

KIRTON QUARRY

Archaeological Watching Brief

New Best Red Quarry extension: August 2019



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for

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Cover photo: Looking south-east across the excavation area with topsoil stripping in progress

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NON-TECHNICAL SUMMARY

Monitoring of topsoil stripping on an extension to the New Best Red Quarry at Kirton Brickworks, Nottinghamshire, was undertaken by Network Archaeology in August 2019.

This extension is subject to new planning consent. Previous investigations have found struck flints - most notably the broken-off tip of a Bronze Age flint dagger - and sherds of Roman, medieval and post-medieval pottery.

Four archaeological features were recorded in the 2019 topsoil strip: a small curvilinear feature, a shallow ditch and two pits. The curvilinear feature is possibly a heavily truncated ring-ditch.

Three pieces of worked flint were recovered from the fill of the linear ditch, suggesting a possible prehistoric date for this feature.

Thirty-two fragments of hand-made pottery were recovered from the topsoil. These were not closely dated but in view of the excavated ring-ditch, they are considered most likely to be of a similar prehistoric date, rather than post-Roman.

1. INTRODUCTION

This report presents the results of an archaeological watching brief undertaken by Network Archaeology for Forterra Building Products Ltd, Kirton, Nottinghamshire. The extraction quarry is in the parish of Kirton, 1km east of the centre of the village, and approximately 15km to the north-east of Mansfield (NGR: 469600 369100).

The 2019 season of works were undertaken under the provisions of a new planning consent, for the extension of the clay quarry westward, closer to Kirton village. In contrast to the earlier works, which required a watching brief on topsoil stripping throughout the New Red Quarry area, the new specification for Archaeological Watching Brief identifies target areas.

1.1 Work undertaken

The 2019 topsoil strip covered an area of 3.07 hectares.



Plate 1: Overview of southern side of the stripped area, 8th August 2019, looking east

Topsoil removal in the targeted area was carried out over a period of five working days, from Friday 16th to Friday 23rd of August 2019, and was monitored throughout by an experienced archaeologist. Stripping was carried out by a tracked 360° excavator fitted with a smooth bladed bucket, with spoil removed by dumper trucks for use in reinstatement in other parts of the quarry. Vehicle movements were kept away from the stripped surface until it had been carefully examined for any archaeological features and the monitoring archaeologist was satisfied that all significant archaeological evidence had been retrieved and recorded.

Unstratified artefacts were collected, with the exception of undiagnostic brick or tile and finds that were clearly modern. Locations of finds and featured were captured using Trimble GNSS equipment.

1.2 Legislation, guidance and reporting

The work was carried out as part-fulfilment of a condition of the planning consent granted by Nottinghamshire County Council for extensions to the existing brickearth quarry, and which requires the implementation of an agreed programme of archaeological investigation, treatment and recording.

The procedures to be followed were detailed in a Written Scheme of Investigation produced by Network Archaeology prior to the start of work (Moore 2019). Work was carried out in accordance with an approved Risk Assessment and Method Statement (Lingard 2019).

This report has been produced for Forterra Building Products. Copies will also be submitted for approval to the Senior Archaeological Officer for Nottinghamshire County Council, and subsequently deposited with the Nottinghamshire Historic Environment Record and uploaded to the OASIS website.

1.3 Geology, topography, soils and land use

The bedrocks underlying the Best Red Quarry are described on the BGS website as Triassic siltstones, mudstones and sandstones of the Tarporley Siltstone Formation (BGS geologyofbritain website). The sandstones of this group form the exposure at Rice Hill at the north end of the village, where the A6975 Tuxford to Ollerton road descends into Kirton village. To the west of the village, the land is underlain by the slightly older rocks of the Retford Member of the Triassic sandstone. To the east, the higher ground that forms the southern part of the quarry lies over mudstones of the Mercia Mudstone Group.

Either side of the small River Maun, to the east of Kirton village, there are alluvial deposits, but no superficial deposits are recorded in the area of the quarry.

The immediate landscape is one of undulating hills. The Best Red Quarry lies on a slight north-east facing slope, with an original land surface at its current western extent at a height of 53m to 55m OD. Soils are grouped in the Hodnet Association (572c) in the Soil Survey of England and Wales classification (SSEW 1983), described as 'reddish fine and coarse loamy soils with slight seasonal waterlogging...used for cereals, some sugar beet and potatoes, and some grassland'. The stripped area had previously been used as arable for growing maize.

1.4 Summary of previous archaeological investigations

An archaeological desk-based assessment and field reconnaissance and fieldwalking surveys were carried out in the late 1990s, by John Samuels Archaeological Consultants on, an area to the south of the current quarry (Young 1999). One sherd of Roman pottery was recovered from within the development area.

Subsequently, Network Archaeology carried out a desk-based assessment to determine the potential of the proposed northern extension to the New Best Red Quarry (Burton 2004). This identified a number of post-medieval and modern features nearby, and concluded that the study area had a fairly low archaeological potential, with the known sites nearby of no more than local importance. However, in recent years sites had been found on similar geologies elsewhere in the county that had confounded expectations by producing

significant archaeological results, and it was considered that a watching brief on stripping of topsoil was a proportionate response to the perceived archaeological risk.

Since 2004, Network Archaeology has monitored topsoil stripping on regular extensions to the quarry. In 2004 evidence of a modern field boundary was recorded (Sleep 2004), the boundary having been removed in the very recent past. An eastern extension to this area, monitored in 2005, revealed the remains of another modern hedged field boundary, on a similar north-east to south-west orientation (Sleep 2006). The haul road for the northern extension to the quarry was stripped of topsoil in 2006 (ibid) and stripping of the eastern section of the quarry was carried out in 2007, when an infilled pond and a possible palaeochannel were recorded (Casswell 2008).

In 2010, two shallow, modern ditches were noted during topsoil stripping (Casswell 2010), but no significant archaeological deposits were found in a further extension to the north-west later in the year (Casswell 2011). Evidence of ridge and furrow cultivation, as well as more recent ploughing, was noted in the 2012 quarry extension, and a small assemblage of post-medieval pottery was recovered (Casswell 2013).

Infilled ditches from the pre-existing pattern of field boundaries and traces of medieval or early post-medieval furrows, were uncovered in 2013 (Moore 2013) along with unstratified pieces of worked flint and a small assemblage of pottery, mostly post-medieval but including single sherds dated to the thirteenth to fourteenth and fifteenth to sixteenth centuries.

The 2014 watching brief confirmed the observation from the previous work that, Golden Hill Lane, the former trackway that ran east-to-west across the quarry site, respected the pattern of land division existing at the time that ridge and furrow agriculture was still practised (Moore 2014). Unstratified finds included pieces of possibly worked flint and shale, and a small assemblage of pottery, once again including single sherds of thirteenth- to fourteenth- and fifteenth- to sixteenth-century dates. The lack of evidence for ridge and furrow to the north of Golden Hill Lane was again confirmed 2015. Six sherds of medieval or early post-medieval pottery were recovered (Moore 2015).

The most notable find to date from this series of watching briefs was in 2017 (Moore 2017, Rylatt 2018), when a large fragment from the tip of a Bronze Age flint dagger or foliate knife was found on the stripped surface of a small area adjacent to the south-west corner of the current stripped area.

During the 2018 watching brief, a single linear ditch was observed running parallel to the field boundary; it appeared to have been machine cut and contained pottery that supported a 20th-century date. A number of other modern features were also noted, including the base of a shallow, brick-lined manhole chamber, towards the western end of the stripped area, with remains of telephone cabling. This was likely to have been a connection from Egmonton Road to the former Gate House Farm, which stood close to the south-eastern corner of the quarried area.

As with previous seasons, the stray finds from the stripped surface provided evidence of a generally low level of activity, as would be typical of land used for farming over many centuries.

2. PROJECT AIMS AND METHODS

2.1 Objectives

The stated objectives of the archaeological works were to:

- record and interpret all archaeological deposits, where their presence and nature had not been established in advance of development
- compare the archaeological remains with existing data from the immediate area
- produce recommendations for future work to inform the ongoing regional research agenda
- produce a project archive for deposition
- provide information for the county Historic Environment Record (HER).

2.2 Principles, standards and conduct

All works conformed to the standard and guidance documents of the Chartered Institute for Archaeologists, including the Code of conduct, the Code of approved practice for the regulation of contractual arrangements in field archaeology, and the Standard and guidance for an archaeological watching brief (CIfA 2014). The work was managed in accordance with the methods and practice described in the Management of Archaeological Projects, second edition (English Heritage, 1991) and subsequently updated in Management of Research Projects in the Historic Environment (English Heritage 2006).

2.3 Fieldwork procedures

Excavation and recording methods following standard practice, as detailed in the Written Scheme of Investigation (Moore 2019) and the Risk Assessment and Method Statement (Lingard 2019).

A qualified and experienced field archaeologist was present during topsoil removal to carefully monitor machine removal of deposits down to the first archaeological horizon, and to visually search the exposed subsoil surface for any significant archaeological remains. Sections through archaeological features were excavated and recorded.

