

birmingham archaeology



**THE UNIVERSITY
OF BIRMINGHAM**

**Castle Garage,
Monk Street, Tutbury,
Staffordshire**

**Archaeological
Watching Brief
2005**

Checked by

Supervisor..... date.....

Project Manager..... date.....



Project No.1256

By

Helen Martin-Bacon

With contributions by M. Felter, M. Hislop, G. Williams,
S. Ratkai, D. Smith, W. Smith, and J. Spriggs,

For

Living D'Zign

For further information please contact:

Alex Jones (Director)

Birmingham Archaeology

The University of Birmingham

Edgbaston

Birmingham B15 2TT

Tel: 0121 414 5513

Fax: 0121 414 5516

E-Mail: bham-arch@bham.ac.uk

Web Address: <http://www.barch.bham.ac.uk/bufau>

Castle Garage, Monk Street, Tutbury, Staffs.

An Archaeological Watching Brief 2005

CONTENTS

1	INTRODUCTION	3
1.1	BACKGROUND TO THE PROJECT	3
1.2	LOCATION AND GEOLOGY	3
2	HISTORICAL AND ARCHAEOLOGICAL BACKGROUND <i>by Malcolm Hislop</i>	3
3	METHODS AND OBJECTIVES	4
4	RESULTS	4
5	THE FINDS	5
5.1	THE POTTERY <i>BY STEPHANIE RATKAI</i>	5
5.2	THE LEATHER <i>BY GARETH WILLIAMS</i>	7
	<i>Catalogue of material</i>	7
	<i>Description and dating</i>	9
	<i>Sizes</i>	10
	<i>Interpretation</i>	10
5.3	LEATHER CONSERVATION REPORT <i>BY JIM SPRIGGS AND MARGRETHE FELTER</i>	11
	<i>Condition Assessment</i>	11
	<i>General treatment</i>	12
6	PLANT MACROFOSSILS AND INSECTS <i>by Wendy Smith and David Smith</i>	12
6.1	METHOD	13
6.2	RESULTS	13
6.3	DISCUSSION	13
	<i>Sample 2</i>	14
	<i>Sample 3</i>	15
6.4	CONCLUSIONS	15
7	DISCUSSION	15
8	ACKNOWLEDGEMENTS	16
9	REFERENCES	17
10	APPENDIX 1	19

SUMMARY

From February to May 2005 Birmingham Archaeology carried out an archaeological watching brief at Castle Garage, Monk Street, Tutbury, Staffordshire (NGR SK2026 2905). The work was commissioned by Living D'Zign in advance of a residential redevelopment. The watching brief was required by the Development Services Department, Staffordshire County Council as part of the planning condition.

The watching brief observed groundworks during the construction of a car park and two apartment blocks. A substantial feature was recorded, which may have represented a defensive ditch or fishpond. The feature was recorded to a depth of 3m and produced 13th to 14th century pottery, animal bone and waterlogged remains. In addition was a well lined with sandstone blocks although this did not produce any dating evidence. A further well or pit was recorded cut into subsoil on the northwestern edge of the ditch, and produced pottery dating to between the 12th and 15th centuries. A series of pits cutting the southern edge of the large ditch feature produced pottery dating to the 15th-16th centuries together with animal bone. Layers dated by the pottery to the 18th century sealed the large ditched feature and associated pits.

Castle Garage, Monk Street, Tutbury, Staffs.

An Archaeological Watching Brief 2005

1 INTRODUCTION

1.1 Background to the project

From February to May 2005 Birmingham Archaeology undertook an archaeological watching brief at Castle Garage, Monk Street, Tutbury, Staffordshire (NGR SK2026 2905, Fig. 1). The work was commissioned by Living D'Zign in advance of residential redevelopment and was a response to a requirement by Staffordshire County Council in accordance with Planning Policy Guidance Note 16, Archaeology and Planning (DoE 1990).

The watching brief was undertaken in accordance with a Written Scheme of Investigation produced by Birmingham Archaeology (2005) and approved by the Development Control Officer of Staffordshire County Council. The project followed guidelines laid out in the Institute of Field Archaeologists Standard and Guidance for Archaeological Watching Briefs (2001).

1.2 Location and geology

Tutbury is situated on the eastern edge of Staffordshire, 0.5km south of the River Dove, which forms the boundary with Derbyshire. The site is located on the south side of Monk Street (Fig. 1), to the south of the castle and St. Mary's church. The site is located at c. 80m above OD on boulder clay deposits.

2 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND *by Malcolm Hislop*

A summary of the archaeological and historical background of the site is presented below. This is based on a more detailed assessment previously undertaken for Tutbury (Hislop 2003).

The place name Tutbury is of Anglo-Saxon origin and means "Tutta's burg" or "Stut's burg" – the fortress of Tutta or Stut (Ekwall 1960). This suggests that the town may have been founded as an Anglo Saxon *burh* (Palliser 1972, 65).

The Domesday Book of 1086 shows Tutbury, Tamworth and Stafford as the only three boroughs in the county, with Tutbury being the only place in the county with a market (Palliser and Pinnock 1971, 51). This market probably dated from 1066 – 85, having been set up to serve the castle which is recorded in the Domesday Book. The castle, established by William the Conqueror, was the *caput* (administrative centre) of the Honour of Tutbury.

A new borough was founded at Tutbury by Robert de Ferrers I, Earl of Derby (d.1139). Burgage tenure is mentioned there in 1141 and c.1150, with further extensions being planned in 1150 and 1159 (Palliser 1972, 69).

The quarrying of alabaster, popular in the 15th and 16th centuries for funerary monuments and altar screen panels, had begun at Tutbury in the late 12th century. By the 14th century large-scale extraction was taking place in open pits, and the area became one of the main sources of the material. Quarrying continued up until the 19th century (Sherlock 1976, 100). By the 18th century, however, the main business of the town was wool combing, and cotton

work had also recently been established "on an extensive scale" at a large mill powered by the River Dove (Jackson 1796, 55).

Glass-making had also begun at Tutbury by 1810. Initially the Tutbury Glass Co. produced plain and cut-glass material, whilst by 1868 flint-glass was being made at the Castle Glassworks (Sherlock 1976, 230).

Previous archaeological monitoring carried out on land to the rear of 33 High Street, Tutbury, Staffordshire (NGR SK 2138 2894) in 2004 uncovered a north south aligned ditch, which produced 14th century pottery (Martin 2004). It is possible that the ditch represented part of a boundary to medieval burgage plots, although no contemporary settlement features were observed.

3 METHODS AND OBJECTIVES

The aim of the watching brief was to provide a record of any archaeological deposits or features affected by the new development. This was achieved through a programme of archaeological monitoring during groundworks and limited excavation when archaeological deposits were uncovered.

Two machine dug sondages were excavated to define the edges of exposed features (Fig. 2). Due to the presence of a high water table only the upper part of features could be excavated with lower deposits tested by augur.

Recording was by means of pro-forma contexts and feature cards. Sections where required were drawn at scales of 1:10 or 1:20 and plans at scale 1:50. Colour print and monochrome photographs were taken and all finds retained by context. The archive along with the finds is currently stored at Birmingham Archaeology.

4 RESULTS

The natural subsoil comprised of orange/brown clay with pebbles (1008) and was cut by a very substantial northeast to southwest aligned linear feature (1017, Sondage 1; Fig. 2). The exact shape and dimensions of the feature could not be ascertained due to water inundation and to the limited nature of the salvage excavation. The feature was recorded within Sondage 1, where an edge was recorded to the southeast. The feature was also, however, present in the remainder of the sondage, reflecting a width of greater than 20m. A ditched feature was also recorded in Sondage 2, where an edge was recorded on its northwestern side. The feature was also aligned northeast to southwest. The fills of the feature extended towards the southeast. The feature in Sondage 2 appears to represent the northwestern edge of the feature recorded in Sondage 1. In which case the feature would measure c.40m in width. It is notable that in Sondage 2 the northern edge of the feature curved slightly towards the east.

In Sondage 1 feature (1017) was excavated to a depth of 3m (Fig. 3). The southeastern edge was stepped in profile, and within the step, was a U-shaped feature (1006, Plate 1) measuring approximately 1.25m wide by 0.35m deep. The fill of this feature (1018) was rich in charred plant remains (see Smith and Smith below) and degraded wood. Feature 1006 was sealed by loose red/brown clay-silt (1009) which produced 13th to 14th century pottery which was in turn, overlain by dark organic silt (1010/1015, Plate 2) containing wood, twigs and animal bone. This waterlogged layer also produced three leather shoe soles, the upper of a shoe and a leather offcut (see Williams below). This was sealed by pale grey/green silty clay (1007) which yielded animal bone and 13th century pottery. Layer 1007 was overlain by brown/grey clay-

silt (1005), which produced later 13th to 14th century pottery, and contained abundant charcoal flecking throughout. The upper surface of this layer also contained a lens of charcoal-rich brown clay-silt (1003). Loose orange/brown clay silt (1002), which produced mid-late 13th century pottery and charcoal flecks and fragments of animal bone throughout, sealed layer 1005 and was, in turn, sealed by a thin band of redeposited natural clay (1004). The latter was overlain by mid-dark brown loose clay-silt (1001/1014), which yielded 14th to 15th century pottery and also contained charcoal flecks and animal bone throughout.

