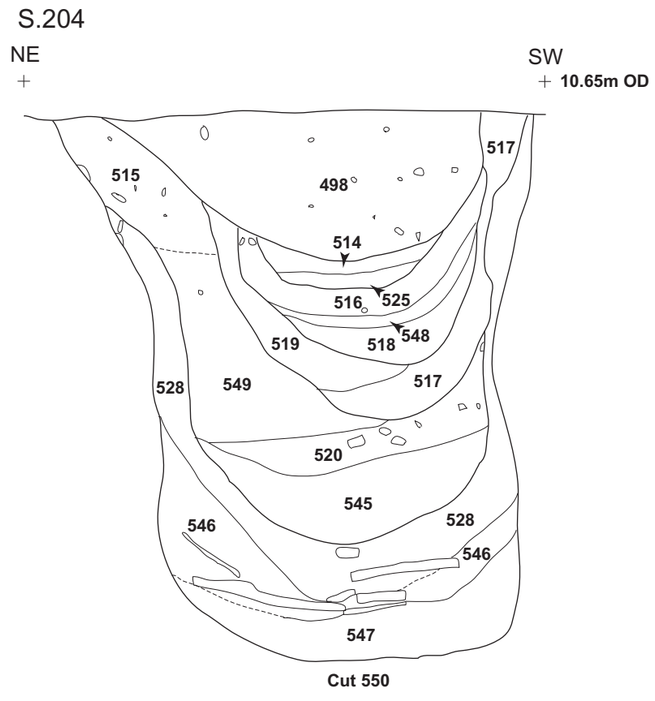


Fig. 19. Detailed plan of Phase 3B Group 3 pits and post-holes









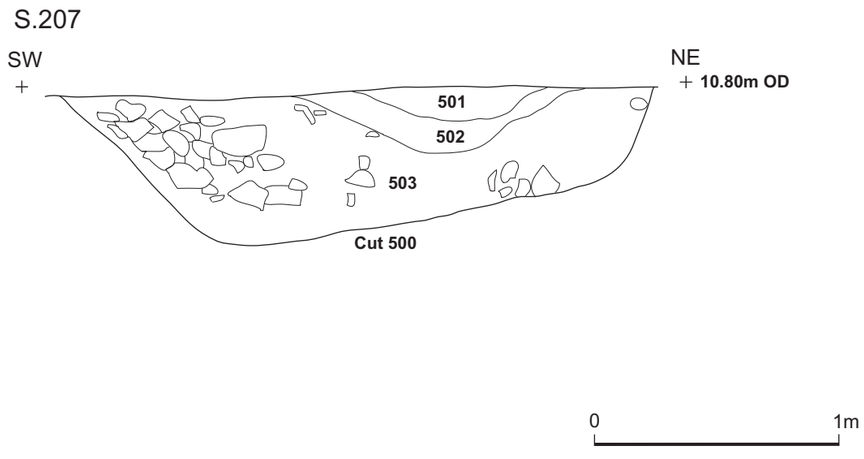


Fig. 20. Sections of Phase 3B pits 550, 277, 500, 111, 231

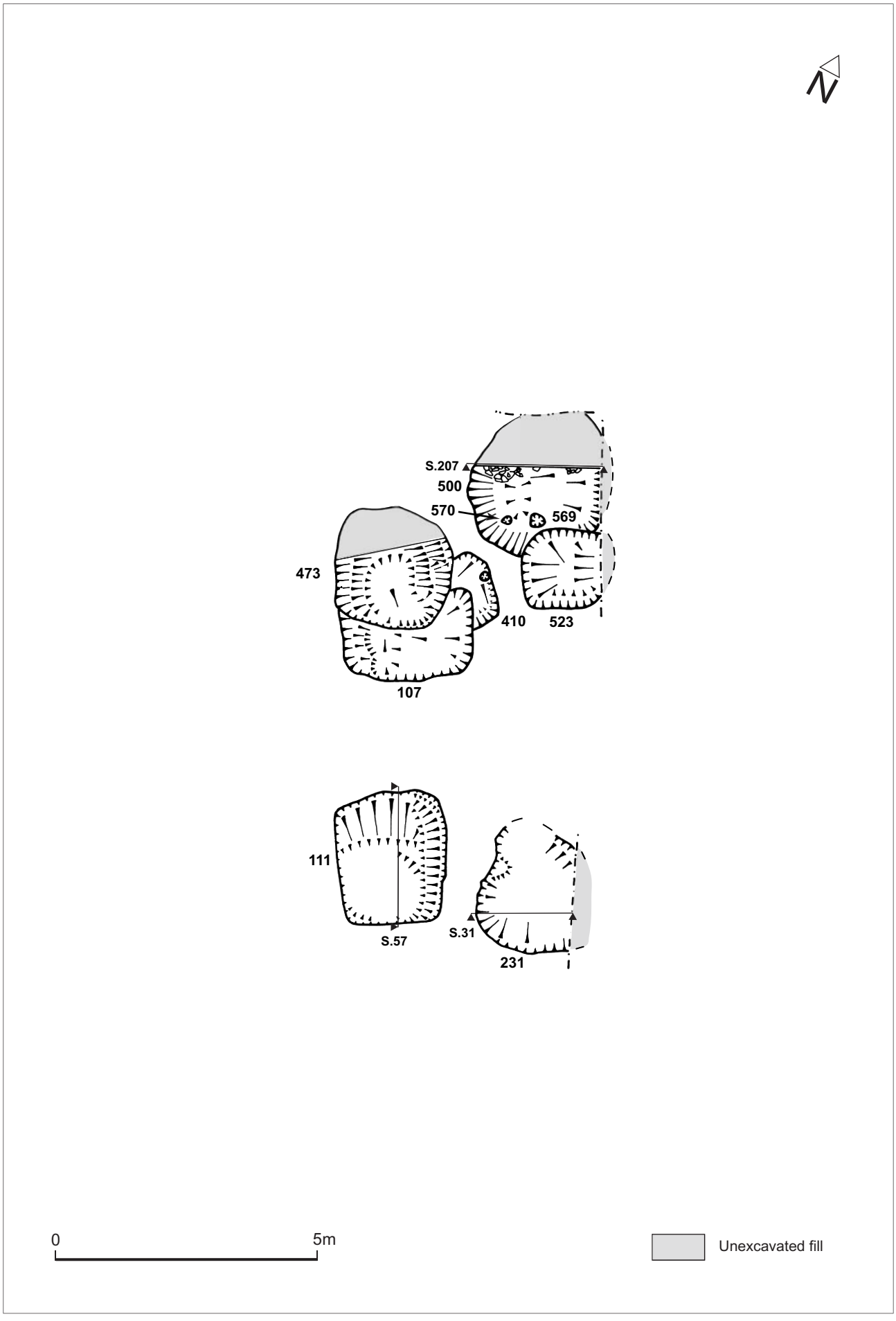


Fig. 21. Plan of Phase 3B group 4 pits

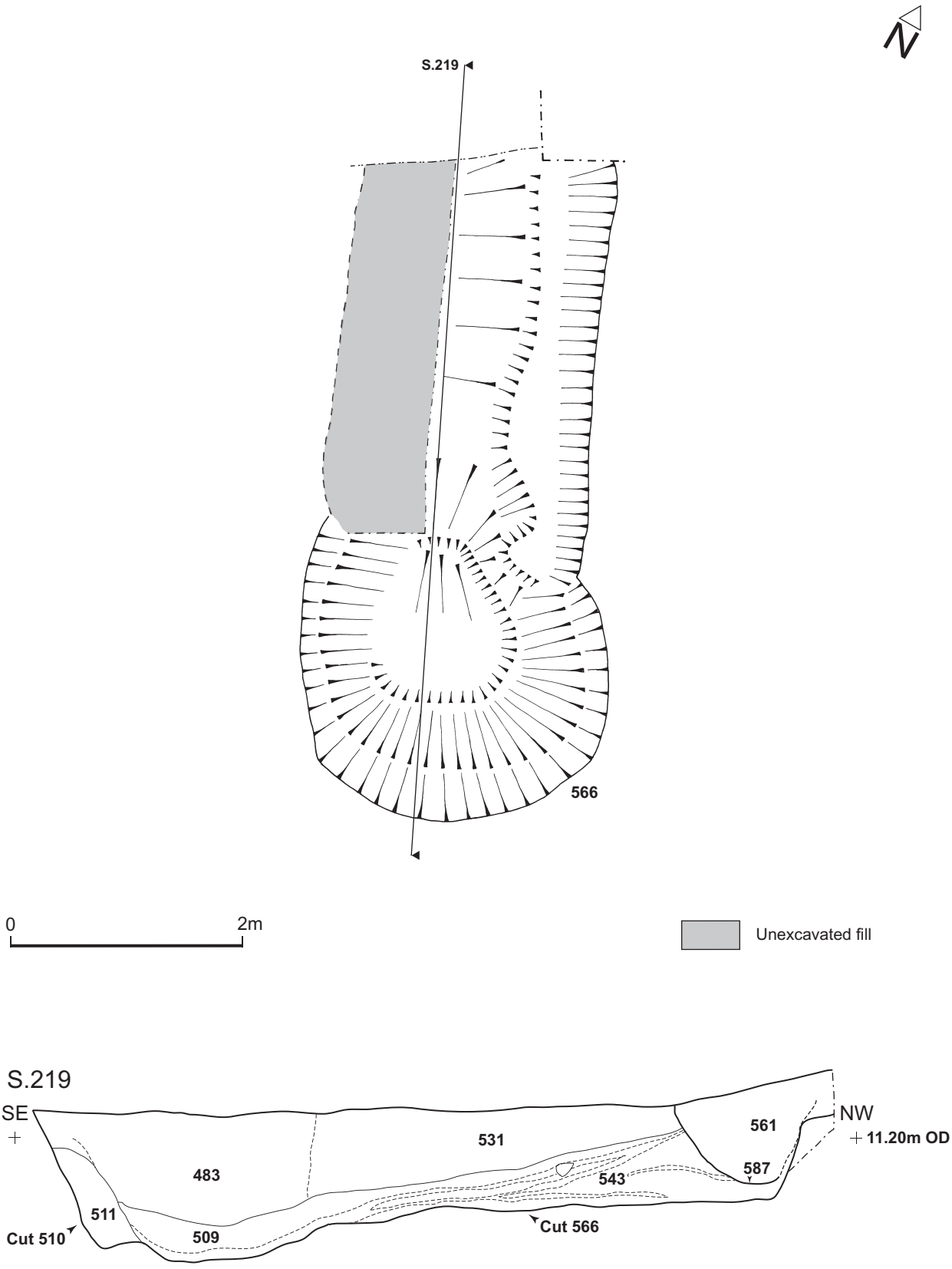


Fig. 22. Detailed plan and section of Phase 3B oven 566

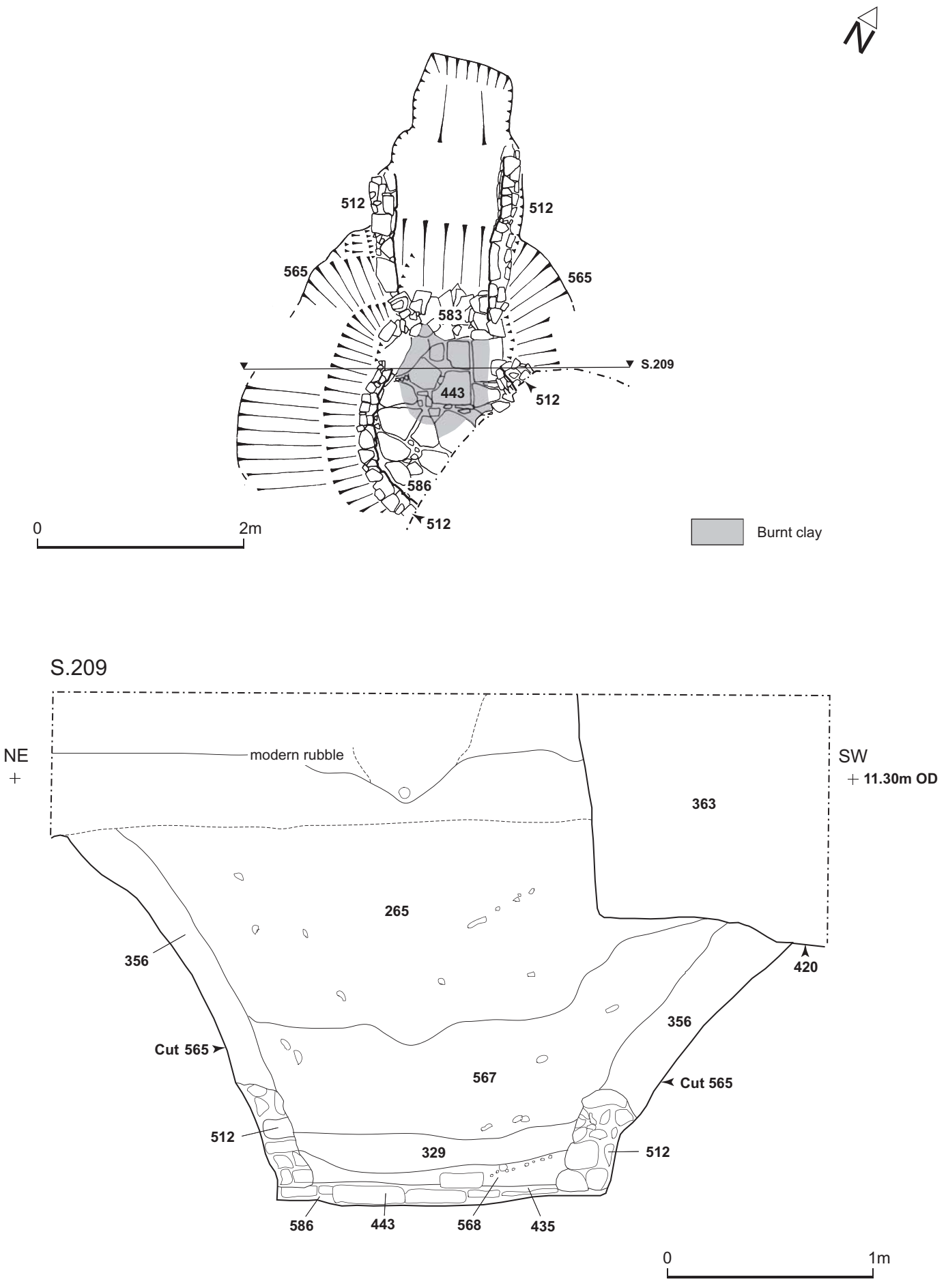


