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TRENT LANE, NEWARK
NOTTINGHAMSHIRE

AN ARCHAEOLOGICAL STRIP,
MAP AND RECORD

Post-Excavation Report

November 2004

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1 SUMMARY

An archaeological strip, map and record exercise was carried out by Birmingham Archaeology at Trent Lane, Newark Nottinghamshire (centred on NGR SK 8025 5479) during July 2003. The work was commissioned by John Samuels Archaeological Consultants on behalf of Limes Developments Ltd as a condition planning permission (Planning ref: 02/02798/FULM). Planning proposals included a new retail store with associated parking to the south-east and service parking and a garden centre to the north-east. John Samuels Archaeological Consultants also conducted a watching brief between August and November 2003, during the excavation of drains and foundation pads.

The site and its environs were the subject of two desk-based assessments that suggested a high potential for archaeology from several periods. A trial-trench evaluation of the site identified the presence of Romano-British ditches and the south-western corner of a Civil War defensive earthwork known as the King's Sconce. A layer of early post-medieval building debris was also exposed towards the southern extent of the site.

The earliest archaeological features identified during the strip, map and record exercise were dated to the 3rd and 4th centuries AD, and comprised enclosure ditches, several small gullies and an articulated skeleton with associated grave goods. Four post-holes located within the enclosure may represent the remains of raised granary, but no dating evidence was recovered. Enclosure ditches in the north-eastern corner of the site, also dated to the 3rd and 4th centuries AD, were subject to 100% excavation prior to the construction of a pumping station.

Foundation trenches filled with mortar and stone at the southern end of the site may represent the robbed out remains of the medieval Hospital of St. Leonard. The southern-most point of the King's Sconce was also identified as a ditch filled with redeposited mudstone.

The reduced dig level only reached the natural subsoil in the northern half of the site, suggesting that the ground level had originally been higher, and that the surrounding ground level had been raised, most probably when the King's Sconce earthwork was levelled. Evidence for this activity comprised layers of red re-deposited clay over much of the site.

2 INTRODUCTION

This report describes the results of the three phases of archaeological mitigation work conducted on land to the north of Trent Lane, Newark, (NGR SK 8025 5479, Figs. 1 and 2, hereafter referred to as the site). This began with a strip, map and record exercise during the reduced level dig in advance of construction. In the north-eastern corner of the site a hundred percent of features were excavated prior to the construction of a pumping station. Both phases were conducted by Birmingham Archaeology on behalf of John Samuels Archaeological Consultants. John Samuels Archaeological Consultants later conducted a watching brief during the excavation of drains and foundation pads. All of the archaeological work was undertaken in respect of the archaeological condition set by Newark and Sherwood District Council on the planning permission for retail development made by Limes Developments Ltd (Planning Ref: 02/02798/FULM).

The archaeological work was conducted in accordance with the Institute of Field Archaeologists *Standard Guidance for Archaeological Watching Briefs* (Institute of Field Archaeologists 1999) and also with the approved specification, written by John Samuels Archaeological Consultants (JSAC 2003). The fieldwork was undertaken in accordance with *Planning Policy Guidance Note 16: planning and archaeology* (Department of the Environment 1990).

2.1 Site location and description (Figs. 1 and 2)

The site is located c. 0.7 km from the centre of Newark, and comprises a roughly 'L'-shaped area of ground of approximately 6,800m². To the southwest is Trent Lane and to the southeast and northeast is Maltkiln Lane. The site lies between 13.2 and 14m above Ordnance Datum with the exception of discrete spoil heaps and earthwork banks which comprise the remains of the Baird's Maltings buildings.

The geology comprises Mercia Mudstone, which lies immediately to the north of a fragment of the lowest gravel terrace of the River Trent.

2.2 Aims

The aims of the fieldwork were to:

- Determine the presence or otherwise of remains of archaeological interest.
- To determine the nature, extent, date, function and condition of any features relating to the Romano-British settlement adjacent to the Fosse Way.
- To determine the exact location, orientation and survival of the King's Sconce earthwork within the site boundaries.
- To further investigate the post-medieval building debris possibly associated with the demolition of Exeter House identified at the southern end of the site.

3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Two desk-based assessments both suggested that the site had a high potential for Roman and late medieval archaeology (Appleton and Kinsley 1994, Kinsley 2002), and a subsequent evaluation identified the presence of ditches dated to the Romano-British period. The evaluation exposed a ditch which once formed part of the Civil War defensive earthwork known as the King's Sconce, and early post-medieval building debris associated with robbed wall trenches (Trench 6), that possibly represented the remains of structures destroyed during the Civil War.

While a more complete account is available, for this report the main points are summarised here.

3.1 The Romano-British period

The desk-based assessments suggested there was little evidence for the presence of prehistoric activity. North Gate lies approximately 25m to the southeast of the site. This overlies the Fosse Way, a Roman road linking Exeter, Leicester and Lincoln lying adjacent to, but beyond the southern boundary of the site. It was suggested that features associated with this may be encountered within the site. In addition to this the focus of an important and extensive Romano-British small town lies immediately to the southwest of the site.

The date range of the artefacts from previous excavations near the site suggests that the occupation spanned the 1st to the 4th centuries AD, and there were indications of a military origin. Spot dating of the artefacts recovered from the evaluation of the site suggested occupation mainly during the 2nd and 3rd centuries AD.

3.2 The medieval period

During the medieval period the site was associated with Osmundthorpe, a vil and hamlet of Newark. This is believed to be mainly concentrated towards North Gate and the Lincoln Road Viaduct. It is possible that the site is located within the boundary of the medieval Hospital of St Leonard. Earlier excavations along the line of the Lincoln Road Viaduct identified the cemetery and the church relating to the hospital.

The hospital complex, known later as Exeter House, may have lain partly within the development site, although its exact location remains unclear. The house was taken on several occasions before being destroyed during the burning of North Gate.

3.3 The Civil War

A Civil War earthwork known as the King's Sconce was constructed as part of the Royalist defences at Newark, and was 'raised in or near the place formerly occupied by Exeter House'. At the end of the Civil War the local people were ordered to assist in the demolition of the fortifications. The King's Sconce lay within and to the north of the development area at NGR SK 8017 5485, with the southernmost part of the defensive ditch identified during the evaluation (Cuttler and Duncan 2003).

3.4 The late post-medieval

Towards the end of the 19th century the site comprised gardens and pasture. In 1866 the Midland and Great Northern Railway was constructed to the northwest of the development area. Between 1883 and 1900 Baird's Malting occupied the northern half of the site.

4 METHOD

Three phases of archaeological mitigation work were undertaken on the site in the following order:

1. The entire site was subject to a strip, map and record exercise during the reduction of the level in advance of the construction of the car park, garden centre/service yard area, and the new retail building. This was undertaken using a mechanical excavator, fitted with a toothless bucket, under archaeological supervision. Exposed areas were cleaned as appropriate, then planned and photographed. No further archaeological work besides planning and photography was required on the King's Sconce ditch, although sections were hand excavated across other archaeological features. The intersections were preserved, as the majority of the archaeology was to remain *in-situ*. Where the reduced level was not deep enough to encounter archaeology, the stratigraphy was recorded. Areas of disturbance relating to the malthouse were removed by machine under archaeological supervision (Pits A, B and C, Fig. 3). The sections of these pits were photographed and recorded. The machine cut for the removal of the malthouse footings was narrower than the original foundation. A total of three courses of brickwork were removed but no archaeological features or deposits were disturbed.
2. Changes to the design of a pumping station, located in the north-eastern corner of the site, meant that the archaeology within the footprint could not be preserved in situ. A hundred percent of the archaeology was therefore excavated and preserved by record.
3. A watching brief was conducted during the excavations for the foundation pads and drains. The locations of these groundworks are illustrated on Fig. 9 and the recorded sections of drains (1, 3 and 5) shown on Fig. 10. Each pad-pit and ground beam-trench was cleaned, inspected and recorded. Test pit logs were written for each pad observed. Continuous monitoring was undertaken during the excavation of the drains and a continuous long section was drawn for each drain.

During each fieldwork phase recording was by means of pre-printed pro-forma record cards for context and features supplemented by section drawings (at 1:10 and 1:20), and monochrome print and colour slide photography. A plan of the whole site was created using a data-logger and fast-map surveying software.

Once archaeological work had been completed the site was covered with a Terram membrane and a layer of stone.

5 RESULTS (FIG. 3)

The results of the evaluation have been included with the following results of the strip, map and record where relevant. The results of the watching brief are summarised at the end of the section.

The natural mudstone subsoil (1004) was only encountered in the northern half of the site, indicating a natural slope towards the east, west and south. Overlying the subsoil to the east, west and south were layers of re-deposited clay and general demolition rubble. This suggests that the natural slope had been levelled up, most likely sometime after the Civil War.

Roman (3rd- 4th centuries)

Evidence for activity during the Roman period was mainly characterised by enclosure ditches (Figs 3 and 4), which mostly cut the natural (with the exception of layer 2005 in Trench 2). The main enclosure, located at the northern extent of the excavation, appears to have been recut at least twice. The earliest ditch (F110) was aligned north-south and may have formed an enclosure with an east-west aligned ditch (F106, possibly the same as F136, F157 and F159). Other small gullies (F109, F156 and F161, Fig. 4) to the north and west of the enclosure may also be contemporary. Ditch (F106) also cut a tree-bole (F117, 1032) which contained fragments of Roman pottery.

The early enclosure ditch (F110) was cut by a later ditch (F111, same as F160), which continued northwards beyond the edge of excavation. This may have formed an enclosure with east-west aligned ditch F105. This ditch was located to the north of ditch F106, and may have formed a northern entrance to a possible enclosure at the western terminus of ditch F105. This may also formed the southern extent of another enclosure to the northeast, along with ditch F103 to the north.

The final re-cut of the enclosure ditch (F112 possibly the same as F155 and F158) cut all of the earlier ditches and appeared to have no northern entrance. This ditch turned to the east (F153), and appeared to be respected by a north-south aligned ditch (F104) to the north. An earlier cut (F154) of the east-west aligned ditch (F153) was mostly truncated.

Much of the enclosure was truncated by the ditch (F118) relating to the King's Sconce, and obscured by layers 1064 and 1079 (Fig. 3 and 5). Another ditch (F200) identified during the evaluation (Trench 2) may also be part of this system of enclosures. This ditch measured 1.4m in width, 0.6m in depth and produced Roman pottery sherds. It seems likely that this is a continuation of the latest recut (F112/F132).

During the evaluation a series of ditches of Roman date were recorded in Trench 5. The earliest of these (F506, Figs. 5 and 6) was subject to several recuts (F501 to F505). The majority had been severely truncated by the latest recut (F500). All of these with the exception of F500, would appear to have been cut with a V-shaped profile, with the deepest originally measuring at least 1.10m in depth. The extent of these ditches was not exposed during the strip and record, as the dig depth was above the depth of the natural subsoil. The alignment however, suggests it could form part of the system of enclosures at the north end of the site.

A rectangular grave-cut (F130, Figs. 3 and 7), inside the main enclosure, contained an articulated skeleton. Orientated north-south, this was 0.15m deep at the northern end, and 0.3m deep at the southern end. The skeleton was laid on its back, with the skull at the

northern end. The right arm was laid across the waist at right angles and the left arm was parallel to the body. A bone hair-pin (SF1) was resting on the right side of the skull, and a copper alloy earring/bracelet (SF2) was recovered from just below the right side of the skull. The majority of the long bones were present and intact, while the skull, ribs, pelvis, metacarpals, tarsals, metatarsals, and phalanges were present but broken. The fill of the grave cut (1046) contained Roman pottery.