Had archaeological remains been located that could not have been adequately investigated and recorded by the attending archaeologist, provision had been made to report them and to have the area around them barricaded off to allow for appropriate mitigation strategies to be agreed and implemented.

2.4 Field records

The project code for the 2018 Kirton Quarry watching brief, KIQ146, appears on all records to be included in the site archive. Network Archaeology *pro forma* record sheets were used for on-site recording. These are consistent with CIfA guidance. All records will be included in the site archive.

Digital photographs were taken to provide a record of the excavated features, the appearance of the ground surface after topsoil removal, and more general location shots and working shots.

2.5 Finds

The finds were quantified and a preliminary catalogue compiled. Specialist assessments of their potential for further study were then carried out; the results of this assessment are given in Section 4 below.

2.6 Limitations

Visibility of archaeological remains is dependent on many factors including machine type, depth of stripping, weather and geology. In this instance, the character of the area monitored and the machining methods used revealed a fairly clean surface to the clay deposits beneath the topsoil, and it is considered that there was a high probability that any significant archaeological remains, if present, would have been visible.

2.7 Archive and archive deposition

The archive has been consolidated in accordance with the standards set out in Appendix 3 of the Management of Archaeological Projects, second edition (English Heritage 1991) and the Archaeological Archives Forum (Brown 2007). The documentary archive includes fourteen A4 recording sheets and two A3 permatrace drawings, along with a copy of this report and all relevant documentation.

The archive is currently housed at the Lincoln office of Network Archaeology.

Nottinghamshire Historic Environment Record will receive the documentary archive. A digital copy of this report will be uploaded to OASIS (Online Access to the Index of archaeological investigations) for inclusion in the online library of unpublished fieldwork reports (Appendix 4).

3. Observations

The site is underlain by dark reddish yellow silty clay, context 03. Four archaeological features were cut into this. Three sections were cut across the linear ditch on a northwest to southeast alignment determine its profile and deposition of fills contained within. Towards



Plate 2: East-facing section of ditch cut 16

the northwest edge of the stripped area, cut 16 displayed moderate sloping edges and a flat base. At the base of the ditch were possible packing stones, context 18: pieces of sandstone up to 0.75m x 0.60m x 0.3m. These were covered by till 17, a compact, light brownish clayey silt. Closer to the centre of the stripped area, cut 08 displayed steep edges and a flat base. It was filled with a single fill 09, a light greenish brown silty clay 0.65m deep. In the third, south-eastern section

through the ditch, cut 19, it was much shallower with shallow sloping sides and a concave base. It was filled with light yellowish brown clay 20.

A short curvilinear gully was recorded south of linear ditch 08. Three sections were excavated across this feature. Its western terminus, cut 12, showed a moderate sloping edge and a flat base. It was filled with compact dark reddish-brown silty sand, context 20. Cut 06 provided a full profile across the gully and displayed steep sloping edges with a flat base. It was filled with mid orangey red, firm clay 15, 0.5m thick, which, in turn, was covered by fill 14, a friable black silty sand with occasional flecks of charcoal, 0.08m thick. This was sealed by fill 07, a mid-reddish brown, compact clayey silt, 0.14m thick. Cut 10 recorded the southern terminus; it had steep sloping edge and a flat base, filled with compact, dark reddish silty sand 11.



Plate 3: Section of ditch 16 with packing stones 18

It was filled with mid orangey red, firm clay 15, 0.5m thick which in turn was covered by fill 14, a friable black silty sand with occasional flecks of charcoal, 0.08m thick. This was sealed by fill 07, mid reddish brown, compact clayey silt, 0.14m thick. Cut 10 recorded the southern terminus; it had steep sloping edge and a flat base, filled with compact, dark reddish silty sand 11.

Two pits were recorded during stripping. Pit 04 towards the northern area of site was sub-rectangular in shape, 0.75m by 0.65m and 0.08m deep. It had sharp, near vertical edges and a flat base and was filled with friable, black silt 05.



Plate 4: West facing section of pit 04

Pit 21 had steep sloping edges and an irregular base, it was 1m wide by 0.70m long and 0.56m deep. The basal fill was light, firm grey clay 23; it was 0.17m thick. The upper fill 22 was compact, light greyish brown sand, 0.4m deep.



Plate 5: Stripped surface after removal of topsoil, looking north-east

4. ARTEFACT ASSESSMENTS

4.1 The Prehistoric Pottery Diana Fernandes with Ian Rowlandson

Introduction

The archaeological watching brief on the Best Red Quarry extension, Kirton Brickworks, Nottinghamshire in August 2019 provided a total of 32 handmade ceramic fragments. Much of the pottery was excoriated and there were few sherds with diagnostic features. Although there was a possibility that some of the material may have been of Saxon date (Jane Young, pers. com.), evidence from the environmental report would appear to support a prehistoric date for this material.

Methodology

The pottery study has followed the recommendations and guidelines of the Prehistoric Ceramic Research Group (PCRG 2010) and David Knight's guidelines for the Late Prehistoric ceramics from the East Midlands (T&PAT 1998). The assemblage was fully assessed and a catalogue with the record of quantification, weight, technical, morphological and decorative attributes can be found in Appendix 1.

All fragments were examined using a binocular microscope (x20 magnification) and separated into fabric groups. The fabrics were defined according to the clay matrix and the temper type. The codes given are described below and each one of them designates the type, quantity and size of inclusion:

<u>Type of inclusion</u>	<u>Quantity of inclusions:</u>	<u>Size of inclusions:</u>
IV: Indeterminate voids	R: Rare <5%	F: fine <0.25mm
MI: Mica (including micaceous clay matrix)	M: moderate 5-19%	M: Medium >0.25 - 1mm
QU: Quartz (or quartz sand)	C: Common 20-39%	C: Coarse >1 - 3mm
VE: Vegetal matter	A: Abundant 40% +	VC: Very coarse >3mm

The pottery assemblage was recovered, together with 21 fired clay items and burnt stones, from a dark reddish silty sandy deposit (011) present at the southern terminus of a short curvilinear gully [010].

It is represented by 32 pottery fragments weighing 64,6g which comprises 1 everted rim with flattered lip and 31 small plain body sherds. These sherds are from a maximum of 3 vessels and in general, its condition is poor. For detailed information, the archive record can be found in the appendix (Excel file) and a basic list in the table 1.

The entire assemblage was handmade (HM), the surfaces were smoothed (SM) and bonfire fired. All sherds present a soapy texture and apart from a very improbable incision, no decoration was noted. There is no clear evidence of the manufacturing technique however, its laminated fractures point to the use of slabs.

Except for the rim, fully reduced black sherd, the colour of the remaining sherds shows external surfaces of light brown, black core and black internal surface (present in 9 fragments) or orange external walls, black core and brown or reddish discoloration in the internal wall (22 fragments). These features are indicative of a carbon rich bonfire

production with oxygen flow. Any discoloration might also be caused by the cooling process as well as with the type of clay.

The inclusions within the clay matrix are mainly organic matter and mica. Few round quartz minerals were noted. The fine mica and the very rare quartz are thought to be part of the

Based on the above details, only one fabric was distinguished among the assemblage: VECC/MIMF. raw clay matrix. One sherd presents a very rare and erratic soft inclusion, possibly grog or probably mudstone, which outcrops locally (see discussion of such inclusions in Firman and Leary 2001).

In contrast, the origin of the organic temper is assumed as a deliberate action. These traces are represented by several very small pores, bigger flattered voids and longer curving voids, in which cases are carbonised, typical of vegetal inclusions. The possibility of leached fossil shell can also not be excluded.

Table 1: KI146 Prehistoric pottery

Cntxt	Sherd	Tech	Fabric	Firing	Qty	W/g	Join	#V	Dec	Surf	Dec	Comments
11	RIM	HM	VECC/MIMF	Red	1	8.4	-	1	N	SM	N	Abraded everted rim: flat lip. Round shouldered vessel?
11	BDY	HM	VECC/MIMF	Ox-Red-Ox	22	39	5	1	Y?	SM	INC LIN	1 sherd with rare soft rock - erratic
11	BDY	HM	VECC/MIMF	Ox-Red	9	17.2	-	1	N	SM	N	

Discussion and Conclusion

The recognition of a precise date for this assemblage has been restricted by the under-representation of diagnostic forms and decoration. However, despite these facts and the poor condition of some sherds, the collection has revealed a production highly connected with the techniques used during Prehistoric times.

It is important to acknowledge that any Prehistoric activity on Kirton Quarry has been proven before by several flint artefacts dating the late Neolithic and the Early Bronze Age (Moore and Rylatt 2018; Rylatt 2017 and 2019).

Unfortunately, the lack of direct relation between both types of artefacts cannot confirm the chronology of the pottery. Nevertheless, recent environmental data from the same context as the pottery was recovered, demonstrates that a Bronze Age/Iron Age date for this pottery is absolutely viable.

