

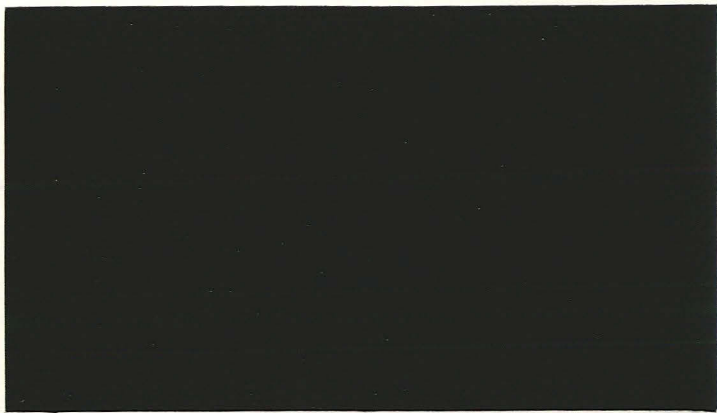
PRE-CONSTRUCT ARCHAEOLOGY L I N C O L N

**ARCHAEOLOGICAL EXCAVATION REPORT:
LAND OFF SCOTHERN LANE,
DUNHOLME, LINCOLNSHIRE**

Part 1:

Site Code:	SLD00/01
NGR:	TF 0259 7918
Planning Ref:	M00/P/0015
Accession No.	2001.232





Conservation
Services
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Directorate

EVENTS L16082
L16083

SOURCES L110126
L110127
2001.232

CORRS
L16086

PRN 54604 EARLY
MEDIEVAL

PRN 53156 - MEDIEVAL
POST MEDIEVAL

PRN 53158 - MEDIEVAL
POST MEDIEVAL

PRN 54606 - MEDIEVAL
POST MEDIEVAL

PRN 55232 - PREHISTORIC

ARCHAEOLOGICAL EXCAVATION REPORT: PRN 53148 ROMAN
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Summary

- *An area excavation and watching brief took place on land situated on the south side of Dunholme in Lincolnshire, to investigate archaeological remains that were at threat from a residential development. This investigation followed two evaluations, which identified previously unknown early-middle and later Saxon remains, as well as aspects of the documented medieval manor of Dunholme and (probably) the Bishop's Grange.*
- *The majority of the archaeology within the main excavation was dated to the Anglo-Saxon period. Evidence for stock rearing, mostly of cattle, was investigated, and there was some evidence for the processing of domestic cereals. Domestic features were not, however, abundant, and it is thought likely that the focus of Anglo-Saxon settlement (early and later) was beyond the fringes of the excavation, which exposed some such features, including a large early-middle Saxon oven or hearth, towards its northern sector.*
- *One very important finding derives from the petrological examination of some of the early-middle Saxon pottery fabrics. These show a significant diversity of inclusions; suggesting perhaps that the population at Dunholme had far flung contacts with peoples to the north and south of their settlement.*
- *The watching brief exposed limestone foundations and a possible moat in the north-west corner of the development. These are thought to relate to the Manor of Dunholme, a former monastic property acquired by the Grantham family in 1545.*
- *To the east of a ridge-line that divides the development into two uneven sections, numerous ditches and pits were exposed. Although undated, their relationship with a windblown sand of probable late Saxon date, suggests a medieval origin.*

1.0 Introduction

Sharward Construction Ltd. commissioned Pre-Construct Archaeology (Lincoln) to undertake a programme of archaeological excavation and a watching brief on land situated in the angle of Scothern Lane and Dunholme Road, Dunholme, Lincolnshire. These works were undertaken to fulfil the objectives of a formal project brief issued by the Lincolnshire County Council Built Environment Team. This approach complies with the recommendations of *Archaeology and Planning: Planning Policy Guidance Note 16*, Dept. of Environment (1990); *Management of Archaeological Projects*, EH (1991); *Standard and Guidance for Archaeological Excavations*, IFA (1994) and the LCC document *Lincolnshire Archaeological Handbook: A Manual of Archaeological Practice*, 1998.

The archaeological programme took place between April 2000 and September 2001, and this report brings to a conclusion the overall archaeological scheme.

Copies of this report have been deposited with the commissioning body and the County Sites and Monuments Record for Lincolnshire. A summary will be submitted to the editor of the county journal, *Lincolnshire History and Archaeology*; and this will feature as a short note in due course. Reports will also be deposited at the City and County Museum, Lincoln, along with an ordered project archive for long term storage and curation.

2.0 Site location and description

Dunholme is approximately 6.5km north-east of Lincoln in the administrative district of West Lindsey.

The area of investigated (hereafter 'the site') comprises a sub-rectangular unit of approximately 7.5 hectares, bordered by residential development to the north, the A46 Dunholme by-pass to the south-east and Scothern lane to the south-west (fig. 1). It is situated towards the base of a ridge of higher ground running NNE-SSW, along which Scothern Lane and Hackthorne Road run. To the north is Dunholme Beck.

The site is situated on Kellaways Formation sandstone, which is overlain by an aeolian deposit that is up to 1m thick (excavation records).

Prior to the current scheme of development, the land was derelict pasture, although in relatively recent times it was used as a plant nursery.

The National Grid Reference for the centre of the site is TF 0259 7918.

3.0 Planning background

Full planning consent was granted for a residential development by Sharward Construction Ltd, subject to a voluntary (Section 106) agreement between the developer and West Lindsey District Council. As part of this agreement, Sharward Construction Ltd commissioned Pre-Construct Archaeology (Lincoln) to undertake a

programme of archaeological investigation in accordance with directives that were issued by West Lindsey District Council. The results of this programme are presented in this, and a series of preceding reports. The current report represents the results of a final mitigation strategy for the site.

The West Lindsey District Council planning reference for this development is MOO/P/0015.

4.0 Archaeological and historical background

The earliest activity within the parish comes via a single polished axe of Neolithic date (PRN 53159) that was found immediately to the east of the site, and Bronze Age flint tools and cores; recovered during construction of the Dunholme Bypass, (Tann 1987). While, in isolation, these finds tell us relatively little about the early social geography of the area, they do show activity during the 3rd and 2nd millennia BC.

For the later Iron Age period, there is evidence of some permanent occupation within the general area. A rare gold coin (PRN 80309) was recovered immediately to the east of Dunholme in 1998, and cropmarks to the north (PRN 53135) appear to represent enclosures; including at least one circular structure. A watching brief to the east of these cropmarks exposed ditches and a driveway associated with Late Iron Age pottery and animal bone (Albone 1997).

For the Romano-British period, there are three relevant SMR. entries; each representing surface pottery scatters; one from approximately 200m east of the site (PRN 53152), and two others from the north (one from gardens bordering the site (PRN 53148)). Clearly, some form of Romano-British settlement was occurring close to the development site, which probably lain within the *territorium* of *Lindum* (Whitwell 1992, 24).

Evidence from the Domesday Book suggests that Dunholme was in existence from at least the later Saxon period. The village appears as '*Duneham*', interpreted as 'homestead or village at a hill', from the Old English *dun* and *ham* (Mills 1993). A scatter of Saxon pottery (PRN 53149) has been recorded approximately 100m north-east of the site, and clearer evidence for earlier and later Anglo-Saxon occupation was identified during two previous field evaluations that are discussed below.

Site specific physical and documentary evidence relating to the medieval period is comparatively abundant. To the north of the site, in Grange Close, remains thought to be part of the bishop's manor or grange were recorded on aerial photographs before levelling of the ground surface took place in 1948. A monastic property, acquired by the Grantham family in 1545, gave rise to a substantial dwelling, thought to be the old manor house of Dunholme (PRN 5318). It has been suggested that the property was surrounded by a moat (Leach 1964, 21), and evidence for this was found during the watching brief on the western part of this development (see Section 6.1 below).

There is a record of a water mill in Dunholme Mill Field, approximately 200m north-west of the current site, (PRN 53141). In this location, millstone fragments and

domestic refuse demonstrate abandonment in the 19th century, as demonstrated by excavations in 1959 (Whitwell and Wilson 1969, 114).

A stone wall 'of a medieval manor house' (PRN 53147) was recorded in an unprovenanced back garden, and a building complex associated with medieval pottery was recorded to the north of the site during field walking (PRN 53150).

Medieval ridge and furrow has been recorded at two locations to the south-west of the village, (PRN 54181 and 54177).

The post-Medieval population of Dunholme suffered a sharp decline in the mid 17th century, which may be linked to its enclosure, *circa* 1662, (PRN 53157). In the 19th century the village was almost completely rebuilt, using locally produced brick, (Leach 1968), the production of which was centred to the east of the village (PRN 53161).

An evaluation of the current site took place in November 1999, consisting of seven trial trenches (Allen 2000a). Archaeology was present in all of these, excluding one area in the extreme south-west of the site. On the north-west side, truncated stone building remains were exposed; believed to be associated with the documented site of Dunholme Manor. Further stone building remains were exposed on the extreme east side of the site, possibly associated with one of the medieval Bishop's palaces. On relatively high ground that occupies the south-east-central part of the site (within the area covered by this excavation), earlier features were exposed, including aspects of what is probably a field drainage system of Romano-British or early Saxon date. Anglo-Saxon features, sealed beneath wind-blown sand deposits, were exposed in this area, and some of these were believed to be structural.

A second evaluation took place in July 2000 (Allen 2000b), involving the excavation of four further trial trenches. The purpose of these works was to provide further information that would inform a mitigation strategy for Phase II of the development. The evaluation helped to clarify the extent and significance of early and later Saxon settlement remains that appeared to focus on a sandy knoll close to the south-east-central area of the site. These remains included ditches and gullies, linear slots, pits and at least one possible early Saxon sunken building (popularly known as 'pit dwellings' or *Grubenhauser*). Some of these features contained well preserved environmental remains and animal bones.

Medieval features were again exposed within the Phase II area, although the area of the main excavation appears to lie to the east of the documented site of Dunholme Manor. Evaluation of this area exposed a high level of medieval activity (predominantly 12th/13th century), but much of this appeared to be associated with sand quarrying, presumably for local construction.

5.0 Excavation methodology

In accordance with the requirements of a formal project brief issued by Lincolnshire County Council, the site was stripped in three adjoining sections (fig. 2, light blue). Work commenced on 7th September, with topsoil stripping on the eastern part of the

site, (Area A). The subsoil was also removed in controlled spits, down to a level where archaeological features could be identified. This proved problematic due to the disturbance that had resulted from the previous plant nursery: floralturbation (rooting) was evident at depths of up to 1.0m.

Following cleaning of Area A, the site was inspected by the Senior Built Environment Officer of Lincolnshire County Council, who recommended that the western section (Area B), should also be investigated: after which, the central section (Area C) was also examined.

Following exposure and cleaning of the archaeological horizon, all features were sample excavated to the following minimum percentages:

- post-holes and pits up to 1.5m diameter, 50%
- pits over 1.5m diameter, 25%
- linear features, 10%.

In several instances, minimum percentages were exceeded in order to recover finds, to determine stratigraphic relationships, and/or to better understand the archaeology.

All features were drawn in plan and section, and soils were described on pro-forma context record sheets. Features were planned using a rigid grid, established at 10m intervals. This grid was aligned with the eastern edge of the excavation, approximately north-west to south-east.

A record of colour and monochrome photographs was maintained during the course of the investigation, and environmental samples were recovered from appropriate dated contexts.

Levels were calculated from an inspection chamber cover, the level of which was 16.59m OD.

Once identified, all features were scanned using a metal detector. The instrument was set to recover ferrous and non-ferrous metals. Areas of the natural were also examined as a control.

- Excessive root activity made the stratification of finds problematic: in one instance, for example, a large modern bolt was found in a root hole some 0.80m below existing ground level. Fills and layers were often mixed, forming a ubiquitous mid-brown sandy silt, meaning that any evidence relating to primary/original taphonomic processes had been lost, and relationships were often difficult to establish.

5.1 Watching brief methodology

The development groundworks were intermittently monitored by five experienced archaeologists; involving 32 site visits between the 17th April 2000 and 12th July

2001. The archaeologists involved were Mark Allen, Chris Clay, Andrew Hardwick, James Rylatt and Simon Savage.

A JCB fitted with a 0.6m wide toothed bucket was used to excavate all house footing trenches and some of the service trenches. The main sewer trench was excavated using a 360° machine fitted with a 0.8m wide toothed bucket, and the access roads were stripped of topsoil using a 1.8m wide smooth ditching blade.

The archaeological fieldwork involved the cleaning, by hand, of all exposed surfaces within the service trenches and house footing trenches, followed by a thorough inspection for traces of archaeological activity. All archaeological deposits identified by this process were subjected to limited excavation, in order to assess their nature, dimensions and to attempt to recover datable finds and materials. These investigations resulted in the production of written descriptions of each layer upon standard watching brief context record sheets. Colour photographs and scale drawings, in both plan and section, compliment these accounts.

6.0 Excavation results

Although the project brief required the division of the site into three units, these units effectively became a single large area (see fig. 2, light blue).

Features will be referenced, wherever possible, by context number. However, in the case of extensive ditches, they are referred to by letter codes (for example, ditch [C]).

A series of nebulous irregular features were examined in the northern corner of the excavation and, initially, these features were believed to be in some way archaeological. Examination of the whole site area, however, revealed an increasing frequency of such 'features', and it soon became apparent that these things were solely of natural origin. They have not, therefore, been included on the plans in this report (fig. 3), but can be examined, if desired, in the site archive.

Across the whole trench, the uppermost deposit was a dark brown silty sand topsoil (001), 0.20 to 0.30m thick. This was heavily rooted, and contained a mixture of modern materials, including glass and plastic. Beneath the topsoil was a well defined subsoil (002); 0.30 to 0.40m thick, comprising yellow-brown silty sand. This contained occasional burnt limestone fragments and flint nodules, as well as pottery of Romano-British to modern date. This deposit was, for the most part, aeolian (ie wind-blown), however the lower portion was probably formed by the action of roots, breaking up the underlying geology and incorporating this into the subsoil. This possibly explains the relatively large number of finds that were recovered from this layer. The deposit also incorporated a significant number of intrusive features, including modern greenhouse post-pads, bedding trenches and tree planting pits that were filled with relatively fresh manure. Such features were exposed following removal of the subsoil.

In post-excavation, the site has been phased as follows:

Phase I:	early/middle Saxon	(5 th – 7 th century AD)
Phase II:	later Saxon	(9 th /10 th century AD)
Phase III:	medieval	(12 th – 16 th century)
Phase IV:	modern	

This is not a perfect chronology, as there is clear evidence for activity which pre-dates Phase I. The earliest material comprises low numbers of (possibly residual) worked flints, of possible late Mesolithic / early Neolithic date (see Rylatt, Appendix 2). A structural/settlement 'phase' of prehistoric activity was not evident, and so the nature of any exploitation and/or settlement activity in the prehistoric era has not been established by this investigation.

Similarly, residual Romano-British pottery was recovered from several contexts and, in some cases, single Romano-British sherds constitute the only dating evidence (eg pit [074]). Given that there is evidence for peripheral Romano-British activity, it is assumed that the sherds present at the current site reflect little more than activity in the vicinity of the development (which is clarified by existing sources of information).

6.1 Phase 1: Early – Middle Saxon (5th – 7th centuries AD)

This phase of activity was represented by a series of extensive linear ditches of early to middle Saxon date which appeared to represent elements of a rectilinear system of land division, elements of which may have shifted over time. There was also a small cluster of domestic features present, which suggest that a contemporary settlement focus existed a short distance north and north-east of the area that was investigated. Simplistic phasing is indicated on fig. 3a.

Linear ditches/boundary features

Towards the north-west of the excavation, four parallel linear ditches were exposed, ditches A – D (see fig. 3). These features were dated by pottery between the 5th – 7th centuries AD, as was a single extensive and perpendicular ditch that originated to the south-east of these features, ditch H.

Ditch A was in two segments; collectively 10+m. The north segment was 1.70m long, 1.0m wide and 0.45m deep. It had a shallow V-shaped profile, with the western edge slightly steeper, (see fig 5). The southern segment was 6.6m long, 1.0m wide and 0.22m deep. The profile was a significantly shallower U-shape, with a gradual concave base, (see fig 6). Although profiles varied, the two segments were treated as one: both fill sections contained distinct mid to dark brown-yellow sand mixed with frequent inclusions of charcoal and burnt stone. The segments were also similarly aligned. Between the two was an outcrop of bedrock, and it is possible that the base of the ditch simply did not penetrate this.

A quantity of animal bone, predominantly cattle, was recovered from the fill of the northern segment, (121) along with a single early/middle Saxon pottery sherd. A late Saxon sherd from the southern segment is considered to be residual/out of context. A

sample from this segment (078) (<5>, see Appendix 6) revealed evidence of cereal processing and the dumping of domestic debris.

Ditch B (see fig. 4) extended 14.0m southwards from north edge of the excavation to a steep-sided, square terminal. It was between 1.0m and 1.2m wide and its surviving depth varied from 0.50m in the south to 0.16m in the north. In profile, it was better defined to the south, with clear breaks of slope, steep sides and a flat base, whereas to the north it became a shallower U-shape. Its fill (083) comprised light brown silty sand that incorporated a single Romano-British and 6 possibly early/middle Saxon (5th – 7th century) to medieval pottery sherds (see Young, Appendix 4). The fill also incorporated horse and dog bone.

This ditch was excavated as if cut into pit [090] at its southern end, but examination of the pottery demonstrates that the pit was in fact cut through the ditch. This error is corrected in fig. 3a by colour phasing.

Ditch [C] extended 18.30m from the north section face to a shallow rounded terminal. It was 1.0 to 1.10m wide and between 0.35 and 0.50m deep. To the north and south (see fig 7), it had a regular U-shaped profile. Towards the centre it had shallower sides, with a steeper portion at the bottom with a flat base (see fig 8). It was filled with dark brown sand, (081), within which was found a single sherd of abraded Romano-British pottery and a single piece of sheep or goat bone. The south end of ditch C was cut by ditch [F] (Phase II). A direct stratigraphic relationship was not established by excavation, and is based entirely upon finds and spatial analysis.

Ditch [D] was the easternmost of the group. It extended 10.0m south of the north section face to a steep-sided, rounded terminal. In profile, this feature was similar to the southern end of [B], with clear breaks of slope and a flat base. It was 1.0 to 1.10m wide and between 0.30 and 0.35m deep (see fig 9). Its fill (076) was very similar to that of [C], above, and this incorporated a residual sherd of Romano-British, and a single sherd of early/middle Saxon pottery.

Some 17m south-east of ditches A - D was the western terminal of an extensive perpendicular ditch, H. Sections excavated through this feature produced finds of early-middle Saxon date, and it is thus likely to be associated with the other ditches.

Ditch [H] extended for 34.0m+. Its west end was interrupted by an outcrop of bedrock (over which its base may have risen), and an area of heavy root disturbance. Both the width and depth of this feature increased from west to east; from 0.50 to 0.97m width, and from 0.15 to 0.34m depth. The ditch profile remained largely constant; comprising a well defined U-shape, becoming slightly V-shaped at the eastern end (see figs 16, 17 and 18). Its excavated contents comprised silty sand of varying hues. From the central section, 3 sherds of Romano-British pottery of mid 3rd to 4th century date, and a single sherd of early/middle Saxon pottery (5th – 7th century) were recovered. The fill sections were recorded as contexts (049), (102) and (115).

Associated settlement Features

There was a concentration of 'domestic' features towards the north-east corner of the excavation (ie within the enclosed area of the alignments represented by ditches A –

D and ditch H), including an unusual hearth-like structure (see figs 3, 22 and 23). This comprised a shallow irregular, double-lobed depression [029], (see fig 23). The southern 'lobe' was 2.22m along its long axis and 1.0m in width. It had a steep lip along its southern side, more gradual to the east and west, merging imperceptibly into the northern part of the feature. Extending from its north-eastern edge was an irregular ovoid-shaped shallow depression, 2.80m along its longer axis.

