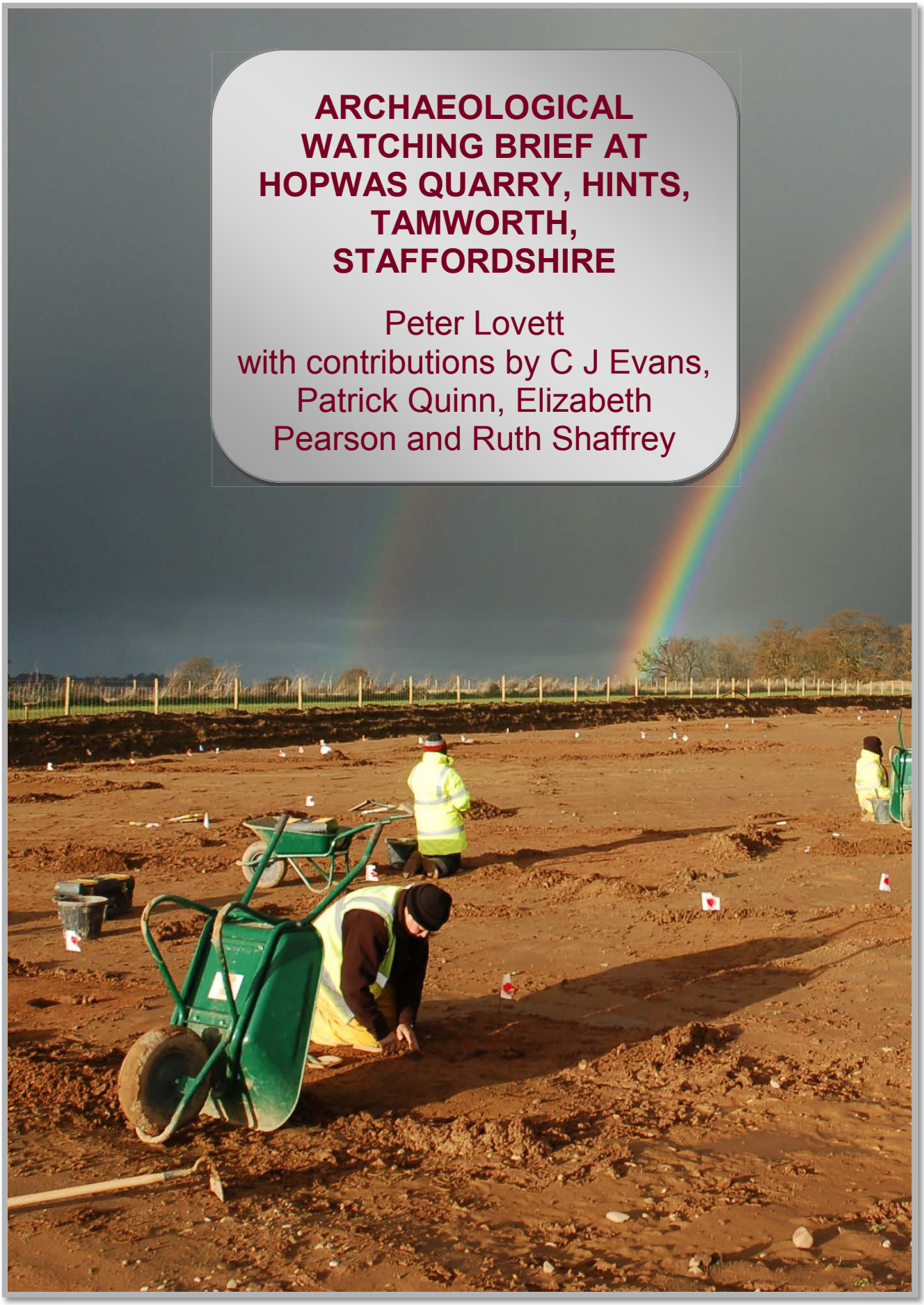
Worcestershire Archaeology

ARCHAEOLOGICAL WATCHING BRIEF AT HOPWAS QUARRY, HINTS, TAMWORTH, STAFFORDSHIRE

Peter Lovett
with contributions by C J Evans, Patrick Quinn, Elizabeth Pearson and Ruth Shaffrey



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Archaeological Watching Brief at Hopwas Quarry, Hints, Tamworth, Staffordshire

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Archaeological Watching Brief at Hopwas Quarry, Tamworth, Staffordshire

Peter Lovett

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Summary

An archaeological watching brief was undertaken at Hopwas Quarry, Hints, Tamworth, Staffordshire (NGR SK 15992 03943). It was undertaken on behalf of Cemex UK, and formed part of a programme of works completed in response to an archaeological condition placed upon planning permission for mineral extraction granted to the Client by Staffordshire County Council.

The area of the site affected was monitored during works to reinstate the decommissioned quarry. During this watching brief, a number of small pits were identified in the north-west corner of the site. These contained an assemblage of Late Bronze Age pottery and fire-cracked stone. Whilst most of the pits suggested no distinct function, one had evidence of a collapsed clay superstructure indicative of a hearth. Another pit had distinct fills of charcoal and fire-cracked stone, likely to have derived from the raking out of spent material from a hearth incorporating hot-stone technology.

Radiocarbon dating of one of these pits returned a date of 1390-1120 cal BC, placing it at the onset of the later Bronze Age. This correlates with other activity in the vicinity, with a number of later Bronze Age pits having been located some 600m to the south, one of which contained an unurned cremation. This evidence, taken together, strongly suggests settlement in the immediate vicinity.

Report

1 Background

1.1 Reasons for the project

An archaeological watching brief was undertaken at Hopwas Quarry, Hints, Tamworth, Staffordshire (NGR SK 15992 03943; Fig 1).

It was commissioned by Cemex UK and formed part of a programme of works completed in response to an archaeological condition placed upon planning permission (ref L.02/09/805-808 MW: Section 36) for mineral extraction granted to the Client by Staffordshire County Council (the LPA).

The condition was placed following the advice of the Curator (Stephen Dean, Staffordshire County Council: Archaeological Advisor to the LPA and the Minerals Planning Authority) who considered the proposed development to have the potential to affect an archaeological site.

The project conforms to the generality of briefs and for which a project proposal (including detailed specification) was produced (WA 2016).

The project also conforms to the *Standard and guidance: Archaeological watching brief* (CIfA 2014a).

2 Aims

The aims of the watching brief were:

- to identify any archaeological remains present within the affected area of the site and secure an accurate survey of them thus recording the scale and extent of archaeological remains present;

- to undertake carefully targeted investigation and recording of any landscape features (field boundaries, etc) revealed to recover evidence for dating in order to support understanding of their chronological sequence and development; and

- to undertake a sufficient level of investigation and recording of any occupation, activity focus and/or funerary deposits revealed to establish dating and character.

3 Methods

3.1 Personnel

The project was led by Peter Lovett (BSc (hons.)), who joined Worcestershire Archaeology in 2012 and has been practicing archaeology since 2004. On site assistance was provided by James Spry (BA (hons.); MA). The project manager responsible for the quality of the project was Robin Jackson (BA (hons.); ACIfA). Illustrations were prepared by Carolyn Hunt (BSc (hons.); PG Cert; MCIfA) and Laura Templeton (BA; PG Cert; MCIfA). Elizabeth Pearson (MSc; ACIfA) contributed the environmental report, Jane Evans (BA, MA, MCIfA), contributed the finds report.

3.2 Documentary research

Prior to fieldwork commencing a search was made of the Historic Environment Record (HER).

3.3 List of sources consulted

Documentary sources

Published and grey literature sources consulted are listed in the bibliography.

3.4 Fieldwork strategy

A detailed specification was prepared by Worcestershire Archaeology (WA 2016).

Fieldwork was undertaken between 26th July and 3rd August 2016.

Deposits considered not to be significant were removed across the entire area (Fig 2) using a 360º tracked excavator, employing a toothless bucket and under archaeological supervision.

Subsequent excavation was undertaken by hand. Clean surfaces were inspected and selected deposits were excavated to retrieve artefactual material and environmental samples, as well as to determine their nature. Deposits were recorded according to standard Worcestershire Archaeology practice (WA 2012).

3.5 Structural analysis

All fieldwork records were checked and cross-referenced. Analysis was effected through a combination of structural, artefactual and ecofactual evidence, allied to the information derived from other sources.

3.6 Artefact methodology, by C. Jane Evans

3.6.1 Artefact recovery policy

The artefact recovery policy conformed to standard Worcestershire Archaeology practice (WA 2012; appendix 2).

3.6.2 Method of analysis

All hand-retrieved finds were examined. They were identified, quantified and dated to period. A *terminus post quem* date was produced for each stratified context. The date was used for determining the broad date of phases defined for the site. All information was recorded on a *pro forma* Access database.

The pottery was recorded following established guidelines (AAF 2011, CIfA 2014b, SMA 1993, PCRG 2010, 2016; PCRG et al 2016). Information recorded comprised fabric group, count, weight, vessel part, rim form, rim diameter and percentage extant (where practical), and decoration, noting any evidence for manufacture and use where this was evident. Fabrics were examined under x20 magnification and referenced, where possible, to fabric and form types from other sites in the vicinity (Banks and Morris 1979, Woodward 2002, Ixer 2006, Edwards 2010).

Four diagnostic pottery sherds representing three fabric groups were submitted for petrographic analysis, to confirm fabric identifications and investigate likely sources. The methodology for this is included within the petrographic report (Quinn below).

3.7 Environmental archaeology methodology, by Elizabeth Pearson

3.7.1 Project parameters and aims

The environmental project conforms to relevant sections of the Standard and guidance: Archaeological watching brief (CIfA 2014a), Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation (English Heritage 2011).

3.7.2 Sampling policy

Samples were taken according to standard Worcestershire Archaeology practice (2014). A total of eight samples (each of up to 20 litres) were taken from the site (Table 1).

3.7.3 Processing and analysis

The samples were processed by flotation using a Siraf tank. The flots were collected on a 300μm sieve and the residue retained on a 1mm mesh. This allows for the recovery of items such as small animal bones, molluscs and seeds.

Context	Sample	Feature type	Fill of	Phase	Sample volume (L)	Volume Processed (L)	Residue assessed	Flot assessed
103	1	Pit	105	2	10	10	Yes	Yes
118	2	Pit	124	2	20	20	Yes	Yes
119	3	Pit	124	2	10	10	Yes	Yes
122	4	Pit	124	2	10	10	Yes	Yes
141	5	Hearth	143	2	20	20	Yes	Yes
142	6	Hearth	143	2	10	10	Yes	Yes
145	7	Posthole	146	2	10	10	Yes	Yes
155	8	Pit	158	2	10	10	Yes	Yes

Table 1: List of environmental samples

In order to assess the samples, the residues were scanned by eye and the abundance of each category of environmental remains estimated. A magnet was also used to test for the presence of hammerscale. The flots were scanned using a low power MEIJI stereo light microscope and plant remains identified using modern reference collections maintained by Worcestershire Archaeology, and a seed identification manual (Cappers *et al* 2012). Nomenclature for the plant remains follows the New Flora of the British Isles, 3rd edition (Stace 2010).

Assessment of the samples showed, generally, small quantities of charcoal and other charred plant remains. Although the number of identifiable fragments of charcoal for all samples was small, results are presented of more detailed charcoal analysis that was undertaken for one sample (118) from pit [124], whilst the small quantities of charred plant remains from this sample were also recorded. The residues and flots for this sample was fully sorted.

The cell structure of all the non-oak identification samples was examined in three planes under a MEIJI dark illumination microscope and identifications were carried out using reference texts (Schweingruber 1978; Hather 2000) and reference slides housed at Worcestershire Archaeology.

3.7.4 Discard policy

Remaining sample material and scanned residues will be discarded after a period of 6 months following submission of this report unless there is a specific request to retain them.

3.8 Statement of confidence in the methods and results

The methods adopted allow a high degree of confidence that the aims of the project have been achieved

4 The application site

4.1 Topography, geology and archaeological context

The study site sits upon Bromsgrove Sandstone Formation – Sandstone, Pebbly (BGS 2016). It is situated on a small hill, which is approximately 130m AOD at its highest, sloping away to the north (*c*. 123m AOD) and west (*c* .125m AOD). It is bordered on the east and south by previously quarried land, and on the west and north by farmland.