Part of a curvilinear gully (F128) and four irregular gullies (F124, F125, F126 and F127) were located within the enclosure. To the south of Trench 5 was a short ditch (F100), aligned northeast-southwest. This ditch was approximately 1m wide and the fill (1003) produced Roman pottery.

A large, shallow scoop (F137; 730/7016, Fig 3) was identified in the north-east corner of the site. This pit truncated the upper fills of the enclosure ditch F136, and was filled with a layer of stones and brown silt (1055) at the base which was sealed by a deposit of mid-brown silt (1054) similar to the topsoil. These fills (1055 and 1054) contained a large amount of Roman pottery and animal bone.

Four post-holes (F121, F122, F123 and F129) set in a rectangular pattern measuring 2.5m wide and 5m long. Each post-hole was approximately 60cm in diameter, and 20cm deep with steep sides and a flat base. The fills (1036, 1038, 1039 and 1045 respectively) were packed with fragments of stone. While no datable evidence was recovered from these features, they may form part of a four-post structure, fairly typical for the Romano-British period.

Medieval (12th - 15th centuries)

At the southern end of the site a layer of red-brown silt (1002) was exposed. This was cut by a series of trenches (F146 to F152), formerly identified during the evaluation (Trench 6). Most of these were cut with steep sides and a flat base, approximately 1m to 1.4m wide and 0.4m deep. These had similar fills, containing a large proportion of mortar and broken stone. Two narrower trenches (F148, F149) were identified between F146 and F147 on a north-south alignment, and the base of F149 was filled with larger stones. The northernmost trench produced fragments of brick/tile and the stem from a clay pipe. Trench F151 and F153 continued further to the south, but were sealed by pebble layer 1006. An area of modern disturbance (1082) to the north also truncated the northern extent of these features.

The features clearly represent robbed out foundation trenches, and while it seems likely that these are associated with Exeter House, this could not be proven conclusively. No internal features or floor surfaces remained, and no firm dating evidence was recovered from the foundation trenches.

Civil War

A large defensive ditch (F118, Figs. 3 and 6) associated with the southern corner of the King's Sconce dominated the northern half of the site. Exposed in plan, the ditch measured 11m wide, increasing in width to 20m at the northern corner of the site. The western side of the ditch was truncated by the malthouse wall foundations, and also obscured by a mixed layer of re-deposited natural clay and rubble (1079). While the base of the ditch (F118) was not excavated, sections across the ditch were excavated to a depth of 1.5m. (Evaluation trenches 1, 2 and 3 and drains 1, 3 and 5). The profile was steep and the fill comprised loose brown silt and clay with numerous small, sub-angular stones (2004 and 3003, Trenches 2 and 3). This was sealed by an upper fill of silt and clay (1033, 2002,

2003 and 3004, Trenches 1, 2 and 3), which may represent deliberate backfilling from the demolition of the Sconce earthwork. The sections excavated during the evaluation, strip and record and the watching brief have provided a clear plan of the ditch within the development site.

The layers and deposits of rubble, re-deposited natural, and silt present over the north-east (1064), west (1079) and south (1002, 1001, 1006, 1081) may also be associated with the levelling of the King's Sconce earthwork, and the raising of the ground level.

Post-medieval

Evidence for activity during the post-medieval period comprised the wall foundations and concrete piers of the malthouse, and associated drains. The walls consisted of a concrete foundation, approximately 1m deep and 1m wide, and survived to a height of 3-4 courses, which were approximately 0.4m wide. Two to three courses of brickwork were removed during the ground-reduction work, but no archaeological features or deposits were truncated during this work. The concrete malthouse pier bases were also grubbed out to a depth of approximately 0.4m. These cut the fill of the Sconce ditch (1033) and deposits of re-deposited natural and rubble (1079). The deeper areas of modern disturbance that were removed relate to the sack hoist, the grain elevator and the grain store of the malthouse. These were filled with remnants of metal machinery and other modern rubble. As suggested by the desk-based assessment (Kinsley 2002), there were no basements or cellars relating to the malthouse.

Not phased

Several small, undated features cut the natural mudstone subsoil (1004) in the northern part of the site. The majority of these features were shallow gullies (F114, F120, F133, F142 and F143).

During the evaluation, a layer of grey silt (2005) 0.2m in depth was recorded at the southwestern end of Trench 2, which appeared to be cut by ditches dating to the Roman period.

5.1 Summary of results of watching brief by *Simon Mortimer*

Each of the foundation pads for the new store was monitored archaeologically (Fig. 9). The pads ranged in depth from 0.95 m to 1.45 m. No archaeological features or deposits were recorded. The area of the former maltings was heavily disturbed and many of the pads in this area contained modern brick and concrete footings to the depth of excavation. Elsewhere, where the pads cut the Sconce, the fill of the Sconce was indistinguishable from the natural geology and these deposits were not identified. Even within the long drain sections, where it was possible to locate the edge of the cut by measuring off the Birmingham Archaeology plan, it was frequently difficult to discern the edges of the cut for the Sconce.

Monitoring the drain sections allowed a number of sections through the Sconce to be recorded (Fig. 10). These were oblique to the cut for the Sconce and did not expose the base of the cut, nor were any finds recovered. The lack of finds and the similarity of the backfilled material to the natural geology are significant observations that illustrate more than anything the sheer volume of material excavated for the earthwork and its short-lived nature.

A number of features previously excavated during the strip, map and record exercise were further investigated during the excavation of the drains. The descriptions of these features and the finds recovered from them have been incorporated into the main text for the strip, map and record exercise above. It is however worth noting that the boundary ditches exposed at the northern extent of Drain 1, features F110/111/112 (Birmingham), ditch 7002 (JSAC) could not be excavated stratigraphically and therefore the finds cannot be attributed to a specific ditch. Ditch F143 (Birmingham), was labelled ditch 732 (JSAC) and finds were recovered from it, which were absent from the initial phase of work. Large pit F137 (Birmingham) was investigated as cuts 7017 and 730 (JSAC) within the drain excavations. Linear feature F144 (Birmingham) was investigated as gully 7019 in the watching brief. The only feature exposed that was not identified during the initial works was feature 734, the nature of which was not apparent within the narrow confines of the drain; but which is likely to have been a pit cut by narrow linear 732.

6 THE FINDS

6.1 The Roman Pottery *By Jane Timby*

Introduction

A moderately small assemblage of some 872 sherds of Romano-British pottery weighing 16.6 kg was recovered from the evaluation, strip and record and watching brief. The complete assemblage appears to date to the later Roman period, specifically the 3rd-4th centuries. The sherds are quite well preserved and in fairly fresh condition reflected in an overall average sherd weight of 19 g.

The sherds were examined macroscopically and sorted into fabrics based on the type, size and frequency of the inclusions in conjunction with firing colour and surface finish. Named traded or specialist wares are coded using the National Roman fabric reference collection codes (Tomber and Dore 1998). Local wares, or wares of unknown provenance, are coded specific to this report. The assemblage was quantified by sherd count, weight and estimated vessel equivalence (based on rims only). The data was entered onto an Excel spreadsheet, a copy of which is deposited with the site archive. Details such as decoration, surface finish and evidence of use, for example, sooting were also noted.

Table 1: Romano-British pottery quantification.

	Fabric	Description	No	%	Wt	%	EVE	%
Imports	CGSAM	Central Gaulish samian	4	0.46	3	0.02	0	0.00
	MOS BS	Mosellekeramik black slip	2	0.23	6	0.04		0.00
	Cam 186	Spanish amphora	1	0.11	334	2.00	0	0.00
Regional	DOR BB1	Dorset black burnished ware	2	0.23	18	0.11	7	0.67
Local	LTC WH	Lincoln College mortaria	3	0.34	77	0.46	5	0.48
	LNV WH	Lower Nene Valley whiteware	10	1.15	416	2.50	42	4.01
	LNV CC	Lower Nene Valley colour-coat	48	5.50	662	3.97	81	7.74
	SWN CC	Swanpool colour-coat	3	0.34	168	1.01	1	0.10
	SWN WS	Swanpool white-slipped ware	2	0.23	115	0.69	0	0.00
	DAL SH	Dales shelly ware	92	10.55	1535	9.21	63	6.02
	EMID RE	East Midlands grey ware	404	46.33	9592	57.56	471	44.99
	EMID OX	East Midlands oxidised ware	3	0.34	22	0.13	18	1.72
	BW	black sandy ware	31	3.56	310	1.86	33	3.15
	BWF	fine black ware	2	0.23	3	0.02	0	0.00
	BWMIC	micaceous black ware	8	0.92	51	0.31	21	2.01
	GW1	Grey ware	26	2.98	421	2.53	54	5.16
	GW2	Grey ware	30	3.44	482	2.89	15	1.43
	GW3	Grey ware	162	18.58	2028	12.17	157	15.00
	GW4	Grey ware	4	0.46	38	0.23	20	1.91
	GW5	Grey ware	20	2.29	232	1.39	34	3.25
	GWLI	Grey ware with limestone	8	0.92	98	0.59	25	2.39
	GWF	fine grey wares	7	0.80	54	0.32	0	0.00
TOTAL			872	100	16665	100	1047	100

Description of fabrics and associated forms

Continental imports

Samian: Just four very small sherds of samian are present.

Moselkeramik black slipped ware (MOS BS) (Tomber and Dore 1998, 60). Two sherds from a folded beaker came from pit/ditch F100.

Amphora: A single bodysherd with a handle springing from a *Camulodunum* type 186C amphora (Peacock and Williams 1986, class 18) came from context 1008. This amphora, made in near Cadiz, Southern Spain was usually used for fish-based products and is probably residual here.

Regional imports

Dorset black burnished ware (DOR BB1) (Tomber and Dore 1998, 127). Two sherds of Dorset black burnished ware came from gully F127 and ditch F506 respectively, the former a jar, the latter from a 3rd-century grooved rim bowl.

Lower Nene Valley colour-coated ware (Tomber and Dore 1998, 118); *Lower Nene Valley white ware* (Tomber and Dore 1998, 119).

Lower Nene Valley colour-coated wares are moderately well represented accounting for 5.5% by sherd count of the assemblage. Featured vessels include plain-rimmed dishes (Fig. 8.5), flanged bowls and jars largely dating to the 3rd-4th centuries. Ten sherds of whiteware are also present including at least five mortaria, four with hammer-head rims (Fig. 8. 1) and one with a reeded rim. One mortarium sherd from ditch F136 is partially burnt.

Local wares

Dales shelly ware (DAL SH) (Tomber and Dore 1998, 157; Loughlin 1977).

Handmade Dales ware or Dales-type wares account for 10.6% of the assemblage by count, 9.3% by weight. The featured vessels all appear to comprise jars with everted rims (Fig. 8.3, 8, 11). Dales ware is renowned for the conservatism of its forms (Loughlin 1977) and remained basically unchanged from its inception in the later 2nd century through to the later 4th century.

Lincoln Technical College white ware (LTC WH) (Tomber and Dore 1998, 160). Three mortarium sherds present from ditches F153, F158 and F160 are probably redeposited. Production of this ware is thought to date to the 2nd century (Darling 1977, 34).

Swanpool colour-coated ware (SWN CC) (Tomber and Dore 1998, 163; Darling 1977).

Swanpool white-slipped ware (SWN WS) (Tomber and Dore 1998, 164)

Just three sherds of Swanpool colour-coated ware were recovered from pit F137 and ditch F159 and two sherds of white-slipped ware, one from a mortarium, from ditch F111 and recut ditch F500. This late Roman industry saw its maximum period of production in the second half of the 4th century although its origins may lie in the later 3rd century (Darling 1977, 36).