The rich charred plant assemblage in sample 2 from gully fill (11), containing significant amounts of grains, chaff and weed seeds, has the potential to investigate crop husbandry and processing at the site during the prehistoric period. The two identified cereals, spelt wheat and hulled barley are common in prehistoric deposits, spelt wheat first being found in the Bronze Age and, along with hulled barley, being the main cereals during the Iron Age (Greig 1991, 306). Spelt wheat is not considered to be grown in the post-Roman period (Greig 1991), although it can occur as a residual/redeposited item. Its presence in sample 2 is a very good indication that the deposit is Roman or Prehistoric in date and when combined with the pottery evidence a prehistoric date is most likely (Rackham & Giorgi, 2019).

It is also relevant to highlight that the use of this pottery might also be directly related with domestic contexts. Its disposal together with other items, might point to important conclusions about the human occupation of this site.

These activities may have been taking place close-by and the occurrence of both later crop processing and essentially domestic assemblages with charcoal, fire-cracked stones, a little burnt bone and fuel ash slag (vitrified smilacaceous material) in this ditch terminal would support an interpretation of the curvilinear gully as a round house ring ditch, presumably receiving material from the 'domestic hearth inside the building' (Rackham & Giorgi, 2019).

Among possible parallels for this collection, some examples of Late Prehistoric Pottery recovered during the A46 Nottinghamshire archaeological works might meet the same fabric characteristics as the presented assemblage. Although, the presence of mudstone is much higher than in the KIQ assemblage, the following fabrics defined by E. R. McSloy are comparable; *VES1* and *VES2*, dated from the LBA/EIA (Cooke and Mudd, 2014: 82), *VMS*, dated from the Middle Iron Age (*Ibid.* 356) and *VMSf*, also dated from the LBA/EIA (*Ibidem*: 385).

Considering the above information and regardless the reduced quantity of prehistoric material recovered from this site in the last fifteen years of archaeological interventions, it is key to examine the marks that human activity left on this landscape before Roman occupation.

Future work

Due to its singularity, the full retention of the artefacts is recommended. Comparison between these and other regional ceramics and any radiocarbon dating could be imperative to refine a chronology.

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4.2 Roman and Post-Roman Pottery Jane Young

Introduction

A group of thirteen pottery sherds recovered from the site were examined for this report. The pottery ranges in date from the Roman to early modern periods and comes from ten vessels. The pottery has been fully archived to the standards for acceptance to a museum and within the guidelines laid out in Slowikowski *et al.* (2001). The pottery was examined both visually and using a x20 binocular microscope and quantified by three measures: number of sherds, weight and vessel count within each context. The resulting pottery data was entered on an access database using post-Roman fabric codenames (see Table 2) developed for the Lincoln Ceramic Type Series (Young, Vince and Nailor 2005) and the City of Nottingham Type Series (Nailor and Young 2001).

Condition

The pottery is in a variable condition although most sherds are in a slightly abraded to fairly fresh condition with sherd size mainly falling into the small to medium size range (7 - 27g), although one sherd is larger at 250grams. Only two vessels are represented by more than a single sherd.

The range and variety of materials

A range of seven identifiable post-Roman pottery ware types and one Roman sherd were identified; the type and general date range for these fabrics are shown in Table 2. The post-Roman pottery ranges in date from the Late Saxon to early modern periods and includes local and regionally imported vessels. A narrow range of vessel types was recovered.

Table 2: Post-Roman ceramic types with total quantities by sherd, vessel count and weight

Codename	Full name	Earliest date	Latest date	Total sherds	Total vessels	Total weight/g
BERTH	Brown glazed earthenware	1550	1800	4	2	99
BL	Black-glazed wares	1550	1750	2	2	257
ENGS	Unspecified English Stoneware	1750	1900	1	1	7
NOTGV	Nottingham Glazed ware Variant	1200	1350	1	1	7
NOTS	Nottingham stoneware	1690	1900	1	1	6
R [GREY]	Roman Greyware pottery	40	400	1	1	27
SLIP	Unidentified slipware	1650	1750	2	1	25
TORKT	Torksey-type ware	850	1100	1	1	19

Roman

A single Roman Greyware sherd (GREY) was recovered from subsoil 002 (findspot 6121 028). The abraded sherd is from a jar or bowl of general Roman date.

Late Saxon (late 9th to mid-11th)

The subsoil 002 (findspot 6120 027) produced a sherd from a Torksey-type (TORKT) jar of potential late 9th to mid-11th century date. The sherd is in a reduced fabric with oxidised surfaces and surface kiln flashing and may have been produced at a centre other than Torksey such as Newark.

Medieval (13th to 14th century)

A single unlocated sherd from subsoil 002 is from a Nottingham Glazed ware variant (NOTGV) jug of 13th or 14th century date.

Post-medieval (late 16th to mid-20th century)

Eight sherds from five vessels are of post-medieval type. Three unlocated Brown-glazed Earthenware sherds (BERTH) found in subsoil 002 are from a jug of late 16th to 17th century type. Another Brown-glazed Earthenware sherd from a large bowl of late 17th to 18th century date was recovered from surface layer 001 (findspot 6120 003). Subsoil layer 002 (findspot 6120 026) produced a Black-glazed Earthenware sherd (BL) from a jar of late 17th to 18th century date. A later Black-glazed ware sherd from a large mid-18th to mid-20th century bowl was recovered from ditch 012 (intervention 005, fill 004). Two Slipware (SLIP) sherds from a single 18th century press-moulded dish with trailed and feathered decoration were recovered from surface layer 001 (findspot 6120 004).

Early modern (18th to mid-20th century)

Two stoneware sherds recovered from the site are of early modern date. A sherd from a small English Stoneware (ENGS) bottle found in surface layer 001 (findspot 6120 001) is of 19th to mid-20th century date. The layer also produced a small sherd from an 18th century Nottingham Stoneware jar (NOTS).

Summary and recommendations

This is a small assemblage, which provides us with an opportunity to look at some of the pottery types in use in the area, but is too small to provide other useful information. The assemblage suggests Roman, late Saxon, medieval, post-medieval and early modern rubbish disposal in the area of the site. The early modern English Stoneware sherd has been discarded and the Roman sherd should be shown to a local Roman specialist to add to recorded material in the area.

Table 3: Catalogue of post-Roman pottery

context	cname	full name	sub fabric	form type	sherds	vessels	weight/g	decoration	part	action	description	date
001	ENGS	Unspecified English Stoneware	grey	small bottle	1	1	7		BS	discarded		19th to mid 20th
001	BERTH	Brown glazed earthenware	fine orange sandy	large bowl	1	1	16		rim		int glaze	late 17th to 18th
001	SLIP	Unidentified slipware	coarse grey/orange	press moulded dish	2	1	25	brown trailed & feathered on yellow	BS			18th
001	NOTS	Nottingham stoneware		small jar ?	1	1	6		BS			18th

context	cname	full name	sub fabric	form type	sherds	vessels	weight/g	decoration	part	action	description	date
002	BL	Black-glazed wares	fine red sandy	jar ?	1	1	7			BS	int glaze	late 17th to 18th
002	TORKT	Torksey-type ware	dull OX/R/dull OX med-coarse sandy	jar	1	1	19			BS	kiln flashing;fabric as TORK but quartz more abundant	late 9th to mid 11th
001	NOTS	Nottingham stoneware		small jar ?	1	1	6			BS		18th
002	R	Roman pottery	GREY	jar/bowl	1	1	27			BS	show to Ian Rowlandson	abraded Roman
002	NOTGV	Nottingham Glazed ware Variant	light grey medium sandy	jug	1	1	7			BS	reduced glaze	13th to 14th
002	BERTH	Brown glazed earthenware	coarse orange/grey/orange sandy	jug ?	3	1	83			BS	int & ext very dark glaze	late 16th to 17th
004	BL	Black-glazed wares	fine-med orange sandy	large bowl	1	1	250			base	int glaze;wear mark around under basal angle int wear marks;	mid-18th to mid-20th

4.3 The Fired Clay Diana Fernandes

Introduction

An archaeological watching brief carried out by Network Archaeology on the Red Quarry extension, Kirton Brickworks, Nottinghamshire in August 2019 has provided a total of twenty-one fragments of Fired Clay (FC) that were submitted for assessment.

Methodology

The assemblage was examined under a x20 binocular microscope and separated into fabric groups. All material has been recorded at its basic morphological and technological level and the resulting archive can be found in the appendix and Table 4. The codes given are described below and each one of them designates the type, quantity and size of inclusion:

Type of inclusion

MI: Mica (including micaceous clay matrix)

MS: Mudstone

VE: Vegetal matter

IG: Iron Grains

Quantity of inclusions:

R: Rare <5%

M: moderate 5-19%

C: Common 20-39%

A: Abundant 40%

Size of inclusions:

F: fine <0.25mm

M: Medium >0.25 - 1mm

C: Coarse >1: 3mm

VC: Very coarse >3mm

The assemblage

The Fired Clay assemblage was recovered, together with thirty-two pottery sherds and several burnt stones, from a dark reddish silty sandy deposit (011) present at the southern terminus of a short curvilinear gully [010].

This collection is composed by small items weighing between 0,01g and larger individual pieces of up to 20,1g. Although the pieces range different shapes and sizes, the material is not fragmentary and it is in a stable condition, suggesting that these have been exposed to high firing temperatures.