Ditch fills were also observed to the south and east of Sondage 2 (2003) within foundation trench profiles. The fills produced pottery dating to between the 13th and 14th centuries, together with some later sherds of 15th-16th century date, which may represent later activity post-dating the primary use of the feature (see Ratkai below).

A negative feature (2000) was recorded on the northwest edge of the large ditch feature (1017), cutting natural clay (not illustrated). The feature was not fully excavated, and was recorded to c.1m depth only. The feature was filled with deposits of black clay-silt (2001), containing 12th-14th century pottery. The feature was sealed by a layer of dark brown silt with brick fragments (2002), overlain by modern concrete.

The southern edge of the substantial ditch 1017 was truncated by several pits. The pits were not excavated as they were below the formation layer of the development, but the fill of all the pits appeared similar being a dark brown silt with charcoal flecks and animal bone throughout. Pottery dating to the 15th-16th centuries was retrieved from the upper fill (1013) of one of the pits (1012). These features were sealed by a layer of loose dark brown silt (1011) approximately 0.4m deep and containing fragments of brick, tile and 18th century pottery.

A sandstone well (Plate 3) was uncovered in the northwestern corner of the site. Due to health and safety considerations (since the sides of the well were unstable) only the upper 1.2m of the well was recorded. The well was constructed from squared sandstone blocks, which were used to make a square shaft. The lower part of the well shaft was circular and dug into the natural clay. One of the uppermost sandstone blocks on the eastern side of the shaft had a concave depression worn down the centre of the block. There was no evidence of mortar and no evidence of any kind of superstructure. No dating evidence was recovered from the feature.

The site was sealed by approximately 1m of overburden at the southern extent of the site and approximately 1.2m at the northern.

5 THE FINDS

5.1 The pottery by Stephanie Ratkai

A total of 66 sherds and three fragments of ceramic building material were recovered, weighing 1600g in total. Such a small number of sherds provide insufficient data for a detailed interpretative analysis of the features. However, continuing excavation at Tutbury Castle provides a framework into which this small assemblage can be placed. Accordingly the pottery was divided into fabric groups following the type series for pottery from the Castle excavations. A number of new fabrics were identified at Monk Street and have been added to the type series. The pottery was quantified by sherd count and weight, minimum rim count and rim percentage (eves). Details of form, decoration, glaze and sooting were recorded in separate fields with a final comments field for recording wear, deposits, joining sherds etc. All form sherds were sketched.

Fourteen medieval fabrics were recorded. The earliest of these were cooking pot sherds of varying degrees of sandiness, with some fine limestone inclusions (fabrics SC01, SC02 and SC03), presumably of local manufacture. All three of these fabrics were found in the earliest rampart levels of the castle and must therefore have been in use in the late 11th century. There is some variation in vessel form and it therefore seems likely that these three fabrics formed the majority of cooking pots used throughout the 12th and 13th century. The one rim sherd (fabric SC03) from the pit/ well fill 2001 was consistent typologically with such a date and was paralleled by rim sherds from the castle of probably 12th century date. A further cooking pot fabric (Sand02), a finely sandy fabric with sparse ill-sorted larger quartz grains and some organic, also found at the castle site was recorded. Two sandy glazed ware jug bases in fabrics (Sand06 and Sand07) came from ditch silts observed in foundation trenches (2003). Both vessels were reduced and hand-formed and probably date to the 13th century. Neither fabric was present on the castle site.

The most frequent pottery sub-group was made up of 'gritty wares' (fabrics grittyw01, grittyw02 and grittyw03). These fabrics are characterised by their hardness and by the presence of large grains of quartz, mainly between 1-2mm but sometimes up to 5mm in size. These grains protrude through the otherwise smooth surface of the pot, giving in some cases the appearance of 'goose-flesh', a characteristic noted in some of the Roman coarsewares of this area (pers comm. Dr J Evans). Similar gritty wares are known in Derby and have been found elsewhere in northern Staffordshire. At Monk Street the gritty wares have been further divided into three groups. Grittyw01 is reduced and less hard-fired than the other two groups. Grittyw02 has an iron-rich fabric firing orange to red and Grittyw03 has an iron-poor fabric, firing mainly buff or pale grey. It is possible that Grittyw01 is a variant of cooking pot fabric SC03 but at present there is insufficient data to be certain. Grittyw03 was the most common and was found in every context apart from 2001 and 2003. The former contained a single Grittyw01 sherd, where it occurred residually with three fabric SC03 sherds. Both ditch silts 2003 and the fill of feature 2000 (2001) contained similar material i.e. a mix of early pottery e.g. fabrics SC03, Sand06, Sand07 and late medieval or early post-medieval pottery and fragments of ceramic building material. It is possible that the later material represents trample into or levelling over already backfilled or redundant features. In which case both features were probably out of use by the 14th century at the latest.

In addition to the iron-poor gritty ware there were two further iron-poor wares, fabric WW01 and fabric Buffw04. Two whiteware (fabric WW01) jug sherds were found in 1009, one with apple green glaze and the other with an applied red clay curvilinear strip and green glaze, both sherds likely to date from the mid 13th-14th centuries. Four of the buff ware sherds were from a heavily sooted, small 15cm diameter cooking pot from 1009, one also from 1009 from a jug with patchy olive glaze and horizontal grooves along the shoulder and a plain strap handle with a yellowish-olive glaze from 1011.

Sherds of 15th-16th century date were represented by a Midlands Purple ware (fabric MP03) sherd from (1013) and three late oxidised ware sherds (fabric Lox01), a sort of proto-Midlands Purple ware, from feature 2000 (2001) and ditch silts 2003, and a base sherd in a second late oxidised fabric (fabric Lox02) from 1011.

Post-medieval pottery was found in 1011 and comprised blackware, brown salt-glazed stoneware, coarseware, feathered slipware, slip-coated ware and a flowerpot sherd. The most likely date for this group is the 18th century. A very thick walled yellow ware sherd of probable 17th century date was found in 2001.

The medieval pottery from the Monk Street can be mostly paralleled by pottery recovered from the castle and seems to span the period from after the Conquest through to the 18th century. The small assemblage size precludes any further interpretation of the material.

5.2 The Leather *by Gareth Williams*

These finds were found in close association, preserved in waterlogged layer 1009. They do not come from a precisely dated context but, although stylistic aspects of the finds cover a broad date-range from the 13th to the 15th centuries, the assemblage can most plausibly be interpreted as a single deposit of leather waste relating to shoe making and/or repair, probably in the late 14th or very early 15th century. The material has been conserved by the York Archaeological Trust, and a separate conservation report is attached. Measurements before and after conservation indicated that an average shrinkage of 2.7% occurred during the conservation process. This falls well within expected margins, and is slight enough not to affect the interpretation of the material significantly.

Catalogue of material

1. The material can be summarised as follows:
 2. One-piece shoe sole, right footed, complete.
 3. One-piece shoe sole, left footed, complete.
 4. One-piece shoe sole, right footed, complete.
 5. Large part of vamp.
 6. Two pieces of upper, probably both vamp, probably from the same shoe, together with a torn strip of leather with stitch holes, again probably from the same shoe.
 7. Six fragments of leather including one complete clump sole, two torn fragments with stitch holes, and three fragments without stitch holes.
 8. Large piece of scrap leather from which other pieces have been cut.
-
1. One-piece shoe sole, right-footed, complete, with pointed toe and narrow waist (Fig. 4 and Plate 4). Edge/flesh stitch holes are visible all around the edge, spaced at approximately 5mm intervals. A group of grain/flesh stitch holes around the great toe area suggest that a small patch was applied here, although there is no hole requiring patching. The sole is not significantly more worn at this point than in the surrounding area. This suggests that the patch may have been applied to provide additional padding for the great toe, possibly to address some sort of ailment. There are four grain/flesh stitch holes at the waist, which do not relate to any other visible holes. The most likely explanation is that these formed part of the attachment for a clump sole over the seat, with outer edges of the clump sole fastened to the quarters or rand rather than to the sole. The upper side of the sole is indented around the ball of the foot, while the underside shows indentations towards the rear of the seat (possibly inflicted post-deposition) and in the centre of the 'patched area'.
 2. One-piece shoe sole, left-footed, complete, with pointed toe and narrow waist. Edge-flesh stitch holes are visible all around the edge at intervals of 6-7mm. There is a tear or cut close to the point, just in front of the great toe. The leather is slightly thinner immediately adjacent to this, so the tear may be the result of wear. The upper side of the sole is indented in the great toe area, and also around the ball of the foot, and the surface has also been scored close to this area. A small, unevenly shaped area of a black and red substance adheres to the upper sole just behind the ball of the foot, and there is what appears to be a small separate piece of thin leather adhering to the inside of the seat, partially detached. Both may represent remains of some kind of lining or insole. Irregularly-spaced tunnel stitch on the underside of the sole indicates that a clump-sole was formerly attached over much of the front part of the sole, although there are no holes in this area which needed to be covered. Stitch holes between the waist and the seat may indicate patching in this area, or that another

clump-sole was attached over the seat, with the edges stitched to the quarters or rand rather than the sole.

