Northamptonshire Archaeology

Archaeological excavation on land off Banbury Lane, Pineham, Northampton Assessment Report and Updated Project Design

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OASIS REPORT FORM

PROJECT DETAILS	OASIS No 130363
	Banbury Lane, Northampton, Assessment report and updated project design
The excavation comprised two areas, one at the north 0.47ha in area and one at the south 1.92ha in area. The excavations identified a triple-ditched monument with an overall diameter of 23m, dating to the Middle Neolithic. The inner ditch enclosed an area c 7.5m in diameter with a possible narrow entrance to the north. There were no internal features. A pit, densely packed with disarticulated human bone had blocked the entrance when the inner ditch was partially silted. Only selected bones, particularly the femur with lesser quantities of the other major limb bones, and some skull bones had been collected for deposition, ribs and vertebrae were largely absent. The large quantity of skeletal material represents at least 130 individuals and initial radiocarbon dates place the deposit between 3360-3100 cal BC. The middle and outer ditches had entrances to the north-west, but on the outer ditch this had later been closed. Oval depressions and steps in the base of the outer ditch suggest that it had originally been dug as a series of interlinking pits. To the north-east, a pit in the base of the outer ditch contained a deposit of red deer antlers, with a further antler in the ditch fills to the south-west. There were remains of a juvenile inhumation burial above the antler deposit. Sherds of collared urn in the upper fill of the outer ditch indicate Early Bronze Age activity in the vicinity of the monument. A satellite inhumation, a crouched burial, lay 30m to the south of the monument. In the southern area, a single pit contained Middle Neolithic Peterborough ware pottery. There was also part of a system of Iron Age boundary ditches and associated pits. Later activity comprised an Early/Middle Anglo-Saxon pit, medieval ridge and furrow field cultivation and a post-medieval field boundary.	
Project type (eg DBA, evaluation etc)	Opne area excavation
Site status (none, NT, SAM etc)	none
Previous work (SMR numbers etc)	DBA CgMs Consulting (Flitcroft 2010), NA geophysics (Simmonds and Butler 2010) Evaluation Albion Archaeology (2011)
Current Land use	Now built over
Future work (yes, no, unknown)	No
Monument type/ period	Middle Neolithic triple ditch monument
Significant finds (artefact type and period)	Pit of disarticulated human bone (*c* 130 individuals), inhumation, red deer antlers.
PROJECT LOCATION	
County	Northamptonshire
Site address (including postcode)	Banbury Lane, Pineham, Northampton
Study area (sq.m or ha)	2.4ha of 6.9ha
OS NGR	SP 725 582
Height OD	65-70m
PROJECT CREATORS	
Organisation	Northamptonshire Archaeology
Project brief originator	Liz Mordue, NCC Assistant Archaeological Advisor
Project Design originator	Myk Flitcroft, CgMs Consulting
Director/Supervisor	Yvonne Wolframm-Murray
Project Manager	Adam Yates and Mark Holmes NA, Myk Flitcroft CgMs Consulting
Sponsor or funding body	David Wilson Homes (South Midlands)
PROJECT DATE	
Start date	June 2011
End date	July 2011
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report (NA report)
Title	Archaeological excavation on land off Banbury Lane, Pineham, Northampton, Assessment Report and Updated Project Design
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ARCHAEOLOGICAL EXCAVATION

ON LAND OFF BANBURY LANE, PINEHAM

NORTHAMPTON

ASSESSMENT REPORT AND UPDATED PROJECT DESIGN

Abstract

Archaeological excavation was undertaken by Northamptonshire Archaeology on land off Banbury Lane, Northampton in June and July 2011. The works were carried out on behalf of David Wilson Homes (South Midlands) in order to satisfy a condition on planning consent for the construction of residential housing and associated infrastructure on 7ha of land located on the south-west edge of Northampton. The excavation comprised the opening of two areas, one at the north 0.47ha in area and one at the south 1.92ha in area. The works were overseen by CgMs Consulting.

The excavations identified a triple-ditched monument with an overall diameter of 23m, dating to the Middle Neolithic. The inner ditch enclosed an area c 7.5m in diameter with a possible narrow entrance to the north. There were no internal features. A pit, densely packed with disarticulated human bone had blocked the entrance when the inner ditch was partially silted. Only selected bones, particularly the femur with lesser quantities of the other major limb bones, and some skull bones had been collected for deposition, ribs and vertebrae were largely absent. The large quantity of skeletal material represents at least 130 individuals and initial radiocarbon dates place the deposit between 3360-3100 cal BC. The middle and outer ditches had entrances to the north-west, but on the outer ditch this had later been closed. Oval depressions and steps in the base of the outer ditch suggest that it had originally been dug as a series of interlinking pits. To the north-east, a pit in the base of the outer ditch contained a deposit of red deer antlers, with a further antler in the ditch fills to the south-west. There were remains of a juvenile inhumation burial above the antler deposit. Sherds of collared urn in the upper fill of the outer ditch indicate Early Bronze Age activity in the vicinity of the monument. A satellite inhumation, a crouched burial, lay 30m to the south of the monument.

In the southern area, a single pit contained Middle Neolithic Peterborough ware pottery, broadly contemporary with the bones deposit. There was also part of a system of Iron Age boundary ditches and associated pits. Later activity comprised an early/middle Anglo-Saxon pit, medieval ridge and furrow field cultivation and a post-medieval field boundary.

1 INTRODUCTION

1.1 Site location and topography and geology

Planning permission had been granted to David Wilson Homes (South Midlands) by West Northamptonshire Development Corporation for residential development comprising 176 dwellings along with associated infrastructure on land off Banbury Lane, Northampton (Planning Reference 10/0188/FULWNN).

The Banbury Lane site lies to the south-west of Northampton, at the foot of the western slope of Hunsbury Hill within a loop of Wootton Brook, which joins the River Nene 700m to the north (Fig 1: NGR SP 725 582). The development site covers 6.9ha and is bounded by Banbury Lane to the north, Wootton Brook to the south, the modern A43 dual carriageway to the east and the Northampton Arm of the Grand Union Canal to the west. Ground levels within the site lie between 65m and 70m aOD, with Hunsbury Hill to the east at 115m aOD.

The underlying geology of the site is recorded by the British Geological survey as comprising Middle Lias Silts and Clay (Dryham Siltstone Formation) and Marlstone Rock Bed (Flitcroft 2010, BGS 2012). The silts and clays occupy the majority of the site with the Marlsotone Rock Bed situated in the north-east corner.

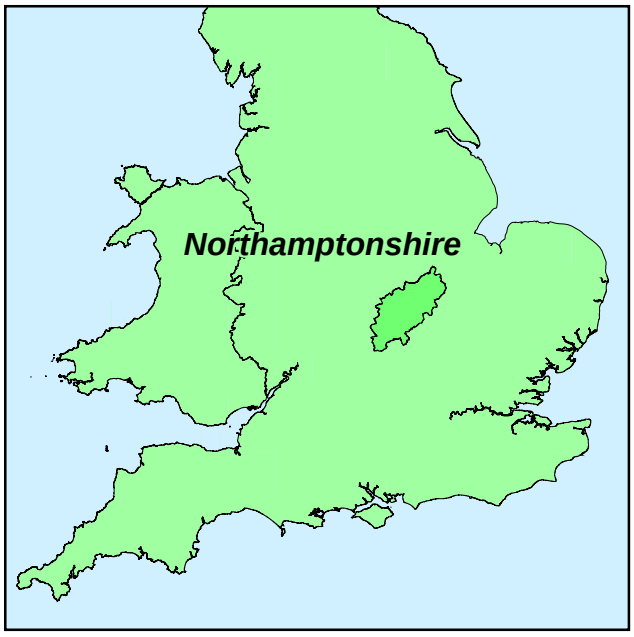
The planning permission for the site was granted subject to a number of conditions, one of which was to secure a scheme of archaeological works prior to development. The consequent archaeological works were designed and overseen by Myk Flitcroft of CgMs Consulting (CgMs 2011) in response to a brief issued by Liz Mordue Asisstant Archaeological Advisor for Northamptonshire County Council (NCC 2010).

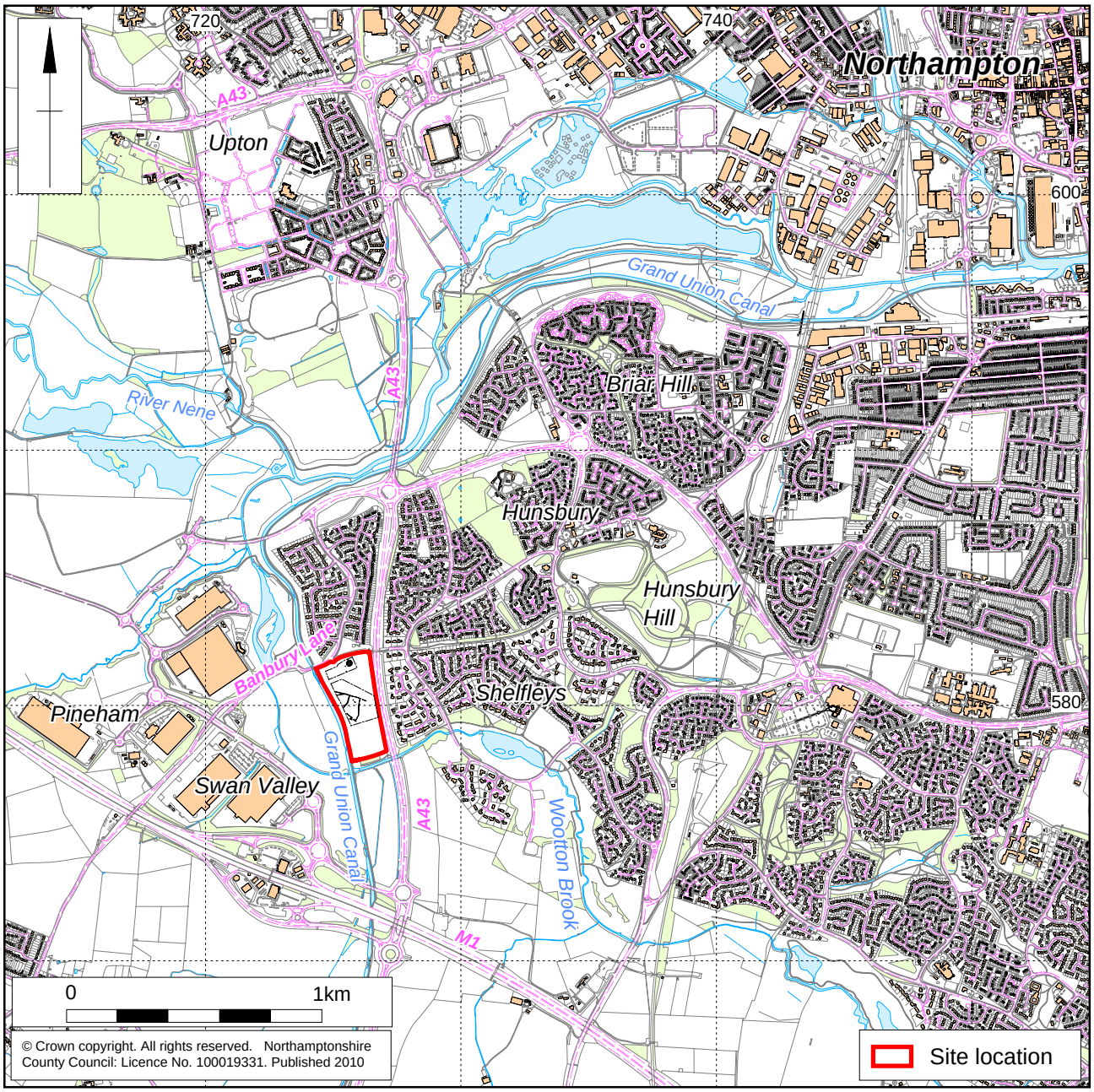
1.2 Previous archaeological work

The proposed development site was subject to desk-based assessment (Flitcroft 2010). This established that although no significant archaeological work had previously been undertaken within the development area itself, there had been extensive archaeological works within the wider area.

The Hunsbury Hill area, flanking the south side of the River Nene to the south of Northampton, has a long history of archaeological investigation. In the late 19th century much of the interior of the Hunsbury Iron Age hillfort, which lies 1.2km to the east of Banbury Lane, was lost to ironstone quarrying, but large quantities of finds, largely derived from numerous pits, were recovered, and there have been various further small scale investigations of the site up to the present day (Jackson and Tingle 2012).

In the 1970s during the planned development of the southern district of Northampton across farmland on the flanks of the Hunsbury ridge, the Northampton Development Corporation Archaeological Unit carried out a four-year programme of excavation at the Briar Hill Neolithic causewayed enclosure (Bamford 1985), which lay 1.5km to the north-east of Banbury Lane. This was the first causewayed enclosure outside of southern England to be so extensively excavated. The enclosure had its origin in the Early Neolithic, but usage of the site continued through the Middle and Late Neolithic, with Peterborough ware coming from the upper ditch fills, while a horseshoe-shaped timber structure was associated with Grooved ware. Small quantities of Beaker pottery show a continuation of activity into the Early Bronze Age and a Middle/Late Bronze Age urnfield cemetery was located within the, by then, ancient enclosure. An undated pit alignment respected the outer ditch of the enclosure and pit alignments further east were dated to the late Bronze Age/early Iron Age (Jackson 1976).





Scale 1:25,000

Site location Fig 1

During the course of the development of the southern district during the late 1970s and early 1980s, rescue excavations were carried out when groundworks revealed obvious archaeological remains, such as the Wootton Roman villa (RCHME 1985, fig 3 & plate 3) or a group of Roman pottery kilns (Shaw 1979). However, there were no resources to provide systematic coverage of this area to identify other possible smaller scale sites that had not appeared on aerial photographs, and much must have been lost unrecorded. This is emphasised by the more recent discoveries of Middle Neolithic cremation burials within a Roman settlement at Milton Ham to the south (Carlyle and Chapman 2012), and Bronze Age round barrows and a pit at Wootton Fields to the east during an extensive pre-development survey comprising geophysical survey and extensive trial trenching (Chapman and Carlyle 2012), both on areas just beyond previous developments.

Immediately to the west of the site, on the valley floor, extensive archaeological evaluation and mitigation works have recorded archaeological features at Swan Valley and Pineham Barn developments (Holmes and Chapman 2006, Carlyle 2006, Brown 2007). These show occupation and utilisation of the area from the Neolithic through to the Roman periods, including Bronze Age funerary activity and Iron Age and Roman farming settlements.

Following the desk-based assessment a programme of archaeological evaluation was undertaken. This initially comprised a geophysical survey which located a triple-ditched monument, towards the northern boundary of the site, alongside Banbury Lane, and linear ditch systems to the south (Simmonds and Butler 2011). Medieval ridge and furrow cultivation was also identified in the eastern part of the site. More recent features included post-medieval field boundaries and modern services which crossed the site.

These features were then subject to evaluation by trial trenching in early 2011 (Albion Archaeology 2011), which confirmed that the triple-ditch system dated to at least the Early Bronze Age. The boundary ditch system was dated to at least the Early-Middle Iron Age with a suggestion that it may have an earler origin.

1.3 Scope of mitigation works

The archaeological mitigation works for the proposed development area were set out in a Specification prepared by CgMs Consulting Ltd (CgMs 2011) submitted in response to the brief provided by the the Northamptonshire County Council Assistant Archaeological Advisor.