The southern element of the above was filled with a layer of charcoal (099), representing *in situ* burning (the underlying geology had been oxidised to an orange-red colour, concentrated to the very south of the feature). 2 sherds of early/middle Saxon pottery, a blade-like flint flake and 2 sandstone 'pot boilers' were recovered, one of which had been used as a rubbing stone. Soil samples were taken from this context (<2> and <3>, see Appendix 6), and an assessment of the charcoal indicates that oak was used as fuel, probably from a locally managed resource. Other plant remains were probably used as kindle.

Over the charcoal was a dense layer of stones (032) that were reddened and cracked. For the most part they were between 80 and 100mm in size, although a number of larger stones, up to 300mm, were also present. These larger stones were positioned at the northern extent of the deposit, seemingly to retain the smaller stones (fig. 24). Of twelve stones that were retained for cleaning and analysis, three appeared to be re-used. One, a fragment of millstone grit, was from a saddle quern, whilst two river pebbles were previously rubber and hammer stones. Curiously, only one stone was local oolitic limestone; the rest being imported. They were sealed by two deposits of sandy material, (030) and (031), which together contained 10 sherds of early-mid Saxon pottery, as well as animal bone from cattle and sheep/goat.

The basic function of this feature was clearly to heat stones to a high temperature, high enough to have cracked and discoloured them. It is possible that the stones were then used to heat water for cooking. An associated cooking pit was not exposed, possibly because such a feature was beyond the limit of the excavation. One possible explanation for a depression to the north of the main structure is that this was a working area from where the fire was tended.

A short distance to the west of [029] was a substantial post hole, [107]. This was 'kidney-shaped' in plan: the more substantial element to the east was 0.30m in diameter and 0.55m deep, with vertical sides and a flat base (fig. 25). It was filled with an homogenous dark grey-brown sand, (106). No packing stones were present, and there was no evidence of decayed posts.

In the north-east corner of the excavation, was an oval-shaped pit [035], 2.60m N-S, 1.26m E-W and 0.30m deep (fig. 27). This had well defined edges, with a sharp break of slope to near-vertical sides to the north and south, slightly shallower to the east and west (see Fig 27). The sides broke to a regular concave base. Being cut through a loose soil matrix, one assumes that this feature was rapidly backfilled with dark grey-brown silty sand, (034), which contained pig and cattle bone, and a single sherd of early to middle Saxon pottery. Given the date of this sherd, and a possible direct association with the disposal of food remains, it is possible that the feature was associated with [029].

The northern part of ditch [A] appeared to be cut by a pit, [091], (see fig 5). This was sub-circular, 1.60m E-W, 1.20m N-S and 0.35m deep. It had a shallow profile, with no perceptible break of slope, suggesting that this was the base of a once larger and deeper feature. Two discrete fills were identified: the primary fill (120), comprised light brown sandy silt, with occasional charcoal inclusions, cattle and horse bones and 8 sherds of early-middle Saxon pottery. The upper fill, (092), was a darker brown silty sand, with a higher incidence of charcoal. It contained 15 sherds of early/middle Saxon pottery, a large burnt 'pot boiler' and a significant quantity of animal bone. This bone was mostly cattle, although sheep, pig and sheep/goat were also well represented.

Close to the south edge of the excavation, and cut through the south edge of ditch [H], was a small circular pit, [119], (fig 18). This was 0.90m in diameter and 0.25m deep. It was filled with loose dark brown sand, (118), that incorporated a single sherd of Romano-British, and 4 sherds of Saxon pottery (5th – 7th century), cattle and equid bone, and charcoal flecks.

6.2 Phase II: late Saxon (10th century AD)

The pottery record suggests that there may have been a hiatus between Phases I and II (there is no indication of any activity at the site between the 8th and the 10th centuries). Phase II is characterised by a perpetuated/inter-cutting linear boundary that was parallel with ditch H, but situated approximately 10m north/north-east of it (ditches E, F, G). There are few associated features, and it is suggested that any associated settlement may also have shifted northwards. Simplistic phasing is indicated on fig. 3a.

Extending NE-SW across the centre of the trench was a series of long parallel ditch alignments, representing three phases [E], [F] and [G] (fig. 3/3a). The interface between the ditches was extensively root disturbed, and the relationships described below are tentative. The finds assemblage suggests a late Saxon date for the complex.

Ditch [E] appeared to be the earliest, and this extended from a terminal end in the west 40.90m, to where it was truncated by a series of significantly later ditches, (it probably continued beyond the limit of the excavation) (see figs 11, 12, 13 and 15). For the most part, its profile was a flattened U-shape, up to 0.25m deep, although becoming slightly deeper (up to 0.40m) towards the centre. Its width was 0.50m at the western terminal, gradually broadening to 1.25m in the centre. In the area of fig 12, it appeared to be up to 2.10m wide, although this may have been influenced by root activity. The ditch was filled with brown sandy silt mixed with charcoal, from which 3 sherds of Romano-British and 8 sherds of Late-Saxon pottery were recovered. Animal bone from this context was largely non-diagnostic, although a single piece of horse bone was identified. This fill appears to have formed by natural accumulation (recorded as contexts (025), (086), (108), (111) and (112)).

The eastern end of ditch [F] extended westwards from the terminal area of ditch E. It continued beyond the west face of the excavation. The ditch was 1.60 to 1.70m wide, with a gradual break of slope at the surface to slightly concave sides, merging into an irregular concave base, (see fig 14). The depth at the western side of excavation was 0.50m, gradually shallowing towards the terminal. It was filled with friable yellow-

brown silty sand, (057), with occasional degraded limestone inclusions, but no artefacts (the presence of limestone coarse inclusions may indicate that it was deliberately filled). Its spatial relationship with ditch E would suggest a date in the later Saxon period.

Ditch [G] was possibly the latest of the group. It extended for a distance of 31.50m. Both ends were marked by rounded terminals, between which the width of the feature gradually widened from 0.68m in the west to 1.30m in the east. For the most part, its profile and depth remained relatively constant; a shallow, flattened, U-shape at between 0.20 and 0.27m (see figs 11, 12 and 13). Its fill comprised light to mid-brown sand and silt, becoming somewhat darker to the east. This deposit has been interpreted as a natural accumulation, probably aeolian. It incorporated a single late-Saxon pottery sherd, animal bone (predominantly horse or other equid), charcoal, two residual flint flakes of later-Mesolithic or early-Neolithic date, and burnt daub. The fills were recorded as contextx (045), (088) and (116).

There were two localised cut features that may have been associated with the linear ditches: one at the west end of the complex, [096]; the other occupying a more central position, [104]. A short linear gully situated towards the east end of E, [071], may also have been associated, although this interpretation is tentative.

Feature [096] was on the north side of ditch F. It was 0.64m in diameter and 0.14m deep, with a shallow concave profile, the edge being more pronounced to the south, (see fig 10). Its fill (095) comprised soft dark grey-brown silty clay with occasional fragments of burnt limestone. The feature may have been the truncated base of a post-pit, but this was not confirmed.

A similar, but slightly larger feature was exposed on the south side of ditch E, [104] (see fig 26). It was 1.27m E-W, 1.10m N-S and 0.11m deep. Its sides were shallow, and these merged with an irregular base. Its fill, [105], comprised friable light to mid grey-brown silty sand, and this incorporated burnt daub fragments and charcoal flecks. A single worked flint was recovered. This would appear to be a small truncated pit. The presence of one worked flint must be treated with caution.

A short distance north-west of the interface between ditches [E] and [I] was a short linear feature, [071]. This had very a shallow concave profile. Its east end was marked by a poorly defined rounded terminal, its west end heavily disturbed by roots. Its surviving length was 1.0m, its width maximum 0.30m, and its surviving depth was a mere 60mm. The fill (072) comprised loose dark orange-brown silty sand, within which were fragments of quern stone. Unfortunately, these fragments could not be traced in post-excavation. It is difficult to suggest a function for this feature. One possibility is that it represents the truncated remains of a small marker ditch (although it should be noted that it has no obvious spatial correlation with any of the features exposed within the area of excavation).

Another feature of probable late Saxon date was exposed to the east of pit [035] in the north-east corner of the excavation, [020]. This appeared to be the terminal of a linear ditch that extended roughly N-S for 2.70m. Its width was 1.25m and its surviving depth was 0.23m. Its profile was a poorly defined W-shape, with a gradual break of slope at the top, merging to a shallow, irregular base (see fig 28). The fill (021)

comprised loose sand with charcoal inclusions. From this, a single sherd of Late-Saxon pottery was recovered, associated with cattle, pig and sheep/goat bone.

6.3 Phase III: medieval

Evidence of medieval activity in this part of the site was limited, although a few cut features were clearly post-Saxon, and seem to reflect a third phase of localised land reorganisation. Simplistic phasing is indicated on fig. 3a.

Cut through the eastern end of ditches E and H was a third group of ditches, orientated north-south: three inter-cutting or re-cut ditches, the combined width of which amounted to 4.40m (see figs 19 and 20). Stratigraphic relationships were determined only in section

The westernmost ditch, coded [I], was substantially disturbed by modern root activity at its southern end. It had a shallow U-shaped profile, becoming V-shaped towards the north. It was between 0.90m wide and 0.18m deep in the southern section, and 0.93m wide and 0.35m deep in the northern. Its fill, (044) comprised mid to light grey-brown silty sand, with occasional limestone inclusions. Within it was a single piece of burnt flint, and a fragment of medieval brick.

The central ditch was coded [J]. Towards its north and south ends (figs 19 and 21), the exposed profile was a reasonably well defined V-shape. Where not truncated by later activity, its width was between 0.90m and 1.40m, and its depth was constant at 0.56m to 0.57m. In the southernmost slot, the ditch was substantially truncated by a tree bole. Its fill, (052) comprised mid-grey-brown sand that incorporated occasional limestone fragments but no dateable finds.

The third ditch, [K], was at the eastern edge of the alignment. In the northern two excavated sections (figs 19 and 20) the profile had a well-defined break of slope at the surface, with steep sides. The sides merged imperceptibly into a flat base, more regular to the north. Its fill (054) was similar to the backfills of [I] and [J] above, but with a distinct weathering deposit at the base. It contained 1 pig and 1 equid bone, and a fragment of Roman brick.

Collectively, these features represent the continued re-cutting of a single linear boundary. Dating the complex is a problem, although it clearly post-dates the late Saxon sequence that is represented by ditches E – G, and this is complimented by the recovery of a medieval brick fragment from ditch I. It is suggested, therefore that the ditches are of medieval date and represent a linear boundary that was of some considerable local significance. One suspects that it was in some way associated with the manor house to the west, or the Bishop's Grange to the east.

Towards the north-west corner of the excavation was a moderately large pit, [090]. This was 2.80m N-S, and 0.22m deep. It contained a loose light brown sandy fill (089) that incorporated a single (residual) Romano-British and 12th century pottery sherds, animal bones (predominantly cattle) and occasional charcoal flecks. The shape of the cut, and nature of the fill suggested that this was a domestic rubbish pit. It was

originally thought that this pit was cut by ditch [B], but examination of the pottery has shown, unequivocally, that this was not so.

Situated between ditches [E] and [H], towards the east of the site, three steep sided inter-cutting pits were exposed (see figs 29, 30 and 31). The earliest of these [074], was not phased, although it did contain a single sherd of Romano-British pottery. In form, this pit was an irregular oval shape, with a sharp break of slope at the surface, vertical sides, which broke gradually to a flat base. It was 1.30m N-S, 1.10m E-W and 0.39m deep. Its fill (073) comprised mid-brown-grey sandy silt with occasional pebble and charcoal fleck inclusions, and a sherd of Roman pottery, probably from the mid 3rd century.

Cut through the above on the north side was a larger, sub-rectangular, pit [070]. This was 2.40m N-S, 1.30m E-W and 1.05m deep. The break of slope at the surface was sharp and well defined, forming steep sides, which became shallower to gradually form a concave base. The sides were notably steeper to the east and west, and the north edge had two lateral depressions within it, one at the surface 0.30m wide and 0.10m deep and a second 0.45m down the slope, 0.24m across and 0.18m deep. These could represent step holes to facilitate egress from and access to the feature. Its fill (069) was grey-brown sandy silt with frequent grey-blue lenses, occasional charcoal inclusions and a single medieval pottery sherd. A sample from this material (<4>, see Appendix 4) yielded an un-productive result, with small amounts of burnt seeds and grain.

Cutting into [070] was the latest pit, [068]. This was sub-circular, approximately 1.60m in diameter and 0.75m deep, with a sharp break of slope at the surface, forming vertical edges with slight undercutting to the west, which broke sharply to form a flat regular base. Three separate fills were identified: the primary fill (067) was clean yellow sand 75mm thick which appeared to be trampled natural, collapsed from the feature edges. Over this was a deposit of grey-brown sandy silt (066); 0.32m thick, with limestone inclusions derived from the local bedrock, and incorporating 2 worked flint flakes. The upper fill (065) comprised almost identical material, but with less stone inclusion and 2 sherds of medieval pottery.

The purpose of these substantial pits is difficult to establish. However, similar deep pits were encountered during previous phases of investigation (Allen 2000a, 2000b), when it was suggested that the excavations were for sand, despite the seemingly low quality of this material.

6.4 Modern Features

A large number of modern post holes were exposed across the site. Examination of these features during machine clearance of Area C demonstrated that they cut through the topsoil and were partially filled with concrete. After discussions with the client, it emerged that these post hole alignments represented the remains of a plant nursery, which used semi-portable greenhouses resting on concrete post-pads. These features are shown on Fig 3a, with their continuing alignment shown as a dotted line.

7.0 Watching brief results (Fig. 2)

A total of eleven houses, two access roads, and associated services were monitored during the watching brief. The results are presented below, and the reader is advised to reference all sub-illustrations (fig. 32 onwards) with fig. 3 at the front of Part 2 of this document.

7.0.1 House plot 3 (Fig. 32)

Plot 3 was located towards the west corner of the Phase I development. When trenching commenced in April 2000, the high water table caused unstable sections to collapse. This made it impossible to clean and record the archaeology in any great detail.

The topsoil contained a large amount of brick rubble, window glass and limestone, all likely to be associated with the demolition of Grange Farm in 1990. This sealed grey sandy silt (301), a demolition layer of indeterminate date (although possibly relating to the 1898 demolition of Dunholme Manor). Below (301) was natural yellow sand (317).

Three sides of a substantial stone-built structure (308/309) were exposed beneath a spread of large limestone rubble (310), in the east half of the plot. The walls (c. 1m wide) comprised large dressed limestone blocks, forming a structure over 9.5m wide, orientated east – west (perpendicular to Scothern Lane, 35m to the west). The rubble spread, (310), almost certainly relates to demolition of this building. Although no datable artefacts were recovered from the spread (or the walls), it is likely the structure was of medieval origin. Less than 2m to the south of it, the north edge of a substantial waterlogged feature, [306], was exposed. This was filled with black organic-rich silty sand, containing a single sherd of medieval – post-medieval tile (303), beneath yellow/grey silty sand (302). [306] is likely to be either a pond or, more probably, the edge of a moat running parallel with the stone structure (see House plot 4 for possible continuation of this feature, which is indicated as a dotted red line on fig. 2).

Groundworks for the garage to plot 3 were not monitored due to poor communication.

7.0.2 House plot 4 (Figs. 33 and 34)

This plot was less than 10m east of plot 3. Excavation of the footing trenches revealed the foundations of a limestone wall beneath the subsoil (301). This wall, (419), comprised large dressed limestone blocks, and almost certainly relates to the remains exposed in plot 3. Along the south-east corner of the plot, a waterlogged feature ([420]) was exposed. This may be part of a moat; equating to [306] in plot 3.

7.0.3 Services to plots 3 and 4 (Figs 35 – 39)

A service trench was monitored to the north of plot 4 over several days. This exposed a wall foundation, (339), that may be the corner of an eastern component of the building complex exposed within plots 3 and 4. It was made from large roughly dressed limestone blocks, bonded with grey/brown clay. It was sealed by a lens of green clay-sand with small pieces of limestone and occasional flecks of charcoal, seven sherds of early to mid 18th century pottery, and 6 sherds of medieval – post-medieval tile (338). (338), in turn, was sealed by grey sandy silt with occasional small to medium sized limestone fragments and 5 sherds of 16th century pottery.

Approximately 9.5m west of the above, a linear spread of sub-angular limestone rubble (345) appeared to respect the alignment of wall (419) (plot 4), perhaps indicating that this was the basal remains of a robbed wall extending northwards from the rectangular structure. This appeared to cut through a mottled red/brown silty sand (346). It was sealed by a grey/brown silty sand, possibly a demolition deposit, (344).

Cut through (344) was a stone-lined drain, [343], comprising a double row of vertically-set medium sized dressed limestone blocks, capped by a single course of horizontally-placed slabs. Similar structures were exposed in Trench 1 of the 1999 evaluation. They were broadly dated to the post-medieval period. Directly above the drain was a modern trench, orientated north – south containing, two plastic pipes [342].

Less than 2m west of the above, stone building remains were again exposed, (347). Here, the rubble-filled foundation trench appears to be 1.8m wide in Fig. 38, but this was an oblique section, and the true width was probably in the region of 1m. A fragment of tile from (347) was of medieval/post-medieval date. The wall was sealed by what appeared to be a demolition deposit, (344).

Approximately 3m to the north-west of (347) (still within the service trench) was a stone and brick surface, (348) sealed by a modern demolition layer (349) that contained brick, stone, window glass and modern pottery (not retained). The surface was not dated, but was probably part of the Grange Farm complex. Immediately to the east of it was a row of limestone blocks, orientated broadly east – west, (350). This line of stone may be part of an earlier phase of building (associated with the medieval manor?).

7.0.4 Phase I access road (figs. 40 – 50)

Approximately 75m of the access road running eastwards from Scothern Lane was monitored. In advance of this, a service trench was excavated along the road line; this being c. 0.7m wide and 1.85m deep. Cleaning of the section faces revealed a series of deposits that were of archaeological interest.

Overlying natural sand (317) was a possible flood deposit, comprising yellow/brown sandy silt (316). This was beneath a series of what looked like demolition layers, (312) – (315) – see fig. 41. Tile from layer (314) was dated to the medieval/post-medieval period.

A second recorded section within the trench revealed a spread of green/brown clay-silt (319), interpreted as possible cess. It was not possible to establish whether or not the material was within a pit or a natural hollow.

The access road was stripped of topsoil across a 9m easement, predominantly exposing loose spreads of detritus, believed to be associated with the demolition of Grange Farm in 1990, (312). Immediately adjacent to, and parallel with, Scothern Lane was a hawthorn hedge, a gas service trench, and a sewage pipe (fig. 40). Extending perpendicular to the latter was a shallow ditch which may have been associated with the 19th century farm, [321]. Its fill contained late post-medieval/early modern pottery).

Approximately 25m east of Scothern Lane, two north-south aligned wall foundations were exposed, (324) and (325) (figs 44 – 47). Both comprised pitched limestone rubble footings that were up to 1.5m wide and were set 4.3m apart. Two sherds of pottery from within the make-up of wall (324) were of 10th century date (almost certainly residual), whilst a tile fragment was attributed to the medieval/post-medieval period. A single fragment of tile from (325) was also of medieval/post-medieval date. The alignment of these walls was similar to alignments within plots 3 and 4 and may indicate contemporaneity, thereby representing aspects of the manorial complex of Dunholme. A deposit of orange/brown silty sand (327) appeared to be stratigraphically contemporary with the walls, and this contained 4 sherds of 12th century pottery. Both walls were sealed by what appeared to be demolition debris (layers (328), (331), and (329)).

Butting the west side of wall (324) was the north end of a further foundation ((323)). This was made of medium to large limestone blocks (some dressed). The relationship between (323) and (324) is uncertain.

Situated between (324) and (325) was a rectangular hearth, (322) (fig. 49). This comprised mainly of a brick core, surrounded by medium-sized limestone fragments. A single sherd of early Saxon to medieval pottery from the hearth is possibly residual, and a complete handmade brick and a floor tile could not be dated. The hearth did not appear to be contemporary with the limestone walls (deviated alignment).