A number of watching briefs have been undertaken in the vicinity of this investigation (Fig 3). A watching brief in 2005 (Moscrop 2006) *c.* 1.2km south-east of the site revealed a small hearth of Romano-British date, and two unstratified flint tools. Further work in 2006 and 2008 (approximately

600m south) identified an unurned Middle Bronze Age cremation and several pits dating from the early to late Bronze Age (Krawiec 2008; Krawiec *et al* 2010). A watching brief conducted in 2009 on land adjoining that excavated in 2008 identified no archaeological remains (McNicol 2009). A subsequent watching brief in 2013 was similarly devoid of archaeology (Daffern 2013).

4.2 Current land-use

The land is currently scrubland, with various pioneer species populating the area.

5 Results

5.1 Structural analysis

A summary of the excavated area showing all trenches and features recorded are shown in Figure 2 with more detailed plans and sections presented in Figures 4-7. The results of the structural analysis are summarised below with further detailed provided in Appendix 1.

5.1.1 Phase 1: Natural deposits

The local geology consisted of a soft mid-reddish orange sand with frequent sub-rounded pebbles and cobbles throughout, and occasional patches of pink clay sand.

5.1.2 Phase 2: Bronze Age deposits

A number of pits were excavated in the northern and western parts of the excavation area. These concentrations of features could be seen as two distinct clusters. The western zone consisted of eight pits. The pits were often elongated, being up to 3m in length, though most were under 0.5m in depth. Many were filled with just one homogenous deposit, but there were some that showed a more complex depositional history. Evidence of low levels of domestic activity was present in the form of fire-cracked stones and charcoal within all features across the site.

Pit 107 was oval in shape, and filled with a reddish brown silty sand with occasional fire-cracked stones and charcoal (Fig 4; Plate 2). This pit cut an earlier, smaller feature of similar function.

Pit 158 (Fig 7; Plate 3) was an oval feature 3m long, 1.6m wide, and 0.52m deep. The upper fill (155) was a dark reddish brown silty sand with the ubiquitous fire-cracked stone and charcoal, as well as a quantity of pottery. The two earlier fills were suggestive of wind and waterborne deposition, and contained no dating or fire-cracked stones and only a small amount of charcoal. A radiocarbon date was secured from fill 155, which returned a date of 1390-1120 cal BC.

It was concluded that the material probably didn't arrive in the features during their primary use; rather the material was likely part of a midden deposit that later was spread across agricultural land as fertiliser. Eventually it made its way into the pits as they went out of use. This pattern was observed in all the pits in this cluster, where when there were multiple fills, the uppermost would contain the domestic material and the lower would be sterile and naturally deposited.

The northern cluster of pits was generally similar to the western one. It consisted predominantly of oval pits with occasional evidence of domestic activity in the upper fills. A noticeable exception was Pit 124, which contained distinct fills (Fig 6; Plate 4). The four intentionally deposited fills were derived in large part from charcoal and fire cracked stones, suggestive of episodic deposition of rake-out material associated with hot-stone technology. This was the only pit to be directly linked to the intentional deposition of fire cracked stones and charcoal.

This area also contained a hearth (143), with evidence for a clay lining (Fig 6; Plates 5-6). The feature was oval in shape, 0.77m wide, 1.1m long and 0.557m deep. The clay lining was best preserved along the eastern edge, and showed evidence of heating. Parts of the collapsed superstructure had fallen into the backfill of the hearth. This main backfill did not contain large amounts of charcoal, suggesting that this deposition had not followed immediately after the last firing of the hearth. A circular posthole (146) lay immediately to the north-east of the hearth, though it was impossible to ascertain whether they were associated (Fig 6; Plate 7).

5.1.3 Phase 3: Modern deposits

The site was covered with a soft dark reddish brown silty sand loam that had formed the modern ploughsoil.

5.2 Artefact analysis, by C. Jane Evans

The artefacts recovered are summarised in Tables 2 to 4.

The pottery assemblage comprised 74 sherds weighing 725g, predominantly later Bronze Age in date. The only other finds were a fragment from a rubber in igneous rock and a few fragments of undiagnostic fired clay.

Most finds came from eight pits (Table 2), each producing small assemblages of between one and fifteen sherds; less than the number recommended for dating episodes of occupation with confidence (PCRG 2010, 1.4.2). Further small quantities of pottery and fired clay were recovered from the hearth, a posthole, and as surface finds (layer 144). Using pottery as an index of artefact condition, this was generally fairly good with the majority of sherds displaying only moderate levels of abrasion. Fragmentation, indicated by average sherd weights, varied from feature to feature, though the degree of fragmentation probably reflects the inherent fragility of the pottery as much as any subsequent depositional processes.

5.2.1 Pottery

Most of the pottery assemblage comprised undiagnostic body sherds which could not therefore be securely dated. A later Bronze Age date was indicated by associated radiocarbon dating; a charcoal sample from a pit (158, fill 155) provided a date at 95.4% probability of 1384-1341 cal BC (9.1%) or 1308-1121 cal BC (86.3%). Samples of burnt residues from two sherds were also submitted for C14 analysis, one deriving from the same pit as the charcoal (157, fill 155) and one from a layer (144), but unfortunately these proved insufficient for dating.

The diagnostic sherds are consistent with a later Bronze Age date, based on comparison with key later Bronze Age assemblages such as that from Potterne, Wiltshire (Gingell and Morris 2000; Morris 2000a and b); however, they would also not be out of place in an Iron Age assemblage (David Knight pers comm).

The pottery has similarities, in fabrics and forms, with assemblages from nearby Whitemoor Haye, broadly dated to the later Bronze Age to Iron Age (Woodward 2002, Bush 2006). Given the relatively low level of activity on the site it seems likely that all features and their associated finds (as well as the charcoal used for dating) are broadly contemporary, though the absence of stratigraphic relationships means this cannot be stated categorically. The more diagnostic sherds came from three pits (107, fill 106; 117, fill 115; and 158, fill 155), the hearth (143, fill 141) associated with a collapsed clay superstructure; and as a surface find (144).

In addition to this later Bronze Age pottery, two sherds were thought to be Roman or later; both surface finds.

Period	material class	material subtype	object specific type	count	weight(g)
later Bronze Age	ceramic	earthenware	Pot	72	722
later Bronze Age	stone	igneous	rubber	1	295
Roman?	ceramic	earthenware	Pot	2	3
undated	ceramic	fired clay	fragment	3	30

Table 2: Quantification of the assemblage by period and material class

Feature type	Fill of	context	material class	object specific type	period	count	weight (g)	average weight (g)
Hearth	143	141	ceramic	pot	later Bronze Age?	11	243	22
			ceramic	fired clay	undated	1	28	28
Layer		144	ceramic	pot	later Bronze Age	6	67	11
			ceramic	pot	Roman?	2	3	2
Pit	105	103	ceramic	pot	later Bronze Age	1	6	6
			ceramic	fired clay	undated	2	2	1
	107	106	ceramic	pot	later Bronze Age	2	8	4
	110	109	ceramic	pot	later Bronze Age	8	52	7
	112	111	ceramic	pot	later Bronze Age	14	13	1
			stone	rubber	Bronze Age?	1	295	295
	114	113	ceramic	pot	later Bronze Age	1	11	11
	117	115	ceramic	pot	later Bronze Age	15	213	14
	124	119	ceramic	pot	later Bronze Age	1	11	11
		122	ceramic	pot	later Bronze Age	1	10	10
	158	155	ceramic	pot	later Bronze Age*	11	79	7
Posthole	146	145	ceramic	pot	later Bronze Age	1	9	9

Table 3: Quantification of the assemblage by feature type, context and material class (associated C14 date)*

The Bronze Age pottery was recorded by broad fabric group (Table 4): grog and quartz, angular quartz, igneous, and fine sand. Some variation was noted within these groups and it is possible that they could have been subdivided further, as suggested by petrographic analysis (see below). More detailed analysis was, however, not considered justified given the small size of the individual assemblages, lack of stratigraphic relationships, and the high proportion of undiagnostic body sherds. Four diagnostic sherds were selected for petrological analysis, representing the three main fabric groups. This analysis, combined with the programme of petrological analysis currently being undertaken on pottery from the nearby site at Whitemoor Haye, should inform future work in the area. Most sherds in all fabrics were fired with an oxidised external surface and a very dark grey core and internal surface. Some rims were decorated with finger nail impressions (Fig 8. 1, 2) and a finger impression was noted on one vessel (Fig 8.3), though this might be accidental. Another more unusual vessel was decorated with vertical, scored lines (Fig 8.4). Surfaces were wiped, occasionally with heavy finger wiping (Fig 8.6). Burnt residues were present on the internal surfaces of a couple of sherds, indicating use for cooking.

period	fabric name	count	% count	weight(g)	% weight	average weight
later Bronze Age	angular quartz QU (cf Knight QUSV)	24	32%	292	40%	12
	fine sand (QUSF)	1	1%	6	1%	6
	Igneous RO (IGSC?)	10	14%	78	11%	8
	Grog and quartz (GRQU)	37	50%	346	48%	9
Roman?	Sand	2	3%	3	0%	2
total		74	100%	725	100%	10

Table 4: Quantification of the pottery by period and fabric-group

The most common fabric group had inclusions of sub-angular grog, rounded quartz and mica (Fabric GRQU). This group included vessels with fingernail and finger impressed decoration (Fig 8.2, 3, 5). Another distinctive fabric (Fabric QU) was characterised by sparse- to-moderate, poorly sorted, angular fragments of polycrystalline quartz (<12mm). Other inclusions visible microscopically comprised rounded quartz (<0.5mm), shiny black inclusions, mica, organics. It is likely that the larger polycrystalline quartz was deliberately added to the clay. This is similar to fabric C/D identified in an assemblage dated to the Iron Age at nearby Fisherwick, Staffordshire (Banks and Morris 1978, 49), and fabric QUSV in the Late Bronze Age to Iron Age assemblage from Swarkestone Lowes, Derbyshire (Knight 1999, 128). Similar fabrics have also been noted in the Bronze Age assemblage from Whitemoor Haye (Laura Griffin pers comm). This group included body sherds with heavy finger wiping (Fig 8.6).

Of particular interest was the presence of possible non-local fabrics with igneous temper (Fabric RO). Similar fabrics were noted in the prehistoric assemblage at nearby Fisherwick (Fabric G, Banks and Morris 1978, 51), where a source in the Malvern Hills area was proposed, and at the more recently excavated Swarkestone Lowes, Derbyshire (Knight 1999, 128, fabric IGSC), where these were interpreted as imports from the Charnwood Forest/Mountsorrel region. Petrographic analysis of two samples (Quinn below, Hopwas samples 144 and 155) indicated that at least two distinct fabrics were included in this group. One appears to be from a fairly local source (Hopwas sample 144). The only form sherd in this fabric was a flat-topped rim with fingernail decoration (Fig 8.1). The other sherd is potentially more exotic, possibly from as far afield as Cornwall. This included Gabbroic clay which has been identified elsewhere in the Midlands, in several pots from an Iron Age settlement at Weekley, Northamptonshire (Jackson and Dix 1986-7, 77; Williams 1986-7). One vessel from Weekley compared closely typologically with Glastonbury-style vessels from Castle Dore, Cornwall (Jackson and Dix 1986-7, fig.36.91; compare Radford 1951, 4), supporting an interpretation that this was an import from the south-west (David Knight pers comm).

Gabbroic clay has been identified on other sites in the Midlands, for example from an Iron Age settlement at Weekley, Northamptonshire where one vessel had typological parallels with Glastonbury ware, again strongly supporting an interpretation that this was an import from the south-west. The Hopwas vessel, however, is in the Scored Ware tradition more typical of the midlands, suggesting that caution should be exercised in interpretation. Precise provenancing is difficult, as evident from the petrographic discussion below, and there is also the possibility that, if

this is from a non-local source, raw materials were moved (*ibid*). Petrographic analysis of the grog and quartz tempered fabric (sample 115; Fig 8.5) indicated that this also contained rare igneous inclusions, thought to be derived from glacial deposits.

One undiagnostic body sherd in a fine sand tempered fabric (QUSF) was recorded. This was not submitted for petrological analysis.