The objectives of the archaeological programme of works were:

1) To expose and record the archaeological features surviving in the northern half of the site;
2) To observe and record (where appropriate) other groundworks associated with the scheme ;
3) To provide an adequately detailed project report, placing the investigation's findings in their local and regional context;
4) To disseminate and publish the project results, as appropriate;
5) To prepare an ordered archive for future deposition.

The mitigation works comprised open area excavation in the northern half of the development site. The excavations examined two separate zones, targeting the

archaeological monuments identified in the field evaluation (Fig 2). The investigation areas were separated by the line of a buried pipeline identified in the geophysical survey. The northern area, Site 1, was roughly rectangular covering approximately 0.5ha, and encompassing the triple-ditch monument and possible trackway ditches identified in the trial trench evaluation. The southern area, Site 2, was approximately 1.9ha in extent, and included the zone within which the Early Iron Age ditch system and its possible earlier phase had been identified by the trial trenching.

The works were undertaken by Northamptonshire Archaeology within a six week period through June and July 2011.

1.4 Methodology

Removal of the topsoil and other overburden was carried out by a tracked 360-degree mechanical excavator, fitted with a toothless ditching bucket, operating under archaeological supervision. Mechanical excavation proceeded to the natural substrate or the first significant archaeological horizon.

All features were hand excavated and recorded. Standard Northamptonshire Archaeology recording procedures were employed (NA 2006). All works were conducted in accordance with the Institute for Archaeologists' *Standard and guidance for archaeological excavations* (IfA 2008) and the *Code of Conduct of the Institute for Archaeologists* (IfA 1985, revised 2010). The project was undertaken in accordance with the provisions set out in the English Heritage procedural documents *Management of Archaeological Projects 2* (EH 1991) and *Management of Research Projects in the Historic Environment* (EH 2006). All work was carried out in accordance with the requirements of the Specification for archaeological excavation (CgMs 2011).

2 RESEARCH OBJECTIVES

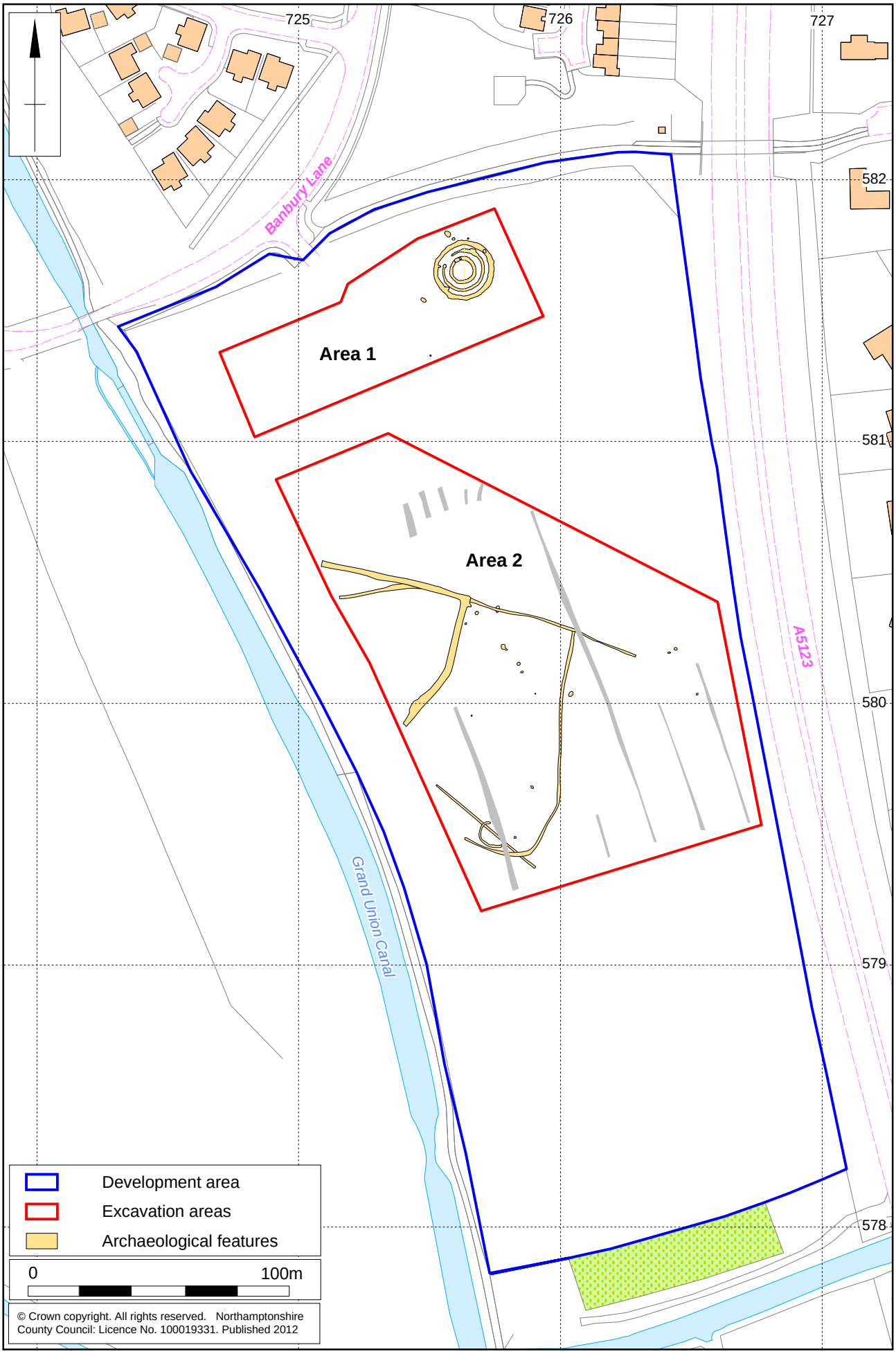
The works were designed to fit within both national and regional research agendas (CgMs 2011). Specifically these would draw upon national research programmes from English Heritage (EH 2008, 2010), and the Prehistoric Society (2001). Regional Agendas would be addressed through reference to the *East Midlands Research Agenda* (Knight *et al* 2012) and the earlier *Archaeological Resource Assessment and Research Agenda for the East Midlands* (Cooper 2006).

It was concluded that the programme of archaeological investigation had the potential to contribute to a number of issues identified in the updated Regional Research Agenda (Knight *et al* 2012):

Neolithic to Middle Bronze Age:
3.6 Ceremonial and burial monuments
3.9 Raw material resources and exchange networks

Later Bronze Age and Iron Age:
4.1 Dating
4.6 Field systems and major linear boundaries
4.8 The agricultural economy and landscape

In order to realise these a series of site specific objectives were proposed (CgMs 2011):



Scale 1:2000

Excavation area and archaeological features Fig 2

Multiple Ring Ditch:

- Investigate form & function - does the concentric ring plan reflect alterations to the monument over time, or is this a single-phase design intention?
- Can the function / functions of the monument be established (burial, ceremonial)?
- Can a date of construction / alteration be established?
- Assuming that the ring ditch is of Early Bronze Age date, how does the monument relate to other Early Bronze Age sites in the Pineham area?
- How does the monument fit into understanding of multiple ring ditches as a monument class within Northamptonshire & more widely?

Iron Age Field System:

- Does the plan layout shown in the geophysical survey reflect a single phase of creation or gradual incremental addition of fields?
- Establish the date of creation / use / abandonment of these enclosures;
- Investigate the nature of the suggested earlier phase of field system identified in the trial trenching, and examine the processes involved in the transition between these systems;
- Examine the nature of activities within the field / enclosures (crop production, animal stockading, crop processing, short-term activities);
- Interpret remains within the development site in the context of settlement sites in the surrounding area.

3 SUMMARY OF CHRONOLOGY

Table 1: Summary of chronology

Period	Key Features
Late Mesolithic/Early Neolithic	Residual flint
Middle/Late Neolithic	Triple-ditched monument, deposit of human bone, pit in southern area, satellite burial
Early Bronze Age	Pottery in upper fill of ditches (modification of monument?)
Early/Middle Iron Age	Ditch system, pits and other associated small features
Early-Middle Saxon	A pit in the southern area
Medieval	Ridge and furrow cultivation
Post-medieval	Field boundary

4 LATE MESOLITHIC/EARLY NEOLITHIC

Activity dating to the Late Mesolithic/Early Neolithic periods comprises worked flint occurring as residual elements within the ploughsoil and certain features.

The majority of the early worked flint occurred within the fills of the outer ditch of the triple-ditched monument and downslope to its west, possibly suggesting that the area of the ring ditches was a focus for activity prior to the monument's construction.

5 THE MIDDLE NEOLITHIC TO EARLY BRONZE AGE

5.1 Overview

Middle Neolithic to Early Bronze Age activity centred upon the triple-ditched circular enclosure at the north of the site (Fig 3). A significant modification to the monument comprised the deposition of a large quantitiy of disarticulated human bone within a pit, 192, cut through the fills of the inner ditch, perhaps blocking an original narrow entrance. Initial radiocarbon dates place the human remains between 3360-3100 cal BC, but specific dating for the monument itself remains to be established. In addition to the pit, deposits of antlers and and further human remains were identified within the ditches themselves.

A crouched inhumation burial, undated, lay to the south of the monument and may have been an associated satellite burial (see Fig 9, Burila 3). A small pit containing a partial Middle Neolithic Peterborough ware vessel lay 100m south of the monument in Area 2 (see Fig 9). Undated pits and tree throws close to the monument have been placed in this phase of activity due to their form and proximity.

5.2 The triple ring ditch

The circular enclosure, which was up to 23m in diameter, comprised three closely-spaced concentric ditches, separated by berms 2m wide. The inner ditch enclosed a central space 7.8m in diameter, where there were no surviving cut features (Fig 5).

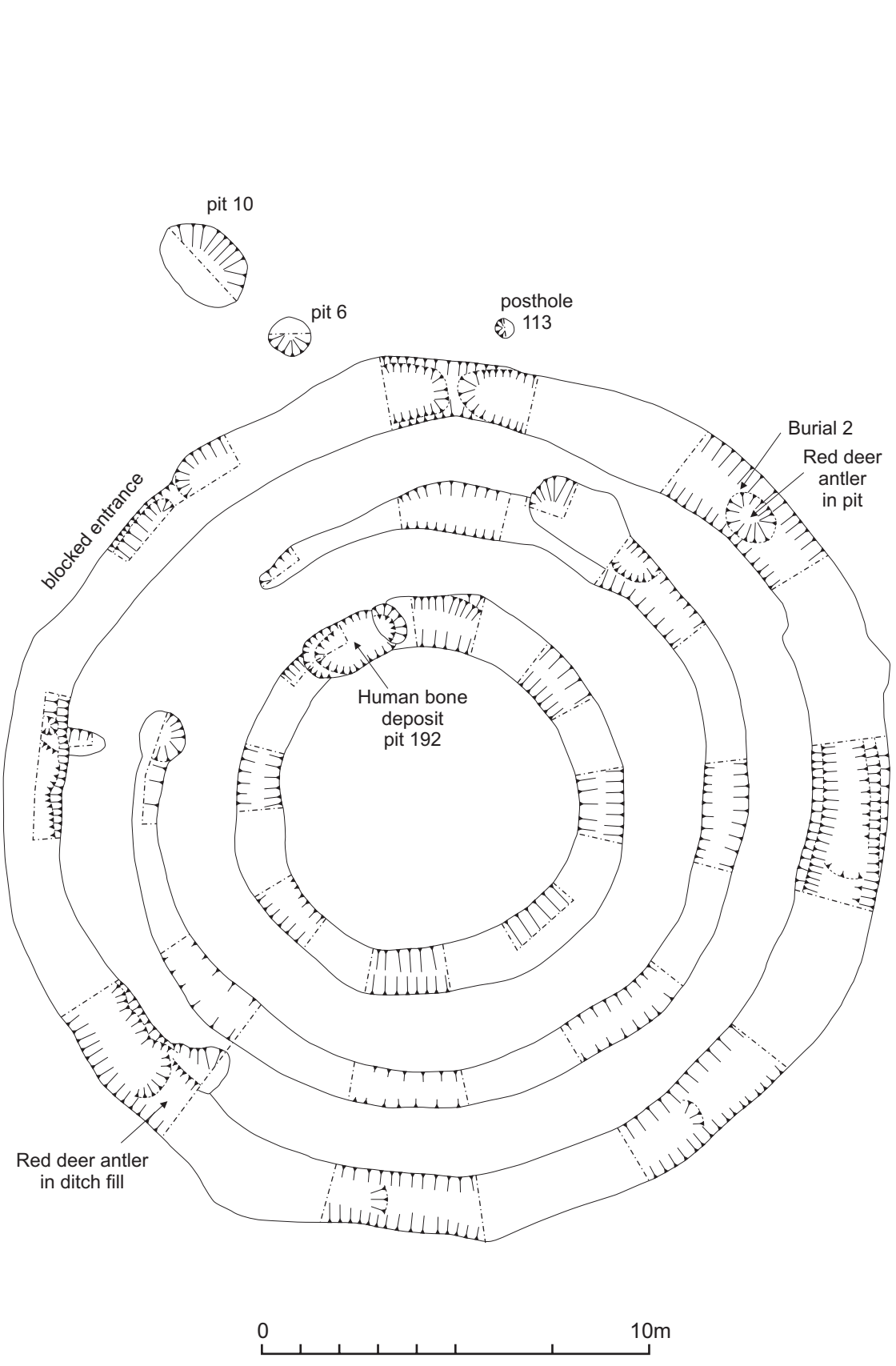
The inner and middle ditches were both up to 1.2m wide, but while the inner ditch had a V-shaped profile and was 0.60-0.70m deep, the middle ditch was broad, flat-bottomed but only 0.10-0.25m deep. The outer ditch was the most substantial, at 1.5-2.0m wide and 0.50-0.60m deep, with a U-shaped profile and a broad flat bottom. There were broad entrances, 4m wide, to the north-west through the middle and outer ditches, but on the outer ditch the entrance had been closed by cutting a further length of ditch between the original entrance terminals.

In the base of the outer ditch a number of stepped deepenings suggest that it had been dug as a series of elongated pits. To the north-east an oval pit, 0.25m deep, cut into the base of the outer ditch contained a deposit of four lengths of red deer antler (see Fig 21). A further length of red deer antler lay diametrically opposite, on top of the primary fill within the outer ditch (Fig 3).

The inner and outer ditches both had primary fills containing quantities of gravel, eroded from the ditch edges, but above this the fills were almost free of stone inclusions. In some of the outer ditch sections there appeared to have been greater quantities of gravel coming in from the inner edge, suggesting the possible presence of either an adjacent bank or a central mound, but this asymmetry was not evident in all sections. The sequence of ditch cutting cannot be established stratigraphically, and although radiocarbon dating may assist in determining the sequence, the shallow middle ditch produced little if any material evidence.

The Neolithic triple-ditched monument, pre-excavation, looking west Fig 3

The Neolithic triple-ditched monument, post-excavation, looking west Fig 4



Scale 1:150 The Neolithic, triple-ditch monument Fig 5

5.3 The human bone deposit

An elongated pit [192], 2.8m long by 1.4m wide and 0.4m deep, had either been cut through a length of the fully silted inner ditch or truncated the silted terminals at a narrow entrance, aligned slightly more northerly than those on the outer ditches (Fig 6). The pit was therefore not a primary feature of the monument, and it may have been part of an act of closure, perhaps blocking access to the central area, and itself subsequently closed by the blocking of the entrance through the outer ditch.