Fig. 23. Detailed plan and section of Phase 3B oven 565

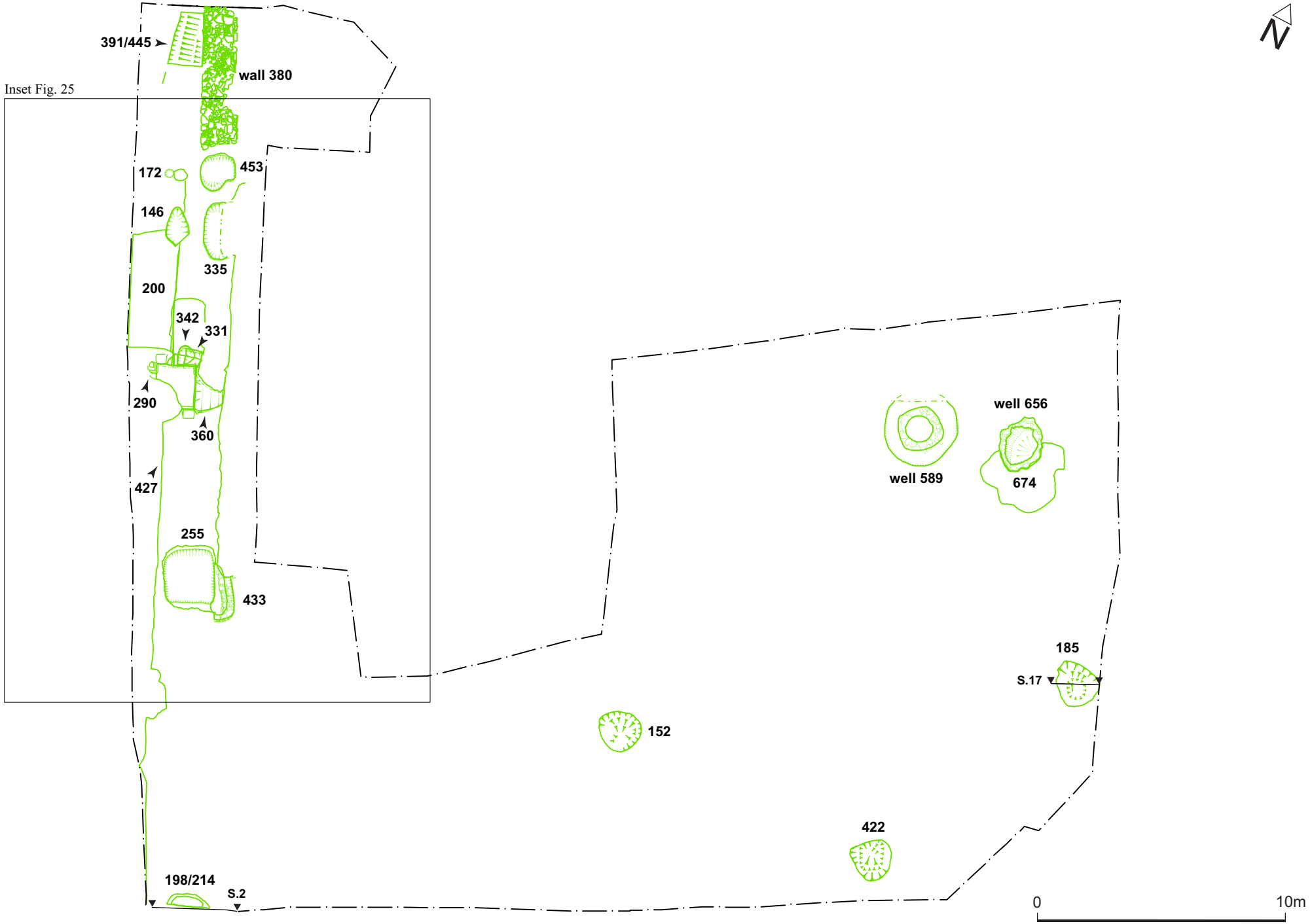


Fig. 24. Plan of Site showing Phase 3C medieval features

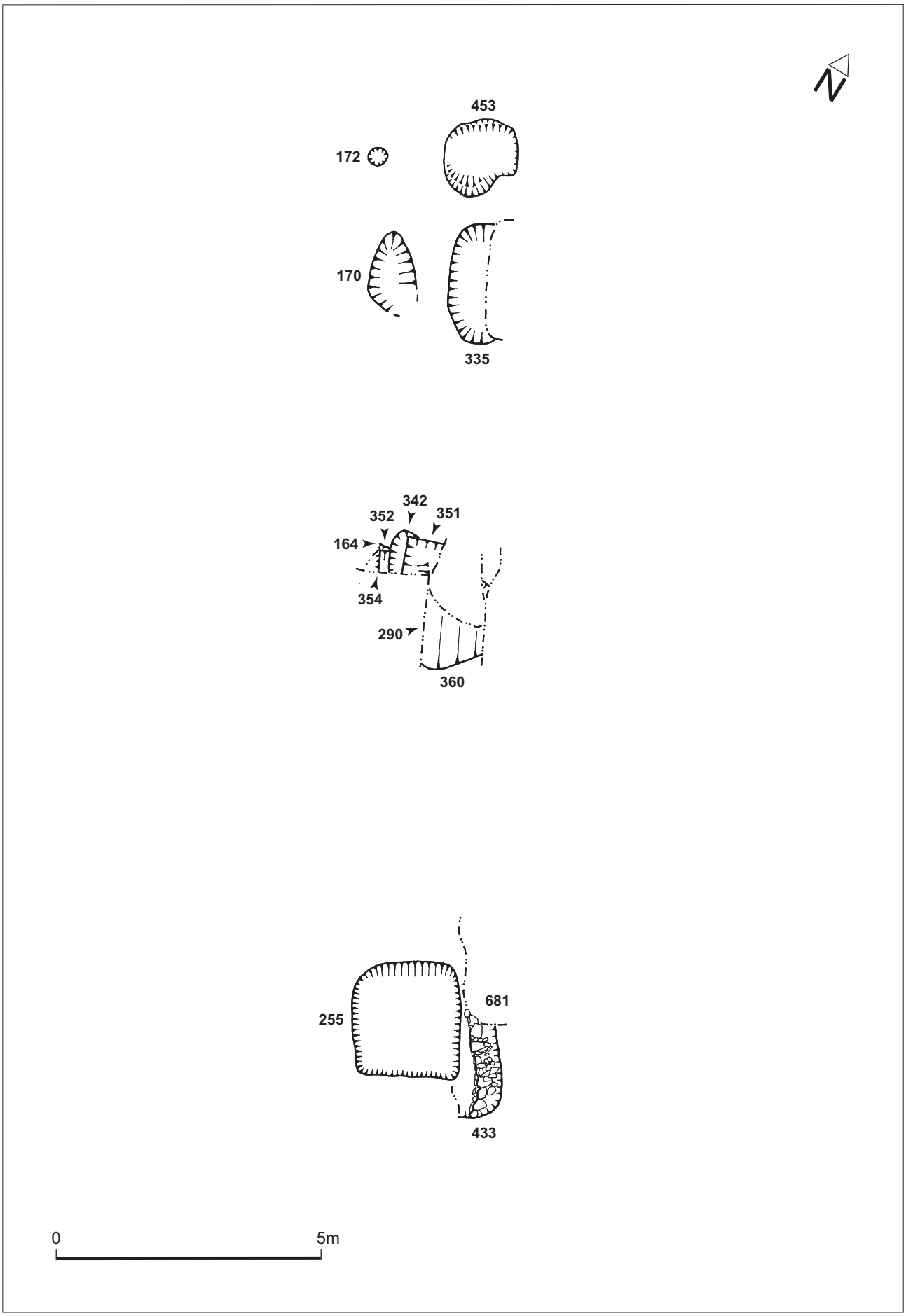


Fig. 25. Detailed plan of Phase 3C pits and post-holes

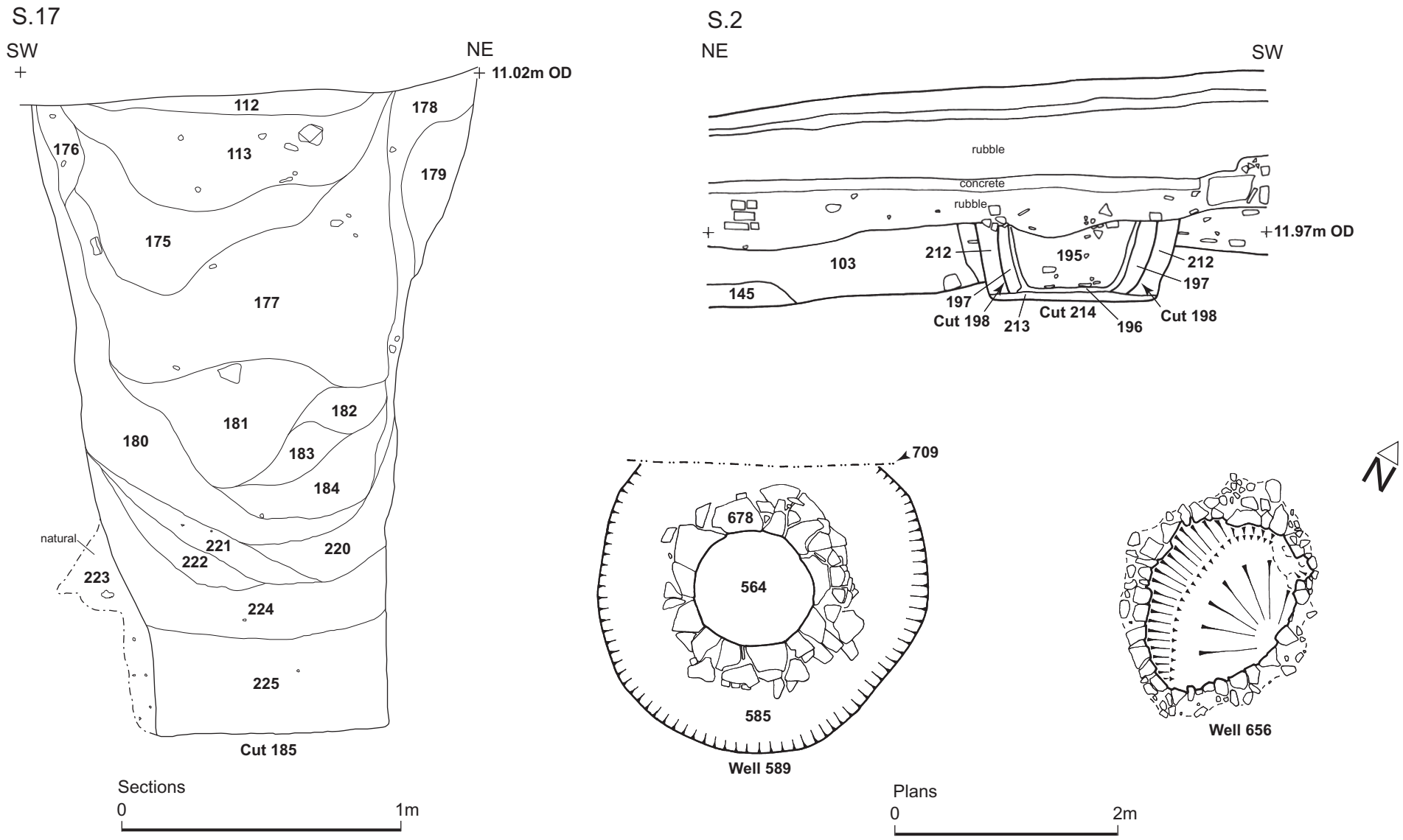


Fig. 26. Sections of Phase 3C pits 185, 198, 214; and more detailed plans of Phase 3C wells 589 and 656