The later Bronze Age pottery (Figure 8)

1 Fragmentary, flat-topped, slightly expanded rim, with fingernail impressed decoration around the exterior; decoration Potterne Design Group 1: Finger tipping (Gingell and Morris 2000, 153, appendix 3). Fabric RO Surface find, layer 144. Database Rec 13.

2 Fragmentary, flat-topped rim with fingernail impressed decoration around the top; decoration Potterne Design Group 1: Finger tipping (Gingell and Morris 2000, 153, appendix 3). Fabric GRQU grog and quartz. Pit 107, fill 106. Database Rec 15.

3 Fragmentary rounded rim with slight internal bevel, from an ovoid jar; with a single ?intentional finger impression on the exterior. Similar to later Bronze Age to Iron Age forms recorded from nearby Whitemoor Haye (Woodward 2002, fig 35-37). Fabric GRQU grog and quartz. Hearth 143, fill 141. Database Rec 19.

4 Fragmentary, flat-topped rim, pinched out externally, decorated with distinctive, regular, deeply scored vertical lines on the walls and on the top of the flattened rim. The decoration was executed using a sharp ended tool of metal or bone, rather than by brushing with twigs or fibres (David Knight pers comm), and the motif is Potterne Design Group 3: parallel lines (Gingell and Morris 2000, 153, appendix 3). The rim could possibly be from a carinated jar form, similar to Potterne Jar type 31 (*ibid*, fig 53). The decoration is very much in the Iron Age Scored Ware tradition, and has parallels in the assemblage from nearby Fisherwick (Banks and Morris 1979, fig 12, H2 5a 1, I3 5a 1), dated there to the Iron Age. However, the radiocarbon dates from Hopwas suggest that this decoration style has earlier origins. Fabric RO. Pit 158, backfill 155. Database Rec 21.

5 Fragmentary plain, flat-topped rim, slightly expanded internally, possibly from an ovoid jar. There are slight finger impressions externally which might be decoration or could be part of the forming process. Similar to later Bronze Age to Iron Age forms recorded from nearby Whitemoor Haye (Bush and Woodward 2006, fig 50.7, fig 51. 8, 10). Fabric GRQU grog and quartz. Pit 117, fill 115. Database Rec 23.

6 Body sherds with heavy finger wiping, from a thick-walled vessel. Fabric QU angular quartz. Hearth 143, fill 141. Database Rec 18.

Two small, undiagnostic, body sherds from a thin-walled vessel are probably Roman. These were both in a cream/reduced fabric with densely packed quartz inclusions. Both were surface finds.

5.2.2 The fired clay

Three fragments of undiagnostic clay were recovered from a pit (105, fill 103), associated with Bronze Age pottery, and from a hearth (143, fill 141). The latter is probably derived from a collapsed clay superstructure associated with the hearth.

5.2.3 Petrographic analysis of the pottery, by Patrick Quinn

Background, Sample Materials and Aims of Analysis

Thin section petrographic analysis was undertaken on four sherds of Late Bronze Age pottery, all of which are also illustrated (Fig 8.1, 4, 5, 6). The aim of analysis was to characterise the ceramics in terms of their raw materials and manufacturing technology and interpret their possible production location. Details of the samples can be found in Table 5.

Sherd Number	Code	Description	Macroscopic Fabric
Hopwas 115	Rec 23	Fragmentary plain, flat-topped rim, slightly expanded internally, possibly from an ovoid jar. There are slight finger impressions externally which might be decoration or could be part of the forming process. Similar to later Bronze Age to Iron Age forms recorded from nearby Whitemoor Haye (Bush and Woodward 2006, fig 50.7, fig 51. 8, 10)	GRQU grog and quartz.
Hopwas 141	Rec 18	Body sherds with heavy finger wiping, from a thick-walled vessel	QU angular quartz
Hopwas 144	Rec 13	Fragmentary, flat-topped, slightly expanded rim, with fingernail impressed decoration around the exterior; decoration Potterne Design Group 1: Finger tipping (Gingell and Morris 2000, 153, appendix 3).	RO rock/GD granodiorite?
Hopwas 155	Rec 21	Fragmentary, flat-topped rim, pinched out externally, decorated with distinctive, regular, deeply scored vertical lines on the walls and on the top of the flattened rim. The decoration was executed using a sharp ended tool of metal or bone, rather than by brushing with twigs or fibres (David Knight pers comm), and the motif is Potterne Design Group 3: parallel lines (Gingell and Morris 2000, 153, appendix 3). The rim could possibly be from a carinated jar form, similar to Potterne Jar type 31 (*ibid*, fig 53). The decoration is very much in the Iron Age Scored Ware tradition, and has parallels in the assemblage from nearby Fisherwick (Banks and Morris 1979, fig 12, H2 5a 1, I3 5a 1), dated there to the Iron Age. However, the radiocarbon dates from Hopwas suggest that this decoration style has earlier origins	RO rock/GD granodiorite?

Table 5: Details of prehistoric ceramics from Hopwas analysed in this report. Supplied by client. Referenced cited in the table are not in the reference list for the present report.

Methodology

Small pieces of all four ceramic samples were impregnated with epoxy resin and prepared as standard petrographic thin sections at the Institute of Archaeology, University College London (Quinn 2013, 23-33). The prepared thin sections were studied at magnifications of 25-400x under the polarising light microscope. They were interpreted in terms of their constituent raw materials and manufacturing technology. The fabric of the four sherds was compared to one another to identify similarities in terms of the use of common raw materials and/or technology. The provenance of the sherds was investigated based on comparison with the geology of the area around Hopwas (Hains and Horton 1969).

Compositional and Technological Characterisation

Fabric GRQU, Grog and quartz: Hopwas sample 115 (Pit 117, fill 115. Database Rec 23, Fig 8.5) This sherd is characterised in thin section by the presence of grog temper and sparse inclusions of sand-sized quartz and basic igneous rock in a non-calcareous red-firing silty base clay (Fig 9A, B). The grog particles vary in their visibility due to differences in size and firing colour. They all have a

non-calcareous quartz rich fabric with mica. Some feature ring voids. The sample contains sparse, rounded sand-sized quartz inclusions, which may have been naturally occurring or could have been added. Other types of sand-sized inclusions are siltstone, opaques and igneous rock fragments. The latter are composed of randomly oriented felsdpar laths, opaques and brown and green weathering product. They appear to have derived from a medium-grained basic igneous source such as dolerite. One clinopyroxene inclusion present in the prepared thin section may have also derived from this rock. It is not clear whether the igneous material was added intentionally or naturally occurring. The finer, silt sized inclusions in the sample, which would have been present in the base clay, are dominated by angular quartz and white mica, with rarer amphibole. The sample is moderately porous with many elongate crack-like voids running through it. Firing was oxidising and may not have reached a sustained temperature of 750°C based on the optical activity of the clay matrix and the colour of small amphibole inclusions.

Fabric QU Angular quartz: Hopwas sample 141 (Hearth 143, fill 141. Database Rec 18. Fig 8.6)
This sample is composed in thin section of a fabric containing sand-sized inclusions of various compositions which appear to have been added as temper to a silty non-calcareous base clay (Fig 9C, D). The sand-sized inclusions stand out from the more abundant silt-sized material giving the samples a moderately bimodal grain size distribution. They are rounded to sub-angular and composed of monocrystalline quartz, foliated polycrystalline quartz, cataclasite, siltstone, mudstone and grog. The latter two inclusion types can be clearly distinguished from one another. It is possible that the mudstone represents fragments of a fine dark clay source with which more silt-rich material was mixed, however, remnants of the latter are not present. The abundant silt-sized inclusions are sub-angular to angular and composed of quartz, felspar, white mica and opaques. The sample contains a few voids containing carbonised organic matter, though it is not clear whether this represents temper or naturally occurring plant matter. It was fired below 750°C in a strongly oxidising atmosphere.

Fabric RO Igneous: Two samples with igneous inclusions were submitted for analysis.

Hopwas sample 144 (Surface find, layer 144. Database Rec 13. Fig 8.1)
This sherd is characterised in thin section by the presence of coarse (up to 4 mm) inclusions of igneous rock and quartz temper in a fine non-calcareous clay (Fig 9E, F). The conspicuous igneous rock inclusions are sub-angular to sub-rounded and vary in composition. They include medium-coarse grained granitic rock fragments composed of quartz, feldspar, perthite and biotite, as well as porphyritic and equigranular volcanic material of acidic or intermediate composition. Most of the igneous inclusions are weathered and therefore difficult to identify. One is perhaps of basic volcanic material. Rounded sand-sized quartz and polycrystalline quartz also occurs in the sample. This sandy material and the volcanic rock fragments may have been added as temper to a fine non-calcareous base clay. This contained only very fine quartz and mica. The prepared thin section may contain one or two pieces of grog, however, it is not clear whether these were intentionally added due to their low abundance. The sample is moderately to highly porous, with numerous elongated crack-like voids and some large vughs. The sample was fired in the absence of oxygen giving it a dark colour.

Hopwas sample 155 (Pit 158, backfill 155. Database Rec 21. Fig 8.4)
In thin section this sample is composed of a dark, reduced fabric containing abundant weathered inclusions of a medium-coarse grained amphibole-containing igneous or metamorphic rock, plus accessory quartz (Fig 10A, B). The aforementioned rock fragments vary in size up to several millimetres and are composed of randomly oriented plagioclase feldspar laths, amphibole and less common clinopyroxene. They are weathered, especially the feldspars and pyroxenes and contain opaques. Based on the inclusions that are present, it is possible that they are fragments of a medium to coarse grained intermediate or basic igneous rock such as diorite or gabbro, or alternatively an amphibolite. Isolated mineral inclusions of the types present within the rock fragments occur in the sherd. It appears that the igneous/metamorphic material was naturally present in a residual clay source. However, the sample also contains fine sand and silt-sized quartz inclusions that have a rounded shape and seem to indicate that the clay was transported

and contains an alluvial component. The sample is moderately porous and has multiple crack like voids. It has a dark colour due to firing in a low oxygen atmosphere. Firing was >750°C due to the orange oxidised nature of the amphibole crystals and inclusions.

Possible Raw Material Sources and Provenance Implications

Petrographic analysis has permitted the interpretation of the raw materials used to manufacture the four prehistoric sherds considered in this report. These include igneous rocks of various kinds, quartz sand, mudstone, siltstone and possible amphibolite. By comparing these to the geology of the site and its surrounding area (Hains and Horton 1969), it is possible to determine the availability of such deposits and hence provide some evidence with which to determine whether the ceramics were locally made or brought in from elsewhere.

The small quantity of dolerite in sample 115 might be suggestive of its provenance. Primary outcrops igneous are absent in the Tamworth region and rare in Staffordshire in general, except for the extreme north and south of the county. The Butterton-Swynnerton Dykes that occur south of Stoke-on-Trent are the closest comparable material and are composed of microgabbro/dolerite. Dolerite and basalt occurs at the other end of the county in the Barrow Hill Basaltic Vent, west of Dudley. This could indicate that sample 115 was made a significant distance away from its findspot, or produced locally from igneous material that was transported for the purpose. However, it seems more likely that the rare igneous material in this sherd derives from glacial material. Diamicton and glaciofluvial deposits occur in the Tamworth area. In northern and central Britain these polymict sediments are known to contain igneous material from a range of distant sources that were selected by past people for use as ceramic temper (e.g. Ixer and Vince 2009). Unfortunately, it is not possible to determine the composition of the glacial material local to the site and confirm the presence of dolerite clasts without fieldwork.

A similar source might be postulated for the occurrence of several types of igneous rock inclusions in sample 144. These include acidic plutonic and volcanic rock, neither of which is present as primary outcrops in the vicinity of the site or wider Staffordshire area. The presence of such material as sand-sized fragments alongside quartz and siltstone inclusions might suggest that they were part of a sand deposit that was added as temper. The aforementioned glaciofluvial material is a possible source for this or possibly the gravelly and pebbly sandstone and conglomerate strata off the Bromsgrove Sandstone Formation, Kidderminster Formation or Hopwas Breccia Formation that occur by the site. Again, it is not possible to determine the clast composition of these without field sampling and analysis.