No identifiable shaped objects or other type of structural elements occur, however some of the items seem to have been manipulated, flattened, pressured or hand moulded.

Except for one item, heavily eroded and fully reduced the remaining items present light brown and orange surfaces and in the case of the fragmented ones, a grey core. These characteristics might indicate its firing in highly oxidising conditions.

The inclusions within the clay matrix are mainly organic matter and mica. One item presents a rare and erratic soft inclusion, probably mudstone, which outcrops locally (Firman and Leary 2001). Another item appears to present some kind of Iron rich grains, perhaps some slag residue.

The fine mica and the very rare mudstone are thought to be part of the raw clay matrix while the organic matter can be assumed as a deliberate action. These traces are represented by very small pores and long negatives of carbonised matter on the surfaces and fractures.

Based on the above details, the fabrics are distinguished as:

1: IGMF/VECC/MIMF

2: VECC/MIMF

Table 4: KIQ146 Fired Clay assemblage

Cntxt	Tech	Fabric	Firing	Qty	W/g	Join	Comments
11	HM	IGMF/VECC/MIMF	Red	1	1.3	-	Eroded fragment. Contains iron rich grains.
11	HM	VECC/MIMF	Oxidised	17	52.5	-	Some elements seem to have been pressured or hand moulded.
11	HM	VECC/MIMF	Ox-Red-Ox	3	11.1	3	All fragments join. Flattened item.

Discussion and conclusion

The analysed Fired Clay has been retrieved from what is assumed as a Prehistoric context (Fernandes, 2019; Rackham, 2019) and it shall be interpreted as part of the same chronology.

The clay matrix is very clean, mostly micaceous with very rare and erratic inclusions of other nature. It is though that the vegetal remains are part of a deliberate action.

In several cases the items present handling traces such as moulding, pressuring and flattening.

The recorded fabrics for the Fired Clay items are very similar to the fabrics of the Prehistoric pottery recovered from the same context. The possibility of these elements being part of the *chaîne opératoire* of the pottery production cannot be rejected.

Because of the singular nature of its context, the full retention of the artefacts is recommended. Comparison between these items and the Prehistoric pottery fragments can benefit future interpretations.

References

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4.4 The struck flint: Jim Rylatt

Introduction

Four pieces of struck flint were recovered during an archaeological watching brief undertaken at the New Best Red Quarry, Kirton Brickworks, Nottinghamshire. Three pieces exhibit evidence of expedient utilisation as tools and have morphological attributes indicative of later Neolithic and Early Bronze Age lithic industries.

Methodology

All the artefacts were physically examined, and the attributes of each piece were recorded and compiled to form a digital archive. Macroscopic analysis determined position in the reduction sequence and any observable characteristics of the reduction technology, together with an assessment of the functional potential of the different elements of the assemblage. Metrical data was recorded for complete flakes, and each piece was weighed. Selected artefacts were examined with x6 and x20 hand-lenses to determine whether there was any evidence for localised modifications that are indicative of use.

The Assemblage

Raw materials

All the assemblage is manufactured from flint. The two refitting fragments, SF1 and SF2, utilise a good quality, slightly greyish-brown translucent flint, while SF3 is a piece of darker greyish-brown translucent flint. The flake from (001) is a piece of coarse-grained pale grey opaque flint.

Three pieces preserve areas of cortical surface. Small areas of very thin abraded and pitted cortex survive on one lateral margin of SF1 and SF2, indicating the parent core was a water rounded pebble or cobble obtained from a river terrace or glacial sheet deposit. The thin cortex on SF3 represents an area of recorticated thermally fractured surface.

Superficial deposits have not been identified within the immediate environs of the site (GSEW 1966), but watercourses to the west (Boughton Dyke; River Maun), north (River

Meden), and east (Goosemoor Dyke; Moorhouse Beck) are associated with alluvial deposits. The absence of quarry pits along these streams and rivers suggests that these alluvial deposits do not contain significant quantities of gravel. Consequently, there is a significant possibility that flint cores were imported onto the site, potentially from some distance.

Condition

All four pieces have irregularly chipped and abraded margins, which are the result of unintentional post-depositional modifications. There is a significant possibility that the breakage of the large flake to create SF1 and SF2, and the truncation of SF3 were post-depositional events, possibly occurring at the time of their incorporation into the fill of ditch (016).

Description

Three pieces were recovered from ditch fill (017). As noted above, SF1 and SF2 refit to form a relatively large elongated flake, with a relatively thick, asymmetric, triangular cross-section, 107mm long, by 30mm wide, and up to 13mm thick. There is some damage to the proximal end, but the flake appears to have had a relatively narrow and shallow butt, with a small pronounced bulb of percussion, suggesting careful removal by indirect percussion. The dorsal surface preserves scars of five similar elongated removals from the same platform. However, these are not parallel-sided blade-like removals and they have a tendency toward hinged terminations. The distal half of the more abrupt lateral edge preserves scars of five flakes detached from an earlier perpendicular platform, which provides an indication that initially the core was a relatively large pebble or cobble. A series of chips and small flakes have been detached from the medial and distal sections of the dorsal side of the more abrupt lateral edge, and there is very slight rounding to the resultant lateral margin. This suggests the flake was utilised as an expedient tool – the morphology of the flake and the character of the modification provide indications it was probably used as an edge scraper. The proximal flake fragment, SF3, also preserves evidence that it is the product of a relatively careful and controlled core reduction strategy. There is some evidence of post-depositional damage to the lateral edges, but the undamaged sections of the thinner lateral margin are slightly rounded, suggesting the piece has been utilised for cutting.

The fourth piece, recovered from topsoil (001), is a piece of slightly irregular flake debitage. The morphological attributes of this piece are indicative of a relatively informal freehand hard hammer core reduction strategy, which is broadly typical of the later Neolithic and Early Bronze Age.

Discussion

The assemblage is entirely comprised of residual material. All the flakes exhibited evidence of post-depositional damage, with one piece found in the topsoil and the remainder coming from the fill, (017), of ditch (016). This provides an indication that prehistoric land surfaces may have been extensively modified or completely truncated within the environs of the site.

The flakes recovered from (017) have similar morphological traits and are likely to be contemporaneous. They are not the product of blade technologies but exhibit a degree of control not associated with the latest lithic industries. As such, they can be broadly dated from the Middle Neolithic to first half of the Early Bronze Age (later 4th to early 2nd

millennium BC). The later end of this date range corresponds to the period of manufacture of a fragmentary flint dagger or foliate knife that was previously recovered from Kirton Quarry (Rylatt 2017; Moore and Rylatt 2018). It is, therefore, possible that all these lithic artefacts are residues of the same phase of activity.

The evidence of relatively careful and considered core reduction is potentially due to the lack of readily available raw materials, which necessitated the curation of cores in order to maximise usable products. Nevertheless, the minimal quantity of lithic material recovered during the archaeological watching brief suggests that prehistoric human activity was sporadic and transient, implying that any focus of occupation or sustained activity lay beyond the immediate environs of the site.

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Table 5: Catalogue of flint finds

Context No.	SF No.	Reduct. Seq	Type	Spot Date	Weight (g)	Complete (mm)	Retouch	Platform	Bulb	Termination	Post-dep damage	Flint type	Comments
001		T	flake		4.7	29x29x7		flat	pron	feath	yes	coarse pale grey opaque	irreg hard hammer flake with scars 2 removals same platform & distal end preserving part of scar of removal from oblique platform
017	1	S	utilised flake	Neo/EBA	23.2	no	u/w	abraded	sm.pr		yes	greyish-brown trans	proximal & medial frag of elongated flake; v. small butt with small pronounced bulb suggesting removal by indirect percussion; 4+ similar elongated removals from same platform - not parallel-sided blade-like removal, relatively thick asymmetric triangular cross-section; medial component of one lateral edge preserves scars removed from earlier perp platform, indicating removal from large core; thinner lateral edge & butt have irregular chips detached, including some from ventral surface, indicating piece has been rolled (post-dep damage); chips and small flakes detached from dorsal surface of more abrupt lateral edge, but indications of slight rounding along margin; refits to SF2
017	2	S	utilised flake	Neo/EBA	11.6	no	u/w			hinged	yes	greyish-brown trans	distal frag of flake; scars of 2 removals from same platform & 2 from opposed platform, relatively thick asymmetric triangular cross-section; one lateral edge preserves scars removed from earlier perp platform, indicating removal from large core; thinner lateral edge & distal end have irregular chips detached, indicating piece has been rolled (post-dep damage); chips and small flakes detached from dorsal surface of more abrupt lateral edge, but indications of slight rounding along margin; refits to SF1
017	3	S	flake	Neo/EBA	6.1	no	prob u/w	abraded	pron		yes	mid greyish-brown trans	proximal flake frag with scar of one similar removal from same platform; butt slightly crushed & some post-dep damage, but indications it was narrow, and indicative controlled reduction; snapped truncation & small chips detached from lateral margins & butt - indicating piece has been rolled (post-dep damage); prob utilised, as undamaged sections of the thin (acute) lateral edge are rounded, suggesting wear

4.5 Other Finds Assessment: Mike Wood BA(hons), MLitt, MCIJfA

Introduction

A small collection of clay tobacco pipe was collected during archaeological monitoring at Kirton Quarry.