East Midlands burnished grey ware (EMID RE) (Todd 1968).

Hard fired light grey wares with frequent use of burnishing are very common accounting for some 46% by sherd count and 58% by weight. This ware belongs to the group defined by Todd (1968), which became extremely common on the East Midlands in the later Roman period. Forms include large wide-mouthed bowls (Fig. 8.2, 7), large jars with rolled beaded rims (Fig. 8.4), narrow and wide-mouthed jars (Fig. 8.6, 14, 16), cupped mouthed jars (Fig. 8.10), flanged bowls (Fig. 8.9, 13), other bowls (Fig. 8.12) and straight-sided dishes (Fig. 8.15).

Grey wares

GW1: A grey sandy ware with a grey core with brown margins. The sandy paste contains grey argillaceous inclusions. Featured sherds include jars and curved wall dishes.

GW2: A hard, dark grey-black ware with a sandy texture. The core is brown with a grey inner core. The paste contains some mica and a common frequency of moderately well sorted rounded quartz and a scatter of dark brown, fine argillaceous pellets. Vessels include jars and a flanged rim bowl. A vessel with a handle springing came from ditch F501.

GW3: A light grey, hard sandy ware. Not as highly fired as the East Midlands ware. Mainly occurs in jar forms and occasionally flat rim bowls.

GW4: A very hard, well-fired dark blue-grey ware with a bright orange-red semi-vitrified core. At x20 magnification sparse fine sub-angular to angular quartz and iron grains are visible. Represented by a single vessel, a jar with burnished decoration (Fig. 8.17).

GW5: A uniform dull grey ware with a fine sandy, slightly powdery feel. At x20 magnification the paste shows a sparse scatter of visible fine angular quartz and no other inclusions. Very even textured. Vessels, mainly jars and less commonly bowls are burnished or have burnished decoration.

GW6: A very fine grey sandy ware with a smooth finish and no macroscopically visible inclusions. The only rim is from a beaker.

BWF: A fine black sandy ware. Represented by a single sherd decorated with a burnished line.

BWMIC: A dark grey-black ware with a red-brown core and light grey inner core. The paste is very micaceous and contains a sparse scatter of sub-angular to rounded, ill-sorted quartz. A small group amongst which is a bowl and a jar with a grooved rim.

BW: A moderately hard, black sandy ware. The paste contains a moderate to common frequency of well-sorted quartz sand. Included in this group is a single handmade thick-walled sherd with a striated surface recovered from the watching brief. Forms include flanged bowls, disc-necked flasks, bowls and jars. A loop handle came from ditch 111.

GWLI: As GW 2 but with a sparse scatter of limestone and fossil shell fragments. All the sherds are from jars.

6.2 Catalogue of illustrated sherds

Fig. 8.1. Hammer-head mortarium. Fabric: LNV WH. Gully F100 (1003).

Fig. 8.2. Large bowl decorated with a burnished line. Fabric: EMID RE. F101.

Fig. 8.3. Wide-mouthed jar. Fabric: DAL SH. Feature F200 (2007).

Fig. 8.4. Large rolled rim jar. Fabric: EMID RE. Ditch F158 (1088).

Fig. 8.5. Plain rim dish. Fabric: LNV CC. Black colour-coat; sooted on the lower exterior. Ditch F158 (1088).

Fig. 8.6. Narrow necked jar. Fabric: EMID RE. Ditch 159 (1089).

Fig. 8.7. Bowl with a rolled undercut rim. Fabric: EMID RE. Ditch F159 (1089).

Fig. 8.8. Jar. Fabric: DAL SH. Ditch F157 (1087).

Fig. 8.9. Flanged bowl. Fabric: EMID RE. Ditch F157 (1087).

Fig. 8.10. Cup-mouthed jar. Fabric: EMID RE. F160 (1090).

Fig. 8.11. Jar. Fabric: DAL SH. Pit F137 (1054).

Fig. 8.12. S-shaped bowl. Fabric: EMID RE. Pit F137 (1054).

Fig. 8.13. Flanged rim conical bowl. Fabric: EMID RE. Pit F137 (1054).

Fig. 8.14. Wide-mouthed jar with burnished line decoration. Fabric: EMID RE. Pit F137 (1054).

Fig. 8.15. Plain-rimmed dish with burnished line decoration. Fabric: EMID RE. Pit F137 (1054).

Fig. 8.16. Small beaded rim jar. Fabric: EMID RE. Pit F137 (1054).

Fig. 8.17. Narrow-necked jar decorated with a wavy burnished line. Fabric: GW4. Pit F137 (1054).

Table 2: A quantified summary of the defined fabrics.

Form	EVE	%
<i>jar total</i>	740	71.64
<i>jar/beaker</i>	25	2.42
<i>beaker</i>	23	2.23
<i>bowl/dish</i>	168	16.26
<i>mortaria</i>	47	4.55
<i>lid</i>	18	1.74
<i>jug</i>	12	1.16
TOTAL	1033	100.00

6.3 Discussion

Looking at the assemblage as a whole it would appear to belong to one main phase of activity spanning the 3rd and 4th centuries. East Midlands grey ware very much dominates the group accounting for some 46% by count, 58% by weight with other grey wares contributing a further 34% by count (22% by weight). Continental imports are notably sparse and although this is partly a reflection of the lateness of the group, it also suggests a very locally based economy. There is just a single amphora sherd, and this is not the ubiquitous Dressel 20 olive oil type, two sherds of Moselkeramik blackslipped beaker and four very small sherds of samian. Overall traded and specialist wares account for 8.67% by count of the assemblage, over half of this being contributed by Nene Valley colour-coated ware. This is perhaps higher than one might expect for a rural site but on the low side for an urban site. In terms of forms (Table 2) the total estimated vessel (rim) equivalent (EVE) for the assemblage is 1033. The assemblage is dominated by jars, 71.64% (EVE) followed by bowls/dishes at 16.26%. This pattern could perhaps again be seen as more typical of a rural assemblage (cf. Evans 2002) but there are few other quantified assemblages from the region with which to make comparisons.

Pottery was associated with some 31 individual features with an additional 25 sherds recovered from the topsoil. With the exception of pit F137 which produced some 212 sherds (3247 g) most of the individual assemblages are quite small. Slightly larger groups came from four ditches, (F112/F155/F153; F106; F111/F160; F503/506), a total of 169 sherds (5886 g). It is thus difficult to discriminate many of the features chronologically on the basis of the pottery and it is clear there is a small amount of redeposited material dating to the 2nd century. On the basis of the fineware it is suggested that the earlier features, dating to the 3rd century, include, ditch F153, gullies F100, F124 and F128. Features containing types, which cannot date before the late 3rd century and thus could be late 3rd or 4th century, include ditches F155 and 157. Pit 137 appears to be one of the latest Roman features on the site and this produced two of the three Swanpool colour-coated wares along with Dales shelly ware, Nene Valley colour-coated ware and whiteware mortaria and large quantities of East Midlands grey ware. The group would appear to securely belong to the 4th century, probably the second half. The other Swanpool sherds were associated with recut ditch 500, ditches 108 and 159 and these features could also potentially date to the 4th century.

6.4 The medieval and post-medieval pottery by *Stephanie Ratkai*

Medieval pottery

A total of four medieval sherds were recovered from the site:

Topsoil (1000)

Wheelthrown, olive-glazed, gritty sherd, 13th-14th centuries

Unglazed wheel-thrown body sherd, orange surfaces and margins, grey core, 13th-14th centuries.

Context (1001)

Olive glazed, ribbed rod handle in a sandy pale grey-pale orange Nottingham-type sandy ware, 13th-14th centuries.

Context (1011)

Sandy, dark green glazed jug rim sherd, internal surface and margin orange, external surface and margin pale grey, dark grey core, 13th-14th centuries

The glazed medieval pottery may have been made at Nottingham or possibly Lincoln, although the former is perhaps more likely since the Trent would have provided access to Newark from Nottingham.

Post medieval pottery

Ten post-medieval sherds came from topsoil (1000), (1007) or were unstratified. All but one of these sherds was later 19th or 20th century in date. One unstratified, brown-glazed base sherd was stamped ROCKINGHAM. The only sherd possibly earlier than these sherds was a coarseware rim from a large bowl, which could have been 18th or 19th century in date.

6.5 Other finds by *Erica Macey-Bracken*

In addition to the pottery, the site produced a small quantity of other finds, including two coins, copper alloy, iron, worked bone, clay pipe, shell, charcoal, unworked flint, glass, mortar, ceramic tile and brick and modern debris. These items were quantified by count and weight and examined macroscopically for the purposes of this report. The assemblage was fragmentary, although individual items generally showed little incidence of abrasion.

Coins – Identifications by *Dr. R. White*

A Roman coin (1033) was recovered from the upper fill of the King's Sconce ditch (F118). The coin was a coin of Constantinopolis, issued between 330 – 337AD. This coin was in better condition than the jetton, although the mint marks were unreadable.

A late medieval jetton was recovered from the evaluation (F202, 2004). The jetton was a Hans Krauwinkle piece, dating to the 16th/17th century. Only one face was legible, the other worn beyond identification.

Copper alloy – Identifications by *Dr. R. White*

A near-complete copper alloy bracelet (1046) 3mm thick, with a diameter of 59mm, was recovered from the burial (F130). The bracelet is not diagnostic, but is of late Roman date.

A second bracelet was recovered from a large pit (F137). The bracelet had been flattened and broken into three pieces and was of Roman appearance. It measured 4mm in width with a chevron pattern on the largest piece, although this was partially obscured by corrosion. This fragment also had the remains of a circular opening that had formed part of the clasp; a small hooked end could be seen on one of the other fragments.

Worked bone

An incomplete bone pin (1046, SF1) with a circular shaft 3mm thick and a slightly flattened globular head 9mm in diameter was recovered from the burial F130. The item was found in close proximity to the skull, suggesting that it was probably a hairpin. The length of hairpins varied with different hairstyles, although shorter pins tend to be of a later date than longer pins. The surviving sections of the pin measure 90mm in length, but as the shaft has broken, the original length of the pin is uncertain. Lying close to the skull (Fig. 7) the pin seems likely to be a hairpin rather than a shroud fastener. Glass and metal hairpins are also found close to or on the skulls of female burials of this date from Butt Road, Colchester (Crummy, ob. cit., 19), and it would not seem unreasonable to suggest that the pin that was recovered from the grave F130 had served the same purpose. Metal pins are regularly found in male graves as shroud fasteners, though not as hair ornaments (Philpott 1991). The date of Romano-British inhumations with hairpins encompasses the period from the 2nd to 4th centuries.

A second pin fragment with a flattened globular head 9mm in diameter was recovered from a large pit (F137, 1054). Only 56mm of the pin survived, and its original size is difficult to estimate. Crummy has established a chronology for six different types of bone pin recovered from excavations at Colchester (Crummy 1979, 157 – 63), and it would appear that both pins are of Crummy's Type 3A (Crummy 1983, 21 – 22), with globular heads and a slight swell to the shaft. Since both pins are of similar style, and both were recovered from features containing well-dated pottery, a 3rd and 4th century date seems likely.

Ceramic tile and brick

The tile assemblage consisted of 33 fragments of tile, weighing 2244g. The tile was fragmentary, and no complete examples were noted. With the exception of a fragment of *tegula* (1030), a piece of *imbrex* (1000) and small fragment of *tubulus* (U/S) most of the tile was not diagnostic. The *tegula* retained the flange and part of a cutaway on the reverse of the flange. The *imbrex* showed comb marks and was more abraded than the rest of the assemblage.