Fig. 27. Plan of Site showing Phase 3D late medieval features

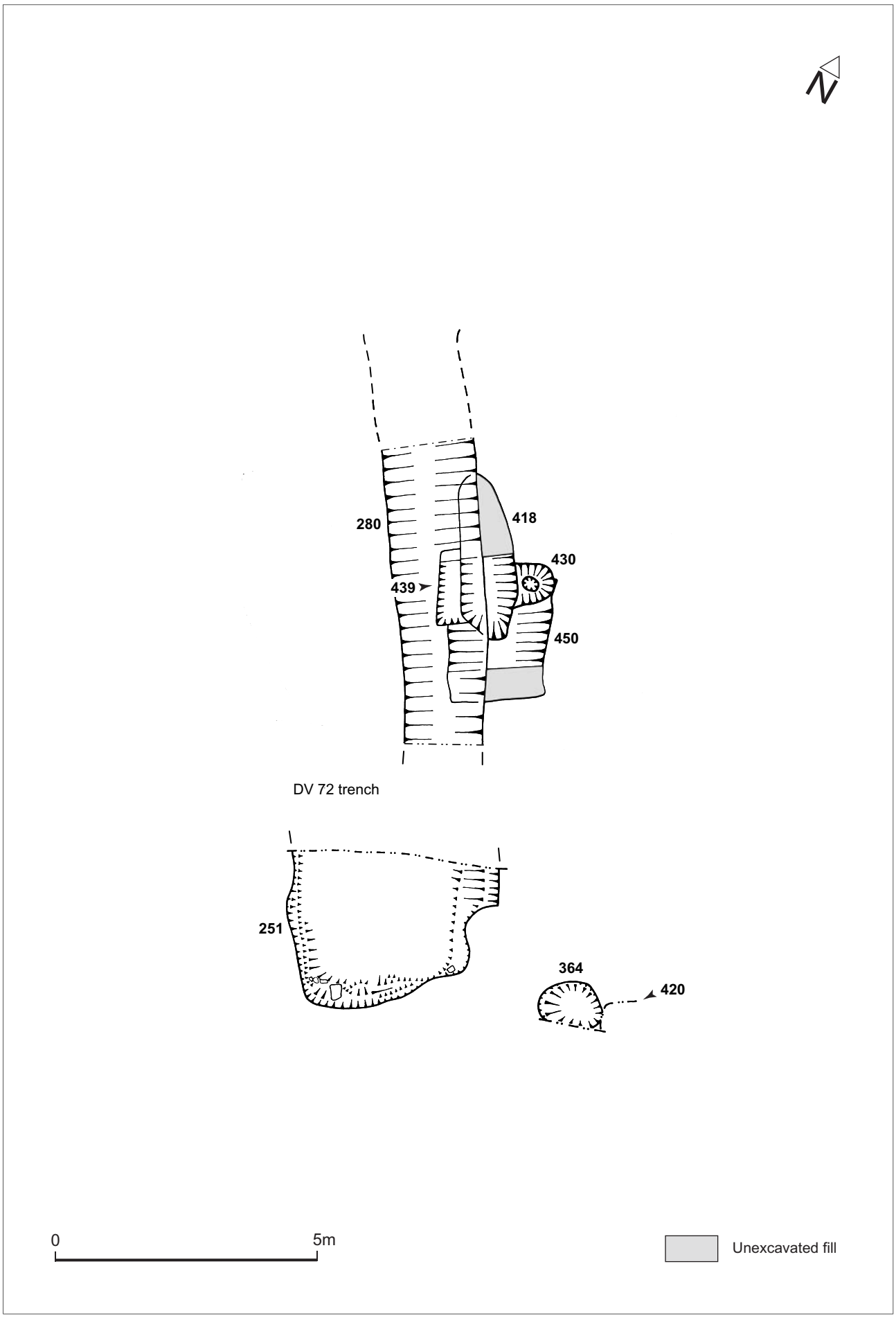


Fig. 28. Detailed plan of Phase 3D pits and ditch/gully

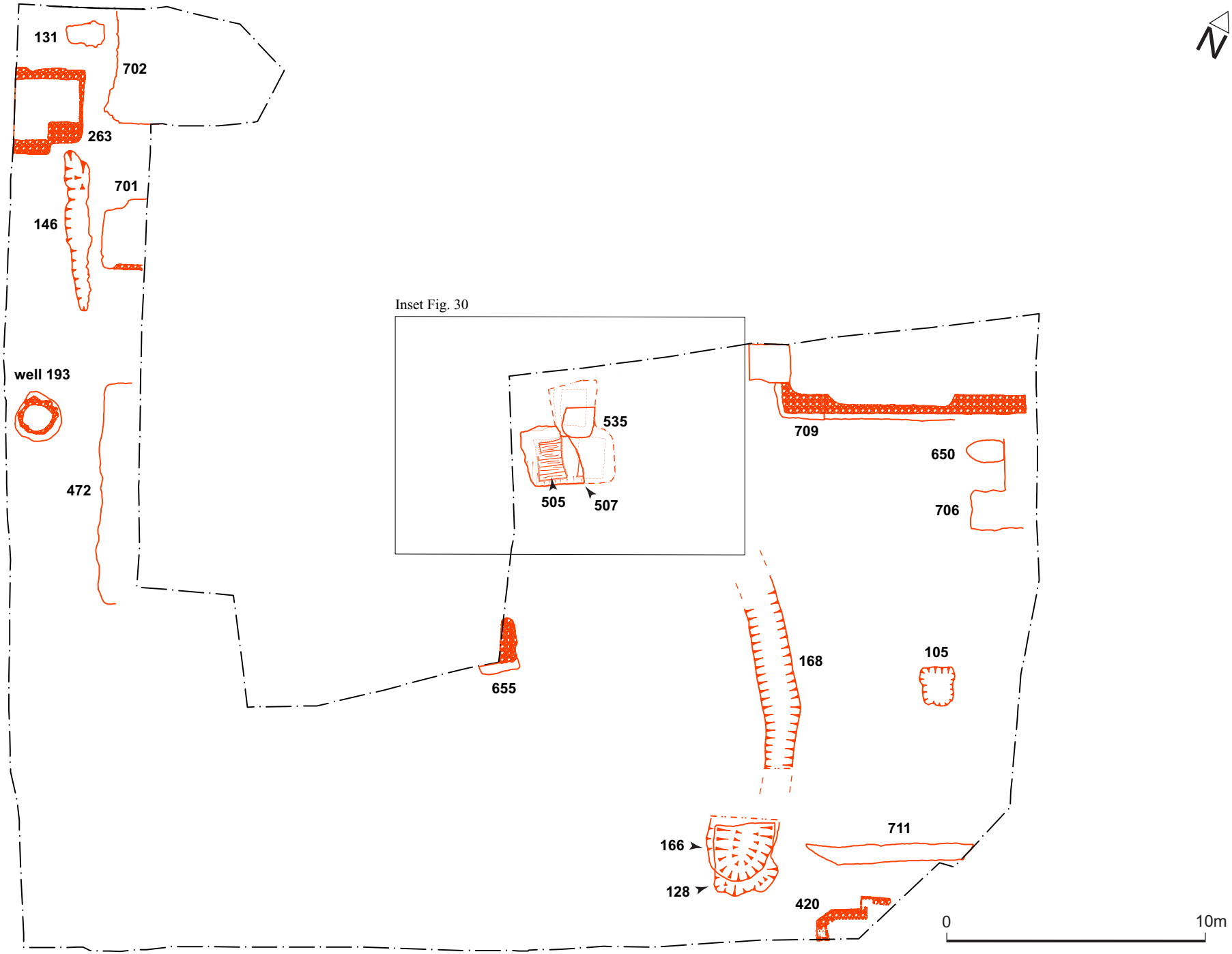


Fig. 29. Plan of Site showing Phase 4 post-medieval and early modern features

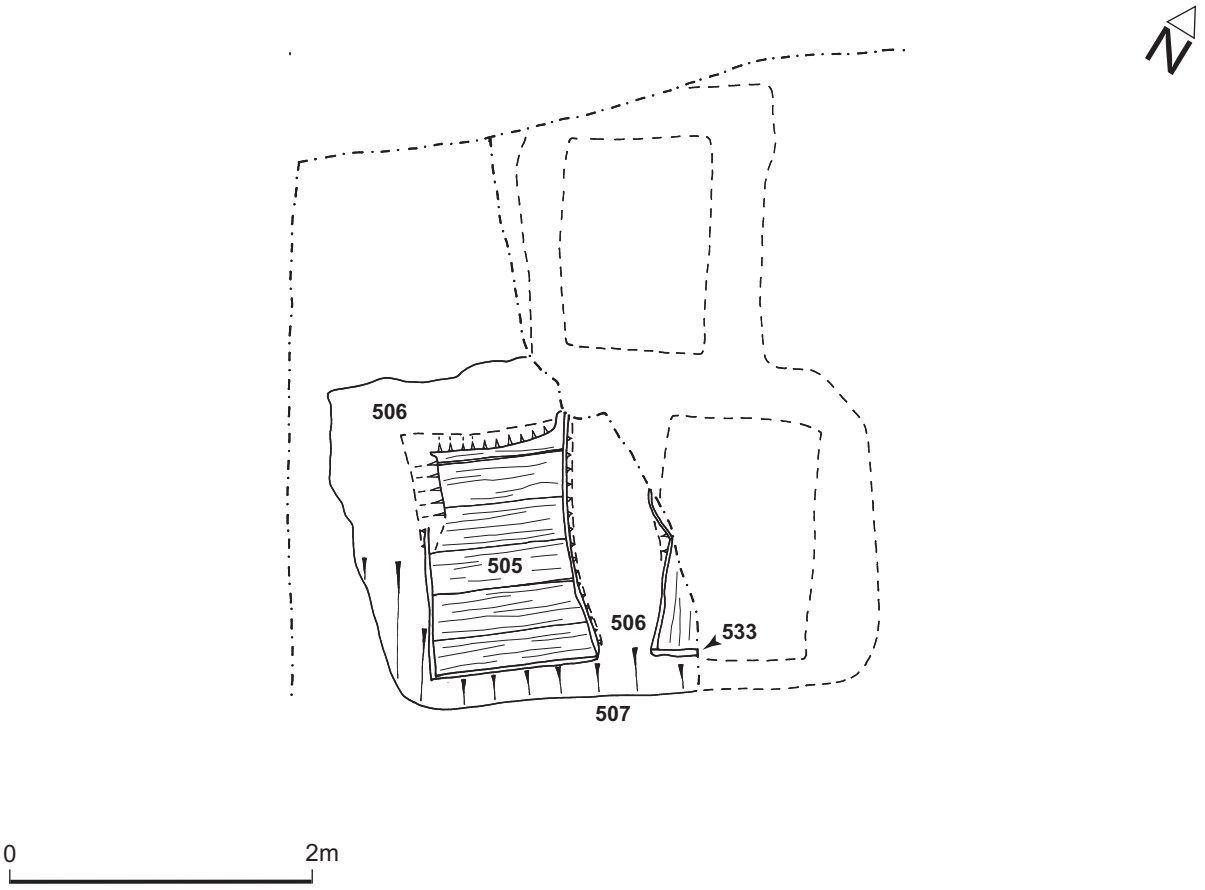


Fig. 30. Detailed plan of tawing pit complex 507, also showing the timber base and lining (505) of the one main surviving pit