3. One-piece shoe sole, right-footed, complete, with pointed toe and narrow waist. Edge-flesh stitch holes are visible all around the edge at intervals of 6-7mm. Tearing along the line of the stitch holes has led to partial separation of the upper and lower surfaces, especially towards the heel. The grain is completely missing at the back of the seat. There is a hole towards the point, at the front of the great toe, with a slight tear nearby. The leather is worn thin around the hole, and the hole is almost certainly the result of wear. Irregularly-spaced tunnel-stitch shows that a clump-sole was attached to most of the front part of the sole, while a mixture of tunnel stitch and grain/flesh stitch was used to attach a clump to the seat. The upper surface is indented around the ball of the foot.

4. Vamp, torn around the edges, with part of the lasting margin missing. Stitch holes at 6mm intervals on the surviving section of the lasting margin. The left rear edge has been cut straight, with an edge/flesh stitch for a butt-seam. The right rear edge is straight, with no stitch marks, and may have been cut away from the quarters. There are two slits in the vamp throat for a leather strip, and the grain surface of the leather has torn and partially separated from the flesh at this point. A small section of the leather strip survives, but it is unclear whether this was part of a latchet (although it is not divided at this point), or (as seems more likely) it held a toggle.

5. a) Part of vamp from side-lacing shoe or boot, torn around vamp throat and lower edge. Part of the lasting margin is missing, but there are large stitch holes at 7mm intervals where the lasting margin survives. There are three large holes for lacing at the rear left edge. There is no stitching on the upper edge, either for reinforcement or to join the vamp to the upper section of a boot, but this may be because the seam has been cut away with the upper section.

b) Irregularly-shaped torn fragment of upper (probably vamp), very possibly from the same shoe as 5a, or from its pair. The leather is of the same colour, thickness and texture as 5a, and the lasting margin has stitch holes of the same size, similarly spaced at 7mm.

c) Narrow strip with stitch holes. These match the size and spacing of the stitch holes on 5a and 5b. Part of the strip is flat, and it may be a detached section of the lasting margin. However, part of the strip is wedge-shaped in section, and it may be a separate rand, used to seal the gap between the upper and the sole.

6. Clump sole and assorted fragments.

a) Left-footed clump sole, roughly shaped. There is an irregularly spaced tunnel stitch all the way round on the flesh side, with stitches generally at least 10mm apart. The stitching does not align with sole 2, the only left-footed sole in the assemblage. The clump sole is heavily worn.

b) Fragment of sole leather, from the middle part of a left-footed sole. The shape is very close to that of the corresponding section of sole 2, although apparently with a slightly narrower waist. The shape of the toe of the shoe is unclear as this part of the sole is lost. There are edge-flesh stitch holes along one side, spaced at 2.5mm intervals. The other sides are irregularly shaped and have apparently been torn rather than cut. The underside is sufficiently worn to have lost the grain surface entirely.

c) Large fragment of vamp. There is one long straight edge without stitch holes, apparently where the lasting margin has been cut away. The other edges are mostly irregularly shaped, and apparently torn, but part of the edge is cut to shape, with edge-flesh stitch holes at 2.5mm intervals, and this appears to be where the vamp met an upper section for an ankle shoe or boot.

d) Small fragment of leather, roughly triangular, but with one curved side. There are no stitch holes. It is of comparable thickness with the pieces which can be identified as sole leather, but the grain and flesh sides are partially separated, and part of the grain is missing.

e-f) Two very small fragments of irregularly-shaped leather without stitch holes. These are extremely thin, and given that some of the larger pieces show separation of grain and flesh, these probably represent fragments which have flaked off the grain side of larger pieces.

Piece of leather, of a suitable thickness for soles. The shape is irregular, with one side cut straight, and two smooth curves which appear to be where soles have been cut out. There are no stitch holes.

Description and dating

All of the identifiable pieces in this assemblage relate to the making and repair of shoes. The majority show signs of use and or wear, with the exception of pieces 7 and the fragments 6d-f, while piece 7 appears to have been a blank from which components were cut. The assemblage is difficult to date precisely. The pointed shape of the soles is recorded intermittently from the 13th to the 15th centuries, and especially in the late 14th and 15th centuries, and there are close parallels to sole 1 recorded from London from the early 13th and mid-14th centuries, and to soles 2 and 3 from the late 14th century.¹

The fragments of uppers show two styles of fastening. 5a is from a side-laced boot or shoe, but side lacing was common from between the 12th and 15th centuries, and the piece is too fragmentary for the shape to be diagnostic.² Grew and de Neergaard illustrate examples from the 14th and early 15th centuries with three lacing holes on the vamp,³ but since the top edge of the fragment may well have been trimmed away, it is uncertain whether this piece originally only had three holes.

Fragment 4 is also problematic since, although a substantial part of the vamp survives, the nature of the fastening is not completely certain. The vamp throat has a double slit for a leather strip to pass through, and a small fragment of this strip remains. This strip could have terminated in a toggle, or divided to form a latchet. The toggle fastening was dominant in the late 13th and 14th centuries, while latchet fastening was common in the 14th and 15th centuries.⁴ However, the double slit construction is comparatively unusual for either fastening. Latchet fastenings do not normally pass through the vamp throat in this way, but Mould et al record a 15th-century example from York in which the latchets pass through a single slit in the vamp throat, although this is thought not to be an original feature.⁵ Front fastening toggles often do pass through a slit in the vamp throat, but this is normally a single s rather than a

¹ Q. Mould, I. Carlisle & E. Cameron, 'Leather and Leatherworking in Anglo-Scandinavian and Medieval York. *The Archaeology of York: The Small Finds 17/16. Craft Industry and Everyday Life* (York: York archaeological Trust/CBA, 2003), pp. 3273-4; F. Grew & M. de Neergaard, *Medieval Finds from Excavations in London: 2. Shoes and Pattens*, 2nd edition, (London: Museum of London, 2001), pp. 57, 64-5.

² Mould et al (2003), p. 3328

³ Grew & de Neergaard (2001), pp. 27, 42.

⁴ Grew & de Neergaard (2001), pp. 20-21,

⁵ Mould et al (2003), p. 3333

double slit. However, Grew and de Neergaard illustrate one example of a late 13th-century boot in which the lowest toggle passes through a double slit in exactly the same way as the strip on fragment 4.6

One feature that does help to narrow the time-frame slightly is the evidence on all three soles that clump-soles had previously been attached, and stitched directly to the soles rather than solely to the rand, although the clump-soles over the seat on soles 1 and 2 appear to have been fastened partly to the sole and partly to the rand or uppers. From the mid-15th century there was a shift to a 'turn-welt' construction, in which the rand was replaced by a wider strip known as a welt, and the clump-sole stitched to this. In this style clump soles were probably part of the shoe construction from the beginning, rather than necessarily representing repairs. The stitching for the clump soles on the front parts of soles 2 and 3 suggests that these shoes pre-date the turn-welt development, although the stitching for the clump soles over the seats of soles 1 and 2 suggests a move in that direction. This would be consistent with the late 14th-early 15th-century date suggested by the shape of the soles, and none of the other internal evidence directly contradicts this, although a slightly earlier date would appear more likely if the fastening on fragment 4 is to be identified as a toggle rather than a latchet.

Sizes

The three soles have the following dimensions:

Sole number	Length (total)	Length (to just beyond great toe)	Width at widest point	Width at waist	Width at seat
1	288 mm	250 mm	89 mm	38 mm	57 mm
2	280 mm	240 mm	89 mm	45 mm	50 mm
3	283 mm	240 mm	96 mm	47 mm	50 mm

Allowing for 2.8% shrinkage, this would give lengths for the foot of 257mm for sole 1, and 246.7mm for soles 2 and 3, corresponding to modern adult shoe sizes of around 5½ and 4 respectively. The sole shapes are not diagnostic of male or female style, but a study of the sizes in the shoe assemblages from medieval London shows two peaks, one at adult sizes 1-3 or 2-3 and the other at sizes 4-5. These have been interpreted as representing the most popular sizes of men's and women's shoes in the period.⁷ On this basis, the Monk St finds are likely to be soles for men's shoes of typical size, although they could have been large women's shoes.

Interpretation

Viewed as a single assemblage, the finds seem to relate to shoe repair. A number of pieces show signs of wear, and it would be easy to dismiss these as waste were it not for the presence of the large piece of sole leather (piece 7) and to a lesser extent the smaller triangular piece of leather (fragment 6d). Piece 7 could certainly have supplied two complete soles, or a number of partial clump soles, while fragment 7a could have supplied a clump sole for the seat of a shoe of comparable size and shape to soles 1-3. Useful leather like this seems less likely to have been simply discarded than worn and damaged shoe parts, although this is possible. It is worth noting, however, that the vamp fragments 4 and 5a have unexpected

⁶ Grew & de Neergaard (2001) pp.23 (fig. 34), 59 (fig. 93).

⁷ Grew & de Neergaard (2001) pp. 102-3.

edges without stitching, which would be consistent with seams being cut away. Mould *et al* note that cutting down usable shoe parts for re-use in smaller shoes was common in York,⁸ and this may be the case here. Similarly, although all three shoes showed signs of both wear and previous repair, it might well have been possible to refurbish them again with the addition of new clump soles, and it would certainly have been possible to cut pieces from them which could have been used for patching other soles.