The majority of the tile was of Roman appearance, and was recovered from the probable Roman enclosure ditches in the northern area of the site. Four distinct Roman tile fabrics were noted:

Fabric One

Very hard-fired gritty dark orange fabric with occasional vesicular holes and small subangular stone inclusions.

Fabric Two

Very hard fired sandy/gritty fabric with dark orange surfaces, dark-grey margins and a mid-grey core. Occasional shell inclusions.

Fabric Three

Hard-fired sandy micaceous fabric, only noted in fragment of *tegula* (1030) with dark grey surface on base, dark orange surface on flanged side and dark grey core.

Fabric Four

Pale orange sandy fabric, not as well-levigated as Fabrics One – Three, with occasional small sub-rounded stone inclusions.

Six fragments of post-medieval or modern tile, including a modern pan-tile fragment were also recovered (topsoil x 6).

One fragment of brick, weighing 80g, was recovered from the evaluation (2008). The small fragment was in a very fine, hard-fired dark red fabric, with traces of mortar still adhering. No inclusions were visible. The fragment is of modern appearance (Dr. M. Hislop, pers. comm.).

Clay pipe

Most of the clay pipe was recovered from the evaluation of the site, with only one small unstratified piece of stem from the excavation. These included 3 complete pipe bowls (2008) and a bowl fragment (2003). Fifteen pipe stems were also recovered (2003 x 10, 2008 x 5). All of the stems were plain, and the only decoration on the pipe bowls was a single band of rouletting around the top of the bowl. No clear maker's marks or stamps were noted, although one of the bowls has an indistinct mark on the flat heel, which may originally have been a stamp, but is too worn to identify with any certainty. The three bowls were identical in size and shape and are of early 17th century date (Ayto 1999, 2 & 5). The pipes are possibly not a local product as Newark's first recorded clay pipe maker, James Headon, was working towards the end of the 17th century (Hammond, 1985, 86), and no earlier pipe makers are recorded in the area.

Iron objects

The iron assemblage consisted of twelve items, weighing a total of 129g. Some of the iron was not diagnostic (1054 x 2, 2003 x 1). The identifiable iron items included a nail (1003) recovered from a Roman linear feature (F100), and a second nail (1002), which was found in a layer between the medieval/early post-medieval linear features F146 and F147.

A group of seven hobnails was also recovered from the burial (F130, 1046). The hobnails were recovered from around the feet of the skeleton, and had obviously come from the footwear worn by the deceased.

Shell

Small quantities of oyster shell, weighing a total of 119g, were recovered from both the evaluation (5004 x 2) and excavation (1003 x 3, 1087 x 1, 1089 x 1) of the site. The shell is unworked, and is likely to have been deposited in the Roman enclosure ditches as domestic refuse.

Other finds

A single tessera (Dr. R. White, pers. comm.) was recovered from an undated linear feature (F128, 1048). The tessera is creamy-white in colour and measures 14mm x 12mm x 14mm.

Other finds from the site included a large fragment of charcoal from the evaluation (2008), a small piece of mortar (1005), a thick piece of modern window glass with traces of green paint adhering (topsoil) and a small piece of unworked flint (topsoil).

6.6 The Human Bone *By Rachel Ives*

Introduction

Spot dating of the pottery suggests most of the occupation is from the 3rd to 4th centuries (Timby, this volume). Evidence for cemeteries in the region is well documented. To the south-west of the site, Kinsley reports cremated human bones within a cinerary urn as well as a human mandible most likely from an inhumation, both dated to the Roman period (2002: 6). Kinsley also reports that skeletons were uncovered during the building of a modern factory sixty metres to the north of the site, although these remain undated (2002: 7). It is also possible that the burial ground and buildings of the medieval hospital of St. Leonard extended into the site (Bishop, 1983). However, it seems more likely that this burial is associated with the near-by Romano-British settlement to the west, as suggested by Roman pottery and the small finds found within the fill of the grave cut (1046).

The burial

The burial comprised of an articulated individual excavated from a rectangular cut (F130, Figs. 3 and 7), lying within the main enclosure. After excavation and cleaning, the skeleton was recorded following guidelines recommended by Brickley and McKinley (2004). The full results of this assessment are available in the project archive. The bone surface preservation was generally quite poor with some regions such as the pelvis suffering removal of the outer layers of bone (Grade 4) by taphonomic variables such as root action or soil abrasion (McKinley, 2004). The skeleton was assessed as approximately 25-50% complete (following Buikstra and Ubelaker, 1994), with poor survival of the majority of the vertebrae and ribs. A summary of the observable bones and teeth is given below. The skull and pelvis were incomplete and consequently a sex could not be assigned to the individual. Residual traces of epiphyseal fusion lines were observable on the distal fibula and distal ulna. These regions typically fuse between 12-18 years (fibula combined sexes) and 15-20 years (ulna combined sexes). However, the near complete degree of fusion at these sites as well as the completed fusion of the femoral heads indicates that this individual was most probably a young adult.

Most of the long bone shafts were present. However, the majority of the joint surfaces did not survive and only a limited number of measurements could be recorded. The measurements that could be recorded are documented in the project archive. It was not possible to provide an estimate of stature for this individual. Overall, there was little evidence for pathology on the bones of this individual. The distal left ulna joint surface presented a small patch of osteoarthritis evident as an eburnated or polished bone surface caused by direct bone articulation of the distal ulna with the distal radius. Unfortunately, the corresponding part of the radius did not survive. This type of joint disease can occur as a result of age-related degeneration of the joint capsule, or can develop as a secondary response to trauma. Roberts and Cox identified an increase in the prevalence of joint disease apparent between the Iron Age and the Roman period in Britain, including joint disease at the wrist (2003: 145). This pattern could be related to differences in working habits or lifestyle between the two periods. The only other evidence for pathology on this individual was dental enamel hypoplasia, whereby 8 of the 27 teeth observable showed one or more linear enamel defects (the individual teeth affected are summarised below). Dental enamel defects can be caused by periods of stress such as a dietary deficiency or childhood illness occurring during the development of the tooth. A disturbance in enamel deposition can also occur in relation to a trauma (Hillson, 1996: 165; Roberts and Cox, 2003:51). When the stress or illness has been overcome enamel deposition resumes and residual pits or grooves in the tooth surface can be recognised. Roberts and Cox also noted an increase

in the number of dental defects apparent between the Iron Age and Roman periods in Britain and they suggest this trend may indicate a poorer diet or an increase in childhood illnesses during the Roman period (2003:140).

Summary of the bones and teeth observable.

Skeleton: 1

Age: Adult.

Sex: Indet.

Stature: Indet.

Preservation: Variable, Grade 4 in worst areas.

Completeness: 25-50%

Bones present: fragmentary left and right parietals, temporals, maxilla, mandible, partial frontal and sphenoid. Right orbit present. Five fragments of un-sided rib shaft. Very fragmentary vertebrae. Left and right humeri, ulnae, radii, femora, tibiae and fibulae. Proximal femoral joint surfaces and left distal ulna present. Part of the left distal tibia and right distal fibula joint surface present. Iliac less than 25% complete; no ischia or pubes present. Partial right scapula (less than 25%). Partial left and right clavicles and left patella present. Various foot bones present.

Dentition:

L1					L2					L2	L1	L1	L1		L1
1	2	3	4	5	6	7	8	/	10	11	12	13	14	15	16
32	31	30	29	28	/	/	25	24	23	22	21	20	19	18	17
U										L1					U

Notes: 1 = right maxillary third molar, 16 = left maxillary third molar, 17 = left mandibular third molar, 32 = right mandibular third molar. / tooth missing post-mortem. U tooth unerupted. L linear enamel hypoplasia, number refers to number of lines observable.

Dental pathology: no caries, calculus (1/27) (tooth 24). No abscesses. Results of tooth wear and periodontal disease are in paper archive.

Non-metric traits: N/A

Skeletal pathology: Osteoarthritis of distal left ulna.

6.7 The animal bone by Matilda Holmes

All 1538 fragments in the assemblage were examined, of which 342 had broken post depositionally and could be refitted to make fragments which were then counted as one. Of these conjoined bones, 328 (39%) were identified to species. Nearly all came from Romano-British or undated contexts. The bones were generally in good condition, only 11 were burnt, and 36 had been gnawed.

Methodology

Bones were identified using the specialist's reference collection and further guidelines from Cohen and Serjeantson (1996), Hillson (1992) and Schmidt (1972). Due to anatomical similarities between sheep and goat, bones of this type were assigned to the category 'sheep/goat', unless a definite identification using guidelines from Prummel and Frisch (1986) or Payne (1985) could be made. Bones that could not be identified to species were, where possible, categorised according to the relative size of the animal represented (small – rodent /rabbit sized, medium – sheep / pig / dog sized, or large – cattle / horse size). Ribs were not identified to species.

Tooth wear data were noted using guidelines from Grant (1982), as were bone fusion (Silver 1969), metrical data (von den Driesch 1976), anatomy, side, zone (Serjeantson 1996), pathology, butchery, bone working and condition (Lyman 1994) of the bones.

Species representation

As Table 3 shows, the majority of bones came from Roman contexts and nearly all other fragments were undated. As a result, only the Roman assemblage will be considered during this report.

Table 3: Species present (fragment count)

Species	Roman		Medieval	Civil War	Undated
	n	%	n	n	n
Cattle	134	49	1	1	11
Sheep	3	-			1
Sheep/Goat	82	31	1		3
Pig	12	4		1	
Horse	28	10			9
Dog	15	5			
Chicken	1	-			24
Human					1
Total Identified	275		2	2	49
Unidentified mammal	198				5
Unidentified large	210				4
Unidentified medium	79				4
Unidentified small	2				
Total	764		2	2	62

Although cattle predominate, sheep/goat were also found in a significant numbers. Three bones were positively identified as sheep, but none as goat. Horse was found in greater numbers than pig and dog, which were present in similar numbers.

A number of articulated remains were found dated to the Roman period – the front leg and partial skeleton of a dog were found in contexts 1012 and 1088 respectively, a partial horse skull came from 7018, and a cattle hoof from context 1022. A nearly complete domestic fowl (chicken) skeleton came from the undated context 1085.

The human vertebra came from an undated context, and showed signs of extensive exostosis, possibly caused by some form of degenerative disease such as arthritis.

Animal husbandry

Fusion and tooth wear data, used to age the animals in the assemblage was not abundant, although results from the two methods gave similar results. There was no evidence for neonatal deaths of any of the domestic species (cattle, sheep/goat, pig, horse and dog).

Many cattle died as mature adults, although a large number were culled at around 3 years of age, and a few before reaching 18 months. Similar cull patterns are seen at Milton Keynes (Dobney and Jaques 1996), Shakenoak Farm, Oxfordshire (Cram, 1973), Leicester (Gidney 1999), Cirencester (Levitan 1986) and Chichester (Levitan 1989), where the farming regimes were indicative of a mixed system by which animals were culled at their prime meat age (around 36 months), as well as after being used for secondary products such as dairying and traction.

Only 15 sheep bones produced ageing data. Most were fused, indicating a population that died after reaching 3 years of age, although there are examples of animals that died before 28 months. The two pig bones suitable for ageing came from animals between one and two years at death. All dog and horse bones were fused, the horse mandibles came from an individual older than 3½ years at death.

The only pathological animal bone was a cattle maxilla showing evidence of periodontal disease, which may have been caused by infection of the gums.

Two cattle bones were complete enough to use to calculate withers heights of 1.12m and 1.17m, respectively, and two sheep bones gave shoulder heights of 0.62 and 0.61m (using indices from von den Dreisch and Boessneck 1974). Animals of similar sizes are documented at sites in Chichester, Leicester and Chelmsford (Luff 1992).

