University of Leicester

Archaeological Services

An Archaeological Investigation on Land to the South of Borderville Farm, Ryhall Road, Stamford, Lincolnshire

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Andrew Hyam

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An Archaeological Investigation on Land to the South of Borderville Farm, Ryhall Road, Stamford, Lincolnshire

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For: Burghley House Preservation Trust

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Summary

An archaeological investigation in the form of an excavation was undertaken by the University of Leicester Archaeological Services (ULAS) on land to the south of Borderville Farm, Ryhall Road, Stamford, Lincolnshire. The work took place in advance of construction work for a new stadium and football development centre.

The excavation revealed a late Iron Age and early Roman landscape bounded by large parallel ditches orientated east to west following the lip of a shallow valley. Between the parallel ditches was an enclosure ditch with a single roundhouse. East of the roundhouse two mid-2nd century pottery kilns were excavated, one of which still contained kiln furniture and wasters. Evidence shows that the roundhouse, enclosure ditch and southern ditch were backfilled shortly after the Roman Conquest in the mid-1st century. A small iron-working hearth was also identified cut into the southern ditch soon after it had been backfilled. The northern ditch appears to have remained in use at least until the later second century.

The excavation took place during October and November 2013 under site code BFST09 and accession number LCNCC:2009:085.

Introduction

In accordance with National Planning Policy Framework (NPPF) Section 12 *Conserving and Enhancing the Historic Environment* this document forms a report for an archaeological investigation on land to the south of Borderville Farm, Ryhall Road, Stamford, Lincolnshire. Planning permission (application number S13/0260) has been granted to construct a new stadium and football development centre. The work is the result of a partnership between the Burghley House Preservation Trust, Stamford Association Football Club and New College Stamford.

The archaeological work comprised controlled stripping under archaeological supervision across an area of *c.* 1.2ha. This area had been previously identified as containing archaeological deposits by a desk-based assessment, geophysical survey and evaluation trial trenching. The earlier work, carried out by ULAS in 2008 and 2009, determined that archaeological remains dating to the Late Iron Age and early Roman periods were present in the southern half of the proposed new development (Hunt 2008, Harvey 2009, Walford 2009). With this in mind the Senior Historic Environment Officer for Lincolnshire on behalf of the planning authority recommended the programme of archaeological work.

Topography and Geology

Stamford is located in the south western corner of Lincolnshire close to the border with the neighbouring county of Rutland. The development site lies on the north-eastern edge of Stamford in the South Kesteven district of Lincolnshire and is located along the western side of Ryhall Road (TF03390 08675). The border with Rutland runs along the northern edge of Borderville Farm which is immediately to the north of the site (Figs 1 and 2). The site forms a rectangular area within a larger field and is aligned west-south-west to east-north-east covering an area of approximately 4.5ha. The site lies at a height of *c*.40m OD at the western side of the site, falling to 30m in the east.

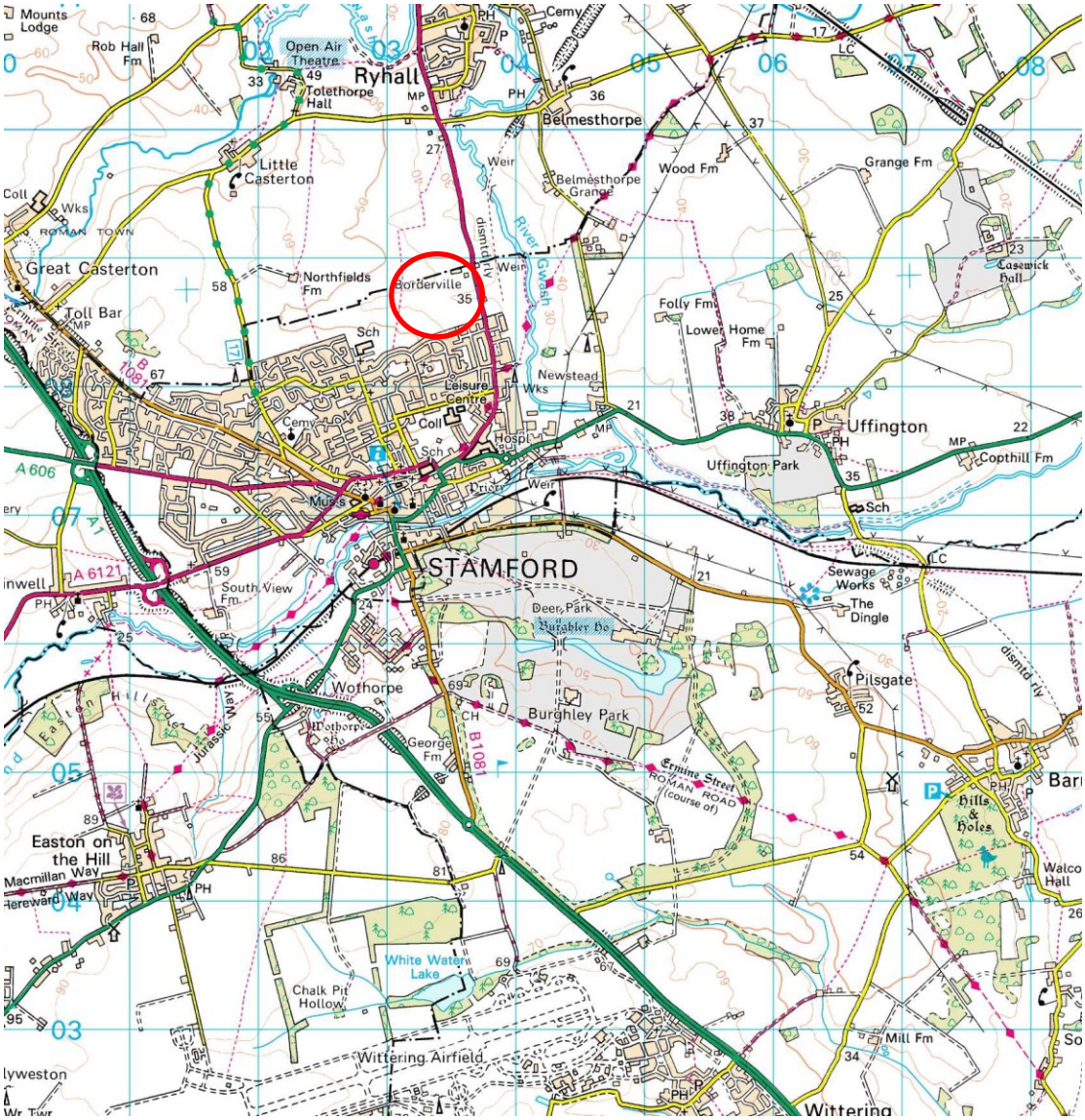


Figure 1 Site location

Figure 2 Location of excavation area
Geophysical survey (black lines) and 2009 evaluation trenches also shown

The Ordnance Survey Geological Survey of Great Britain Sheet 157 (Stamford) shows the underlying geology to be Upper Lincolnshire Limestone, possibly with Rutland Formation mudstone and Blisworth Limestone in the south-western part of the site.

The area of the development site identified for excavation lies on the north-facing slope of a broad and shallow valley which runs from east to west across the whole of the development area (Fig. 3). A second, smaller and shallower, valley curves down the slope across the excavation site from south west to north east. Prior to the commencement of the development work the land was in use as an arable field

Background

Historical Background

The name 'Stamford' is derived from the early names for the town *Steanford* (10th century) or *Stanford* (Williams and Martin 1992). The name *Stanford* is thought to be from the Old English for 'stone ford' or 'stony ford' (Mills 2003).

Documentary evidence suggests that there has been an organised settlement in Stamford since at least the end of the 9th century A.D. The Anglo-Saxon Chronicle records that in 918 Edward the Elder commanded a new borough to be built on the

south side of the River Welland and mentions a Danish burh north of the river (Smith 1992).

In the late 10th century Stamford became one of the five boroughs of the Danelaw and was one of the first towns in the medieval period to produce glazed wheel-thrown pottery. In the early 11th century the Danelaw collapsed and Stamford lost its territory to Lincoln under the new shire system. The Domesday Book shows Stamford as a royal borough, most of which was north of the river.

The town's excellent communication routes via the Great North Road and via the River Welland to the North Sea ensured its success in trade and by the 13th century Stamford was one of the ten largest towns in England (Smith 1992). It had a castle, 14 churches, two monasteries and four friaries. Many of the fine stone buildings still survive from this period.

The site itself lies well beyond the fringes of the town's core in an area known as the North Fields. The farm to the north-west of the site has retained this name and the modern estate to the south of the site is also named after this area.

The parish was enclosed in 1875 which was much later than most midland towns. The reason for this is attributed to the influence of the Cecil family and the fact that out of their 1,700 acres, some 1,300 were arable. The open fields lay to the north of the town in a broad semicircle encompassing four large areas.

Cartographic research has shown that the development area has changed little throughout the 20th century. However, the surrounding area has changed significantly due to gradual urbanisation, spreading northwards from the central core of Stamford (Hunt 2008).

Stamford AFC is the local town football club with its origins going back to 1894. The club has been based at Kettering Road, on the south side of the town, since that time. The proposed development work will see the club move to the Ryhall Road site.

Archaeological Background

An Archaeological Desk Based Assessment for the area was prepared in 2008 (Hunt 2008). The Historic Environment Record (HER) for Lincolnshire and Leicestershire and Rutland recorded one site of archaeological interest within the development area itself. This is an area of undated crop-marks comprising enclosures, a track-way and a boundary (Lincs HER Number: **MLI88501**).

There are also a number of sites of interest in the vicinity of the site. Around 500m to the north-west of the site, within the parish of Ryhall, Rutland is a pit alignment identified by aerial photographs. This has been tentatively dated to the Iron Age period (Leics HER No. **MLE5672**). Just to the north west of these features is a series of cropmarks, which have been identified as belonging to a Roman villa (**MLE5670**). The features include building foundations and an enclosure. Roman pottery has been found during ploughing.

Approximately 500m to the south-west of the site is the site of an undated pit alignment, now occupied by the Northfields housing estate (**MLI34256**). On the

eastern side of the River Gwash, *c.*1km to the south-east of the site a number of ditches containing Romano-British material (**MLI90238**) were uncovered during trial trenching by Archaeological Project Services in 2007.

A detailed magnetometer survey was undertaken across the application area in order to gain a clearer understanding of the cropmarks observed in the aerial photographs as well as to help locate them geographically (Walford 2009; Fig. 3). A detailed magnetometer survey was undertaken across the application area in order to gain a clearer understanding of the cropmarks observed in the aerial photographs as well as to help locate them geographically (Walford 2009).

Figure 3 Geophysical survey results
(from Walford. 2009)

The survey revealed a complex of archaeological remains. Several ditches radiate out from the western edge of the survey area and it is suggested that these ditches are likely to represent land divisions associated with an enclosure visible as a cropmark to the west. The right-angled feature to the west of the surveyed area may well represent the eastern side of the cropmark enclosure. It is suggested that these features are likely to be Iron Age or Romano-British in origin.

There were also some weaker linear anomalies in the data that were possibly thought to represent further ditches but were too discontinuous or indistinct to interpret with confidence (Walford 2009, 3). At the eastern end of the survey area a possible pit alignment, orientated north east to south west was recorded that, if genuine, would most likely date to the late Bronze Age or Early Iron Age.

In the southern survey area a series of weak parallel linear anomalies were recorded that are likely to be the remains of agricultural furrows relating to the medieval or early post medieval cultivation. A strong positive linear anomaly with a wide negative halo was recorded along the southern boundary of the field maps a water main known to run along this line.

In 2009 fourteen trenches were excavated confirming the presence of archaeological features previously identified by the geophysical anomalies (Harvey 2009). Overall the excavation results closely matched the geophysical survey results with very few additional features being exposed. The features comprised pits and ditches dating to the Late Iron Age and early Roman periods. An isolated articulated human burial was encountered in the south-east corner of the site that was interpreted as being earlier in date and near to the supposed location of the possible pit alignment. The pit alignment however, was not identified during the evaluation and the results tentatively suggested that it could in fact be a modern feature.

The geophysical survey and evaluation results suggested an elongated enclosure settlement with the main focus of activity extending westwards beyond the extent of the application area. The excavated features found during the evaluation, especially in the western part of the site yielded domestic rubbish indicative of activities relating to a farmstead settlement. The site was clearly multi-phased, dating from the Late Iron Age but it remained unclear in what form the settlement might have continued in into the Roman period.

Based on the results of this earlier work the Senior Historic Environment Officer for Lincolnshire as adviser to the planning authority recommended that the southern area of archaeology identified by the evaluations be excavated and recorded as set out in a brief for archaeological work (Historic Environment Team, HTL, 2013). The proposed development required a significant reduction in ground level in the southern area in order to create a space large enough to accommodate two football pitches and surrounding stands. The groundworks would destroy any surviving archaeological features necessitating the excavation and recording of all archaeological deposits.

Figure 4 Development site prior to work
Looking south-west

Aims and Objectives

The main objectives of the archaeological mitigation work were as follows:

- To identify the presence/absence of any archaeological deposits.
- To establish the character, extent and date range for any archaeological deposits to be affected by the proposed ground works.
- To record any archaeological deposits/ structural evidence to be affected by the works.
- To interpret and advance understanding of the heritage assets.
- To produce an archive and report of any results.

Within the stated project objectives, the principal aim of the excavation was to establish the nature, extent, date, depth, significance and state of preservation of archaeological deposits in the cultural and environmental setting.

All of the work was considered in light of the National research context (English Heritage 1991 and 1997), the East Midlands Research Framework and strategy (Cooper ed. 2006, Knight *et al.* 2012), along with targeting national research aims. Potential research objectives that this scheme might contribute towards are set out below:

The 2009 evaluation results suggested the presence of Late Iron Age/Early Roman remains that could be affected by the scheme. The character of aggregated settlements and the reasons for their emergence are an agreed regional priority. The comparison of such sites with similar complexes in the wider region and their location and intra-site spatial arrangements is also a regional research aim. It was expected that information on the sequence and chronology of boundaries and their relationship to settlements might be recovered and palaeoenvironmental evidence could then provide information on agricultural practices and land use. Artefacts would provide evidence for evidence for craft industry and exchange across broad landscape areas.

Methodology

All work followed the Institute for Archaeologists (IfA) *Code of Conduct* (2012) and adhered to their *Standard and Guidance for Archaeological Excavation* (2008).

Archaeological supervision of topsoil and subsoil stripping was carried out across the area of proposed ground reduction. The area for excavation comprised the footprint and boundary of the two football pitches in the southern half of the site. Figure 2 shows the area covered by the mitigation work in relation to the known archaeology (approximately 1.2 ha). The archaeological strategy was set out in a Written Scheme of Investigation (WSI) for the site (Score 2013).

Topsoil and overburden was removed in level spits by mechanical excavators, equipped with flat-bladed ditching buckets, under constant archaeological supervision until archaeological levels or undisturbed natural substrata were reached. Any archaeological deposits revealed during machine stripping were initially hand cleaned and planned in full extent and tied to the Ordnance Survey National Grid.
The revealed archaeological deposits were sample-excavated by hand to establish the stratigraphic and chronological sequence, recognising and excavating structural evidence and recovering artefactual and environmental evidence. The survey plan was

supplemented as necessary with hand drawn plans and sections. Sections and plans of all excavated archaeological features or layers were drawn at an appropriate scale, typically 1:10 or 1:20. All sections were levelled and linked to the Ordnance Survey Datum. Excavation and recording was undertaken in accordance with standard ULAS procedures.

A sampling strategy and methodology for the site was determined by ULAS's Environmental Specialist. Preparation, taking, processing and assessment of environmental samples were in accordance with current best practice. The sampling strategy included a range of features selected to represent all feature types, areas and phases across the site.

Results

General Observations

The dark greyish-brown clay-loam topsoil and mid-brown silty-clay subsoil were removed in level spits across the site to expose the natural substrata. This predominantly consisted of a limestone brash within a bright yellowish-brown silty-clay matrix. Running across the site following a shallow valley which started in the south-western corner and headed towards the central northern edge of the site was a deep spread of colluvial material (506). This mid red-brown slightly clay-silt appeared to be hill wash material which had collected to a depth of up to 1m within the fold of the shallow valley. Several sherds of post-medieval pottery were recovered during the initial machining (see Appendix 3). Inspection of the ground being reduced in the east to west valley, beyond the northern limits of the excavation site revealed this deposit to become deeper towards the base of the slope. At the northern edge of the site, near to the centre of the stripped area, the clay-silt colluvial material had a much higher clay content.