Throughout the rest of the monitored area within the access road to Phase I, only destruction deposit (312) was exposed (dating to the demolition of Grange Farm in 1990).

7.0.5 House plots 22 and 23

Unfortunately, both house plots were under construction before any monitoring could take place. Drainage trenches dug round the north, west and south of the two buildings were examined to compensate, but no archaeologically significant features or deposits were exposed.

The deposits included the topsoil (421), which sealed redeposited natural sand (422), over grey sandy silt (423); over brown sandy silt (424). A dry cell battery was recovered from one of these deposits.

7.0.6 House plot 24 garage (Fig. 51 and 52)

Cleaning of the section faces revealed a spread of small – large limestone blocks (333) sealed beneath a modern deposit containing hand made and modern brick fragments, (332). The limestone (333) (a demolition deposit) may be evidence of further medieval structures nearby, although this could not be clarified. It sealed a probable windblown sand deposit (335), that rested over natural orange/yellow sand (334).

7.1 Phase II 100% watching brief (house plots 36 – 39, 46)

Plots 37 and 38 were not monitored.

7.1.0 Plot 36

No significant archaeological deposits were exposed within this plot.

7.1.1 Plot 39 (Figs. 53 and 54)

A single ditch, [402], appeared to cut through windblown sand (426), and was itself sealed by what appeared to be a blown sand deposit (425). The ditch was orientated east – west. This moderately steep sided feature was filled with brown silty sand (403). No finds were recovered. The same ditch was exposed during the groundworks for the access road (see [401] below).

7.1.2 Plot 46 (Figs. 55 – 57)

A substantial ditch (c. 4.2m wide) extended east – west through the footing trenches. The lower section of this ditch, [414], was filled with brown silty sand (415). Its upper section appears to have filled with windblown sand (425), and this deposit was cut through by a pit [417]. This was filled with small to medium sized sub-angular limestone fragments.

The size of ditch [414] suggests that this was a significant boundary feature.

7.2 Phase II: 30% watching brief (3 house plots)

Of the ten houses highlighted, three were to be the subject of the archaeological watching brief. Unfortunately, only one plot (plot 66) was monitored, as PCA were not informed of the other works.

7.2.0 Plot 66 (Figs. 58 – 63)

A number of features of archaeological interest were exposed; all sealed by windblown sand (425). Three sections of a ditch were recorded ([404], [408] and [412]), running east – west through the foundation trenches. The ditch had a steep north edge and more gradual southern edge, gradually becoming shallower towards the east. It was filled with grey/brown silty sand incorporating pieces of burnt limestone and some animal bone. The fill of section [408], (409), contained two sherds of pottery dating between the 12th to 15th centuries.

Approximately 0.5m to the north was sub-oval pit [406]. This large undated pit contained animal bone and heat-shattered pebbles within its silty sand fill (407).

A second pit, [410], was exposed to the immediate north of [406]. This also contained fragments of animal bone and limestone within its fill (411).

7.2.1 Plots 55, 60 and 61 (Figs 64 – 65)

These three plots were monitored at the suggestion of the client, after a human skull fragment was found on an adjacent spoil heap.

7.2.2 Section allocated in error

7.2.3 Plot 55 (Figs. 64 and 65)

Plot 55 exposed a layer of orange/brown clay sand, (418), containing occasional small fragments of limestone. This deposit was sandwiched between windblown sand (425) and natural sand (307). An archaeological origin was not established.

7.3 Phase II access road and sewer trench (Figs. 66 – 77)

All of the phase II access road and sewer trench was monitored. This exposed a number of predominantly undated features.

A substantial feature, [360], measuring more than 10m wide, was exposed within the sewer trench at the north-east corner of the development (Fig. 66). Its grey silty fill, (361), contained several large pebbles but no dateable finds. This possible quarry pit or pond remains undated, although it was sealed by windblown sand (353).

Less than 1m further south was ditch [358] (Fig. 66). This flat-bottomed feature was more than 1m wide, but no artefacts were recovered from its fill, (359).

Approximately 0.4m to the south was a steep-sided posthole, [356], (fig. 66). This was filled with grey clay silt (357), containing one sherd of 10th century pottery.

At this point in the trench, a distinct layer of blue clay (362) emerged, sealed beneath windblown sand (353), and overlying orange sand and degraded limestone bedrock (363). The clay is of unknown date. Cutting through it was an east – west orientated ditch [354] (fig. 66). No dating evidence was recovered from this feature.

Approximately 32.5m further south, the sewer trench was excavated to a depth of 1.6m to facilitate a manhole. This proved an opportunity to examine the archaeological and geological horizons at the east end of the site (fig. 67). The topsoil (352) sealed windblown sand (353), and this covered the blue clay formation (362). The clay overlay orange sand (366), believed to be part of the Quaternary drift deposits that cover this part of Dunholme. This material is probably of riverine origin and likely to be of immediate post-glacial date. Cutting through it was [364], an east – west aligned linear gully. This had steep sides and a flat base. Its fill, (365), comprised brown silt with occasional small flints, devoid of any dating evidence. Chalky boulder clay (367) was exposed beneath the sand, and this sealed an orange sand (363). This appears to have formed through the weathering of a limestone bedrock.

Approximately 25m west of the above section was a north – south orientated ditch, [391] (fig. 68). This was 2.1m wide and 0.85m deep. Its fill, (391), was devoid of finds. The ditch appeared to cut through the windblown sand (425).

A further 14m to the west, the service trench exposed a possible quarry pit, [389] (fig. 69). This feature was more than 3.7m wide, and may have been excavated to extract sand. Its fill, (388), comprised grey/brown slightly silty sand.

Approximately 10m to the west of [389] was a north – south aligned ditch [387] (fig. 70). The undated ditch was cut through windblown sand (425).

Adjacent, and perpendicular to [387], was ditch [385] (fig. 71). This pre-dated [387], as it was sealed by windblown sand (425). A further ditch ([393]) (fig. 72) recorded 30m to the west seems to be a continuation of [385]. Both ditch sections were filled with brown silty sand.

Towards the centre of the Phase II development (north of plot 39), a ditch ([374]) and a possible oven ([376]) were exposed (Figs. 73 and 74). The oven comprised a pit sealed by windblown sand (353). Three heat-shattered fragments of limestone (378) in two courses towards the east edge of the cut may be part of its construction. These sealed a deposit of grey/black sand (377), thought to be trample or part of the construction of the structure. A deposit of mottled yellow/brown sand with charcoal and burnt clay (379) sealed (377). Overlying (379), was (380), the remnants of a burnt clay floor. This was covered by a thin lens of windblown sand (381). To the east of the oven, a lens of grey/brown sand (382) was interpreted as rake-out material. The oven was truncated along its western edge by a ditch [374], running north - south. The dark grey fill (375) contained no datable finds.

Ditch [401] (fig. 75), between plots 39 and 66, was a continuation of ditch [402] (see plot 39 above).

Pits [395] and [397] (fig. 76) were exposed immediately to the west of a prominent ridge running north – south that effectively separates Phases I and II of the development. The relationship between the two pits is unknown, although both cut through the windblown sand (425).

An east – west aligned ditch, [399] (fig. 77), was exposed within the access road to the west of the excavation. This had steep sides and a rounded base. Its fill, (398), comprised brown sand. The ditch may equate to ditch [F] from the excavation (see excavation results above).

8.0 Conclusions

At least four discernable phases of activity were investigated during the main excavation:

- I: Early/middle Saxon
- II: Late Saxon
- III: Medieval
- IV: Modern.

These phases are each represented by earth-cut archaeological remains and/or stone walls and deposits. Earlier activity is indicated by occasional worked flints, and by a relatively frequent occurrence of Romano-British pottery sherds. For the most part, the Romano-British pottery was recovered from residual contexts, suggesting some form of pre-Saxon activity. This activity has not been substantiated by the results of this investigation. Information within the County SMR indicates that there is considerable evidence for Romano-British activity in the vicinity of Dunholme, and it is likely that this activity is associated with small farmsteads that existed within the *territorium* of Lincoln (*Lindvm*).

The worked flints are probably of later Mesolithic or early Neolithic date (Appendix 2). For the most part, these flints occurred in residual contexts, although one feature, [104], could be of prehistoric date.

The features associated with Phase I appear to reflect a period of activity between the 5th – 7th centuries AD: a single sherd of late Saxon (10th century) pottery recovered from one of the fills of [A] may be intrusive. Spatially, it is suggested that ditch A is related to ditches B, C and D, and that each is associated with ditch H (see fig. 3a). Given their clear association with domestic activity, these features could perhaps represent divisions within paddock areas, or even stock control features.

The large amount of domestic waste recovered from pit [091], and features that cluster in the north-east of the excavation, suggests that a focus of early-middle Saxon settlement is close by, probably to the immediate north/north-east of the excavation.

One problem, of course, is that we have no way of determining which features, if any, were contemporary in time and space (ie in absolute terms). Ditches A – D, for example, could well represent four phases of easterly/westerly migration (this is supported, perhaps, by the inter-cutting of pit [091]/ditch A). Alternatively, ditches [A] and [B], and then [C] and [D] are each approximately 5m apart, and may form two separate groups, possibly representing two phases of activity.

An interesting aspect of these early features derives from the petrological examination of selected pottery fragments (see Vince, Appendix 4a). This analysis identifies local materials, as well as those from farther afield: from the north/north-east of the Lincolnshire Wolds; from the Charnwood Forest area of Leicestershire; and from Yorkshire, to the west of the Yorkshire Wolds. A full interpretation of these observations has yet to emerge (A Vince, *pers. Com.*), but it may well be that the early-middle Saxon inhabitants at Dunholme had ties with peoples that lived in other areas, to the north and south of Dunholme. Whether or not such connections can be related in some way to extended kinship ties is a matter worthy of some further consideration.

In the later Saxon period, the archaeological activity is associated with just two ditches and low numbers of discrete cut features. The boundary represented by ditch H above appears to have migrated northwards by approximately 10m, where it was re-cut on a number of occasions. In the extreme north east of the excavation, the terminal end of another possible late-Saxon ditch was exposed. The almost total lack of discrete features would suggest that any associated settlement (ie buildings and related features) lie beyond the area that was investigated; probably to the north.

A third phase of activity has been dated to the medieval period. A series of recut ditches was exposed towards the eastern corner of the excavation, and these were orientated north-south, representing a completely new alignment. These features were not securely dated, although one fragment of medieval brick was recovered from one fill, and they clearly post-date the late Saxon remains. A single rubbish pit was excavated in the very north-west corner of the trench, and this contained 12 sherds of 12th century pottery. The only other features of this date, within the main excavation, was a small group of three inter-cutting pits towards the south-east of the site. One of these features (the earliest) contained just one sherd of Romano-British pottery, whilst the other two contained low numbers of medieval finds. No satisfactory interpretation of these pits was forthcoming, although they resembled features that were exposed in two previous phases of evaluation. It was suggested then that the pits were excavated for the extraction of sand, and this is still a possibility (although it does not explain why the three pits exposed in the main excavation were inter-cutting).

The latest phase of activity was represented by modern features, comprising lines of rectangular post holes that extended broadly east-west across the site. These features are probably associated with use of the site in relatively recent times as a plant nursery.

It is clear that the majority of significant archaeological activity within the excavation area dates from the Anglo-Saxon period, and this was concentrated towards the north and north western parts of the site. This activity certainly included some evidence of

direct occupation, but it is likely that these features were peripheral to a settlement focus that was beyond the area that was investigated. Slightly conflicting evidence is provided by the results of an earlier phase of evaluation (Allen 2000b). Evaluation Trench 2 was located a short distance to the west of the main excavation, and this exposed what was thought to be the remains of a sunken feature building or *Grubenhause*, dated to the 5th-7th century AD. This would suggest a more dispersed settlement pattern, with the bulk of activity still focused to the north of the main excavation.

The watching brief revealed a complex of features. Although the majority of these could not be dated, most of the archaeology is likely to be of Saxon and/or medieval date. Limestone walls and spreads of demolition material indicate the presence of a major complex of presumed medieval structures throughout the north-west part of development, with possible peripheral stone buildings further south-east (Plot 22 garage). This complex appears to be associated with a linear peat-filled hollow, identified as a possible moat. The moat and stone-built structures almost certainly equate to a monastic property that was acquired by the Grantham family in 1545 and identified as the old manor of Dunholme. A moat-like hollow was apparently visible at the beginning of the 20th century (Leach 1964). Although anticipated, the moat was not visible in the stripped area associated with the Phase I access road. This is probably due to the shallow depth of the groundworks, which exposed later stone and brick demolition.

The majority of the numerous ditches and pits exposed throughout the east half of the development remain undated. However, their stratigraphic relationship in relation to a ubiquitous windblown sand does at least provide a relative chronology.

The blown sand deposits (425)/(353) appear to be the same as a late Saxon blown sand (417) that was exposed during the 1999 evaluation (Allen 2000a). Layer (417) was demonstrated to have rapidly sealed a dump of late 9th to mid 10th century rubbish (405). Therefore, any features cut through the sand are likely to be of post-Saxon date. This suggests that there existed a series of (possibly) Saxon and later medieval boundaries throughout the phase II area. The lack of artefacts from the earlier (pre-windblown sand) phase may indicate that the ditches are remnants of field systems associated with nearby settlement. The possible *grubenhause*, or sunken feature building, from the 1999 evaluation (Allen 2000a) would be a likely candidate, possibly an outlier, for this phase of occupation.

The relatively low volume of finds from the watching brief is at least partially due to the nature of the works involved. By not using controlled archaeological methods to excavate features, material evidence was inevitably limited.

The medieval boundaries are probably elements of field systems associated with the bishop's grange to the east and the manor to the west. By the medieval period, there appears to have been a settlement shift; away from the high ground, towards the present village location.

Part of the medieval moated manor of Dunholme was exposed at the north-west corner of the site. This complex of structures was originally a monastic property acquired by the Grantham family in 1545. During both the evaluation and watching

brief stages, substantial limestone walls and a possible moat were exposed. This showed the range of buildings covered an area over 160m².

At the east extreme of the site, a further limestone wall and several rubble-filled pits, associated with medieval pottery and green-glazed tile, are likely to relate to the Bishop's grange, known from this area.

The medieval remains exposed suggest a change in land use at the site; from a scattered farming community to estates associated with the monastic properties. This perhaps explains the location of the modern village, further north, adjacent to land owned by the church, and later partly owned by the Grantham family.

By 1898, the manor was demolished and Grange Farm was built in its place. The farmhouse and its associated outbuildings were demolished in 1990, and the land became overgrown. East of the ridgeline, a former plant nursery was positioned over the area of the excavation. This caused extensive damage to the archaeological resource.

9.0 Effectiveness of methodology

The main excavation area was significantly damaged by roots and modern features associated with its previous use as a plant nursery. It also appears that the majority of significant archaeological remains concentrate to the north and north-west of the principal investigation.

The archaeological watching brief has proved only partially successful. The open space at the north-west corner of the site has preserved only a proportion of the medieval manor, with extensive damage to what is deemed the southern 'half' of the manor complex. The high water table in this part of the site allowed only minimal recording within the footing trenches (on health and safety grounds). The phase II development revealed a large number of mainly undated features, of which very little can be surmised. Fortunately, the presence of a reasonably well-dated windblown sand horizon allowed some generalised conclusions to be made of the phase II development archaeology.

10.0 Acknowledgements

The authors would like to thank Keith Sharpe of Sharward Construction Ltd, for commissioning this project and for assistance during the watching brief and excavation. Thanks are also expressed to Jim Bonnor from Lincolnshire County Council for site visits, and to Beryl Lott for providing the brief. Finally, thanks are due to the excavation team; Clare Rawlings, Dave Marshall, Rob Schofield, Mike Garrett, Aaron Chapman, Tom Jamieson, Claire Davies, Babette Willis and Doug Young; and Simon Savage.

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12.0 Site Archive

The site archive (physical and documentary) for this project is in preparation and will be deposited at the Lincoln City and County Museum within six months. Access may be granted by quoting the global accession number 2001.232.

Appendix 1: colour photographs
(P1 – P7 = excavation; 8 – 14 = watching brief)



P1. General pre-excitation view of north-west corner of excavation (Area B), looking south. In the foreground can be seen the unexcavated ditches A – D; in the background, at right angles, is the complex of ditches E – G



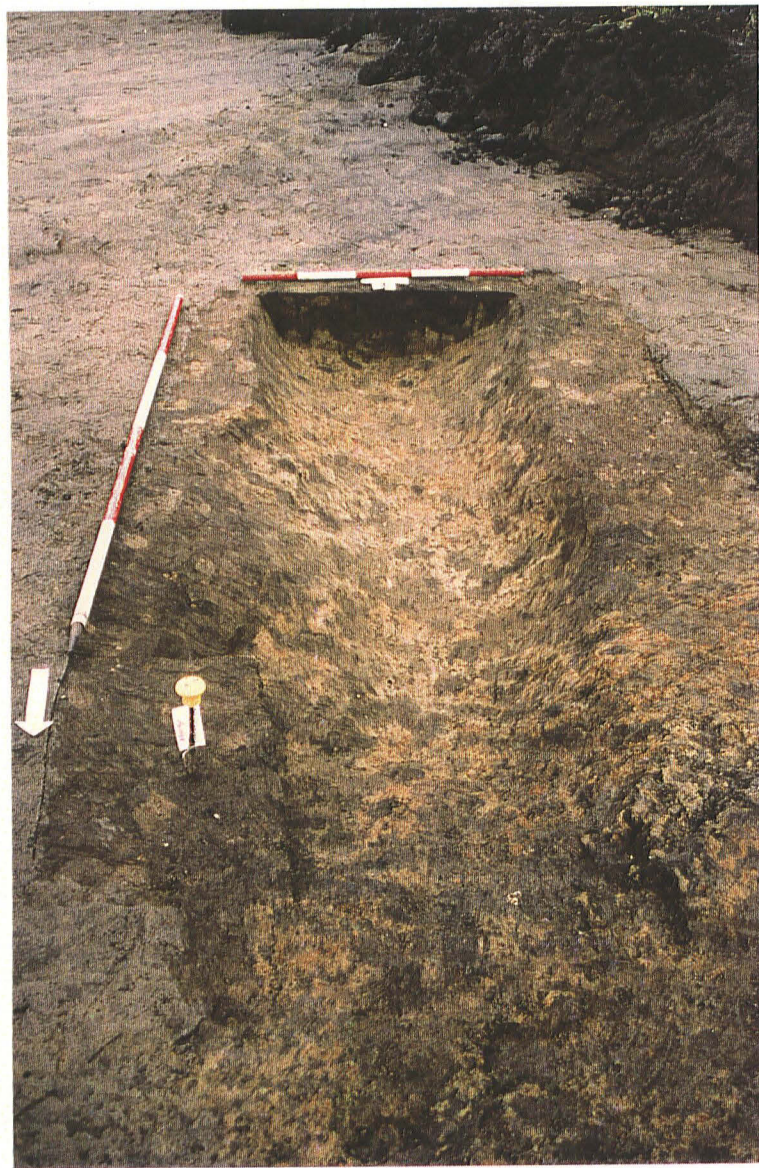
P2. Early – middle Saxon hearth/oven [029], showing burnt stone surface (032), looking north