Conclusion

Limited sample sizes mean that little can be concluded from the faunal remains. However, the high fragmentation of the assemblage, coupled with the presence of butchery marks on limb, mandible and pelvis bones of cattle, sheep and horse, points to the deposition of food waste. Evidence for the consumption of horses is found on other Roman sites such as Winchester (Maltby 1994).

The relative proportions of the main domestic species are similar to those described by King (1984) as indicative of 'Romanised settlements', as opposed to native sites where sheep may be expected to predominate in the assemblage, or military sites where cattle and horses are found in much higher numbers. This has been reinforced by Maltby's work on the suburbs of Winchester (1994), as well as at Chichester and Dorchester on Thames (Grant 1981).

7 THE PLANT REMAINS BY VAL FRYER

7.1 Introduction

Samples for the extraction of the plant macrofossil assemblages were taken from the following Romano-British contexts:

Curvilinear gully F127	Context [1048]	Sample 1
Burial cut F130	Context [1046]	Sample 2
Ditch F111	Context [1023]	Sample 3
Ditch F112	Context [1025]	Sample 4

It was hoped that analysis of this material would:

- Identify the nature of the deposits
- Identify specific activities associated with the features from which the samples were taken
- Supplement the existing regional data set for agricultural and other practises during the Romano-British period

7.2 Methods

The samples were bulk floated by Birmingham Archaeology, collecting the flots in a 500 micron mesh sieve. The dried flots were sorted under a binocular microscope at magnifications up to x 16, and the plant macrofossils and other remains noted are listed in Appendix 2. Identifications were made by comparison with modern reference specimens. Nomenclature within the table follows Stace (1997). All plant remains were charred. Modern contaminants, including fibrous roots and seeds, were present throughout.

With the possible exception of Sample 2, all assemblages were from material deposited in secondary contexts, and as a result, quantification of the material was not undertaken. Therefore, the density of remains within the assemblages is expressed as follows: x = 1 – 10 specimens, xx = 10 – 100 specimens and xxx = 100+ specimens. Plant macrofossils have been categorised as cereals, herbs, wetland plants, tree/shrub macrofossils and other plant remains. The presence of mollusc shells and other material types has also been noted.

7.3 Sample composition

Plant macrofossils

Cereal grains and chaff, and seeds of common weeds and wetland plants were present at varying densities in all four samples. Preservation was moderately good, although most grains in Sample 4 were very puffed and distorted, probably as a result of high temperatures during combustion.

Cereals

Oat (*Avena* sp.), barley (*Hordeum* sp.), wheat (*Triticum* sp.) and possibly rye (*Secale cereale*) grains are recorded, with barley (including a single asymmetrical lateral grain of six-row barley (*H. vulgare*)) being moderately common in all four samples. A sprouted barley grain is present in Sample 2, and indeterminate cereal sprout fragments are noted from Samples 3 and 4. Although sprouted grains may be indicative of malting, accidental germination can also occur where grain has been inappropriately stored. The wheat grains are mostly of an elongated 'drop-form' type typical of spelt (*T. spelta*) although shorter, more rounded specimens, possibly of bread wheat (*T. aestivum/compactum*) type, are also present in Sample 4. Double keeled spelt glume bases occur in all four samples, and are particularly abundant in Sample 4.

Herbs

Seeds of common weed species are present throughout. Segetal taxa are predominant and include brome (*Bromus* sp.), fat hen (*Chenopodium album*), grasses (Poaceae), wild radish (*Raphanus raphanistrum*), dock (*Rumex* sp.) and vetch/vetchling (*Vicia/Lathyrus* sp.). The presence of stinking mayweed (*Anthemis cotula*) seeds and nutlets of both sedge (*Carex* sp.) and spike-rush (*Eleocharis* sp.) may indicate that agricultural production was largely based on heavy clay soils or newly cultivated areas of damp grassland. However, some utilisation of lighter sandy soils may be inferred from the occurrence of sheep's sorrel (*Rumex acetosella*) in Sample 3.

Other plant macrofossils

Charcoal fragments are common or abundant in all four samples along with pieces of charred root or stem. Heather (*Ericaceae*) stem fragments are present in Samples 1 and 2 and are common in Sample 4. Other plant macrofossils are rare although indeterminate inflorescence fragments and seeds are recorded.

7.4 Molluscs

A small number of mollusc shells are recorded from Samples 1 and 2. Although burnt specimens are not present, all shells are fragmented and abraded, and for this reason it is assumed that they are contemporary with the contexts from which they were taken. Three of Evans (1972) ecological groups of terrestrial molluscs are represented, with woodland/shade loving taxa being predominant.

7.5 Other materials

The fragments of black porous 'cokey' material, black tarry material and the siliceous globules were noted in Samples 2, 3 and 4, and are all probable residues of the combustion of organic remains (including cereal grains and grass/straw) at extremely high temperatures. The globules of vitrified material may also indicate high temperature combustion. Although some of the recovered coal fragments may be contemporary, others are probably derived from recent agricultural practises including steam ploughing.

7.6 Discussion

Sample 1 is from the fill of a curvilinear gully (F127), which appeared to encircle four undated post-holes. With the exception of charcoal fragments, plant macrofossils are rare, and it appears most likely the assemblage is partly or wholly derived from material, which accidentally became incorporated into the gully, possibly in the form of wind-blown detritus.

Plant macrofossils are again comparatively rare in the assemblage from Sample 2, from the fill (1046) of grave cut F130. Although cereals are present, chaff and weed seeds also occur, probably indicating that the material is derived not from an offering to the deceased, but rather from a low- density scatter of burnt cereal processing waste. Processing debris is frequently seen as a contaminant on Romano-British sites and it is common to find it incorporated into most features, including burials.

Samples 3 and 4 are both from the fills of the double ditches (F111 and F112) which delineate the main enclosure. Both assemblages contain a moderate density of chaff and weed seeds and are almost certainly derived from burnt processing waste. However, fragments of charred root/stem (probably derived from dried plant material pulled up by the roots) and, most notably, pieces of heather stem are also common or abundant. It would, therefore, appear most likely that these assemblages are derived from deposits of fuel waste, which were dumped within the ditches. This interpretation is supported by the heavily burnt condition of the grains and seeds, especially within Sample 4, where severe puffing has been caused by high temperature combustion. Heather was commonly used as a fuel for ovens, and was especially favoured as it attained a high, even temperature in a short space of time. It was also used, along with cereal processing waste, as kindling/fuel for light industrial purposes, for example for pottery production at Snettisham, Norfolk (Fryer 2004).

One soil sample was collected from an early phase of the enclosure ditch (F501/5004), which is of a 3rd to 4th century AD date. This contained a few charred grains of hulled barley (*Hordeum vulgare* L.) and some waterlogged/modern seeds of bramble (*Rubus* sp.). The exclusive presence of barley grains suggests localised cooking activities or of a storage facility. It is also possible that the grains are associated with the corn-drier identified in the settlement area (Kinsley 2002).

7.7 Conclusions

In summary, although only four assemblages were studied, all of which appear to contain material from secondary contexts, their composition still gives valuable data about the functioning of the site during the Romano-British period. Agriculture, and particularly the production and processing of cereals, formed a major component of the local economy, with crops probably being grown on a range of local soil types. Possibly due to the advent of larger, more efficient ploughs, some areas of damp grassland may have been cultivated for the first time. Cereal processing waste, dried plant material and heather stems appear to have been used as kindling/fuels for ovens or light 'industrial processes, although no trace of these procedures remains within the archaeological record.

8 DISCUSSION

The excavations at Trent Lane have added to the growing corpus of information on Roman Newark. With little evidence for settlement within the site during the early part of the Roman period, enclosures were established during the 3rd and 4th centuries, with the area used for at least one extended burial towards the end of the Roman period. The excavations also exposed footings that may relate to the medieval Hospital of St. Leonard (Exeter House) and clearly defined the southern extent of and the Civil War defence known as the King's Sconce.

Romano-British enclosures and burial

A small amount of residual pottery suggests 2nd century activity on or nearby the site during this period, however there appears to be very little occupation on the site prior to the 3rd century AD. A Roman cremation cemetery (Fig. 2) was recorded 180m to the south (Kinsley 2002), cremation being the main form of burial until the 3rd century when inhumation became increasingly popular. For reasons of hygiene individuals were buried outside settlements, which implies the site lay north-east of the settlement prior to the 2nd century.

It appears that the Roman settlement at Newark began to use the site from the 2nd century onwards, with the ceramic evidence suggesting that most of the Roman features belong a single phase of activity spanning the 3rd and 4th centuries. It also seems likely that many of the unphased features may date to the 3rd century. While many of these were heavily truncated, a group of four postholes (F121, F122, F123 and F129, Fig. 3) may be the remains of a raised granary. Apart from finds of tessera and Roman brick and tile, this was the only evidence of possible Roman structures. No mortared stone footings or clay floors similar to those found during the Retail Park excavations (Kinsley 2002) appear to have been located within the site.

The ceramic assemblage suggests that the earliest enclosure (F157) is dated to the late 3rd century and the latest enclosure to the late 3rd or 4th century (ditches F112, F132, F155 and F157). During this period the enclosure ditches (Figs 3 and 4) were constantly redefined with one ditch (Trench 5, F500) being re-cut at least six times. Clearly the ditches were regularly maintained and there is no evidence that the system of land division was ever subject to any major redefinition. The presence of the Fosse Way to the south may have been partly responsible for this as it would have been a defining landscape feature. Indeed, the same general alignment appears to have been retained into the post-medieval period. Roman ditches observed during a watching brief (50m to the north, Samuels 1993) and ditches recorded during the Retail Park excavations to the south probably belong to the same enclosure system. While there is a paucity of continental imports, grey wares dominate the pottery assemblage from the ditches. Traded and specialist wares average of less than 9%, more than may be expected for an average rural site, but significantly less than from an urban. While the late date of the assemblage may have some bearing, the evidence still points towards a locally based economy in line with rural sites such as Aslockton and Holme Pierrepont (7% to 12%, Kinsley 2002).

The presence of barley grains, a raised granary and a corn dryer (Retail Park excavations, Kinsley 2002) are all indicative of crop-processing, storage and food preparation. With a localised arable economy the settlement appears to have had a fair degree of self-sufficiency. This is reinforced by a bone assemblage typical of a rural economy. The cattle bones are also fairly typical of a mixed pastoral/arable system by which animals were used

for secondary products such as dairying and traction and then culled for meat at around three years old. Sheep, horse and dog, however, would appear to generally have lived more than three years.

Burnt cereal processing waste dumped within the ditches probably provided kindling/fuel. But, with the exception of heather recovered from the environmental samples (F112, F127 and F130), there was little evidence for industrial activity. As a preferred fuel for ovens, heather attained a high, even temperature in a very short space of time. A Roman grey ware kiln was discovered immediately to the north of the site, although there is currently no precise date available for this feature (Kinsley 2002).

The latest Roman features appear to be a pit (F137) dating to the second half of the 4th century and a burial (F130). The burial comprised an extended inhumation, fairly characteristic of 3rd to 4th century burial practices, and indeed the ornaments worn by the deceased, including a bone hairpin and a copper alloy earring/bracelet point to a late 3rd to 4th century date. In particular the presence of a hairpin suggests the burial may be female, although the analysis of the skeleton could only confirm this as that of a young adult. The dental analysis points to trauma, possibly the result of poor diet or a childhood-illness.