Following the stripping of the site, initial results indicated that, as with the evaluation, the geophysical survey had identified most features (Fig. 5). The main features which were visible were the northern and southern boundary ditch along with the eastern part of an enclosure ditch to the west of the site. Within the enclosure at the far western edge the eavesdrip gully of a single round house was recorded.

The suspected pit alignment in the south east corner was in fact identified as a modern feature with stone backfill. This was further confirmed during the site reduction phase when a disused metal water pipe was uncovered approximately 1m below the ground surface. It is thought that this links up with a pipe running along the eastern side of the site.

Another possible feature picked up in the geophysical survey was a vague M-shaped linear feature partially entering the southern edge of the stripped area. The evaluation had identified this as a possibly natural feature although only a short length was excavated at that time. Once exposed during this phase of work, this potential feature revealed itself as a naturally formed band of slightly sandy, silty material marking the change between the clay-silt colluvium and the silty-clay colluvium. A third feature shown on the geophysical survey as a blurred linear running diagonally across the site from north-east to south-west was also revealed to be the edge of the colluvial deposit.

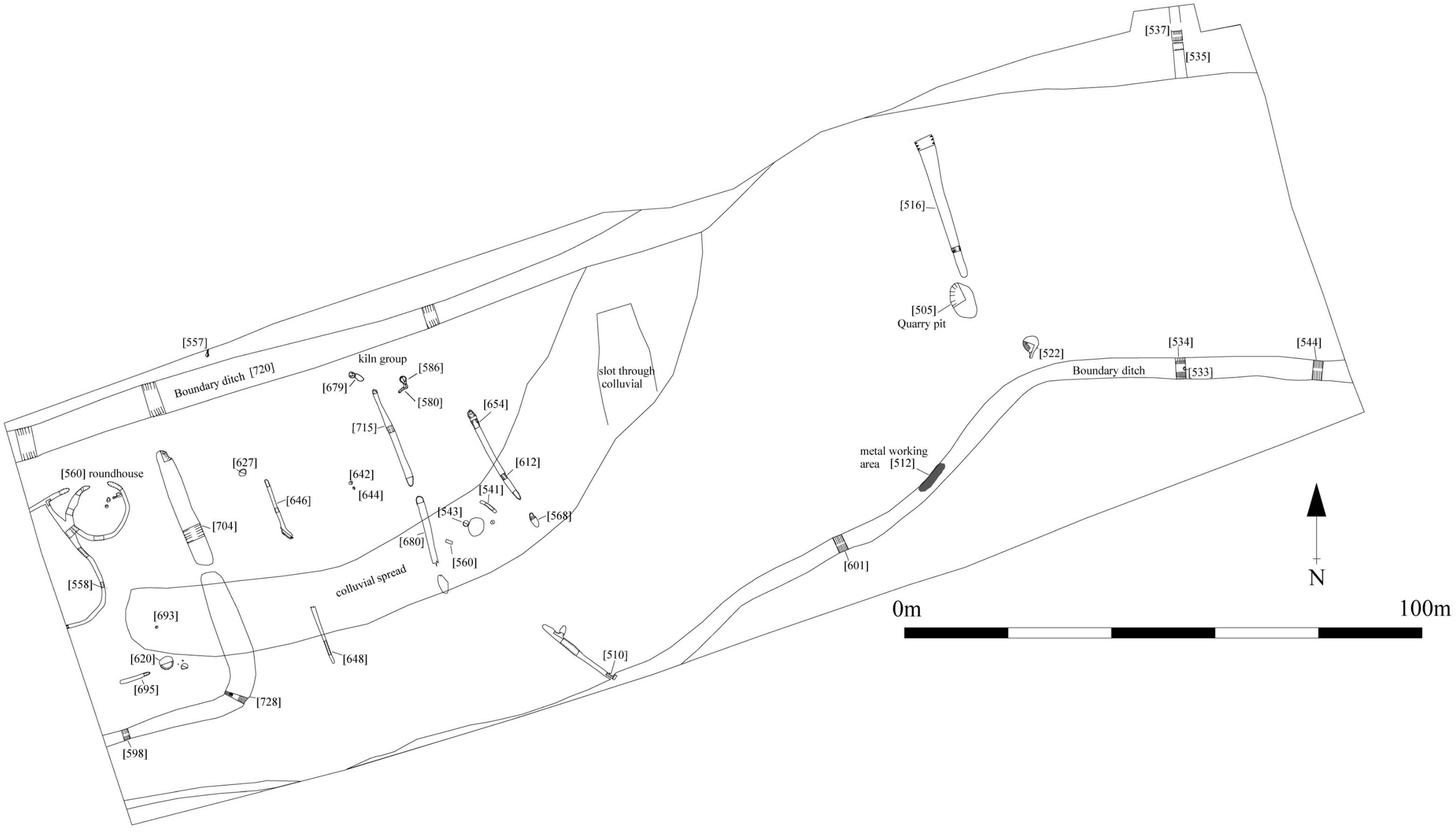


Figure 5 Archaeological features visible after stripping

The roundhouse and enclosure ditch

At the west edge of the site was a single eaves-drip gully of a single roundhouse [560] et al. with a north-east facing entrance (Figs. 5-7). Immediately to the west of the roundhouse was a narrow gully [558]/[629]/[630] curving in from the west before turning northwards running close to the edge of the roundhouse gully. Gully [558] may be associated with the roundhouse as the two features do partially merge although, due to the similarity of the fills, it is not clear which feature was earlier. The north end of [558] formed a T-junction with a short length of a similar gully [666] with a butt-ended, to the east close to the roundhouse entrance. The west end of this gully ran beneath the western baulk of the stripped area. Despite numerous slots into the roundhouse gully only five sherds of fossil shell-tempered Iron Age jar body were recovered along with sheep bones from fill (624). In all of the excavated slots through the roundhouse gully the same single fill comprising yellowish-brown sandy-silt was encountered. Nothing was recovered from the single fill of gully [666] but 254 sherds representing at least 13 vessels were recovered from the adjoining gully [558]/[629]/[630]. Most of the sherds came from fossil shell-tempered large jars with a few from smaller jar forms which probably date to the early 1st century AD.

Within the roundhouse, near to the entrance were four possible post holes: [702], [708], [711] and [713]. A number of packing stones were found at the base of [708] and [713] but no finds were recovered from any of the fills. In plan these features do not appear to form any cohesive pattern but their location suggests they relate to the roundhouse.

The roundhouse lay within an enclosure. The northern boundary was formed by the large ditch that ran along the northern edge of the site [720]. The eastern and southern boundaries were formed by a large ditch identified during the 2009 evaluation as feature [39] with the lower fill containing a small quantity of Romano-British pottery dating from between the mid to late-1st century AD. When fully exposed during this phase of work the ditch was identified as comprising two sections, with a length running north to south with a terminal just before reaching the northern boundary ditch [587]/[704] and an entrance approximately 20m to the south (Figs. 8, 9 and 10). The ditch feature continued southwards as [704]/[728]/[598] before turning west into the baulk. At the northernmost terminal the 3m wide ditch contained an upper fill (588) of mid orange-brown silty-clay from which one sherd of late Iron Age pottery from a jar was recovered. A similar lighter orange fill with fewer limestone fragments represented the lower fill which appeared to be a silted, washed-in fill. Nine sherds from similar jar forms were recovered from the corresponding context (in this case (705)) in a slot excavated close to the southern terminal (Figs 8 and 10). Three more sherds from the same jar body fabric came from the lower fill (706). A slot cut across the corner of the ditch recovered three more similar jar body sherds from the lowest of five fills. The lowest, primary fill (729) consisted of a mid-grey fine silty-clay with occasional large limestone fragments and also appeared to be material that had washed-in (Fig. 9). Above this was a layer of densely packed limestone fragments (730) which in turn was sealed by another fine silty-clay layer (731). On top of this layer was a band of similar material but with a high proportion of ash or charcoal fragments (732) and which gave the impression of wind-blown or washed-in material. The uppermost layer (733) consisted of a mid grey-brown silty-sand.

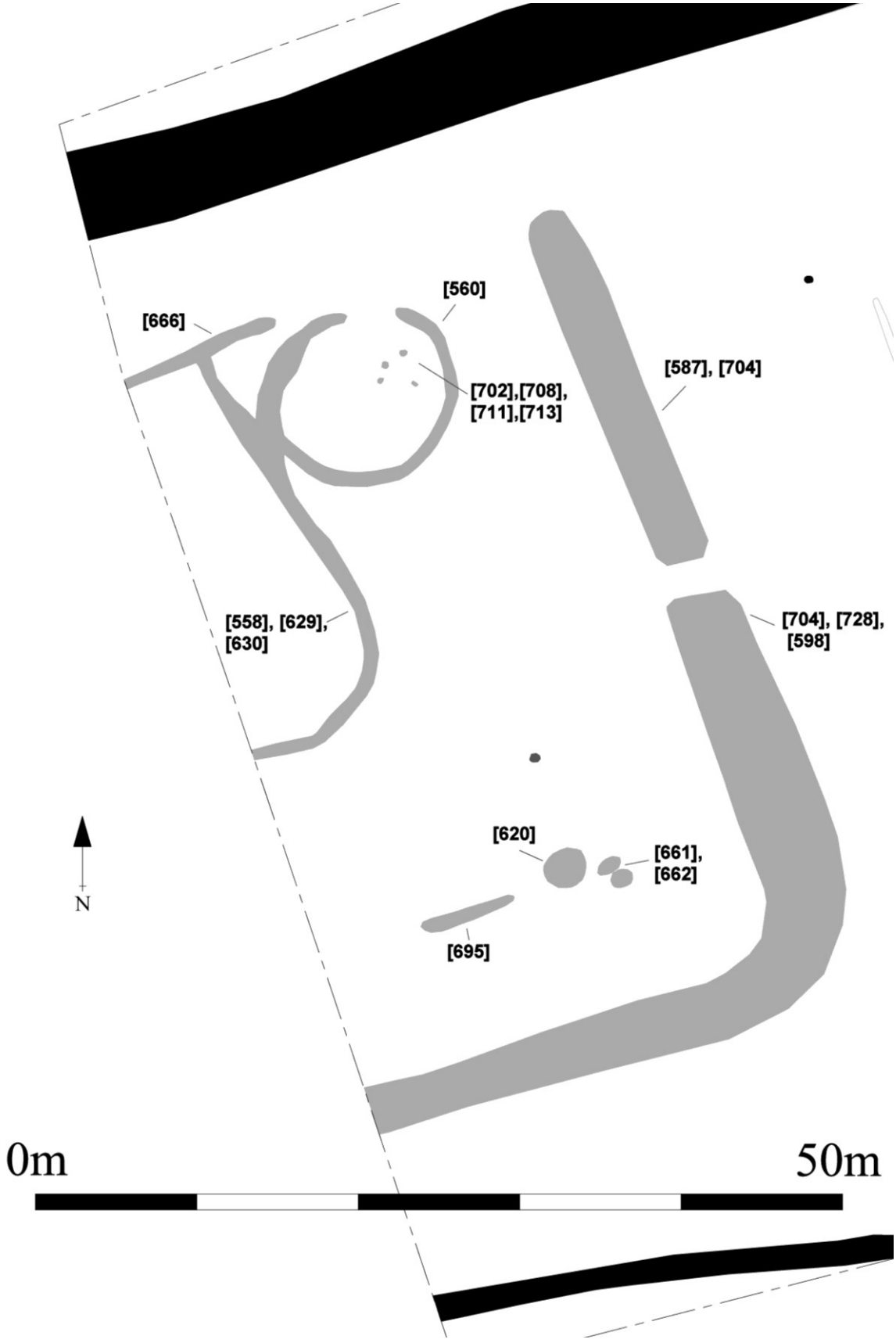


Figure 6 Plan of roundhouse and associated features

Figure 7 Roundhouse
Looking north east. Note butt-end of enclosure ditch beyond

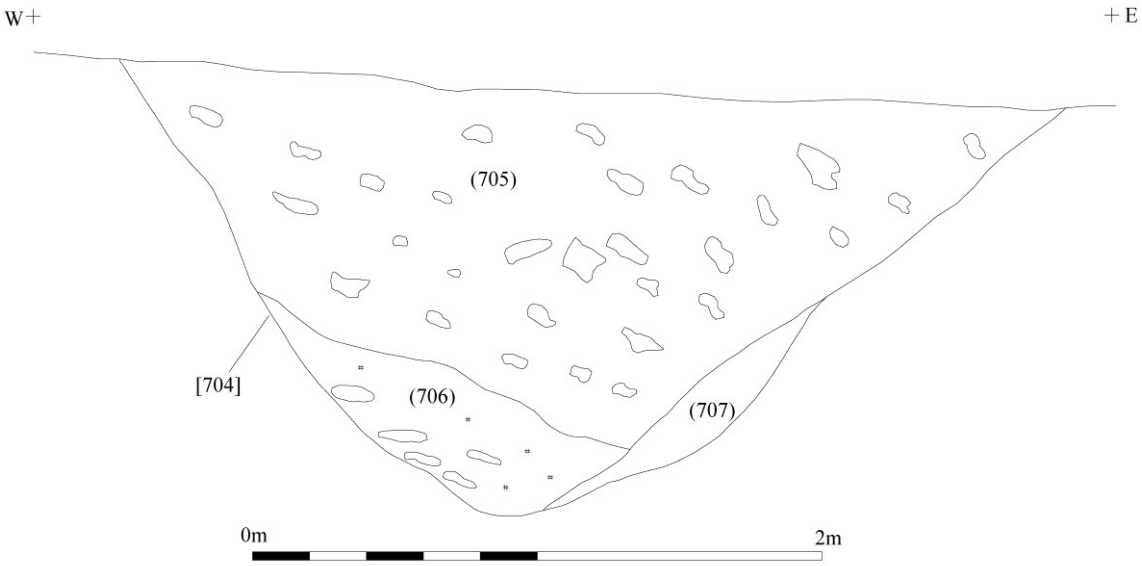


Figure 8 Section of enclosure ditch, northern section 530.01

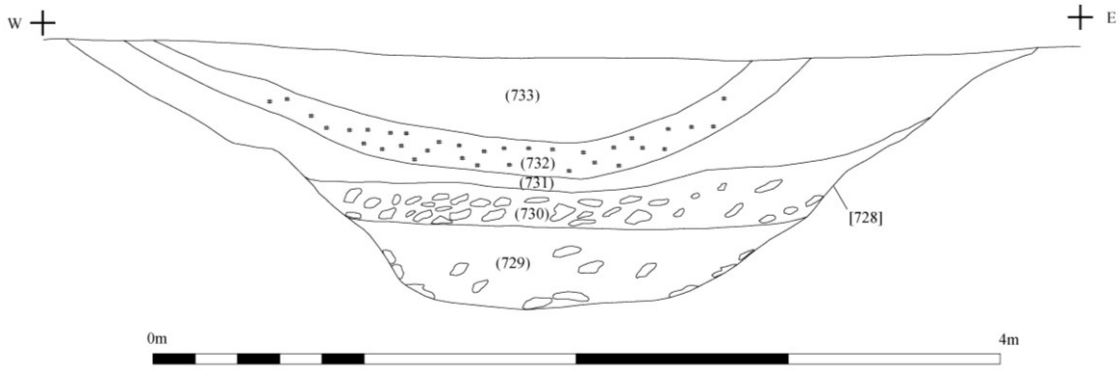


Figure 9 Section 540.01enclosure ditch corner

Figure 10 Enclosure ditch [704]
Looking north-west. 2m scale

Within the south-east of the enclosure ditch were three shallow pits and a short linear feature. Only one of the pits, [620], produced any dating evidence, again in the form of two Iron Age jar body sherds of the same fabric as that found in the gully behind the roundhouse. The sherds were recovered from the upper mid red-brown silty-clay fill (621) which sat above a similar, but stonier, layer (622). The two adjacent pits or large stake holes [661] and [662] contained similar fills but no finds. The 0.25m deep and 5.2m long linear feature [695] contained two similar fills but with a small amount of ash dispersed throughout.