The pit contained a very large and densely packed deposit of disarticulated human bone, Burial 1 (Figs 6-8). In consultation with York Osteoarchaeology Ltd and CgMs Consulting a method of excavation was devised which comprised cleaning and photographing the topmost layer of the bone and then excavating as either individual or small groups of numbered bones within a layer designation. The underlying newly exposed bones were then cleaned, photographed and lifted. The soil from each layer was also collected. This process was repeated 16 times to empty the pit, by which time there were some 1350 numbered bags of bone, occupying 52 archive boxes. Preliminary assessment suggests that the deposit comprises a possible total of 7500 bones and 9400 bone fragments.

During excavation it became clear that the composition of the bone assemblage had been selective. The bones are mostly long bones, predominantly femur and humerus with declining numbers of the other long bones. Fragments of skull are quite common, along with pelvis and shoulder blade, but other skeletal parts such as vertebrae, ribs and finger and toe bones are rare. A provisonal calculation of the minimum number of individuals present, based upon the numbers of left and right femurs, the most common element, suggests at least 130 individuals are represented.

The bones do not appear to have been dumped or tipped into the pit *en masse*. There is some evidence of placement, with groupings of long bones that appear to be deposited together; possibly as ‘handfuls’. There were also indications that positions within the pit were favoured for certain bone types, with a concentration of cranial material towards the eastern end of the pit.

The soil matrix was homogeneous with no evidence of silting, indicating that the bones had been deposited as a single event. No other finds were present.

5.4 Other modifications

In the north-east quadrant of the monument, the middle ditch was cut by an oval pit [70], 3.80m long by 1.50m wide. Its location would suggest that the ditch was still visible when it was dug. It is unclear whether such modifications as this and a small pit cutting the eastern end of the human bone deposit belong to a post-monument phase or are part of the final actions in its use.

5.5 Inhumation in outer ditch

Towards the base of the outer ring ditch, a collection of degraded and disarticulated human skeletal remains, Burial 2, come from a single juvenile. The location of this burial may be significant, since it occurs in the north-east quadrant, close to the deposit of red deer antler. A soil sample from around the burial location has produced quantities of charcoal. However, unclear whether the charcoal is related to the inhumation or belongs to the more general ditch fill.

Pit [192] with disarticulated human bone, cut into inner ditch of the monument, looking south Fig 6

The human bone deposit, on first exposure Fig 7

The human bone deposit, towards base of pit [192] Fig 8

5.6 The satellite burial

A probable satellite burial, Burial 3, a poorly-preserved tightly-crouched adult inhumation, lay 30m to the south of the monument (see Fig 9). The burial was aligned north-south with its head to the north. The oval grave cut measured only 0.60m x 0.45m and it is likely that the body had been bound. No grave goods were present. The grave had been severely truncated by later agriculture and only survived to a depth of 0.15m.

The date of the burial is unknown, and tightly flexed burials can occur in the Late Neolithic/Early Bronze Age and the Iron Age, but an association with the monument seems likely.

5.7 Other features

A series of individual features occurred outside of the monument. Most were shown to be variations in natural or former undated tree throws. However, three undated pits and a possible posthole were found immediately adjacent to the monument. As with the satellite burial, the undated pits have been placed in the Neolithic phase of activity due their form and location.

Pits [6] and [10] and possible posthole [113] lay immediately to the north of the monument. Pit [6] was roughly circular in shape, 1.00m in diameter and 0.33m deep. Pit [10] was larger at 2.50m long, 1.75m wide and 0.64m deep. A few 'crumbs' of prehistoric pottery were recovered from the primary fill. Pit [17] lay to the west of the monument. It contained a complex series of overlapping fills, from which only a fragment of animal bone was recovered.

The presence of tree throws in the vicinity of the monument may be significant in relation to its siting in this particular location. However, dating such features was impossible although one possible example was cut through by the outer ditch of the monument.

A further pit [182], located 100m to the south of the monument (see Fig 9), had been heavily truncated by later agriculture but the remains of a Peterborough ware Mortlake style bowl were recovered from its sparse fill.

5.8 Modifications to the monument

A few Sherds from collared urns of the Early Bronze Age came from the ditch fills, indicating that the monument was still extant at this time.

The presence of possible tip lines within the fills of the outer ditch of the monument, may suggest that the final form of the monument, in the Late Neolithic or Early Bronze Age, comprised a central mound or bank with the monument ending its life as a barrow.

6 THE IRON AGE

6.1 Summary

The geophysical survey located a series of ditches within the central part of the development area. This was explored by the trial-trenching which identified a ditch system formed by a principal ditch aligned north-west to south-east, with two further ditches attached to its southern side, aligned south-west to north-east. The trial trenching also found additional ditches, not located by the geophysical survey, on differing alignments. A number of isolated features, comprising pits, postholes and a possible oven were present and were interpreted as activity within enclosures.

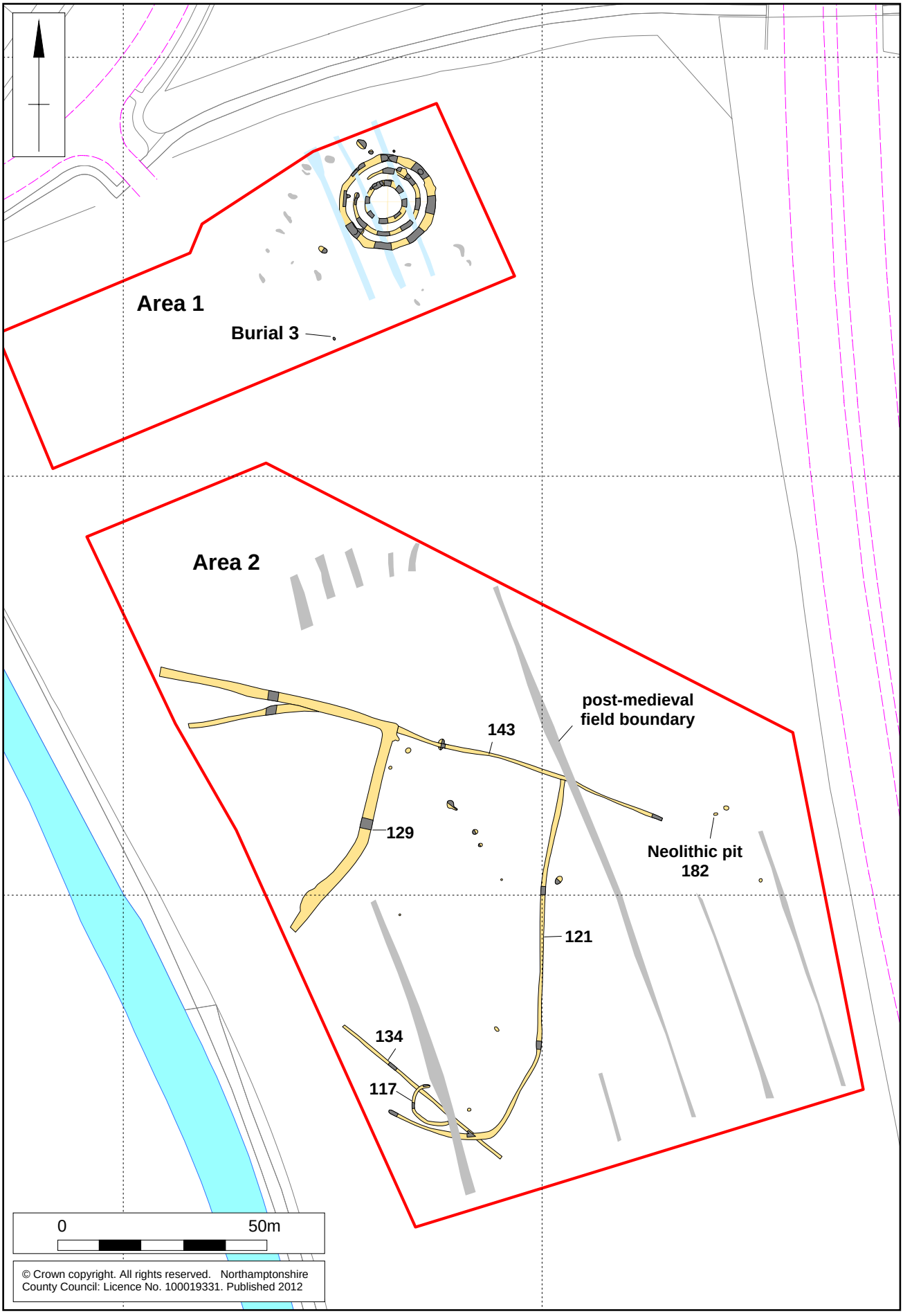
The open area excavations confirmed the overall picture presented by the geophysical survey and the trial trenching (Fig 9). However, some of the features interpreted as ditches in the evaluation were shown on excavation to be banding in the underlying natural geology.

6.2 The boundary system

The ditch system covers an area of *c* 0.7ha, and continues to the west. It comprises three principal ditches [121] [143] [129]. All three produced pottery, albeit in very small quantities. There are few diagnostic sherds, but a date in the Early/Middle Iron Age (5th – 4th century BC) is suggested.

A shallow, narrow linear ditch [134], aligned north-east to south-west, was located in the south-west corner of the site. It was cut through by boundary ditch [121], and was on a different alignment. It may represent an earlier element unconnected with the Iron Age boundary system, see below.

Ditches [121] [143] and [129] appear to form a single boundary system although it was probably constructed or modified in a number of phases. The eastern end of the system, ditches [143] and [121] appear to have been abandoned when the western ditch [129] was cut or recut. Ditch [129], at 2.90m wide by 1.17m deep with a V-shaped profile (Fig 10), was the deepest and most substantial of the Iron Age ditches. It lay on the downslope side and its depth may reflect the need to channel water away from areas that, today at least, are prone to flooding.



Scale 1:1250 (A4) Area 2, archaeological features Fig 9

Iron Age oundary ditch [129], looking north-east Fig 10

The sparse amounts of pottery, animal bone and ecofacts from both the trial trenching and the open area excavation suggest that the excavated part of the ditch system is probably at some distance from the core of settlement, although a curving ditch to the south-east [117] might relate to a roundhouse set in one corner of the enclosure. Given the lack of pottery or other dating material, many of the isolated features in this area, mainly small pits, are undated.

6.3 Internal features

A number of isolated pits occurred throughout Area 2, along with hollows interpreted as former tree holes. All lay east of enclosure ditch [129] and were mostly situated within the area enclosed by ditches [143] and [121].

The majority of the pits were undated but, unlike the ditches, some contained evidence of human activity in the form of burning, with charcoal and burnt stones present. A shallow lenticular shaped pit [141], interpreted during the trial trenching as the remains of an oven, produced quantities of charcoal.

Two pits contained pottery dating to the early/middle Iron Age. One, pit [145], produced around 600 sherds and the other, pit [167] 22 sherds. The quantity of pottery makes these features stand out from the largely sterile features elsewhere on site.

6.4 Other features

A penannular gully [117], with an opening to the east, was located immediately adjacent to the southern terminal of the eastern boundary ditch [121]. The small enclosure had a diameter of approximately 10m, and the gully was 0.66m wide by

0.17m deep. Characterisation was difficult since part of the feature had been removed by a medieval furrow and part lay within an earlier evaluation trench, however, no indication of any structural elements were present.

7 MEDIEVAL TO POST-MEDIEVAL

7.1 Anglo-Saxon

Anglo-Saxon activity was represented solely by an isolated pit in Area 2 which produced sherds from the base of an Early/Middle Anglo-Saxon jar. A small globule of melted lead was also present along with river cobbles and charcoal inclusions.

7.2 Medieval

Furrows from medieval ridge and furrow field cultivation were present, running north-west to south-east across the whole site. The ploughing ran across the slope of the site and had contributed to the attrition of features.

7.3 Post-medieval

A post-medieval field boundary, evident on the Ordnance Survey first edition 6" map, was identified running north-west to south-east across both Areas 1 and 2. It had narrowly missed truncating the triple-ditched monument, which lay immediately at its east. However, the monument was crossed by post-medieval field drains which had been placed in the bases of furrows.

8 THE FINDS ASSESSMENT

8.1 **Worked flint** by Yvonne Wolframm-Murray

In total 58 pieces of worked flint were recovered from Late Neolithic/Early Bronze Age features, and as residual elements within Early/Middle Iron Age features and from subsoil and topsoil. The flint comprised two cores, one core fragment, two pieces of shatter and two fragments, 40 flakes, six blades, one arrowhead, three scrapers and one backed blade (summarised below in Table 2 and listed in Table 3).

Table 2: Quantification of worked flint

Descrition	Whole	Fragment	Burnt	Total
Core	2	1	-	3
Shatter/fragments	-	4	-	4
Flake	20	13	4	37
Flake, utilised	2	1	-	3
Blade	5	1	-	6
Scraper, end	1	-	-	1
Scraper, side/end	1	-	-	1
Backed blade	1	-	-	1
Scraper, fragment	1	-	-	1
Arrowhead, oblique	1	-	-	1
Total	**34**	**20**	**4**	**58**

The raw material is of a vitreous flint of a light to mid grey and brown coloured flints with a light to dark brown cortex. Alongside the viscous flint a white to whitish grey opaque flint was utilised.

The condition of the assemblage is good. The flints show varied post-depositional edge damage, ranging from occasional to frequent edge nicks. Patination is present on a small proportion of the assemblage, ranging from a mottled white to a complete white colour. Accidental burning of the flint was evident on two flakes in the form of thermal fracturing and colour alteration.

The assemblage includes two cores and one core fragment, comprising a single platform flake and bladelet core, and two multiple platform flake cores, of which one is a fragment.

The majority of the flints, consisting of waste flakes and blades, comprise 40 flakes, of which 13 are broken, and six blades, of which one is broken. There are squat flakes and flakes with relatively broad striking platforms. Utilisation is evident on three flakes.

The retouched tool forms comprise three scrapers, one backed blade and one arrowhead. The scrapers comprise one end scraper with abrupt retouch on the distal end of an elongated flake, one end/side scraper with retouch on the distal end and one lateral edge, and one scraper fragment with retouch evident on a lateral edge, evidence of retouch on the distal end is obscured by post-depositional edge damage.. The backed blade has abrupt retouch down one lateral edge and also shows utilisation scars on the opposite lateral edge. The oblique arrowhead is bi-facially invasively retouched in a rough triangular shape.

The technological characteristics of the assemblage are broadly Late Mesolithic/Early Neolithic to Late Neolithic/Early Bronze Age. The flake/bladelet core, the end scraper, the backed blade and the two bladelets suggest a Late Mesolithic/Early Neolithic element. A Late Neolithic/Early Bronze Age component is suggested by the oblique arrowhead, the end/side scraper and the presence of squat flakes.

The majority of the flint implements, cores and utilised flakes were recovered from the monument, in particular from the outer ditch. The monument is situated on the crest of a slope and a quantity of worked flint was recovered down slope to the west of it.