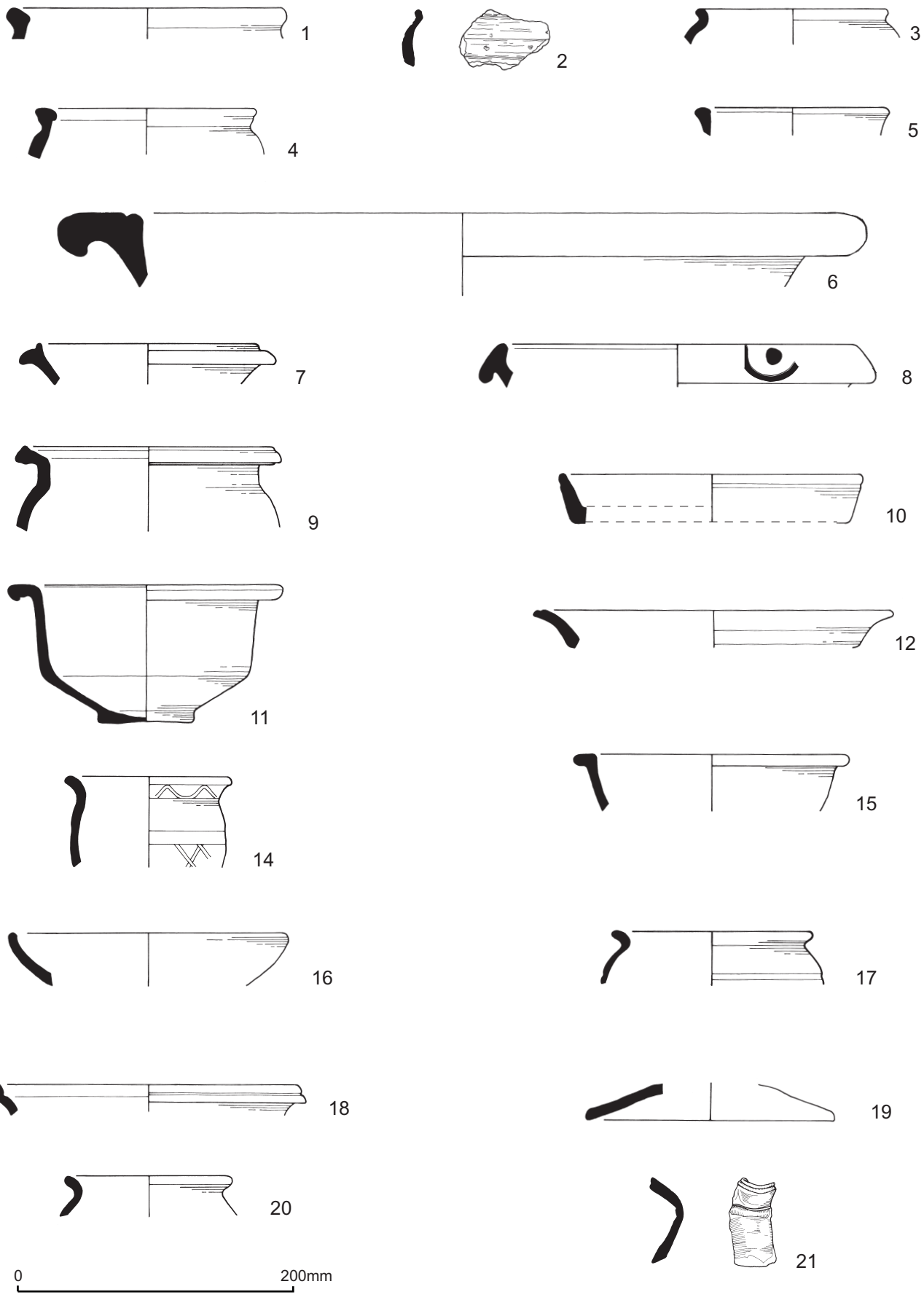


Fig. 31. Pottery Nos 1-21

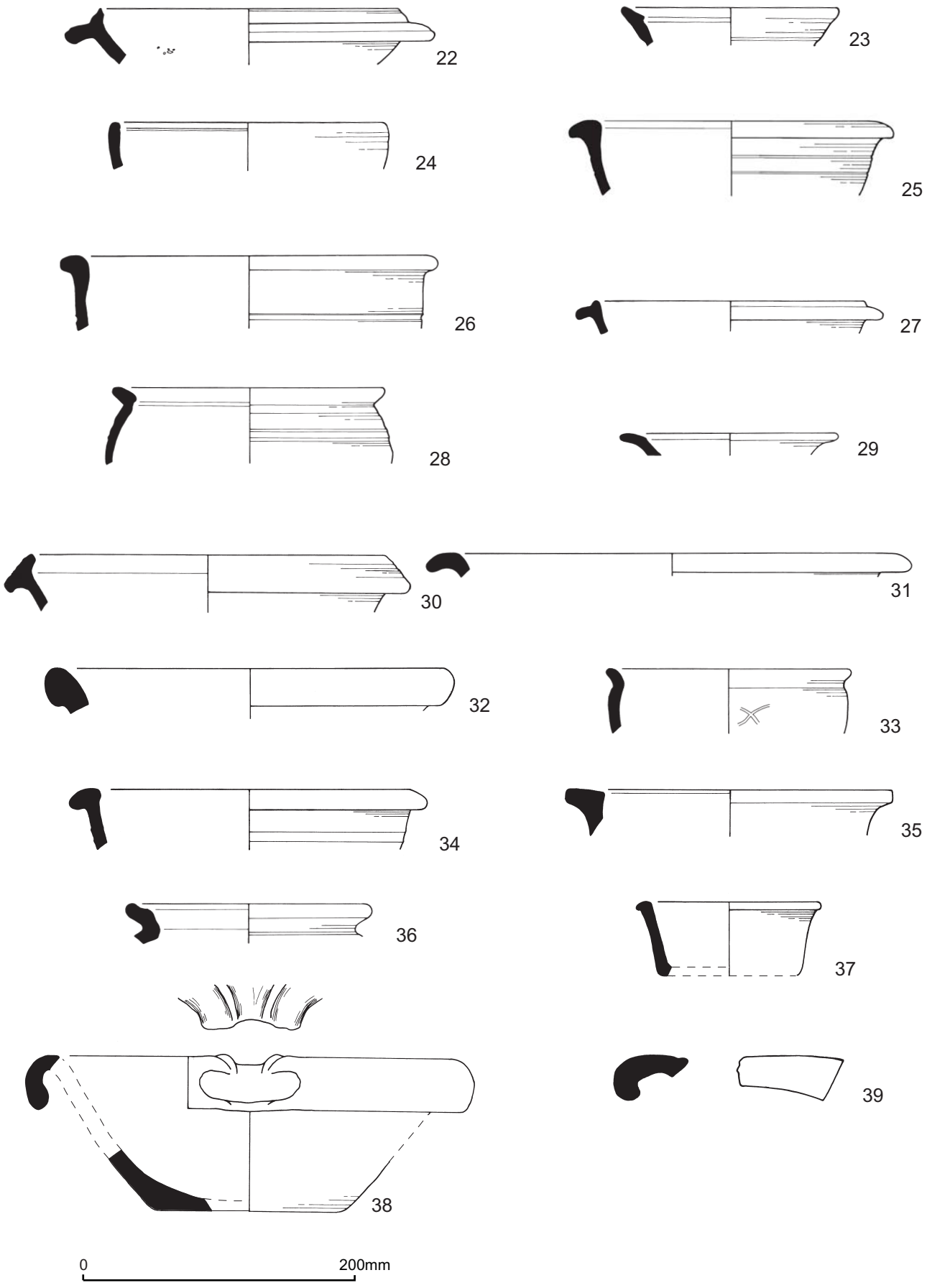


Fig. 32. Pottery Nos 22-39

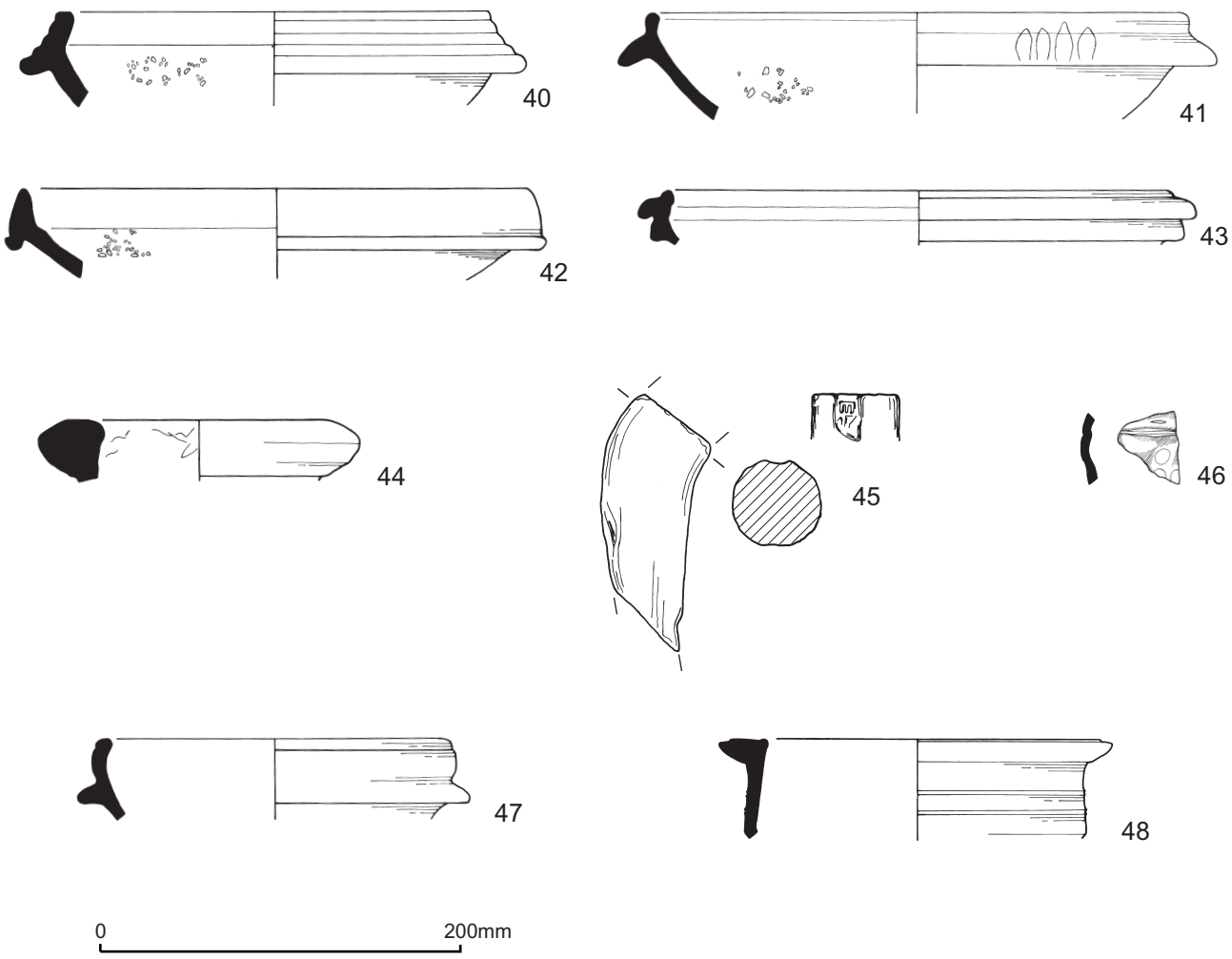