Whilst the amphibole-rich plutonic igneous or metamorphic rock within sample 155 could also have come from glacial material collected close to the site, it is suspected that it was naturally present within the clay used to manufacture this sherd and therefore came from a residual deposit. Intermediate plutonic rock occurs in the Charnwood Forest in Leicestershire. However, this is more quartz-rich than the material in sample 155 and is therefore not a match. A possible long distance source for this sherd, which should not be ruled out, is the Lizard Peninsular in Cornwall. The distinctive fabric of sample 155 bears strong similarities to the well-studied and widely travelled ‘gabbroic’ prehistoric ceramics from this area (Peacock, 1969a, b; Harrad 2004). Whilst some confusion seems to exist with regard to the exact petrographic and mineralogical composition of this material (see Quinn 2015 for discussion), it contains polyminerallic and monominerallic inclusions with altered feldspars, amphibole and rare clinopyroxene. Vince (1998, 1), in his brief petrographic description of a vessel from Monkton, Kent, which he ascribes to a distance source on the Lizard Peninsular, refers to “abundant angular fragments of metamorphosed basic rock, an amphibolite”. Such a description fits well with the composition of sample 155 under the microscope. In addition, Harrad (2004) in her survey of clay sources on the Lizard, notes the presence of sub-rounded wind-blown quartz sand.

The mudstone inclusions in sample 141 may have come from the erosion of the argillaceous Mercia Mudstone Group bedrock that occurs close to the site. This may have been incorporated into superficial deposits used by the maker of this vessel, or could have been selected and add

deliberately. Siltstone is present in two of the Hopwas sherds and could also have been locally derived given the presence of Triassic clastic sedimentary bedrock in the area which could have been used directly, or more likely, incorporated into sand or clay that was used by potters.

The grog temper that is present in several of the analysed Hopwas sherds is not indicative of provenance. These tempers do, however, indicate the past preparation techniques undertaken by the potters. The makers of the vessels from which samples 115, 141 and 144 derive seem to have added two types of temper to their clay paste. This decision may not have been driven by strictly functional reasons. The preference for igneous rock temper seen in these samples fits with similar findings from elsewhere.

Preliminary Comparison with Sherds from Whitemoor Haye

A preliminary comparison has been made between the four Hopwas sherds analysed in this report and ten fragments of prehistoric pottery from the nearby site of Whitemoor Haye, which will be the topic of a forthcoming study. This revealed only minor correspondence between the two groups of ceramics. Grog temper is present in a few sherds from Whitemoor Haye and siltstone is present in another. Possible granitic igneous material was observed in one sherd, but otherwise this material is much less frequent than in the Hopwas sherds. The distinctive fabric of sample 155 was not detected.

Scientific Sample Storage and Access

The thin sections prepared and analysed in this report are housed in the reference collection of www.ceramicpetrology.co.uk at the Institute of Archaeology, University College London. These can be consulted by arrangement with Patrick Quinn.

5.2.4 The quern, by Ruth Shaffrey

A single rubber fragment was recovered from a pit (112, fill 111). This retains part of a curved convex, pecked and worn face and an original edge, but all other faces are damaged. The fragment is made from a dark grey fine grained igneous rock with visible biotite phenocrysts (larger inclusions). It is a lamprophyre, the nearest source of which is at Tamworth, although it is unknown whether surface exposures were accessible during the Bronze Age. Igneous rocks are not often used for querns in this country, mainly because sedimentary rocks were more widely available, and occurrences of querns of diorite and lamprophyre are rare. Those known to the author tend to occur in Devon and Cornwall where such rocks are more widespread, for example at Tremough (Quinnell 2015, 85). Other types of igneous rocks were utilised locally, however, with a rubber of biotite granite of possible Iron Age date from Whitemoor Haye Quarry (Bevan and Ixer 2002, 61) and a saddle quern of likely prehistoric date of granodiorite (Shaffrey forthcoming). It is also worth noting that igneous rocks have been used in the production of local pottery at Hopwas and although none of these included lamprophyre, they did include stones that must have been imported, possibly from Cornwall (Quinn above).

Catalogue

Quern rubber fragment. Lamprophyre. grey black fine grained igneous rock with obvious biotite mica phenocrysts. With slightly curved convex face, pecked but now worn very smooth. Part of one original edge survives but most other faces are damaged. This could be from a rotary quern or a rubber but not enough survives to be certain. Measures 42mm thick. Weighs 295g. Context 111, fill of pit 112. LBA

5.2.5 Conclusions

Apart from two Roman sherds, all the finds are thought to date to the later Bronze Age, based on radiocarbon dates and typological parallels. The fabrics and forms compliment the evidence from larger assemblages excavated in the area, particularly those from Whitemoor Haye (Bush and Woodward 2006; Griffin pers comm) and Fisherwick (Banks and Morris 1979). The small domestic assemblage includes sufficient diagnostic forms to characterise it. Importantly, it has associated radiocarbon dating and petrographic analysis was also undertaken. It can therefore contribute to a

dated typology of later Bronze Age forms and fabrics in the region. Of particular interest is the presence of possible gabbroic clays, from Cornwall. The presence of classic Scored Ware in a later Bronze Age assemblage is also of interest (Fig 8.4), indicating a pre Iron Age origin for this ware.

5.3 Environmental analysis, by Elizabeth Pearson

Results of the environmental analysis are summarised in Tables 6 to 8.

Uncharred remains, consisting of mainly root fragments are assumed to be modern and intrusive as they are unlikely to have survived in the soils on site for long without charring or waterlogging.

context	sample	Preservation type	species detail	category remains	quantity/ diversity	comment
103	1	?wa	unidentified herbaceous root frags	misc	+++/low	Probably intrusive
103	1	ch	non-oak wood	misc	++/low	occ identifiable frags
118	2	?wa	Poaceae sp indet grain (small), Poaceae sp indet grain (1mm)	grain	+/low	Probably intrusive
118	2	ch	*Quercus robur/petraea* wood, unidentified wood fragments	misc	+++/low	
119	3	ch	*Quercus robur/petraea* wood, cf *Viburnum* sp wood	misc	++/low	mostly oak?
119	3	ch	unidentified wood frags	misc	+++/low	
122	4	?wa	unidentified herbaceous root frags	misc	+++/low	Probably intrusive
122	4	ch	*Quercus robur/petraea* wood, unidentified wood frags, non-oak wood	misc	++/low	Small frags, some identifiable, mostly oak?
122	4	ch	*Quercus robur/petraea* wood, cf *Alnus* sp wood, *Corylus avellana* shell fragment, *Corylus avellana* wood, unidentified wood frags	misc	++/low	
141	5	ch	*Quercus robur/petraea* wood, unidentified wood frags	misc	++/low	
141	5	ch	*Sambucus nigra*	seed	+/low	
141	5	?wa	unidentified herbaceous root frags	misc	+++/low	Probably intrusive
142	6	?wa	unidentified herbaceous root frags	misc	+++/low	Probably intrusive
142	6	ch	unidentified wood frags	misc	++/low	Small poorly preserved frags
145	7	?wa	unidentified herbaceous root frags	misc	++/low	Probably intrusive
145	7	ch	unidentified wood frags	misc	++/low	Small frags
145	7	ch	*Triticum dicoccum/spelta* grain	grain	1	
155	8	ch	*Corylus avellana* wood, *Alnus/Carpinus/Corylus* sp wood, unidentified wood frags, non-oak wood	misc	+/low	
155	8	ch	unidentified wood frags	misc	++/low	Small frags
155	8	?wa	unidentified seed	seed	+/low	Probably intrusive

Table 6: Assessment of plant remains from bulk samples

Key:

preservation	quantity
ch = charred	+ = 1 - 10
min = mineralised	++ = 11- 50
wa = waterlogged	+++ = 51 - 100
?wa = waterlogged or uncharred	++++ = 101+
	* = fragments

Identification to species was difficult for charcoal from pit fill (118) because of the small size of the fragments and poor preservation, and as a result most of the identifications are tentative. The small assemblage, however, appeared to be dominated by oak, (*Quercus robur/petraea*) and the alder/hornbeam/hazel group (*Alnus/carpinus/Corylus* sp), of which some could be identified as possible alder or hazel. Occasional fragments of pear/apple/whitebeam/hawthorn (cf Maloideae sp) and possible birch (*Betula pendula/pubescens*) were also recorded, along with a single fragment of charred hazelnut shell. The mixed nature of the assemblage suggests opportunistic collection of wood from the near vicinity, probably for general domestic use. There is no evidence for selective wood fuel gathering for a specific activity, such as for firing hearths on an industrial scale.

The only other identifiable remains from other samples included a single charred grain of emmer/spelt wheat (*Triticum dicoccum/spelta*) from a posthole fill (145) and a single charred elderberry seed (*Sambucus nigra*) from a hearth (141). The absence of any concentration of charred cereal crop waste may be an indication of only small-scale arable production at a subsistence level and a more pastoral dominated agricultural landscape. This is likely considering the freely draining slightly acid soils of this location (Cranfield University 2017).

context	sample	large mammal	charcoal	charred plant	artefacts	comments
103	1		occ		occ pot, heat-cracked stones	
118	2		mod	occ	abt heat-cracked stones	
119	3		mod		mod heat-cracked stones	
122	4		mod	occ	occ pot, heat-cracked stones	
141	5		occ		occ fired clay, pot. Mod heat-cracked stones	
142	6		occ		occ heat-cracked stones	
145	7	occ	occ		occ heat-cracked stones	animal bone burnt
155	8		occ	occ	occ pot, mod heat-cracked stones	

Table 7: Summary of environmental remains from bulk samples; occ = occasional, mod = moderate

Latin name	Family	Common name	Habitat	118	141	145
Triticum dicoccum/spelta grain	Poaceae	emmer/spelt wheat	F			1
cf *Maloideae* sp	Rosaceae	pear/apple/whitebeam/hawthorn	CF	1		
Quercus robur/petraea wood	Fagaceae	oak	C	4		
cf *Betula pendula/pubescens* wood	Betulaceae	silver/downy birch	C	1		
cf *Alnus* sp wood	Betulaceae	alder	CE	1		
Corylus avellana shell frag	Betulaceae	hazelnut	C	1		
cf *Corylus avellana* wood	Betulaceae	hazelnut	C	3		
Alnus/Carpinus/Corylus sp wood	Betulaceae	alder/hornbeam/hazel	C	2		
Sambucus nigra	Caprifoliaceae	elderberry	BC		1	

Table 8: Charred plant remains from selected samples

Key:

habitat	quantity
A= cultivated ground	+ = 1 - 10
B= disturbed ground	++ = 11- 50
C= woodlands, hedgerows, scrub etc	+++ = 51 - 100
D = grasslands, meadows and heathland	++++ = 101+
E = aquatic/wet habitats	* = fragments
F = cultivar	

5.4 Radiocarbon dating report, by Elizabeth Pearson

Three samples were submitted for radiocarbon dating (Appendix SUERC report).

Two samples were intitally submitted in the form of charred pot residues from contexts 155 and 144. Both dates failed on account of insufficient carbon. Alder/hornbeam/hazel charcoal (*Alnus/Carpinus/Corylus* sp) was subsequently submitted as a replacement for the failed charred pot residue from context 155 and is reported on below. As no sample was taken from context 144, no replacement material was available. The calibrated date has been rounded to the nearest 10 years to avoid false precision.

The results are conventional radiocarbon ages (Stuiver and Polach 1977) and are listed in Table 8. The calibrated date ranges for the samples have been calculated using the maximum intercept method (Stuiver and Reimer 1986), and are quoted with end points rounded outwards to ten years. The probability distributions of the calibrated dates, calculated using the probability method (Stuiver and Reimer 1993) are shown in Graphs 6 and 7 in Appendix 2. They have been calculated using OxCal v4.2 (Bronk Ramsey 2009) and the current internationally-agreed atmospheric calibration dataset for the northern hemisphere, IntCal13 (Reimer *et al* 2013).