The southern boundary ditch

Running from east to west along the southern boundary of the stripped area was a large ditch [534]/[544]/[601] which had a maximum width of 4m (Figs. 11-14). The sinuous shape of the ditch appears to be a result of it following the natural contour of the slope. During the 2009 evaluations this feature was identified as cut [07] and identified and sample excavated in four of the evaluation trenches although no dating evidence was recovered at that time. During this recent phase of work three slots were cut into the ditch at points along its length. At the eastern edge of the site, ditch [544] contained only four fills (545) to (548) showing a relatively simple sequence of backfilling although no datable finds were recovered from the section cut at this point (Fig. 11). A second slot [534] was excavated approximately 30m further west where a similar sequence of events could be seen but with seven fills including a number of washed–in silty layers (525) to (529) (Fig. 13). None of the layers appeared to show evidence of being deliberately backfilled and gave the impression of a gradual period of natural infilling over a number of years. At the base of this slot was evidence of a shallow 0.05m deep scoop [533] containing a mid-brown clay-silt with a significant amount of ash (532). This lay below a similar mid-brown clay-loam with frequent small pebbles but with no evidence of burning (530). At the base of [533] a human lower jaw bone was recovered. The jawbone was too fragmentary to positively determine sex or age but was possibly from a young female adult. This isolated, but deliberately buried find may be a reburial of remains from excarnation or similar practices. The uppermost layer of the ditch (523), contained one rim sherd and two body sherds of late Iron Age pottery of similar fabric to those found around the roundhouse area. However, the same fill also contained a badly abraded late 3rd or early 4th century base sherd suggesting that all of the pottery might have been introduced from elsewhere.

A third slot through the southern ditch [601] revealed a slightly different series of events with evidence of a re-cut [632] above a possible backfilled rubble layer (Fig. 14). No datable evidence was recovered from either the re-cut or the main ditch.

A short spur gully [510] running from the north side of the southern ditch near to where it ran beneath the south baulk failed to yield any dating evidence. The gully was approximately 0.4m wide and 0.15m deep with a mid red-brown sandy-silt fill (509). It may be a similar type of feature to the narrow north-west to south-east cross gullies seen elsewhere on site running between the two main boundary ditches.

The nature of the soil geology meant that only a limited quantity of animal bone was recovered during the excavation work. Of the bone that was recovered, most was in a fairly poor state of preservation making it difficult to determine butchery techniques. However, the limited quantity of bone that did survive showed that most came from within the fills of the boundary ditches and cross-gullies. Cattle and sheep/goats were predominant with a lesser amount of pigs present. Other species included horse, dog and a single example of a red deer. Appendix 3 discusses the animal bone in greater detail.

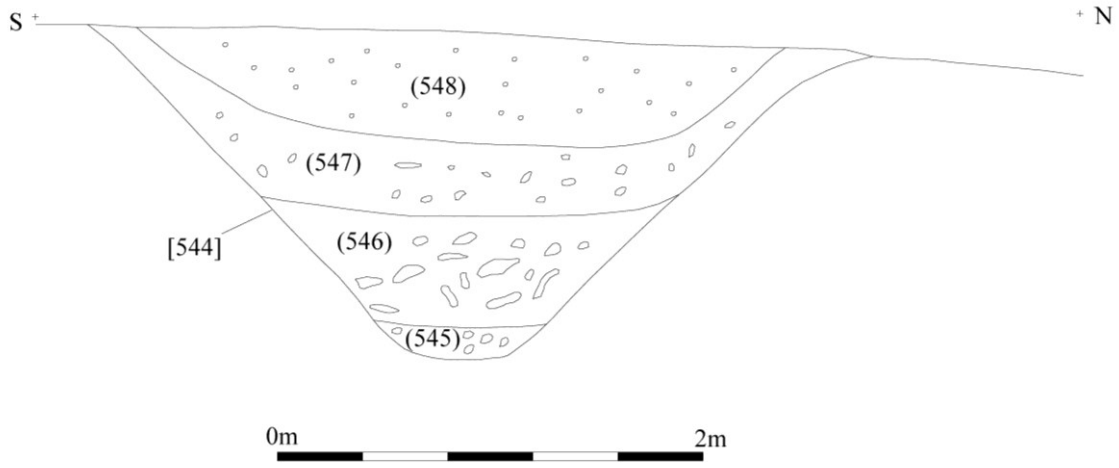


Figure 11 Section 509.01 southern boundary ditch near to eastern edge of site

Figure 12 Ditch [534]/[544] seen from south east corner of site
Looking west

Figure 13 Southern ditch [534] with cut [533] at base
Looking east. 2m scale

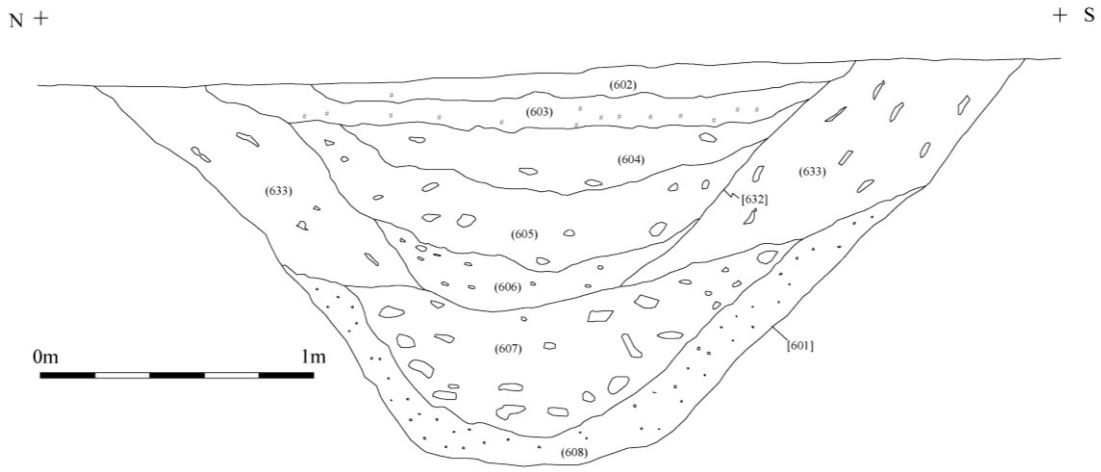


Figure 14 Section 522.01 Re-cut in southern boundary ditch

The cross-gullies

Running on a parallel alignment to the enclosure ditch were three narrow gullies dividing the space between the north and south ditches. The ditch in the west, closest to the enclosure ditch, was a 38m long, 0.5m wide and 0.2m deep feature [646]/[648] containing a brown-grey clay-silt fill. No datable finds were recovered from this feature. Approximately 25m east of this gully was a similar feature comprising two lengths of gully containing a similar fill to the western gully. Gully [715] formed the

northern length and [680] formed the southern length. With the exception of a single sherd of Central Gaulish Samian which was recovered from the top of fill (647), most probably from the base of a Form 37 bowl of mid-2nd century date, no other finds were recovered from either feature.

A further 15m to the east lay the easternmost pair of gullies [654]/[612] and [568] with terminals with gullies [715] and [680] lying midway between them. The northern part of the gully [654] contained an upper fill containing a total of 15.21kg of Iron Age pottery which represented over 70% of the entire sherd assemblage for the site (Figs. 15 and 16). In the secondary fill (651) was a single quern fragment weighing over 4 kg and dating to the later 1st to early 2nd centuries AD. The millstone grit fragment is from the upper half of an early form of beehive rotary quern. At the base of [654] was a washed-in primary fill (655) of light orange-brown clay-silt with no finds. Above this fill lay what appeared to be deliberately dumped layers and lenses of mid brown silty-clay containing concentrations of limestone, burnt clay, stone debris and pottery. The nature of the deposits appeared to represent the cleaning out of a kiln or similar feature. The pottery has been identified as being from a minimum of eleven vessels comprising large, scored barrel-shaped or slack shouldered jars made from fossil shell-tempered clay. The date is thought to be middle to late Iron Age. The southern portion of this gully feature [518] also contained twenty one sherds of the same jar fabric as in the southern gully, however in this case only a single mid red brown silty clay fill (519) was encountered. Because of the date spread of the finds it seem probable that these cross-gullies are likely to have Iron Age origins but remained in use as boundaries into the Roman period. The easternmost gully [654] certainly mirrored the others in shape and form but was clearly being used during the Roman period.

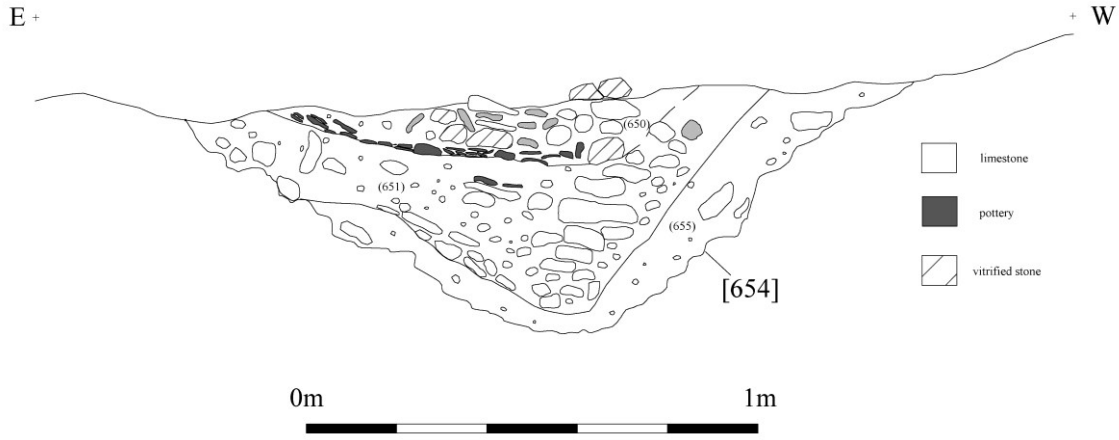


Figure 15 Section through gully [654]

Figure 16 Gully [654]
Looking south. 0.4m scale

Between gullies [654] and [715] was an area with shallow intercutting pits and some short sections of narrow features which were initially identified as the remnant of a possible roundhouse gully. Following cleaning and excavation the area which had initially appeared to be a large central feature was identified as an area of natural hillwash material within the colluvial spread identified during stripping. A small post hole [543] near to the spread contained a mid brown silty-clay fill (542) but no finds. A shallow curving gully [541] approximately 4m long and 0.4m wide, to the north-east of [543], contained 22 sherds of Iron Age jar fragments and may have been used as a dumping area in the same way as the adjacent gully [654]. Two 1.5m lengths of fairly ephemeral gullies [560] and [561] might possibly be associated with each other as the last surviving remnants of a roundhouse gully although the lack of finds makes it difficult to date.

The quarry pit and north - south ditch

Midway between the north and south boundary ditches, towards the eastern end of the site, was a 7m diameter 1.2m deep quarry pit [505]. This was investigated in the 2009 evaluation as feature [10] and was tentatively identified during the investigations as an undated quarry pit. Sample excavation during the present phase of work confirmed it as a backfilled quarry containing four tipped fills consisting of light orange-brown silty-clay containing varying quantities of limestone fragments (fills (570), (571), (504) and (572)). Five Iron Age jar body sherds were recovered from the central fill (504). The feature may be associated with the possible lime kiln to the south-east which is discussed below.

To the north of the quarry pit was a 1.6m wide ditch [516] running south to north downslope towards the northern boundary ditch. This feature was investigated in 2009 with the conclusion that it was a shallow linear possibly used for quarrying. No datable material was recovered at that time. A slot across this feature during the present programme of work revealed a silty-clay fill with a large amount of limestone fragments throughout but again no dating evidence. Investigation at the northern end of this feature showed the base to gradually rise up and not touch the edge of the northern ditch. It is possible that this ditch is associated with the quarry pit.

Possible lime kiln

South of quarry pit [505] and ditch [516] lay a 3m diameter pit [522] with a small tail-like feature to the south east which may be a very small stoke-pit. A halo of heat-affected natural around the edges of the feature indicated a great deal of heating had taken place. The feature contained three fills all of which appeared to have been tipped in a series of deliberate backfilling episodes (Figs 17-18). The earliest fill (551) consisted of a heat affected dark red grey silty sand with a large quantity of compacted small limestone fragments and no finds. The later two fills (550) and (549) contained similar heat affected silty sand but with varying amounts of burnt limestone. Again no datable finds were recovered from the feature although its shape and fills suggest it could be a lime kiln.

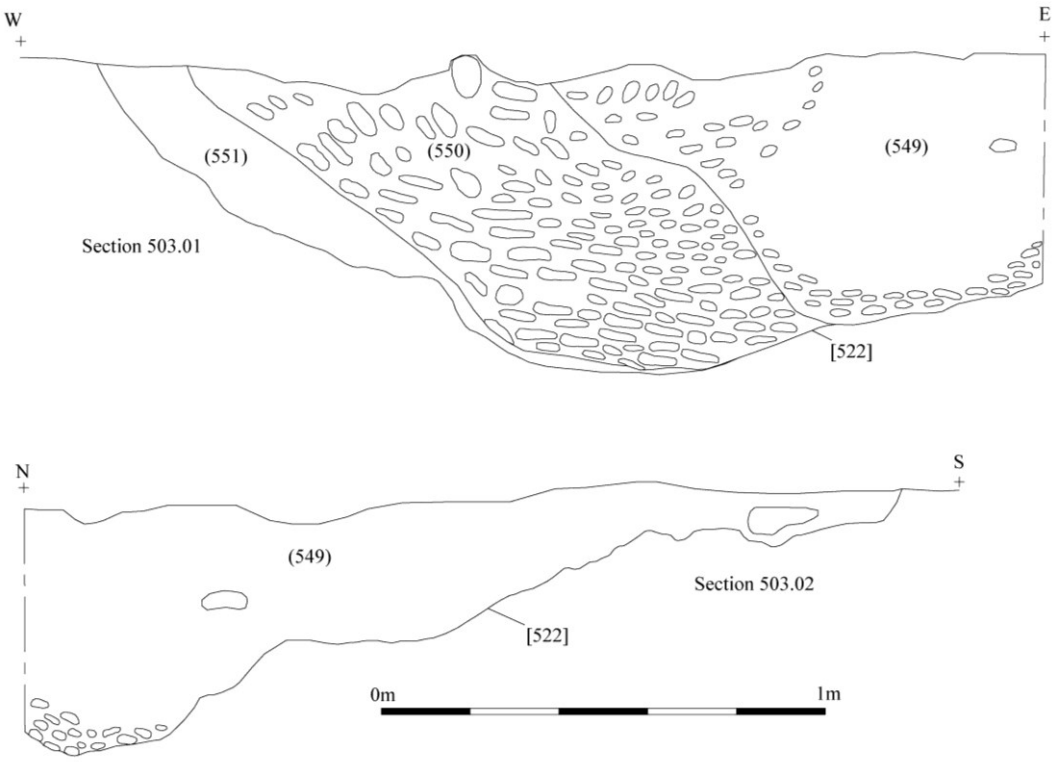


Figure 17 Possible lime kiln section
Top: main pit, bottom: possible stoke-pit

Figure 18 Possible lime kiln [522]

Iron working area

Midway between slots [534] and [601] in the southern ditch and cut into the upper backfill layers was a probable ironworking hearth [512] (Figs. 19 and 20), with a nearby dump of slag and burnt material [565]. This appeared to be a fairly temporary area of iron-working and formed a small central pit approximately 0.25m deep with a possible flue to the west containing a mid grey-brown silty-clay (513) with small amounts of ash, charcoal, burnt clay with some metal slag. The central pit contained a similar fill but with more charcoal which was found in larger lumps (514). To the east of the central pit was a 2.5m long channel containing a similar fill to (513) but with a large quantity of slag material which may represent an area of metal extraction from the central pit (539). Beyond this was a thin spread of burnt clay, slag and ash (515) which may be the remnants of cleaning out the metal-working feature. Most of the slag from this feature was tap slag with some fragments having attached furnace lining.

Two body sherds of a burnished Belgic type jar were found in fill (514) and seven fine shell-tempered burnished Belgic jar sherds of a similar date to those in fill (539). A fragment of a circular loom weight was recovered from this feature which appeared to have become partially vitrified. It is likely that this residual feature became mixed with the hearth contents by accident.