Methodology

The material was counted and weighed in grams, then examined visually to identify any diagnostic pieces and the overall condition of the assemblage. Reference was made to published guidelines (Higgins & Davey 2004). Where no other identification has been possible for the clay pipe, stems have been dated by established stem bore guidelines (Oswald 1975). It should be noted that dates provided by stem-bore size can have an appreciable margin for error and are intended only as a general guide. A summary of the material is recorded in Table 6.

Condition

The clay tobacco pipe is in generally good condition with one example showing signs of abrasion.

Table 6: Clay tobacco pipe

Context	Date range	Stems	Bowls	Mouths	Weight/g	Stem bore/mm	Comments
01	Early-mid 18 th	2			5	5-6/64"	Snapped stems. The narrower bored example has fresh breaks. The larger example has more sign of abrasion and retains a flattened rather squashed heel.

Discussion

The tobacco pipe is represented by two snapped stems. The best example retains a squashed flat heel typical of pipes of early-mid 18th century design (Mann 1977, 18-22).

Recommendations

The assemblage is 18th century in date and could be discarded or returned to the landowner without the need for archiving.

References

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Mann, J. 1977, *Clay Tobacco Pipes from Excavations in Lincoln 1970-74 Lincolnshire Archaeological Trust Monograph Series Vol. XV-1*

Oswald, A, 1975 *Clay Pipes for the Archaeologist BAR 14, Oxford.*

4.6 Heat Affected Stone Assessment Raquel Margalef

Introduction

Five fire-cracked stones (FCR), weighing 463.3g in total, were recovered during archaeological works carried out by Network Archaeology at Kirton Quarry, Nottinghamshire in 2019. One new assemblage was submitted after the environmental analysis were processed, up-dating the table of a total of 15 Fire Cracked Stones (FCR), weighing 1,429.6 grams.

The stones (*Table 7*) were collected from the same area of a probable prehistoric site.

Table 7: Summary of stone type by context

BTE - FCR									
Context	Rock Type	Rock Shape	FCR Fracture	Heating	Quantity	Size	Wt/g	Discoloration	Comments
011	Quartzite	Block	Block	Direct	2	5-9cm	204.2	Red and black	Eroded
011	Quartzite	Cobble	Crenellated	Direct	8	5-9cm	840	Red and white	Angular edges – 5 fragments from the same stone
011	Quartzite	Cobble	Chunk	Direct	2	5-9cm	157.4	Red and white	Angular edges
011	Chert	Cobble	Spall	Direct	1	Less than 5cm	28	White	Flint
017	Quartzite	Cobble	Block	Direct	2	Less than 5cm	200	Red and yellow	Rubber/Polished

Methodology

The assemblage was examined in detail by eye, cataloguing the following attributes:

Rock typology: as different materials react differently to direct or indirect heat contact

Shape: catalogued as *Tabular*, *Block*, and *Cobble*

Fracture: five categories have been used:

- *Spall*- curvilinear and thin splinters
- *Chuck*, also known as Angular- producing sharp and pronounced fractures with concave and convex surfaces
- *Crenellated* - where fracture has serrated edge
- *Pot-lid* – the characteristic result sudden direct firing, leaving a circular depression on the stone exterior, and
- *Block*, an irregular shape with an eroded fracture.

Heat affect, as different rock types and shapes react differently to direct firing, or to rapid heating and cooling, as for instance, by quenching in water. Size also affects the durability of

rocks, and discoloration, which can indicate the intensity of heating or multiple exposures to heat.

Provenance and Condition

The assemblage derived from interventions through two ditches, from the same area. The condition of the stones was poor, probably caused by the combination of multiple episodes of firing and weathering.

Assemblage

Heat-affected stones were collected from two contexts: fill 11 from curvilinear gully, intervention 10, which produced thirteen fragmented stones, in association with eleven sherds of undecorated prehistoric pot.

The assemblage contained five quartzite rocks (*table 1*) with block and crenellated fracture and red, black and yellow discoloration. The pieces have suffered from heavy fragmentation, which suggested a multiple firing episode and an intense degree of heating, possibly in a reducing atmosphere.

Fill 17 of intervention 16, yielded two complete rubber/polishing quartzite stones, a fully retouched flint blade and two flint scrapers. On the surface of the polishing stones were perfectly traced actions of a later direct fire.

Neither of the features, where the stones were found, contained any indication of burning in the underlying natural deposits in the area where the heat-affected stones were found.

Discussion

The observed assemblage suggests a possible direct heating process, the remains of which were relocated to two different ditches. The occurrence of pottery within one of these features, (ditch 10) may indicate a nearby domestic settlement.

It is interesting to highlight that the two features showed different patterns of heating. The stones recovered from (11) presented a multiple phased heating together with heavy erosion and discoloration characteristics. By contrast, the FCR collected from deposit (17) did not show high components from a direct or an indirect heat affect. This result could be a result of different processes giving rise to the heat-affected stone in each episode or a modification of practice. The results from experimental archaeology have confirmed that smaller stones have higher resilience to cracking (Homsey 2009: 101; Ng 2004: 52; Barfield and Hodder 1991:62; Hough 1925:75-78; Jeffery 1991: 97-107). This would have resulted in less time spent in replacing and sourcing new stones, perhaps evidence of the adoption of new techniques in a same location. Specifically, the most recent results from the environmental analysis have provided the effectiveness of the proposed hypothesis. The group of FCR located within the prehistoric pottery (11) showed not only a multi-state feature but consecutive employment of the stones.

The significance of this assemblage relies on its ability to illustrate human activity at Kirton Quarry site during a possible prehistoric occupation. Most of the archaeological finds from the previous interventions on this site have been of modern and medieval and post-medieval age, though the discovery and study of the burnt stones, reinforces the prehistoric

pottery and the worked flints, such as the flint dagger previously recorded (Moore and Rylatt, J., 2017:31), demonstrates an earlier human presence in this landscape.

Recommendations for further work

Further assessment or analysis would not increase our perception of this assemblage and would not therefore contribute understanding the local area or broader region. Therefore, no further work is recommended.

Storage and curation

There is no apparent reason for the retention of these heat affected stone fragments. In the event that they were retained, there are no specific requirements for the long-term storage of this material.

References

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4.7 Ceramic Building Material: Jane Young

INTRODUCTION

Twelve fragments of ceramic building material were recovered from the site. The material has been fully archived to the standards laid out in Slowikowski, *et al.* (2001) and within the Archaeological Ceramic Building Materials Group (2001) guidelines. The fragments were examined both visually and using a x20 binocular microscope and quantified by two measures: number of pieces and weight in grams. The resulting data was entered on an access database using codenames.

CONDITION

The fragments are in a variable very abraded to slightly abraded condition with fragment size ranging from 17grams to 1.508kgs.

THE RANGE AND VARIETY OF MATERIALS

The fragments of building material recovered come from a range of roof tiles and drain. All of the material is of early modern type mainly dating to between the 19th and 20th centuries and was recovered from four interventions cut across ditch 012. Intervention 005 (fill 004) produced two flat roof tiles (PNR) of 19th or 20th and 18th to mid-20th century date and five fragments of ridge tile (RID) from three tiles of 19th or 20th century date. The

ridge tiles may well have been used to cap a field drain floored with pantile or flat roof tile. Two fragments from a single grey stoneware drain (DRAIN), of late 19th to 20th century date, were recovered from intervention 007 (fill 006). Intervention 009 (fill 008) produced two pieces of 19th or 20th century pantile (PANT) and a piece of field drain, of late 19th to 20th century date, was recovered from intervention 011 (fill 010).

SUMMARY AND RECOMMENDATIONS

The recovered ceramic building material from this site is entirely of early modern type. The material is not worthy of future study and has been discarded.

REFERENCES

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Young, J, Vince, A and Nailor, V, 2005. A Corpus of Anglo-Saxon and Medieval Pottery from Lincoln, Lincoln Archaeological Studies 7, Oxbow, Oxford

Table 8: Catalogue of Ceramic Building Materials

context	cname	full name	fabric	frags	weight/g	action	description	date
004	RID	Unidentified ridge tile	dull orange fine sandy	1	556	discarded	probably used as part of drain	19th to 20th
004	PNR	Peg, nib or ridge tile	fine orange sandy	1	64	discarded	flat roofer: corner, micaceous fabric: abraded	18th to mid 20th
004	RID	Unidentified ridge tile	fine orange	3	60	discarded	very abraded flakes	19th to 20th
004	PNR	Peg, nib or ridge tile	fine orange	1	17	discarded	flat roofer: abraded	19th to 20th
004	RID	Unidentified ridge tile	coarse red	1	1508	discarded	1x corner: probably used as part of drain	19th to 20th
006	DRAIN	Drain (general)	grey stoneware	2	63	discarded	same drain as above?	late 19th to 20th
008	PANT	Pantile	coarse orange	1	62	discarded		19th to 20th
008	PANT	Pantile	fine orange-red sandy	1	367	discarded		19th to 20th
010	DRAIN	Drain (general)	fine orange	1	50	discarded	field drain	late 19th to 20th

4.8 Environmental Archaeology Assessment: James Rackham and John A. Giorgi

Introduction

An archaeological monitoring (watching brief) of a programme of topsoil stripping prior to quarrying was carried out by Network Archaeology at Kirton Quarry, Kirton, Nottinghamshire. These excavations revealed a linear ditch of possible prehistoric date, a truncated curvilinear gully, potentially a ring ditch, and two small pits (Heale 2019). The fills of a terminal of the ring ditch and a section through the linear ditch were bulk sampled for

environmental analysis (Table 9), one further sample (1) was not submitted for assessment. The two samples were submitted to the Environmental Archaeology Consultancy for assessment.