Fig. 33. Pottery Nos 40-48

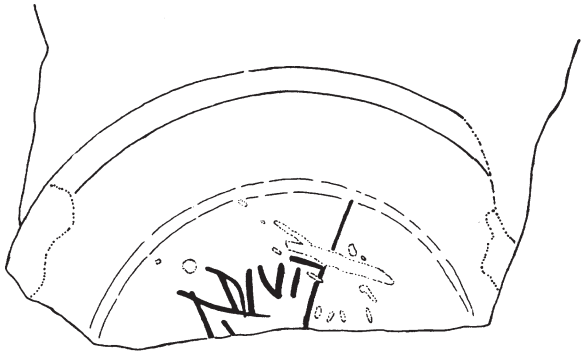


Fig. 34. Samian graffito

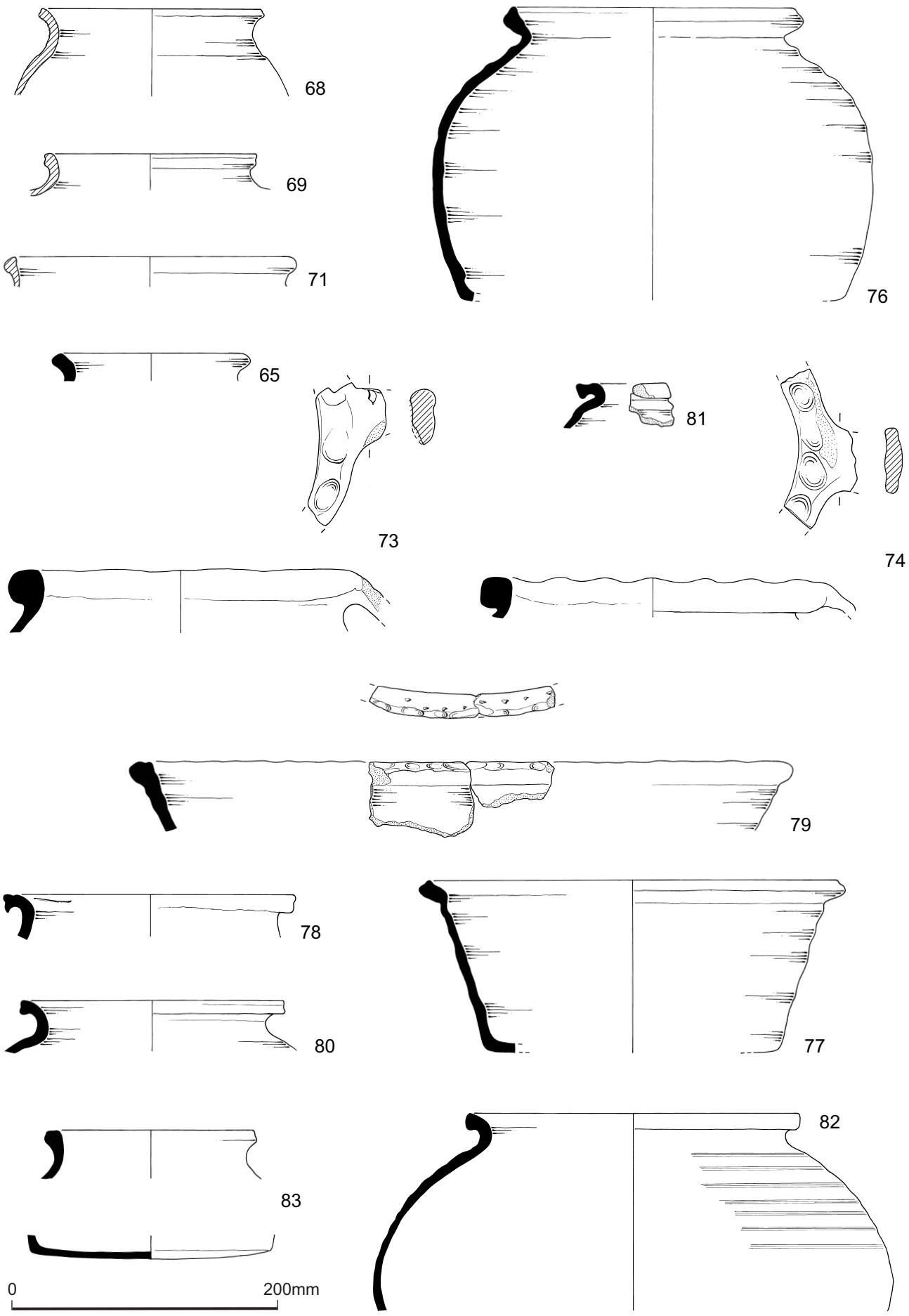


Fig. 35. Pottery Nos 65, 68, 69, 71, 73, 74 and 76-83 (scale 1:4)