Figure 19 Ironworking feature [512] during excavation
Looking east. Central pit being dug

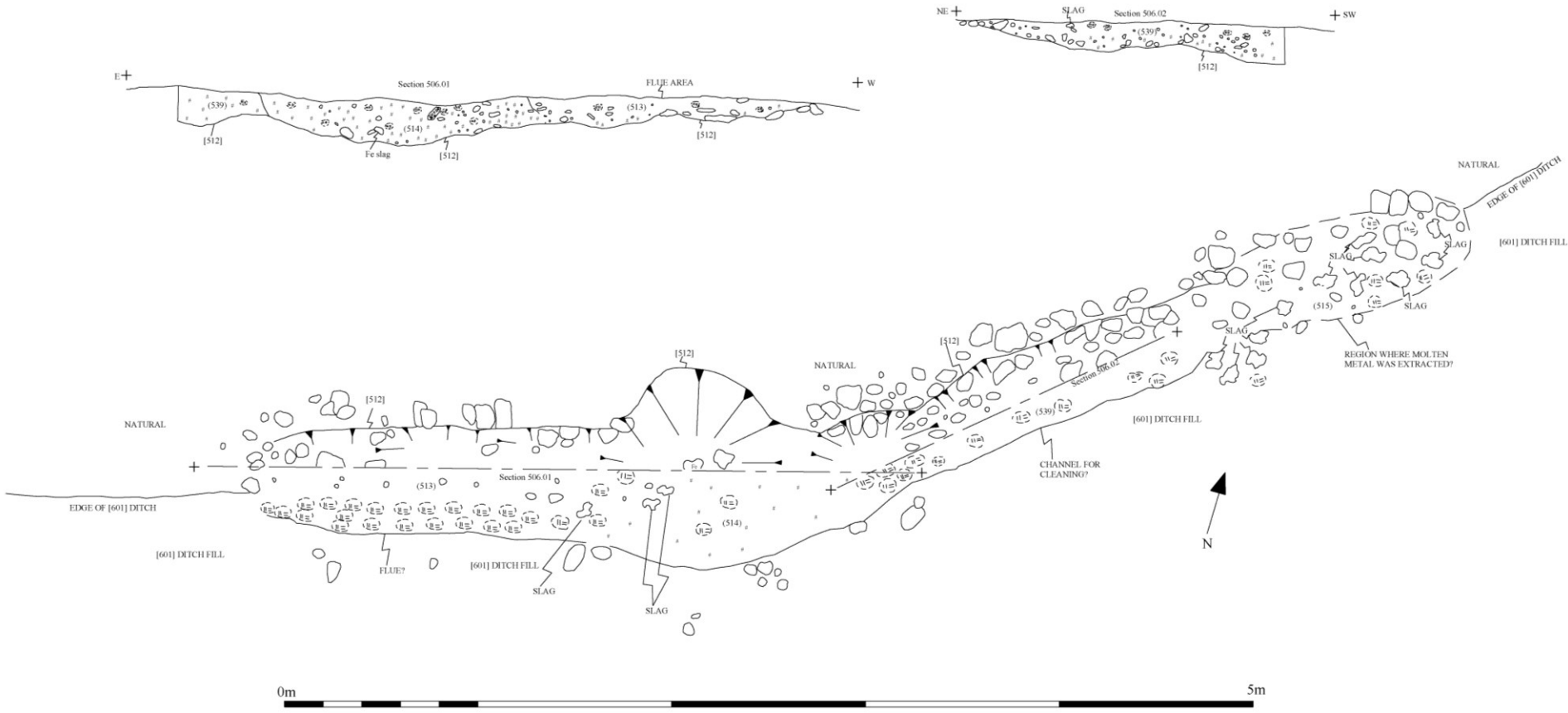


Figure 20 Sections and plan of metal working feature cut into southern boundary ditch

The kilns

South of the northern boundary ditch, near to the small cross-gullies lay three small pottery kilns cut into the natural substratum. All of the kilns had a halo of red, heat-affected, natural around the edges indicating that a great deal of heat had been generated within the features.

The larger, and best preserved, kiln [679] contained a large stoke-pit to the north-east and a firing chamber with three flat pieces of limestone set vertically to support kiln-bars, none of which were present (Figs 24-25). It is not clear if the kiln-bars would have been made from clay or from suitably shaped pieces of limestone. The three flat pieces of limestone were badly cracked and had clearly been subject to a great deal of heat. No toolmarks could be seen on the vertical kiln-bar supports and they appeared to have been selected for their shape rather than being worked. The two components of the kiln were joined by a short length of flue (678) which had partially collapsed but was originally constructed using flat stones to create a roughly formed arch (Figs. 21-25). The walls of the flue were made from two flat pieces of limestone. Full excavation revealed the feature to have a roughly circular firing chamber with a diameter of approximately 1m which cut into the natural by 0.8m. The elongated oval stoke-pit was approximately 0.4m wide and 1.5m long with a distinct curve to the south. Whether this shape was from deliberate digging to create this shape or from repeated raking out is not clear. The base of the stoke-pit sloped from around 0.3m down to 0.7m next to the flue.

Figure 21 Section through kiln [679]

Figure 22 Kiln [679] fully excavated
Looking west

Figure 23 Kiln [679] collapsed flue
Looking west

Within the firing chamber, at the base of [679], was a thin layer of burnt red orange sandy clay material (677) which might be the remains of a clay lining. Only four sherds of Bourne-Greetham shell tempered ware were recovered from this layer. Above (677) was a burnt silty sandy layer with a large amount of charcoal (676) which may represent the burnt debris and rakings from the final firing. Twenty two similar shell tempered ware sherds were found within this layer. A similar layer (672)

was noted on the eastern side of the kiln in the stoke-hole area and is thought to be part of the same deposit, or at least from the same episode. A large quantity of shell tempered ware from the same vessel forms as those in (676) was also found in (672). These fragments may represent an accumulation of wasters created during a number of firing episodes. In addition to the pottery, a number of large fragments of black fired clay and also some pinkish-black-grey clay some with fingerprint impressions were recovered from (672). These are likely to have come from the clay lining of the kiln superstructure. Above both (672) and (676) was a mixed yellowish grey clay with large flat blocks of limestone identified as (671) in the stoke-hole area and as (675) in the main firing chamber. Frequent charcoal flecks and lumps were seen throughout the deposit although no finds were recovered which is perhaps unsurprising if this deposit forms part of the kiln structure. Again however, black fired grey clay fragments of kiln superstructure lining, also with finger indentations, were recovered from (675). Both deposits appear to be the backfilled remains of the kiln's clay-bonded stone superstructure which has been pushed back into the redundant kiln. It seems likely that the collapsed flue (678) was pushed in, or collapsed at the same time as these two deposits were created. Within the tumbled (678) deposit were more sherds of Bourne-Greetham shell-tempered ware from both jars and dishes suggesting that this may have been mixed with other. Two layers of mid brown silty-clay with small limestone fragments, but with less charcoal, (670) and (674), lay above deposits (671) and (675). These layers were more consistent with natural silting and backfilling of a depression rather than deliberate backfilling although some burnt clay kiln lining material and numerous sherds of Bourne-Greetham shell-tempered ware were found near to the base of fill (674).

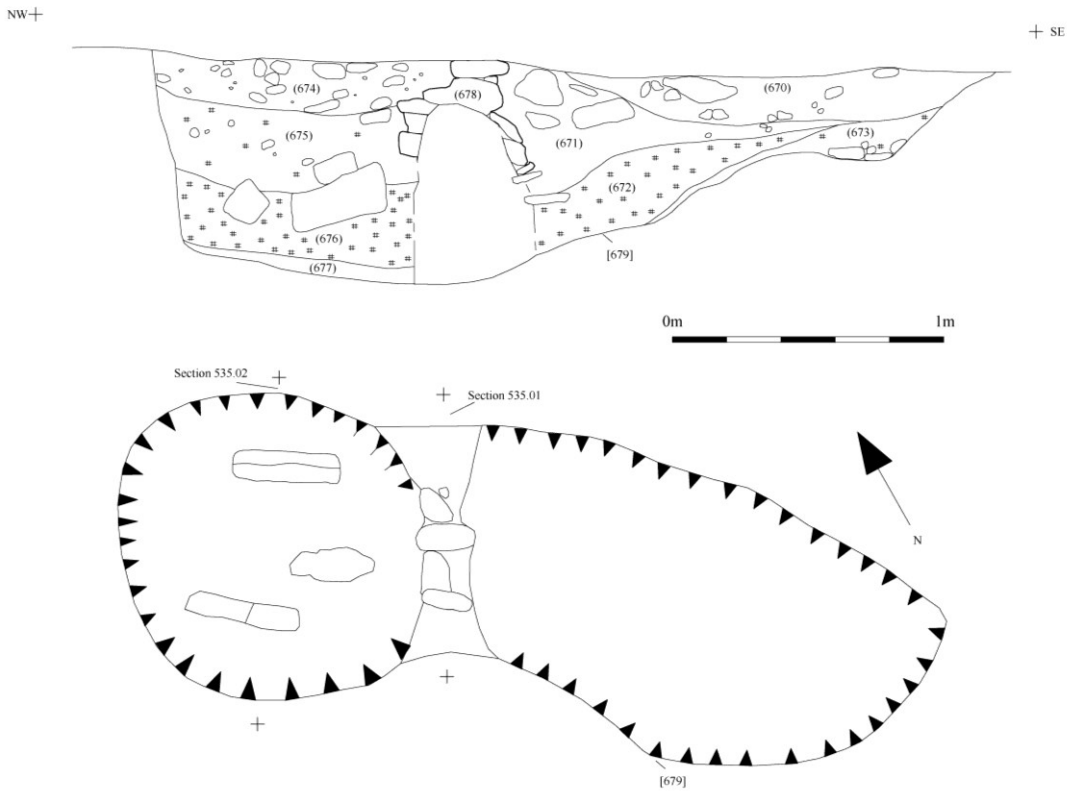


Figure 24 Main kiln [679] plan and half section

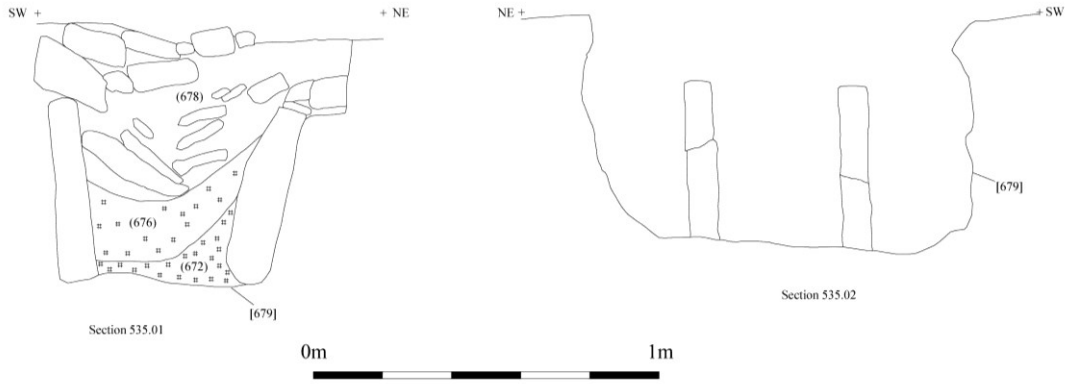
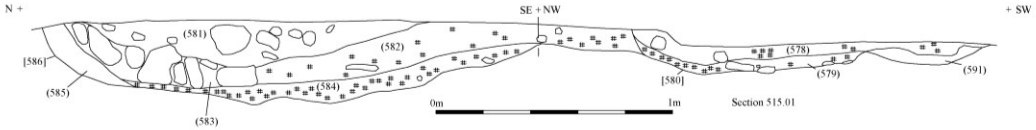


Figure 25 Main kiln, sections across flue and firing chamber

To the south east of kiln [679] was a similar, but smaller kiln [586] (Figs 26 -28). This was cut at its southern end by a much smaller kiln feature [580]. Both showed evidence of high temperature affecting the base of the firing chambers and the surrounding natural stones. Kiln [586] had a firing chamber measuring approximately 0.9m in diameter but only 0.3m in depth. The stoke-pit, which, was partially cut by [680], formed an elongated oval as seen in kiln [679]. Although quite heavily truncated there was evidence of a stone-lined flue and some collapsed burnt clay lining. Although a number of large stones were found within the firing chamber during excavation none were clearly part of any surviving kiln furniture. At the base of the feature was an ashy silty layer (584) which, in a similar way to that seen in [679], and which appeared to represent the final firing layer. A mix of Bourne-Greetham shell tempered ware and Lower Nene Valley Grey ware sherds were found within this layer. Above (584) was a mixed brownish grey silty clay layer (582) with frequent lumps of limestone similar to (675) in [679]. A large assortment of Bourne-Greetham shell tempered ware and Grey ware was found throughout (582). Pressed against the northern end of the firing chamber was an area of burnt or heated affected clay and flat stones (583) which may be part of the original kiln lining. No finds were recovered from this material which was partially overlain by (582). Sealing (582) was the pale brown sandy-clay upper fill (581) of kiln [586]. This fill contained a large quantity of burnt clay and stone which presumably originated from the kiln superstructure. A large number of Bourne-Greetham shell-tempered ware and Grey ware was found throughout this layer as well as two joining sherds of Lower Nene Valley colour coated ware.

As already mentioned, a smaller kiln, [580] partially truncated the south-west end of the stoke-pit belonging to kiln [586]. This kiln, running at right angles to [586], measured approximately 1.4m in length and 0.4m wide with a maximum depth of 0.2m. The stoke-pit for this kiln cut the stoke-pit of the other kiln so it is possible that the two kilns may have been used at the same time using a combined fire. No clear distinction between the flue and firing-chamber could be seen in this truncated feature. In the same way as the other two kilns the base of this kiln also had a charcoal rich layer (579) which was the remnant of the final firing. A small quantity of Bourne-Greetham shell tempered ware and Grey ware was found in this fill. The uppermost

fill sealing (579) was a dark grey clay-silt backfilled material (578) with a large amount of ash and burnt clay debris. Sherds of Bourne-Greetham shell tempered ware and Grey ware were found throughout.



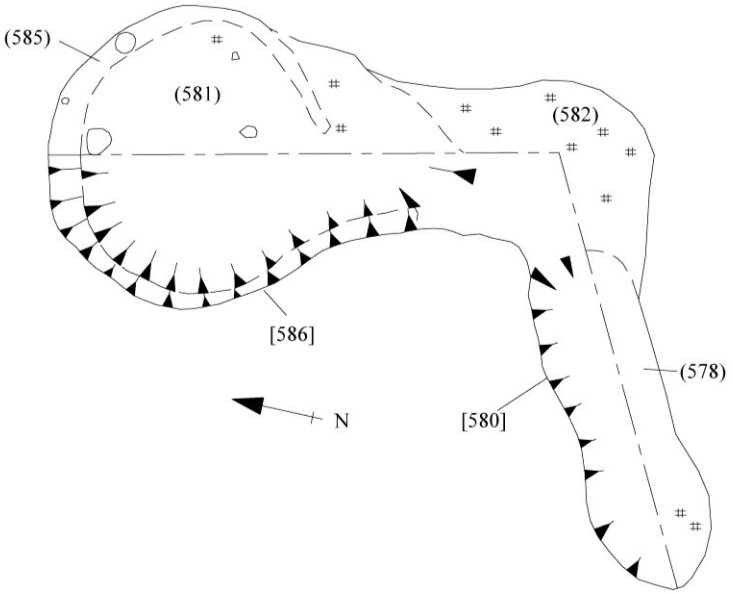


Figure 26 Kilns [586] and [580]

Figure 27 kilns [586] and [580]
Looking east. Stoke-pits in centre of photograph

Figure 28 Fully excavated [586] and 580]
Looking north. Kiln [580] in foreground

Northern boundary ditch

A wide linear feature identified on the geophysical survey running along the entire northern border of the excavation area was clearly visible when stripped. Evaluation trenches near to the western end of the site in 2009 investigated this feature which produced pottery of Romano-British date. The evaluation results suggested that the ditch might turn south to become ditch [516] as discussed earlier. However, full stripping of the site showed the ditch to run as a broad feature from the western edge of the site towards the top centre where it apparently split into two shallow ditches partially obscured by hillwash material. The meandering nature of the ditch followed the contours of the base of the slope. Because of the size of the feature four slots were excavated by machine at intervals along its length.

The machined slot at the east end of the site revealed two parallel ditches [535] and [537] partially overlain by a broad spread of silty colluvial material (554) and both cutting into layers (555) and (556). Both these layers were extremely silty and are also likely to be colluvial spreads (Figs 27-28). No datable material was recovered from either the ditch or from the colluvial layers. The topmost colluvial spread (554) appeared to curve northwards out of the stripped area preventing further investigation at this point; it is presumed that the ditches also curve to the north as they were not visible cutting into the natural in the stripped area. One of the 2009 evaluation trench 25m to the west of this slot and beyond the northern edge of the present work suggested that between these two points the ditch had become a single feature. It is therefore possible that [535] and [537] are recuts of the same boundary which for some reason have diverged at the eastern edge of the site.

Three more slots were cut into the northern ditch on the western side of the site. Along this length the ditch was seen as a single feature [720] with a width varying between 5-6m with apparently no visible recuts. During initial machining sherds of later 2nd or 3rd century pottery were recovered from the upper levels of the fills. No other finds were recovered from this feature. The backfilled material in each slot comprised a fairly clean, sterile clay-silt containing large amounts of limestone rubble. The nature of the deposits suggests deliberate backfilling rather than gradual silting (Figs 31-32).