Table 9: Samples submitted for environmental assessment

Sample	Context	Sample vol./l	Sample wt/kg	Feature	Date
2	011	40	56	Fill of curvilinear gully 10 terminus	prehistoric?
3	017	40	58	Fill of ditch 08/16	prehistoric?

Methods

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

The residues were sorted by eye, and environmental and archaeological finds picked out, noted on the assessment sheets, and bagged independently. A magnet was run through each residue, to recover any magnetised material, such as hammerscale and prill, and a count made of the number of flakes or spheroids of hammerscale collected. The residue was then discarded. The flot of each sample was studied using x30 magnifications and the presence of environmental finds (i.e. snails, charcoal, carbonised seeds, bones) was noted and their abundance and species diversity recorded on the assessment sheet. The flots were then bagged and - along with the finds from the sorted residue - constitute the material archive of the samples.

The individual components of the samples were then preliminarily identified and the results are summarised below in Tables 10 and 11.

Results

Sample 2 left a residue of stone, approximately 60% of which was fire damaged/cracked, silt/clay lumps, concreted sediment, occasional small pebbles, and burnt bone crumb. The bulk of sample 3 washed away leaving a small residue of mudstone, occasional sandstone, lumps of silt/clay, concreted sediment, and occasional quartz. No archaeological finds were recovered from sample 3 but sample 2 produced fire-cracked pebbles, pottery, fired earth and a little burnt bone and unburnt tooth enamel (Table 10). No magnetic fraction was present in the Sample 2 is preliminarily dated to the prehistoric period, based on the pottery recovered and the curvilinear ditch's possible function as a roundhouse drip gully. Sample 3 is tentatively assigned to the prehistoric period, based on worked flint recovered from the ditch fill. The environmental finds are limited to small quantities of charcoal, charred cereal grains, chaff and weed seeds, a little animal bone and a few degraded snail shells in sample 2.

Table 10: Kirton Quarry, Nottinghamshire. Finds from the processed samples

sample no.	context	sample vol. l.	residue volume/ml	pot no./wt/g	fired earth wt/g	fire-cracked pebbles wt/g	coal	magnetic wt/g	hammerscale no.	bone wt/g	comment
2	011	40	2700	26/44	53	784	+	-	-	1.8	A little fuel ash slag in flot
3	017	40	600	-	-	-	-	-	-	-	

Table 11: Kirton Quarry, Nottinghamshire. Environmental finds from the processed samples

sample no.	context	sample vol/l	flot vol/(ml)	charcoal *	charred grain *	chaff *	charred seed *	uncharred seed *	snails*	comment
2	011	40	35	5/5	3	2	4	2	1	Fairly good nos charred grains (but not great preservation) – <i>Hordeum vulgare</i> (6x hulled), <i>Triticum cf dicoccum/spelta</i> , <i>Triticum</i> ; small nos charred hulled wheat chaff fragments – <i>Triticum spelta</i> glume base, rachis, <i>Triticum</i> glume base, spikelet base; very good nos charred weed seeds – <i>Galium aparine</i> , <i>Stellaria media</i> , <i>Fallopia convolvulus</i> , <i>Polygonum aviculare</i> , <i>Persicaria</i> , <i>Rumex</i> , <i>Prunus spinosa</i> , <i>Prunus</i> shell fragments, <i>Tripleurospermum inodorum</i> , <i>Bromus</i> , Poaceae (small); occ onion couch tubers & herbaceous stems including Poaceae culm nodes/nodes, thorns; good nos of potentially identifiable charcoal fragments; small nos uncharred seeds (<i>Atriplex</i>); ; indet sheep size long bone and indeterminate burnt bone; sheep/goat tooth enamel; snails – <i>Cecilioides acicula</i> , <i>Carychium</i> sp., <i>Vallonia</i> sp.
3	017	40	2	2/3	1	1	2	1	-	Traces of indet charred cereal grain & charred chaff (<i>Triticum</i> glume base), small nos of charred weed seeds (Poaceae (small), indet shell fragments); small nos potentially identifiable charcoal fragments; occ uncharred seeds (<i>Chenopodium</i>)

*frequency 1=1-10; 2=11-50; 3=51-150; 4=151-250; 5=>250; + present.

A rich charred plant assemblage was present in gully fill 11, sample 2, with a fairly good number of grains, many of which, however, were poorly preserved but with identifiable grains of barley (*Hordeum vulgare*) including twisted hulled grains indicative of six-row hulled barley, and possibly hulled emmer/spelt wheat (*Triticum cf dicoccum/spelta*); a small number of hulled wheat chaff fragments confirmed the presence of hulled wheat including spelt (*Triticum spelta*). There was a large number of wild plant/weed seeds from a fairly wide range of species, mainly cereal weeds, including *Stellaria media* (common chickweed), *Fallopia convolvulus* (black bindweed), *Polygonum aviculare* (knotgrass), *Persicaria* (knotweeds), *Rumex* (dock), *Galium aparine* (cleavers), *Tripleurospermum inodorum* (scentless mayweed) and wild grasses (Poaceae) including *Bromus* (brome) and a good number of small grass seeds. There were also a few *Prunus* shell fragments including a *Prunus spinosa* (sloe/blackthorn) fruit stone. A small amount of herbaceous stem fragments were also noted in this flot including occasional Poaceae (cereal/wild grass) culm nodes and a few tubers of *Arrhenatherum elatius* var *bulbosus* (onion couch).

The other flot from ditch fill (17) sample 3, produced only a small amount of charred plant remains with traces of poorly preserved grain and hulled wheat (*Triticum*) chaff and a small number of weed seeds, mainly small wild grass seeds.

Both samples produced a small number of uncharred seeds of *Chenopodium/Atriplex* (goosefoots/orache) which are probably intrusive. Identifiable charcoal fragments (greater than 2mm) were also present in both flots with a large amount in sample 1 and a small quantity in sample 2.

Three taxa were identified among the few degraded snail shells, *Cecilioides acicula* a blind burrowing snail almost certainly intrusive in these prehistoric deposits (the species is thought to have been introduced in the Roman period (Evans 1972) and *Carychium* sp. and *Vallonia* sp. The latter two genera have two or more species so they give little useful habitat information, although vallonids tend to be associated with open grassland habitats, while the *Carychium* species could occur in damp environments or woodland. A few fragments of burnt bone and unburnt tooth enamel have survived in sample 2, with the tooth enamel identified as sheep or goat.

Discussion

The rich charred plant assemblage in sample 2 from gully fill 11, containing significant amounts of grains, chaff and weed seeds, has the potential to investigate crop husbandry and processing at the site during the prehistoric period. The two identified cereals, spelt wheat and hulled barley are common in prehistoric deposits, spelt wheat first being found in the Bronze Age and, along with hulled barley, being the main cereals during the Iron Age (Greig 1991, 306). Spelt wheat is not considered to be grown in the post-Roman period (Greig 1991), although it can occur as a residual/redeposited item. Its presence in sample 2 is a very good indication that the deposit is Roman or prehistoric in date and when combined with the pottery evidence a prehistoric date is most likely. The large number of cereal weed seeds, from a comparatively wide range of species, can provide information on different aspects of crop husbandry from the soils used for cultivation to sowing times and possibly harvesting methods.

The charred plant remains from sample 2 mainly represent debris from the final stages of crop-cleaning, grains accidentally burnt while being dried before milling, storage or cooking and in the case of the hulled wheats during heating to facilitate de-husking, this process also indicated by the chaff fragments. The weed seeds would have been mainly separated by sieving and may have subsequently been used as fuel along with the herbaceous stem and tuber fragments. These activities may have been taking place close-by and the occurrence of both later crop processing and essentially domestic assemblages with charcoal, fire-cracked stones, a little burnt bone and fuel ash slag - vitrified siliceous material - in this ditch terminal would support an interpretation of the curvilinear gully as a round house ring ditch, presumably receiving material from the 'domestic hearth inside the building'. The small amount of charred plant remains in the flot from the ditch fill 17 (sample 3), has only limited potential in adding to the agricultural picture at the time and the small volume of the flot and limited charcoal component suggests the ditch may be some distance from any contemporary settlement.

The identification of the larger charcoal fragments from sample 2 could provide information on the range of woods used as 'domestic' fuel during this period despite being redeposited, but as a single sample may not warrant further work.