There was a clear distinction in the later Middle Ages between cordwainers, who made new shoes and carried out quality refurbishments with substantial replacement parts, and cobblers, who patched and repaired shoes using scraps of leather, often re-using pieces of old shoes in the process, although the exact boundaries of demarcation were the subject of repeated disputes.⁹

The bulk of the Monk St assemblage could be interpreted either as waste from a cordwainer, or as a group of materials suitable for re-use by a cobbler. However, clump soles seem to have fallen within the field of the cobbler,¹⁰ and the presence of a clump sole in the assemblage as well as three soles to which clump soles had been attached, points towards association with a cobbler rather than a cordwainer, although it is just conceivable that all of these had been removed from re-usable uppers by a cordwainer to be replaced with entire new soles. Furthermore, the presence of the substantial piece 7, which would still have been usable by either a cordwainer or a cobbler, and was therefore less likely simply to be discarded as waste, perhaps makes the latter interpretation more likely.

5.3 Leather Conservation Report by Jim Spriggs and Margrethe Felter

The small collection of leather was conserved by pre-treating with glycerol, freeze-drying and repackaging. Care was taken to transfer labelling information onto the new packaging. Material conserved was as per the list below.

Condition Assessment

Object Number	Description/Condition
1	Mould growth, piece very dry
2	Pointed sole, wet
3	Damp/wet, no mould
4	Toe section of upper, wet
5	Damp/wet, no mould
6	Damp/wet, no mould
7	Large sheet, dry with slight mould growth

The objectives of the conservation treatment were:

- To clean the leather from the remaining soil

⁸ Mould *et al* (2003), pp. 3350-51.

⁹ Grew & de Neergaard (2001), pp. 89-90.

¹⁰ Grew & de Neergaard (2001), p. 90.

- To dehydrate the leather with minimal deformation and shrinkage, keeping the form and the dimensions of the leather as close as possible to the original for study. Also to retain the leather in a flexible state for further reconstruction of the objects if needed.
- To provide safe packaging for return transport.

General treatment

All the material was removed from their packaging and cleaned again in a stream of fresh water with soft brushes. Any mould growth was removed. Pieces which had been allowed to dry out were re-hydrated prior to treatment.

Each piece of leather was sandwiched between layers of Correx™ plastic board and held together with elastic bands in order to protect the pieces and keep them flat during treatment. The leather was then immersed in a 25% solution of glycerol in water for 4-5 days, agitating the solution occasionally to ensure mixing. The glycerol acts as both a lubricant and to keep the leather 'plumped out', as well as giving it some flexibility after freeze-drying. After impregnation the leather was frozen in a chest freezer to about -20°C to await freeze-drying. The equipment used for freeze-drying was a Birchover 2-metre unit with a 20 kg capacity condenser. Freeze-drying took 11 days to complete (F-D run no. 65), temperature rise being used to indicate the end-point. The leather is now clean, dry, and able to be handled even if some pieces remain fragile.

During the initial cleaning, three samples of leather from the collection were drawn on Melinex™ polyester film. These drawings were used as comparisons to test for shrinkage. The object was placed beneath the film and its shape was traced with waterproof fibre-point pens. Shrinkage rates from freeze-drying was as follows:

Object Number	Measurement before treatment (cm)	Measurement after treatment (cm)	Difference (cm)	Percentage
2	18.5	18	0.5	2.7%
	9	9	0	0%
4	13	13	0	0%
	19	18	1.0	5.3%
7	37	35.5	1.5	4.0%
	22	21	1	4.5%

The overall shrink average is 2.8% which is well below the level normally considered as an acceptable rate of shrinkage.

After conservation, the leather was repacked in perforated polyethylene bags padded with polyethylene 'jiffy' foam, and relabelled.

6 PLANT MACROFOSSILS AND INSECTS *by Wendy Smith and David Smith*

Three samples were submitted for assessment:

Sample <2> Feature 1006 [1018] - 'charcoal-rich' deposit on southern edge of ditch/fishpond

Sample <3> [1010/1015] - sample from the base of the ditch/fishpond feature

Sample <4> Feature 1017 [1007] - sample from layer immediately above sample <3> in ditch/ fishpond feature

The assessment was initially intended to establish whether plant remains were present and, if so, were they of interpretable value. However, two of the three samples were so clearly rich and clearly interpretable that it was decided to fully report these results.

6.1 Method

In all cases 10L of sediment was collected for the recovery of charred plant remains. All samples were processed by water flotation over a 0.5mm mesh sieve by the Birmingham Archaeology Environmental Officer. During processing, the presence of waterlogged material was detected and all 3 samples were then temporarily stored in water to avoid drying out the plant macrofossils. The plant remains were assessed using a low-power microscope at magnifications between x10 - x15.

Assessment established that sample <2> was an extremely pure deposit of charred cultivated oat (*Avena sativa* L.) and that sample <3> contained well-preserved waterlogged plant remains and fly puparia. Sample <4> did not contain sufficient quantities of plant remains to be of any interpretable value. Unfortunately, this does mean that the desired sieve size for waterlogged plant remains (i.e. 0.3 mm) was not used for sample <3>.

Archaeobotanical identifications were made in comparison with the Institute of Archaeology and Antiquity's comparative collection and the author's own comparative material. Nomenclature for the plant remains follows Stace (1997) for indigenous species and Zohary and Hopf (2000) for cultivated species. The traditional binomial system for the cereals has been used here, following Zohary and Hopf (ibid. 28, Table 3 and 65, Table 5). Identification of the Diptera puparia was made in comparison to the standard keys (e.g. KGV Smith 1989).

6.2 Results

The fully quantified results for sample 2 and the semi-quantified results of the rapid assessment of sample 3 are presented in Appendix 1, Tables 1 and 2. In both cases, the archaeobotanical assemblages seemed to be remarkably rich and uniform. Sample 2 was a nearly pure deposit of charred cultivated oat (*Avena sativa* L.) and sample 3 was a waterlogged deposit of 'hay-like' material.

Sample 3 produced a large quantity of finely broken down grass blades, which were unquantifiable and, therefore, not reported in Table 2. However, Sample 3 also contained a range of macrofossils (see Table 2), many of which are typical of grassland/ meadow. In addition, it was clear during sorting of the flot from sample 3 that it contained well preserved fly puparia and these were submitted to David Smith for identification in order to further clarify the origins of this deposit. Sample 2 was of interest, because a large proportion of the oats recovered were clearly germinated (or sprouted).

6.3 Discussion

The results from the ditch/fishpond samples at Castle Garage, Monk Street, Tutbury both represent specific dumping events. In one case (Sample 2) there is a discrete deposit of charred oat grain, a large proportion of which were clearly sprouted. In another, there appears to be a discrete deposit of 'hay-like' material, which also included large quantities of fly puparia.

Sample 2

In total, 95% (N = 3406) of the identifications made in this sample are of cultivated oat (*Avena sativa* L.) of possibly cultivated oat (cf. *Avena sativa* L./ POACEAE). Remarkably, 21% of all identifications made in the assemblage are of sprouted grain or detached coleoptiles (sprouts). In addition, roughly one third of the 1100 estimated identifications of oat grain were clearly pitted or grooved and, therefore, highly likely to have also germinated. It is not possible to determine if the detached sprouts recovered were actually derived from these grooved or pitted grains; however, due to waterlogging the preservation conditions of this sample was exceptionally good. The abundance of possible cultivated oat glumes, a cereal element which is less likely to survive charring events (e.g. Boardman and Jones 1990), is a strong indicator for the high quality of preservation in this deposit.

Since the deposit is secondary, it is not clear whether these oats were accidentally or intentionally charred nor whether they were accidentally or intentionally germinated. There are three possible explanations for the formation of this assemblage:

the intentional destruction of a spoiled crop

the accidental charring of a crop in a corn-drier

malting oat, which was accidentally charred

It could be that the crop was obviously spoiled and, therefore, intentionally burned, possibly as fuel. Intentionally charring a spoiled oat crop does seem less likely. Germinated oats would still be an edible fodder, so could have been of use, and charring would not have been necessary if someone wanted to dump the oats into a ditch/ pond. Accidental germination could occur as a result of storing incompletely dried grain. Indeed, the charring could have been as a result of an attempt to dry out a crop, and arrest germination. However, malting may be the most likely explanation for the assemblage from Tutbury.

The process of malting transforms starch within cereal grain to sugars, which fuels yeast during fermentation. Malt is produced by allowing the cereal grain to germinate and then arresting this process at the point where the embryo shoot (coleoptile) is approximately the length of the cereal grain, by heating the germinating grain (Corran 1975, 11-12). Malting has two primary results:

germination converts the starch stored in the grain to sugars (collectively known as diastase), which yeast can feed on during fermentation (ibid.; Hagen 1999, 205-209).

malting results in a partial breakdown of the structure of the barley grain, which makes it easier to crush (Corran 1975, 12) and easier to digest (ibid. 16).