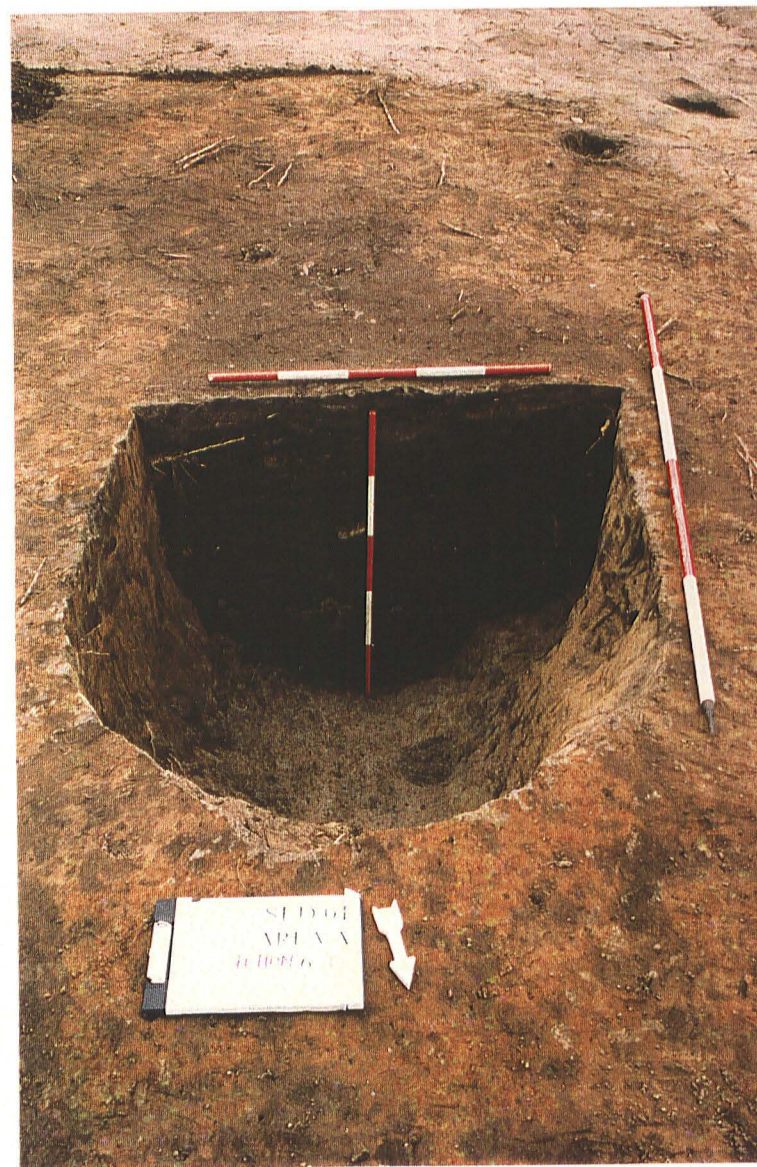
P3. Early – middle Saxon hearth/oven [029],
following removal of stones, looking east



P4. Early – middle Saxon hearth/oven [029],
looking south-west from possible working hollow



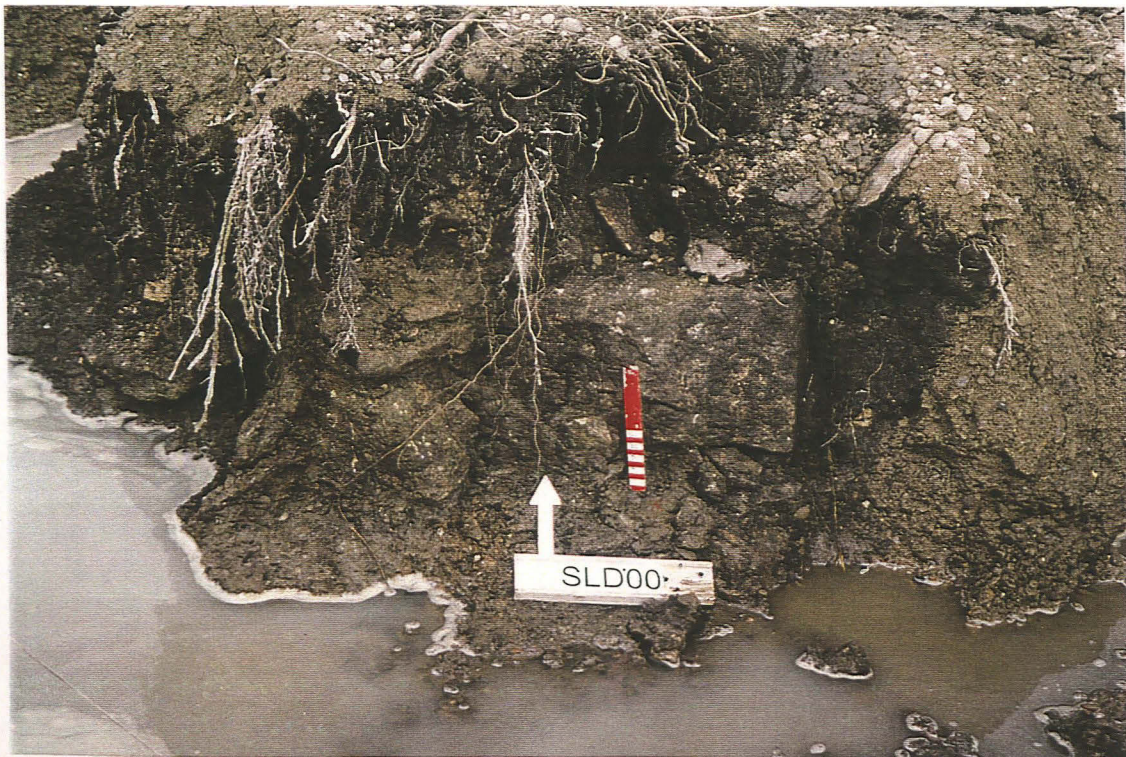
P5. Excavated section of Ditch A, looking south



P6. Possible sand extraction pit [070], half-sectioned, looking south



P7. Lateral hole in side of pit [070], looking north



P8. House plot 4: limestone wall (419), looking north-east (note wet conditions)



P9. General view of Phase I access road stripping, looking north-east from Scothern Lane



P10. Brick hearth (322) and stone walls (323) and (324); exposed in phase I access road, looking south



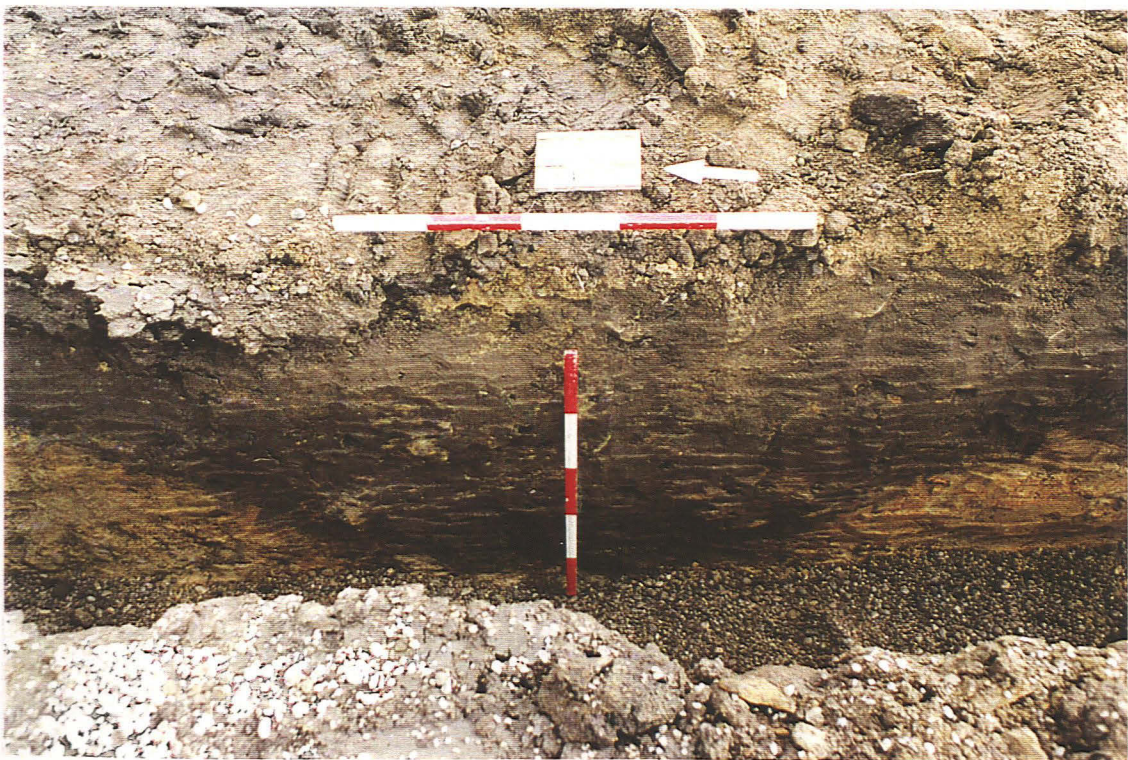
P11. Brick hearth (322) in phase I access road, looking south-east



P12. Ditch [354] in phase II sewer trench, looking north-west



P13. East-facing section through possible gully [364], phase II sewer trench



P14. West-facing section through ditch [401], phase II sewer trench

**Land off Scothern Lane, Dunholme, Lincolnshire
SLD 01**

Lithic Materials: Catalogue and Assessment

Report by Jim Rylatt – December, 2001

1.0 Catalogue

12 pieces of worked stone were recovered during excavation.

Context No.		Description
02	Backed bladelet	Small, conchoidal secondary flake, with very small platform and diffuse bulb. The surviving dorsal surface is c. 5% cortical. Dorsal surface has parallel scars suggesting single platform working. The proximal and medial sections of one lateral edge have been abruptly retouched by the removal of 12+ extremely small flakes. Additionally, a number of semi-abrupt flakes have been removed from the proximal end to produce a borer/piercer-like tapering termination. Brownish-orange semi-translucent flint. 23 x 8mm
02	Tertiary flake	Small conchoidal flake, with flat platform, relatively diffuse bulb, and feathered termination. Dorsal surface has scars suggesting removal of flakes from a single platform. Grey-brown opaque flint, with chalky inclusions. 14 x 11mm.
044	Chunk	Thermally altered fragment of flint, probably burnt as one surface is pock-marked by pot lid fractures, some surfaces preserve evidence of flake removal, chunk is largely cortical. Grey-brown semi-translucent flint.
66	Secondary flake	Conchoidal flake, with flat platform, moderately pronounced bulb, having erailure flake removed, and hinged termination. The dorsal surface is c. 15% cortical, thin abraded cortex. Grey-brown semi-translucent flint. 18 x 18mm.
66	Broken flake	Distal fragment of conchoidal blade-like flake, with feathered termination; possibly slightly burnt. Dorsal surface has scars suggesting removal of blades from a single platform. Possible use-wear along distal end of one lateral edge, but this may equally be the product of post-depositional rolling. Grey-brown semi-translucent flint.

Context No.		Description
88	Tertiary flake	Relatively large blade-like flake, with complex platform and moderately pronounced bulb. Dorsal surface has scars suggesting removal of parallel-sided blades from a single platform. The medial section of one lateral edge has been retouched by the removal of a series of small abrupt flakes from the ventral face, thereby creating a small notch. The distal end of the flake has also been retouched by the removal of small abrupt flakes, this continuing onto the distal end of the other lateral edge. Grey-brown semi-translucent flint, with some chalky inclusions. 40 x 15mm.
88	Secondary flake	Small conchoidal flake, with small flat platform, relatively diffuse bulb, having errillure flake removed, and hinged termination. The dorsal surface is c. 10% cortical, thin abraded cortex. Dorsal surface has scars suggesting careful removal of small flakes and larger parallel-sided flakes from a single platform. May have been burnt. Brownish-orange semi-translucent flint. 18 x 12mm.
089	Chunk	Chunk showing evidence of flake removal, possibly burnt. Surface c. 10% cortical, thin abraded cortex. One edge has been retouched by the removal of a series of small abrupt flakes, creating a crude hollow scraper. Lightly patinated brownish-grey flint with some inclusions.
089	Chunk	Chunk showing evidence of flake removal. Surface c. 20% cortical, relatively thin abraded cortex. Grey-brown opaque flint with some inclusions.
99	Broken flake	Distal fragment of burnt, conchoidal blade-like flake, with feathered termination. Dorsal surface has scars suggesting removal of blades from a single platform. Grey-brown semi-translucent flint.
105	Chip	Small piece of lightly patinated grey opaque flint, c. 70% cortical, thin abraded cortex, showing evidence of prior flake removal.
105	Broken flake	Distal fragment of flake, with hinged termination. Grey-brown semi-translucent flint.

NB: Measurements are given only for complete flakes. The first figure relates to the maximum length, measured perpendicular to the striking platform; the second to maximum breadth, measured at a right angle to the length. Figures for the percentage of cortex relate to the total area of the dorsal surface and platform.

Table 1: Summary of the worked lithic material, showing its relationship to archaeological contexts

Context	Secondary flake	Tertiary flake	Backed bladelet	Chip/chunk/broken flake
02		1	1	
44				1
66	1			1
88	1	1		
89				2
99				1
105				2
Total	2	2	1	7

Table 2: Summary of the worked lithic material, showing attributes and modifications

	Number present	Burnt	Broken	Retouched	Use-wear	Blades & blade-like flakes
Secondary flakes	2	1				
Tertiary flakes	2			1		1
Backed bladelet	1			1		1
Chip/chunk/broken flake	7	3	3	1	1	2
Total	12	4	3	3	1	4

Table 3: Summary of the modified lithic material

Context	Number present	Burnt (pot boilers)	Sandstone	Quartzite	Notes
032	1		1		Hammer stone on water-rounded fine-grained sandstone pebble. One end flattened by removal of flakes during impact with object nodules.
92	1	1	1		From large sub-rounded pebble.
99	2	2	2		One small angular fragment.
					One large shattered cobble, with only one surviving external face. This is very flat, smooth and appears to be abraded, suggesting that it has been used as a rubber.
121	1	1	1		
Total	5	4	5		

2.0 Description and context

All of the worked stone is flint, most, if not all, of which appears to be derived from secondary deposits. Primary and secondary flakes have a thin, abraded cortex, and where relatively large areas of this surface survive, often exhibit a rounded profile. This indicates that they are water-transported nodules, a factor accounting for the considerable variation in colour, composition and quality. The source of this material is likely to be local. Procurement is likely to have been expedient, entailing collection of flint from riverbanks, tree throws, or slight delves into the gravel beds.

There were no cores in the assemblage, which suggests that only the later stages of the core reduction sequence and tool manufacture were undertaken on the site. However, such observations are tentatively made, because the assemblage is very small and so is likely to amplify any biases. Additionally, if distinct zones were utilised for the different stages of core reduction and tool manufacture it is possible that activity zones for the earliest stages lay beyond the limits of excavation.

Examination of the scars on the dorsal surfaces of the flakes indicates that most of the flakes have been removed from prepared cores, having single platforms. Most of the flakes produced from the prepared cores are relatively narrow and tend to have feathered terminations indicating a high degree of control.

There were 4 fragments of potboilers, one of which had possibly been formerly utilised as a rubber. These were pieces of medium to fine grained, water worn cobbles, again, presumably from a nearby river valley. These are likely to have been utilised during the daily domestic routines. None of the fragments recovered appear to refit, indicating that this represents only a small proportion of a much larger quantity of such material.

3.0 Dating

It is very difficult to suggest a date for such a small assemblage of lithic material. However, it has been noted that the assemblage contains 4 blade or blade-like flakes, with other examples having dorsal flake scars suggesting that they are products of the same industry. These morphological attributes, attesting to highly controlled patterns of working, suggest that this component was manufactured during the later Mesolithic, or early Neolithic. Many of the blades are small, and while this is also likely to reflect the mean size of the nodules of raw material, it also suggests an earlier date in this range. This is borne out by the size and quality of the particularly fine backed bladelet, from (02), which is indicative of a later Mesolithic date.

4.0 Discussion and conclusion

The small number of blades and blade-like flakes raise the possibility that the excavation area lies on the periphery of an activity zone of later Mesolithic or early Neolithic date. Alternatively, this component of the assemblage may represent a large proportion of the debitage generated during one event, reflecting the expedient manufacture of tools at a small temporary camp. Some of the other less diagnostic pieces may have been produced at any time during prehistory.

REPORT 89 ON THE POTTERY FROM DUNHOLME EXCAVATION, SLD01

for PRE-CONSTRUCT ARCHAEOLOGY (LINCOLN)

by Margaret J. Darling, M.Phil., F.S.A., M.I.F.A.

11 November 2001

QUANTITY AND CONDITION

The pottery comprises 39 sherds weighing 558g from 14 contexts. The condition is average, but contains some abraded sherds. No problems are anticipated for long term storage. The pottery has been archived according to the guidelines of The Study Group for Roman Pottery, the archive measures being sherd count and weight. A print-out of the archive database is attached, and the data will be curated for future study.

Details of the pottery quantities and dates are given below in Table 1.

Cut	Type	Cxt	Sherds	Weight	Date	Comments
-	Sub-soil	002	16	244	L2M3	Date on mort.rim
074	Pit	073	1	19	M3?	
076	Ditch	076	1	3	M3+	
080	Ditch	081	4	11	ROM	Some abrasion
082	Ditch	083	1	15	ROM	
085	Ditch	086	1	1	ROM	
087	Ditch	088	2	14	2C?	
090	Pit	089	1	28	ROM	
109	Ditch	108	2	20	3-4C?	String bases most LROM
114	Ditch	115	3	67	M3-4	
119	Pit	118	1	3	ROM	
091	Pit	120	1	7	ROM	
122	Pit	121	1	8	L3-4;POSS L4	
-	Sub-soil	123	4	118	3-4C	Some abrasion
		Total	39	558		

Apart from the group from the sub-soil, most contexts contained one to four sherds, making any estimate of the date very difficult. Apart from a colour-coated bodysherd and a mortarium rim, all the sherds are in grey fabrics, with only four rims.

The two sherds from ditch 087 include a very fragmentary rim in a probably earlier Roman fabric, the form being possibly a type based on an Iron Age tradition, which continues well into the 2nd century; the other body sherd is of indeterminate date. The best date from the ditches came from 076, the single sherd being a bodysherd from a Nene Valley colour-coated closed vessel, probably a beaker decorated with rouletting. The fabric of this sherd indicates a date in the later 3rd century. Ditch 109 could also be of later Roman date on the basis of a string-marked base, a

feature more common in the later Roman period, while a fragment of the neck of a wide-mouthed bowl from ditch 114 suggests a similar date, mid 3rd to 4th century. Possibly the latest sherd came from pit 122, a very fragmentary rim from a bead-and-flanged bowl, the nature of the break suggesting this might be from a type where the rim is inclined inwards, a classic type made at the 4th century kilns at Swanpool (Webster & Booth 1947, D13-23). This type is characteristic of the latest Roman deposits in the city of Lincoln and on other sites. The only caveat is that the fragment is insufficient for total certainty on the type identification, leading to a conservative date of late 3rd to 4th century as would be applied to a more normal bead-and-flanged type.

Earlier pottery almost certainly occurs on the site, including the possible native type jar (from 087), a number of sherds of a dark grey fabric with quartz grains on the surface giving a sparkly appearance, the type and texture being more consistent with a date in the 2nd century. A fragment of a bowl with a flange from the sub-soil 123 is probably an earlier 2nd century type, although too little survives for certainty. One of the few datable fragments from the site is a rim of a hammer-headed type of mortarium (from sub-soil 002), almost certainly from the Mancetter-Hartshill kilns in Warwickshire, which probably dates to the later 2nd to mid 3rd century, *c* AD 190-260.

The overall impression is of activity mostly in the later Roman period, mid 3rd century onwards, but with a scatter of earlier material.