Recommendations

On the basis of the assessment it is recommended that further work should be carried out on the charred plant remains from the gully fill 11 (sample 2) for information on crop husbandry and processing and human activities within and close to the 'round house' although this is conditional on the dating of the sampled deposit. The few charred plant remains from the ditch fill 17 (sample 3) could also be used in this discussion. The charcoal analysis could be pursued to generate a single example from the site for future reference purposes.

The charred cereal grains from sample 2 could be used to radiocarbon date the curvilinear ditch if this is required.

Acknowledgments

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5. DISCUSSION

The results of the watching brief have revealed a handful of archaeological features: a single, linear ditch, a curvilinear gully, and small pits. Although not securely dated, there is

The unstratified ceramic finds are consistent with those from earlier seasons. Within the small assemblage of pottery sherds, there are isolated examples from the Roman period, through early medieval, medieval and early post-medieval periods, and rather more from the eighteenth-century onwards. The later ceramic finds are likely that these finds were deposited by manuring. As with the results of watching briefs from earlier seasons. It is likely that most, if not all, of these finds arrived at this location from spreading of manure from the farms and homesteads of Kirton village and its immediate surroundings, and they provide shadowy snapshots of the wares that were used and available locally.

6. RECOMMENDATIONS

A brief note summarising the findings should be submitted by Network Archaeology to the Transactions of the Thoroton Society of Nottinghamshire, for inclusion in the Archaeological Notes section of the 2020 volume. This will include reference to the completed OASIS entry. This report will be uploaded with the completed OASIS form for inclusion in the ADS library.

The documentary archive and all retained finds to be kept with the similar materials from earlier seasons, to form a combined archive for eventual museum deposition. Finds

considered to be of minimal potential for future research will be discarded, with the agreement of the land-owner and proposed receiving museum.

However, as the watching brief described in this report is within a new area, and covered by new planning consent, it is suggested that the archive from the investigations carried out under the old consent should be rationalised, collated and documented, and offered for deposition to Bassetlaw Museum, as with the archive from the earlier works, covering the years up to 2009.

7. CONCLUSION

This most recent extension to the quarried area is the first intervention to the west of the long-standing farm track stretching southwards from Egmanton Road to the railway line.

The watching brief once again provided evidence of human activity from confirms the picture of human activity since Roman times, and before, through this area. The stray finds of worked flint and of occasional scattered finds of Roman, medieval and later pottery sherds seen in the earlier watching briefs continued.

The putative ring gully, towards the north-western corner of the excavation area, adds evidence of possible prehistoric occupation. It may be of significance that the 2019 area is on higher ground than the earlier excavations, towards the crest of the sandstone ridge, exposed most dramatically on Rice Hill. The ridge would have commanded the route along the Maun Valley, and it is a possible that it would have had strategic or symbolic significance. The identification of handmade pottery of possible prehistoric date may reflect this topographical location. The occasional scattered flints and poorly stratified finds of medieval and post-med pottery sherds is consistent with the results from previous watching briefs.

Overall, the results once again demonstrates value of monitoring of large ongoing quarrying, building up landscape level view of the area.

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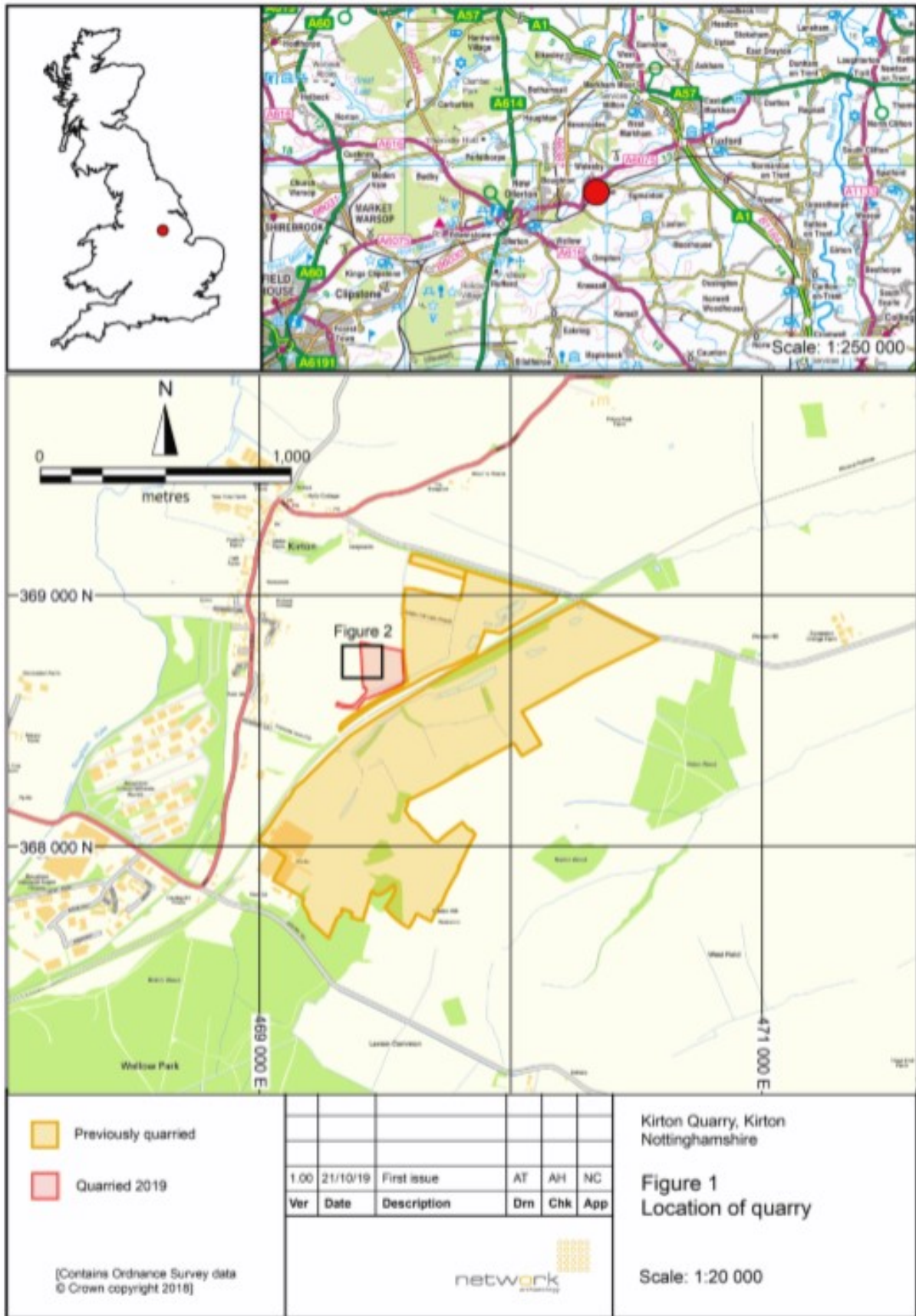
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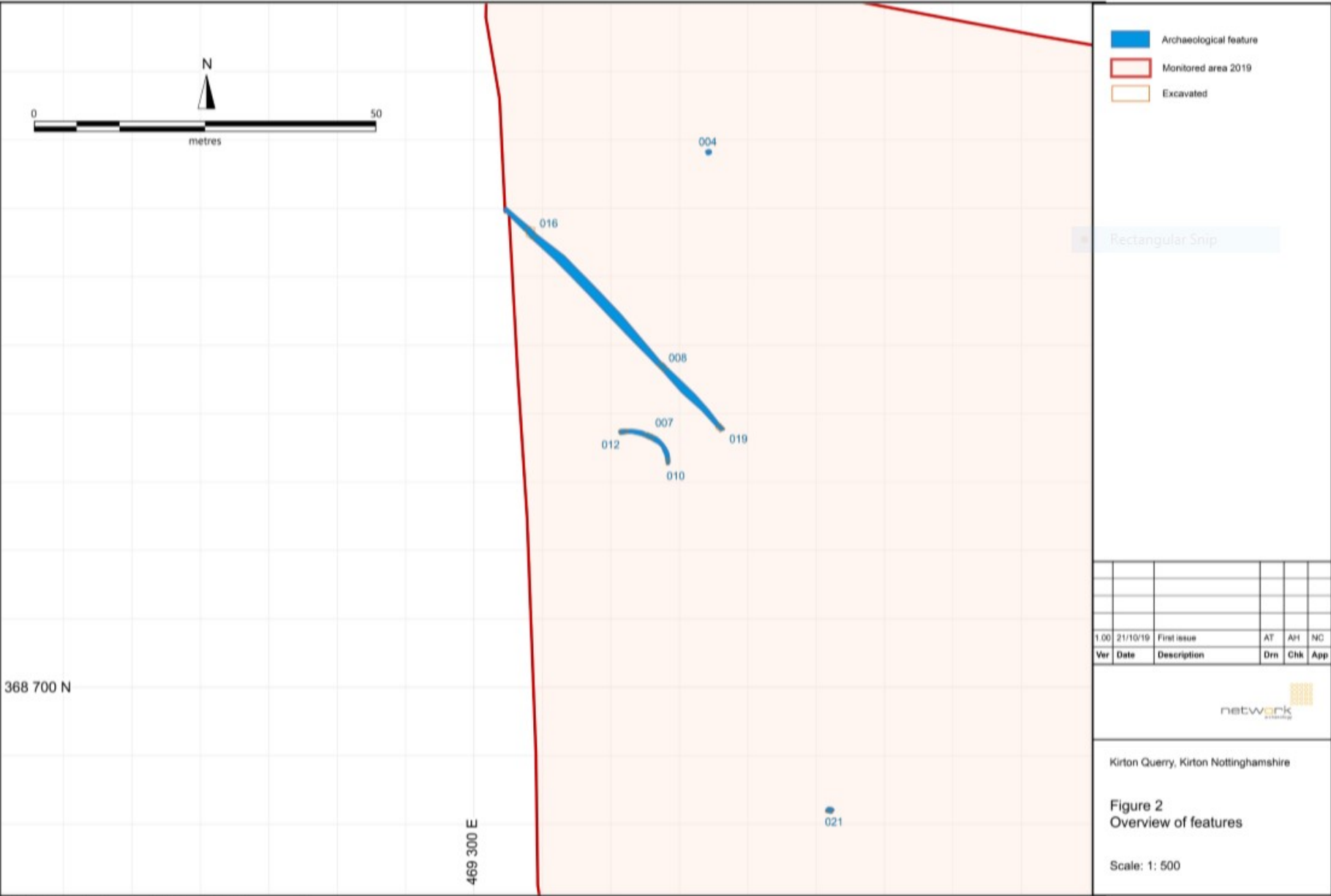
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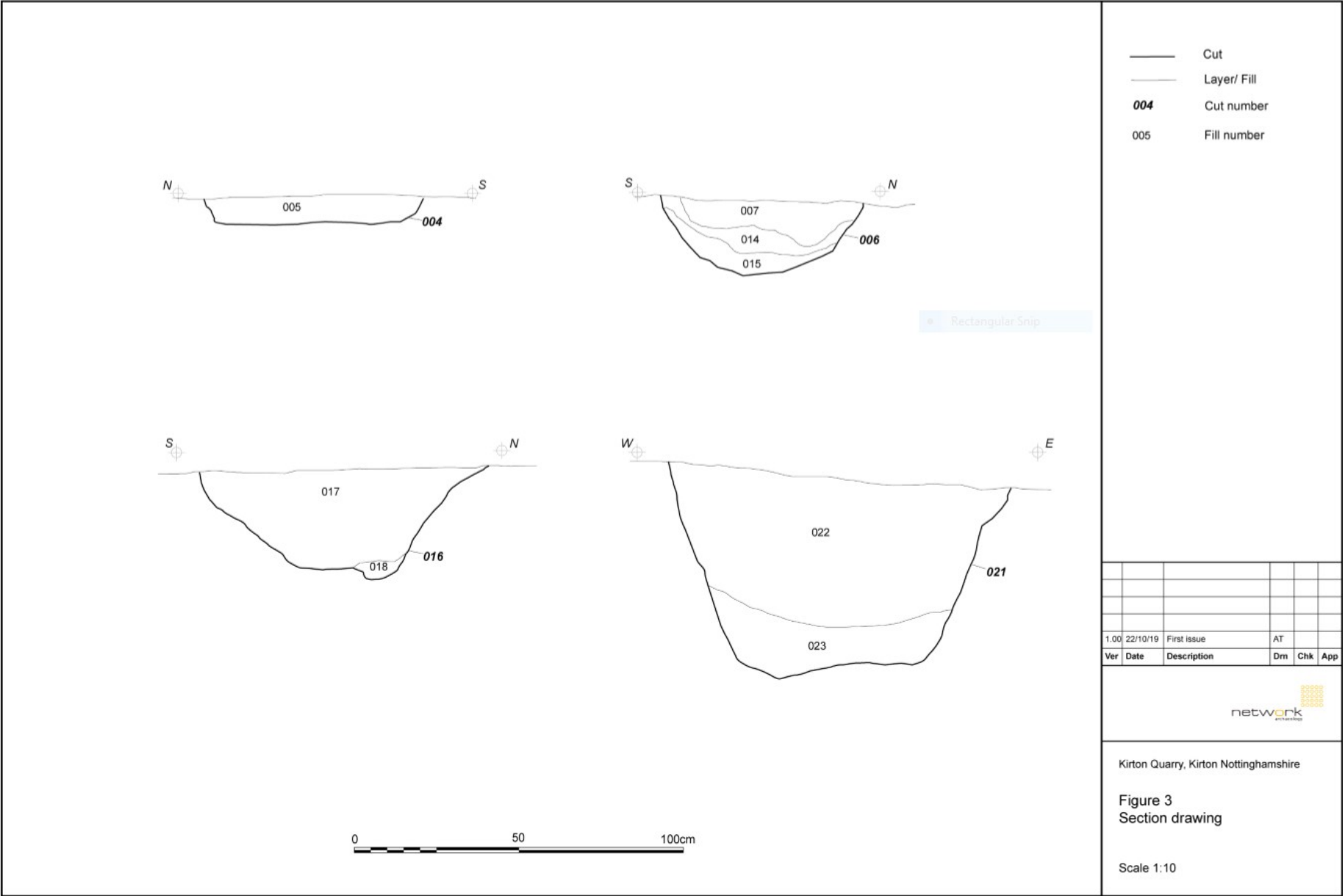
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Figures