Once made, malt can be stored for up to one year before use (ibid. 12). In order to make beer or ale, the malt is coarsely ground and mixed with hot water at approximately 65°C in a process known as 'mashing' (ibid.). Mashing produces a product known as 'wort' (a brown liquid essentially made of malt sugar) and a by-product of husks of cereal grains, with little or no sugar content. The mashing by-product was often used as a fodder in the Anglo-Saxon period (Hagen 1999, 105). In addition, it is clear that malt can be traded and exchanged as a product (e.g. ibid. 212-13). Although not as common as barley malt, today, malted oat is valued for the nutty, smooth flavour it adds in brewing stouts or pale ales.

Sample 3

This deposit was unexpectedly waterlogged and, therefore, processing was not ideally suited to waterlogged plant macrofossils. Certainly, the use of a 0.5mm sieve size for flotation means that many small-seeded taxa may not have been recovered. Nevertheless, the rapid assessment of approximately one third of the flot produced from the 10L sample of this deposit was so obviously full of finely broken up grass blades (unquantifiable and therefore not reported in Table 2) and taxa typical of grassland or meadow that a tentative interpretation of grassland or hay meadow was immediately possible. In addition to these plant macrofossils, sample 3 also contained insect remains.

Over 100 puparia of the sepsid fly *Saltella sphondylii* (Schrank) were recovered from the flot. The identity of the species of fly was achieved using the shape of the well-preserved anterior spiracles present on these specimens. This fly is only associated with cow dung (KGV Smith 1989). Three puparia of the scathophagidae *Scathophaga stercoraria* (L.) were also recovered. This fly is the 'yellow dung fly', which is common on cowpats and other dung. The larvae of the 'yellow dung fly' are predators on maggots and in this case probably fed on *Saltella sphondylii*. A number of other fly puparia were recovered, but it was not possible to identify these to genera. Only one fragment came from a beetle (Coleoptera). This was the thorax of *Sphaeridium scarabaeoides* (L.) a species specifically associated with cow dung.

It would therefore seem that this deposit contains the remains of cowpats. Given that the various instar stages of the flies that are present and that some of the puparia clearly contained the developing imago (adult fly), it suggests a sudden 'end', perhaps pats falling or dropping into standing water. There are no indicators present for stabling matter or waste, so this would suggest that cattle were grazing immediately around this feature, rather than this deposit representing intentional dumping of stabling waste.

6.4 Conclusions

Two deposits sampled during a watching brief in advance of development of Castle Garage, Monk Street, Tutbury, Warwickshire have produced two different insights into the agricultural activities taking place in the area. Sample <2> produced the remains of intentionally dumped charred oats, with a substantial proportion clearly sprouted. The most likely interpretation of this deposit is that it was accidentally charred during malting. Sample <3> produced the remains of cattle dung, suggesting that livestock were grazing in the immediate vicinity of this ditch/ fishpond at the time.

7 DISCUSSION

The watching brief at Castle Garage, Monk Street has revealed a substantial feature of unknown function but possibly representing a large ditch or fish pond. This feature was made up of well-stratified deposits datable to between the 13th and 15th centuries.

The feature may represent a defensive ditch, possibly associated with the priory to the north. St. Mary's church is now the only extant structure associated with the priory but the original priory precinct would have contained a number of other buildings. The first outer ward to Tutbury Castle is located to the north of St. Mary's church. Any expansion of the priory would therefore probably have extended southwards and it is likely that the road name 'Monk Street' arose out of an association with the priory. Medieval religious complexes were often surrounded by some form of protective barrier, whether a bank and ditch or a moat, especially in the case of rich foundations. The size of the feature, however, only compares to the Tutbury Castle ditch, which in parts also reaches a width of around 40m. It seems unlikely that the

priory would have been surrounded by a ditch of such substantial proportions. Although it has not been conclusively demonstrated that the ditches recorded in Sondages 1 and 2 are the same feature, this does seem likely. The fact that Soudage 1 has recorded a feature of over 20m width, demonstrates that a significant feature is present here. Further silt deposits observed to the south of Soudage 2, within foundation trenches contribute to the interpretation of a substantial feature here.

A further alternative for the feature recorded at Monk Street is that it represents a fishpond, possibly belonging to the priory. The width of the feature, in addition to its stepped profile may suggest that this is likely, and fishponds are commonly associated with medieval religious houses. There may also have formerly been a timber structure at the southern edge of the pond, indicated by a cut containing degraded wood. This may have provided a platform from which to fish or a wharf for unloading a catch. Within the extent of the excavated area, however, it was difficult to determine this. Further wood fragments were observed within foundation trenches sitting within silt fills, though it is not possible to suggest they represented in-situ structures.

The ceramic data suggests that the substantial ditch or pond was at the end of its use life by the 14th century. The 15th to 16th century pits cutting the southeastern edge of the ditch/pond, indicate that by this time it was abandoned and that the area was now occupied, possibly by properties fronting onto Monk Street with backplots stretching back into the development site. The date of the sandstone well is uncertain, though its presence reflects occupation, which may perhaps post-date the large ditch or pond feature.

Exceptionally well preserved charred plant remains have enabled the process of malting to be identified at the site, in the form of an intentional dump of germinated oats, within a feature on the edge of the ditch/pond. The waterlogged environmental remains have also demonstrated that cattle were grazing in the immediate vicinity of the feature.

The palaeo-environmental data from the ditch/pond clearly demonstrates that this feature is a valuable resource for the interpretation of the medieval economy at Tutbury. This data has the potential to enable comparisons to be made between data derived from other archaeological contexts in the town. Comparisons may be made for example between the economy of the town and that of the castle or priory, for instance.

The function of the substantial ditch/pond feature at Monk Street, Tutbury, remains ambiguous. The presence of previously excavated smaller boundary ditch features to the south, off High Street, datable to the 14th century (Martin 2004) suggests that the ditch or pond would have formed a significant feature within the layout of the medieval town. It is important therefore that any future archaeological work in the vicinity of Monk Street aims to target this feature in order to clarify both its function and extent, and to recover further palaeo-environmental data.

8 ACKNOWLEDGEMENTS

The watching brief was commissioned by Simon Woodward from Steeple Grange Investments on behalf of Living D'Zign. Thanks are also due to Lee Atkins of Living D'Zign for his help and co-operation. The fieldwork was undertaken by Helen Martin-Bacon, Richard Bacon, Kate Bain and Mary Duncan. This report was written by Helen Martin-Bacon and Malcolm Hislop. Richard Cuttler managed the project for Birmingham Archaeology. The report was edited by Richard Cuttler and John Halsted. The illustrations were prepared by Bryony Ryder. The authors are particularly indebted to Dhaminder Chuhan, the Birmingham Archaeology Environmental

Officer, for recognising that he was dealing with waterlogged material and rapidly storing the flots in water to ensure preservation.

9 REFERENCES

- Birmingham Archaeology 2005 *Written Scheme of Investigation for an Archaeological Watching Brief Castle Garage, Monk Street, Tutbury, Staffordshire*
- Birmingham Archaeology, forthcoming. *Tutbury Castle, Staffordshire, programme of archaeological work 2005.*
- Boardman, S. and Jones, G. 1990. *Experiments on the effects of charring on cereal plant components. Journal of Archaeological Science* 17, 1-11.
- Corran, H. S. 1975. *A History of Brewing*, Newton Abbot and London: David and Charles.
- Department of the Environment (DoE) 1990 Planning Policy Guidance Note 16: *Archaeology and Planning*
- Ekwall 1960, *Oxford English Dictionary of Place-Names*, 4th Edition
- Hagen, H. 1999. *A Second Handbook of Anglo-Saxon Food and Drink: Production and Distribution*. Norfolk: Anglo-Saxon Books.
- Hislop, M. 2003, *Land Adjacent to 39 Cornmill Lane, Tutbury, Staffordshire: An Archaeological Desk-based Assessment*. Birmingham Archaeology Report No. 1031
- Institute of Field Archaeologists 2001, *Standard and Guidance for an Archaeological Watching Brief*, Revised 2001
- Jackson, J. 1796, *Historical Description of the Castle and Priory of Tutbury*
- Martin, H. 2004. *Land at 33 High Street, Tutbury, Staffordshire: an archaeological watching brief 2004*, Birmingham Archaeology report 1228.
- Palliser, D. M. and Pinnock, A. C. 1971, 'The Markets of Medieval Staffordshire' *North Staffordshire Journal of Field Studies* 11, 49 – 63
- Palliser, D. M. 1972, 'The Boroughs of Medieval Staffordshire' *North Staffordshire Journal of Field Studies* 12, 63 – 9
- Sherlock, R. 1976, *The Industrial Archaeology of Staffordshire*
- Smith, K.G.V. 1989. *An Introduction to the Immature Stages of British Flies*. (Handbooks for the Identification of British Insects 10/14). London: Royal Entomological Society of London.
- Stace, C. 1997. (second edition) *New Flora of the British Isles*. Cambridge: Cambridge University Press.

Zohary, D. and Hopf, M. 2000. (third edition) *Domestication of Plants in the Old World: The Origin and Spread of Cultivated Plants in West Asia, Europe, and the Nile Valley*. Oxford: Clarendon Press.