Figure 29 Northern ditch at east end of site seen as two small ditches
Looking west. 2m scales

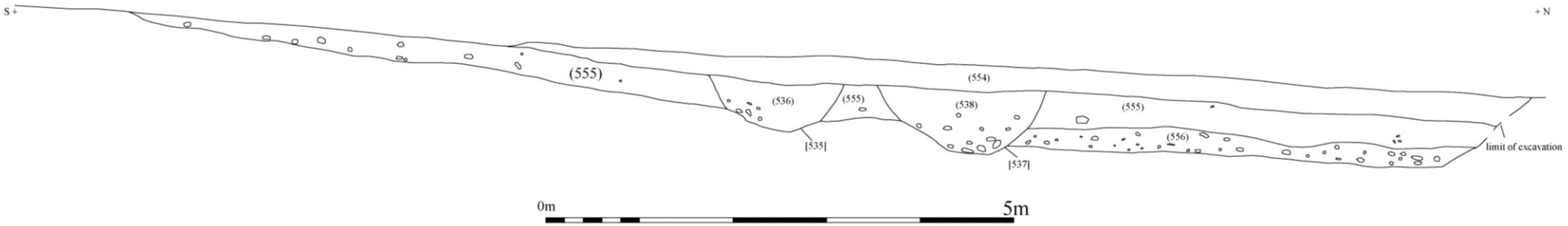


Figure 30 Northern boundary ditches [535] and [537] at east end of site

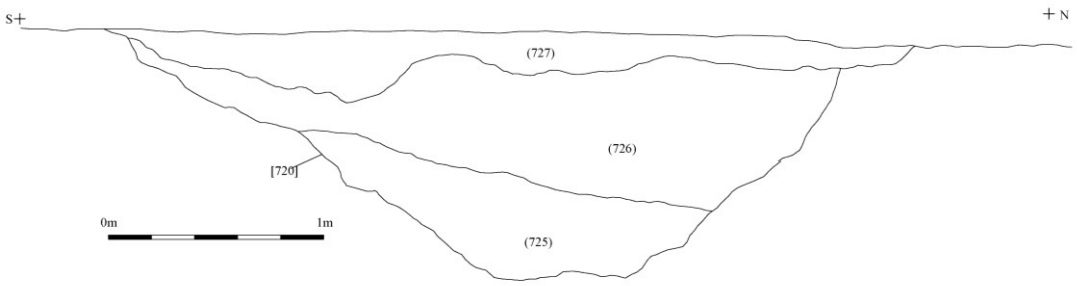


Figure 31 North ditch at west end of site

Figure 32 Machine cut slot through north ditch at west end of site

Hearth feature

On the northern side of the northern boundary ditch was a small hearth or possible drier type feature [557] which prior to excavation had the appearance of another small kiln (Figs 33-34). The overall shape comprised an elongated keyhole shape measuring approximately 1.1m in length and 0.6m at its widest point. Excavation revealed evidence of a heat-affected base at both ends of the feature with two main fills. Fill (566) in the main chamber of the feature consisted of a light brownish grey sandy silt with charcoal flecks which did not appear to be the remains of a firing or burning episode. No finds were recovered from this fill. The second fill, (567), was similar to (566) but slightly darker in shade and again did not produce any datable finds.

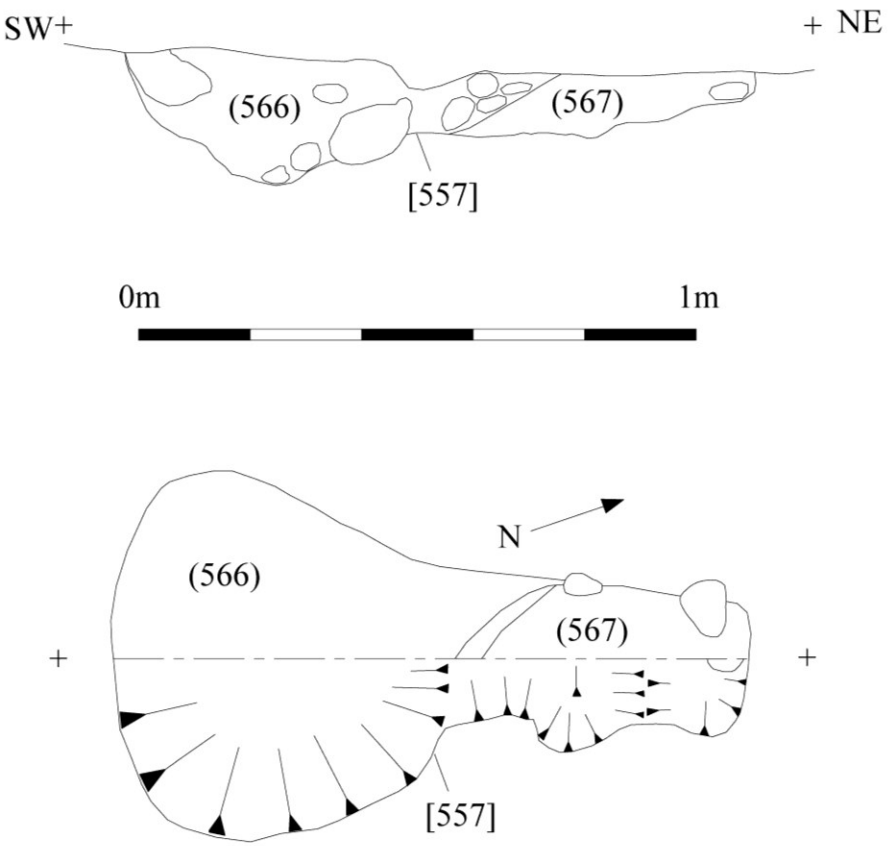


Figure 33 Hearth feature to north of northern boundary ditch

Figure 34 Hearth [557] half-sectioned
Looking west. 1m scale

Discussion

The result of the excavation is consistent with the geophysical survey and evaluation which identified the main features and their date and extent. The survey also to some extent picked up some of the changes in the natural substrata as well as the areas of colluvium.

Overall the nature of the features and finds indicates that the site was active between the late Iron Age and early post-conquest period. The roundhouse and associated finds clearly date from the late Iron Age and may suggest that this part of the site represents the eastern limit of domestic activity which extends westwards beyond the present limit of excavation. The nearby enclosure ditch appears to part of this domestic area and may form part of a small settlement enclosure commonly seen in local late Iron Age settlements for example at Manor Farm at Humberstone to the east of Leicester (Thomas 2011). The roundhouse may be the easternmost structure in a linear form of settlement. It is possible that the northern and southern boundary ditches and smaller cross-gullies may be an extension of the settlement. The lack of roundhouses, or even structures in this area, would suggest that much of the excavated area was used for some form of agricultural activity which had clear boundaries to the north and south. The cross-gullies may have acted as holding pens to contain animals ready for milking or shearing or other regular activity.

No evidence was seen for an entrance across either boundary ditch although the transition between two shallow ditches to a single wide ditch on the northern ditch may suggest the presence of an entrance there at one point. The geophysical evidence however shows a continuous feature so if there ever was an entrance it must have been extended to create a continuous feature. It may be assumed therefore that, during the final stages of use at least, the gaps between the cross-gullies formed the only entrances between each enclosed area.

The dating evidence indicates that the main boundary ditches were backfilled soon after the Roman conquest. At about this time, or shortly afterwards, the area appears to have changed from an agricultural environment to a more industrial environment. The presence of a small metal-working hearth dug into the southern ditch supports the idea of a wider area being used for industrial work rather than an enclosed system. The kilns are probably the most outstanding features from this period and were clearly built with some degree of expertise.

The pottery recovered from the kilns is predominantly from jars belonging to the Bourne-Greetham industry of north Rutland and South Lincolnshire (Swan 1984, 21, Map 13; Bolton 1968, 1-3). Two examples of these kilns have been excavated. One is east of Greetham, Rutland (Bolton 1967-8, pl.1; Swan 1984, 147, fiche 4.576) three miles to the north of Stamford, while the other was excavated at Bourne Grammar School approximately seven miles to the north-east of Stamford (Swan 1984, 141, fiche 3.436; J. Samuels and R. Pollard unpublished archive notes). Many of the kiln products recovered are poorly manufactured with distortion and cracks and appear to be waste products.

The kilns are broadly comparable with non-specialist kilns in the southern Corieltavian territory. During the 1st and 2nd centuries these were broadly similar to the La Tene 'Belgic' kilns that developed in the Nene and Ouse Valleys. These comprised a circular firing chamber with a portable floor support of clay on which rested tapering kiln bars arranged like the spokes of a wheel (Swan 1984, 122).

However, the distinctive feature of kiln [679] is the existence of two limestone blocks set in parallel centrally in the chamber along the long axis of the kiln, which are a feature of the so-called 'Linwood-type' found in Lincolnshire. The nearest of these is at Colsterworth approximately 8 miles north of Stamford, along Ermine Street and dating to the later 1st or 2nd century (Swan 1984, 122-3, pl.45).

Although the structures were demolished, the presence of the stone and clay superstructure gives an indication of their relative permanence within the landscape. It would seem likely that close to the kilns would be a number of workshops, drying huts and other associated structures. No traces of these survived but they would in all probability have been relatively light-weight and temporary structures. It can be assumed that the workers using the kilns and metal-working areas still lived close by.

Overall the excavation has revealed evidence of the outskirts of a rural settlement dating from the late Iron Age through to the early Roman period. The evidence from the animal bone was limited due to poor preservation but the assemblage was dominated by cattle and sheep/goat suggesting a reliance on domestic stock with little evidence for hunting.

Environmental evidence was extremely poor with virtually no charred plant or other remains in the processed samples. Charcoal from the kiln deposits suggests that oak, ash, hazel and hawthorn were burnt and presumably gathered from the immediate vicinity.

Despite the articulated human burial recovered in the south-east corner during the evaluations, no further burials were recorded. A fragment of human mandible

recovered from a pit in the base of the southern boundary ditch was probably a deliberate deposition - possibly a foundation deposit.

The focus of activity appears to have changed from agricultural to a more industrial nature probably in the early Roman period. This change of emphasis resulted in the infilling of the boundary ditches and the loss, or relocation, of domestic activity.

Publication

A summary of the work will be submitted for publication in the appropriate local archaeological and historical journal in due course. A record of the project will also be submitted to the OASIS project. OASIS is an online index to archaeological grey literature.

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Appendix 1: Iron Age Pottery - Nicholas J. Cooper

Introduction

A total of 1349 sherds of Middle to Late Iron Age pottery weighing 22.648kg were retrieved from 28 contexts, predominantly from the fills of the N-S linear ditch [654] towards the centre of the site, together with another substantial group from the curving ditch [629] immediately west of the roundhouse. An estimate of 80 vessels are represented across the assemblage as a whole varying in size from small jars of 100mm diameter to large storage jars of up to *c*.400mm.

Methodology

The pottery has been analysed by form and fabric using the Leicestershire County Museums prehistoric pottery fabric series (Marsden 2011, 62, Table 1), with reference to the Prehistoric Ceramic Research Group's Guidelines (PCRG 1997), and quantified by sherd count and weight.

Analysis of Assemblage by Fabric, Form and Decoration

The complete record of the stratified assemblage is held in archive in an MSExcel spreadsheet. The site lies at the eastern edge of the East Midlands scored ware tradition (Elsdon 1992a, 87) and as expected the entire assemblage is manufactured in a sand free, fossil shell-tempered fabric typical of eastern Leicestershire, Northamptonshire, Rutland and South Lincolnshire as seen at nearby sites such as Empingham and Whitwell (Cooper 2000; Todd 1981). The form and decoration of the vessels is considered in relation to the major excavated groups.

North-south linear ditch [654] fills (650), (651) and (652).

A total of 956 sherds (15.21kg) with an average sherd weight of 16g were recovered from this part of the ditch, representing 71% of the entire assemblage by sherd count. No pottery was recovered from the primary silting (655) and over 80% came from the main fill (651) and (652), with 133 sherds from the upper fill (650) including a cross-joining rim with (651). A minimum of 11 vessels are represented across the group in terms of individual rims recorded and these comprise large, scored, barrel-shaped or slack shouldered jars with upright (or slightly out curving or in-turned) flat rims, the external edges of which sometimes protrude and are rolled over to form a crude bead (Vessel 57). In one case (52) the flat rim extends to form an internal bead of triangular profile. All these larger forms are paralleled by examples from Empingham and Whitwell (Cooper 2000, 68, fig.32.2-3; Todd 1981, 23, fig.12.1, 20 and 28) with diameters ranging from 270mm and 340mm (Elsdon's Form 4, 1992b, 39, Fig.24.4, large and very large jars with slack profiles varying 320-360mm in diameter). It is notable that the group contains none of the smaller jars (Elsdon's Form 1, 1992b, 39, fig.24.1 with diameters of 110mm-130mm) found commonly in the assemblages at Empingham (Cooper 2000, 69 fig.33.15-21) or Whitwell (Todd 1981, 22, fig.12.11-13), and this is generally true of the assemblage as a whole.

Curving gully [629] fill (630) adjacent to roundhouse.

A total of 254 sherds (5.246kg) with an average sherd weight of 20g were recovered from this deposit. At least 13 vessels, in terms of identifiably separate rims have been identified, but only five were measurable, ranging in diameter from 100mm to 300mm. Whilst most of the vessels belong to Elsdon's (1992b) Form 4 large jar category with upright flattened rims (240-300mm), two examples of the smaller jar

(1992b) Form 1 category were also recorded (Vessel 39 and 44) with everted rims (100 and 130mm) and burnished or smoothed surfaces and no scoring apparent.

Metal working dump [565] (574), and metal working features [512] (513) (539) cutting southern ditch [534] and fills (523) and (527)

Small groups of scored ware were recovered from the fill of east-west ditch [534] running along the southern edge of the site. The metal working dump (574) included a large jar with flat rim and small rolled over bead (vessel 18), and a heavily vitrified sherd (Vessel 19) which presumably been incorporated into the hearth structure. Fill (523) contained a flat jar rim with diagonal slashes (vessel 8) similar to that from Empingham (Cooper 2000, 68, fig.32.2), and another example came from ditch fill (705) to the east of the roundhouse.

The only other notable group of sherds came from ditch [518] (519) which included upright flat rims from two large jars of Elsdon's (1992b) Form 4.

Conclusion

The assemblage indicates that all the pottery belongs to the East Midlands scored ware tradition current from the 4th or mid-3rd century BC to the earlier 1st century AD (Elsdon 1992a, 85, Fig.1.6), but in view of the high proportion of scoring recorded, a date in the Late Iron Age, 1st century BC or early 1st century AD is perhaps most likely. It bears close similarity to the assemblages from Empingham and Whitwell discussed above but the numbers of smaller vessels is limited in comparison.

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Appendix 2: Roman Pottery - Nicholas J. Cooper with Clare Calver

Introduction

A total of 850 sherds of Roman pottery weighing 26.5kg (12.2 EVEs) were recovered from two kiln structures [580] and [586] from Kiln 1 and [679] from Kiln 2, nearly all of which is considered to be the waste products of the pottery firing activity. Additionally, 17 sherds (1.025kg, 0.64 EVEs) recovered from [587] and [695] are also considered to be kiln product disposed of elsewhere on the site. The remaining pottery (80 sherds 931g), in a wide range of fabrics, derives from a number of contexts and is clearly domestic rubbish from the vicinity dating across the Roman period along with eight sherds of medieval date or later date.

Methodology

The material was classified using the Leicestershire Roman pottery form and fabric series (Pollard 1994, 110-114) and quantified by sherd count, weight and estimated vessel equivalents (EVEs) of both rims and bases divided by two. The full quantified record is held in digital archive as an MS Excel spreadsheet. These data are summarised below (Tables 1 and 2).

Kiln 1 [586] and [580]

Cut [580], the stoke pit extension, contained two fills, the upper (578) and the lower (579), which together yielded 75 sherds (1.308kg) of pottery, predominantly from the former. Cut [586], the firing chamber, flue and stoke pit, a contained 3 fills, upper chamber (581), flue and stoke pit (582) and lower (584), and yielded 382 sherds (10.377 kg) mainly from (582). The quantified analysis of the group by fabric is summarised in Table 1.