Laboratory code	Context number	Material	$\delta^{13}C$ (‰)	Conventional Age	OxCal calibrated age (95.4% probability or 2 sigma)
GU 41926	155	Charred pot residue		Failed	
SUERC-69299 (GU 41927)	155	Charcoal: *Alnus/Carpinus/ Corylus* sp	-26.4 %	3001 ± 34	1390 – 1120 cal BC
GU 41928	144	Charred pot residue		Failed	

Table 9: Radiocarbon dating results

6 Synthesis

The pits and the hearth excavated during this watching brief are considered to be indicative of edge-of-settlement activity. The pottery showed evidence for use in cooking, and the fire-cracked stones and charcoal recovered from within the features was likely derived from the same processes. A hearth with a collapsed clay superstructure was identified, though it has been raked out prior to its collapse, so little evidence remained to ascertain its function. A solitary charred elderberry seed was recovered from it. Nearby was a pit that contained deliberate dumps of charcoal and fire-cracked stone, evidence of use of hot-stone technology. Limited environmental evidence hinted that arable production existed at a subsistence level only, with pastoral agriculture dominant in the landscape. The radiocarbon date from charcoal from one of the pits returned a date of 1390-1120 cal BC, placing it at the onset of the later Bronze Age.

The concentration of pits on the north-western side of the excavation area suggests that a settlement focus is close by and probably in that direction. This is on the proviso that the cluster of pits is not the truncated remains of the settlement itself, and that other, shallower or more ephemeral features haven't been lost to later ploughing. The remains of the clay superstructure of the hearth, and the depth of the one posthole identified on site, would however argue against any significant level of truncation.

The land begins to drop off to the north and west from this high point. Approximately 600m to the south of the site, evidence for further Bronze Age activity was discovered in 2006 and 2008 (Krawiec *et al* 2010). This took the form of a Middle Bronze Age unurned cremation, and pits ranging in date from the Early to Late Bronze Age. One short gully of Late Bronze Age date was

the only dateable linear feature. Many of the Bronze Age pits contained fire-cracked stone and pottery, and it was suggested they could be part of an as yet undiscovered settlement (*ibid*, 6).

The lower western slopes of the hill on which this site sits may therefore be suggested as providing the most likely location of denser Bronze Age activity and probably a settlement focus. The majority of later prehistoric settlements and field systems in Staffordshire are known as a result of cropmarks identified from aerial photography. The highest number of these are found on the gravel terraces of the rivers Tame and Trent (Wardle 2017, 104), with the Tame lying *c.* 2km to the east of the study site; however, evidence for later Bronze Age settlement in the West Midlands as a whole is sparse, and usually unenclosed (Hurst 2011). The majority of these examples in Staffordshire are located on sand and gravel areas, where unenclosed roundhouses are dated to the Late Bronze Age-Early Iron Age (Mann *et al* 2016).

7 Publication summary

Worcestershire Archaeology has a professional obligation to publish the results of archaeological projects within a reasonable period of time. To this end, Worcestershire Archaeology intends to use this summary as the basis for publication through local or regional journals. The client is requested to consider the content of this section as being acceptable for such publication.

An archaeological watching brief was undertaken on behalf of Cemex UK at Hopwas Quarry, Tamworth, Staffordshire (NGR ref (SK 15992 03943).

The site was monitored during works to reinstate a decommissioned area of the quarry. During this watching brief, two clusters of small pits and a hearth were identified in the north-west corner of the site. These contained an assemblage of Late Bronze Age pottery and fire-cracked stone. Whilst most of the pits suggested no distinct function, one feature contained a collapsed clay superstructure and this is interpreted as a hearth. Another pit had distinct fills of charcoal and fire-cracked stone, likely to have derived from the raking out of spent material from a hearth incorporating hot-stone technology.

Radiocarbon dating of one of these pits returned a date of 1390-1120 cal BC, placing it at the onset of the later Bronze Age. This correlates with other activity in the vicinity, including a number of later Bronze Age pits some 600m to the south, one of which contained an unurned cremation. This evidence, taken together, strongly suggests settlement in the immediate vicinity.

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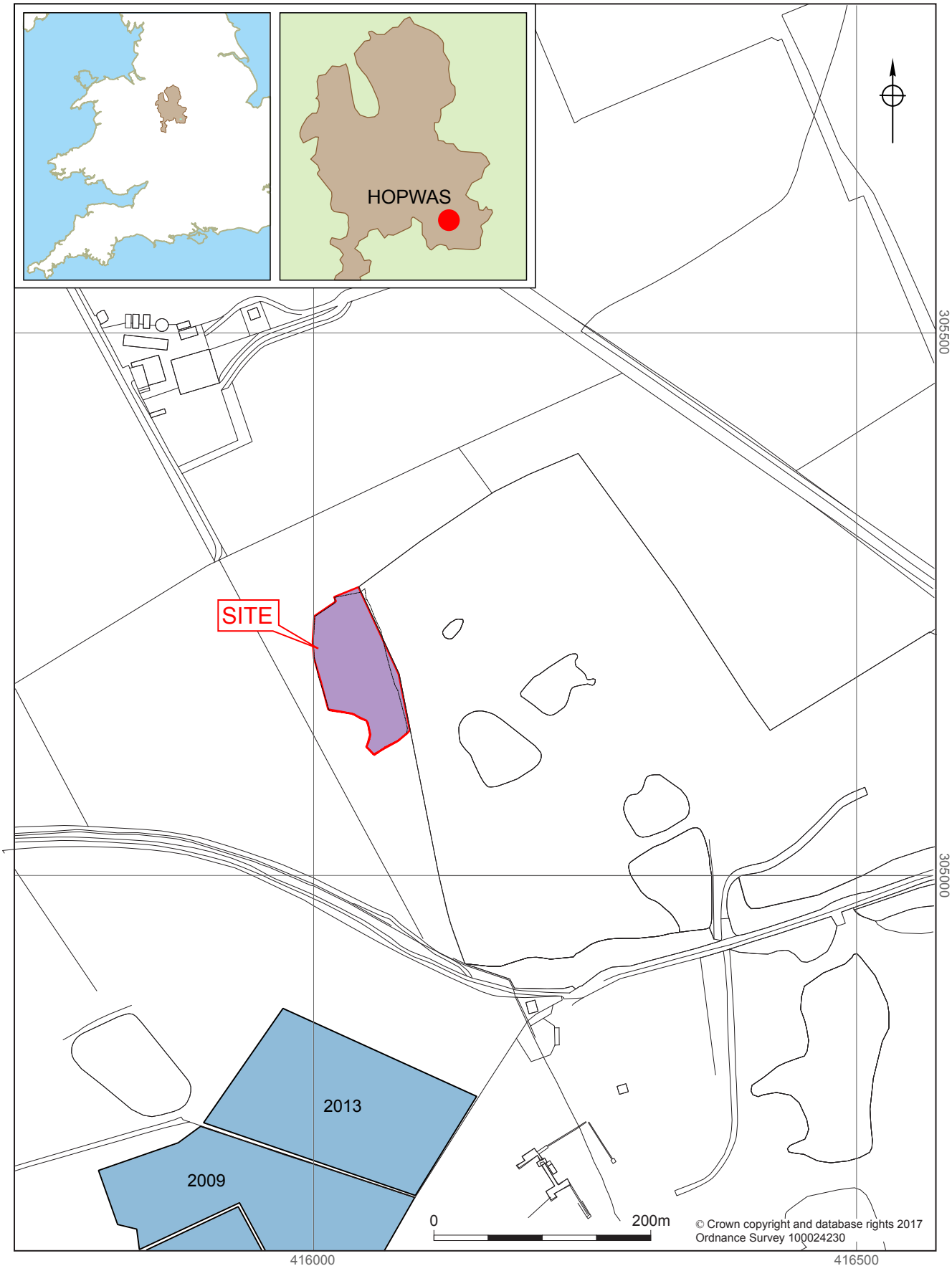
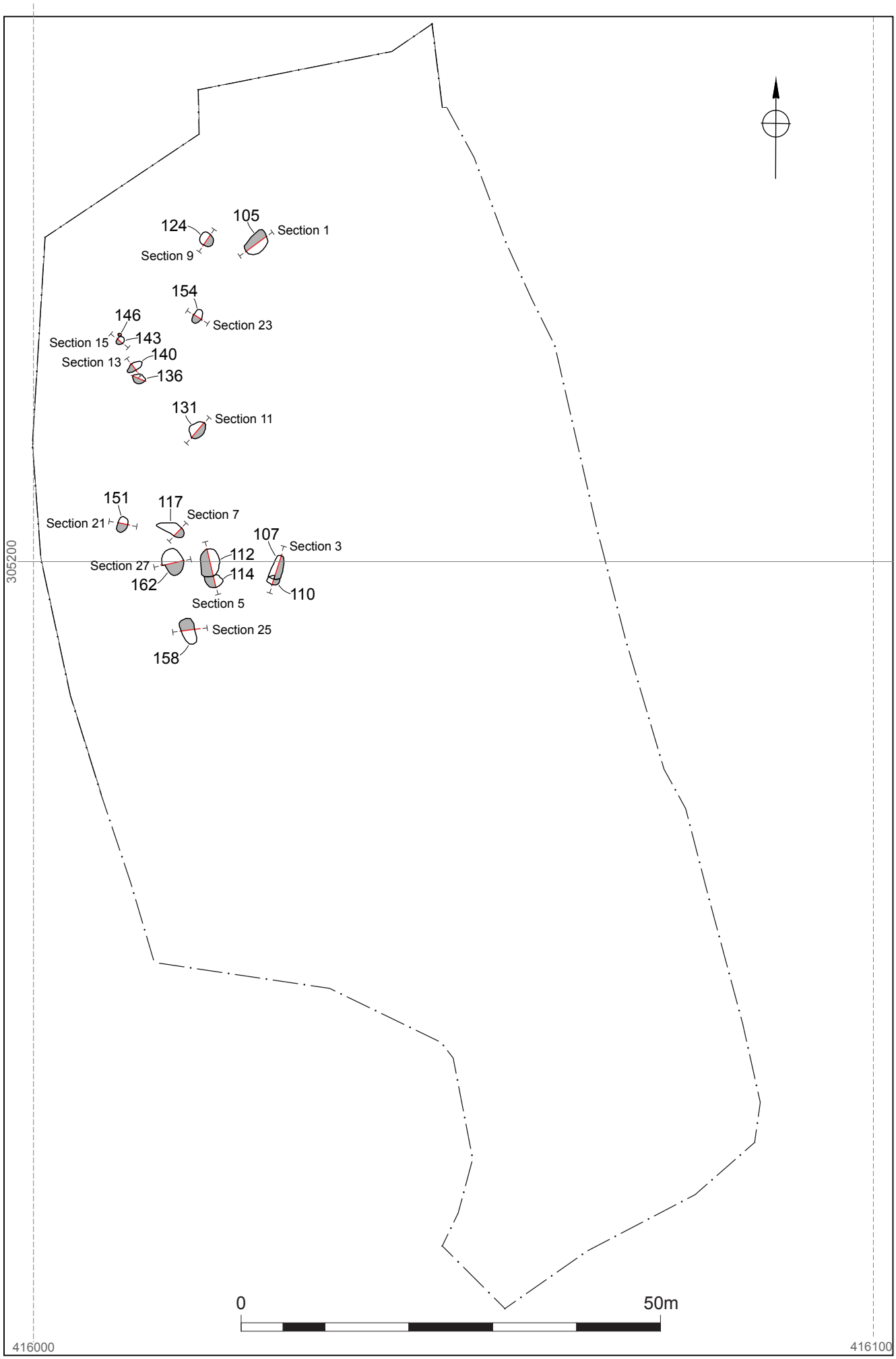
Figures