Table 3: Catalogue of worked flint

Context	SF	Flake/Blade/ *Portion*	Tool	Period	Pat'n	Comments
1	-	Flake/*Fragment*	-	-	-	flake core fragment
1	-	Flake/*Whole*	-	-	-	-
1	-	Core/F*ragment*	-	-	-	flake core fragment, multiple platforms
2	-	Flake/*Proximal*	-	-	-	post-depositional edge damage
2	-	Flake/*Whole*	-	-	-	post-depositional edge damage
2	-	Flake/*Whole*	-	-	-	heat treatment, slight reddening
2	-	Flake/*Whole*	Scraper, end/side	Late Neolithic	-	semi-abrupt retouch on distal end and lateral edge of a squat flake
2	-	Flake/*Whole*	-	-	-	post-depositional edge damage
2	-	Flake/*Whole*	-	-	-	post-depositional edge 28damage
1	-	Flake/*Whole*	-	-	-	-
2	-	Flake/*Proximal*	-	-	-	-
2	-	Flake/*Whole*	-	-	-	squat flake
2	-	Flake/*Whole*	-	-	-	overshot termination
2	-	Flake/ *Distal*	-	-	-	post-depositional damage
2	-	Fragment	-	-	-	-
2	-	Flake/*Whole*	-	-	-	post-depositional edge damage
2	-	Flake/*Whole*	-	-	-	-
2	-	Flake/*Whole*	-	-	-	-
2	-	Flake/*Distal*	-	-	slight	Heat affected, fragmentation
27	-	Shatter	-	-	heavy	severe heat alteration, unintentional
28	4	Blade/*Proximal*	bladelet	Early Neolithic	slight	bladelet
28	6	Core		Early Neolithic	slight	single platform flake and bladelet core
28	5	Flake/*Whole*	-	-	heavy	-
42	9	Flake/*Whole*	-	-	medium	-
42	10	Flake/*Whole*	utilised	Neolithic	medium	utilisation near distal end, possibly a end scraper but post-depositional edge damage
59	13	Flake/*Proximal*	-	-	-	-
62	15	Blade/*Whole*	-	-	-	-
62	16	Blade/*Whole*	-	-	-	-
62	17	Flake/*Distal*	utilised		-	overshot termination
62	18	Flake/*Whole*	-	-	slight	squat flake
62	19	Core	-	Late Neolithic	-	small flake core, multiple platforms
86	21	Flake/*Whole*	-	-	-	wide striking platform
86	22	Flake/*Whole*	Scraper, end	Neolithic	-	abrupt retouch on distal end of elongated flake
91	37	Flake/*Whole*	-	-	heavy	post-depositional edge damage
96	24	Shatter	-	-	heavy	severe heat alteration, unintentional
100	27	Flake/*Proximal*	utilised	Neolithic	-	Possibly proximal end of blade, utilisation scars on one edge,

Context	SF	Flake/Blade/ *Portion*	Tool	Period	Pat'n	Comments
100	31	Flake/*Whole*	-	-	-	squat flake, elongated striking platform
122	40	Flake/*Medial*	-	-	medium	-
126		Blade/ *Whole*	-	-	-	-
126		Flake/*Whole*	-	-	-	broad striking platform
126		Flake/*Distal*	-	-		post-depositional edge damage
126		Blade/*Distal*	backed blade	Early Neolithic	heavy	backed blade, utilised
130	42	Flake	Arrow, oblique	Late Neolithic	-	abrupt and semi-abrupt bi-facial retouch
142	44	Blade/*Whole*	-	-	-	hinge termination
144	55	Blade/*Whole*	Bladelet	Early Neolithic	-	small thin blade
144	55	Flake/*Whole*	-	-	-	squat flake, broad striking platform
146	46	Flake/*Whole*	Scraper	Late Neolithic	slight	semi-abrupt retouch on lateral edge, post-depositional edge damage on distal end
155	47	Flake/*Proximal*	-	-	-	proximal end of a blade possibly
155	48	Flake/*Proximal*	-	-	-	-
155	50	Flake/*Whole*	-	-	-	hinge termination
155	54	Flake/*Whole*	utilised	-	-	overshot termination, sickle gloss
157	52	Flake/*Whole*	-	-	-	post-depositional edge damage
157	51	Flake/*Whole*	-	-	-	dorsal scars multiple directions
187	57	Flake/*Whole*	-	-	-	-
185	56	Fragment	-	-	-	-
185	56	Flake/*Proximal*	-	-	-	squat flake, post-depositional edge damage
185	56	Flake/*Whole*	-	-	-	-
187	57	Flake/*Medial*	-	-	-	post-depositional edge damage

8.2 The prehistoric pottery by Andy Chapman

A pit 100m to the south of the monument contained part of a Peterborough ware Mortlake bowl dating to the Middle/Late Neolithic. From the monument there are small groups of pottery, including sherds from two collared urns of Early Bronze Age date in the uppermost ditch fills. Some material in a harder fabric, but lacking diagnostic sherds, may be later in date perhaps even as late as the Middle Iron Age.

The majority of the ditches and pits in the southern part of the site date to the Iron Age, perhaps the early-middle Iron Age, 5th – 4th centuries BC, but there are few diagnostic sherds.

Pit 182

The earliest pottery comes from a shallow and heavily truncated pit, [182], lying over 100m to the south of the monument. It comprises about a third of a small bowl, standing 150mm high (Fig 11). The broad, overhanging rim above a deeply concave neck and pronounced shoulder, with lines of twisted cord decoration on the body; place this vessel within the Mortlake style of the Peterborough ware tradition, although it has a flat base. It is fully described in the catalogue.

A small impressed ware Neolithic bowl, from pit 182 (Scale 20mm) Fig 11

The monument

The triple-ditched monument produced small quantities of pottery, largely from the upper fills of the outer ditch (see Table 4 and the catalogue of pottery). A majority of the material came from around the eastern side of the circuit, with a smaller group to the south-west. However, the quantities are so small, 82 sherds, weighing 226g with an average sherd weight of 2.8g, that the assemblage may have come from only a small number of vessels.

The material from the outer ditch includes two small groups of decorated sherds. These comprise part of the rim of a collared urn with bold twisted-cord decoration (Fig 12) and more fragmentary rim and body sherds that appear to be from an early style collared urn with a narrow, inturned collar and eroded decoration (Fig 13), from ditch [64]. Both are in a fabric that is quite hard but is also laminating, possibly as a result of the leaching of organic inclusions. Further body sherds in a similar fabric, but with even more heavily pitted surfaces came from nearby outer ditch segments to the south-east, [30] and [92] and (SF3), from ditch [99] to the west, and from inner ditch segment [49], also on the south-east side of the monument.

Rim sherd from a collared urn (SF1) (Scale 50mm) Fig 12

Rim sherd with internal chamfer, left, and a shallow collar, right (SF14) (Scales 10mm intervals) Fig 13

Table 4: Pottery from the monument and its environs

Context/ feature Type (SF No)	sherds	Weight (g)	Vessel equivalents	comments
Pit 182 *c*100m south of monument	30 (many joining)	410	1	Mortlake bowl with twisted cord decoration
The monument				
Surface (SF1)	5	42	2	4 sherds, collared urn rim
Outer ditch				1 sherd, hard, brown surface
(9)/Pit [10] (SF2)	2	<1	1	Crumbs, prehistoric
Surface (SF3)	10	29	1	Black fabric, soft and pitted
Outer ditch				
?? (SF11)	1	4	1	Hard, brown surface
(28)/[30] (SF7)	5	5	1	Hard, brown surface
Outer ditch				
(28)/[30]	1	8	1	Black fabric, laminating and pitted
Outer ditch				
(47)/[49]	1	2	1	Grey fabric, laminating
Inner ditch				
(50)/[51] (SF12)	7	18	1	Dense shell inclusions, light brown surface
Middle ditch				
(62)/[64] (SF14)	26	87	2	24 collared urn (grey and pitted)
Outer ditch				2 hard fabric, brown surfaces
(91)/[92] (SF38)	2	5	2	1 grey and pitted
Outer ditch				1 hard brown surface
[95]/[99]	1	6	1	Hard, grey, sandy, light brown surface
Outer ditch				
(96)/[99] (SF23]	16	9	2	Grey, laminating
Outer ditch	2	6		Hard, brown surfaces
(100)/[103]	3	4	1	Dense shell inclusions, light brown surface
Outer ditch				
Monument totals	**82**	**226**		**2.8g/sherd**

In addition, there are also small body sherds in a harder fabric, with no evident mineral inclusions and smooth brown surfaces. On the western side of the monument, middle ditch [51] and the adjacent outer ditch [103] produced small quantities (10 sherds, weighing 22g) of pottery, probably from a single vessel with a

light brown surface and containing dense shell inclusions. The lack of diagnostic features makes it impossible to place these sherds in context, and they could date to anywhere between the Middle Bronze Age to Middle Iron Age.

The upper fills of the outer ditch therefore contain some material certainly of Early Bronze Age date, perhaps from collared ujrns that has been deposited within the monument and then subsequently disturbed, with portions redeposited into the upper ditch fills. The other material cannot be precisely dated, but it may derive from later activity on and around the monument, perhaps even as late as the Iron Age and in association with the nearby settlement to the south of the monument.

The southern area

With the exception of the pit [182], which contained a Neolithic bowl and pit 83, which contained possible Anglo-Saxon pottery, the features in the southern part of the site produced pottery dating to the Iron Age (Table 5).

The ditches produced very small groups of one to twelve sherds, Ditches [123], [152] and [157] contained similar sherds, all in grey fabrics with few evident mineral inclusions and smooth, brown surfaces. Ditches [152] and [157] also contained particularly thick-walled sherds, 12mm thick. Ditch [129] contained particularly thin-walled sherds, 3-4mm thick, similar to some of the pottery from pit [167], see below.

The fill (165) of pit [167] contained a small group of sherds, typically thin-walled, 6mm thick, from several vessels; hard-fired with grey to grey-brown surfaces. The fabrics contain little in the way of inclusions, although a couple are sandy, with small quartz inclusions. There are also five lumps of fired clay. This group probably dates to the Iron Age, but as they are all plain body sherds there are few diagnostic features. The preponderance of thin-walled sherds may suggest an Early-Middle Iron Age date, perhaps the 5th to mid-4th centuries BC.

The fill (144) of pit [145] produced a large assemblage of pottery, weighing 4kg, but the vast majority of this comprises plain body sherds. The small group of rim sherds indicate that quantities of three different vessels are present, along with smaller parts of at least two more. The fabrics are all broadly similar, containing no evident mineral inclusions, but slightly sandy and soft, with eroded surfaces. Some sherds are pitted, perhaps suggesting the loss of shell inclusions. A single vessel is in a slightly harder fabric, but all sherds have uneven surfaces and are poorly finished.

The group includes an open bowl form, with an everted rim with a broad flat top, 19mm wide (Fig 14, b, internal surface left and external surface right)). There is a second vessel with a similar rim, but narrower, 16mm wide, with external and internal lips (Fig 14, d). The vessel in the harder, sandier fabric has a slight shoulder below a long, shallow neck and a simple tapered upright rim (Fig 14, c). In addition, there are single rim sherds one with a rounded rim and the other with everted flat-topped rim above a shallowly concave neck. The group also includes a large lug, 22mm diameter and 70mm long (Fig 14, a). While this assemblage can be readily characterised as Iron Age in date, there are few diagnostic features to narrow the date range, although the shouldered vessel and the unusual broad flattened rims might suggest a date in the Early-Middle Iron Age.

A large lug and rim sherds of Iron Age date from pit [145] (Scale 50mm) Fig 14

The ditches in the southern area contained only small quantities of pottery, and while two pits produced larger assemblages, the preponderance of plain body sherds still leaves the chronology uncertain. However, there is a paucity of shelly fabrics, although perhaps partly a result of leaching, and an absence of scored decoration; two features that characterise Middle Iron Age assemblages in Northamptonshire. The presence of some small thin-walled vessels and at least one shouldered jar, may suggest that the entire group belongs to the Early-Middle Iron Age, perhaps the 5th to mid-4th centuries BC, although this is speculative.

Table 5: Pottery from the southern area

Context/ feature type	sherds	Weight (g)	Vessel equivalents	comments
122/123 Ditch (SF 39)	1	3	1	Grey fabric, brown surfaces
127/129 ditch	12	10	1	Thin-walled, flat rim
142/143 gully	1	1	1	--
144/145 Pit	*c*600	3990	5	Large group, including a lug and at least 5 rims
151/152 ditch	2	17	2	Hard, brown surfaces
155/157 Ditch	2	12	2	Hard, brown surfaces
165/167 pit	22 5 fired clay	45 80	*c*5	Predominance of thin-walled vessels

Catalogue of prehistoric pottery from pit 182 and the monument

Pit 182

Pit [182] produced a total of 410g of largely joining sherds, forming about a third of a vessel, including a complete profile (Fig 11). The vessel is a small bowl standing 150mm high, with a flat but uneven base, 80mm in diameter, and with a rim diameter of 200mm. The broad, overhanging rim above a deeply concave neck places this vessel within the Mortlake style of the Peterborough ware tradition. The upper body is near vertical with the lower body tapering in to the base. The fabric is soft, containing no evident mineral inclusions and has a dark grey core and inner surface and brown outer surface. Along the inner edge of the rim a thin band of additional clay had been added, to thicken the body after the forming of the broad rim, but the thickening has been partly lost. The top of the rim is decorated but this is now very eroded. The body, from below the neck to just above the base, is decorated with parallel oblique lines of twisted cord impressions, at 35 degrees to the horizontal and c5mm centre-to-centre. The surface of the vessel is eroded, so that generally only the bases of the cord impressions survive.

The monument

There is a single large sherd from the collar of a collared urn (SF1) (Fig 12) found on the surface of the outer ditch of the monument towards the south-east. The fabric contains sparse mineral inclusions, with a dark grey core and dark grey to grey-brown surfaces. The collar is up to 15mm thick at the base and the surface has been decorated with lines of oblique twisted cord impressions, perhaps forming a herring bone pattern, although only a single element of the scheme survives. Beneath the collar there is a single deep fingertip impression, 9mm in diameter. There are a further three small sherds from the same collar. Another sherd (also SF1) is in a different fabric, containing soft black inclusions, with a grey-brown core and inner surface and an orange-brown external surface. This can only be assigned a broad late prehistoric date.

The fill (62) of outer ditch segment [64] produced 26 sherds, weighing 87g, including some irregular large crumbs (SF 14). There are 24 sherds in a soft poorly-preserved fabric, with a grey-black core and grey-brown surfaces. These are mainly body sherds, but there are three rim sherds, indicating that the vessel had an inturned rim with impressed decoration on the chamfered surface (Fig 13). The decoration, although badly eroded, formed a herringbone pattern, and there were similar oblique impressions along the outer edge of the rim. There also appears to be remnants of impressed decoration, possibly oblique twisted cords impressions, on the little that remains of the external surface. Another sherd contains the base of a thickened but shallow collar, perhaps only 20mm high. The narrow collar and inturned chamfered rim, with decoration on the collar and the chamfered surface, suggests that it is a small collared urn of the primary or early series of urns (Gibson and Woods 1997, 126-130 & fig 79, 2). The pottery from ditch segment [64] also includes two plain body sherds in a harder, slightly sandy fabric, with a dark grey core and brown surfaces.

To the east, ditch segment [92] of the outer ditch produced two small sherds (SF38), one in the laminated and pitted fabric and the other in a harder fabric with a dark grey core and a brown surface, similar to the better quality sherds found elsewhere in the outer ditch.

From the surface of the outer ditch to the south-east, there are 10 sherds, up to 9mm thick, weighing 29g, in a soft poorly-preserved fabric, with a grey core and grey-brown surfaces, heavily pitted (SF3). The fabric and condition is broadly similar to the rim sherds of the small collared urn (SF14) from ditch segment [64], but there are no other surviving diagnostic features.