10 APPENDIX 1

Table 1: Charred plant remains from a sample from a Medieval ditch/ fishpond 1018 [1006] at Castle Garage, Monk Street, Tutbury

Context Number	1018	
Feature Number	1006	
Sample Number	2	
Sample Volume	10 L	
Sieve Size	0.5	
Proportion sorted	mm	
Seeds per Litre	1/4	
	1436	
LATIN BINOMIAL		COMMON NAME
CULTIVARS		
<i>Triticum</i> sp. – free-threshing grain	5	Free-threshing wheat
cf. <i>Triticum</i> sp./ <i>Secale cereale</i> L. – sprouted grain	1	Possible wheat/ rye
<i>Secale cereale</i> L. – rachis node	1	Rye
<i>Avena sativa</i> L. – sprouted grain	354	Cultivate oat
<i>Avena sativa</i> L. – grain	1100* †	Cultivated oat
cf. <i>Avena sativa</i> L./ POACEAE – caryopsis	300*	Possible cultivated oat
cf. <i>Avena sativa</i> L./ POACEAE – detached coleoptile	348	Possible cultivated oat
cf. <i>Avena sativa</i> L./ POACEAE – glume with coleoptile attached	51	Possible cultivated oat
cf. <i>Avena sativa</i> L./ POACEAE – glume	1000*	Possible cultivated oat
cf. <i>Avena sativa</i> L./ POACEAE – culm node	3	Possible cultivated oat
<i>Avena</i> sp. – awn	250*	Cultivated/ wild oat
<i>Avena</i> sp. – rachis node	1	Cultivated/ wild oat
Cereal/ POACEAE – indeterminate rachis node	1	Cereal / large grass
WEED/ WILD		
<i>Atriplex</i> sp.	4	Orache
<i>Rumex</i> spp.	5	Dock
<i>Raphanus raphanistrum</i> L.	73	Wild radish
<i>Vicia</i> sp./ <i>Lathyrus</i> sp.	17*	Vetch/ vetchling
FABACEAE – unidentified pod fragment	3	Pea Family
<i>Centaurea</i> sp.	6	Thistle
<i>Lapsana communis</i> L.	3	Nipplewort
<i>Anthemis cotula</i> L.	29	Stinking chamomile
<i>Tripleurospermum inodorum</i> (L.) Sch. Bip.	7	Scentless mayweed
POACEAE – small caryopsis	3	Grass Family
Unidentified – flower head	1	Unidentified flower head
Indeterminate	20*	Indeterminate
DRIED-OUT WATERLOGGED SEEDS		
<i>Stellaria media</i> s.l.	2	Common chickweed
<i>Rumex</i> sp.	1	Dock
POACEAE – small caryopsis	1	Grass Family
TOTAL	3590	

* estimate count †approximately 30% of these caryopses were clearly grooved or pitted, suggesting that they had germinated (sprouted)

Table 2: Waterlogged plant remains observed in rapid scan of a sample from a Medieval ditch/ fishpond 1010 [1015] at Castle Garage, Monk Street, Tutbury

Context number Sample number Sample volume Sieve size Proportion scanned	1010/10 15 3 10 L 0.5 mm 1/3		COMMON NAME	HABITAT(S)
LATIN BINOMIAL				
<i>Ranunculus acris</i> L./ <i>repens</i> L./ <i>bulbosus</i> L.	++		meadow/ creeping/ bulbous buttercup	all typical of grassland – but varying from wet to dry
<i>Urtica dioica</i> L.	+		common nettle	various
<i>Urtica urens</i> L.	+		small nettle	cultivated and waste ground
<i>Corylus avellana</i> L. – nutshell fragments	*		hazel	hedgerows, scrub and woodland
<i>Atriplex</i> spp. – large	+		orache	various
<i>Stellaria media</i> s.l.	*		common chickweed	cultivated and open ground
<i>Agrostemma githago</i> L.	+		corncockle	cultivated and waste ground
cf. <i>Persicaria</i> sp./ <i>Polygonum</i> sp.	*		knotweed/ knotgrass	-
<i>Polygonum aviculare</i> L.	*		knotgrass	all sorts of open ground
<i>Rumex</i> spp.	+		dock	various
cf. <i>Filipendula</i> sp.	*		possible dropwort/ meadowsweet	grassland or wet/ damp places
<i>Rubus</i> spp.	*		bramble/ blackberry	various, but typical of waste ground
<i>Galium verum</i> L./ <i>mollugo</i> L.	*		lady's/ hedge bedstraw	grassy-places/ hedgerows, typically on calcareous soils
<i>Anthemis cotula</i> L.	++		stinking chamomile	arable land, waste places and rough ground – usually on calcareous soils
<i>Hyoscyamus niger</i> L.	*		henbane	rough and waste ground
cf. <i>Hyoscyamus niger</i> L.	*		possible henbane	rough and waste ground
<i>Prunella vulgaris</i> L.	*		selfheal	grassland, lawns, wood-clearings and rough ground
LAMIACEAE – unidentified	*		Mint Family	-
CAMPANULACEAE – unidentified	*		Pink Family	-
<i>Sambucus nigra</i> L.	*		elder	various
<i>Eleocharis</i> cf. <i>palustris</i> (L.) Roem. & Schult./ cf. <i>uniglumis</i> (Link) Schult.	*		common/ slender spike-rush	in or by ponds, marshes, ditches or riversides
<i>Schoenoplectus lacustris</i> (L.) Palla/ <i>tabernaemontani</i> (C.C. Gmel.) Palla	*		common/ grey club-rush	in shallow water of lakes, ponds, rivers, canals and dykes
<i>Carex</i> spp. – 3-sided	*		sedge	damp or wet places
<i>Triticum</i> sp. – indeterminate glume base	*		wheat	cultivar
POACEAE – large caryopsis	+		wild grass	-
POACEAE – small caryopsis	+		wild grass	-
POACEAE – culm node	+		wild grass	-
Unidentified – leaf	++		unidentified leaf	-
OTHER MATERIAL OBSERVED IN SAMPLE				
CHARRED PLANT REMAINS ALSO PRESENT				
<i>Triticum</i> sp. – free-threshing grain	1		wheat	cultivar

DIPTERA			
Unidentified fly puparia		+++	maggots
			?dung/ ?cess

Key: * = 1-2 items, + = 5-10 items, ++ = 10-25 items, +++ = 25 - 50 items and ++++ = > 50 items