Table 1 Quantified summary of fabric present in Kiln 1

Fabric	Sherds	Weight	EVEs/2	% EVEs
C2NV	2	21		
CG1A	29	2825	0.8	10
CG3B	173	4397	3.8	49
GW12	181	2640	2.15	28
GW4	71	1752	1	13
GW5	1	10		
Total	**457**	**11645**	**7.75**	**100**

Six fabrics are represented in the assemblage, five of which (CG3B, CG1A, GW12 and GW4), representing 100% by EVEs, are considered to be the waste products of this or perhaps nearby kilns, that utilised disused examples as convenient dumps. The two joining sherds of Lower Nene Valley colour-coated ware (C2NV) from (581) and (582) with paired grooves around the body, almost certainly come from a flagon of pinch-spouted type (Perrin and Webster 1990, Fig.13.218), more usually seen in a grey ware fabric in the later 2nd and early 3rd centuries (Howe *et al*. 1980, no.14), and must represent domestic rubbish, incorporated into the kiln fill.

In the case of the large sherds of Early Roman shell-tempered ware storage jars (CG1A), which are vitrified and coated in mortar, have been brought in specifically as constructional elements in the kiln, perhaps as patching or temporary roofing.

The five fabrics considered to be kiln product comprise Bourne-Greetham-type shell-tempered ware (CG3B) accounting for 49% by EVEs, along with larger sherds of earlier Roman necked storage jars (CG1A) (10% EVEs). The fabric of the latter is essentially the same as CG3B but the distinction is made on the basis of the distinctive forms involved in each case and there is no reason to think they were not made in the same kilns. The reduced ware fabrics comprise Lower Nene Valley-type grey ware (GW4) at13% and a black-surfaced grey ware (GW4) contributing 28%. The remaining body sherd is in a medium-coarse grey ware fabric (GW5), decorated with random toothed-comb impressions which appears to be a practice piece. This decoration is not common on Roman pottery and only a single vessel from the assemblage (Vessel 30) in GW4 bears it.

Kiln 2 [679]

Cut [679], the firing chamber etc. contained fills (670), (672), (674), (675), (676), (677) and (678) which together yielded 393 sherds (14.882kg), mainly from upper fill (675) but also from lower fills (672) and (676). The quantified analysis of the group by fabric is summarised in Table 2.

Table 2: Quantified summary of fabric present in Kiln 2

Fabric	Shds	Weight	Eves/2	% Eves
CG1A	8	580		
CG3B	344	12975	4.03	91
GW12	4	55	0.18	4
GW4	7	117	0.2	4
GW9	30	1155	0.04	1
Total	**393**	**14882**	**4.45**	**100**

The assemblage is dominated by the Bourne-Greetham-type shell-tempered ware (CG3B) at 91% by EVEs with only small amounts of reduced ware products. Fabric GW9 is a coarse grey ware with small amounts of coarse shell temper which may be related to the Bourne-Greetham-type products and likely to be products of the kiln. The rim of the vessel in GW9 from (675) has mortar adhering, indicating that it was later incorporated into the kiln structure. The shell-tempered storage jar sherds (CG1A) from (675) were, like those in Kiln 1 likely to be products of the kiln.

Analysis of the kiln products by form, fabric and decoration

The Bourne-Greetham shell-tempered wares (CG3B)

The predominant products were jars manufactured in both the style and the shell-tempered fabric, of those belonging to the Bourne-Greetham industry of north Rutland and South Lincolnshire (Swan 1984, 21, Map 13; Bolton 1968, 1-3). Two kilns of this industry have previously been excavated, at Greetham Rutland (Bolton 1967-8, pl.1; Swan 1984, 147, fiche 4.576) and at Bourne Grammar School (Swan 1984, 141, fiche 3.436; J. Samuels and R. Pollard unpublished archive notes). The products show obvious signs of being waste products due to poor manufacture and the occurrence of distortion and cracks. As here, the products of both kilns were predominantly jars, along with straight sided dishes with beaded rims (Bolton 1968, fig.1). The jars vary in size and detail of rim but are consistently shouldered, with a short neck giving way to an out-curving or beaded rim. Decoration consists of two or three horizontal

shoulder grooves. The present assemblage of CG3B vessels from the kilns (which also includes lids from Kiln 1), together with the material from [587] and [695], totals 534 sherds, 18.397kg, and 8.5 EVEs (16.99 EVEs for rims and bases divided by 2). The quantified analysis by vessel form is as follows (Table 3).

Table 3: Quantified Summary of Bourne-Greetham Vessel Types

Form	Type	Sherds	Weight	EVEs/2	%EVEs
Jar	GRT1/9/10	508	17632	7.46	88
Jar	BOURNE 2	3	135	0.11	1
Dish	EMP 53	10	421	0.55	6
Lid	Flat	11	80	0.38	5
Handle	Square	2	129	0	0
Total		**534**	**18397**	**8.5**	**100**

The majority of the jars are comparable to the published examples from the Greetham kiln (Bolton 1968, fig.1.1, 9 and10), the unpublished examples from the Bourne kiln (Samuels and Pollard unpublished figs. 1, 2, 4 and 7). They are also comparable to the middle 2nd century group from Empingham Site 1, five miles up the Gwash Valley to the west (Cooper 2000, 75 Ph.2B F1, fig.38.47-51 and fig.40.61) and the Early-Middle 2nd century pit group at Normangate Field, Castor, seven miles to the south on Ermine Street (Perrin and Webster 1990, 40, fig.5.54-57). At Empingham, the Bourne-Greetham ware made up 29% of the Phase 2B F1 destruction deposit (Cooper 2000, 75, Table 14 and Fig.46 CP2).

The jars can be further analysed in terms of rim diameter which range from 140mm to 230mm. Twenty-nine rims of the standard jar type were measured and the results are tabulated below (Table 4).

Table 4 Rim diameters (mm) of Bourne-Greetham jars of Bolton Type 1/9/10

Diameters of Bourne Greetham Jars (CG3B) from the Stamford Kilns									
Dia.mm	140	150	**160**	170	**180**	**200**	210	220	230
No	1	1	**8**	1	**5**	**7**	2	3	1

The above analysis shows that standard rim sizes of 160, 180 and 200mm (with occasionally larger examples), were being produced and this is in line with the standard size of BB1 jars during the 2nd century, for example.

There was a single example of a narrow-mouthed jar (diameter 140mm) with a cordon at the base of the neck, an out-curving rim and shoulder grooves from (589) [587] which matches one of the forms produced at the Bourne kiln (Samuels and Pollard unpublished fig. 2).

There are a small number of bases from large jars in the Bourne-Greetham fabric which are too narrow to be from the standard forms described above (Vessels 1, 2, 15, 16, 59 and 60). All are poorly made, have mortar adhering and some are vitrified. Vessels 1 and 15 have narrow slightly pedestalled base and wide bodies and could be very crude lids not unlike those from Normangate Field, Castor (Perrin and Webster 1990, fig.7 101).

Only two dishes were recovered, Vessel 50 from Kiln 1 and Vessel 94/105 joining from fills (675) and (678) in Kiln 2. The first has a beaded rim and curving sides and a diameter of 240mm, and is not closely paralleled by the dish forms from the Bourne or Greetham kiln assemblages. The second vessel is with a diameter of 170mm and depth of 55mm has an upturned bead or flanged rim with a single groove on top. Two of the dish forms from Bourne have such grooves (Samuels and Pollard unpublished fig.12 and 13) but the sides are sloping rather than straight and slightly convex making them closer to the examples from Empingham Cooper 2000, Site 1, Phase 2B F1 group, 80, fig.38.53 and 54 with groove, and Fig. 41.88 with sloping sides).

All six lids identified come from Kiln 1 and with the exception of one (V45) with a diameter of 280mm, all have a diameter of 160mm, making them compatible with the smallest standard jar size. The form of the lids is also consistent; they are thin bodied with a rounded or squared off rim and the underside has a shallow depression around the circumference to sit on the rim of the vessel being covered. No lids were recognised in the Bourne or Greetham assemblages, a factor which may have been dictated by their fragility, as they can easily be missed amongst the body sherds. They are not commonly recognised on consumer sites either although one, similar to the larger example above, came from Normangate Field (Perrin and Webster 1990, 61, fig.16.304).

The most unusual vessel evidence in the Bourne-Greetham fabric is the single occurrence of a straight, square-sectioned saucepan-type handle. The stub with the handle attachment came from [695] (V26) alongside a number of 'standard' jar rims, whilst the squared-off terminal of the handle came from Kiln 2 (676) (V102). The two do not join but are almost certainly from the same handle which would have a length of at least 110mm. It must have been part of a large vessel as the attachment point is flat and 75mm in width. Assuming that the handle attached to a vertical surface, it appears to project out just above the horizontal.

The Lower Nene Valley-type grey wares (GW4) and black-surfaced wares (GW12)
A total of 264 sherds, weighing 4.574kg, and with an EVEs value of 3.5 (7.01 rim and base EVEs/2) of fine reduced fabrics (GW4) and (GW12) were recovered, almost entirely from Kiln 1, with just 11 sherds from Kiln 2. The fabrics are represented in the mid-2nd century destruction groups at Empingham but in relatively small amounts (Cooper 2000, 75, Table 14). The variation apparent within this kiln group and on consumer sites indicates that the GW4 fabric category (light grey fabric with slightly darker surface) is a broad church, with many potential sources at this early date, and is one that narrows when production concentrates in the Lower Nene Valley in the middle decades of the 2nd century and through the 3rd (Howe *et al.* 1980) and the fabric (essentially a reduced version of the same Upper Estuarine Series clays used for the colour-coated wares) becomes more standardised. Similarly, the fabric category GW12 is applied loosely here for all darker grey reduced wares with black surfaces, whereas in contemporary consumer site assemblages such as Empingham, it is associated specifically (often with a micaceous fabric as here also) with imitation samian products of the so-called 'London Ware' tradition in the 2nd quarter of the 2nd century (Howe et al 1980; Cooper 2000, 85, fig.41.92-93).

The grey wares found in the kiln are assumed to be kiln-product on the basis of the occurrence of obvious wasters with blisters and distortion (e.g. Vessels 11, 22 and 25) and the consistency of the vessel forms and fabrics recovered. The products are

mainly jars of necked type in both GW4 and GW12 with beaded rims, sometimes with wavy line decoration, similar to those found in the Empingham Site 1 Phase 2B destruction deposits (Cooper 2000, 78-97 fig.36.29-30 and fig.37.31-32). The other distinctive vessel form (of which there are at least three examples with joins across several contexts), is the smaller, slashed cordon jar with an everted rim, again produced in both GW4 and GW12. These were also produced at Sulehay, near Yarwell in the Lower Nene Valley during the middle of the 2nd century (Wild 1975, 16, fig.7.9), and several were found in the Pit Groups Area 5, layer 1 at Normangate Field, Castor (Perrin and Webster 1990, fig.14.228-30), where they were considered to be survivals in use. The only other vessel types represented were straight-sided bowl with a flanged rim (Vessel 33) and a beaker with a squared cornice rim both in GW12. The grey wares are therefore broadly contemporary with the shell-tempered wares but whether they were part of the same kiln load, successive loads or debris from other nearby kilns is uncertain.

Storage Jar fabrics CG1A and GW9 from the kilns
A total of 37 sherds (3.405 kg, 0.8 EVEs) of Early Roman storage jar fabric CG1A were recovered mainly from Kiln 1. The fabric is essentially the same as that used for the Bourne-Greetham vessels, but the jars are of the distinctive globular, necked form widely found across Leicestershire and Rutland for example in the mid-2nd century destruction group at Empingham Site 1 (Cooper 2000, 80, fig 38.55-58 and fig.39.59-60). The jars from Kiln 1 come from (581) and (582) and are uniformly reduced to mid-grey and heavily vitrified and covered in lime mortar.

The jar assigned to fabric GW9 (30 sherds, 1155g, 0.04 EVEs) came from two contexts (674) and (675) in Kiln 2. The fabric differs in that it is essentially a grey ware with a small amount of shell, and the form is the same as that produced in CG1A with a band of stabbed decoration around the shoulder (similar to Cooper 2000, fig. 39.59). Again the fabric is reduced, heavily vitrified and covered in a lime mortar.

Roman Pottery from other contexts on the site

A total of 80 sherds (931g) were recovered from 18 contexts across the site as summarised in Table 5 below.

The earliest dated material occurs in a fine shell-tempered fabric manufactured into Belgic-style vessels with a burnished finish, and dating to the early to middle decades of the 1st century AD. A total of 23 sherds (29% of the assemblage) were recovered, 17 from contexts (539) and (574), the metalworking dump and feature respectively in the southern boundary ditch, which also contained Iron Age pottery, suggesting the activity belongs to the immediately pre- or post-Conquest period. Four joining sherds from a foot-ring base, probably from a carinated bowl, came from (690), the fill of the roundhouse gully which also contained Iron Age pottery, whilst the remaining two very abraded sherds came from the enclosure ditch fill (732) [728], with Iron Age pottery coming from the upper fill (729) of the same feature.

Only a single sherd of Central Gaulish Samian was recovered, from pit fill (647), most probably from the base of a Form 37 bowl of mid-2nd century date. An oxidised ware (OW2) copy of Samian Form 18/31 dating to the first half of the 2nd century came from (517) [516], the linear feature projecting south from the northern boundary

ditch. The only other diagnostic vessel dating to the first half of the 2nd century is a rather abraded, devolved ring-necked white ware flagon (WW2) from (621) [620], a large pit within the enclosure ditch.

Table 5 Roman Pottery Quantified by Fabric

Fabric	Sherds	Weight	%sherds
Samian	1	30	1
NVCC	1	1	1
Oxford	2	15	2
NV Mort	2	175	2
White	2	51	2
Oxidised	5	50	7
Grey	22	293	28
Belgic	23	143	29
Shelly	22	173	28
Total	**80**	**931**	**100**

Pottery of mid-2nd to late 3rd or early 4th century date, overlapping with the pottery production activity and comprising Bourne-Greetham (Shelly) ware, grey wares (GW4 and GW12) (together making 56% of the assemblage) was recovered, notably from various fills of the northern boundary ditch [720], namely (721), (727) and (735). Upper fill (727) contained two Lower Nene Valley grey ware (GW4) jars and also Lower Nene Valley reeded rim mortarium with upright bead (MO6) similar to one from Empingham (Cooper 2000, 93, fig.45.147) and Piddington (Rollo 1994, 21, fig.13. 40) dating from the later 3rd to 4th century. The latest dated Roman pottery from the assemblage is the heavily abraded footring base from an Oxford red colour-coated ware (C13) dish, of fourth century date, presumably from an upper fill (526) [534] of the southern boundary ditch.

Overall, the small assemblage of non-kiln pottery suggests that the Iron Age occupation continued right up to the early post-Conquest period with the occurrence of a small number of Belgic vessel types amongst the East Midlands scored ware. However, there is nothing diagnostically from the second half of the first century and not much that need date before the middle decades of the 2nd century, which is when the pottery production activity takes place. Most of the pottery dates to this period or into the third century with a couple of vessels suggestive of later 3rd or 4th century activity.

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Appendix 3: Medieval and later pottery - Nicholas J. Cooper with Clare Calver

A total of eight sherds (53g) were recovered from (506), a deposit of colluvium running across the centre of the site and the complete record is tabulated below (Table 1). Fabric codes correspond to the Leicestershire Medieval Pottery Fabric Series (Sawday 1999, 166, Table 30).

Table 1 Medieval and later pottery form Stamford

Context	Fabric	Sherds	Weight	Comment
506	EA1	2	7	Post medieval
506	MP2?	1	11	Late med/early post mod
506	EA10?	1	5	Modern
506	Medieval	2	14	Medieval
506	Medieval	2	16	Medieval
Total		**8**	**53**	

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Appendix 4: Other clay products - Rebecca Lucy Hearne

Fired clay fragments totalling >12.89 kg were recovered from 26 contexts dating to the Iron Age and early Roman periods. These are detailed below (Table 1). 27% (3.5 kg) of this total weight derived from kiln or oven contexts which are likely Roman in date and yielded a high density of debris within their backfill. Some contexts, e.g., (650)-(658), a N/S linear ditch, were particularly rich in Iron Age pottery.

Table 1: List of clay products.