The alignment of the burial with enclosure ditch F132 may suggest that these features were once contemporary, although it seems more likely that the orientation is more connected with burial practices. A north-south alignment has traditionally been linked with burials of a pagan origin, however more recently Philpott (1991, p240) has suggested that for most burials of this type, Christian and pagan were buried in identical fashion in the same cemeteries. The absence of a coffin is consistent with the declining use of wooden coffins during the latter part of the 4th century (Philpott 1991), and as such does not indicate low status, although the more wealthy were often buried in carved stone or lead coffins. What is perhaps most striking is that the burial seems to indicate a change of land use as a result of a declining population in the late 4th century. The general contraction of settlements in the 4th century saw inhumation cemeteries developed in previously occupied areas as at Ancaster, Godmanchester and Great Chesterford (Burnham 1990), although quite why no other inhumations were present remains a mystery. Possibly the later ramparts of the King's Sconce afforded the burial some protection, while burials close to the ditch would have been destroyed. Other features do give an indication that there may have been other burials, and the evidence suggests there were other Roman burials in the locality. A bracelet and hairpin from pit F137 bear an uncanny similarity to those recovered from the burial, and the presence of unstratified human bone, suggests that other burials were later disturbed (although no provenance can be given for the age of this bone). The construction of a factory to the north in 1986 (SMR 5812a, Fig. 2) revealed several skeletons, which, given the proximity of the medieval hospital and the King's Sconce, were at first thought to be post-Roman. Further analysis showed they were of Roman origin, possibly part of a dispersed cemetery, of which our single burial (F130) may be part.

From the expanding settlement and enclosures of the 3rd and 4th centuries, the molluscs recovered from the burial would suggest further contraction with reversion to woodland towards the end of the 4th century.

The medieval hospital

The exact date of the foundation of the medieval Hospital of St. Leonard is not known, although it must be prior to 1135 (Bishop 1983). The hospital lay in the hamlet of Osmundthorpe, which extended along North Gate from Queen's Road to the railway and consisted of a mansion house and church/chapel described in the chantry certificate of 1546. The hospital was founded by Alexander de Blois (Alexander the Magnificent) who was Bishop of Lincoln from 1123 to 1147. He was nephew of Roger, Bishop of Salisbury and emulated the building programs instituted by his uncle (celebrated as the greatest builder of his age) by erecting castles at Newark, Sleaford, and Banbury. After 1642 the hospital was to move to a new site slightly closer to Newark, but still at Northgate and the title 'St Leonard's Hospital' was applied to the new building. The original hospital was by this time already known as Exeter House.

The first archaeological evidence for the hospital was uncovered in 1928 when the grave of a priest was discovered close to the Fosse Way (Fig. 2, Bishop 1983). Further excavation revealed structural remains including a section of walling, plasterwork and a beaten floor sealed by a thick burnt layer containing fragments of melted glass and lead. The remains of 90 other individuals were also recorded and these remains were interpreted as belonging to the hospital church. In 1979 a minimum of 54 burials dated between 1133 and 1642 were excavated on the south side of a probable church (Fig. 2) during engineering works on the Lincoln Road viaduct (Bishop 1983). The structure identified at the southern extent of the Trent Lane site (F146 to F152) would appear to be part of the same complex of buildings thought to be the medieval Hospital of St. Leonard.

Although the footings (F146 to F152) have been 'robbed out' they clearly supported a substantial stone building and judging by documentary sources, the footings are where Exeter House is believed to have been. Burials and buildings relating to the medieval hospital were not evident to the north of the footings, although much of this area was not excavated to the natural subsoil. Exeter House was almost certainly built of stone, since it was burnt out in late February 1643 during the first Parliamentary assault on Newark (Bishop 1983). A shell of the building remained to become the headquarters of Meldrum's army during the second siege in 1644.

The hospital would appear to have extended northwards from the Fosse Way in the area of the current Malt Kiln Lane, occupying an area approximately 110m by 200m. Exeter house may have incorporated several structures including a chapel and a main hall and to some extent may have been based on monastic planning. While only a small proportion of the hospital was exposed, buildings of this type are typically constructed around a courtyard plan. It is possible that F146, F147, F151 and F601 form a part of this courtyard or cloisters. The location of the hospital is also fairly typical and like St. Helens medieval hospital in Derby (Hislop 2003) was located on a main route as opposed to monastic buildings which were usually located in more remote areas. The archaeological evidence concurs that Exeter House was not rebuilt after the Civil War, when the site reverted to fields.

The Civil War and the King's Sconce

As a Royalist stronghold, Newark was besieged in 1643, 1644 and 1645 during the course of the Civil War. As a result the town became surrounded by military defences and siege works, which were eventually mapped by an engineer in Cromwell's army, Richard Clampe. Newark was never taken by the Parliamentary army and only surrendered to a large force of Scottish troops after the king was captured in May of 1646 (Holyoak 1997).

The Civil War defences were first built in 1642 and enlarged in 1643 after the first siege. After the second siege in 1644 the ruins of Exeter House were demolished and the King's Sconce built adjacent to the site. This is one of a pair of defences constructed at the same time. The second defence, the Queen's Sconce remains as an earthwork to the southwest and is of a similar size. Clampe's plan shows the sconce as a diamond shape with angle-bastions at each corner and a large ditch forming a defensive circuit on the outside. An entrance is shown the southwest with two cannon pointing towards the northeast. Local people recruited to build the defences were subject to fines if they failed to appear for work. As the sconce was constructed the upcast from the ditch would have been used to construct the bastions and ramparts. These would have left a low square in the middle of the fortification, which would have afforded protection to the garrison.

The excavations exposed the entire southern bastion of the King's Sconce. Fig. 2 shows a plan of the fortification produced by Richard Clampe in 1646, which has been re-scaled and overlain as closely as possible onto a current plan of the area using the excavation plan. As the fill of the Sconce ditch was similar to natural, the ditch probably had a very short life span. At the end of the Civil War the sconce was slighted and the local townsfolk were once again forced to assist, this time in the demolition of the siegeworks. However, as an earthwork King's Sconce remained visible until the 19th century when Baird's Maltings was constructed on the site between 1884 and 1900.

9 THE ARCHIVE AND PUBLICATION SYNOPSIS

9.1 Paper archive

Table 4. Evaluation and excavation archive quantities

Material	Evaluation	Excavation
Context Record Sheets	48	92
Feature Record Sheets	22	62
Plans and sections	5xA3	9xA3
Colour Prints	(1films)	(1 film)
Colour Slides	(1films)	(3 films)
Black & White Prints	(1films)	(5 films)
Survey Sheets	1	1
Environmental Sheets	1	5
Total		

9.2 Publication Synopsis

The Excavation of Roman, Medieval and Civil War Remains at Trent Lane, Newark, Nottinghamshire by Richard Cuttler and Eleanor Ramsey

With contributions by Val Fryer, Matilda Holmes, Rachel Ives, Erica Macey Bracken, Simon Mortimer, Stephanie Rátkai and Jane Timby.

Illustrations by Nigel Dodds

Text

Introduction (350 words)

The site and its landscape setting, background to the excavation (750 words)
Methodology (150 words)
The Results – an illustrated account outlining main features and site characteristics (1,300 words)

Specialist reports:

The Roman Pottery by Jane Timby (2000 words)
Medieval and post-medieval pottery by Stephanie Rátkai (170 words)
The small finds by Erica Macey-Bracken (900 words)
The plant macro-fossils by Val Fryer (1,100 words)
Animal bone by Matilda Holmes (700 words)
The Human Bone By Rachel Ives (800 words)

Discussion and conclusions (1,500 words).
Acknowledgements (120 words)

References

Total 9,840 words

Figures (by Nigel Dodds)

- 1 Location plan, Newark
- 2 Site location and overlay of King's Sconce
- 3 Plan of all features
- 4 Features excavated in the northern corner
- 5 Evaluation trenches 1, 2 and 5
- 6 Sections
- 7 The Burial
- 8 The Roman pottery forms

2 Plates

This will be submitted for consideration in the Transactions of the Thoroton Society for publication in 2006.

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11 REFERENCES

- Appleton, E.M and Kinsley, G. 1994. An Archaeological Assessment of the Proposed Development site at Warwick's and Richardsons's Brewery, North Gate, Newark (Unpublished report to Limes Developments)
- Ayto, E. 1999. Clay Tobacco Pipes Shire Album 37. Shire Publications, Princes Risborough. P 2 & 5.
- Bishop, M. 1983. 'Burials from the Cemetery of the Hospital of St. Leonard, Newark, Nottinghamshire.' Transactions of the Thorton Society of Nottinghamshire 87: 23-35.
- Brickley, M. and McKinley, J. (eds) 2004. Guidelines to the Standards for Recording Human Remains. Reading: BBAO/IFA Technical Paper No. 7.
- Buikstra, J. and Ubelaker, D. (eds) 1994. Standards for Data Collection from Human Skeletal Remains. Proceedings of a Seminar at the Field Museum of Natural History. Arkansas Archaeological Survey Research Series 44, Arkansas.
- Burnham, B. C., and Wachter, J. 1990. The Small Towns of Roman Britain. Batsford
- Cohen, A. and D. Serjeantson 1986. A Manual for the Identification of Bird Bones from Archaeological Sites. London, Alan Cohen.
- Cram, C. L. 1973. Animal bones. In Brodribb, ACC, Hands, AR and Walker, DR. Excavations at shakenoak Farm, near Wilcote, Oxfordshire, Part IV: site C.
- Crummy, N. 1979. A chronology of bone pins, *Britannia* 10, 157 - 164
- Crummy, N. 1983. Colchester Archaeological Report 2: The Roman Small Finds from Excavations in Colchester 1971-9. Colchester Archaeological Trust, Ltd and DOE, Colchester.
- Cuttler, R and Duncan, M. 2003. Trent Lane, Newark, Nottinghamshire: An archaeological evaluation BA PN 1054
- Darling M. J, 1977. A group of late Roman pottery from Lincoln, Lincoln Archaeol Trust monogr XVI-1
- Dobney, K. M. and S. D. Jaques 1996. The mammal bone. In R. J. Williams, P. J. Hart and A. T. L. Williams, Wavedon Gate. A Late Iron Age and Roman Rural Settlement in Milton Keynes. Buckinghamshire Archaeological Society. Monograph Series 10.
- Evans, J. 1972. Land Snails in Archaeology. London
- Evans, J. 2002. The pottery, in P.M. Booth, J. Evans and J. Hiller, Excavations in the extramural settlement of Roman Alchester, Oxfordshire, 1991, Oxford Archaeol monog 1, 2 -383
- Fryer, V. 2004. 'Charred plant macrofossils and other remains' in Lyons, A. 'Romano-British industrial activity at Snettisham, Norfolk.' East Anglian Archaeology Occasional Paper 18, 55-57