From the upper fill (28) of outer ditch segment [30], there are five crumbs from a single sherd, with a dark grey core, probably organic tempering, and smooth brown surfaces, but no diagnostic features (SF7). From this fill there is also a single sherd with a dark grey laminating fabric and a heavily pitted surface, similar to other sherds associated with the outer ditch (SF3 and SF14), and including the small collared urn.

From the fill (50) of the middle ditch [51] on the south-west side there are seven small sherds, weighing 18g, all from a single vessel with a dark grey core and light brown surfaces containing dense shell inclusions. A further three similar sherds come from the adjacent length of the outer ditch [103]. Fabrics containing dense shell inclusions are characteristic of the Middle Iron Age, but also occur in other periods.

Pit [10], to the immediate north of the outer ditch produced two crumbs of prehistoric pottery, weighing less than 1g, with a black laminated fabric with no mineral inclusions (SF2). It is broadly similar to the some of the material from the monument.

8.3 Worked stone objects by Andy Chapman

There are two worked stone objects from the monument, both of which are fashioned on fragments of local ironstone, perhaps utilising iron-rich nodules that required only limited reshaping.

From the fill (48) of ditch segment [49] of the inner ditch, to the south, there is a flat oval object (SF59) (Fig 15). It is 88mm long by 48mm wide and 10mm thick, with the thickness constant along the length of the object, tapering slightly towards the edges, which are rounded. The sides are slightly curved and one end is rounded while the narrower end has been broken in antiquity. This piece seems to be best interpreted as a votive axe.

The possible votive stone axe (SF59) (Scale 20mm) Fig 15

From the fill (52) of ditch segment [53] of the middle ditch, to the north-east, there is a length of rod (SF60), which is 56mm long, but broken at either end; 26-28mm wide, slightly tapering to one end; and up to 10mm thick (Fig 16). The section is plano-concave with rounded edges and a slight curve to the flat surface.

The ironstone rod fragment (SF60) (Scale 20mm) Fig 16

8.4 **The Anglo-Saxon pottery** by Paul Blinkhorn

The pottery assemblage comprised 15 sherds with a total weight of 243g. They all occurred in the fill (82) of pit [83], and are all from the same vessel, with most of sherds re-fitting to form part of the base area of a large Early/Middle Saxon (*c* AD450 – 850) jar. The fabric has moderate to dense sub-angular quartz up to 2mm, with occasional fragments of angular black flint up to 3mm. It is very typical of sites of the period in the Northampton area. At the Northampton Chalk Lane site, pottery in this and similar quartz-tempered fabrics made up 74% of Early/Middle Saxon wares present (Gryspeerdt 1981, 110). The sherds are in good condition, and appear reliably stratified.

8.5 Other finds

The only other artefact recovered from the site comprised a globule of melted lead [SF 20] found in pit [83] associated with Anglo-Saxon pottery.

9 **THE HUMAN BONE** by Anwen Caffell and Malin Holst

9.1 Summary

The majority of the remains were recovered from a large pit [192] (Burial 1) in the innermost ditch of the monument. Around 10% of the recovered assemblage was osteologically assessed by York Osteoarchaeology Ltd. The remains were disarticulated and were found to consist mostly of large bones, many of which showed oval lesions possibly indicative of peri- or post-mortem disarticulation of the remains, possibly using antler. However, only experimental tests would be able to establish the causative agent for these lesions, as they are unparalleled in Britain. Some of the bones had also been deliberately broken, often at the midshaft. In the majority of bones this had occurred post-mortem, when the bone was dry, though occasionally also in ‘green’ bones. Root impressions on many of the bones, even from the lower layers of the pit suggest that the remains had possibly been buried previously. However, bite marks by animals on a small number of bone fragments may also point to some bones having been left exposed for a limited period of time. It must be noted, though, that evidence of weathering on bones was not observed in the assessed sample. The preliminary evidence suggests deliberate disarticulation of individuals and subsequent communal burial.

Additional to the remains from Burial 1, an articulated inhumed adult, Burial,3, and one juvenile, Burial 2, were excavated, both of which were very badly preserved. However, it should be possible to determine age more precisely in these skeletons.

York Osteoarchaeology Ltd recommends a widespread AMS dating programme of the inhumed burials, the antler found in the outermost monument ditch and particularly the remains in Burial 1. It is also recommended that the remains receive full osteological macroscopic and microscopic analysis. Experimental tests using a variety of materials on fresh and dry bone may help to determine the cause of the lesions noted on many of the bones. Biomolecular analysis, such as isotope and DNA analysis might be able to provide information on diet, mobility and family relationships. Consultation with other specialists, particularly zooarchaeologists, experts in taphonomy and the Neolithic is recommended throughout this project.

It is clear that this assemblage is unique and is of national, if not of international importance, both because of its date and because of the unusual nature of lesions observed on the remains. The remains have the potential to give a so far unknown insight into Neolithic demography, health and mortuary ritual.

9.2 Introduction

Most of the material consisted of disarticulated human remains from fill (191) (Table 6), within a large elongated pit [192], which was 2.8m x 1.4m in size, and 0.4m deep, located in the innermost ditch of a triple-ditched monument (Chapman Appendix 1). During excavation, unique identification numbers had been assigned to individual bones (or small clusters of bones), and their location was 3D plotted; these bones were then bagged according to their identification number.

The preliminary assessment carried out by Chapman (Appendix 1) indicated that a minimum number of 133 individuals were present, and that most of the bones were long bones with some skull fragments and pelvic bones present. Two radiocarbon dates taken from human bone from the top and bottom of the pit indicate that the remains dated to 3360-3100 cal BC, which places them in the Middle Neolithic, a period from which very few other human remains have been recovered in England (Oliver Craig pers comm, 18/01/2012). Because of the consistent dates, the dating evidence also suggests the remains were placed in the pit as a single event. During the preliminary assessment, Chapman observed marks and lesions on the bones including cut marks, facets and general damage, some of which were thought to have occurred during disarticulation of the remains in the Neolithic.

Table 6: Contexts containing human bone

Context/ Feature	Feature description	Context description
Burial 1 191/192	Large elongated pit, 2.8m long, 1.4m wide, 0.4m deep	Large quantity of disarticulated human remains
Burial 2 91/92	Outer ditch	Scatter of bones from a single individual
Burial 3 114/115	Oval grave located 23m to the south-west of the monument	Crouched burial of an articulated skeleton
72/74	Inner ditch	Isolated bone located *c* 4m to the west of pit 192
104/106	Inner ditch	Three bones from upper fill of inner ditch
96/99	Outer ditch (upper fill)	Long bone fragments

Human remains were also recovered from other contexts (see Table 6). These included a scatter of bones on the edge of the outer ditch of the monument (Burial 2, fill (91), a crouched burial in a shallow pit [115] located 23m to the south-west of the monument (Burial 3, fill (114), an isolated bone from fill (72) in the inner ditch located 4m to the west of the large pit [192], three bones from the upper fill (104) of the inner

ditch that could potentially represent another individual and long bone fragments from the outer ditch fill (96).

Aims

The aims of the assessment included quantification of the material, assessing its condition and potential for further analysis regarding the standard osteological data collected (as recommended by Mays *et al* 2002). Given the unique nature of the assemblage, consideration was given to the methods of recording that might be employed during analysis, as the usual approach to recording disarticulated remains would not record these bones in sufficient detail. Considerable attention was also devoted to investigating the unusual lesions that were present and seeking advice and opinions on their likely cause or purpose.

Methods

The disarticulated remains and burials were assessed following English Heritage guidelines (Mays *et al* 2002). The completeness of the inhumation burials was recorded (<25%, 25-75%, and >75%), and the degree of fragmentation was classed as slight, moderate or severe. The surface preservation was scored as 0/1 (good, little surface erosion), 2/3 (moderate, erosion obscuring some surface details), or 4/5 (poor, surface heavily eroded with loss of detail); adapted from McKinley (2004). The potential of the remains to supply osteological information on age, sex, stature and cranial metrics was assessed, and a note was made of any pathological conditions that would require more detailed recording.

Initially, the assessment of the disarticulated remains focussed on considering suitable approaches to recording these, and investigation of the lesions identified by Chapman (Appendix 1) during his first evaluation of the assemblage. Following this, a quick assessment was made of the number of bones (and bone fragments) from each box, and the proportion of bones with obvious lesions was noted. The surface condition of the disarticulated remains was scored in the same way as for the articulated burials.

9.3 Inhumation burials and isolated bones

Both inhumed skeletons were incomplete (less than 25%), and extremely fragmented, with the bones broken into multiple small pieces (Table 7). Both inhumations had suffered a degree of surface erosion that had stripped much of the outer surface of the bone and eroded the edges of the broken fragments. Fragments of skull (including jaw bones and teeth) and long bones were present in both individuals.

Table 7: Catalogue of inhumation burials

Burial no.	Condition*			Broad Age Category	Potential for:			Pathology
	C	SP	F		Sex	Stature	Cranial Metrics	
2 (91)	1-25%	4/5	Severe	Non-adult	-	-	-	Potential to record dental disease
3 (114)	1-25%	4/5	Severe	Adult	N	N	N	Potential to record dental disease

* C = Completeness; SP = Surface Preservation, adapted from McKinley (2004); F = Fragmentation

Disarticulated remains

The disarticulated remains from Burial 1 were so unusual and so great in quantity that they will be discussed in their own section below. The isolated bone from fill (72) of inner ditch [74] was probably a proximal humerus or femur, and was severely eroded

(grade 4/5). The bones from fill (104) inner ditch [106] comprised two femora and a fragment of os coxa (pelvis); as such it must be considered whether they represent the remains of a single individual. Again erosion was severe (grade 4/5), fragmentation was moderate and the bones were incomplete. The bone from Context S27 comprised severely eroded (grade 4/5) long bone fragments.

9.4 The disarticulated remains

A total of 52 skeleton boxes of disarticulated bone were recovered from Burial 1, a sample of six of which was assessed by York Osteoarchaeology Ltd. These included bones from Layers 8, 9, 10 and 11, as well as a box containing bones with marks and lesions observed during the initial assessment (labelled 'photographed bones'; Table 8). The majority of the assessed bone derived from the middle layers of the pit and it has to be assumed that the results of this assessment can be extrapolated to the remaining assemblage.

Table 8: Catalogue of assessed boxes from Burial 1

Box Number	Layer	Bone ID	Number of Bags	Number of Bones	Number of Fragments
24	Layer 8	631-669	38	89	127
27	Layer 9	719-760	38	101	139
33	Layer 10	877-903	43	277	320
36	Layer 11	961-989	28	91	130
37	Layer 11	990-1004 + fragments	17	262	262
52	Layers 2, 3, 10-16	Photographed bones	17	51	104

In total, 871 bones and 1,082 bone fragments were assessed. The number of bone fragments per box ranged from 104 to 320, with an average of 180.3 fragments. The number of bones per box ranged from 51 to 277, with an average of 145.2 (although it must be borne in mind that the 'bone count' was conducted rapidly and on analysis it may transpire that fragments counted as separate bones may be part of the same bone). If these averages are extrapolated, then the full quantity of bone from Burial 1 could be in the region of 7,500 bones and 9,400 bone fragments.

Almost all bones were incomplete, with nine complete (but fragmented) bones present in Box 52. Often bones were in multiple fragments, although usually the main fragments were fairly large (e.g. proximal half of a femur in one piece, with ten smaller fragments of distal shaft). Fortunately, the excavation method meant these fragments were recorded and lifted together. However, it should be borne in mind that further fragments of identified bones may be present in the bags containing small fragments, or that parts of the same bone may have been located in different parts of the pit and so given different identification numbers during excavation.

The majority of bones and bone fragments had a relatively consistent surface preservation, scored as grade 2/3. There was some erosion of the bone surfaces, with small root impressions frequently observed. This erosion had acted to obscure some of the finer surface detail, but usually the profile of the bone was maintained and some surface morphology could still be observed. A small number of bones had worse surface erosion with considerable loss of surface detail, scored as grade 4/5. The presence of small root impressions on the bone surfaces was observed in bones from most layers (those available for assessment), including bones from the lowest layer in the pit (Layer 16). Terry O'Connor (pers comm 09/03/2012) observed that this could indicate burial elsewhere prior to interment in the pit, since bones in the lower layer would be unlikely to exhibit root marks. However, this needs verifying with the excavators.

As noted by Chapman during the initial assessment, most bones were long bones. These primarily comprised the humerus, femur and tibia, but the radius, ulna and fibula were also present in smaller numbers. Os coxae (pelvic blades) were also present, as were scapulae and one clavicle from the shoulder girdle. Cranial bones were present, in some cases probably representing relatively complete crania, sometimes with associated teeth. Few smaller bones were recorded; occasional ribs and vertebrae were observed, however, no hand or foot bones were noted during assessment.

Linear marks

All linear marks on or in the bone surfaces were examined carefully to assess the colour of the exposed edges, and the way in which the bone had broken. All such marks were observed to have very pale margins, and the bone exposed was light in colour. This light colouration indicates fairly certainly that the linear marks are due to recent damage. Any cuts that had been made before the bone was buried would have the same colour as the rest of the bone cortex. Furthermore, the way in which the marks had penetrated the bone was more consistent with recent post-mortem damage than with cuts made on fresh bone (comparisons were made with images of peri-mortem cuts made by flint tools on bones, for example those in White 1992). Consultation with other specialists, particularly human and animal bone specialists, and specialists used to seeing the effects of flint tools on bone, who were able to observe the bones themselves, confirmed the interpretation of these marks as recent post-mortem damage.

(Authors note: while it might be agreed that surface scratch marks, as illustrated in Appendix 1, Fig 2, might be of more recent origin, cuts, chop or gouge marks to the bones, as illustrated in Appendix 1, Figs 3, 12 and 19 are considered by the excavators to be damage present when excavated, and therefore prior to deposition, and not recent damage. The issue of this particular aaspect of bone damage will therefore need further consideration as analysis progresses.)

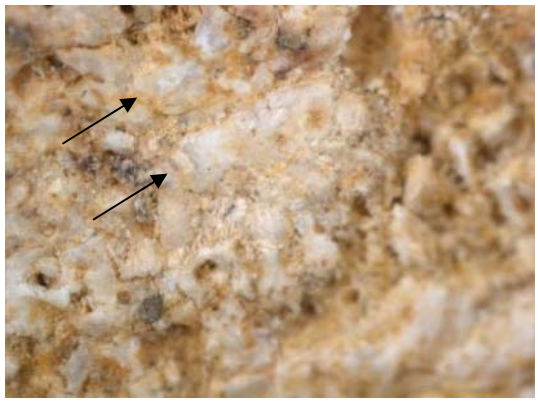
Oval facets

Numerous unusual lesions were observed on the bones from Burial 1, described by Chapman (Appendix 1) as ‘facets’. They manifested as oval or semi-oval depressions with a smooth curved outline (Fig 17), the size of these lesions varied: some were quite small (*c* 2 x 5mm), whereas others were larger (*c* 15 x 20mm). The overall shape, especially the profile (gentle curve) was incredibly consistent, although flat oval lesions were also noted in small numbers. They were usually shallow, but occasionally deep. The margins were clear and fairly sharp, and some had small very fine cracks running along the edge of the lesion. The floors of the lesions usually consisted of solid bone, and the surfaces were often paler than the surrounding bone (but not always). When pale, the colour was a creamy-ivory colour consistent with the paler areas visible elsewhere on the cortical bone, rather than being the very pale light colour seen in the obvious recent breaks. Some lesions showed evidence for the outer cortex being crushed and compressed into the lesion (Fig 18) and under magnification the surface was made up of multiple small fragments compressed together (Fig 19). These surfaces showed evidence for increased mineralisation (Fig 20), which would be consistent with crushing of the surface creating multiple small cracks (Charlie King pers comm; Jenny Jones pers com 06/03/2012).