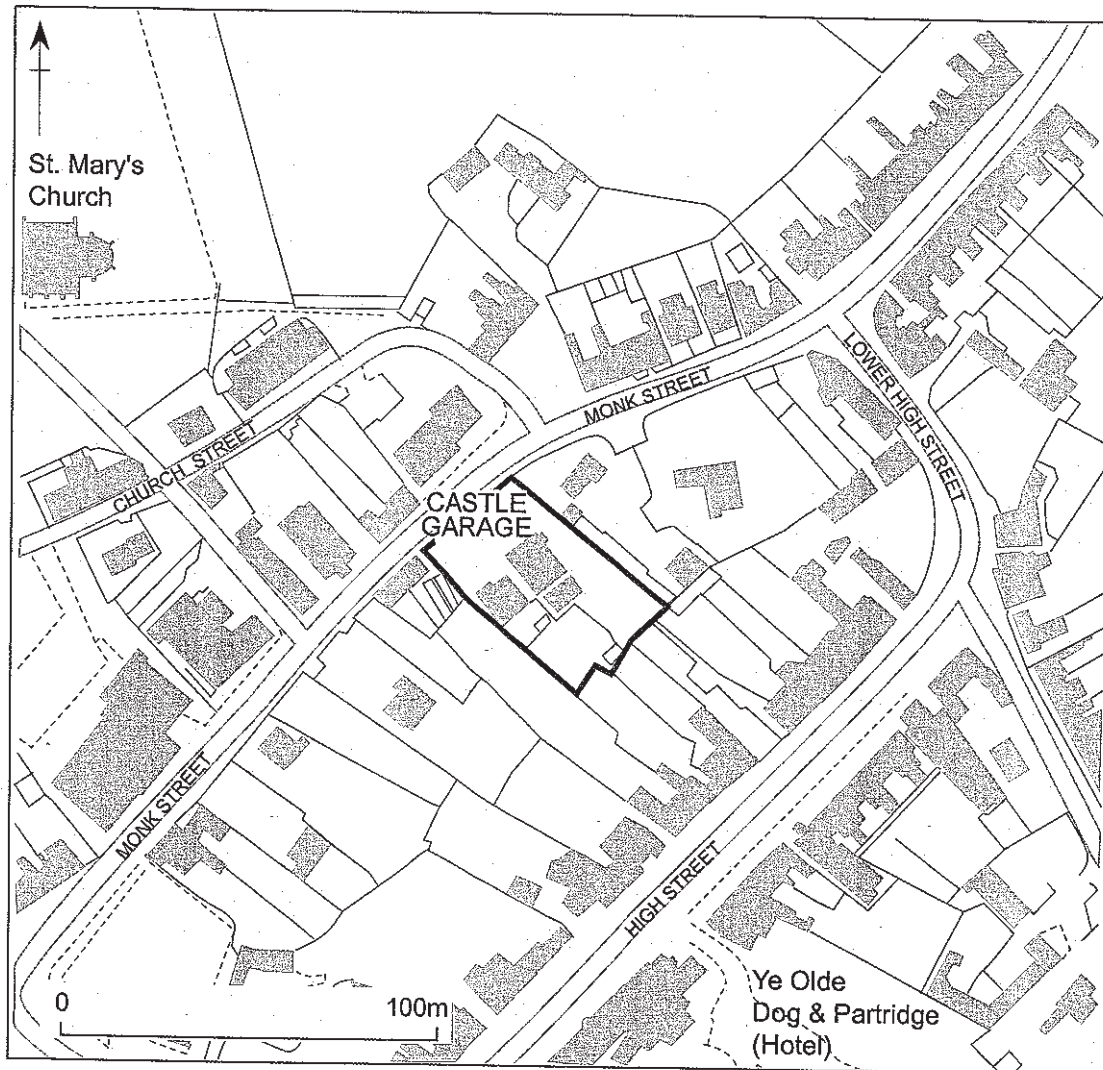
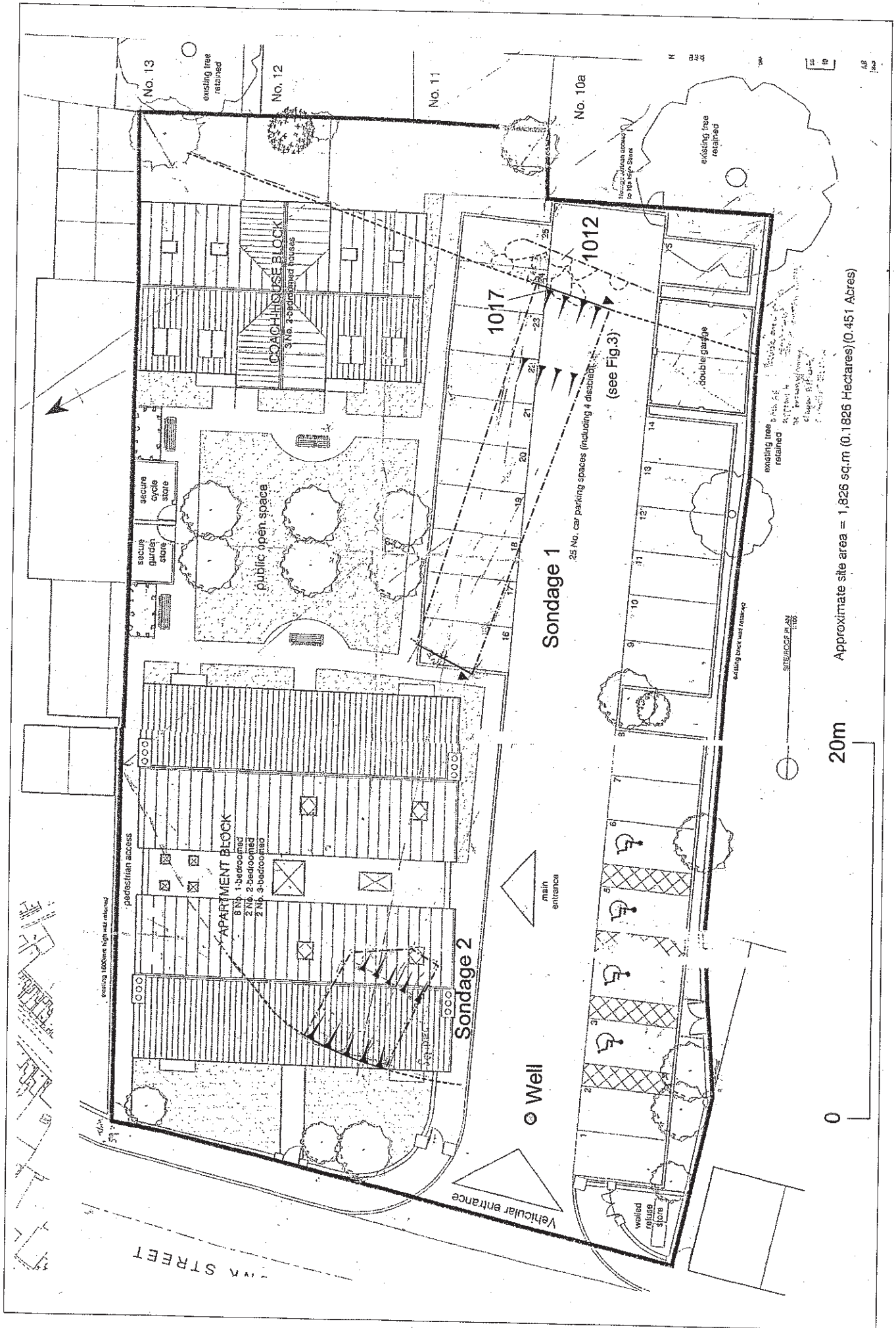


Fig.1



Approximate site area = 1,826 sq.m (0.1826 Hectares) (0.451 Acres)