- Gidney, L. 1999. The animal bones. In A. Connor and R. Buckley, Roman and Medieval Occupation in Causeway Lane, Leicester. University of Leicester Archaeological Services: 310-329.
- Grant, A (1981). The animal bones. In Rowley, T and Brown, L, Excavations at Beech House Hotel, Dorchester-on-Thames 1972. Oxoniensia vol XLVI pp.17-39
- Grant, A. (1982). The use of toothwear as a guide to the age of domestic ungulates. Ageing and Sexing Animal Bones from Archaeological Sites. B. Wilson, C. Grigson and S. Payne. Oxford, BAR British Series 109: 91-108.
- Hammond, P. J. 1985. The clay tobacco-pipe making industry of Newark Transactions of the Thoroton Society of Nottinghamshire Vol 89: 86-107
- Hillson, S. 1992. Mammal Bones and Teeth. London, Institute of Archaeology.
- Hillson, S. 1996. Dental Anthropology. Cambridge: Cambridge University Press.
- Hislop, M., 2003. Land between King Street, St Helen's Street and Lodge Lane, Derby. An Archaeological Desk-Based Assessment and Building Assessment 2003. Birmingham Archaeology Report No 1140
- Holyoak, V. 1997. Civil War Monuments Project, Newark-on-Trent, Nottinghamshire: Rediscovery of Civil War Redoubt 'Z'. Transactions of the Thoroton Society of Nottinghamshire 101: 120-123.
- JSAC 2003. A specification for an archaeological watching brief and strip, map and record exercise in mitigation of the proposed development at Trent Lane, Newark, Nottinghamshire. John Samuels Archaeological Consultants
- King 1984. Animal bones and the dietary identity of military and civilian groups in Roman Britain, Germany and Gaul. In Blagg, TFC and King, A (eds), Military and civilian in Roman Britain: Cultural relationships in a frontier province. BAR, British Series 136 pp.187-218. Oxford
- Kinsley, G. 2002. An Archaeological Desk-Top Assessment of a Proposed Development Site at Trent Lane, Newark, Nottinghamshire. T&PAU Project Code:NTL.1.
- Levitan, B. 1986. The vertebrate remains from site CQ and CX/CY. In McWhirr, Houses in Roman Cirencester. Cirencester excavations III. Cirencester.
- Levitan, B. 1989. The vertebrate remains from Chichester Cattlemarket. In A. Down, Chichester Excavations VI. Chichester, Phillimore: 242 - 267.
- Loughlin N. 1977. Dales ware, in D.P.S. Peacock (ed) Pottery and commerce: characterization and trade in Roman and later ceramics, London 85-46
- Luff, R. M. 1992. The faunal remains. In Wickenden, NP, The temple and other sites in the north-eastern sector of Caesaromagus. CBA Res Report 75 pp.153-124
- Lyman, R. L. 1994. Vertebrate Taphonomy. Cambridge: Cambridge University Press.

Maltby, M. 1994. The meat supply in Roman Dorchester and Winchester. In Hall, AR and Kenward HK (eds) *Urban-rural connexions: perspectives from environmental archaeology*. Oxbow.

McKinley, J. 2004. Compiling a Skeletal Inventory: Disarticulated and Co-mingled remains. In: Brickley, M. and McKinley, J. (eds) 2004. *Guidelines to the Standards for Recording Human Remains*. Reading: BBAO/IFA Technical Paper No. 7.

Payne, S. 1985. Morphological distinctions between the mandibular teeth of young sheep and goats. *Journal of Archaeological Science* 12: 139-147.

Peacock D. P. S. and Williams D. F. 1986. *Amphorae and the Roman economy: an introductory guide*, London

Prummel, W. and Frisch, H. 1986. A guide for the distinction of species, sex and body side in bones of sheep and goat. *Journal of Archaeological Science* 13: 567-577.

Roberts, C. and Cox, M. 2003. *Health and Disease in Britain. From Prehistory to the Present Day*. Stroud: Sutton Publishing.

Samuels, J. 1993. *Archaeological Watching-Brief for British Diamalt, North Gate, Newark*. Unpublished report for British Diamalt.

Serjeantson, D. 1996. The animal bones. In S. Needham and T. Spence, *Refuse and disposal at area 16 East Runnymede. Runnymede bridge research excavations*. 2.

Schmid, E. 1972. *Atlas of Animal Bones*. Elsevier.

Silver, I. A. 1969. The ageing of domestic animals. *Science and Archaeology*. D. R. Brothwell and E. S. Higgs. London, Thames and Hudson.

Stace, C. 1997. *New Flora of the British Isles*. Second edition. Cambridge University Press

Todd, M. 1968. The commoner late Roman coarse wares of the East Midlands, *Antiq J* **48**, 192-209

Tomber, R. and Dore, J. 1998. *The National Roman fabric reference collection: a handbook*. London

von den Driesch, A. and Boessneck, J. 1974. Kritische Ammerkungen zur Widderristhohenberechnung aus Langmassen vor- und fruhgeschichtlicher Tieknochen. *Saugtierkundliche Mitteliungen* 22, 325-348

von den Driesch, A. 1976. *A guide to the measurement of animal bones from archaeological sites*. Cambridge, Massachusettes, Harvard University Press.

Maps

Clampe, R. 1646. *A description of the seige of Newark upon Trent with the fortifications about the Towne* (Reproduced in the Rchme 1964)

12 APPENDIX 1: THE ROMANO-BRITISH POTTERY.

Cont	Type	Fabric	Form	Wt	No	Rim	Eve	Comment	Date
1000	topsoil	GW	I	51	0	2	45	narr mthed	
1000	topsoil	GW1	I/VI	11	0	2	25		
1000	topsoil	EMIDRE	I12	8	0	1	15		
1000	topsoil	EMIDRE	I12/3	55	0	1	8		
1000	topsoil	EMIDRE	I2	21	0	1	9		
1000	topsoil	EMIDRE	XI	21	0	1	8		
1000	topsoil	EMIDRE	XII	46	0	1	12		
1000	topsoil	EMIDRE	XIII	26	1	0	0	loop handle	
1000	topsoil	EMIDRE		390	14	0	0		
1000	topsoil	GW2		24	1	0	0		3rd-4th
1005	layer	LNVCC		6	1	0	0		l2nd-4th
1008	layer	CADIZ		334	1	0	0		2nd
1010	layer	GW		40	2	0	0		Roman
1012	fill	LNVCC	X	57	1	0	0		3rd+
1012	fill	EMIDRE		163	11	0	0		
1012	fill	EMIDRE		215	5	0	0		
1012	fill	GW		87	2	0	0		
1012	fill	GW		26	2	0	0		
1012	fill	GW2		23	1	0	0		
1064	layer	DAL SH	I	165	5	2	3		
1064	layer	DAL SH		699	26	0	0		
1064	layer	DAL SH		11	1	0	0	thinner	
1064	layer	EMIDRE		858	27	0	0	int calc	
1064	layer	EMIDRE	I	88	2	1	16	diag b lines	
1064	layer	GW2		8	1	0	0		3rd+
1003	pit/ditch	EMIDRE	I	139	6	1	20		
1003	pit/ditch	EMIDRE	I	113	6	0	0		
1003	pit/ditch	GW	I	85	16	1	6	wavy line	
1003	pit/ditch	GWLI	I	55	3	2	25	overfired	
1003	pit/ditch	GW	I2	117	0	2	38		
1003	pit/ditch	GW	I2	16	0	1	8		
1003	pit/ditch	GW5	I2	208	14	2	25		
1003	pit/ditch	GW	I3	50	0	1	16		
1003	pit/ditch	BWMIC	Igr	24	0	2	18		
1003	pit/ditch	BW	II	9	1	1	6		
1003	pit/ditch	BWMIC	II	20	4	1	3		
1003	pit/ditch	LNVWH	IX	217	0	1	18		
1003	pit/ditch	BW		5	3	0	0		
1003	pit/ditch	EMIDRE		52	5	0	0		
1003	pit/ditch	EMIDRE	I	15	0	1	15		
1003	pit/ditch	GW		226	51	0	0		
1003	pit/ditch	GW		639	43	0	0		
1003	pit/ditch	GW		148	4	0	0		
1003	pit/ditch	GW1		75	3	0	0		
1003	pit/ditch	GYF		30	4	0	0		
1003	pit/ditch	LNVCC		11	5	0	0		
1003	pit/ditch	LNVCC		52	6	0	0		
1003	pit/ditch	MOSBS		6	2	0	0	folded bkr	3rd
0		EMIDRE	I2	505	6	1	15		Roman
0		EMIDRE		5	1	0	0		Roman
1013	ditch	EMIDRE	I2	18	0	1	10		

1013	ditch	EMIDRE	I2	7	0	1	5		
1013	ditch	BWMIC		7	1	0	0		
1013	ditch	EMIDRE		94	5	0	0		
1013	ditch	GW		33	4	0	0		3rd+
1014	ditch	GW	I2	28	2	1	9		3rd+
1014	ditch	BW		4	2	0	0		
1014	ditch	EMIDRE		38	8	0	0		
1015	ditch	EMIDRE	I12	47	0	1	12		3rd+
1015	ditch	EMIDRE	I3/12	47	0	1	9		
1015	ditch	BW		14	1	0	0	wavy line	
1015	ditch	EMIDRE		12	1	0	0		
1015	ditch	EMIDRE		159	12	0	0		
1016	ditch C	EMIDRE	I2/6	158	12	1	5	narr mthed	
1016	ditch C	DAL SH		25	2	0	0		
1016	ditch C	GW		13	4	0	0		3rd+
1018	ditch A	BW		17	2	0	0		
1018	ditch A	EMIDRE		83	5	0	0	x2 int burn X	
1018	ditch A	GW	IIB	104	1	1	10		3rd+
1019	ditch D	SWNWS	IX	110	1	0	0		late 3rd- 4th
1019	ditch D	EMIDRE	I12	170	5	1	17		
1020	pit	GW	I	21	1	1	7		
1020	pit	LNVCC	I12	14	0	1	8		3rd+
1022	ditch D	GW	X	10	1	0	0		
1023	ditch D	GW5	I2	15	1	1	3		
1023	ditch D	LNVWH	IX	45	1	0	0		3rd-4th
1023	ditch D	BW		30	2	0	0	loop handle	
1023	ditch D	LNVCC		3	1	0	0		
1024	ditch A	EMIDRE	I2	53	3	1	9		
1024	ditch A	BW		14	2	0	0		
1024	ditch A	DAL SH		14	1	0	0		
1024	ditch A	LNVCC		13	1	0	0	burnt	
1025	ditch A	EMIDRE		366	12	0	0		
1025	ditch A	EMIDRE		20	1	0	0		
1025	ditch A	GW5		5	1	0	0		3rd+
1030	ditch	GW	IIB	8	0	1	3		
1030	ditch	DAL SH		8	2	0	0		
1030	ditch	EMIDRE		101	8	0	0		
1030	ditch	LNVCC		16	1	0	0		
1031	ditch	LTCWH	IX	18	1	0	0		3rd
1031	ditch	EMIDRE	X	39	1	0	0		
1031	ditch	BW		11	2	0	0	eburn	
1031	ditch	LNVCC	IV3	59	0	5	36	fresh bks	
1031	ditch	LNVCC		104	9	0	0		
1023	ditch	EMIDRE	IV4	72	7	2	11		
1032	ditch	GW1	I	26	0	1	10		
1032	ditch	GW5	II	4	0	1	6		
1032	ditch	BW		14	2	0	0		
1032	ditch	GW		23	1	0	0		
1032	ditch	GYF		10	1	0	0		late C3- 4th
1040	gully	GW3		15	1	0	0		Roman
1041	gully	BW		10	2	0	0		
1041	gully	GW2		11	1	0	0		Roman
1042	gully	GW1		34	1	0	0	int calc	Roman