Figures



APPENDIX 1: CONTEXT SUMMARY

Cntxt Description

- 001 Topsoil: Dark brown silty soil. Friable. 0.3m thick
 - 002 Subsoil: Light reddish, friable silty sand. 0.2m thick
 - 003 Natural: Dark reddish grey, friable silty clay
 - 004 Cut of Pit: Vertical sloping edges and flat base. 0.65m by 0.75m by 0.08m deep
 - 005 Fill of **05**: Black friable silt. 0.08m thick
 - 006 Cut of curvilinear gully: Moderate sloping sides and a concave base. 0.6m wide by 0.2m deep
 - 007 Fill of gully **06**: Mid reddish clayey silt, compact. 0.14m thick
 - 008 Cut of ditch: Linear ditch, moderate sloping sides and concave base. 0.7m wide and 0.3m deep
 - 009 Fill of ditch **08**: Light greenish brown, compact silty clay. 0.65m wide and 0.3m deep
 - 010 Cut of gully: Moderate sloping sides with concave base. 0.8m wide by 0.5m deep
 - 011 Fill of gully **10**: Dark reddish, compact silty sand; occasional charcoal and flint inclusions. 0.5m wide by 0.08m deep
 - 12 Cut of gully: Gradual sloping edges with a concave base. 0.5m wide by 0.12m deep
 - 13 Fill of gully: Dark reddish brown, compact silty sand; contains burnt clay. 0.49m deep
 - 14 Fill of gully **06**: Black, friable silty sand with occasional charcoal inclusions. 0.55m wide, 0.08m deep
 - 15 Fill of gully **06**: Mid orangey red, friable clay. 0.5m wide and 0.07m deep
 - 16 Cut of linear ditch: Steep edges with concave base. 0.8m wide by 0.33m deep
 - 17 Fill of ditch **16**: Light brownish compact clayey silt. 9,8m wide by 0.33m deep
 - 18 Fill of ditch **16**: Sandstone blocks, medium sized. 0.75m wide by 0.3m deep.
 - 19 Cut of ditch: Moderate sloping sides with a flat base. 0.5m wide by 0.08m deep
 - 20 Fill of ditch **19**: Light yellowish brown, friable clay. 0.5m wide and 0.08m deep
 - 21 Cut of pit: Vertical sloping edges with a flat base. 0.1m long by 0.7m wide by 0.55m deep
 - 22 Fill of pit **21**: Light greyish brown compact sand. 0.55m wide by 0.43m deep
 - 23 Fill of pit **21**: Light greyish friable clay. 0.55 wide by 0.12m deep.
-

APPENDIX 2: OASIS SUBMISSION SUMMARY

OASIS DATA COLLECTION FORM: England

[List of Projects](#) | [Manage Projects](#) | [Search Projects](#) | [New project](#) | [Change your details](#) | [HER coverage](#) | [Change country](#) | [Log out](#)

Kirton Quarry archaeological watching brief, August 2019 - Network Archaeology Ltd

OASIS ID - networka2-396960

Versions				
View	Version	Completed by	Email	Date
View 1	1	Richard Moore	richardm@netarch.co.uk	18 June 2020
View 2	2	Richard Moore	richardm@netarch.co.uk	18 June 2020
Completed sections in current version				
Details	Location	Creators	Archive	Publications
No	No	No	No	0/1
Validated sections in current version				
Details	Location	Creators	Archive	Publications
No	No	No	No	0/1
File submission and form progress				
Grey literature report submitted?	No	Grey literature report filename/s		
Boundary file submitted?	No	Boundary filename		
HER signed off?		NMR signed off?		