Location of the site

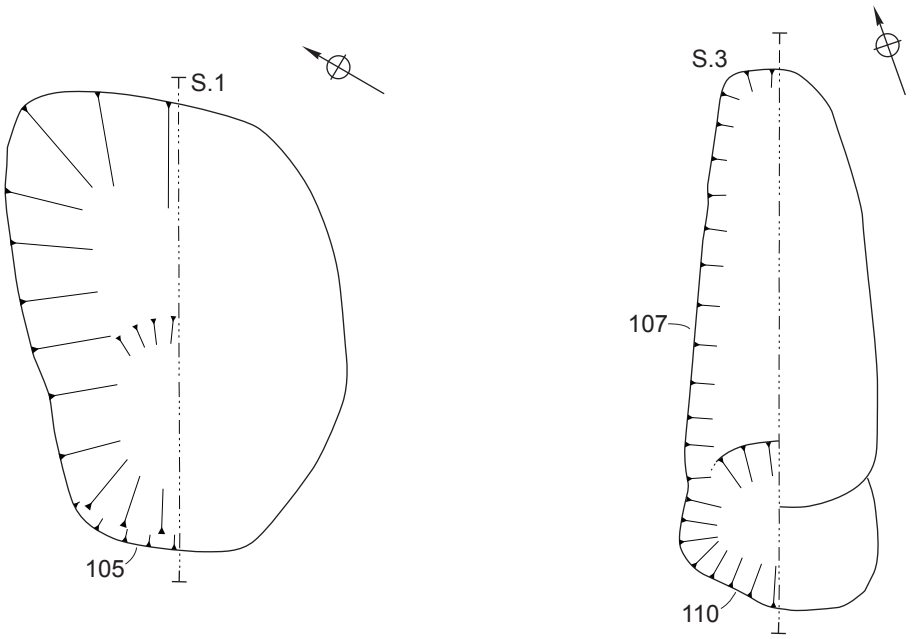
Figure 1

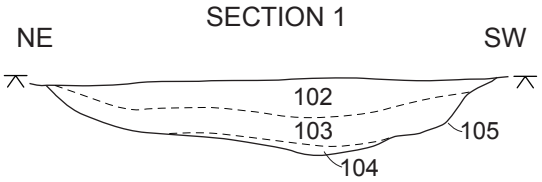


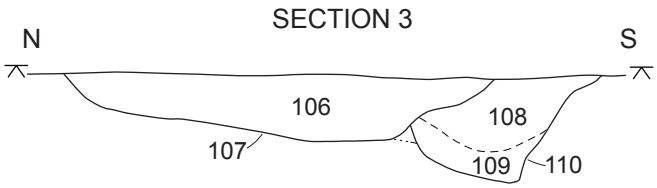
Area of investigation showing all features

Figure 2

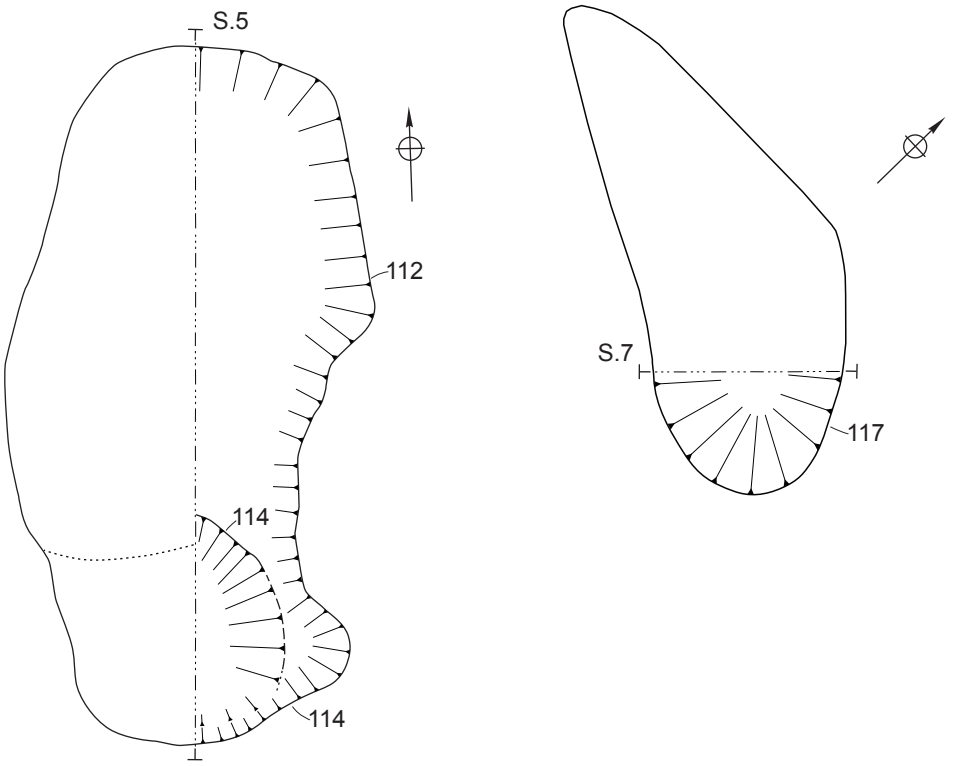
Locations of archaeological works and the year in which they were undertaken *Figure 3*

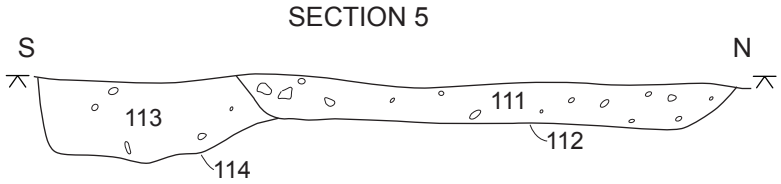


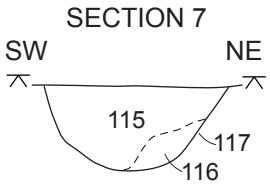




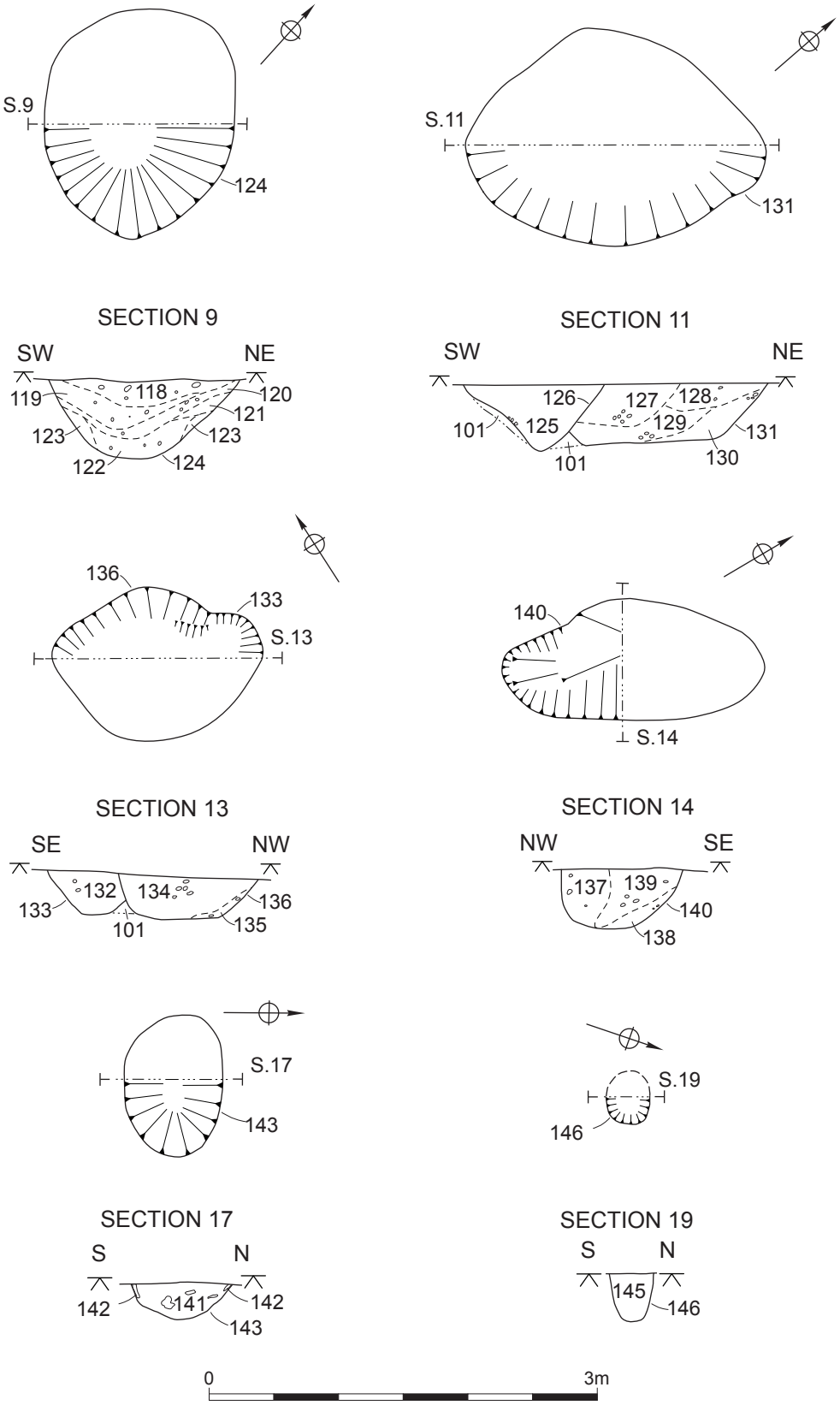
Plans and sections of 105, 107 and 110 *Figure 4*