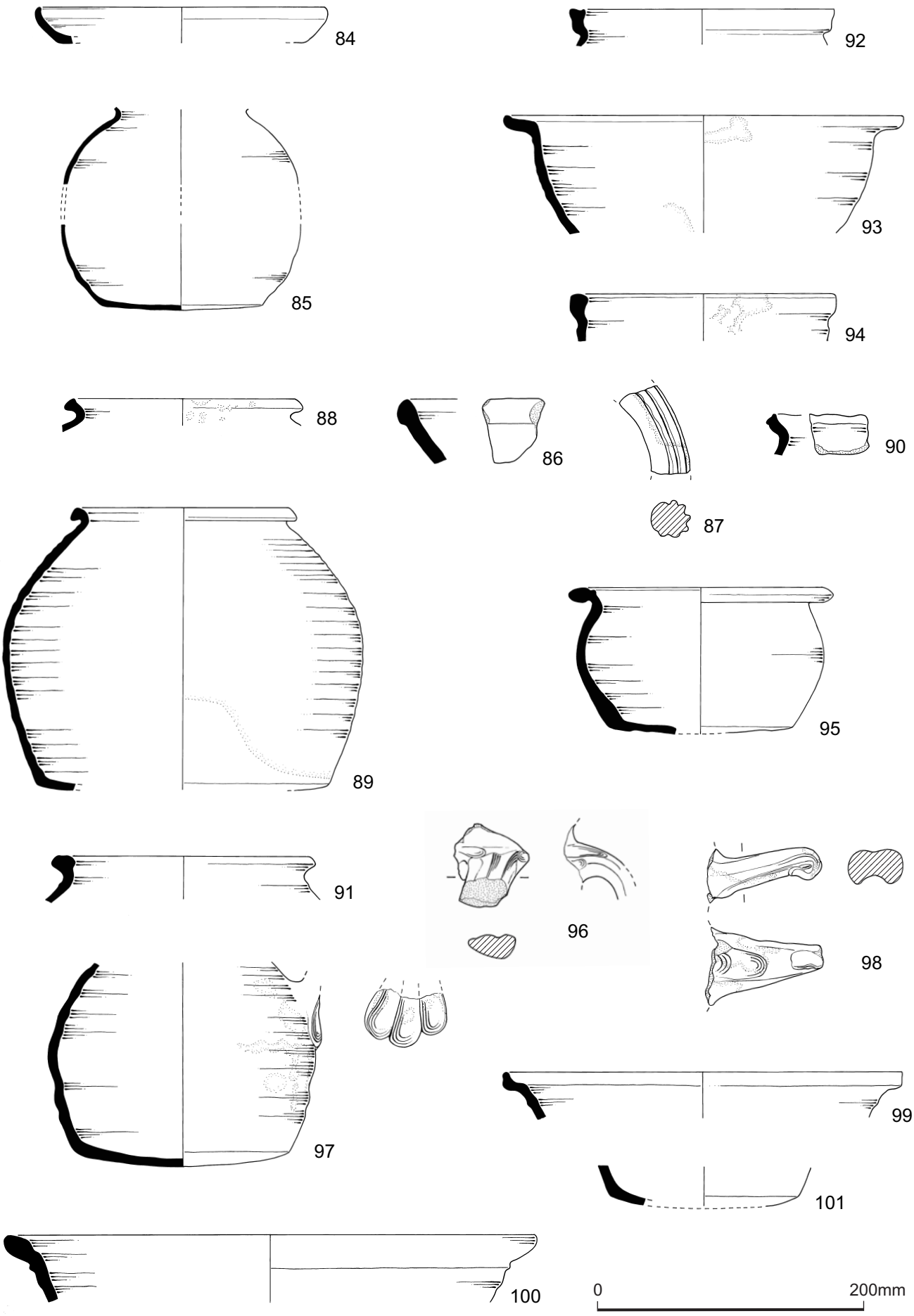


Fig. 36. Pottery Nos 84-101 (scale 1:4)

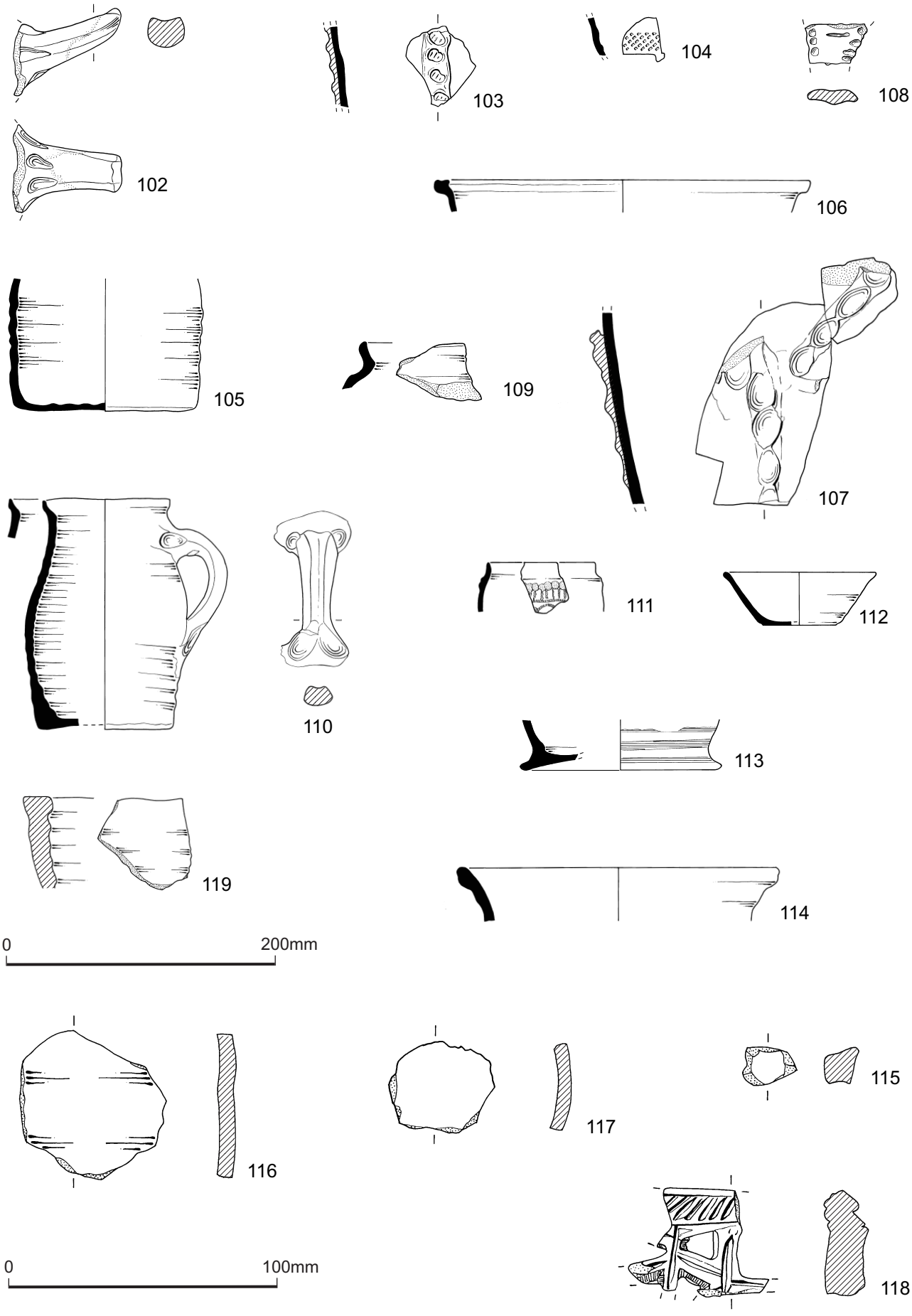


Fig. 37. Pottery Nos 102-114 and No. 119 (scale 1:4), objects Nos 115-118 (scale 1:2)