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Cxt	Fabric	Form	Manuf+	Ves	D	DNo	Details	Link	Shs	Wt
002	MOMH	MHH	-	-	-		RIM FRAG L2-M3?	-	1	35
002	GREY	CP	-	-	-		RIM FRAG;CURVED;BURNISH INT	-	1	11
002	GREY	BD?	-	-	-		BASE FRAG;SPARKY DKGRY FAB	-	1	34
002	GREY	BWM?	BL	-	-		BS LWR ZONE ?BWM;BL DEC	-	1	24
002	GREY	JB	-	-	-		BS TWIN GROOVES	-	1	25
002	GREY	CLSD?	-	-	-		BS GROOVED CORDON;DKGRY SPARKY FAB	-	1	11
002	GREY	CLSD	-	-	-		BS;DKGRY SPARKY FAB	-	1	13
002	GREY	CLSD?	-	-	-		BS CHUNKY TEXTURE FAB	-	1	9
002	GREY	-	-	-	-		BS GROOVED JB?	-	1	11
002	GREY	-	-	-	-		BSS SOME ABR	-	5	49
002	GREY	-	-	-	-		BS DKGRY EXT	-	1	4
002	OX	-	-	-	-		BS;PROB PT BASE;ABR;DKGRY FAB;RB SURFS	-	1	18
002	ZDATE	-	-	-	-		L2M3	-	-	-
002	ZZZ	-	-	-	-		DATE ON MORT RIM	-	-	-
073	GREY	BWM?	-	-	-		BS NECK;PT SHLDR	-	1	19
073	ZDATE	-	-	-	-		M3?	-	-	-
076	NVCC	CLSD	ROUZ	-	-		BS RB FAB;PROB BK	-	1	3
076	ZDATE	-	-	-	-		M3+	-	-	-
081	GFIN?	CLSD	-	-	-		BS LTGRY;TRACE OF A GROOVE	-	1	3
081	GREY	-	-	-	-		BSS	-	2	4
081	OX	-	-	-	-		BS;RB SURFS;DKGRY CORE;VABR	-	1	4
081	ZDATE	-	-	-	-		ROM	-	-	-
081	ZZZ	-	-	-	-		SOME ABRASION	-	-	-
083	GREY	CLSD?	-	-	-		BS	-	1	15
083	ZDATE	-	-	-	-		ROM	-	-	-
086	GREY	-	-	-	-		CHIP ONLY	-	1	1
086	ZDATE	-	-	-	-		ROM	-	-	-
088	GREY	-	-	-	-		BS SL.GROOVE?	-	1	4
088	GREY	J	-	-	-		RIM FRAG;DKGRY SPARKY;RB CORTEX;POSS CPN	-	1	10
088	ZDATE	-	-	-	-		2C?	-	-	-
089	GREY	CLSD	-	-	-		BS J OR B?	-	1	28
089	ZDATE	-	-	-	-		ROM	-	-	-
108	GREY	-	-	-	-		BASE FRAG;STRING	-	1	15
108	GREY	J	-	-	-		BS GROOVE SHLDR	-	1	5
108	ZDATE	-	-	-	-		3-4C?	-	-	-

108	ZZZ	-	-	-	-	-	STRING BASE MOSTLY LROM	-	-	-
115	GREY	BWM	-	-	-	-	RIM CURVED/NECK/PT SHLDR M3+	-	1	60
115	GREY	-	-	-	-	-	BSS;ONE DKGRY SPARKY;ABR	-	2	7
115	ZDATE	-	-	-	-	-	M3-4	-	-	-
118	GREY	-	-	-	-	-	BS	-	1	3
118	ZDATE	-	-	-	-	-	ROM	-	-	-
120	GREY	-	-	-	-	-	BS X SMOOTHED BASAL ZONE;J OR B	-	1	7
120	ZDATE	-	-	-	-	-	ROM	-	-	-
121	GREY	BFB?	-	-	-	-	RIM FRAG;NATURE BREAK SUGGESTS BIBF?	-	1	8
121	ZDATE	-	-	-	-	-	L3-4;POSS L4	-	-	-
123	GREY	JB	-	-	-	-	BASE STRING	-	1	67
123	GREY	BWM?	BL	-	-	-	BS BL DECOR;LWR ZONE BWM?	-	1	21
123	GREY	-	-	-	-	-	BS VABR	-	1	15
123	GREY	B	-	-	-	-	FLANGE X B;DKGRY SPARKY FB;NEAT GROOVES ABOVE;BURNISHED;2C?	-	1	15
123	ZDATE	-	-	-	-	-	3-4C	-	-	-
123	ZZZ	-	-	-	-	-	SOME ABRASION	-	-	-

Tile Archive SLD00 and SLD01

site code	context	cname	frags	weight	description	date
sld00	301	PNR	1	348	bedded on grit	med-pmed
sld00	314	PNR	1	67		med-pmed
sld00	314	PNR	1	136	? Pantile	pmed
sld00	314	PNR	1	72	corner	med-pmed
sld00	318	PNR	2	248	various	med-pmed
sld00	322	BRK	1	2319	complete;handmade;250x110x60;upper surface blackened	
sld00	322	FLOOR	1	3767	180x175x45;thick mortar	
sld00	324	PNR	1	157	? Cloth impression	med-pmed
sld00	325	PNR	4	204	corner;light firing	med-pmed
sld00	338	FIRED CLAY	1	16		
sld00	338	PNR	4	386	various	med-pmed
sld00	338	PNR	1	223	corner	med-pmed
sld00	338	PNR	1	218	corner	med-pmed

site code	context	cname	frags	weight	description	date
sld00	340	RTMISC	1	75		
sld00	347	PNR	1	294		med-pmed
sld00	352	RBRK	1	202		
sld01	002	PNR	1	13		
sld01	002	PNR	8	275	various	med-pmed
sld01	018	FIRED CLAY	1	5		
sld01	044	PNR	1	59		med-pmed
sld01	044	TEG	1	82	flange	
sld01	045	FIRED CLAY	2	32		
sld01	054	RBRK	1	450		
sld01	054	RBRK	1	371	abraded	
sld01	097	PNR	1	77	sim fabric to nib tile from Lincoln	pmed-emod
sld01	105	FIRED CLAY	6	19		
sld01	108	RTMISC	1	56		
sld01	115	FIRED CLAY	1	5		

site code	context	cname	frags	weight	description	date
sld01	115	RTMISC	1	7		
sld01	121	FIRED CLAY	1	19	or tile/brick	
sld01	121	FIRED CLAY	1	12		
sld01	123	PNR	1	115		med-pmed
sld01	123	RTIL	1	76		
sld01	123	RTMISC	1	5		
sld01	92	FIRED CLAY	1	8		

Key to Ceramic Codenames

BRK	Brick	med to post med
FIRED CLAY	Fired clay	no date
FLOOR	Floor tile	med to modern
PNR	Peg nib or ridge tile	med to post-medieval
RBRK	Roman brick	Roman
RTIL	Roman tile (general)	Roman
RTMISC	Roman or post-Roman tile	Roman to early modern
TEG	Tegula	Roman

Pottery Archive SLD00 and SLD01

Jane Young

Lindsey Archaeology Services

site code	context	cname	sub fabric	form type	sherds	vessels	decoration	part	ref no	description
sld00	322	MISC	shell		1	1		BS		tiny fragment;leached
sld00	324	LSH		jar	1	1		BS		tiny fragment;leached
sld00	324	MISC	shell		1	1		BS		tiny fragment;leached
sld00	327	EMLOC	oxid;med sandy;hard	jug	1	1		BS		splashed glaze;abraded
sld00	327	LSH			1	1		base		leached;? ID
sld00	327	LSH		jar ?	1	1		rim		leached;? ID
sld00	327	LSH			1	1		BS		leached;? ID;tiny frag
sld00	337	GRE			1	1		BS		flake;dark brown glaze
sld00	337	RAER		jug	4	1		handle & B		fresh breaks
sld00	338	BL		jar ?	4	1		BS		staffs;17-18th
sld00	338	GRE		bowl	1	1		BS		abraded
sld00	338	RGRE			1	1		BS		int & ext glaze
sld00	338	STMO		mug/tankard	1	1		rim		
sld00	357	LKT		jar	1	1		BS		leached
sld00	409	CHARN			1	1		BS		small frag
sld00	409	SLST		jar	1	1		neck		
sld01	002	BEVO2T		jug	1	1		BS		cu mottled glaze
sld01	002	CHARN			1	1		BS		tiny frag

site code	context	cname	sub fabric	form type	sherds	vessels	decoration	part	ref no	description
sld01	002	CHARN			1	1		BS		
sld01	002	CHARN			1	1		BS		oxid surfaces
sld01	002	CHARN	incl aggregate sst		1	1		BS		tiny frag
sld01	002	CHARN	incl fine aggregate sst		1	1		BS		small frag
sld01	002	ECHAF			1	1		BS		thick body
sld01	002	FE			1	1	stamp ?	BS		
sld01	002	FE		jar ?	1	1		BS		soot
sld01	002	FE			1	1		BS		int dep ?
sld01	002	FE			1	1	stamp	BS		
sld01	002	FE			2	1		BS		
sld01	002	LSH		jar ?	1	1		BS		leached
sld01	002	LSW2		jug	1	1	thumbed basal edge	base		
sld01	002	MEDX	reduced; fine-med sandy;	jug	1	1		BS		pocked reduced glaze; abraded
sld01	002	MISC	chaff/shell/limestone		2	2		BS		leached
sld01	002	MISC	shell/limestone		2	1		BS		completely leached; int soot
sld01	002	MISC	shell/limestone		1	1		BS		completely leached
sld01	002	NOTG	reduced	jug	1	1	multi horizontal grooves	BS		? ID
sld01	002	R			16	1		BS		
sld01	002	SST	coarse		1	1		BS		
sld01	002	SST	mixed incl greensand		1	1		BS		
sld01	002	SST	mixed mainly coarse		1	1		BS		

site code	context	cname	sub fabric	form type	sherds	vessels	decoration	part	ref no	description
sld01	002	SST	mixed mainly fine		1	1		BS		tiny frag
sld01	002	SST	mixed mainly fine	jar	1	1	incised	BS		
sld01	002	SST	mixed mainly fine		1	1		BS		tiny frag
sld01	002	SST	mixed mainly fine		1	1		BS		tiny frag
sld01	002	SST	mixed mainly fine		1	1		BS		tiny frag
sld01	002	SST	mixed mainly fine	jar	1	1		rim	DR7	soot
sld01	002	SST	mixed with chaff & muscovite		2	1		rim & BS	DR8	
sld01	013	ESGS			1	1		BS		small frag
sld01	018	CHARN			1	1		BS		small frag
sld01	021	LKT		wide jar	1	1	DROUL on int rim	rim	DR9	soot;fresh condition
sld01	030	SST	fine		1	1		BS		small frag
sld01	030	SST	mixed		1	1		BS		
sld01	031	CHARN	incl comm mixed sst		2	1		BS		
sld01	031	ESGS		?	1	1		BS		
sld01	031	ESGS	incl mixed sst comm fine quartz & muscovite		1	1	incised line	BS		
sld01	031	SST		? Vessel	1	1		BS		small frag
sld01	031	SST	mixed fabric incl large lumps muscovite & ? Millstone grit	jar	3	1		BS		
sld01	034	CHARN			1	1		BS		tiny frag
sld01	038	CHARN			1	1		BS		? Id;thin walled
sld01	065	MEDLOC	OX/med sandy;hard	jar/pipkin	1	1		BS		tiny sherd
sld01	065	MEDX	light firing;med sandy;hard	jug	1	1		BS		small frag;? NOTG

site code	context	cname	sub fabric	form type	sherds	vessels	decoration	part	ref no	description
sld01	069	ECHAF			1	1		BS		small frag
sld01	073	R			1	1		BS		
sld01	076	CHARN			1	1		BS		
sld01	076	R			1	1		BS		
sld01	078	LKT		jar	1	1		BS		leached
sld01	081	R			4	1		BS		
sld01	083	CHARN			1	1		BS		
sld01	083	ESGS			1	1		BS		
sld01	083	LIMES	incl. Quartz		2	1		BS		med-large frag;limestone & sparse-mod subround quartz & carb veg;leached
sld01	083	LSH		jar	1	1		BS		small frag
sld01	083	LSW2/3		jar/pipkin	1	1		base		spot of glaze int
sld01	083	R			1	1		BS		
sld01	086	FE			1	1		BS		tiny frag
sld01	086	LSH		jar	2	1		BS		leached;small frags;? ID
sld01	086	LSH		?	2	1		BS		tiny fags;leached;? ID
sld01	086	R			1	1		BS		
sld01	086	SST			1	1		BS		tiny frag
sld01	086	SST			1	1		BS		tiny frag
sld01	086	SST	mixed incl. Aggregate		1	1		BS		
sld01	088	LSH		small jar	1	1		rim		leached
sld01	088	R			2	1		BS		

site code	context	cname	sub fabric	form type	sherds	vessels	decoration	part	ref no	description
sld01	089	CHARN			1	1		BS		small frag
sld01	089	ECHAF		small bowl/la	1	1		rim	DR6	comm fine quartz;int soot
sld01	089	LSH		jar	2	1		BS		leached
sld01	089	LSLOC	fine shell	bowl	2	1		base		leached;soot
sld01	089	MEDX	OX/R;very fine;med hard	jug	1	1		BS		splashed glaze;abraded
sld01	089	R			1	1		BS		
sld01	089	SST	mixed		1	1		BS		soot int ?
sld01	092	ASSHQ	shell & comm to abun subround quartz	jar	1	1	incisd & stamp	BS		A1ai stamp ? Composite;small frag;leached
sld01	092	ASSHQ	shell & comm to abun subround quartz	jar	1	1		rim	DR2	leached
sld01	092	ASSHQ	shell & comm to abun subround quartz	large jar	1	1		BS		leached
sld01	092	ASSHQ	shell & comm to abun subround quartz	large jar	1	1		BS		leached
sld01	092	ASSHQ	shell & comm to abun subround quartz	jar	1	1	incised	rim	DR1	thin walled;leached;quartz 0.2- 0.5mm
sld01	092	CHARN			1	1		BS		int & ext soot
sld01	092	ESGS			1	1		BS		
sld01	092	SST	abun fine quartz igneous rock muscovite	jar	4	1	incised and stamped	BS		A1ai stamp
sld01	092	SST	mixed		1	1		BS		
sld01	092	SST	mixed		1	1		BS		
sld01	092	SST	mixed sst ? Bone muscovite biotite looks Yorks		2	1		base		slight footing
sld01	099	CHARN			1	1		BS		small frag

site code	context	cname	sub fabric	form type	sherds	vessels	decoration	part	ref no	description
sld01	099	SST	mixed comm muscovite		1	1		BS		thin walled
sld01	108	R			2	1		BS		
sld01	115	R			3	1		BS		
sld01	115	SST	mixed		1	1		BS		tiny frag
sld01	118	ASSHQ	fabric incl comm quartz		1	1		BS		tiny leached frag
sld01	118	ASSHQ	fabric incl comm quartz		1	1		BS		leached
sld01	118	ESGS			1	1		BS		soot
sld01	118	R			1	1		BS		
sld01	118	SST	mixed		1	1		BS		
sld01	120	ESGS	incl spilsby sst chalk & granitic ?	jar	2	1		BS		
sld01	120	R			1	1		BS		
sld01	120	SST	coarse	large vessel	1	1		BS		
sld01	120	SST	mixed	?	1	1		BS		
sld01	120	SST	mixed & granite	jar	1	1	horiz inc lines at neck	rim	DR3	
sld01	120	SST	mixed large lumps muscovite granitic	jar	1	1	incised motif & stamps	BS	DR4	A1bi stamp;poss sv as rim
sld01	120	SST	mixed mainly coarse		1	1		BS		
sld01	120	SST	mixed mainly fine		1	1		BS		
sld01	121	R			1	1		BS		
sld01	121	SST		small jar	1	1		rim	DR5	mainly fine aggregate incl calcitic occ greensand
sld01	123	R			4	1		BS		

Archive Report on the Post-Roman Pottery from an Archaeological Excavation (SLD01) and Watching Brief (SLD00) at Land off Scothern Lane, Dunholme, Lincolnshire.

Jane Young
Lindsey Archaeological Services

Introduction

A total of 129 sherds of pottery representing about 107 vessels (22 sherds from SLD00 and 107 from SLD01) was recovered from the site. The material ranges in date from the Anglo-Saxon to the post-medieval period. The pottery was examined both visually and using a x20 magnification, then recorded on an Access database using locally and nationally agreed codenames. One new Fabric type (ASSHQ) was characterised during work on this assemblage.

Condition

The pottery recovered was in variable condition with most sherds showing some small degree of abrasion. Some of the coarse ware vessels have thick exterior soot residues. Calcareous inclusions have been leached from most vessels with calcareous inclusions with the notable exception of the Lincoln Kiln-type wide jar rim found in context 021 which remains in a fresh condition.

Overall Chronology and Source

A range of 23 different, identifiable pottery ware types were found on the site together with six unidentifiable vessels, the type and general date range for these fabrics are shown in Table 1. A limited range of vessel types was recovered, mainly examples of various types of jars, jugs and bowls.

Table 1: Pottery codenames and date range with total quantities by sherd and vessel count

codename	full name	earliest date	latest date	sherds		vessels	
				SLD00	SLD01	SLD00	SLD01
ASSHQ	Anglo-Saxon Shell and Quartz tempered	450	750	0	7	0	7
BEVO2T	Beverley Orange-type ware Fabric 2	1230	1350	0	1	0	1
BL	Black-glazed wares	1550	1750	4	0	1	0
CHARN	Charnwood ware	450	800	1	15	1	14
ECHAF	Early to mid Anglo-Saxon chaff-tempered ware	450	800	0	3	0	3
EMLOC	Local Early Medieval fabrics	1150	1230	1	0	1	0
ESGS	Early to mid Anglo-Saxon Greensand quartz tempered	550	800	0	8	0	7
FE	Ironstone tempered	550	800	0	7	0	6
GRE	Glazed Red Earthenware	1500	1650	2	0	2	0
LIMES	limestone	450	800	0	2	0	1

LKT	Lincoln kiln-type shelly ware	850	1000	1	2	1	2
LSH	Lincoln shelly ware	850	1000	4	4	9	6
LSLOC	Late Saxon Local Fabrics	850	1050	0	2	0	1
LSW2	13th to 14th century Lincoln Glazed Ware	1200	1320	0	1	0	1
LSW2/3	13th to 15th century Lincoln Glazed Ware	1200	1450	0	1	0	1
MEDLOC	Medieval local fabrics	1150	1450	0	1	0	1
MEDX	Non Local Medieval Fabrics	1150	1450	0	3	0	3
MISC	Unidentified types	400	1900	2	5	2	4
NOTG	Nottingham glazed ware	1250	1500	0	1	0	1
RAER	Raeren stoneware	1450	1600	4	0	1	0
RGRE	Reduced glazed red earthenware	1600	1850	1	0	1	0
SLST	South Lincolnshire Shell Tempered ware	1150	1250	1	0	1	0
SST	Early to mid Saxon sandstone-tempered	550	800	0	39	0	32
STMO	Staffordshire/Bristol mottled-glazed	1690	1800	1	0	1	0

Almost all of the material dates to the Anglo-Saxon or Late Saxon periods (see Table 2), although a few sherds are present that are of later date.

Table 2: Vessel counts by chronological period

ceramic period	sld00	sld01	Total vessels
Anglo-Saxon (5 th to 7 th)	1	70	71
Late Saxon (9 th to mid 11 th)	5	9	14
Early medieval (12 th)	1		1
Medieval (13 th to 14 th)	1	8	9
Post medieval (16 th)	6		6
Not Known	2	4	6
Total vessels	16	91	107

Table 2 shows that most of the Anglo-Saxon vessels were recovered from the excavation (SLD01). The largest group was recovered from the sub-soil (context 002) with small groups of stratified material coming from pit 91, pit 119 and ditch85. A suggested date for the deposition of each context is shown in Table 3.