Context	Cut	Description	Weight (g)
506		Fired clay pellet	4
513	512	Orange fired clay (from flue)	6
515	512	Orange fired clay (from east of kiln)	6
519	518	Fired clay from ditch	16
539	512	Fired clay (from channel east of kiln chamber [514])	6
569	568	Fired clay (from ditch terminus)	28
574	565	Fired clay; loom weight (?) with sintered sand and vesicular areas (from burnt fill to east of metalworking furnace)	402
“	“	Fired clay fragments	108
578	580 [kiln]	Grey fired clay (kiln fill)	7
581	586 [kiln]	Grey-white fired clay fragments	1312
“	“	Fired clay; one shaped fragment	113
582	586 [kiln]	Fired clay	79
“	“	Pink-white fired clay; curved fragment from kiln outer wall	85
“	“	Pink-white fired clay	146
“	“	Brown fired clay; curved fragment with plant material casts	91
“	“	Black-grey fired clay	332
584	586 [kiln]	Grey fired clay	62
“	“	Red-grey vitrified fuel ash/clinker	68
“	“	Fired clay with plant material casts	42
“	“	Pink-white fired clay	437
“	“	Grey platy fired clay fragment with shelly inclusions	9
585	586 [kiln]	Black-red fired clay with plant material cast	45
605	601	Orange-pink fired clay from ditch	39
611	612	Brown-pink fired clay from linear feature	33
614	626	Orange fired clay with coarse shelly inclusions	72
616	615	Homogeneous orange fired clay from ditch	76
619	617	Homogeneous orange fired clay from ditch	3
624	623	Burnt ironstone/clinker from roundhouse gully	9
625	626	Red fired clay from linear ditch	<1
637	636	Black fired clay with shelly inclusions from ditch terminus	9
650	654	Orange fired clay with coarse shelly inclusions (including whole bivalves); some fragments exhibit smoothed flattened surfaces; perforated oven plate fragments	154
“	“	Grey-brown fired clay with sintered sand casts	30

Context	Cut	Description	Weight (g)
651	654	Fired clay with sintered sand/crystalline material; hearth slag?	38
"	"	Red fired clay with shelly inclusions; some smoothed/flattened surfaces; perforated oven plate fragments	231
"	"	Red-brown friable fired clay with shelly inclusions; some smooth/flattened surfaces; oven plate?	1505
"	"	Red fired shelly clay plate fragment with circular hole; perforated oven plate?	123
652	654	Red-black fired clay	37
"	"	Red-brown friable fired clay with shelly inclusions; some smooth/flattened surfaces – oven floor?	508
"	"	Red fired shelly clay fragments with smooth curved faces; oven wall/perforated floor material. 2 fragments fit together with edges of central larger perforation preserved; estimated 120mm diameter	898
672	679 [kiln]	Black fired clay from flue backfill	155
"	"	Pink-black-grey fired clay from flue backfill; occasional fingerprint indentations	226
674	679 [kiln]	Black fired clay from kiln backfill; some fingerprint indentations	161
675	679 [kiln]	Black fired clay from kiln backfill; some fingerprint indentations	103
	[654] N/S linear feature	Large fragment of curved kiln/furnace wall and lining. Red-orange baked clay with coarse shelly inclusions and fingerprint indentations. Original diameter c. 1.2m. Derives from a N/S linear feature; exact context unknown.	>5000
Total			**>12,886**

The highest density of finds, primarily Iron Age pottery, was retrieved from N/S linear gully [654] containing contexts (650)-(658). Approximately 3.5 kg material was recovered from four kiln cuts, accounting for 27% of the total assemblage. 2.8 kg of this material derived from kiln cut [586], representing an unknown but probably significant proportion of the total kiln building material.

Fabric types

The fired clay can be classified into one of three general fabrics which are represented in equal proportions within the assemblage:

Fabric 1 Homogeneous with no coarse components.

Fabric 2 Well-fired and compact with well-sorted fine/medium shelly inclusions.

Fabric 3 Friable with coarse shelly inclusions.

Fired clay normally utilises local clay sources; thus, all the fabrics likely represent locally extracted sandy clays. The matrix is generally fine-grained. Iron-rich clay is fired variably orange, red, brown or black, indicating variable states of oxidation during firing. Other clays are fired variably white, grey or pink. Some fragments display partially fired cores. Both fabrics 2 and 3 contain 25-30% shelly fragments; within fabric 3, these are coarse and include occasional near-complete half-bivalves <15 mm wide. The coarseness of these inclusions may contribute to the friability of fabric 3.

Identifiable artefacts

(574) [512] contained a possible circular loom weight fragment which displays areas of sintered (i.e., melted and solidified) quartz sand and gas bubbles in the clay caused by intense heating suggesting deliberate, possibly syndepositional, burning.

Perforated clay oven floor fragments, exclusively made in fabric 2 and totalling 3.4 kg, were retrieved from contexts within cut [654]. Remains of closely spaced perforations are visible with diameters approximating <40 mm, encircling the remains of a larger central perforation with an estimated diameter of 120 mm. These floor plates are comparable with those of Danebury Type 2 (Poole 1984). Such plates are generally associated with ovens or kilns and formed a level platform within the structure upon which objects would rest.

Fill (582) from kiln [586] contained fragments with smooth curved faces which are likely to represent kiln outer wall material. Another large kiln wall fragment was retrieved from an unspecified context and allowed the original diameter of the kiln to be estimated at c. 1.2 m. The fragment displays an apparent decrease in original diameter towards one end, suggesting an original bell-shaped structure. No clay kiln bars or pedestals were recovered. Polygonal perforated oven plates are commonly found in the East Midlands (Poole 2009, 274).

The rest of the clay is miscellaneous amorphous fragments possibly representing wall daub or furnace/kiln building material which was applied by hand around the kiln chamber. Many fragments preserve casts of organic material (e.g., straw originally mixed with kiln wall clay). 4 clay fragments from contexts within kiln [679] exhibit finger impressions left during moulding.

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Appendix 5 Animal Bone - Jennifer Browning

Introduction

This report presents the analysis of the animal bone which was recovered during excavations at Stamford, Lincolnshire. Sieving of bulk environmental samples also produced faunal remains. Forty-eight contexts, including ditches, gullies, ring gullies and pits, produced a total of 1286 fragments of animal bone.

Animal bones were initially recovered during trial trenching in 2009, as part of an assessment of the site. This small assemblage, numbering 34 fragments, was recovered from Iron Age features. The condition of the bones was variable; some surfaces were well-preserved while, even within the same context, other bones were extremely badly eroded. Cattle and sheep/goat bones were identified but the majority consisted of indeterminate fragments. Fine cut marks on a scapula fragment, typical of Iron Age butchery, indicated that the at least some bones were the waste products of processing and consumption. There was no evidence for wild animals, juveniles, birds, fish or small mammals; probably a consequence of the small size and mixed preservation of the group.

Methodology

Specimens were identified with reference to comparative modern and ancient skeletal material held at the School of Archaeology and Ancient History, University of Leicester. A *pro forma* spreadsheet was used for recording data on preservation, taxa, bone element, state of epiphyseal fusion and completeness to elicit information on species proportions, skeletal representation, age and taphonomy. Where possible, the anatomical parts present for each skeletal element were recorded using the 'zones' defined by Serjeantson (1996), with additional zones ascribed to mandibles based on Dobney and Reilly (1988). Surface preservation was assessed after Harland et al (2003). The occurrence of burning, gnawing and pathologies was noted and described. Butchery was recorded using simple coding and description. Joining fragments were re-assembled and the resulting specimen counted as a single fragment, although a record of the original number of fragments was retained.

Bulk environmental samples were processed by wet-sieving with flotation in a sieving tank, the flot being collected over a 0.3 mm mesh and scanned for the recovery of charred and mineralised plant remains, small bones and other animal remains. The residues were air dried and then separated on a 4mm riddle and the coarse fractions (over 4mm), were sorted for all finds.

Provenance and Dating

The bones were recovered from ditches, gullies, ring gullies and pits dating from the late Iron Age and late-1st to mid-2nd century Roman period (N. Cooper pers. comm). As the identified assemblage is small and the activity on the site appears to represent continuous occupation, it is not considered appropriate to divide the assemblage into phases, as this will not aid interpretation. However, it is important to be aware that the assemblage potentially represents debris accumulated over a long period of time and cannot be tightly dated.

Preservation and Taphonomy

The bones exhibited extensive ancient and modern breakage, although it was not always possible to tell which fragments belonged to the same bones. Re-assembly of joining fragments reduced the total from 1286 to 1263 fragments. Surface condition was assessed for each specimen (Table 1), following Harland et al (2003); 48% was 'poor', defined as 'surface flaky or powdery over 50% of specimen' with a smaller number of specimens (44%) classed as ''fair: surface solid in places, but flaky or powdery on up to 49% of specimen'. A further 8% was 'good: lacks fresh appearance but solid; very localized flaky or powdery patches'. No bones were classed as having excellent condition. Many had a pocked and grooved surface indicative of root etching, which is caused by acids secreted by roots or fungi associated with decomposing roots (Lyman 1994, 375). This factor suggests that the bones were exposed to an environment in which plants were growing, although there is some debate as to whether this occurred prior or subsequent to burial (Lyman 1994, 375).

The poor condition of the bones inhibited the identifications of modifications such as butchery, gnawing and pathologies. As a consequence, gnawing was observed only on thirteen specimens (1%). No patterning in terms of taxa, element or provenance was observed. Burning was observed on 23 bones in the assemblage. Both charring and calcination was observed, indicating that bones were exposed to differing degrees of heat. It was only possible to identify burnt bones to element and species in a small number of cases.

The proportion of identifiable fragments within the assemblage was low (15%; n=193), which is almost certainly attributable to poor preservation.

Table 1: Preservation by feature type (%). Preservation stage after Harland et al 2003 ('2'= good, '3'=fair; '4'= poor)

Deposit type	**2**	**3**	**4**
colluvium	100%	0%	0%
ditch	8%	46%	46%
gully	4%	42%	54%
kiln	6%	27%	67%
pit	0%	11%	89%
pit	0%	0%	100%
pit at base of ditch	0%	100%	0%
rh gully	6%	78%	17%
shallow linear	0%	0%	100%
Total	**8%**	**44%**	**48%**

Taxa and Carcass Representation

Hand-recovered

Cattle and sheep/goat bones were fairly evenly represented in the assemblage, comprising 41% and 39% of the identified assemblage respectively. Pig was the third most common animal (11%), followed by *equids* (probably horse) at 5% and dog (2%). There was a single red deer and a single human bone. There was no evidence for birds, fish or small mammals among the hand-recovered material. A calculation of the Minimum Number of Individuals (MNI), based on the most common non-

repeatable element, was four for cattle and three for sheep. While in such a fragmented assemblage this figure does not realistically suggest the number of animals deposited on the site, it can provide a further indication of their relative proportions, in this case suggesting that cattle were of greater economic importance than sheep/goat. No more than one individual was represented for each of the remaining taxa.

Full analysis of carcass representation was not carried out due to small sample sizes; however the range of elements present suggested that whole cattle carcasses were distributed across the site. Cranial elements appear to be slightly better represented than post-cranial ones but all parts of the cattle carcass were recovered. For sheep/goat, there were few elements with a high meat yield, such as pelvis, femur and humerus, compared with bones of lower meat value such as tibia and radius. However, the taphonomic history of the bones is likely to be complex with many variables, such as the better survival of more robust elements, so it would be unwise to put too much emphasis on this. Loose teeth, often another indicator of poor preservation, comprise 35% of the assemblage. Dog and red deer bones appear to be isolated examples, while similarly there is no clear pattern to the *equid* remains.
While most bones were recovered from the ditch sections, it is noticeable that the gullies produced a higher proportion of sheep/goat and pig, compared with cattle bones. This is consistent with studies carried out at other sites which suggest that larger bones are more likely to be found at the periphery of settlements than in inhabited areas (Wilson 1996, 14), either transported there by scavengers keen to protect a meal from other predators or because they have been boned-out and disposed of at an early stage in the butchery process.

A fragmentary human mandible was found in a pit at the base of a ditch (531) [533]. It was disarticulated and there were no other associated human bones. The dental evidence indicated that it derived from an adult, while the shape of the mandible suggested that it was likely to be female (R. Small pers. comm).

Table 2: Distribution of assemblage in hand-recovered features (Number of Identified Specimens- NISP; Minimum Number of Individuals-MNI)

	ditch	**gully**	**kiln**	**pit**	**roundhouse gully**	**colluvium**	**Total NISP**	**MNI**
cattle	62	9	6	1	2		80	4
sheep/goat	55	18		1	2		76	3
pig	10	11	1				22	1
equid	7	1	2				10	1
dog	2	1					3	1
human				1			1	1
red deer	1						1	1
Total identified	*137*	*40*	*9*	*3*	*4*		*193*	
lge mml	440	80	13	1	1		535	
med mml	131	13	3		13	3	163	
indeterminate	334	3	8	27			372	
Total	**1042**	**136**	**33**	**31**	**18**	**3**	**1263**	

Sieved
The Coarse Fraction from 14 sieved samples was examined. The bulk of the material consisted of small undiagnostic fragments of mammal bone. Approximately a quarter was burnt (mostly calcined). Thirteen fragments were cattle and consisted mostly of tooth fragments. Fragments from a horncore and an axis were also recovered. Three sheep/goat tooth fragments were also identified, as was a fragment from a pig metapodial. No bird or fish remains were recovered; however a mouse/vole humerus was noted in context (712) but was not identified further.

The most numerous faunal remains in the samples were a series of 52 vertebrae recovered from context (675) (Sample 520); a kiln fill. These were identified as snake (cf Natrix natrix, the grass snake). These animals prefer a terrestrial habitat but are often found in moist environments as they hunt amphibians (Holman 1998, 121). It is almost certainly the case that the snake belongs to the disuse phase of the feature.

Age Structure
Analysis of age at death is normally carried out using tooth eruption and wear as a guide, supplemented by the state of epiphyseal fusion of post-cranial bones.

The Main Domesticates
No complete mandibular rows belonging to cattle were recovered. A small number of loose age-able teeth were indicative of both juveniles and adults and included evidence for a calf, a few weeks old at most. The presence of juveniles and sub-adults was confirmed by evidence from epiphyseal fusion, which despite the small sample, indicated significant mortality before skeletal adulthood.

Age stages were estimated from nine sheep/goat mandibles and loose age-able teeth. No very young individuals were present and there were no concentrations of ages; instead mortality appeared to have occurred across a range of ages, from c.18 months onwards. Only a small number of epiphyses were present, however, they point to slightly older age groupings than the cattle at the site, with no unfused bones among the younger age groups. This may indicate that sheep were kept for secondary products such as milk and wool before slaughter. However, there is also a possibility that immature post-cranial bones have not survived.

Data from pigs was very limited but both mandibles and epiphyseal fusion indicated mortality in the sub-adult ranges, possibly up to the age of two. This is usual for pigs and reflects that fact that meat was the primary product. Canines of male and female pigs differ in morphology and a single example of each was identified in the assemblage.

Other taxa
No unfused bones from *equids*, dogs or red deer were found within the assemblage. A dog mandible had adult dentition.

Pathologies and Measurements
Only one bone with pathology was noted, consisting of uneven wear on a sheep/goat 1st molar.

Measurements taken are recorded in Table 8; Table 9 and Table 10. While there are insufficient numbers to use for intra-site comparisons, they could potentially contribute to wider studies.

Butchery and Articulated Bones

Only two butchery marks were observed. A cattle metatarsal had been chopped both sagitally and transversely through the shaft, presumably to extract the nutritious marrow. A cattle astragalus had fine knife marks on its distal end, which are likely to have occurred during disarticulation. The location and nature of the butchery marks on the astragalus are fairly typical of Iron Age sites in the region eg Manor Farm Humberstone (Browning 2011, 113), while those on the metatarsal are more similar to Roman style butchery, which featured heavier use of the cleaver (Grant 1987).

A cattle axis and atlas from ditch (651) [654] were the only articulated bones among the hand-recovered assemblage.

Discussion

An assemblage of animal bones was recovered during an archaeological excavation at Stamford, which revealed late Iron Age and early Roman activity associated with settlement, metal-working and pottery production.

The assemblage was dominated by cattle and sheep/goat, which between them comprised 80% of the identifiable bones. An examination of species proportions indicated that cattle were marginally more frequent. However, as poor preservation at the site is likely to have favoured the survival of larger bones, it is difficult to gauge the balance of the economy between sheep and cattle-based husbandry. The evidence for age structure among the cattle herd, while extremely limited, indicated the presence of calves and therefore breeding of stock at the site. While evidence from sheep/goat suggests slightly older animals, a range of age was observed. Pig bones were comparatively rare and even accounting for taphonomic factors upon porous young pig bones, it seem likely that they were a fairly minor component of the economy. The settlement was clearly reliant on domestic stock for the bulk of their dietary requirements and the only evidence for hunting is suggested by a red deer tibia recovered from a ditch context (526).

The sieved samples provided only limited extra information. Of the domestic species, cattle bones were most common, although sheep/goat and pig were also recovered. Of particular interest were a large number of vertebrae (n=52) tentatively identified as grass snake. This creature became incorporated with the fill of the kiln, presumably utilising the feature following abandonment.