Fig.2

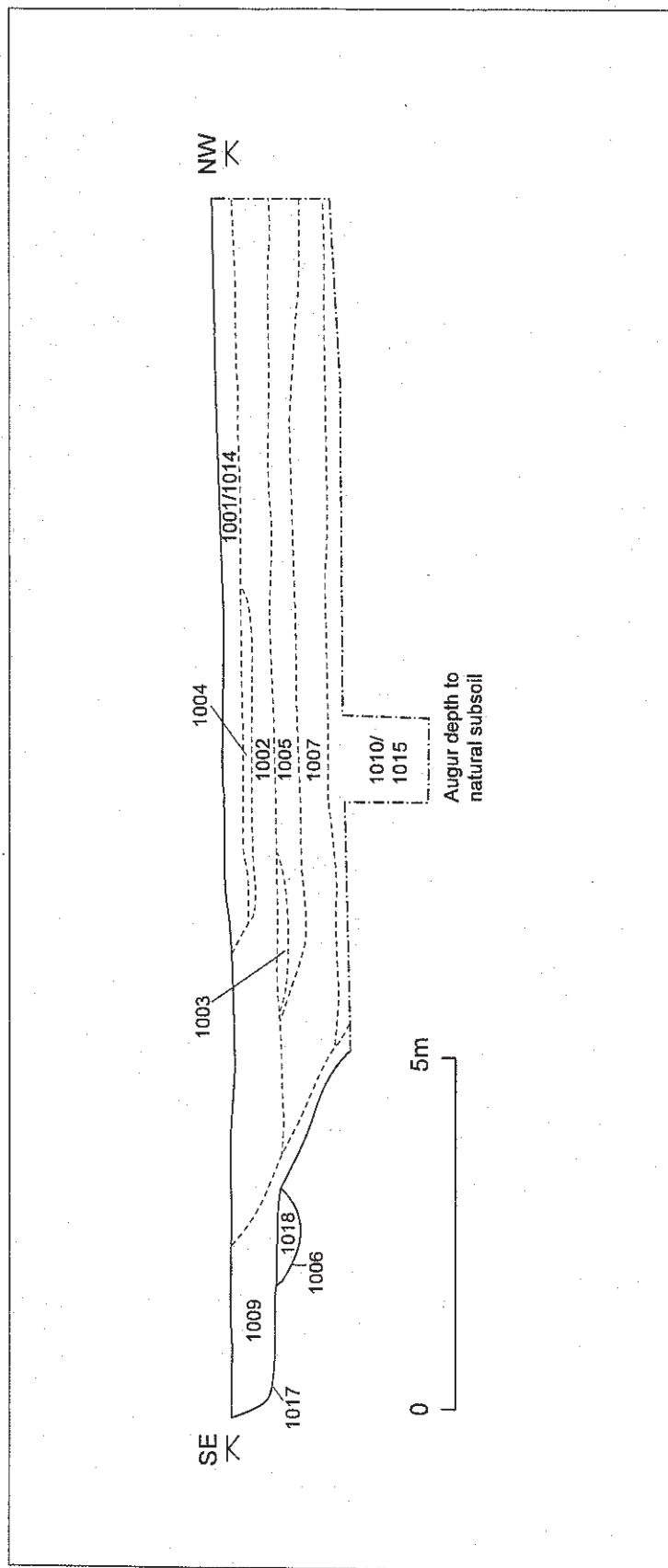


Fig.3

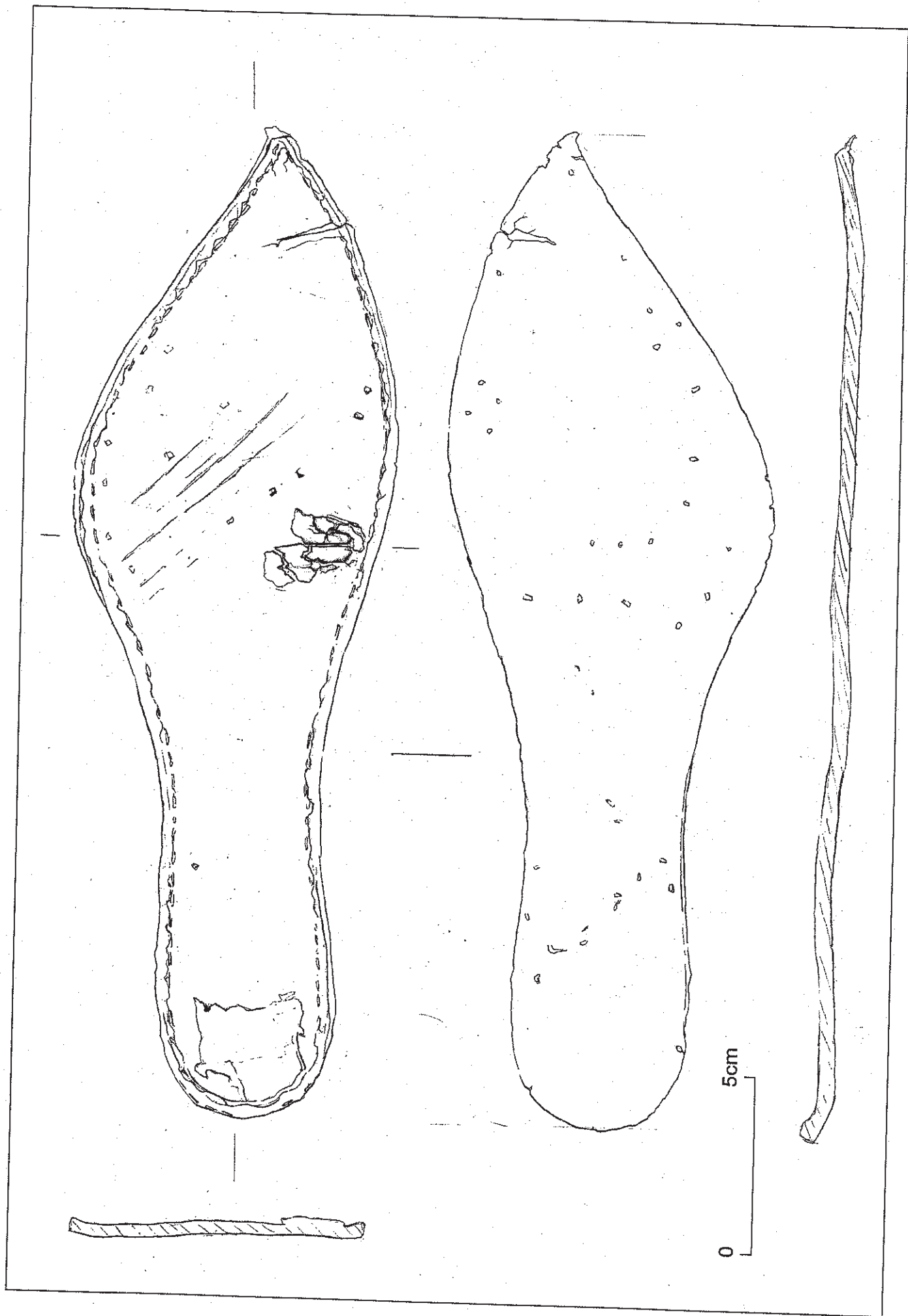


Fig.4

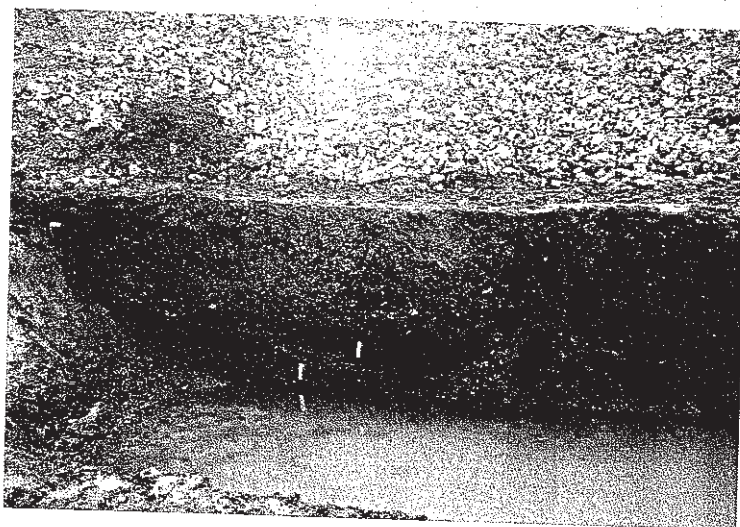


Plate 1



Plate 2

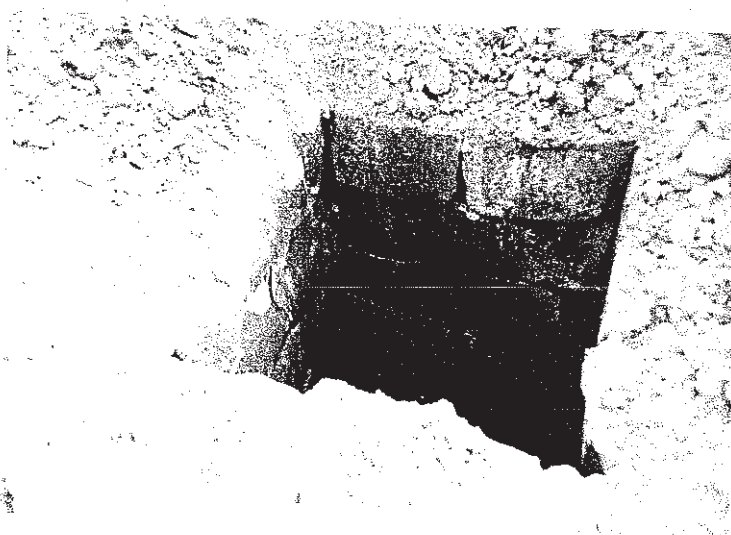


Plate 3

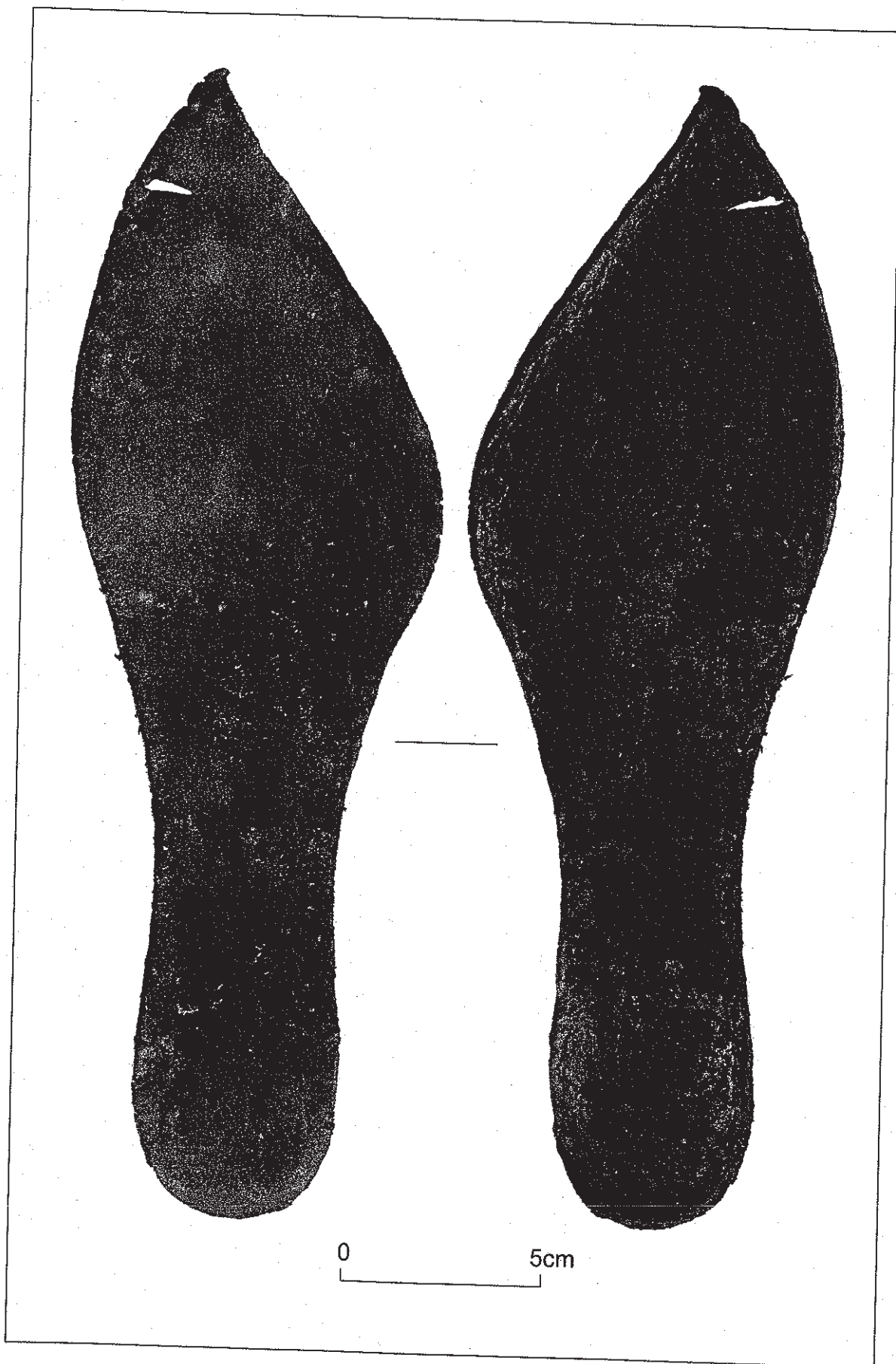


Plate 4