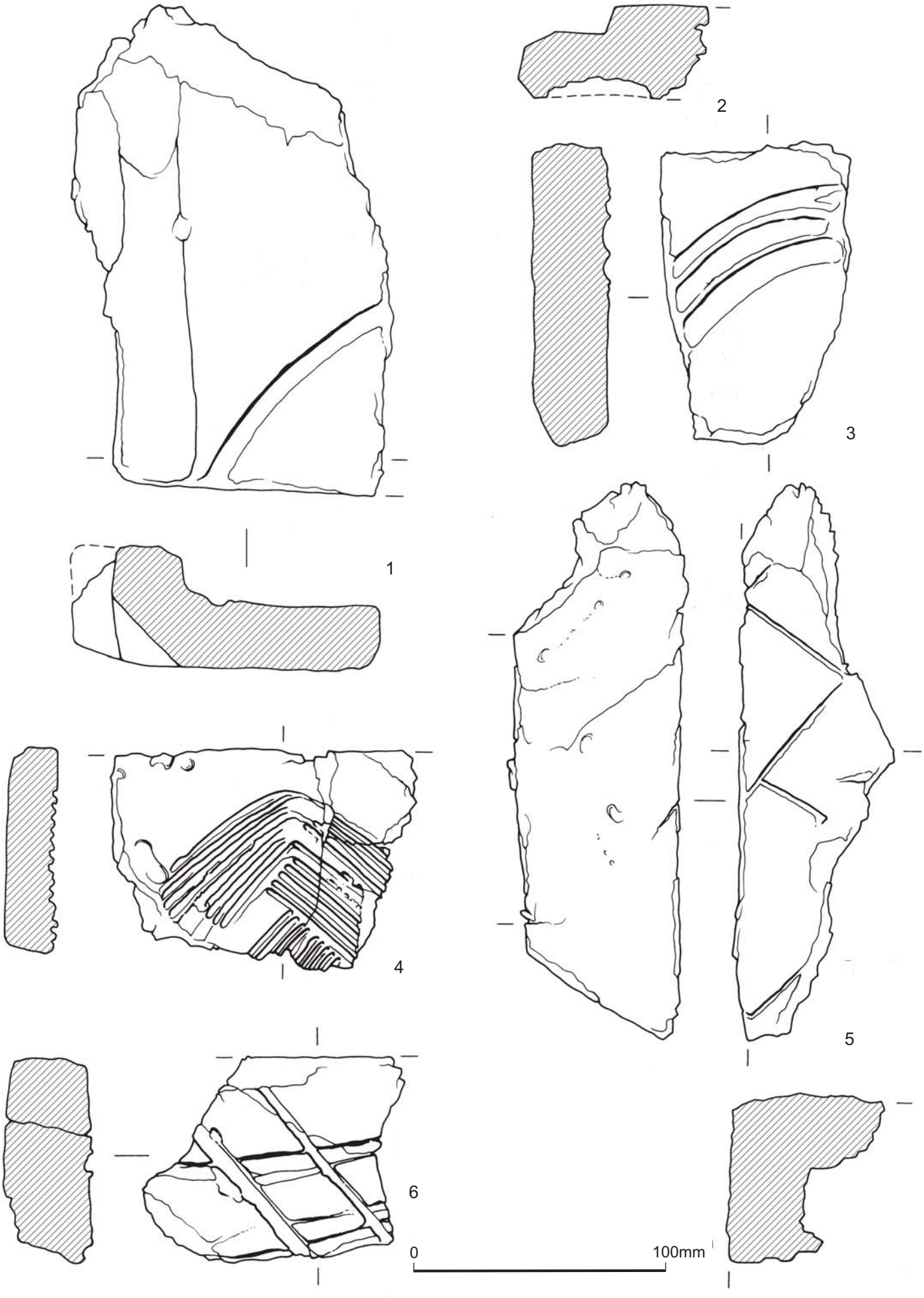


Fig. 38. Romano-British tiles Nos 1-6

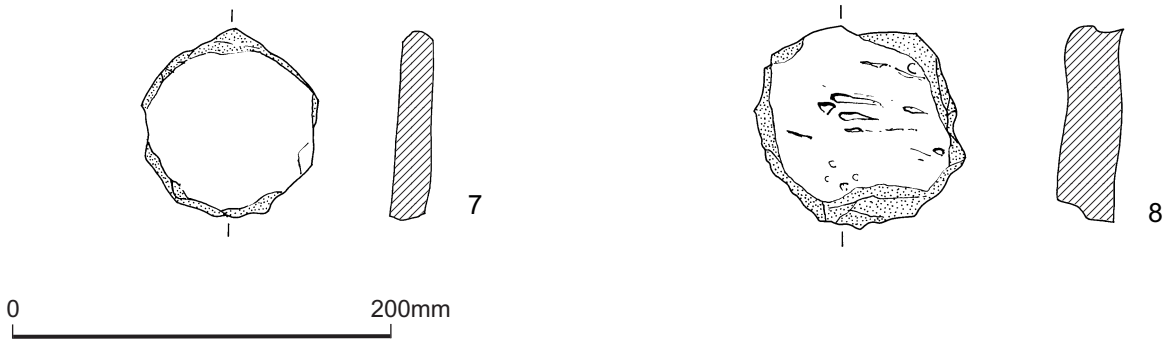
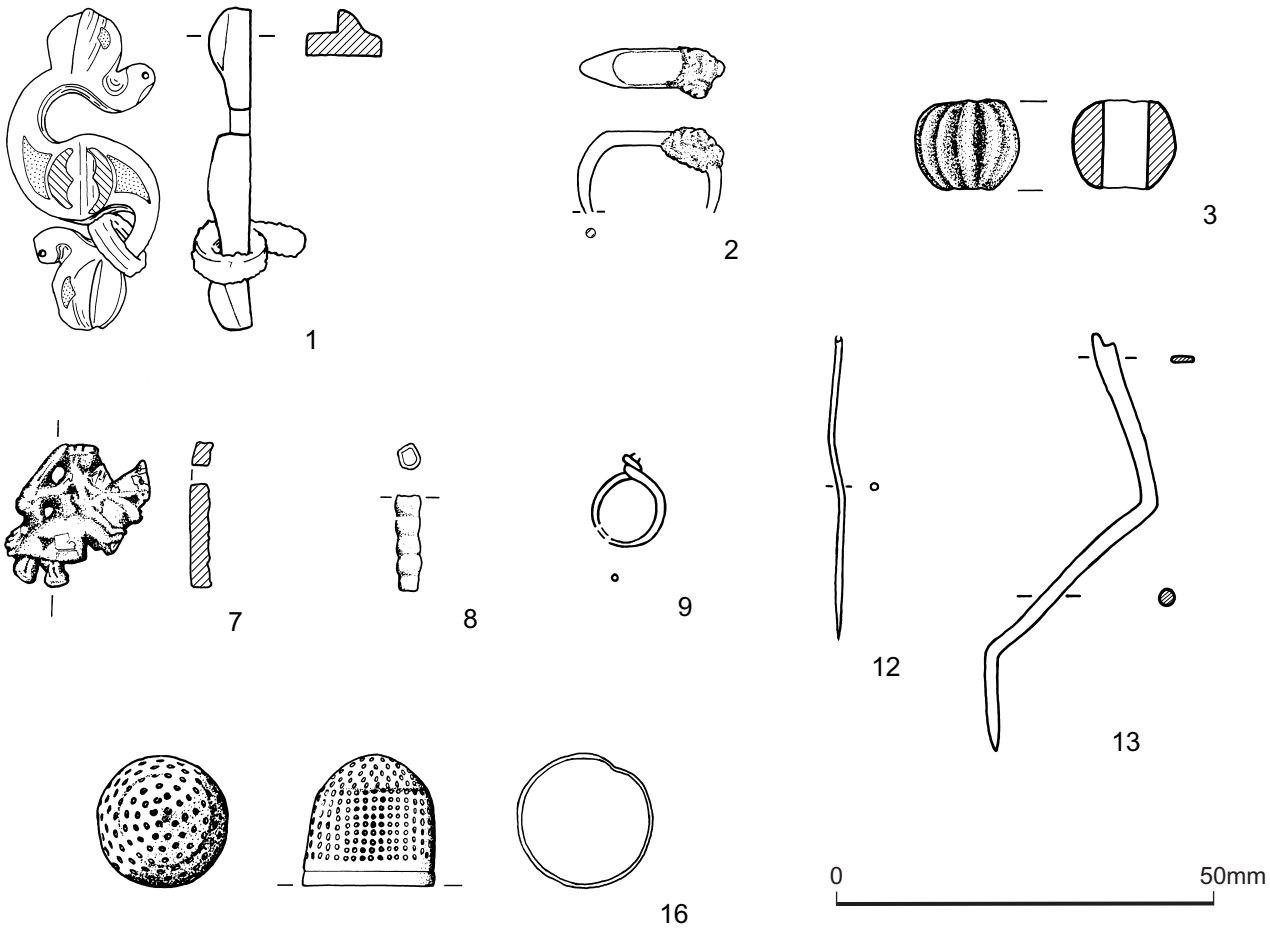