Table 3: Suggested deposition date of pottery groups from stratified contexts

site code	context	date	sherds
sld00	322	Early Saxon to medieval	1
sld00	324	10th	2
sld00	327	12th	4
sld00	337	16th	5
sld00	338	early to mid 18th	7
sld00	357	10th	1
sld00	409	12th to 15th	2
sld01	002	13th or 5th to 7th	33
sld01	013	5th to 7th	1
sld01	018	5th to 7th	1
sld01	021	mid 10th	1
sld01	030	5th to 7th	2

sld01	031	5th to 7th	8
sld01	034	5th to 7th	1
sld01	038	5th to 7th	1
sld01	065	13th	2
sld01	069	13th	1
sld01	076	5th to 7th	1
sld01	078	10th	1
sld01	083	13th or 5th to 7th	6
sld01	086	10th	8
sld01	088	10th	1
sld01	089	12th	8
sld01	092	5th to 7th	15
sld01	099	5th to 7th	2
sld01	115	5th to 7th	1
sld01	118	5th to 7th	4
sld01	120	5th to 7th	8
sld01	121	5th to 7th	1

The Pottery

Anglo-Saxon Handmade pottery

The date of the earliest post-Roman pottery on the site is difficult to determine, none of the sherds can be stylistically dated other than generally to within the Anglo-Saxon period. The absence of identifiable middle Saxon sherds and the presence of several simply decorated vessels suggest that the assemblage is no later than the 7th century. One new fabric type has been characterised amongst the material from this site (ASSHQ). This fabric has been noted only in isolated occurrences elsewhere in the county and the presence of seven vessels in the assemblage from this site may suggest that the site is situated close to the source of this fabric type.

Seven specific Anglo-Saxon handmade pottery types occurred on the site and the fabric of most of these vessels can be paralleled with Anglo-Saxon types elsewhere in Lincolnshire. A small number of the Sandstone-tempered vessels and a single Limestone-tempered vessel however, are in fabrics not previously noted in the area. The range of inclusions is more typical of sites further north in the county or in Yorkshire. More detailed fabric analysis may elucidate the source area of some of these sherds.

Sandstone-tempered (SST) vessels are the most common Anglo-Saxon type to be found on the site and the variety of fabrics present suggests several different sources for the material. Other fabric types are present in smaller numbers with only one type being represented by more than ten sherds (CHARN). These Charnwood vessels are varied in fabric detail, suggesting that they were not part of a single firing or purchase. Seven sherds containing the voids of common fossil shell fragments and common subround quartz have been designated as a new fabric type (ASSHQ). A tiny fragment from one of these vessels shows evidence of incised and stamped decoration. Further scientific analysis should characterise the fabric type. Small

numbers of Iron-tempered (FE), Greensand Quartz-tempered (ESGS) and Chaff-tempered were also found on the site.

Late Saxon Pottery

A small group of fourteen vessels could be identified as belonging to the period between the late 9th and mid 11th centuries. Thirteen vessels are of Lincoln manufacture (LSH and LKT), all are shell-tempered and date to the late 9th or 10th centuries. A rim from a wide jar with diamond roller-stamping on the rim edge is the only diagnostic sherd and can be dated to the mid 10th century. The local fine-shelled vessel (LSLOC) cannot be dated closer than to the Late Saxon period

Medieval and later pottery

A small medieval assemblage was recovered from the site (10 vessels) together with a few post-medieval vessels of 16th to 18th century date. The medieval vessels span the period between the 12th and 14th centuries and include Lincoln, Nottingham and Beverley wares as well as undefined local types.

Summary and Recommendations

This is a small but important assemblage of post-Roman pottery. The ceramic assemblage suggests that although there is evidence for occupation in the area over a long period of time the main peak of activity on this site is during the Anglo-Saxon period. The Anglo-Saxon pottery from recently investigated sites in Dunholme is the first material in the area to be studied in detail. For the first time it has been possible to look at the range of types in use in the locality. A new fabric type has been characterised amongst the Anglo-Saxon pottery and the presence of important pottery types such as Charnwood and variant Sandstone-tempered fabrics add to the known distribution patterns of these types. It is impossible to make statements about the status or function of the site due to the limited size and mixed nature of the assemblage

The assemblage should be kept for future study, especially as part of any characterisation of the fabrics for a regional type series. Nine important vessels should be drawn for the archive record; these vessels have been listed as DR1-DR9 in the archive record.

AVAC 31/01/02

Petrological and Chemical analysis of Anglo-Saxon pottery from Dunholme, Lincolnshire

Alan Vince

Introduction

The Anglo-Saxon pottery from Dunholme, recovered by Pre-Construct Archaeology Lincolnshire (Site Code SLD01). A high incidence of unusual fabrics was found. Two possible reasons for this were postulated: on the one hand it might be due to the fact that these wares were being produced very locally whereas on the other hand it might be due to the Anglo-Saxon inhabitants of this site having far-flung connections, such as kinship ties with groups located some distance away.

Sixteen samples were chosen for further analysis (Table 1). They had been assigned to four groups on the basis of binocular microscope study: SST is a code used for any fabric in which the predominant inclusions are sandstone fragments or quartz sand derived from sandstones; LIMES is a code used for limestone-tempered fabrics; ASSHQ is a new code, used to denote the presence of shell and quartz sand and ESGS is used for wares containing polished, rounded quartz grains derived from the lower Cretaceous Greensand.

As a result of the thin-section analysis, these identifications must be modified (Table 1, Petrological Group).

Table 1

TSNO	CNAME	PETROLOGICAL GROUP	FABRIC NO	COMMENTS
V1134	SST	SST+ERRA	3	
V1135	LIMES	SHELLY LST+RQ	1	
V1136	ASSHQ	SHELLY LST+RQ	1	
V1137	SST	GRANITE+SST	2	
V1138	SST	GRANITE+SST+RQ	2	
V1139	ASSHQ	SHELLY LST+RQ	1	
V1140	ASSHQ	SHELLY LST+RQ	1	LEACHED
V1141	ESGS	GRANITE+SST+RQ	2	
V1142	SST	GRANITE+RQ	2	
V1143	SST	GRANITE+RQ	2	
V1144	ASSHQ	SHELLY LST+RQ	1	
V1145	SST	SST+ERRA	3	
V1146	ASSHQ	SHELLY LST+RQ	1	
V1147	SST	SST+ERRA	3	
V1148	SST	FINE SST+SLAG	5	
V1149	SST	COARSE SST	4	

Methodology

The thin-section samples were cut from the submitted sherd and a thin-section, 30 microns thick, was prepared by Paul Hands, Department of Earth Sciences, University of Birmingham. The sections were polished to allow reflected light microscopy, and stained using Dickson's method to distinguish different forms of calcite from each other and from dolomite.

The chemical samples were prepared by removing a large fragment from the submitted object (where sufficient material existed to justify this destructive approach), mechanically removing all exposed surfaces and margins and grinding the remainder to a powder. The resulting powders weighed between 3gm and 5gm. These powders were analysed using Inductively Coupled Plasma Spectroscopy (ICPS) at the Department of Geology, Royal Holloway College, by Dr J N Walsh. Only a fraction of this sample was actually consumed during analysis but the heterogeneous nature of most archaeological ceramics means that smaller samples are likely to be more variable, as a result of the presence of non-quartzose inclusions. The samples were given an identity number and a record added to a computer database held by AVAC. The unused portion of the sample will be returned to PCA Lincolnshire following completion of the project.

The following elements are measured as percentage oxides: Al₂O₃, Fe₂O₃, MgO, CaO, Na₂O, K₂O, TiO₂, P₂O₅ (App 1a). From these, a rough indication of the silica content was obtained by subtracting these percentages from 100%. In addition, the following minor and trace elements are measured, as parts per million: Ba, Co, Cr, Cu, Li, Ni, Sc, Sr, V, Y, Zn, Zr*, La, Ce, Nd, Sm, Eu, Dy, Yb and Pb.

Lead is measured mainly as a guide to potential glaze contamination and because it can indicate where unglazed vessels were fired alongside glazed ones.

The dataset will be studied using Principal Components Analysis. In this analysis, a series of 14 Principal Components (PC) are computed for each sample. PC1 is that loading which accounts for most of the variation between samples, PC2 the next and so on. For each PC the contribution of each element to the component is also computed. This analysis allows similarities and dissimilarities of each sample's data to be explored.

It is usual to run this analysis several times, excluding elements which dominate the analysis and those elements which are closely linked to such elements (this is particularly true of Ca and Sr) or which may have been affected by leaching or post-burial enhancement (eg P₂O₅).

For any identified fabric group mean values and standard deviations for each element are calculated and presented.

Petrological analysis

From Table 2 it can be seen that in one case the visual attribution (to ESGS) seems to have been incorrect. The distinction between ASSHQ and LIMES is not borne out by thin-section analysis whilst the SST can be subdivided into six fabric groups. The significance of the division of the granitic wares into three groups is uncertain, and these are described together below.

Table 2

PETROLOGICAL GROUP	ASSHQ	ESGS	LIMES	SST	Grand Total
COARSE SST				1	1
FINE SST+SLAG				1	1
GRANITE+RQ				2	2
GRANITE+SST				1	1
GRANITE+SST+RQ			1	1	2
SHELLY LST+RQ	5			1	6
SST+ERRA				3	3
Grand Total	5	1	1	9	16

Fabric 1: ASSHQ and LIMES

This fabric is characterised by moderate to abundant bivalve shell and similar quantities of rounded quartz sand. The shell fragments in thin-section are stained pink and surround by a sparry blue-stained calcite matrix. This indicates that they are derived from a shelly limestone.

Fabric 2: SST - Granitic wares

Wares tempered with angular fragments of biotite granite are common in Lincolnshire. Their distribution indicates a source to the southwest of the county since assemblages in southwest Lincolnshire have a much higher percentage of these wares than assemblages in the northeast of the county. This distribution pattern is not consistent with a source in the county, for example utilising fragments of glacial erratic, which are common in the boulder clays underlying the Lindsey Marshes, and is consistent with an origin in Leicestershire, where deposits of granitic sand derived from the Mountsorrel granodiorite, which outcrops in the Charnwood Forest inlier.

However, the samples from Dunholme are quite distinct from this 'standard' Charnwood ware fabric. The granite inclusions are smaller, mainly between 1.0mm and 2.0mm across, and they are accompanied by a rounded quartz sand and, in some of the samples, by sandstone fragments. The thin-sections confirm the identify of the granitic inclusions, which are not petrologically distinguishable from the Mountsorrel granodiorite. However, the grains are subangular or rounded, and there is less biotite present. Both of these features suggest that the granitic rocks are detrital grains, whereas in some of the standard Charnwood ware vessels they may be derived from crushed, weathered rock. This fabric, therefore, probably utilises different raw materials, even if they also originate in NE

Leicestershire. The fabric has not been recognised before but may be present and coded as 'SST' on other sites.

Fabric 3: SST - sandstone and erratic rock tempered wares

This fabric contains rounded fragments of basic igneous rock and fragments of sandstone in a quartzose sand. Although the occasional rounded erratic rock can be found in the superficial sand deposits in the Dunholme area it is more likely that the inclusions in these samples came from a sand in the northeast of the county, to the north or east of the Lincolnshire Wolds, where such inclusions are much more common.

Fabric 4: SST - Coarse sandstone tempered ware

A single sample was shown in thin-section to contain a sand composed of Lower Carboniferous sandstone. Such sands are widespread along the eastern fringes of the Pennines, where those sandstones outcrop, but do not occur in Lincolnshire. It is likely, therefore, that this sample came from a vessel made in Yorkshire, to the west of the Yorkshire Wolds.

Fabric 5: SST - fine sandstone and slag-tempered ware

A single sample contained a fine-grained sandstone, of unknown origin, and moderate quantities of angular fayalite. Fayalite occurs naturally, and can be formed during firing through the vitrification of iron-rich inclusions. However, in this case the angular nature of the inclusions shows that the material was already formed when it entered the pot fabric and it is most likely that it consisted of crushed iron slag. Slag is increasingly being recognised as a tempering material in both prehistoric and Anglo-Saxon pottery but is still a rare discovery, even now that ceramic specialists are aware of the possibility of slag tempering. It is likely therefore that slag-tempered pottery was never common. It is not possible from such small fragments (less than 2.0mm across) to say what process the slag was associated with and in order to determine the source of the vessel we must ignore the slag and concentrate on the other inclusions. Fine-grained sandstones occur within the Northampton sands, which outcrop along the Lincoln edge but no thin-sections of this rock are at present available for comparison with the Dunholme sample.

Chemical Analysis

The ICPS dataset was analysed using PCA. This showed a large degree of similarity between all of the samples and when comparing the first and second principal components (Fig 1). Three clusters were revealed. The major cluster contained all of the Fabric 2 samples and most of the Fabric 1 samples. This result is counter-intuitive, since it is clear that Fabric 1 contains high quantities of CaO and Sr, as a result of the shelly limestone temper, and Fabric 2 should contain higher quantities of K₂O as a result of the feldspar grains in the granite.

The second cluster contained two of the Fabric 3 samples (V1145 and V1147) and the Fabric 5 sample whilst the third cluster consisted of the Fabric 5 sample and two of the Fabric 1 samples (V1135 and V1140). The third Fabric 3 sample, V1134, plotted on the fringe of the main, Fabric 1 and 2, cluster (Fig 1).

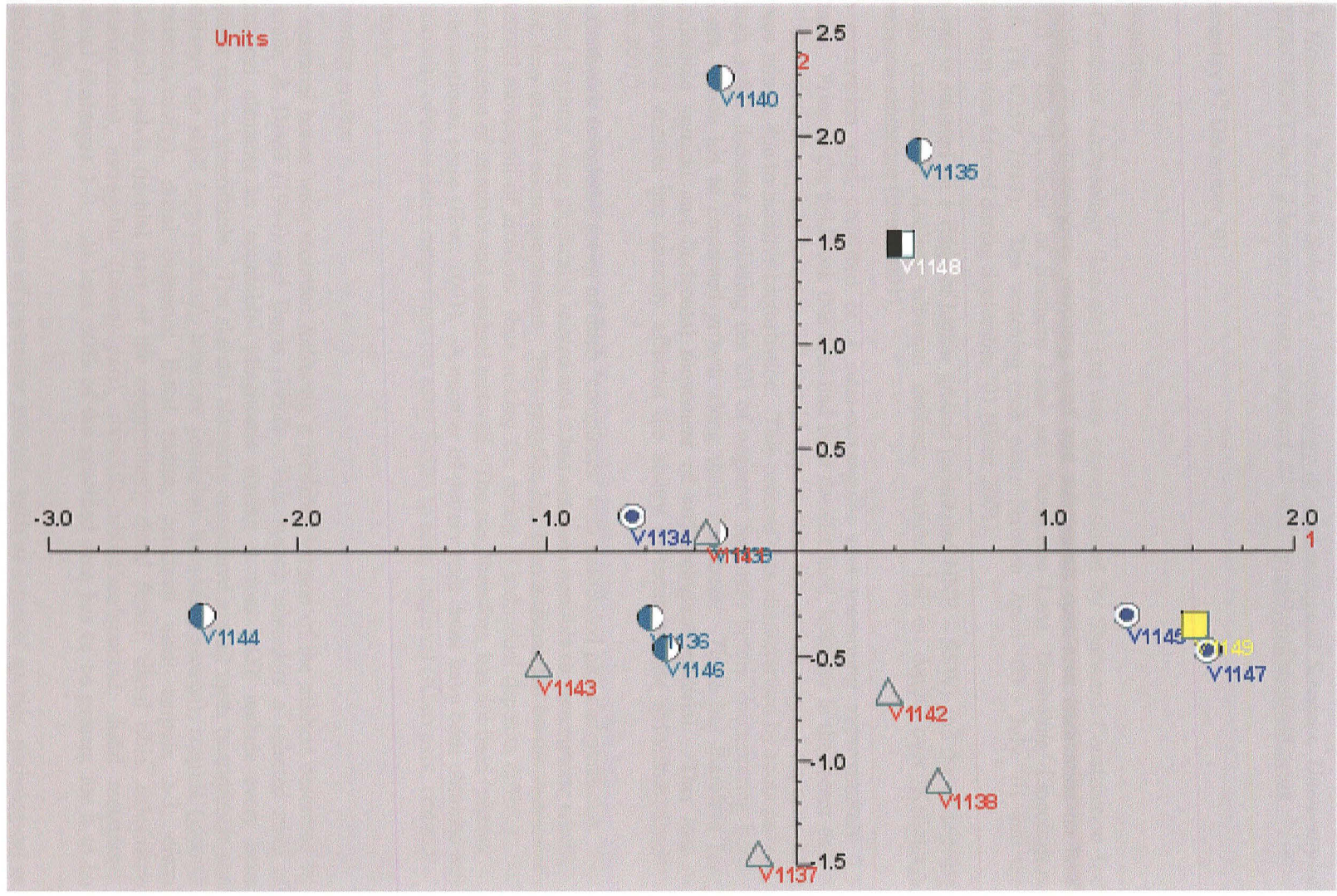
There are several possible interpretations of these results. The most likely is that the samples were contaminated during burial on the site. It is extremely difficult to remove all of the soil matrix from friable Anglo-Saxon potsherds, which are, in any case, often traversed by voids and laminae along which groundwater, bearing dissolved elements, would have flowed. Normally, however, the samples from one site would have similar burial conditions and therefore this contamination would be cancelled out during analysis. It is noteworthy in this context to recall that sample V1140 was noticeably leached, which would both reduce the CaO and Sr content and boost the apparent Al₂O₃ content. It is likely, therefore, that cluster 3 includes two samples which have lost most of their calcareous content during burial.

The second possibility is that the three clusters do actually reflect the source of the raw materials. The second cluster is characterised by high Na₂O values. This would be consistent with the use of briny clays such as would be expected along the Lincolnshire coast. The third cluster is characterised by high Al₂O₃ values (ie low amounts of tempering) and high values for TiO and Cr (usually present in Titanium oxide grains such as rutile but possibly in this case also present in the fayalite slag). It is likely that the TiO values are higher in the two leached shelly limestone tempered sherds simply because of the absence of shell. The ratio of Al₂O₃ to TiO is consistent with this interpretation, being fairly constant for all the Fabric 1 samples, leached and unleached..

The next stage in the study of these samples will be to compare the chemical data from Dunholme with that obtained from Anglo-Saxon pottery from other sites. Two datasets are available for comparison, one comes from Anglo-Saxon pottery recovered during the excavation of St Peter's Church, Barton-upon-Humber, and the other consists of samples of SST tempered with Lower Carboniferous sandstone-derived sand from sites in Yorkshire. This study will be part of a forthcoming project to characterise the Anglo-Saxon pottery of the north of England.

Appendix 1a

TSNO	AL2O3	FE2O3	MGO	CAO	NA2O	K2O	TIO2	P2O5	MNO
V1134	14.10	8.40	1.09	1.37	0.28	2.30	0.71	0.85	0.06
V1135	18.40	4.85	0.96	3.13	0.05	2.04	0.87	1.94	0.05
V1136	12.61	6.48	0.99	3.46	0.08	1.81	0.57	2.48	0.08
V1137	11.54	4.80	0.65	2.05	0.21	2.06	0.58	1.99	0.02
V1138	11.65	4.57	0.85	1.12	0.33	2.15	0.56	1.39	0.03
V1139	13.21	6.40	1.08	2.65	0.09	1.81	0.67	1.67	0.06
V1140	16.37	7.44	2.53	1.57	0.36	2.96	0.72	1.24	0.16
V1141	13.21	9.63	0.98	1.42	0.18	2.22	0.68	2.17	0.04
V1142	12.62	5.15	0.94	1.24	0.49	2.28	0.59	1.22	0.03
V1143	13.30	6.10	0.88	0.87	0.10	1.66	0.65	1.59	0.06
V1144	14.06	5.98	1.05	9.39	0.04	1.93	0.62	2.73	0.07
V1145	12.13	5.70	0.86	0.68	0.24	2.24	0.54	1.79	0.03
V1146	12.69	6.36	1.03	3.72	0.10	2.04	0.56	2.29	0.06
V1147	12.12	3.63	0.50	0.65	0.15	1.34	0.72	1.15	0.02
V1148	15.95	9.34	0.83	1.35	0.14	2.10	0.67	1.67	0.07
V1149	12.87	3.52	0.52	1.08	0.14	1.89	0.66	1.40	0.01



SCOTHERN LANE, DUNHOLME, LINCOLNSHIRE (SLD00/01)**Report on the mammal and bird bones**

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Introduction

Pre-Construct Archaeology (Lincoln) Ltd was commissioned by Sharward Construction Ltd to conduct an archaeological watching brief and subsequent open-area excavation on land located at the 'junction' of Scothern Lane and Dunholme Lane, Dunholme, Lincolnshire (NGR TF 0259 7918). The watching took place between April '00 - July '01 and the excavation was carried during September '01 (Brett 2001).