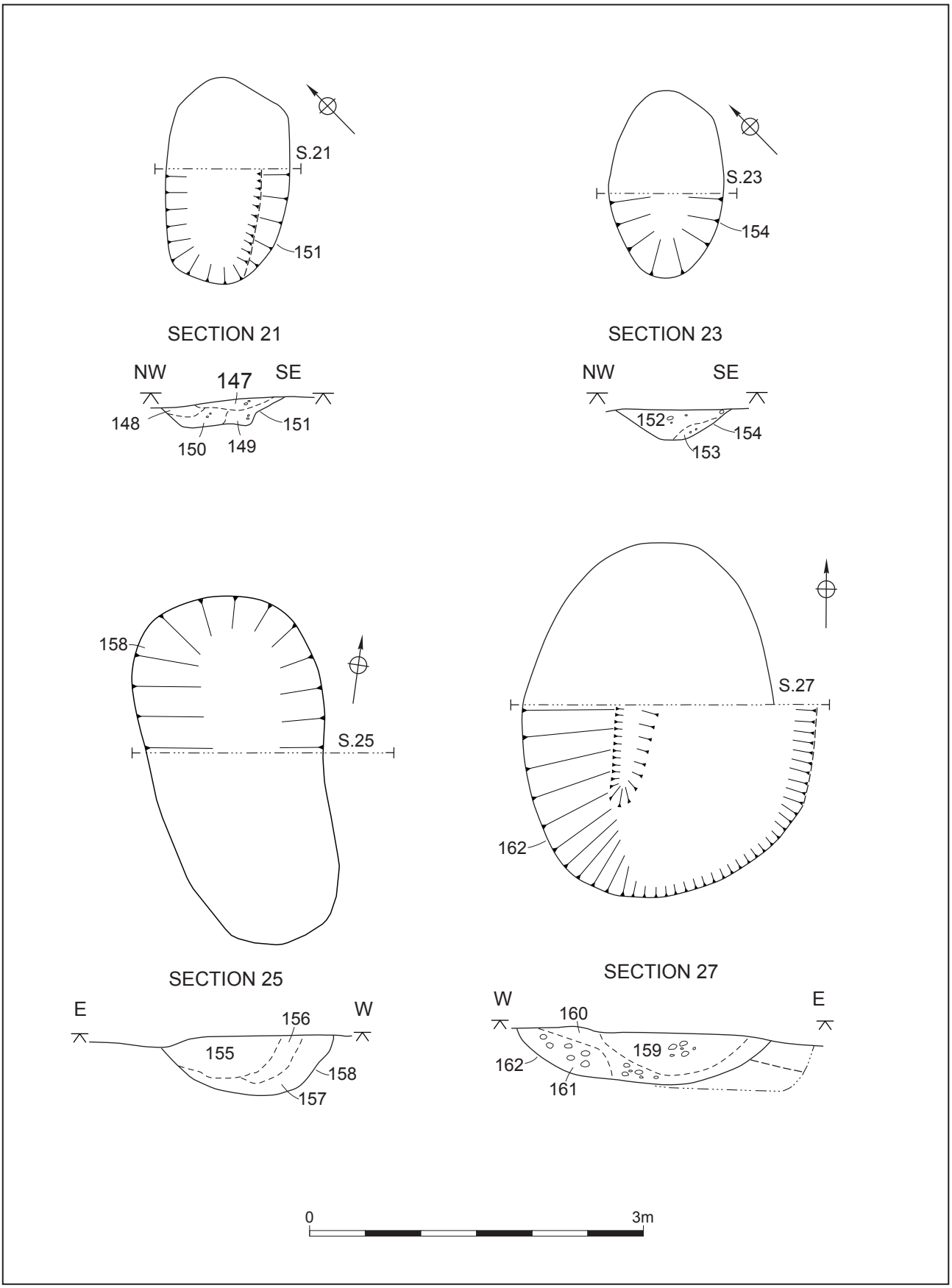




Plans and sections of 112, 114 and 117 *Figure 5*

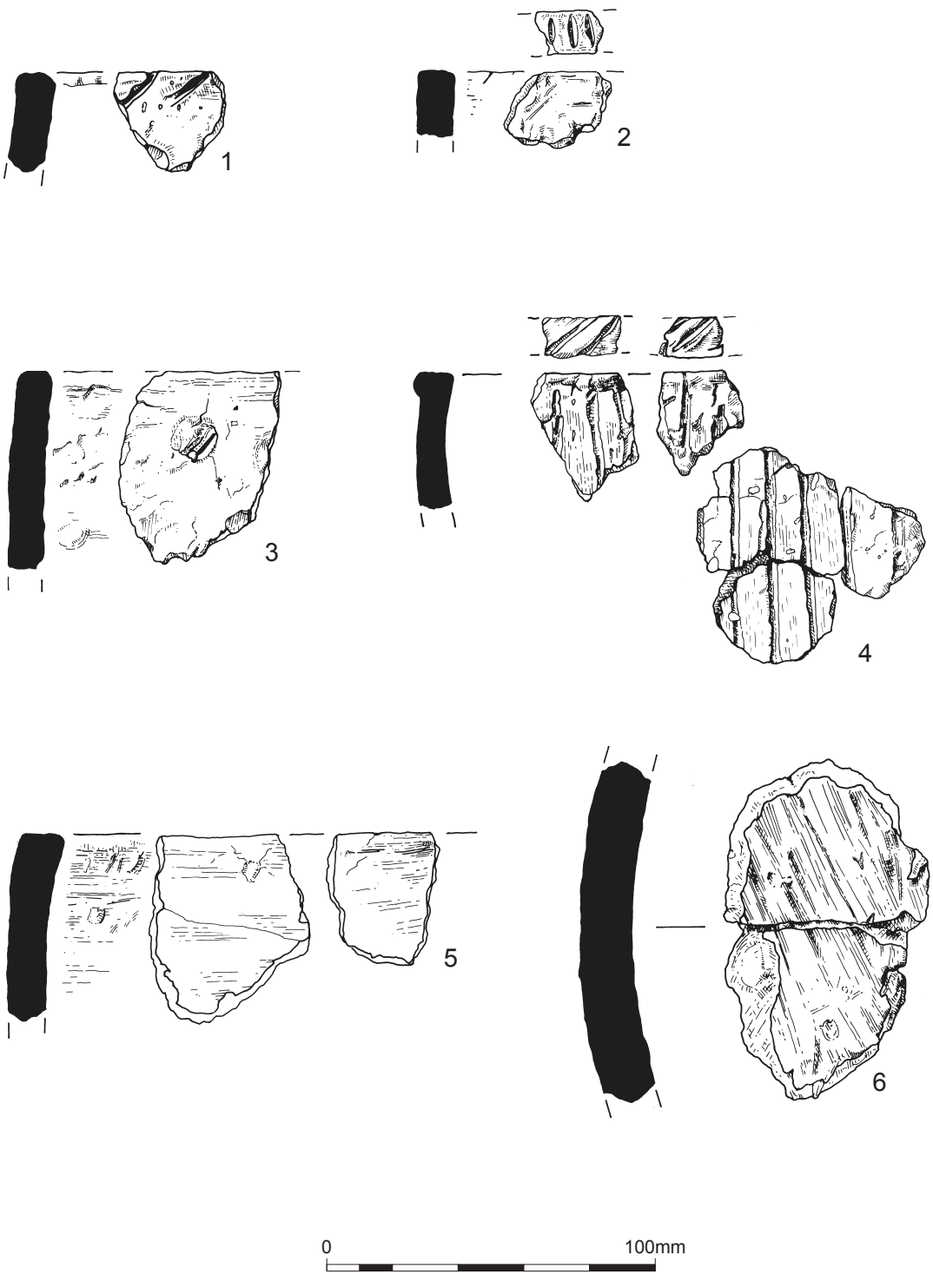


Plans and sections of 124, 131, 133, 136, 140, 143 and 146 *Figure 6*



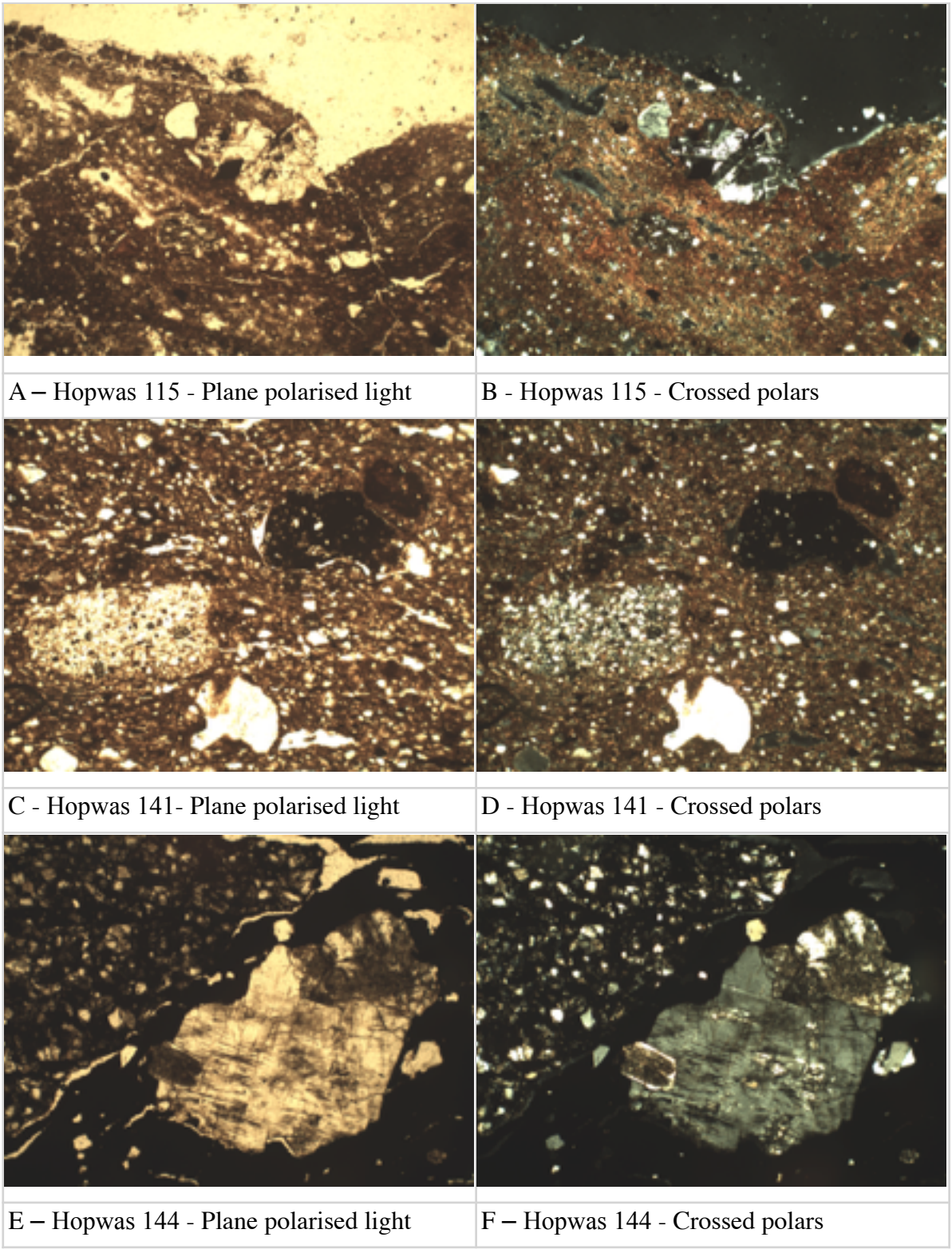
Plans and sections of 151, 154, 158 and 162

Figure 7



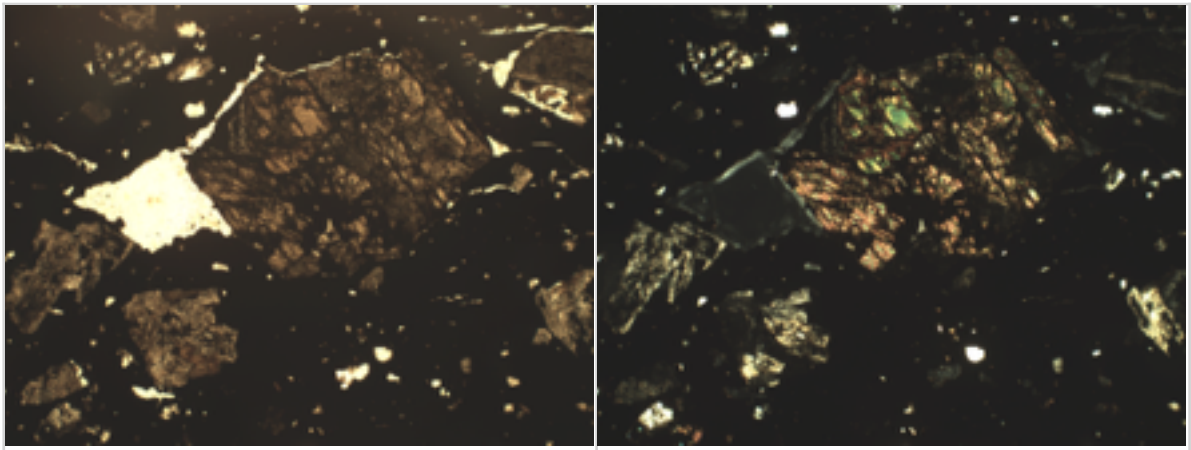
Pottery

Figure 8



A – Hopwas 115 - Plane polarised light	B - Hopwas 115 - Crossed polars
C - Hopwas 141- Plane polarised light	D - Hopwas 141 - Crossed polars
E – Hopwas 144 - Plane polarised light	F – Hopwas 144 - Crossed polars

Figure 9: Thin section photomicrographs of prehistoric ceramics from Hopwas analysed in this report. Images taken in crossed polars. Image width = 2.9 mm.



A – Hopwas 155- Plane polarised light	B - Hopwas 155 - Crossed polars

Figure 10: Thin section photomicrographs of prehistoric ceramics from Hopwas analysed in this report. Images taken in crossed polars. Image width = 2.9 mm

Plates

Plate 1: The site before excavation, looking north-west

Plate 2: Pits 107 and 110, looking south-east (1m scales)

Plate 3: Pit 158, looking south (1m scale)