Fig. 39. Tile discs Nos 7 and 8



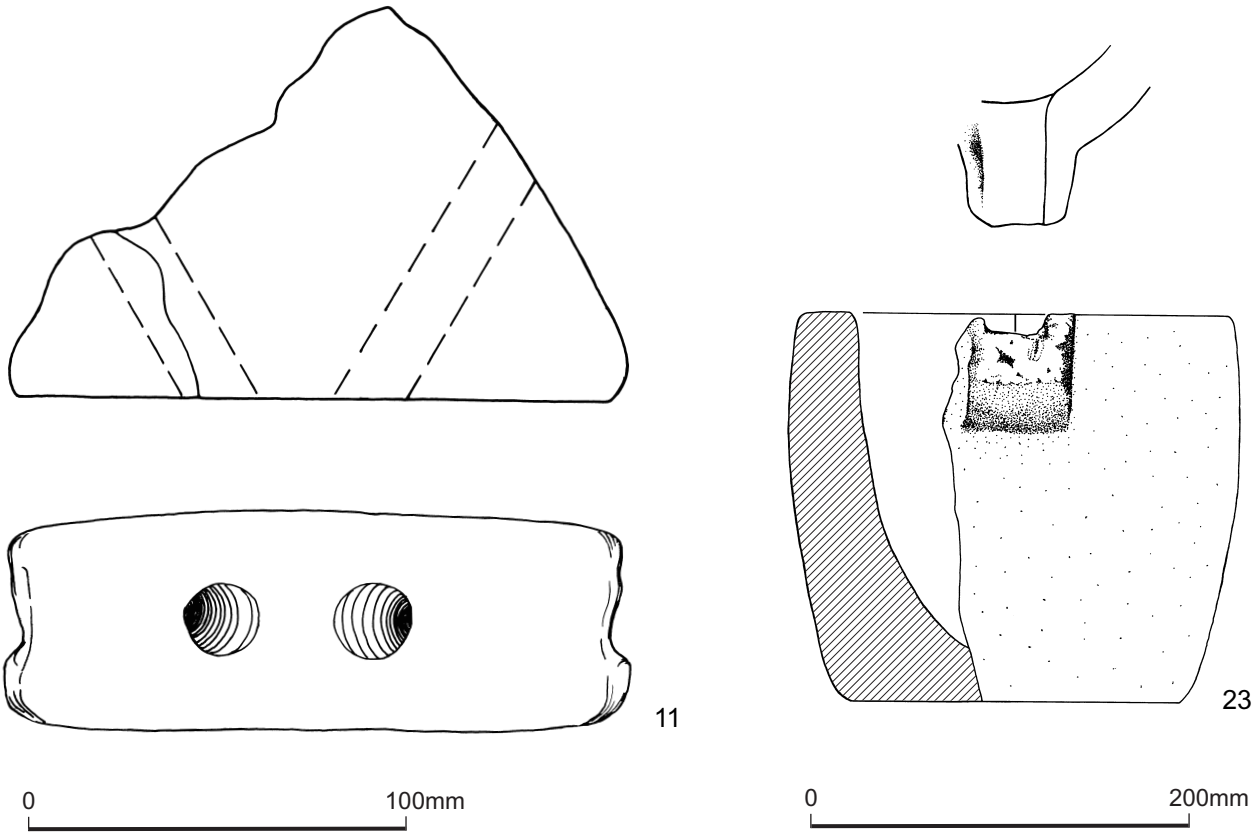


Fig. 40. Nos 1-3, 7-9, 11-13, 16 and 23

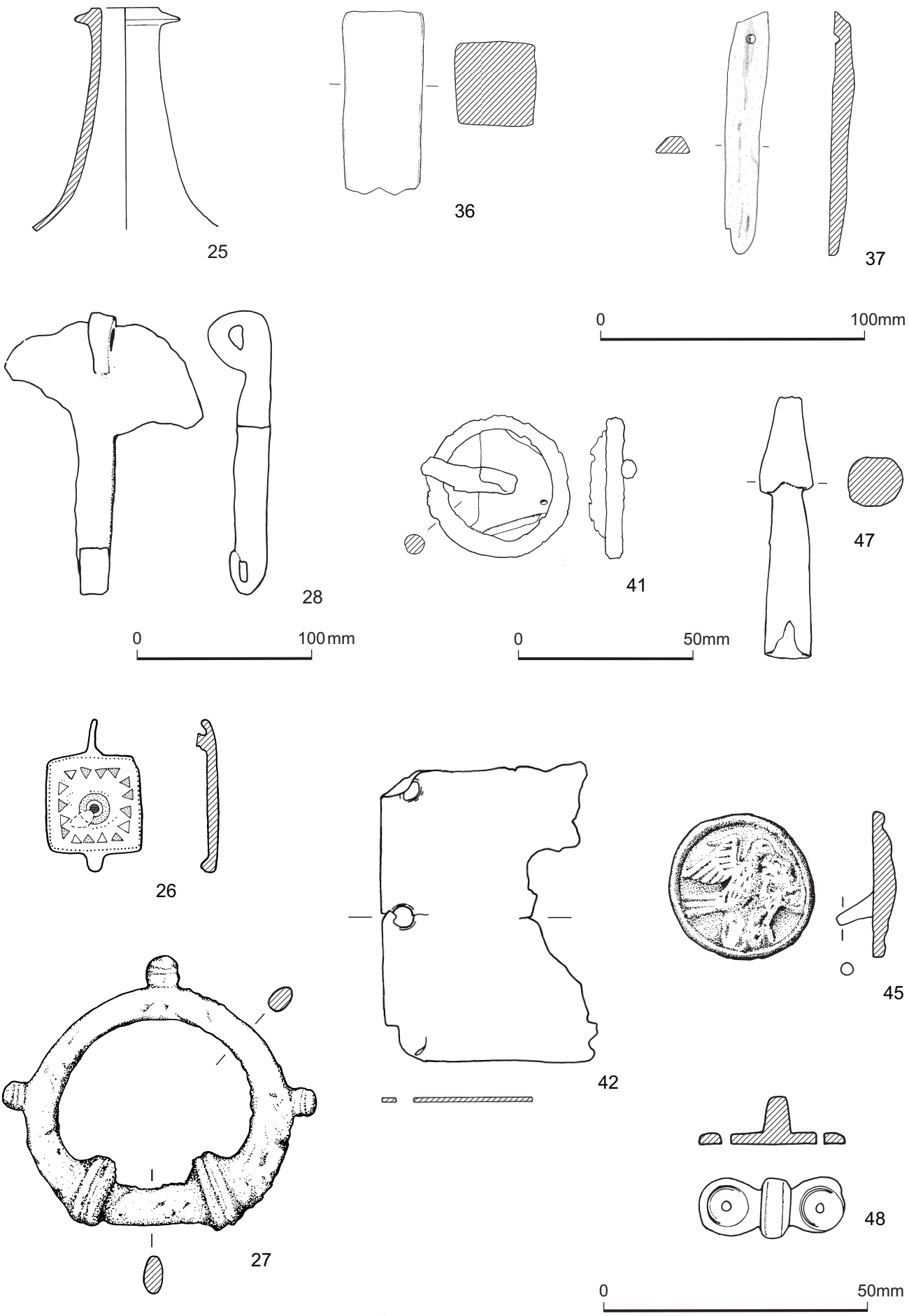


Fig. 41. Nos 25-28, 36, 37, 41, 42, 45 and 48

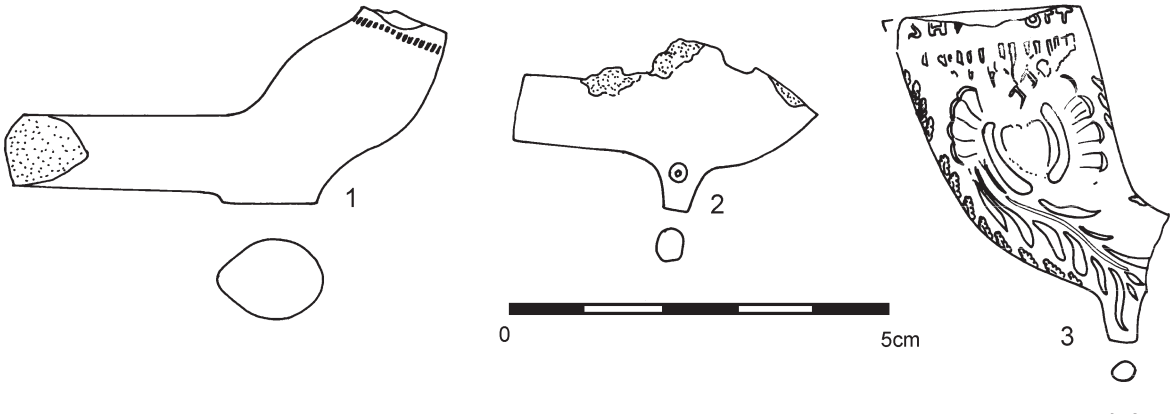


Fig. 42. Clay pipe

Plate 1. General view of the Church Walk excavation, looking west towards St George's Minster, before the Site was extended to the north.

Plate 2. General view of the Church Walk excavation looking east, taken from the tower of St George's Minster.

Plate 3. Phase 1A beamslots 745 and 750 and post-hole 754, Phase 1B beamslots 728 and 740, and associated but largely unphased Romano-British post-holes and stake-holes; looking north. Note the truncation by the later Roman fort wall to the north (left) of the image.

Plate 4. Part of the complex Romano-British stratigraphy revealed in the south-west of the Site, in the side of later robbing cut 427. Large pit 791 and pits or post-holes 813 and 864 are visible. Gravel surface 797 is slumping into the soft fill of cut 864. Compare with Fig. 9.

Plate 5. Phase 1C Roman fort wall pitched stone footings 411, looking north. Note the truncation by later wells and pits, and the variable extent of later robbing by cut 427.

Plate 6. Detail of Phase 1C Roman fort wall stone footings 411, looking east.

Plate 7. Working shot of Phase 2 ditch 325 under excavation, looking north-east.

Plate 8. Phase 2 ditch 492 being recorded after excavation, looking west. Note the step on the western edge that might indicate a possible recut, and the later deep pit or well cut 450.

Plate 9. Partial section across Phase 3A ditch 377 looking north-west. This large feature was possibly part of the Norman castle defences.

Plate 10. Phase 3B pit cut 111 looking east, showing its great depth and the green-stained, mineralised sides typical of many of the Phase 3B-3D pits.

Plate 11. Phase 3B oven 565 looking north and photographed from the south-eastern edge of excavation. Note the stone lining and the burning on the stone oven floor slabs.

Plate 12. Phase 3B stone-lined well 267 looking east, previously investigated in Site DV 72.

Plate 13. Phase 3C pit 290 looking north-east, showing the put or mortice holes in the stone lining 289, and traces of lime on the base of the pit.

Plate 14. Another view of Phase 3C pit 290 looking west, showing its truncation by later Phase 4 well 193, whose stone lining has already been partly dismantled in this photograph.

Plate 15. Phase 3C pit 185, looking east. Note its depth and the mineralisation on its sides.

Plate 16. Phase 3C masonry wall 380, looking south. Construction cut 391/445 is visible to the west (right), and the 'step' on the eastern, possibly inner face (left) is also apparent.

Plate 17. Phase 3C masonry wall 380 looking west, showing its possible inner, stepped face revealed in an early modern cellar cut. Below the construction cut 391/445 of wall 380 is the backfilled robber cut 427, and on the northern side of the cellar (right), Phase 1A ditch cut 530 is visible. Compare with Fig. 6, S.137.

Plate 18. Phase 3C stone-lined well 656, looking south-east. Its unusual plan and profile and the differences in stonework may indicate that it was constructed in two phases.

Plate 19. Phase 3D masonry wall 307 looking north, showing earlier Phase 3C wall 380 beyond. Later truncation is also evident to the west (left) of wall 307.

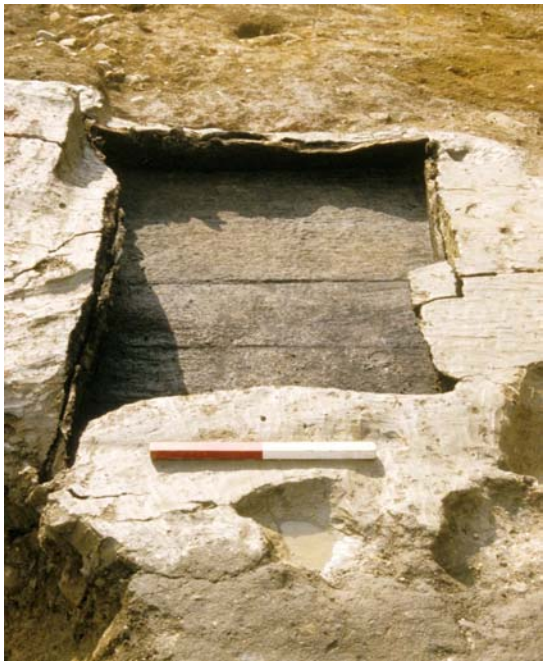


Plate 20. Phase 4 tawing pit 507 showing clay lining 506 and timber-lined ‘tank’ 505.

Plate 21. Sherds of an imported medieval Rouen ware jug from fill 398 of Phase 3C pit 255. (C.G. Cumberpatch)

Plate 22. Sherds of a London-manufactured imitation of Rouen ware from fill 271, also within Phase 3C pit 255. (C.G. Cumberpatch)

Plate 23. Anglo-Dutch Tin Glazed Earthenware plate sherds from fill 504, within the timber-lined tawing tank 505 in Phase 4 pit 507. (C.G. Cumberpatch)

Plate 24. Fragment of type 6 flat roof tile from Phase 3C deposit 200, showing a linear, chain-like impression. (S. Tibbles)

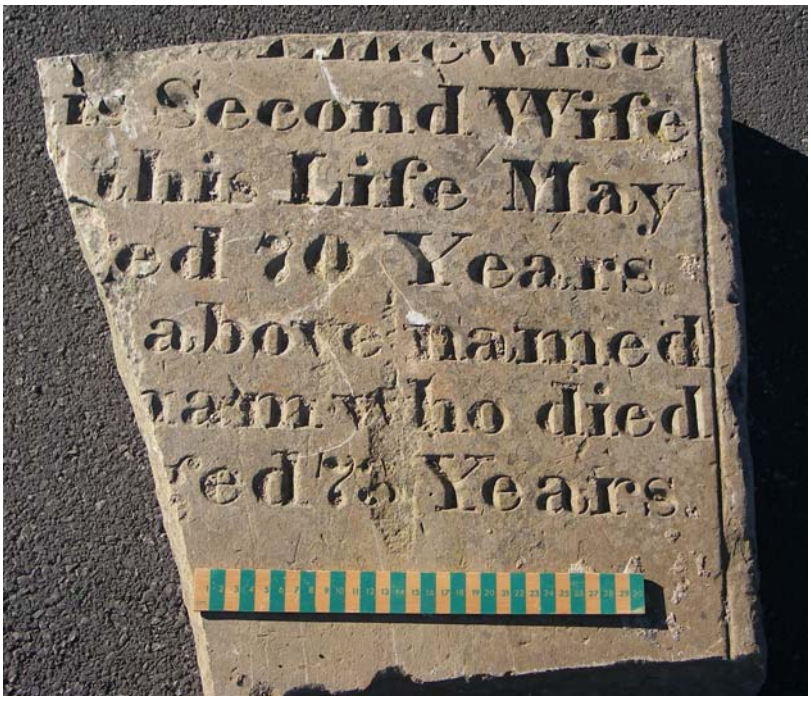


Plate 25. Grave slab fragment. (A.M. Chadwick)

Plate 26. Probable millstone with internal grooved grinding surface. (A.M. Chadwick)

Plate 27. Possible ice skate made from a horse metatarsal, from Phase 3B pit 111. (P. Gwilliam)

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