The site is situated on a ridge of higher ground (orientated NNE - SSW) and the underlying geology consists of Aeolian silt-sand deposits, around 1m in depth, over Kellaways Foundation sandstone (Brett 2001).

The excavation area consisted of a semi-rectangular plot measuring approximately 7.5 hectares. Prior to the fieldwork this area had been derelict land, however in the recent past it had been used as a plant nursery. It would appear that the archaeological deposits have become mixed, due to massive bioturbation. This process was characterised by roots growing through softer deposits (including the fill of negative features) before encountering harder deposits, which led to continued growth along their interfaces. There has therefore been considerable vertical and horizontal movement of archaeological material. This loss of stratigraphic control has severely affected the ability to securely date individual deposits (Brett 2001).

The fieldwork revealed a series of ditch 'complexes' with associated pits and postholes. Not all these features were physically related and it has not been possible to demonstrate whether, or not, they are all contemporaneous. This situation has been exasperated by the vertical and horizontal movement of artefacts, thus making the dating of individual deposits difficult, due to the presence of intrusive and residual material. The site, therefore, has not been 'phased' in the conventional sense (Brett 2001). A number of pottery spot dates have been obtained and the majority of these dates range from the early Saxon to early medieval (Allen pers. comm.).

Methods*Recording system*

The mammal bones were recorded following a modified version of the method described by Albarella & Davis (1994) and Davis (1992). This system considers a selected suite of anatomical elements as 'countable' (diagnostic zones); it does NOT include every bone fragment that is identifiable. The skeletal elements considered are all teeth (mandibular and maxillary); the skull (zygomaticus); horncore (complete transverse section); scapula (glenoid articulation/cavity); distal humerus; distal radius; proximal ulna; carpals 2-3; distal metacarpal; pelvis (ischial part of the acetabulum); distal femur, distal tibia, calcaneum (sustentaculum), astragalus (lateral part), naviculo-cuboid/scafocuboid; distal metatarsal; proximal phalanges 1-3. At least 50% of the specified area has to be present for it to be 'countable'.

Additional elements that were of particular interest, such as unusual species, pathological or neonatal/very young specimens, were recorded as 'non-countable'.

Mandibular fragments were considered to be ageable when there were two, or more, teeth present with recognisable wear. Mandibular teeth, both in-situ and isolated, were aged using tooth eruption and occlusal wear patterns. Cattle and pig teeth were recorded using the system devised by Grant (1982), whereas sheep teeth were recorded according to Payne (1973 & 1987).

Measurements are listed in the APPENDIX. Von den Driesch (1995) defines the majority of these. All pig measurements follow the definitions of Payne & Bull (1988). Humerus 'HTC', 'HT', 'BT' and tibia 'Bd' measurements were taken for all species according to Payne & Bull (1988). Equid measurements follow Davis (1987).

Taxonomic identification

All the 'countable' fragments were identified using the reference collection held at the Department of Archaeology & Prehistory, University of Sheffield.

Differentiation between sheep (*Ovis aries*) and goat (*Capra hircus*) was attempted on the following elements: deciduous lower premolars (dP₃ and dP₄); humerus; metacarpal; tibia; astragalus; calcaneum; metatarsal. The criteria defined by Boessneck (1969) were used for all elements except the teeth (Payne 1985) and tibia (Kratovichil 1969).

Species distinction of the equids (*Equus caballus* and *E. asinus*) was attempted on the maxillary and mandibular cheek teeth (if they could be placed, i.e. were in-situ), using the criteria outlined by Eisenmann (1981) and Davis (1980).

Red deer (*Cervus elaphus*) and fallow deer (*Dama dama*) distinction was attempted using the criteria of Lister (1996).

The distinction between pheasant (*Phasianus* sp.), guinea fowl (*Numida* sp.) and chicken (*Gallus gallus*) was attempted on the scapula, carpometacarpus, femur and tarsometatarsus, using the criteria of Albarella (pers. comm.) and MacDonald (1992).

The assemblage

Recovery

The mammal and bird bone from Scothern Lane was hand-retrieved during the watching brief and area excavation. No material was recovered from either dry, or wet sieving. This may have resulted in a recovery bias affecting the assemblage. Hand retrieval usually favours the recovery of the larger skeletal elements from the larger mammals at the expense of the smaller elements and smaller species of mammal, bird and fish.

Quantity and dating

Animal bone was retrieved from a total of 34 contexts, of which 26 produced 'countable' fragments. A total of 180 'countable' fragments (number of identified skeletal parts - NISP) were recorded from the assemblage. Table 1 summarises fragment counts by species and context.

Using the pottery spots dates it can be demonstrated that the majority of the 'countable' fragments were found in association with AD 5-7th century and AD 10-12th century pottery (Table 2). Obviously, this association can only be inferred, and may not be implicit, thus attributing individual fragments to any one chronological period must remain tentative.

Due to the problems of dating this site the mammal and bird bone assemblage will be treated 'globally' and will be considered as Saxon/early medieval.

Preservation and fragmentation

The preservation of bone surfaces (cortical integrity) from Scothern Lane varied considerably and ranged from poorly preserved to well preserved. Poorly preserved bone was characterised by surfaces that had been extensively abraded and exfoliated, whereas well preserved bone had suffered little damage to their external surfaces. All the Scothern lane

material ('countable' and 'non-countable' fragments) was scanned by context and the following proportions arrived at:

Poorly preserved contexts	7 (21%)
Poorly – moderately well preserved contexts	5 (15%)
Moderately well preserved contexts	14 (41%)
Moderately well – well preserved contexts	8 (23%)

It was apparent that in some instances the high degree of abrasion and exfoliation was caused by the same root activity that had caused the mixing of deposits. This form of degradation has been termed 'root etching' and occurs when humic and other organic acids, from decaying plant matter and fungal action, are in direct contact with bone surfaces (Lyman 1999). Additional attrition will have been caused by the free-draining and acidic nature of surrounding geology.

The surface preservation of bones within individual deposits appears to be fairly homogenous and may suggest bones not having been transported any great distance through the process of bioturbation discussed above.

Fragmentation of the Scothern Lane bone assemblage was generally consistent with normal butchery and kitchen debris: the processing of carcasses into gradually smaller and more manageable joints of meat for eventual cooking. However, it has not been possible to determine whether, or not, that slaughtering and primary dismemberment of animals was taking place at the site itself.?

Approximately 43% (78 of 180) of the 'countable' fragments consisted of isolated maxillary and mandibular teeth. This sort of proportion can be expected within an assemblage that contains a relatively high number of poorly preserved fragments: chemical attrition leading to mechanical attrition, i.e. greater fragmentation. Teeth, especially horse teeth, are the most durable of skeletal elements and generally survive beyond the destruction of less robust elements.

Secondary deposition and residuality

Several aspects of an animal bone assemblage can be used to gauge the degree of residual and intrusive material that may be present, however in relation to this particular site any inferences made from them may be over-shadowed by the extensive bioturbation already discussed.

Only 4 (less than 3%) of the 'countable' fragments from Scothern Lane demonstrated any evidence of canid gnawing, although gnawing may have been obscured on fragments with poor surface preservation. Even taking into account a possible underestimation of canid gnawing this is a low figure, especially when it is not uncommon for Romano-British and medieval assemblages to have over one-third of the material gnawed. The low level of canid gnawing at Scothern Lane may be indicative of the vast majority of bone fragments having been retrieved from their original anthropogenic place of deposition, rather than deriving from secondary deposition caused by scavenging dogs.

No skeletal material from possibly intrusive burrowing species (such as rabbits, moles or small rodents) was noted in the assemblage. It must be noted, however, that hand retrieval may have missed these smaller species.

Context

Table 3 summarises the 'countable' fragments by deposit type and species. The vast majority of fragments came from the fill of negative features. Seventy percent (126 of 180) of the 'countable' fragments came from pit fills (mainly from Contexts 089 and 092).

This supports the supposition that the assemblage is derived from normal butchery and kitchen waste, as it may have been fairly unpleasant debris, which required quick disposal in

pits that would have rapidly accumulated and then be capped. Rapid accumulation may also help explain the low level of canid gnawing, as fragments buried in pits would have been out of reach to scavenging dogs.

Species composition and utilisation

Species composition (Tables 1-3) is fairly typical of a hand retrieved assemblage from this type and period of site. Cattle predominate the assemblage, followed by lesser amounts of sheep/goat and pig. Equids occur in relatively high numbers, but this probably reflects the taphonomic processes already discussed: the greater durability of horse teeth. Mainly due to taphonomic reasons (surface preservation and fragmentation) it was not possible to fully speciate many of the sheep/goat and equid remains.

Based on fragment counts the proportion of the three major domesticates (cattle, sheep/goat and pig) to one another is:

Cattle	93 (62%)
Sheep/Goat	41 (27%)
Pig	17 (11%)

Cattle would have been the mainstay of the Scothern Lane animal economy, especially if one considers the amount of meat each of the three main domesticates would have contributed to the inhabitants diet. Using the mid-point values of the Manching data set (refer to Dobney *et al.* 1996)¹ the following live weights can be obtained:

Cattle	25575kg (91%)
Sheep/Goat	1537.5kg (5%)
Pig	935kg (4%)

Invariably, animals would also have been exploited for other reasons i.e. secondary products, such as wool and milk. Unfortunately, due to the assemblage size, it has not been possible to construct morality curves from tooth eruption and wear (APPENDIX) in an effort to determine which mode of production may have been the principle motivation for the Scothern Lane inhabitants (see below).

The one 'countable' bird bone from Context 413 could not be fully speciated, using skeletal morphology (see above), to chicken (*Gallus gallus*), but is extremely unlikely to be anything else.

The frequency of the major domesticates is broadly similar to that noted in Lincoln (refer to Dobney *et al.* 1996) and other Saxon/early medieval sites in the eastern part of England from the board chronological period in question.

The available biometric data from Scothern Lane (APPENDIX) would suggest animals of a comparable size to those noted in Lincoln (Dobney *et al.* 1996).

Skeletal representation

A fairly comprehensive range of skeletal elements was recovered from Scothern Lane. Taking into account taphonomic processes and the possible recovery bias it would appear to represent a pattern normally associated with general butchery and kitchen waste.

There is no indication that any sort of craft specialisation was being pursued at Scothern Lane, for example leather or horn working represented by accumulations of lower limb bones and horncores respectively (not withstanding 3 horncores with similar butchery from Context 092: see below).

¹ Cattle live weight = 275kg, sheep = 37.5kg and pig = 85kg, i.e. 7.3 sheep to produce as much meat as a single cow and 2.3 sheep to equal 1 pig.

Ageing data

The assemblage did not produce enough mandibles to construct mortality/survivorship curves (from tooth eruption and occlusal wear) that could have been used to elucidate the principle motivation behind the rearing of stock.

A small group of sheep/goat isolated teeth and mandibles were recovered from Context 092 (APPENDIX). It would appear that they were either slaughtered just prior to adulthood, or when adult. Unfortunately, this sample is too small to be statistically valid and could be interpreted in a number of ways, thus no conclusion can be drawn.

Epiphyseal fusion would suggest that the majority of animals were slaughtered when adult, which also could infer a meat based economy, however taphonomic factors may have resulted in the destruction of immature skeletal fragments.

Butchery

Little evidence of butchery was noted on the Scothern Lane material. This may partly be due to the poor preservation of some bone surfaces. The observed butchery took the form of either heavy chop marks, or finer cut marks. The chop marks usually denote the division of the carcass into smaller joints of meat and the cut marks, depending on their location, can relate to a wider range of butchering activities that include cutting of tendons during dismemberment to filleting meat off the bone. The majority of the butchery marks noted from the Scothern Lane material would appear to relate to the division of the carcass, which did not necessarily occur at the site itself.

Context 092 produced two cattle horncores and a probable goat horncore that had been heavily chopped transversely between the core base and the skull. This type of butchery is usually interpreted as the removal of horncores to procure the actual horn for working. However, with only three specimens few conclusions can be drawn.

Unusual specimens

Context 072 produced 9 fragments (un-identifiable and therefore 'non-countable') of heavily mineralised, essentially fossilised, bone. Obviously, these are not Saxon, or early medieval, and presumably come from the surrounding geology. The nature of deposition of these fragments is unknown (deliberate or accidental?), but a parallel may exist from a mid-Saxon site at Downham Market, Norfolk. This site supposedly produced an ichthyosaur vertebrae (found in association with a white-tailed eagle humerus) from a pit, which has been interpreted as some form of ritual deposit (Curl 2001). However, on balance the mineralised bone from the gully at Scothern Lane is far more likely to be re-deposited material after the digging of features.

Summary and conclusions

The excavation at Scothern Lane produced a small hand retrieved mammal and bird bone assemblage. Extensive bioturbation affected the site, which prohibited successful phasing of individual deposits, however almost all the features at Scothern Lane are thought to be Saxon/early medieval in origin. Subsequently, it has only been possible to make very general comments about the animal economy.

It was possible to demonstrate that approximately seventy percent of the 'countable' fragments derived from pit fills. Almost fifty percent of the assemblage came from one of two pit fills, Contexts 089 and 092, which contained AD 12th and 5-7th century pottery respectively. Presumably, due to the nature of deposition, pit fills would have accumulated and have been sealed rapidly, thus making the inferred relationship between bone and pottery more likely.

Species composition, skeletal representation and available ageing data would suggest an economy geared towards meat production. Species composition and the size of individual

animals from Scothern Lane is fairly typical for the geographic region and the rather broad chronological period in question.

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Context	Cattle	Sheep	Goat?	Sheep/Goat	Pig	Horse	Equid	Dog	Chicken	Red deer	Total
002	9			1			3				13
021	5			2	1						8
025							1				1
031	1			2							3
034	5										5
036	1										1
038	1				1						2
045						4	1				5
054					1		1				2
081				1							1
083							1	1			2
088	1						2				3
089	18			1	2		1			1	23
092	26	9	1	14	11		1				62
106				1							1
118	5						2				7
120	6					2					8
121	8			1			1			1	11
319		1		1			3				5
327				1							1
352	1										1
375							1				1
405	1										1
407	5			5							10
409					1						1
413								1	1		2
Total	93	10	1	30	17	6	18	2	1	2	180

Table 1. Number of 'countable' fragments (NISP) from Scothern Lane by species and context.

Species	5-7th	10th	12th	12-15th	13th/5-7th	modern	not dated	Total
Cattle	51	6	18			10	8	93
Sheep	9						1	10
Goat	1							1
Sheep/Goat	15	2	2			1	10	30
Pig	12	1	2	1			1	17
Horse	2						4	6
Equid	4	2	1		1	3	7	18
Dog					1		1	2
Chicken							1	1
Red deer	1		1					2
Total	95	11	24	1	2	14	33	180

Table 2. Number of 'countable' fragments (NISP) from Scothern Lane by pottery spot dates and species.

Category	Cattle	Sheep	Goat?	Sheep/Goat	Pig	Horse	Equid	Dog	Chicken	Red deer	Total
pit fill	73	9	1	21	13	2	5			2	126
ditch fill	7			3	3	4	7	2	1		27
layer	10	1		3			6				20
firepit fill	1				1						2
posthole fill				1							1
tree bowl	1										1
void	1			2							3
Total	93	10	1	30	17	6	18	2	1	2	180

Table 3. Number of 'countable' fragments (NISP) from Scothern Lane by deposit type and species.

APPENDIX

Measurements

All measurements are expressed in millimetres.

Species codes

B	Cattle (<i>Bos taurus</i>)
OVA	Sheep (<i>Ovis aries</i>)
O	Sheep/Goat (<i>Ovis aries/Capra hircus</i>)
S	Pig (<i>Sus scrofa</i>)
EQC	Horse (<i>Equus caballus</i>)
EQ	Equid (<i>Equus</i> sp.)
CEE	Red deer (<i>Cervus elaphus</i>)
GN	Chicken/Guinea fowl (<i>Gallus gallus/Numida</i> sp.)

Element codes

dP4	mandibular deciduous 4 th premolar
P4	mandibular 4 th premolar
M1	mandibular 1 st molar
M2	mandibular 2 nd molar
M3	mandibular 3 rd molar
M12	mandibular 1 st OR 2 nd molar
SC	scapula
MC	metacarpal
PE	pelvis
FE	femur
TI	tibia
AS	astragalus
CA	calcaneum
MT	metatarsal
PH1	1 st phalanx

Tooth eruption and wear

V	visible
E	erupting

Bone ID	Context	Species	Element	Bd	Dd
144	092	OVA	TI	25.1	19.7

Bone ID	Context	Species	Element	GL	C	C+D
145	092	OVA	CA	54.3	12.7	22.5

Bone ID	Context	Species	Element	WA	WP
151	092	S	M1	10.7	11.3
151	092	S	M2	14.2	14.4

Bone ID	Context	Species	Element	LA
156	092	S	PE	35.4
157	092	S	PE	34.9

Bone ID	Context	Species	Element	Wa	Wd
90	045	EQC	P4	16.0	
91	045	EQC	M1	14.9	2.8
7	120	EQC	M1	13.2	1.7
92	045	EQC	M2	14.4	2.7
7	120	EQC	M2	12.7	1.7
93	045	EQC	M3	13.4	2.7
7	120	EQC	M3	12.2	1.6

Bone ID	Context	Species	Element	Dd
12	121	EQ	MC	38.0
34	054	EQ	MT	36.1

Bone ID	Context	Species	Element	Bd
88	083	EQ	PH1	44.7

Bone ID	Context	Species	Element	BT	HT	HTC
19	121	CEE	HU	51.5	38.6	27.7

Bone ID	Context	Species	Element	GL	SC	Lm	Bd	Dd
166	413	GN	FE	80.3	7.0	75.7	15.7	12.9

APPENDIX: measurements.

Bone ID	Context	Species	dP4	P4	M1	M2	M3	M12
17	121	B	j					
20	118	B	j		j	e		
26	118	B					f	
30	088	B			p	p		
36	002	B	b					
53	089	B						g
54	089	B					g	
55	089	B						g
56	089	B					g	
60	089	B						k
61	089	B						f
62	089	B						f
63	089	B						a
64	089	B						k
70	034	B	j		g	E		
80	021	B		e	k	j	g	
106	092	B	j		g	b		
107	092	B	j					
108	092	B				k		
109	092	B					j	
110	092	B						l
111	092	B						k
74	081	O			14A	9A		
123	092	OVA	10A					
124	092	OVA	14L					
125	092	O		9A	9A	9A	10G	
126	092	O			9A	7A		V
127	092	OVA	14L		9A			
128	092	OVA	14L		6A			
129	092	O		E				
130	092	OVA	13L		3C			
131	092	OVA	14L					
132	092	O		8A				
133	092	O						7A
134	092	O						7A
135	092	O					9A	
136	092	O					3C	
163	319	O		14S	15A	10A	11G	
177	327	O						9A
33	054	S	j					
151	092	S		d	f	e		

APPENDIX: tooth eruption and wear.

Scothern Lane, Dunholme SLD 01 Environmental Archaeology Report

Introduction

Excavations conducted by Pre-Construct Archaeology (Lincoln) investigated a series of pit and ditch features from Scothern Lane, Dunholme, Lincolnshire, dating from the 5th to 13th centuries. Five samples were taken, four of which were submitted for environmental assessment (Table 1). One of the samples (sample 2) consisted of hand collected charcoal and so was not processed in the manner described below.