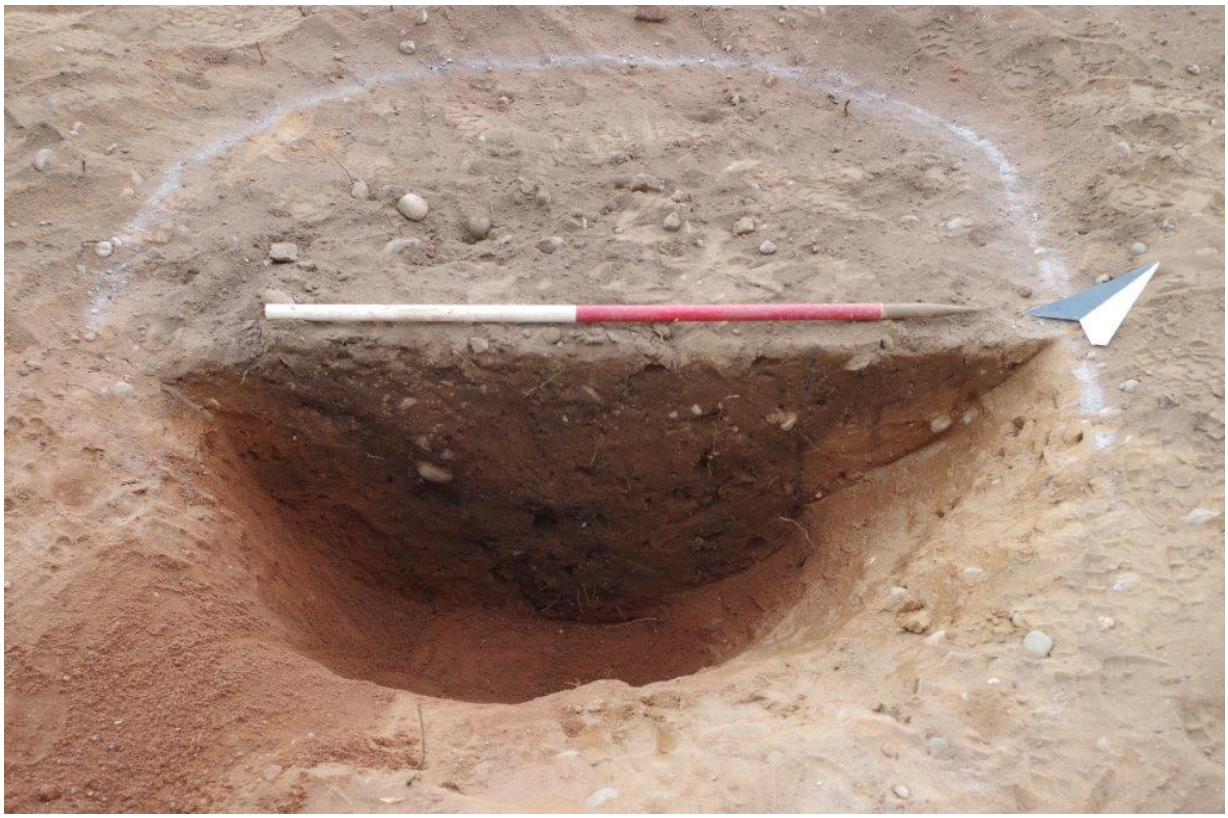


Plate 4: Pit 124, looking north-west (1m scale)

Plate 5: Hearth 143, showing clay lining and collapsed superstructure, looking west (0.5m scale)

Plate 6: Hearth 143 half sectioned, looking west (0.5m scale)

Plate 7: Posthole 146, looking west (0.3m scale)

Appendix 1 Trench descriptions

Trench 1

Length: 144m Width: 65m Orientation: North-west to south-east

Context summary:

Context	Feature type	Context	Description	Height/ depth	Interpretation
100	Topsoil	Layer	Soft dark reddish brown silty sand	0.40m	
101	Natural	Layer	Soft mid reddish orange sand		Sand with frequent rounded to sub rounded pebbles and cobbles, and occasional patches of pink clayey sand
102	Pit	Fill	Soft mid reddish brown sand	0.28m	Upper fill of pit with a quantity of fire cracked stone which may be the first post-deposition use of the material, i.e. not direct dumping.
103	Pit	Fill	Soft mid reddish brown sand	0.2m	Backfilling of pit, similar to 102 above in relation to its arrival into the feature. Contained two sherds of Bronze Age pot.
104	Pit	Fill	Soft mid yellowish brown sand	0.06m	Basal fill of pit, probably initial trampling.
105	Pit	Cut		0.52m	Bronze Age pit, probably for rubbish disposal. Contained fire cracked stone, charcoal and BA pot
106	Pit	Fill	Soft mid reddish brown silty sand	0.45m	Backfilling of elongated pit.. Occasional domestic activity present (charcoal/fire-cracked stone) but probably not its initial dumping.
107	Pit	Cut		0.45m	Bronze age pit
108	Pit	Fill	Soft dark reddish brown silty sand	0.46m	Pit fill, similar to others in area.
109	Pit	Fill	Soft mid yellowish orange sand	0.22m	Natural inwash fill of pit
110	Pit	Cut		0.68m	Bronze Age pit
111	Pit	Fill	Soft mid reddish brown silty sand	0.26m	Homogeneous fill of shallow pit. Domestic material probably arrived via agricultural practice
112	Pit	Cut		0.26m	Large shallow pit of indeterminate function.
113	Pit	Fill	Soft mid reddish brown silty sand	0.56m	Homogeneous pit fill
114	Pit	Cut		0.56m	Small BA pit
115	Pit	Fill	Soft dark reddish brown sand	0.56m	Fill of small pit

116	Pit	Fill	Soft mid yellowish brown sand	0.12m	Natural inwash of pit
117	Pit	Cut		0.56m	Small BA pit
118	Pit	Fill	Soft dark reddish brown sand	0.18m	Upper fill of refuse pit. Rich in charcoal and f/c stone, this may well be rake out material associated with hot-stone technology
119	Pit	Fill	Soft mid reddish brown sand	0.21m	Fill containing debris relating to hot stone technology
120	Pit	Fill	Soft dark reddish grey sand	0.1m	Dump of charcoal and f/c stone in pit
121	Pit	Fill	Soft light yellowish orange sand	0.1m	Slumped natural
122	Pit	Fill	Soft mid reddish brown sand	0.22m	Initial intentional dumping of domestic material into pit
123	Pit	Fill	Moderately Compact mid reddish brown sand	0.08m	redeposited natural
124	Pit	Cut		0.59m	Rubbish pit with distinct bands of dumping of material associated with hot stone technology. Only pit that seems to be directly linked to this materials intentional deposition
125	Pit	Fill	Soft dark orangey brown sand	0.50m	The single fill of pit 126. Slightly organic with charcoal and fire cracked stone which indicates domestic waste
126	Pit	Cut		0.50m	Cut of a likely prehistoric pit. Most likely for domestic waste deposition. Cuts through earlier pit 131
127	Pit	Fill	Soft dark orangey brown sand	0.33m	Most recent fill of pit 131. Has charcoal and fire cracked stone inclusions which suggests domestic waste deposition or re-deposition.
128	Pit	Fill	Soft mid orangey brown sand	0.22m	Fill in pit 131, no finds, dating or organic material, most of it is likely of natural origin
129	Pit	Fill	Soft mid greyish orange sand	0.30m	Fill in pit 131 similar in nature to 128 above
130	Pit	Fill	Soft mid orange sand	0.42m	The earliest fill in pit 131. No finds? Dating or organic material< however appears to be too thick to be a specific basal fill or slumping> Does seem to have been deliberately deposited

131	Pit	Cut		0.50m	Pit cut which is similar to others in the vicinity. No finds or dating but fire cracked stone and charcoal did come from one of the deposits. Most likely prehistoric domestic waste, Later recut by pit 126
132	Pit	Cut	Soft mid orangey brown sand	0.35m	Single fill of pit 133. Charcoal and with some fire cracked stone. No other finds/ dating
133	Pit	Cut		0.35m	Cut of pit containing charcoal material and some fire cracked stone. Most likely to dispense of domestic waste, much like other pits in the area. Has later been re-dug in the form of pit 136
134	Pit	Fill	Soft dark orangey brown sand	0.35m	Main fill of pit 136. Contains charcoal and fire cracked stone which suggests deliberate domestic waste deposition
135	Pit	Fill	Soft mid greyish orange sand	0.28m	Slumping down the side of pit 136. ,Most likely has derived from the surrounding natural.
136	Pit	Cut		0.35m	Pit that contains some fire cracked stone and charcoal which suggests it has been dug to get rid of burnt domestic waste. It cuts through the earlier pit 133 and within the surrounding context is most likely prehistoric
137	Pit	Fill	Soft light orangey brown sand	0.45m	Main fill of pit 140, contains fire cracked stone
138	Pit	Fill	Soft mid brownish red sand	0.32m	Natural slumping down side of pit [140]. No finds/dating.
139	Pit	Fill	Soft dark orangey grey sand	0.47m	Fill in pit [140]. Fire cracked stone and charcoal suggest domestic waste deliberately deposited. No other finds/dating.
140	Pit	Cut		0.46m	Cut of pit. Contains fire cracked stone and charcoal which suggest it is for domestic waste deposition, with a settlement likely nearby. No other finds/dating found, but is most likely prehistoric considering the context.
141	Hearth	Fill	Moderately compact mid reddish brown silty sand	0.57m	Backfill of bronze age hearth. Little charcoal

					present, suggesting this fill was not part of the final firing of the hearth. It also contained some collapsed clay superstructures, and 5 pottery sherds.
142	Hearth	Fill	Compact mid pinky red sandy clay		Partially collapsed, partially in situ clay lining of hearth. Most complete on eastern edge of cut. Largest collapsed parts in middle of cut.
143	Hearth	Cut		0.57m	Cut for hearth. Oval in shape, lined at least partially with clay.
144	Layer	Layer			Generic number of surface finds
145	Posthole	Fill	Soft dark reddish brown silty sand	0.37m	Fill of posthole. No evidence for post pipes. Probably later backfill following removal of post.
146	Posthole	Cut		0.37m	Posthole close to hearth [143]. Not necessarily associated with it. No other postholes found.
147	Pit	Fill	Soft dark orangey grey sand	0.12m	Upper charcoal fill of pit [151]. Also some heat affected stones. No other finds or dating. Clearly deliberate deposition.
148	Pit	Fill	Soft mid orange sand	0.11m	Fill down left hand side of pit [151]. Very much like the sandy natural, just a bit dirty. Probably natural infilling from surrounding material.
149	Pit	Fill	Soft mid orangey grey sand	0.26m	Lower right fill of pit [151]. No finds or dating Dark and dirty fill but nothing organic. Still most likely derived from cultural material/activity.
150	Pit	Fill	Soft mid greyish orange sand	0.18m	Bottom left fill of pit [151]. No finds or dating, or organic material. Quite sterile, just darker and dirtier than the natural sand. Hard to determine its origin.
151	Pit	Cut		0.28m	Pit. No finds or dating. But some charcoal and heat affected stones. So likely used for domestic waste. Similar in form and nature to other pits in vicinity. Nothing to suggest its not prehistoric.
152	Pit	Fill	Soft mid greyish brown sand	0.28m	Dark and dirty fill of pit

					[154]. Slightly charcoal and with heat affected stones, but no other finds/dating or organic material. Considering the surrounding pits this is probably the original domestic waste disposed of within this pit.
153	Pit	Fill	Soft mid brownish orange sand	0.21m	Fill at base of pit [154]. Very sterile and similar to the natural, just a bit darker and dirtier. Probably natural slumping from the surrounding natural. No finds or dating.
154	Pit	Cut		0.28m	Pit cut. One of the fills (152) contains some charcoal and heat affected stones. Suggests domestic waste disposal. No dating but in context of surrounding features is most likely prehistoric.
155	Pit	Fill	Soft dark reddish brown silty sand	0.4m	Somewhat humic backfill of feature [158]. Dumped material to backfill and close at abandonment.
156	Pit	Fill	Moderately compact light whiteish yellow sand	0.28m	Sterile infill of feature down western edge. Probably seasonal weathering episode.
157	Pit	Fill	Soft mid yellowish Brown silty sand	0.36m	Initial in-use filling of feature, mainly via wind and rain. No finds.
158	Pit	Cut			Either an elongated pit, or a short, segmented ditch. Similar features immediately north of cut. May be IA in date.
159	Pit	Fill	Soft dark orangey brown sand	0.42m	Upper fill of pit. The only one with charcoal in it and fire cracked stone, but no other finds/dating. So similar to the more organic fills of other nearby pits. Domestic waste deposition.
160	Pit	Fill	Soft mid greyish orange sand	0.58m	Fill in pit [162]. Not organic or with any finds or dating. Poorly sorted stones suggest deliberate deposition.
161	Pit	Fill	Soft dark orangey grey sand	0.48m	Earliest fill of pit [162]. Lots of large stones distinguishes it from other fills but no organic material or finds/dating.

162	Pit	Cut	0.58m	Cut of large pit within close proximity to other large pit [158]. One of the fills (159) had charcoal and fire cracked stone, but none had any finds or dating. Most likely a pit for a large amount of domestic waste. With 3 separate deposition events. Prehistoric no doubt.

Appendix 2 Technical information

The archive

The archive consists of:

160	Context records AS1
1	Field progress reports AS2
2	Photographic records AS3
86	Digital photographs
1	Drawing number catalogues AS4
6	Scale drawings
1	Context number catalogues AS5
1	Sample number catalogues AS18
1	Trench record sheets AS41
1	Box of finds
1	CD-Rom/DVDs
1	Copy of this report (bound hard copy)

The project archive is intended to be placed at:

Tamworth Castle,
The Holloway,
Tamworth,
Staffs.
B79 7NA
Tel 01827 709631