Oval facet on head of femur from Layer 13 Fig 17

Oval facet on head of femur (Bone 1307) from Layer 16 Fig 18

Facet on proximal tibia (Bone 924) from Layer 11 Fig 19



Close-up of facet on proximal tibia (Bone 924) from Layer 11, showing mineralisation (arrows) Fig 20

All photographs by Joe Owen using a Leica MZ16 A binocular microscope

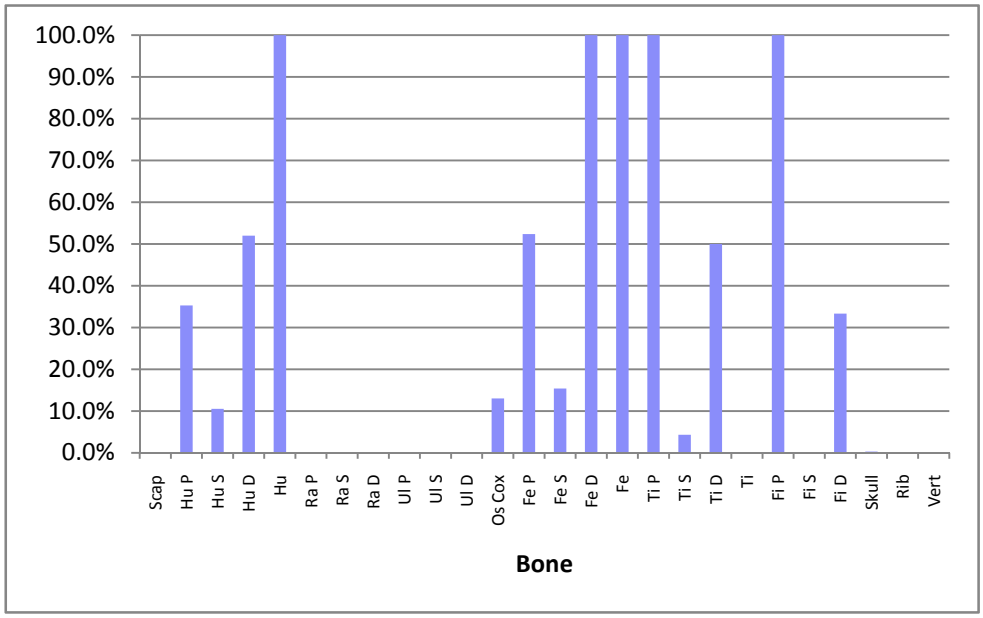
Some lesions had shiny or very shiny surfaces suggesting a degree of polishing, and occasionally striations running along the length of the oval depression could be seen. The degree of polishing appeared to vary, with some seeming very well polished and others appearing as simply crushed bone with no real evidence for polishing. The polishing of these lesions looked remarkably like eburnation, which is a term used to describe polishing of the joint surfaces that occurs in osteoarthritis once the protective joint cartilage is destroyed and bone comes into contact with bone. Since eburnated areas (on joints) are frequently paler in colour than the surrounding bone surface, it could be that the paler colour of the lesions is associated with polishing.

In terms of location, these oval facets were observed most frequently on the proximal and distal end of the humerus, femur and tibia, but they also occurred on the shafts of those bones, as well as on the proximal and distal fibula, os coxa (pelvis) and an unidentified fragment. The percentages in Graph 1 are a relatively crude indication of the prevalence of these lesions based on a quick assessment. On the proximal femur, the lesions were concentrated on the head, but lesions also occurred on the greater and lesser trochanters (upper part of femur); when the lesions occurred on the latter, they were almost invariably aligned with lesions present on the head. Such alignment of a facet on the lesser trochanter and the head is visible on the femur illustrated in Figure 8 in the assessment prepared by Chapman (Appendix 1), and alignment between a facet on the greater trochanter and the head is visible on the

femur illustrated in Figure 6 (Chapman, Appendix 1). In the latter bone, the facet on the greater trochanter was highly polished and striations were clearly visible.

Crushed areas (not defined facets) were sometimes observed on the greater and lesser trochanters, and intertrochanteric crest, again associated with oval facets on the femoral heads. No such facets were observed on the internal surface or margins of any acetabulum (hip socket) assessed, but they were occasionally present elsewhere on the os coxae (e.g. on the ischium).

A small number of definite oval facets were present on the shafts of the long bones, but more frequently areas of highly polished bone were observed that were otherwise normal (i.e. there was no concavity, and no clear outlines to the polished area). Some of these polished lesions may be normal, but it is possible that some (or all) are associated with the definite polished oval facets.



Graph 1: Distribution of facets/oval lesions on human bone deposit

These oval facets were so unusual that they were beyond the experience of the authors. It was felt that establishing whether or not these lesions were due to post-mortem damage or whether they were genuine modifications made to the bone during the Neolithic period was of considerable importance. Consequently, the lesions or photographs of the lesions were shown to several individuals in order to establish whether anyone knew of parallels, to seek opinions on whether these were genuine lesions or post-mortem damage, and if the former, how they thought these might have been caused (a list of individuals consulted is provided in Appendix 2).

None of these experts had seen similar lesions before. Most individuals consulted felt that these oval lesions were deliberate Neolithic modifications to the bones rather than post-mortem damage. One concern expressed, based on the pale colour of the surfaces, was whether the facets could have been caused over time by the pressure of some bones resting on the bones beneath, since the bones were packed tightly together into the large pit. Don Brothwell (pers comm 07/03/2012) reiterated this, suggesting that although the lesions may well have been caused deliberately, it is vital to exclude any possible post-mortem causes.

Reasons given for the antiquity of the oval facets included the consistency in the shape, profile and location of the lesions, the way the bone had been compressed

and crushed into the surfaces without causing irregular breaks to the bones or exposing trabecular (spongy) bone, and the polishing and striations visible on the facet surfaces. It was generally felt that such polishing could only occur if the bone was relatively fresh, although the possibility that the shiny nature was due to the more intensive mineralisation of these surfaces was raised (Charlie King, pers comm 06/03/2012). However, this would not explain the presence of striations. Jenny Jones (pers comm.06/03/2012) observed that some of the facets had a darker patina that would only occur during the burial environment. The pale colour of many of the lesions concerned Don Brothwell. One possible reason could be that bone polishing tends to lead to a lighter surface in the polished area, based on observations of pathological bone polishing during joint disease. This is just a theory at the moment, and should be investigated further. Another reason suggested for the likely antiquity of the lesions was the consistency of the facet locations, although this observation was made when most appeared to be located on the heads of the femora (based on the contents of Box 52) and before the quick assessment of the remaining boxes had indicated the wider distribution of the lesions. Nonetheless, the facets do tend to share similarities in location, but full analysis will be required to identify any patterns.

Opinions on how the lesions were caused varied. Some experts thought that the bones had been hit with stones or objects made of antler, or that the bones had been used to hit other objects. Some thought that objects (made of stone, bone or antler) had been used to rub the surfaces of the bones. It was suggested that a cylindrical object was pressed or pushed across the surface of the bone with great force as a single event, but others suggested that repeated rubbing of the surface must have occurred. Those who specialised in lithics agreed that flint could not be the implement used, although Mark White (pers comm 06/03/2012) suggested a highly polished axe might have caused the lesions. Based on the similarity of the polished bone to that seen in pathological processes (eburnation, where bone rubs on bone), and the rounded profile of the lesions, the authors have proposed antler as a likely material. This suggestion was also made by individuals such as Terry O'Connor (pers comm 09/03/2012) and Peter Rowley-Conwy (pers comm 06/03/2012). The fact that lesions on the trochanters and heads of the femora were aligned suggests that the implement used must be at least *c* 100mm long.

A variety of suggestions were made as to why the facets were present. Proper interpretation of these lesions can only take place once the full analysis of the material has been completed, and the prevalence of oval facet occurrence and patterns in location are known. Nevertheless, preliminary suggestions included that these lesions were made during attempts to disarticulate the skeleton, that they were made in an attempt to break the bones up, that the bones were being used for a particular purpose and the facets were either deliberately crafted to assist in that purpose (ie the bones were tools) or that the facets were an accidental by-product of using the bones for that purpose, maybe being attached to objects or being hung up for display. Some thought the bones must have been disarticulated already when the facets were created.

Puncture marks

Small depressions, or punctures, were observed on seven bones, most frequently on the head of the femur (14.3% of femoral heads) and humerus (11.8% of humeral heads). These were roughly circular, around 3-4mm in diameter, with the outer layers of the bone cortex pushed in at the centre but still attached at the margins. All damaged areas were consistent in colour with the surrounding cortex. More than one puncture was often observed on the same bone. These lesions were probably made by animal teeth and could indicate gnawing or scavenging (Terry O'Connor, pers comm 09/03/2012).

Break patterns

Some recent breaks to the bones were observed, which could be distinguished easily by the pale colour of the break surface compared to the rest of the bone cortex. However, other breaks had a colour consistent with the surrounding cortex, whose surfaces were densely packed with soil. These breaks were old and probably occurred around the time of deposition, or at least long enough ago for the surfaces to attain the same colour as the rest of the bone surfaces. Often multiple fragments were present (sometimes quite small) indicating these breaks must have occurred *in situ*, and ordinarily it would be assumed the breaks had occurred naturally due to compression while the bone was in the ground. However, an interesting feature was that a deep, sharp-edged fragment, consistent in colour with the surrounding bone, was frequently missing from the bone shaft in the location of these old breaks, and Terry O'Connor (pers comm 09/03/2012) has implied that these cannot have occurred by accident. He suggested that these lesions indicate the bone shafts were deliberately broken, and that these breaks occurred once the bone was no longer green. He also though that it is likely that an implement such as a stone was used to hit the bone, causing breakage at the midshaft of the bone and loss of a small bone fragment at the site of the impact.

Such a missing fragment was observed on the posterior midshaft of femur (ID 1307), located on and slightly medial to the linea aspera (a linear raised area of bone at the back of the femur), and immediately inferior to an old post-mortem transverse break and at the superior end of a vertical old post-mortem break. It measured 17.1mm long (superior-inferior), 5.3mm wide (medial-lateral), and was *c* 2.3mm deep. The margins were sharp and angular, the outline roughly rectangular, and it had a V-shaped profile. The lateral wall was straight, whereas the medial wall was slightly stepped towards the distal end. The rest of the distal shaft was broken into nine fragments (all old breaks).

A small number of long bone shafts (often the femur) had evidence for fresh spiral breaks (i.e. occurring while the bone was still green) through the midshaft. These breaks are not typically observed in human bone and were unfamiliar to the authors (and other human bone specialists), but all animal bone specialists (Terry O'Connor pers comm 09/03/2012, Peter Rowley-Conwy, and Beth Upex pers comm 06/03/2012) agreed that these were typical of shaft fractures observed in animal bone, often made to extract marrow. This does not mean that marrow extraction was being carried out at Banbury Lane, but it could indicate that breaking the long bone shafts was an important part of the mortuary ritual, and that some shafts were broken while they were still green and others while they were dry, thus resulting in different fracture patterns. An example of such a fresh spiral break was observed in a femur (ID 1214) from Layer 14.

Worked bone

One fragment of femur had an unusual shallow U shape removed from the shaft. The shape was such that is must have been created artificially, as bone would be very unlikely to break in such a way. The end of the shaft close to the U was flat and smooth, and appeared as if it too may have been worked (although the presence of soil on the surface hindered observation). This fragment was examined by Jenny Jones (pers comm 06/03/2012), who could see no obvious tool marks. She observed some shallow stepping in the surface at one end of the curve, which might have been saw marks, but the marks were not distinctive enough to be certain. One side of the U had sharp clear margins with no signs of wear, suggesting that the object was not used (or not used for a long time) prior to deposition. Although the other side of the U had more rounded margins the colour was light, suggesting this edge had been eroded slightly post-mortem. Terry O'Connor (pers comm 09/03/2012) thought that it

would have been difficult to create the curvature on both sides of the U, as this is not the natural way bone breaks.

Don Brothwell (pers comm 07/03/2012) suggested that it was the segment that had been removed from the shaft that was of interest to the Neolithic people and that the shaft itself was a by-product. Jenny Jones pers comm 06/03/2012) felt, however, that if that were the case then it would be easier to cut the required length of shaft and shape the fragment as desired rather than try to cut it out of the bone in such a careful way. She felt that the shaft itself was deliberately shaped in that fashion for a purpose, as did Peter Rowley-Conwy (pers comm 06/03/2012). Peter Rowley-Conwy wondered if the shaft was intended to support something pushed into the medullary cavity.

10 FAUNAL AND ENVIRONMENTAL EVIDENCE

10.1 Animal bone by Laszlo Lichtenstein

A total of 30 (NISP) animal bone elementsand fragments, excluding antler, were collected from fills of Neolithic, Bronze Age and Iron Age features, weighing a total of 44g. Following cleaning and drying all fragments of animal bone were analysed and recorded, using standard zooarchaeological methods. This material was analysed to determine the taxa present, state of preservation and it is potential to provide evidence on the function and ecomomy of the site.

Method

The animal bone was identified using the reference collections of Northamptonshire Archaeology and the author, and guidelines from Schmid (1972), Driesch (1979), Sisson & Grossman (1953) and Feher (1990).

All the animal remains were counted and weighed, and where possible identified to species, anatomical element, fragmentation, side, zone and fusion. Bones that could not be identified to species were, where possible, categorised according to the relative size of the animal represented (large ungulate size: cattle or horse sized, small ungulate size: pig or sheep/goat). All fragments were recorded. Unfortunatelly biometrical data was not possible to note.

The animal bone

This very small assemblage of 30 fragments is too small to warrant full analysis, although it contains fragments, including three teeth from cattle (Table 9). The presence of *rodentia* bones, including mouse are likely to be intrusive animals, present as natural fatalities.

From Area 1 the material was recovered from Neolithic/Bronze Age pit (13)/[17]; the fills of Neolithic monument outer ditch (31)/[32] and (89)/[90] and from the fill of the human bone pit [192].

From Area 2 the material came from Early/Middle Iron Age enclosure ditch (130)/[132] and from pit (144)/[145].

Table 9: Animal bone present (including tooth)

Fill/Cut	**13/17**	**31/32**	**89/90**	**108/109***	**191/192**	**130/132**	**144/145***	**Total**
Feature	***Pit***	***Outer Ditch***	***Outer Ditch***	***Pit base of OD***	***Burial Pit***	***Ditch***	***Pit***	
Date	**?Neo/ BA**	**L Neo/ EBA**	**L Neo/ EBA**	**M Neo**	**M Neo**	**E/M IA**	**E/M IA**	
Cattle	-	1	1	-	-	1	-	3
Large ungulate	-	-	-	-	-	-	1	1
Small ungulate	6	-	-	-	-	-	-	6
Unident	-	-	-	3	-	-	-	3
Rodentia	-		-	2	15	-	-	17
Total	**6**	**1**	**1**	**5**	**15**	**1**	**1**	**30**

Key: Neo/BA=Neolithic/Bronze Age; L Neo/EBA=Late Neolithic/Early Bronze Age; M/L Neo=Middle/Late Neolithic; E/M IA= Early/Middle Iron Age

* fragments from soil sample

The state of preservation of the bone from the site is poor. The fragmentation and surface abrasion was very high (Table 10). All bone surfaces are abraded, sometimes severely and distorted by acidic soils. No complete long bones were recorded.