The poor preservation of the assemblage has limited the identification of butchery marks, pathologies and other modifications to only a few examples.

A fragmentary human mandible was recovered from a pit excavated at the bottom of a ditch; evidently a deliberate deposition. Disarticulated human bones are not uncommon on Iron Age sites (Whimster 1981, 178) for example fragmentary skull fragments were recovered in several ditch fills at Elms Farm, Humberstone, Leicester

(Boyle 2000, 197) and at Beaumont Leys Leicester (Jacklin 2011, 123). It is thought that they may represent re-deposition of bones dispersed after excarnation (Jacklin 2011, 123) and in this case could be indicative of some manner of foundation deposit.

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Table 3: Number of bones recorded in each context (hand-recovered)

Cxt	cattle	pig	red deer	sheep/ goat	dog	equid	human	indet mml	lge mml	med mml	Total
504	1			1				5			7
506										3	3
509									6		6
519	2	1		4		1		7	5	6	26
526	33	4	1	3		1		230	65	8	345
527	4			3					24		31
531							1				1
540									1		1
542								4			4
559				1							1
561				1					1	12	14
564	2	1				1			31		35
569		2		2				3	6	21	34
574	1										1
582								2		1	3
586	5	1							12	1	19
588									6		6
593										1	1
605	2								32		34
611	3	1		3					5	15	27
613	1										1
614				2						4	6
621									1		1
624	2			1						1	4
625				2						12	14
630	5	5		14	1				24	9	58
631	1	1								1	3
637									1		1
643								1			1
647								21			21
650	1			2		3			29	1	36
651	5			10				23	199	27	264
652	2			5					16	2	25
656									6	1	7
672						1					1
675										1	1
676						1		6	1		8
689				1						2	3
690	1	1		2					14	2	20
695										1	1
705	3	1		3	2				14	15	38
706	3			13		1			4	16	37
715									4		4
721						1					1
724	1	4		1				3			9
726				1							1
730				1					15		16
731	2							67	13		82

Cxt	cattle	pig	red deer	sheep/ goat	dog	equid	human	indet mml	lge mml	med mml	Total
Grand Total	**80**	**22**	**1**	**76**	**3**	**10**	**1**	**372**	**535**	**163**	**1263**

Table 4: Distribution of taxa and element within the assemblage (raw count- Number of Identified Specimens)

Taxa and Element	**N**	**Taxa and Element**	**N**	**Taxa and Element**	**N**	**Taxa and Element**	**N**
cattle	**80**	**sheep/ goat**	**76**	**pig**	**22**	***Equid* (horse)**	**10**
1st phalanx	2	1st phalanx	2	calcaneum	1	1st phalanx	1
3rd phalanx	1	calcaneum	2	canine	1	femur	1
astragalus	1	femur	2	humerus	1	incisor	1
atlas	2	humerus	1	incisor	2	mandible	1
axis	1	incisor l	1	mandible	2	metapodial	1
calcaneum	2	ldp4	1	maxilla	4	radius	1
carpal	1	lm1/2	4	metacarpal	1	scapula	1
femur	1	lm3	5	metapodial	1	skull (orbit)	1
horncore & frontal	3	mandible	10	premolar	1	tibia	2
horncore fragment	1	metacarpal	3	radius	2		
humerus	11	metapodial	1	scapula	2		
incisor	1	metatarsal	5	skull & maxilla	1	**dog**	**3**
ldp3	1	molar (lower)	4	skull fragments	1	canine	1
ldp4	1	molar (upper)	10	skull (occipital condyle)	1	humerus	1
lm1/2	1	premolar	2	tibia	1	mandible	1
lm3	1	radius	10				
mandible	3	skull fragments	1				
maxilla	1	tibia	9			**red deer**	**1**
metacarpal	9	ulna	3			metatarsal	1
metapodial	1						
metatarsal	4						
molar	1					**human**	**1**
molar (upper)	4					mandible	1
pelvis	3						
Pre-maxilla	1						
premolar	2						
radius	3						
scapula	6						
skull (lower orbit)	2						
Skull (occipital condyle)	2						
skull (upper orbit)	3						
tibia	3						
ulna	1						

Table 5: Distribution of unidentified elements by size class and type within the assemblage (raw count)

indeterminate	**372**	**large mammal**	**535**	**medium mammal**	**163**
fragments	2	axis	1	hyoid	1
shaft fragments	169	caudal vertebra	1	radius	3
skull fragments	200	cervical vertebra	3	rib shaft	30
tooth enamel	1	fragments	5	shaft fragments	126
		lumbar vertebra	2	tibia	3
		mandible	1		
		rib head	1		
		rib shaft	28		
		sacrum	1		
		scapula	3		
		shaft fragments	272		
		skull fragments	206		
		skull (lower orbit)	1		
		tibia	1		
		tooth enamel	3		
		thoracic vertebra	2		
		vertebra fragment	4		

Table 6: Epiphyseal fusion observed within the assemblage (f=fused; u=unfused; ue= unfused epiphysis only)

ID	**Context**	**NISP**	**Taxa**	**Bone**	**Prox**	**Dist**
243	526	1	cattle	phalanx 1	f	f
267	526	1	cattle	phalanx 1	u	f
128	690	1	cattle	femur	f	
45	650	1	cattle	humerus		f
65	526	1	cattle	humerus	u	u
66	526	1	cattle	humerus		f
249	526	1	cattle	humerus	u	
329	605	1	cattle	humerus		f
17	526	1	cattle	metacarpal	ue	
53	526	1	cattle	metacarpal		f
246	526	1	cattle	metacarpal	f	
248	526	1	cattle	metacarpal	f	f
314	586	1	cattle	metacarpal	f	f
315	586	1	cattle	metacarpal		u
11	651	1	cattle	metatarsal	f	
36	527	1	cattle	metatarsal	f	
142	630	1	cattle	metatarsal	f	
227	504	1	cattle	metatarsal	f	
29	564	1	cattle	pelvis	f	
169	624	1	cattle	pelvis	u	
88	706	1	cattle	radius		f
60	526	1	cattle	scapula		f
25	564	1	cattle	tibia		f
35	527	1	cattle	tibia		f
149	630	1	pig	calcaneum	g	
1	569	1	pig	metacarpal	f	u
138	705	1	pig	metapodial		u

209	519	1	pig	radius		ue
102	706	1	sheep/goat	1 phalanx	f	f
202	611	1	sheep/goat	1 phalanx	f	f
7	569	1	sheep/goat	calcaneum	u	
265	526	1	sheep/goat	calcaneum	f	
146	630	1	sheep/goat	femur		u
312	652	1	sheep/goat	humerus		f
150	630	1	sheep/goat	metacarpal	f	
136	705	1	sheep/goat	metatarsal	f	
231	519	1	sheep/goat	metatarsal	f	f
233	519	1	sheep/goat	metatarsal	f	f
176	630	1	sheep/goat	radius	f	
201	611	1	sheep/goat	radius		ue
147	630	1	sheep/goat	tibia		g
232	519	1	sheep/goat	tibia		f
177	630	1	sheep/goat	ulna	f	

Table 7: List of toothwear stages, recorded after Grant (1982) (dp= deciduous premolar; p=premolar; m=molar)

ID	Context	NISP	Taxa	Bone	dp4	p4	m1	m2	m3
	651		cattle	ldp4	j				
54	526	1	cattle	lm3					e
272	526	1	cattle	ldp4	a				
183	630	1	pig	mandible		e	g		
184	630	1	pig	mandible		a	c	a	
55	526	1	sheep/goat	lm3					b
100	706	1	sheep/goat	ldp4	k				
101	706	1	sheep/goat	lm3					g
179	630	1	sheep/goat	lm3					c/d
271	526	1	sheep/goat	mandible		g	g	f	
297	651	1	sheep/goat	lm3				f	b
298	651	1	sheep/goat	lm3					g
306	652	1	sheep/goat	mandible			m	k	
313	652	1	sheep/goat	mandible		g	j	g	

Table 8: List of measurements (mm) taken after von den Driesch (1976)

Cxt	Taxa	Bone	GL	Bp	Bd	SD	Dd	Dp	Bt	HTC	BfD
564	cattle	tibia			51.7		41				
564	equid	1st phalanx	72.8	50.8	41.2	31.6	21.7	33.3			
650	equid	tibia			61.6		43.8				
672	equid	femur			89.6						
706	cattle	radius			57.2						46.7
690	cattle	femur									
705	dog	humerus			28.6						
519	sheep/goat	metatarsal			21.3		14.3				
519	sheep/goat	tibia			23.6		17.8				
519	sheep/goat	metatarsal	152								
526	red deer	metatarsal			45.3		30.4				
526	cattle	metacarpal	194	54.8	54.6	28.3	31.3				

Cxt	Taxa	Bone	GL	Bp	Bd	SD	Dd	Dp	Bt	HTC	BfD
526	cattle	calcaneum	124.4								
526	cattle	humerus			71.3				66.8	29.5	
586	cattle	metacarpal	188.7	58.4	59.4	31.5	31.9				
605	cattle	humerus							67.9	29.7	

Table 9: List of measurements (mm) taken after von den Driesch (1976)

Cxt	Taxa	Bone	GLP	SLC	Bt	HTC	L	Bf (cranial)
526	cattle	scapula	67.2	53.3				
519	cattle	horncore & frontal					142	
526	cattle	horncore & frontal					181	
526	cattle	atlas						102.6
526	cattle	humerus			66.8	29.5		

Table 10: List of tooth measurements (mm) taken after von den Driesch (1976) and Payne and Bull (1988) Key l=lower; u= upper; m=molar; dp=deciduous premolar; p=premolar

Context	NISP	Taxa	Bone	L	W/WA	WP	H
650	2	sheep/goat	um3	17	10.6		
650	2	sheep/goat	um3	16.6	10		
526	1	cattle	lm3	32.7	13.3		
526	1	sheep/goat	lm3	22.8	7.7		
706	1	sheep/goat	ldp4	14.3	5.4		
706	1	sheep/goat	lm3	20.3	8.2		
705	1	dog	canine	45			
630	1	pig	lm1	13.9	9.8	10.5	
630	1	pig	lm1	15.5	9.7	10.1	
630	1	pig	lm2	20.8	11.5	11.3	
519	1	equid	lm2	24.5	15.8		49.2
519	1	equid	lm3	34.1	12.3		48.7
519	1	equid	lp3	27.8	17		
526	1	pig	um3	29.9	17.3		
526	1	pig	um2	21.3	16.4		
526	1	pig	um1	16.6	12.8	13.3	
526	1	sheep/goat	lm1	13.6	7.2		
526	1	sheep/goat	lm2	15.2	7.3		
526	1	cattle	ldp4	33.6	11.9		
651	1	sheep/goat	lm3	19.9	7		
651	1	sheep/goat	lm3	19.4	7.1		
652	1	sheep/goat	um3	15.8	10.7		
652	1	sheep/goat	lm2	11.3	7.7		
652	1	sheep/goat	lm1	9.4	6.3		
652	1	sheep/goat	lm2	12.8	7		
652	1	sheep/goat	lm1	9.5	6.1		
586	1	pig	p4	12.1	12.5		
586	1	pig	m1	15.9	13	13.5	
586	1	pig	m2	19.5	15.3	14.4	
586	1	pig	m3	31.4	15.1		

Table 11: List of identified fragments (sieved- Coarse Fraction)

Context	Sample	Preservation	Number	Taxon	Element
651	517	4	1	cattle	axis
651	517	4	1	cattle	ldp4
651	517	4	1	cattle	ldp4
651	517	4	2	cattle	ldp3
651	517	4	2	cattle	molar
651	517	4	2	sheep/goat	molar
651	517	4	1	cattle	premolar
651	517	4	1	cattle	incisor
651	517	4	1	sheep/goat	incisor
539	504	4	1	cattle	premolar
513	502	4	1	cattle	horncore
652	516	3	1	pig	lateral mp
712	518	1	1	mus/vole sp.	humerus
675	520	3	52	cf natrix natrix	vertebrae

Appendix 6: Slag and other debris - Graham Morgan

A total of 9,827g of industrial residues were collected from 14 contexts: (506), (513), (514), (515), (519), (539), (540), (573), (574) and (605). The assemblage was subject to visual identification. The material was counted and weighed by context.

Context	**Cut**	**Weight(g)**	**Description**
506		62	Tap slag
513		77	Tap slag
514	512	1.541 752	Tap slag (some with attached furnace lining). Hearth slag with lining
515		2.234 1.465 199	Tap slag Furnace slag (some with attached furnace lining) Hearth slag (some with attached hearth lining)
519		389	Natural ironstone. Heat altered.
539		152 9	Hearth slag Tap slag
540		3205	Natural ironstone. Some fragments appear heat altered.
564		294 385	Natural ironstone. Heat altered. Natural Limestone. Heat altered.
573		2.250 286 596	Furnace bottom (bloom within?). Lenticular. Tap slag with evidence of furnace lining. Hearth slag. Very vesicular.
574		69	Hearth lining with slag attached.
605		135	Hearth slag (some with ling attached)
611		155	Natural ironstone
619 625		54 9	Natural ironstone. Heat altered. Natural ironstone .Heat altered.
641		483	Natural ironstone
647		61	Natural ironstone. Heat altered.
651		<1 10	Natural ironstone Limestone
652		359 80	Natural ironstone Vitrified stone
701		43	Natural ironstone. Heat altered.
705		8	Natural ironstone
709		12	Natural ironstone

Results

7,924g (81%) of the material is tap slag with some fragments having attached furnace lining. Contexts (514), (515) and (573) presented the greatest quantities with context (573) producing a furnace bottom weighing 2,250g with a probable bloom within (Graham Morgan pers comm). A quantity of 1,903 (19%) of hearth slag indicating iron working makes up the remainder of the assemblage from contexts (514), (515), (539), (596), (574) and (605). A quantified summary is shown in the table above. In addition quantities of natural ironstone were retrieved from 13 contexts; some examples appear to show some heat alteration.

Appendix 7: Rotary Quern - Rebecca Lucy Hearne

A single quern fragment (sf.501), weighing over 4kg, was recovered on the site from (651) [654] a Roman context dating to the later 1st to mid-2nd century. The rock type was macroscopically identified as a moderately well-sorted, well-rounded gritstone with coarser quartz pebbles and accessory iron oxide grains. This is possibly Millstone Grit, the nearest outcrop of which is in the Peak District (Abesser *et al*. 2005), more than 113 km (70 miles) from Stamford. The fragment evidently derives from the upper stone of an early beehive type rotary quern whose original diameter is estimated at c. 320 mm with a height of 130mm. Its outer surface is convex and the conical central hopper is partially preserved on the inside edge. The base displays no working traces or circular wear marks. There are no furrows and no evidence of handle attachments. The fragment exhibits mild fire-reddening. Such beehive querns were use during the later Iron Age and although they continued in use in rural areas into the Roman period, the broken state of this example indicates that it was residual in this context.

Reference

Abesser, C., Shand, P., and Ingram, J., 2005. Baseline Report Series: 18. *The Millstone Grit of Northern England.* British Geological Survey Commissioned Report No. CR/05/015N.

Appendix 8: Environmental Evidence - Rachel Small

Twenty-three bulk samples were taken from various contexts processed to recover plant and animal remains. One part of each sample was processed and the rest reserved to process if any had the potential to produce sufficient remains for analysis, i.e. 50 items of plant remains. None of the samples produced any significant evidence for charred cereal remains or arable weeds and no further processing was undertaken. This negative result is consistent with the evaluation which also found an extremely low density of remains. This could suggest that the site lies away from the area of cereal related activities.

Appendix 9: Charcoal - Graham Morgan

Charcoal was recovered from samples of the kiln fills and identified as shown below.

Species	Dia	Rings	Age
Quercus spp. – Oak	knot		
Sambucus niger Ash	fragment		
Crataeguss spp. Hawthorn type	20	7	7
Corylus avellana Hazel	15	5	5
Hedera helix Ivy – poss modern?	fragment		

Appendix 10 OASIS Information

Project Name	Borderville Farm, Ryhall Rd, Stamford
Project Type	Excavation
Project Manager	V Score
Project Supervisor	A Hyam
Previous/Future work	Earlier evaluation, no future work
Current Land Use	Agricultural
Development Type	Sports ground
Reason for Investigation	As a condition
Position in the Planning Process	Ongoing
Site Co ordinates	TF 033 085 (centre)
Start/end dates of field work	October to November 2013
Archive Recipient	
Study Area	4.5ha

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