Table 1: Scothern Lane, Dunholme. Samples taken for environmental analysis

samp. no	cont. no.	samp. vol. in l.	sample weight in kg	feature	phase
2	099	1	0.5	Area of burning, hand collected charcoal	5-7 th C AD
3	099	8	8.5	Area of burning	5-7 th C AD
4	069	10	13	Primary fill of 070	13 th C AD
5	078	32	44	Ditch fill	10 th C AD

Methods

The soil samples were processed in the following manner. Sample volume and weight was measured prior to processing. The samples were washed in a 'Siraf' tank (Williams 1973) using a flotation sieve with a 0.5mm mesh and an internal wet-sieve of 1mm mesh for the residue. Both residue and flot were dried. The residues were then refloatated for the efficient recovery of charred material. The dry volume of the flots was measured, and the volume and weight of the residue recorded.

The residue was sorted by eye, and environmental and archaeological finds picked out, noted on the assessment sheet and bagged independently. A magnet was run through each residue in order to recover magnetised material such as hammerstone and prill. The residue was then discarded. The float of each sample was studied under a low power binocular microscope. The presence of environmental finds (ie snails, charcoal, carbonised seeds, bones etc) was noted and their abundance and species diversity recorded on the assessment sheet. The flot was then bagged. The flot and finds from the sorted residue constitute the material archive of the samples. A total of 50 litres of soil was processed in this way.

For the botanical material, cereal identification follows van der Veen (1992), with embryo ends only counted for the cereals and grasses and taxonomy for the weeds follows Stace (1997).

The individual components of the samples were identified and the results are summarised below in Tables 2 and 3 and the botanical remains are detailed in Tables 4 and 5.

Results

All of the samples contained modern plant fragments including *Chenopodium* spp, *Stellaria media* and *Polygonum* spp as well as root fragments. Insects and insect larvae were apparent in most of the samples and one or two included shells of *Cecilioides acicula*, the blind

burrowing snail. All of this material is considered to be intrusive and not contemporary with the archaeological material. Occasional bone fragments were identified in the samples (Tables 2 and 3), most of which are burnt and unidentifiable with the unburnt bone showing evidence for corrosion, which suggests that the soil is slightly acidic or that leaching has occurred, preventing good preservation of calcareous material. All of the samples contained magnetised material, but no hammerstone was noted.

Table 2: Scothern Lane, Dunholme. Finds from the processed samples

samp. no	cont. no.	samp vol. (l)	feature	residue vol. (ml)	pot #/g	brick? (g)	flint #/g	slag wt. g.	mag. wt. g.	bone (g)	phase
3	099	8	Area of burning	75	12/12				2	4	5-7 th C
4	069	10	Primary fill of 070	25			1/<1		1	1	13 th C
5	078	32	Ditch fill	200	1/2	5		3	1	2	10 th C

#/g = number/weight in grammes

The samples taken from the area of burning were very rich in charcoal and included some pieces greater than 6.7mm in size. The hand collected material (sample 2) and the larger pieces from the sample 3 flint were submitted for identification and are discussed below. Sample 3 contained pieces of pottery and some indeterminate burnt bone fragments as well as a few charred grains and seeds, including barley and brome grass.

Table 3: Scothern Lane, Dunholme. Environmental Finds from the processed samples

samp no	cont no.	samp vol. (l)	feature	flot vol. (ml)	char coal */<2*	char'd grain *	chaff *	char'd seed*	comment	phase
3	099	8	Area of burning	511	5/5	1		1	Barley, brome, knotweed, <i>Cecilioides acicula</i>	5-7 th C
4	069	10	Primary fill of 070	<1	0/2	1	1	1	Barley, spelt wheat, grasses	13 th C
5	078	32	Ditch fill	51	3/4	5	1	5	Barley, bread/club wheat, spelt wheat, oat, stinking mayweed, grasses, brome, small legumes	10 th C

*= abundance: 1=1-10, 2=11-50, 3=51-150, 4=151-250, 5=250+

<2*=abundance of fragments less than 2mm

The primary fill of pit 070, sample 4, contained a small flake of flint and burnt bone fragments. There was very little charcoal, all of which was less than 2mm in size. A few charred grains and seeds were recorded including, barley, spelt wheat chaff and grass seeds. There is no environmental evidence to support a preliminary field interpretation of this pit as a cess pit.

The final sample, context 078, the ditch fill, contained a mixture of material, including pottery, fired earth, and occasional slag pieces. A moderate amount of charcoal was present and an abundance of charred grain and seed. Barley, free threshing wheat, spelt wheat and oat were identified as well as an abundance of grass seeds of a similar size to the grain. Among the few smaller weeds, stinking mayweed, *Anthemis cotula*, was common. A full listing of the species identified are presented in Table 4.

Table 4: Botanical taxa identified among the charred seed remains

	context	99	69	78
	sample	3	4	5
	vol. soil (l)	8	10	32
	vol. flot (ml)	511	<1	51
cereal				
	<i>T. spelta</i> chaff		1	1
	<i>Triticum aestivum/durum</i>	free threshing wheat		1
	<i>Triticum cf aestivum/durum</i>	cf. free threshing wheat		8
	<i>Triticum</i> spp.	wheat spp.		16
	cf <i>Triticum</i> spp.	cf wheat spp.		17
	<i>Hordeum vulgare</i>	barley	1	70
	cf. <i>Hordeum vulgare</i>	cf barley	1	42
	indet. cereal		4	3
	indet frags.		*	***
weeds				
	<i>Chenopodium</i> spp.	goosefoot		1
	cf. <i>Polygonum</i> spp.	knotgrasses	1	
	<i>Polygonum lapathifolium</i>			2
	<i>Rumex acetosella</i> Raf.	sheep's sorrel		2
	Fabaceae (small)	pea family		6
	cf. <i>Anthemis cotula</i> L.	stinking mayweed		51
	Compositae			1
	<i>Carex</i> spp.	sedges		1
	cf. <i>Avena</i> spp.	oat		22
	cf. <i>Bromus</i> spp.	brome	1	5
	Poacecae indet.	grasses		1
	Poacecae indet. frags.		*	***
	indet.			17
	other frags.		*	
	total		7	6
	grain		5	4
	weeds		2	1
	chaff			1
	weed:grain		0.4	0.25
	seeds/litre		0.88	0.6
				27.9

* - present, *** - abundant

The charcoal

Rowena Gale

Two samples of charcoal from a single context were examined and identified to species.

Materials and methods

The charcoal was abundant (>100 pieces) and consisted of large fragments of hand-collected material measuring up to 25mm in radial cross-section (sample 2), and the >6.7mm fraction of the flot from sample 3. Intact sections of roundwood stems were rare. The charcoal was firm and well-preserved.

The charcoal was prepared for examination using standard methods (Gale and Cutler 2000) and supported in washed sand for examination using a Nikon Labophot-2 microscope at

magnifications up to x400. The anatomical structures were matched to prepared reference slides. When possible, the maturity of the wood was assessed (i.e. heartwood/ sapwood), and stem diameters and the number of growth rings recorded. It should be noted that measurements from charred material may be up to 40% less than the living wood.

Results

The taxa identified are given in Table 5. Where a genus is represented by a single species in the British flora this is named as the most likely origin of the wood, but it should be noted that it is rarely possible to name individual species from wood features, and exotic species of trees and shrubs were introduced to Britain from an early period (Godwin 1956; Mitchell 1974). Classification follows that of *Flora Europaea* (Tutin, Heywood *et al* 1964-80).

The anatomical structure of the charcoal was consistent with the following taxa or groups of taxa:

Aceraceae. *Acer campestre* L., field maple

Fagaceae. *Quercus* spp., oak

Rosaceae. Subfamily:

Prunoideae which includes *P. avium* (L.) L., cherry; *P. padus* L., bird cherry, and *P. spinosa* L., blackthorn. In this instance the broad heterocellular rays suggest *P. spinosa* as the more likely.

Salicaceae. *Salix* spp., willow, and *Populus* spp., poplar. In most respects these taxa are anatomically similar, although in this instance the ray type was more characteristic of *Salix* sp.

The charcoal comprised roundwood fragments, mostly from oak (*Quercus* sp.) but also field maple (*Acer campestre*), blackthorn (*Prunus spinosa*) and willow (*Salix* sp.). The oak appeared to have derived from fast-grown stems and, although fragmented, the larger pieces of oak suggested that some diameters may have exceeded 70mm when living. Two narrower intact segments of oak measured 18 and 20mm in diameter and included 10 and 9 growth rings respectively. Although growth was fairly fast in the later years, the earliest growth rings were narrow. The 20mm stem was probably felled in late summer or early autumn. It is probable, although not certain, that the oak was obtained from managed woodland. There was no evidence to suggest a similar origin for the remaining taxa (maple, blackthorn and willow).

Table 5: Scothern Lane, Dunholme. The number of fragments of charcoal identified is shown

Sample	context	<i>Acer</i> maple	<i>Prunus spinosa</i> blackthorn	<i>Quercus</i> oak	Salicaceae (cf. <i>Salix</i> sp.) willow
3 (>6.7mm fraction of flot)	099	3	-	21h, 87r	1r
2 (hand-collected)	099	2	2r	3h, 53r	-
Total		5	2r	24h, 140r	1r

Key. h = heartwood; r = roundwood

Discussion

As may be expected, the area of burning described as a cooking pit (samples 2 and 3), produced an abundance of charcoal, most of which has been identified as oak round wood, with occasional willow, blackthorn and maple. The few fragments of pot, burnt bone and charred grains and seeds that have been identified are not dense enough to suggest what was

being cooked on the fire. It is possible that the wood species, other than oak, as well as the cereal and weeds recorded could have been used for kindling material. The oak wood could be from managed woodland, which would provide wood of a suitable diameter for cooking purposes, although other functions also use wood of a smaller diameter and therefore cannot be ruled out. The sparseness of material other than charcoal in this feature is probably related to the way the fire functioned. The charcoal rich sample was located underneath burnt stones and such an arrangement would allow a limited amount of oxygen into the fire thus enabling good charring conditions and survival of the charcoal. This might also have prevented, to some degree, the material being prepared or cooked falling into the fire, if this was the manner in which it functioned.

The material collected from the primary fill of pit 070, is relatively sparse and would suggest that the primary function of this feature was not for the regular dumping of domestic debris. The occasional pieces of charred material may be accidental, such that they may have blown in from a nearby activity, whilst the pit was open and then may have silted up naturally. There is no evidence from the environmental sample to suggest that this feature functioned as a cess pit. However, given the free draining, sandy nature of the deposits within the pit, the absence of any organic preservation is no surprise, although some evidence of phosphatic concretions might have survived if it had been used as a latrine pit.

The final sample, context 078, from the ditch fill produced a rich and diverse assemblage and would suggest that the function of this feature was for the dumping of debris. Both barley and free threshing wheat were identified among the cereal grains, with a fragment of spelt wheat chaff additionally recorded. The relative ratios of the barley to wheat cereal grains, extracted from Table 4, indicates that barley was more abundant with four barley grains for every one wheat grain. Of the wheat grains only the free threshing type has been identified, which is generally associated with Saxon and Medieval contexts. The majority of the weed seeds (74%) are grasses of a similar size to the cereal, with oat and brome grass identified. *Anthemis cotula*, stinking mayweed, is also relatively abundant (15%) and is generally thought to indicate heavy clay soils. The ratio of weed to grain (0.56) indicates a relatively clean crop and could suggest a final stage in the crop processing sequence as described by Hillman (1981), given the abundance of large weeds of a similar size to the crop and the absence of chaff. However, there are complications with this. Firstly, Boardman and Jones (1990) have suggested that the chaff of free threshing wheat rarely survives and so preservation may be an important factor and therefore, the material present may not be a real indication of the original composition of the material. Secondly, the context of the feature would suggest that a variety of material could have been dumped into the ditch and may result from more than one dumping episode, which has subsequently been mixed and could explain the presence of the smaller weeds. Associated with the potential preservation bias, this makes interpretation very difficult. Despite these problems, it is possible to suggest that some form of crop processing was probably occurring on site and the presence of stinking mayweed could indicate that the crops were grown locally, on heavy clay soils. The other identified weed species are also found commonly on cultivated land although most are able to thrive in a variety of habitats. It is unlikely that if the crops were imported they would still include the smaller weeds as these are generally removed at an earlier stage in the processing sequence.

Conclusions

The environmental material collected from the four samples suggests a generally domestic function for the three features during the Saxon and Medieval periods. The earliest sample, context 099 a possible fire pit, suggests the probability of some form of management of oak woods in operation as indicated by the round-wood charcoal. Blackthorn, willow and maple were additionally identified, but do not show any indication of management and may have been used for kindling. It is not possible to further comment on the material recovered from this context. The pit sample, context 069, was relatively sparse in terms of environmental composition and included only a few charred cereal grains and seeds. There is no evidence in the sample that the feature functioned as a cess pit and could have sited up naturally. Crop processing would appear to be the most important activity associated with the ditch fill, context 078, although preservation and mixing within the feature make interpretation difficult. There is no evidence in these samples for any form of industrial activity at the site.

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List of archaeological contexts

<u>Excavation</u>		
<i>Context No.</i>	<i>Category</i>	<i>Description</i>
001	layer	Topsoil. Modern
002	layer	Subsoil.
003	cut	Treebole
004	fill	Fill of [3]
005	cut	Treebole
006	fill	Fill of [5]
007	cut	Treebole
008	fill	Fill of [7]
009	fill	Fill of [10]
010	cut	Modern posthole
011	fill	Fill of [10]
012	fill	Fill of [10]
013	fill	Fill of [15]
014	fill	Fill of [15]
015	cut	Modern posthole
016	cut	treebole
017	fill	Fill of [16]
018	fill	Fill of [19]
019	cut	Natural feature
020	cut	Ditch
021	fill	Fill of [20]
022	cut	Modern posthole
023	fill	Fill of [24]
024	cut	Natural feature
025	fill	Fill of [26]
026	cut	Ditch
027	cut	Tree bole
028	fill	Fill of [27]
029	cut	Fire pit
030	void	-
031	void	-
032	void	-
033	cut	Cut and fill of modern posthole
034	fill	Fill of [35]
035	cut	Rubbish pit
036	fill	Fill of [37]
037	cut	Tree bole
038	fill	Fill of [29]
039	fill	Fill of [40]
040	cut	Posthole
041	fill	Fill of [42]
042	cut	Natural feature
043	cut	Ditch
044	fill	Fill of [43]
045	fill	Fill of [46]
046	cut	Ditch
047	cut	Square feature
048	fill	Fill of [47]
049	fill	Fill of [50]
050	cut	Ditch
051	cut	Ditch
052	fill	Fill of [51]
053	cut	Ditch
054	fill	Fill of [53]
055	cut	Ditch
056	fill	Fill of [55]

057	fill	Fill of [58]
058	cut	Ditch
059	void	-
060	void	-
061	void	-
062	void	-
063	void	-
064	void	-
065	fill	Fill of [68]
066	fill	Fill of [68]
067	fill	Fill of [68]
068	cut	Pit
069	fill	Fill of [70]
070	cut	Pit
071	cut	Gully
072	fill	Fill of [71]
073	fill	Fill of [74]
074	cut	Pit
075	void	-
076	cut	Ditch
077	fill	Fill of [76]
078	fill	Fill of [79]
079	cut	Ditch
080	cut	Ditch
081	fill	Fill of [80]
082	cut	Ditch
083	fill	Fill of [82]
084	void	-
085	cut	Ditch
086	fill	Fill of [85]
087	cut	Ditch
088	fill	Fill of [87]
089	fill	Fill of [90]
090	cut	Pit
091	cut	Pit
092	fill	Fill of [91]
093	void	-
094	void	-
095	fill	Fill of [96]
096	cut	Posthole
097	fill	Fill of [98]
098	cut	Modern posthole
099	fill	Fill of [29]
100	fill	Burnt natural. Part of [29]
101	void	-
102	fill	Fill of [103]
103	cut	Ditch
104	cut	Pit
105	fill	Fill of [104]
106	fill	Fill of [107]
107	cut	Posthole
108	fill	Fill of [109]
109	cut	Ditch
110	cut	Ditch
111	fill	Fill of [110]
112	fill	Fill of [113]
113	cut	Ditch
114	cut	Ditch
115	fill	Fill of [114]
116	fill	Fill of [117]

117	cut	Ditch
118	fill	Fill of [119]
119	cut	Pit
120	fill	Fill of [91]
121	fill	Fill of [122]
122	cut	Pit
123	layer	Subsoil. Hand dug
124	layer	Natural

Watching brief

<i>Context No.</i>	<i>Category</i>	<i>Description</i>
300	layer	modern topsoil
301	layer	demolition deposit
302	fill	upper fill of [306]
303	fill	lower fill of [306]
304	wall	modern wall
305	cut	modern soakway pit
306	cut	?edge of moat
307	layer	natural sand
308	wall	limestone wall
309	wall	limestone wall
310	layer	limestone demolition
311	layer	?flood deposit
312	layer	modern demolition
313	layer	demolition layer
314	layer	demolition layer
315	layer	demolition layer
316	layer	demolition layer
317	layer	natural sand
318	layer	demolition layer
319	layer	cess-like spread
320	?fill	?fill of uncertain pit
321	cut	ditch
322	cut	hearth/fireplace
323	wall	limestone wall
324	surface	building foundations
325	wall	stone wall foundation
326	layer	modern topsoil
327	layer	?buried soil
328	layer	?levelling layer
329	layer	demolition layer
330	layer	demolition layer
331	layer	demolition layer
332	layer	build-up deposit
333	layer	demolition layer
334	layer	natural sand
335	layer	windblown sand
336	layer	build-up deposit
337	layer	demolition layer
338	layer	build-up deposit
339	wall	limestone wall
340	wall	limestone wall
341	layer	modern topsoil
342	cut	modern service trench
343	cut	stone drain
344	layer	build-up deposit
345	layer	demolition layer
346	layer	?alluvial deposit
347	layer	demolition layer

348	surface	stone and brick surface
349	layer	demolition layer
350	wall	brick wall
351	layer	demolition layer
352	layer	modern topsoil
353	layer	?colluvium
354	cut	east – west orientated ditch
355	fill	fill of [354]
356	cut	?posthole
357	fill	fill of [356]
358	cut	east – west orientated ditch
359	fill	fill of [358]
360	cut	?pond
361	fill	fill of [360]
362	layer	natural clay horizon
363	layer	natural sand and degraded bedrock
364	cut	east – west aligned gully
365	fill	fill of [364]
366	layer	natural sand
367	layer	chalky boulder clay
368	layer	chalky boulder clay
369	void	-
370	void	-
371	void	-
372	void	-
373	void	-
374	cut	north – south orientated ditch
375	fill	fill of [374]
376	cut	small ?oven
377	fill	fill of [376]
378	fill	fill of [376]
379	fill	fill of [376]
380	surface	burnt clay floor in [376]
381	layer	windblown sand
382	deposit	?rake-out from [376]
383	layer	windblown sand
384	fill	fill of [385]
385	cut	east – west orientated ditch
386	fill	fill of [387]
387	cut	north – south orientated ditch
388	fill	fill of [389]
389	cut	?quarry pit
390	fill	fill of [391]
391	cut	north – south orientated ditch
392	fill	fill of [392]
393	cut	east – west orientated ditch
394	fill	fill of [395]
395	cut	oval pit
396	fill	fill of [397]
397	cut	pit
398	fill	fill of [399]
399	cut	east – west orientated ditch
400	fill	fill of [401]
401	cut	east – west orientated ditch
402	cut	east – west orientated ditch (same as [401])
403	fill	fill of [402]
404	cut	east – west orientated ditch
405	fill	fill of [404]
406	cut	pit
407	fill	fill of [406]

408	cut	east – west orientated ditch (same as [404])
409	fill	fill of [408]
410	cut	pit
411	fill	fill of [410]
412	cut	east – west orientated ditch (same as [404])
413	fill	fill of [412]
414	cut	north-north-west – south-south-east orientated ditch
415	fill	fill of [414]
416	fill	fill of [414]
417	fill	fill of [414]
418	layer	?natural clay