Burnt bone recovered from context (144), was a large ungulate size animal long bone fragment. No evidence for canid gnawing, butchery, bone working or pathological signs were observed. No fish, amphibian bones were recovered.

This very small size of the assemblage precludes any attempt at interpreting the settlement's economy and animal husbandry practices.

Table 10: Size of the animal bone assemblage (excluding teeth)

Size (mm)	Count	Percentage
<20	27	90%
20-50	3	10%
Total	**30**	**100%**

Antlers

A total of 3.433kg of antler were collected from the fills of the triple-ditched monument. Following cleaning and drying all fragments were analysed and recorded (Table 11). The major deposits comprise four lengths, totalling 1.74kg, now fragmented, placed in a pit [109], in the base of the outer ditch to the north-east, and a shaft length and a tine, both also fragmented, in the fills of the outer ditch (97 & 100)/[99], to the south-west. Other outer ditch segments and a single inner ditch segment produced small quantities of fragments, weiging from 7-50g, which appear to comprise individual fragmented tines.

Table 11: Red deer antler representation

Cut/fill	28/30	31/32	96/99	97/99	100/99	104/106	108/109	Total
Feature	OD SE	OD SSW	OD SW	OD SW	OD SW	ID N	Pit base of OD NE	
Weight (g)	28	50	22	310	1277	7	1739	3433
Fragments	11	49	13	29	29	1	48	180

OD: outer ditch; ID inner ditch; with segment indicated by compass directions

The red deer antler may have been brought into the site as collected shed antler, but only one burr end is present within the assemblage. The group in pit [109] contains two crowns, perhaps from the same animal, so the total assemblage has come from at least two different adult red deer.

Evidence of working had been seen on only of two fragments of one antler, which was a worked piece of shed antler from (108), pit [109]. The top end of the trez tine and the lower end of the beam had been rough-hewn (SF32). This piece of antler had been used as some kind of tool (Fig 21).

Worked antler from pit [109] (SF32) Fig 21

10.2 Plant macrofossils and charcoal by Val Fryer

Samples for the retrieval of the plant macrofossil assemblages were taken from across the excavated area, and 18 were submitted for assessment.

The samples were bulk floated by NA and the flots were collected in a 300 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x 16 and the plant macrofossils and other remains noted are listed in Tables 12 and 13. Nomenclature within the tables follows Stace (1997). All plant remains were charred. Modern roots, seeds, arthropod remains and animal droppings were also recorded. All cereals/seeds noted during assessment were removed from the flots and placed in individual glass vials. If required, all should be suitable for dating, although the density of material is generally very low, thereby decreasing the potential accuracy of any dates received.

Results

Most assemblages were extremely small (considerably less than 0.1 litre in volume), with some containing little other than occasional small pieces of charcoal/charred wood. Cereal grains and seeds of common weeds were noted within nine samples, although most were only present as single specimens within an assemblage. Preservation was moderately good, although some grains were very fragmented and abraded.

Of the identifiable cereals, barley (*Hordeum* sp.) was predominant, although possible wheat (*Triticum* sp.) grains were noted within the assemblages from Early- to Middle-Iron Age pit/oven [141] (sample 21) and Iron Age pit [162] (sample 25). Weed seeds were especially scarce, occurring within only four assemblages. All were of common segetal/grassland species, namely small legumes (Fabaceae), black bindweed (*Fallopia convolvulus*) and a small grass (Poaceae). A single sloe (*Prunus spinosa*) fruit stone was present within sample 20, also from oven [141]. Charcoal/charred wood fragments were present throughout. Neolithic grave [92] contained an unusually high density of charcoal for a feature of this type, although it was noted that most fragments were heavily abraded, possibly indicating that the material had been scattered and exposed to weather for some considerable period prior to being incorporated within the grave fill. Occasional pieces of charred root or stem and fragments of indeterminate fruit stone or nutshell were also recorded.

Other remains were generally scarce, although Neolithic pit [192] containing the human bone assemblage did contain a high density of comminuted bone fragments. Although pieces of coal were recorded within a number of contexts, all were extremely small and were probably present as ‘coal dust’, a common derivative of either the spreading of night soil during the post-medieval period or the recent use of steam implements on the land. As this material is so small, it is easily distributed through the soil column via root channels or other forms of bioturbation, and it does not necessarily imply that features/contexts have suffered any great degree of modern disturbance.

Table 12: Charred plant remains from Area 1

Sample No.	1	2	3	4	5	7	8	10	11	12	16
Context No.	*28*	*31*	*44*	*62*	*72*	*191*	*86*	*96*	*91*	*108*	*114*
Feature No.	**30**	**32**	**46**	**64**	**74**	**192**	**88**	**99**	**92**	**109**	**115**
Feature type	**OD**	**OD**	**ID**	**OD**	**ID**	**Burial pit**	**OD**	**OD**	**B2**	**Pit OD**	**B3**
Date	***Neo***	***Neo***	***Neo***	***Neo***	***Neo***	***Neo***	***Neo***	***Neo***	***Neo***	***Neo***	***?Neo***
Cereals											
Hordeum sp. (grains)	-	-	-	-	x	x	-	x	-	-	-
Cereal indet. (grains)	-	xcffg	-	-	-	x	-	-	x	-	-
Herbs											
Fabaceae indet.	-	-	-	-	-	x	-	-	-	-	-
Other plant macrofossils											
Charcoal <2mm	xx	xx	xx	xx	x	xxx	xxxx	xx	xxxx	x	x
Charcoal >2mm	x	x	x	x	-	x	xxxx	x	xxxx	-	-
Charcoal >5mm	-	-	-	-	-	-	xx	x	xx	-	-
Charred root/stem	-	x	-	-	-	-	x	-	-	-	-
Indet.fruitstone/nutshell	-	-	-	-	-	-	xcf	x	xcf	-	-
Other remains											
Black porous 'cokey' material	-	-	-	-	x	x	-	x	-	-	-
Black tarry material	-	-	-	-	-	-	-	-	-	x	-
Bone	-	-	-	-	-	xxxx	x	-	x	-	x
Burnt/fired clay	-	-	-	-	-	-	x	-	-	-	-
Burnt stone	xcf	-	-	-	-	-	-	-	-	xcf	-
Small coal frags.	-	-	x	-	-	x	x	x	-	-	-
Small mammal/amphib bones		-	-	-	-	xpmc	-	-	-	-	-
Sample volume (l)	**40**	**40**	**40**	-	**40**	**30**	**40**	**40**	**40**	**40**	**10**
Volume of flot (l)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**0.2**	**<0.1**	**0.5**	**<0.1**	**<0.1**
% flot sorted	**100**	**100**	**100**	**100**	**100**	**100**	**50**	**100**	**25**	**100**	**100**

B2: Burial 2 (juvenile, outer ditch), B3: Burial 3 (crouched inhumation)

Table 13: Charred plant remains from Area 2

Sample No.	**20**	**21**	**29**	**23**	**25**	**27**	**6**
Context No.	***139***	***140***	***128***	***144***	***161***	***168***	***82***
Feature No.	141	141	129	145	162	169	83
Feature type	**P/O**	**P/O**	**BD**	**Pit**	**Pit**	**Pit**	**Pit**
Date	***?E/MIA***	***?E/MIA***	***?E/MIA***	***IA***	***IA***	***IA***	***A/S***
Cereals							
Hordeum sp. (grains)	xcf	x	-	-	-	x	-
Triticum sp. (grains)	-	xcf	-	-	x	-	-
Cereal indet. (grains)	x	xx	-	-	-	-	-
Herbs							
Fabaceae indet.	-	x	x	-	-	-	-
Fallopia convolvulus (L.)A.Love	-	x	-	-	-	-	-
Small Poaceae indet.	-	-	-	-	-	x	-
Tree/shrub macrofossils							
Prunus spinosa L.	x	-	-	-	-	-	-
Other plant macrofossils							
Charcoal <2mm	xxxx	xxxx	xx	xxxx	xxx	xxxx	xxxx
Charcoal >2mm	xxxx	xxxx	x	xxxx	x	xxxx	xxxx
Charcoal >5mm	x	xx	x	x	-	x	xxxx
Charcoal >10mm	-	xx	-	x	-	x	xxx
Charred root/stem	-	-	-	-	x	x	-
Indet.seeds	x	xcf	-	-	-	x	-
Other remains							
Black porous 'cokey' material	x	-	-	-	-	-	-
Bone	x	-	-	-	-	-	-
Sample volume (l)	**10**	**10**	**40**	**40**	**10**	**8**	**10**
Volume of flot (l)	**0.1**	**0.1**	**<0.1**	**0.1**	**<0.1**	**0.6**	**0.5**
% flot sorted	**100**	**100**	**100**	**100**	**100**	**25**	**25**

Key to Tables
x = 1 – 10 specimens xx = 11 – 50 specimens xxx = 51 – 100 specimens xxxx = 100+ specimens
cf = compare fg = fragment pmc = possible modern contaminant RD = Ring-ditch
GF = grave fill P/O = pit/oven BD = Boundary ditch
Neo = Neolithic E/MIA – Early to Middle Iron Age IA = Iron Age A/S = Anglo-Saxon

10.3 Radiocarbon dating

In order to provide an initial assessment as to the date of the human remains in pit [192], Burial 1, two radiocarbon dates have been obtained. Samples were taken from bones at the base and the top of the deposit. The results show that the bone dates to the Middle Neolithic, sometime between 3360-3100 cal BC.

Table 14: Radiocarbon dates

Laboratory & Sample No.	Context	Sample details	C13/C12 N15/N14	Conventional Radiocarbon Age BP	Cal BC intercept 95% confidence
Beta-308614 NBL/19201	Pit 192 Layer 1 (Bone 18)	Human bone (clavicle) 10g	-21.9 10.6	4530+/-30	3360-3260 3240-3100
Beta-308615 NBL/19216	Pit 192 Layer 16 (frags)	Human bone (fibula) 14g	-21.4 -2.5	4510+/-30	3360-3090

Laboratory: Beta Analytic, Miami, Florida, USA
Calibration: INTCAL04 Radiocarbon Age Calibration

The C13/C12 ratio for these bones is more depleted than normal, at -21.4 and -21.9, as the typical range for most animals is between -9 and -21 (Beta Analytic pers comm.). High negative values can indicate the presence of contamination from more recent humic acids, which would tend to bias the date to a more recent value. However, depleted ratios can also be caused by other factors, including starvation, disease and partial heating or cooking of the bone. There is no apparent evidence for heating or cooking, but the possibilities of starvation and/or disease may be factors that will contribute further to the understanding and interpretation of these individuals in the mortuary pit, as analysis progresses.

11 SUMMARY OF POTENTIAL AND RECOMMENDATIONS FOR FUTURE WORK

11.1 Archaeological features

Stratigraphic analysis is largely complete and the results described above will be used to form the basis of a full site narrative which will incorporate the results of the specialist analyses. The following sections provide some of the context for the results of the excavations and provide some comparative material and avenues for further research so that the results can be placed in their proper context.

Middle Neolithic to Early Bronze Age

The monument

The triple-ditched monument remains enigmatic. Before excavation it was thought that it might be considered a 'henge', however, the size, form and dating do not fit. In terms of date it fits within the rather mixed group of Middle Neolithic oval barrows, as defined by the English Heritage monument class descriptions (http://www.eng-h.gov.uk/mpp/mcd/intro2.htm).

It may be that the understanding of the monument will come from an examination of the different elements that go to make it up rather than looking for direct parallels. Rather than trying to fit the monument into a specific class of monument its potential would be from identifying which traditions and chronological developments it was associated with. Specific elements may include:

- Pits in the base of the ditch
- Deposition of deer antler and other 'special' deposits
- The excavation of ditches as a series of elongated pits
- Human remains within the ditch fills
- 'Closing' of entrances
- Insertion of multiple burials
- The addition of a mound as a final act.

When considered in this regard, there are certainly parallels with elements from such as the later Dorchester hengiform monuments (Atkinson *et al* 1954). Site XI at Dorchester was a triple ditch monument whose outer ditch was initially formed by the digging of a series of contiguous pits. It also contained a much shallower middle ditch. Sites IV, V and VI had 'holes' dug into the base of the ditches, similar to the pit in the base of the outer ditch at Banbury Lane. The deposition of antlers within monuments is well attested. At Barrow Hills, Oxfordshire, Ring Ditch 611 contained carefully placed antlers in the base of a small hengiform monument (Barclay and Halpin 1998).

Multiple-ditched enclosures are known from aerial photography in the county. However, the National Mapping Programme has noted that of the 36 ring ditches recorded by the Northamptonshire NMP which have at least two circuits only four of these have three ditches (Deegan and Foard 2007, 56). However, the site at Banbury Lane had not previously been recognised by aerial photography and other sites may wait discovery through such as geophysical survey. It would be profitable to compare the Banbury Lane site with known examples from aerial photography and explore 'grey literature' for any similar sites that may have emerged through geophysical survey.

The monument was contemporary with the later phases of activity at Briar Hill and as such it may be possible to start looking at the Banbury Lane site in terms of a wider ritual landscape. However, much of the potential of the monument may not be

realised until radiocarbon dates have provided a more secure dating for its elements and related features.

Apart from the monument itself, the deposition of the human bone in the pit may be considered on its own terms, perhaps as something imposed on the monument rather than as part of the development of the monument. An unusual, if not a unique event that needed a location.

The bone deposit
The unique character of the deposit makes comparisons difficult. The deposition of such a mass of disarticulated remains appears unknown from the United Kingdom and the post-mortem lesions and 'modifications' appear unique. Possible parallels that have been offered come from the Continent and these refer to the victims of conflict such as at Talheim, Germany. So far, analysis of the bones has not indicated that the Banbury Lane remains are associated with warfare or conflict; however, this may emerge as a possibility.

Much of the potential for the bone deposit will inevitably focus on the osteoarchaeological analysis. However, the patterns of deposition within the assemblage which were subjectively noted during excavation should be explored. The composition and patterning could also usefully be compared to other human bone deposits from the Neolithic period.

Once the chronology of the monument is established, it may be possible to determine when the bones were placed within the monument. Further radiocarbon dates will be needed for this which in turn may also allow an exploration of the reasons for depletion in the C13/C12 ratio identified during the initial radiocarbon assessment.

Other features
The possible satellite burial will be best understood when a radiocarbon date is obtained as this will help to elucidate its relationship with the monument. The surrounding pits have little intrinsic potential but should be considered in light of their relationship with the monument.

Iron Age
The lack of artefactual or ecofactual evidence from the Iron Age ditch systems limits the potential of the site in this period. It seems likely that it fits into a pattern of agricultural activity along the valley, previously recognised at places such as Swan Valley and Pineham. The Banbury Lane site is perhaps of note in that it appears to be a relatively early component in this landscape.

Saxon
The single Saxon pit would appear to have little potential for archaeological analysis or contribution to a greater understanding of the period.

Medieval and later
The medieval and later agricultural features provide little further potential.