1044	gully	CGSAM		1	3	0	0		
1044	gully	EMIDRE		87	4	0	0		
1044	gully	LNVCC		16	1	0	0		3rd
1046	grave	BW		1	1	0	0		
1046	grave	EMIDRE		16	2	0	0		
1046	grave	GW1		9	2	0	0		3rd+
1048		EMIDRE		11	2	0	0		3rd+
1049	ditch	EMIDRE	I4	585	16	1	12	fbreaks	3rd+
1052	ditch E	GWLI		11	1	0	0		Roman
1053	pit	GWLI		4	1	0	0		
1054	pit	BW	(VII)	23	1	0	0	disc neck	
1054	pit	DAL SH	I	18	0	1	7	int sooted	
1054	pit	DAL SH	I	16	0	1	10	dwg	
1054	pit	DAL SH	I	7	0	1	3		
1054	pit	GW4	I	38	3	1	20		
1054	pit	EMIDRE	I12	110	0	1	16	dwg	
1054	pit	EMIDRE	I12	87	0	1	11	dwg	
1054	pit	EMIDRE	I12	7	0	1	5		
1054	pit	GW2	I14	9	0	1	10		
1054	pit	DAL SH	I2	8	0	1	5		
1054	pit	EMIDRE	I2	4	0	1	3		
1054	pit	EMIDRE	I3/12	17	0	1	23	dwg	
1054	pit	EMIDRE	I3/12	10	0	1	12		
1054	pit	EMIDRE	IIC	47	0	1	7	dwg	
1054	pit	BW	IV4	23	0	1	8		
1054	pit	EMIDRE	IV4	47	0	1	7	dwg	
1054	pit	LNVCC	IV4	64	9	1	7		
1054	pit	LNVWH	IX	43	0	1	10		
1054	pit	BW		63	5	0	0		
1054	pit	BWF		3	2	0	0	b wavy line	
1054	pit	DAL SH		322	36	0	0		
1054	pit	DORBB1	I	13	0	1	5		
1054	pit	EMIDRE		1407	82	0	0		
1054	pit	LNVWH		11	2	0	0		
1054	pit	SWNCC		90	1	0	0		
1055	pit	BW	I	5	0	1	7		
1055	pit	EMIDRE	I	40	0	1	4		
1055	pit	EMIDRE	I	204	17	1	5	hooked rim	
1055	pit	OXID1	I	11	1	1	18		
1055	pit	DAL SH		21	2	0	0		
1055	pit	GW		10	1	0	0		
1055	pit	LNVCC		4	1	0	0		
top fill	pit	DAL SH	I	6	0	1	2		
top fill	pit	EMIDRE	I2	91	0	1	15		
top fill	pit	EMIDRE		200	11	0	0		
top fill	pit	EMIDRE	IV4	28	0	1	10		
top fill	pit	GW1		134	11	0	0		
top fill	pit	SWNCC	II	2	0	1	1		4th
1057	ditch E	DAL SH		13	1	0	0	sooted ext	
1057	ditch E	EMIDRE		43	5	0	0		
1057	ditch E	GWLI		28	1	0	0		
1057	ditch E	LNVWH		4	2	0	0		3rd+
1063	ditch	GW		12	1	0	0		
0	ditch A	EMIDRE	I12	12	0	2	9		
0	ditch A	EMIDRE		91	2	0	0		
1085	ditch A	LNVCC	IV4	95	1	1	8		

1085	ditch A	LNVWH	IX	18	1	0	0	part burnt	late C3-C4
1085	ditch A	EMIDRE		10	3	0	0		
1085	ditch A	GW1		3	1	0	0		
1087	ditch C	DAL SH	I	83	1	2	23	sooted rim	
1087	ditch C	EMIDRE	I12	7	0	1	3		
1087	ditch C	GW2	IV4	22	0	1	5		
1087	ditch C	GYF	VI	10	1	0	0		
1087	ditch C	GW2	X	200	10	0	0		
1087	ditch C	EMIDRE		361	15	0	0		
1087	ditch C	EMIDRE	VI	10	0	1	10		
1087	ditch C	GYF		4	1	0	0		late C3-C4
1088	ditch A	EMIDRE	I4	470	0	2	44		
1088	ditch A	LNVCC	IIC	98	0	1	12		
1088	ditch A	LTCWH	IX	5	1	0	0		3rd
1088	ditch A	DAL SH		18	1	0	0		
1088	ditch A	EMIDRE		530	10	0	0		
1089	ditch C	EMIDRE	I12	167	0	1	16		
1089	ditch C	EMIDRE	I2	9	0	1	2		
1089	ditch C	EMIDRE	VI	16	0	1	13		
1089	ditch C	CGSAM		2	1	0	0		
1089	ditch C	DAL SH		8	1	0	0		
1089	ditch C	EMIDRE		166	8	0	0		
1089	ditch C	SWNCC		76	1	0	0		late C3-C4
1090	ditch D	EMIDRE	I	84	0	1	20		
1090	ditch D	EMIDRE	I12	23	0	1	7		
1090	ditch D	LTCWH	IX	54	0	1	5		3rd+
1090	ditch D	EMIDRE		42	5	0	0		
2007		DAL SH	I	67	0	1	10		
2007		EMIDRE		82	2	0	0		
3005		GW	I	7	0	1	15		
3005		LNVWH		2	1	0	0		
5003	recut ditch	EMIDRE	IVCW	7	0	1	3		
5003	recut ditch	GW1	IVCW	60	0	2	10		
5003	recut ditch	GW1	IVCW	60	0	1	9		
5003	recut ditch	DAL SH		10	1	0	0		
5003	recut ditch	DAL SH		2	1	0	0		
5003	recut ditch	EMIDRE		19	1	0	0		
5003	recut ditch	GW1		9	2	0	0		
5003	recut ditch	GW3		259	13	0	0	x1 handle	
5003	recut ditch	LNVCC		8	1	0	0		
5003	recut ditch	SWNWS?		5	1	0	0		C4
5004	ditch B	EMIDRE		123	3	0	0		
5004	ditch B	GW2		128	12	0	0	hand spr	Roman
5008	ditch B	GW2		35	1	0	0		Roman

5006	ditch B	DORBB1	IV3	5	0	1	2		
5006	ditch B	DAL SH		14	1	0	0		
5006	ditch B	EMIDRE		3	1	0	0		
5006	ditch B	OXID1		11	1	0	0		3rd
5005	ditch B	GW2		22	1	0	0		Roman
0		EMIDRE		31	4	0	0		
0		LNVCC	IV3	42	0	1	10		

13 APPENDIX 2: THE PLANT MACROFOSSILS AND OTHER REMAINS

Sample No.		1	2	3	4
Context No.		1048	1046	1023	1025
Feature No.		F127	F130	F111	F112
Cereals	Common name				
<i>Avena</i> sp. (grains)	Oat				x
<i>Hordeum</i> sp. (grains)	Barley	x	xx	x	xcf
(sprouted grains)			x		
(rachis nodes)				x	x
<i>H. vulgare</i> L. (lateral asymmetrical grains)	Six-row barley		xcf		
<i>Secale cereale</i> L. (grains)	Rye	xcf			
<i>Triticum</i> sp. (grains)	Wheat		x	x	x
(glume bases)			x		x
(spikelet base)				x	x
(rachis internodes)			x	x	x
<i>T. spelta</i> L. (glume bases)	Spelt wheat	x	x	xx	xxx
Cereal indet. (grains)		x	x	x	xx
(sprout frags.)				x	x
Herbs					
<i>Anthemis cotula</i> L.	Stinking mayweed			x	x
Apiaceae indet.					x
<i>Atriplex</i> sp.	Orache				x
<i>Bromus</i> sp.	Brome			xcf	xx
<i>Centaurea cyanus</i> L.	Cornflower			x	
<i>Chenopodium album</i> L.	Fat hen	x		x	
Chenopodiaceae indet.					x
<i>Medicago lupulina</i> L.	Black medick		x		
Small Poaceae indet.	Grasses			x	x
Large Poaceae indet.			x		x
<i>Raphanus raphanistrum</i> L. (siliqua frags.)	Wild radish			x	x
<i>Rumex</i> sp.	Dock			x	x
<i>R. acetosella</i> L.	Sheep's sorrel			x	
<i>Vicia/Lathyrus</i> sp.	Vetch/vetchling		x	x	x
Wetland plants					
<i>Carex</i> sp.	Sedge		x	x	
<i>Eleocharis</i> sp.	Spike-rush	x	x	x	x
Tree/shrub macrofossils					
<i>Corylus avellana</i> L.	Hazel		x		
Other plant macrofossils					
Charcoal <2mm		xx	xxx	xxx	xxx
Charcoal >2mm				x	
Charred root/rhizome/stem		x	x	xxx	xxx
Ericaceae indet. (stem)	Heather	x	x		xx
Indet.inflorescence frags.					x
Indet.seeds		x	x		x
Molluscs					
Woodland/shade loving species					
<i>Aegopinella</i> sp.			xcf		
<i>Discus rotundatus</i>		x	x		
<i>Vitrea</i> sp.			x		
Open country species					
<i>Vallonia</i> sp.			x		

Marsh species					
<i>Vertigo</i> sp.		x			
Other materials					
Black porous 'cokey' material		x	x	x	x
Black tarry material			x		x
Bone			x		
Burnt/fired clay			xx		
Mineralised arthropods				x	
Siliceous globules		x			
Small coal frags.		xx	xx		x
Small mammal/amphibian bone					x
Vitrified material			x	x	x
Sample volume (litres)					
Volume of flot (litres)		<0.1	<0.1	<0.1	<0.1
% flot sorted		100%	100%	100%	100%

14 APPENDIX 3: WATCHING BRIEF TABLE OF CONTEXTS.

Ctx No	Type	Description	Relationships	Date
730	Cut	Equivalent to pit F137 in Birmingham strip, map and record work. Same as 7016 in watching brief.	Cuts subsoil	Roman
731	Fill	Fill of pit 730. Very coarse clay silt, derived from underlying bluish grey mudstone. Edges of feature difficult to discern	Above 730	Roman
732	Cut	Equivalent to narrow linear F143 in Birmingham strip, map and record work.	Cuts 735	Roman
733	Fill	Fill of linear 732. Topsoil derived, fairly humic and rich blocky clay silt.	Above 732	Roman
734	Cut	Nature of feature unclear-probably shallow pit. Cut by 732-not identified in Birmingham's strip, map and record	Above subsoil	Roman or earlier
735	Fill	Fill of probable pit 734. Predominantly coarse clay silt, some topsoil content, but predominantly derived from mudstone.	Above 734	Roman or earlier
736	Cut	King's Sconce. Fairly shallow sided cut, fairly difficult to discern. Exposed length measured 10.5m to depth of 1.3 m below the current ground surface	Above natural	Civil War
737	Fill	Fill of Sconce cut 736. Soft, fairly loose redeposited natural mudstone with large gypsum component	Above 736	Civil War
7000	Cut	King's Sconce. Fairly straight and steep sided cut 15 m wide and exposed to depth of 2m below current ground surface	Cuts subsoil	Civil War
7001	Fill	Fill of Sconce cut 7000. Soft, fairly loose redeposited natural mudstone.	Above 7000	Civil War
7002	Cut	Equivalent to F110/111/112 in strip, map and record work. Cut for boundary ditch.	Above natural	Roman
7003	Fill	Fill of 7002. Mid grey brown silty clay with mudstone lenses thought to be result of bank erosion	Above 7002	Roman
7004	Fill	Fill of Sconce cut 7005. Soft, fairly loose redeposited natural mudstone.	Above 7005	Civil War
7005	Cut	King's Sconce. Cut across at angle, measures 31.5 m Exposed to depth of 2m below current ground surface	Above subsoil	Civil War
7016	Fill	Fill of possible narrow linear feature 7017. Mid slightly reddish brown slightly clayey silt	Above 7107	Post-medieval
7017	Cut	Equivalent to pit F137 in Birmingham strip, map and record work. Same as 730 in watching brief.	Above subsoil	Post-medieval
7018	Fill	Fill of ditch 7019. Mid slightly reddish brown stiff, very silty clay. Deliberate deposit derived from mixture of topsoil and natural clays. Contained quantity of bone	Above 7019	Roman
7019	Cut	Equivalent to F144 in strip, map and record work. Ditch was difficult to define, only seen in section.	Above subsoil	Roman

15 APPENDIX 4: STRIP AND RECORD TABLE OF CONTEXTS.