11.2 Flint

The presence of a Late Mesolithic/Early Neolithic componenet within the assemblage is of interest and comparisons will be made with assemblages in the immediate and wider areas. It is recommended to illustrate the flake/bladelet core, end scraper, retouched blade fragment and the oblique arrowhead. Otherwise no further work is recommended.

11.3 Prehistoric pottery

The Middle/Late Neolithic bowl from pit [182] needs to be drawn, and if there is soil sample from this context it should be processed to recover any material suitable for radiocarbon dating. No further work is required on the earlier pottery.

The material from the southern area comprises small groups with a lack of diagnostic sherds. It is considered that further analysis will not provide a more precise date, and that radiocarbon dating of at least one feature associated with the Iron Age ditches and pits would be a preferable means of establishing the date of the settlement and context of the pottery assemblage.

11.4 Human remains by Anwen Caffell and Malin Holst

Inhumation burials

The degree of fragmentation and surface erosion observed on the inhumed skeletons will limit the potential information to be gained from full analysis of these individuals. Burial 3 was an adult, but the potential for a more precise age estimate is limited to analysis of the dental wear. It will not be possible to determine the sex or stature of the individual, nor take any measurements for metrical analysis.

Burial 2 was a non-adult, probably a juvenile. It should be possible to obtain a more precise age estimate for this individual based on the stage of dental development, and possibly dental eruption. Since dental development is the most reliable method of age estimation in non-adults, it should be possible to provide a fairly narrow age range. Since this individual was a non-adult it will not be possible to estimate sex or calculate stature.

Evidence for skeletal pathology in both individuals is unlikely to have survived, but since teeth were present, data on dental health could be obtained. Overall, the information to be gained from further analysis would be limited. However, given the (presumed) Neolithic date of these burials, and their association with the unusual deposit of disarticulated bones in Burial 1, it is recommended that full analysis is carried out.

It is vital that these skeletons are AMS dated in order to establish whether they are contemporary with the remains from the pit, Burial 1.

Disarticulated remains

Disarticulated remains normally have limited potential for further analysis, as more information can usually be obtained from articulated burials. However, this assemblage is unusual on many levels. The date of the assemblage places it in a time period from which there very few other known human remains in Britain (Oliver Craig pers comm 18/01/2012). On this basis alone, the remains provide a unique opportunity to examine human health and mortuary practices in the Middle Neolithic.

Full analysis will provide a certain amount of demographic information, although this will be limited by the disarticulated nature of the remains, the presence of fragmentation and the erosion of bone surfaces. A minimum number of individuals present can be calculated based on the most frequently occurring bone parts. Os coxae (pelvises) and crania may provide some information on the sex of adult individuals if the relevant parts are preserved. It may also be possible to obtain some age estimates for the adult individuals from the os coxae (although the relevant parts were often eroded, thus obscuring the necessary features). Where teeth are preserved, dental wear may be able to provide an indication of age, although this

method of age estimation is not as reliable as those based on the pelvis. If long bones have preserved ends, it will be possible to determine whether they derived from adults or non-adults, and if non-adult, the stage of development could aid in providing a more precise age estimate.

Stature estimates rely on measurements of intact bones, so the fragmentation means that few (if any) stature estimates will be possible, unless complete bones in two fragments are measured, which is not normal osteological practice. This approach would introduce a degree of error to the calculation, but this may be preferable to having no information on stature at all. Another complication is that the sex of the individual needs to be known to estimate stature, but estimating the sex of long bones will be impossible. Basic metrical analysis of the shape of the femur and tibia shafts should be possible for some bones (platymeric and platycnemic indices). It may be worth considering specialist analysis of long bone shape and cortical thickness, but that would be beyond the scope of the analysis provided by York Osteoarchaeology Ltd. Few cranial measurements are likely to be possible, and it will not be possible to calculate any cranial shape indices. The presence or absence of non-metric traits should be recorded where possible, and prevalence rates calculated.

A small number of bones were observed to have pathological lesions. These should be described in full, radiographs ought to be taken (if necessary), and diagnoses considered. All teeth should be recorded in full to obtain as much information as possible on dental health, which can in turn inform on diet and oral hygiene.

Biomolecular analysis of small bone fragments could provide data on general diet and health, in particular whether these individuals were farming to some degree or alternatively had fully shifted to an agricultural economy. Such analysis could also provide information on mobility - many Neolithic archaeologists still believe that people in this period were highly mobile. This could be compared with a French site of similar date, where recent work on strontium isotopes showed high mobility. DNA analysis could determine in particular how British Neolithic DNA compares to the DNA data which is now available from the Continental European Neolithic. This may also aid in answering questions regarding familial relationships within Burial 1.

As well as the demography and health of the individuals whose bones make up Burial 1, the mortuary aspects of the deposit should be investigated in detail. Consideration should be given to the quantities of different types of bone present to obtain information on which bones (or even parts of bones) were selected for burial in the pit. Attempts could be made to cross-match fragments (within layers and between layers) to see if parts of the same bone could be found in different parts of the pit. Spatial analysis of the bones using GIS should be carried out to search for patterns in the way the bones were deposited. Also, if bone fragments from different layers are matched then analysing these using GIS may be helpful.

Recording the disarticulated bone should extend to recording the presence and location of puncture marks, oval facets, fresh spiral breaks and old dry breaks associated with missing fragments of bone. It is only once this data is collected that an interpretation can be made. The prevalence of the different modifications should be calculated (proportion of bones of each type affected as a percentage of the number of bones of that type present), and the patterns of location established (if any). Since this is such an unusual assemblage, with the oval facets in particular appearing to be unique, decisions need to be made on how these features should be recorded, and what information is most vital to enable interpretation. With regard to the puncture marks and break patterns, close involvement with animal bone specialists and taphonomic experts is required to guide recording.

The oval facets are so unusual that (to the authors' knowledge) there is no precedent for recording these. Since no-one understands what they are or how they were caused, it is difficult to identify which characteristics will transpire to be most relevant to their interpretation. Obviously, the safest approach would be to record each facet in detail, but this would be time consuming. This might be feasible if only a small percentage of bones were affected, but this assessment suggests the lesions are quite prevalent (affecting half the femoral heads, distal humeri and distal tibiae, a third of the proximal humeri, not to mention a smaller percentage of other bones). It may be that a method needs to be developed to record them, coding certain features such as location, appearance, size, surface texture etc. The downside will be the loss of detailed information about each facet, but such an approach would speed recording. The recording of these facets needs to be discussed to decide on a satisfactory approach.

Studying the microscopic appearance of the oval facets may help to determine the way in which they were caused or the implements used. The bones themselves could be placed under a powerful microscope (Leica MZ16A binocular microscope or Keyence microscope), where the images are viewed on a computer screen, or impressions of the facets could be taken and studied using a Scanning Electron Microscope (SEM) (an approach suggested by Jenny Jones). Jenny Jones (pers comm 06/03/2012) has commented that if impressions of the facets were to be taken, the surfaces would need to be cleaned carefully under a microscope, to remove all traces of soil. Further cleaning may be required of some facets during macroscopic analysis in order to observe necessary features, but any such cleaning should be undertaken with the utmost care not to damage the lesions. However, the possibility that traces of the implements used to create the facets are retained in the facet surfaces should also be considered. This possibility needs to be discussed with the appropriate specialists, and if such analysis is considered feasible then further cleaning of the facets may be detrimental.

Several individuals (eg Don Brothwell, Peter Rowley-Conwy, Mark White, Freddie Foulds, Tim Thompson and Becky Gowland, pers comm 06 to 09/03/2012) have suggested an experimental approach is needed to investigating how these oval facets were caused. Given the uniqueness of these lesions, and the range of suggestions made as to how they were caused, the authors agree that conducting experiments into the mechanisms by which these facets could be formed would be essential. Such experiments should attempt to recreate these lesions using a variety of objects (different shapes, different materials), a variety of methods (hitting, rubbing, pressing), using both fresh and dry bone. Obviously, animal bone will not have the same properties as human bone, but careful choice of animal species should help to mitigate this problem. Various individuals have offered to assist with such experimental work, if desired. The results of such experimental work might help to inform recording methods for the oval facets.

Consideration should be given to further AMS dating of bone within the pit, selecting bone for dating from different vertical and horizontal strata in the pit. This would help to establish whether all the bone dated to the same period, or whether bone of different periods was being collected and buried together.

Worked bone

Once the relevant data on the bone itself is collected, the worked bone should be examined and recorded by finds specialists and/or a conservator. Any other examples of worked bone identified during full analysis should also be passed on to the relevant specialists to be studied.

General recommendations

It is recommended that other materials that can be radiocarbon dated, such as antlers found in the outermost ditch of the monument, are also AMS dated in order to fully understand the use and date of the monument.

It is proposed that a workshop be organised to discuss the Banbury Lane assemblage, with specialist participants invited to attend. Presentations on the site, context, excavation, human remains (osteology and modifications), and other aspects of the archaeology could be given, with generous time allowed for discussion. If experimental work has been carried out, then the results should be included. The focus could be on discussing how and why the oval facets were caused, since these are so unusual and many conflicting suggestions have been offered. However, the oval facets need to be discussed in the context of other relevant data, for example: deliberate breaking of long bones, dating of the remains, whether the remains were buried or exposed elsewhere before burial in the pit, demography, the location of the remains in the monument ditch, the other human remains recovered from the site, parallels identified elsewhere etc. The timing of such a workshop should also be considered. One option would be to hold the workshop once full analysis of the human remains is complete, so all the data could be considered and discussed. Alternatively, the workshop could be held at a point part way through analysis, with partial data made available. This would allow the remaining analysis to focus on particular points raised during the workshop discussions.

Proposed programme of analysis

Full osteological analysis should be undertaken of the human remains from Banbury Lane. It is proposed that prior to the osteological analysis, a meeting with experts in Neolithic human and animal remains is arranged in order to discuss lesions and breakage patterns. It is also proposed that concurrent with the osteological analysis, experimental tests of a variety of tools made of different materials should be conducted on fresh and dry bone.

We suggest three possible ways of conducting the osteological analysis. The first would be time consuming, and would involve full analysis using a recording sheet for each bone, where the bone could be described, its state of weathering, breakage patterns, as well as oval facets marks, measurements, non-metric traits, age and sex estimates will be recorded. These recording sheets would show a diagram of the bone in question and these would be filled in showing which parts of the bone were present and also where breaks and lesions were located. Photographs would be taken of each bone and microscopic analysis would be undertaken. It was attempted to undertake such detailed analysis of three bones during the assessment and it was found that each bone required more than one hour in time and around two to four sheets of paper for the description.

The second form of osteological analysis would be similar to the first, but would be preceded by designing a specific computer database using Excel or Access, which would allow abbreviations for different types of lesions, their locations, breakage pattern etc. The only paper record in this case would be a drawing of the bone showing lesions and breakage patterns, with all other information put straight into the database. The advantage of this would be speedier recording, though with some loss of detail that would have been noted on the recording forms. A further benefit would be the fact that the data could be analysed relatively quickly with regards to patterns of the location, shape, depth and other aspect of the lesions. A photographic record and microscopic analysis would be part of this analysis.

Finally, an even less time consuming option would be to record these remains like any normal disarticulated human bone assemblage, with a record of each bone element, the bone, how much was preserved and whether it was possible to estimate sex or age, basic measurements and a very brief description of pathology or oval lesions.

No matter which type of analysis will be undertaken, this should be followed by extensive AMS dating of the remains. Additionally, a workshop with specifically invited experts in the relevant field should take place once the osteological examination and data analysis have been completed in order to discuss the results. Finally, it is also proposed that isotope and DNA analysis is undertaken in order to evaluate diet, mobility and family relationships within this assemblage.

Conclusion

In summary, the human remains from this site are as yet unparalleled in Britain. The Middle Neolithic date, coupled with the unusual modifications (in particular the oval facets) observed on the disarticulated remains, suggest that this assemblage is of immense interest. It would allow an insight into human health and demography in the period, as well as an opportunity to evaluate mortuary practices. Every effort should be made to find parallels elsewhere in Britain or Europe. This assemblage is certainly of national, if not of international importance.

11.5 Animal bone

The poor preservation of animal bone on site means that there is little potential for further analysis. No further work is recommended.

11.6 Plant macrofossils

The Neolithic assemblages are particularly sparse, and although the high density of charcoal within the outer ditch, segment [88] (sample 8), may be indicative of the deliberate deposition of material, it is assumed that many of the other plant remains are derived from scattered or wind-dispersed detritus, some or all of which was accidentally incorporated within the feature fills.

The larger charcoal deposits associated with the Neolithic monument, from outer ditch segments [88] and [92] (possibly associated with Burial 2), should be submitted for species identification.

Although cereals and seeds are present within samples 20 and 21, from fills within pit/oven [141], the assemblages are still relatively small. Despite this, it would appear most likely that these remains are associated with activities which occurred within or adjacent to the feature, with likely sources being cereal drying and/or food preparation. The assemblages from Iron Age pit [169] (sample 27) and Anglo-Saxon pit [83] (sample 6) are both large (0.6 and 0.5 litres in volume respectively) and principally composed of charcoal/charred wood, possibly suggesting that they are partly or wholly derived from hearth waste. Most other assemblages contain an insufficient density of material to enable interpretation of either the source or significance of the plant remains.

As none of the assemblages contain a sufficient density of material for quantification (ie 100+ specimens) no further analysis is recommended. However, a summary of this assessment should be included within any publication of data from the site.

11.7 Radiocarbon dating

The following six samples are proposed in order to:

- Provide a chronology for the monument;
- Date the possible satellite burial;
- Assess the depletion in the C13/C12 ratio.

Table 15: Proposed samples for radiocarbon analysis

Context Fill/cut	Feature Description	Area	Provisional date
108/109	Antler from pit in base of outer ditch	1	Middle Neolithic
99/100	Antler from fill of outer ditch	1	Middle Neolithic
191/192	Bone deposit, Burial 1	1	Middle Neolithic
191/192	Bone deposit, Burial 1	1	Middle Neolithic
91/92	Burial 2	1	Middle Neolithic-Early Bronze Age
114/115	Burial 3	1	MiddleNeolithic-Early Bronze Age

It is suggested that provision is made for a possible two further radiocarbon dates, should the analyses raise questions which could be best addressed by additional dating.

Given the uncertain dating of the small assemblage of Iron Age pottery, radiocarbon dating is the only means for placing the boundary ditch system in its true context, and to determine if it was an early element of the local Iron Age landscape.

12 REVIEW OF RESEARCH OBJECTIVES

12.1 General objectives

Neolithic to Middle Bronze Age

The original Written Scheme of Investigation indicated that items *3.6 Ceremonial and burial monuments* and *3.9 Raw material resources and exchange networks* from the Region's Updated Research Agenda could potentially be addressed by evidence from the site. In the event, the lack of artefacts and ecofacts from the site makes it unlikely that the site could contribute to item 3.9. However, the monument and the unique bone deposit will certainly inform Agenda item 3.6 and may contribute to research objectives 3G (Conduct additional investigations of earlier Neolithic funerary traditions) and 3H (Recover and analyse human remains). In addition, the radiocarbon programme for the site dates may provide useful data for Agenda Item 3.1 *Dating*.

Later Bronze Age and Iron Age

Prior to the excavation, the site was potentially seen as contributing to the Research Agenda items 4.1 *Dating*, 4.6 *Field systems and major linear boundaries* and 4.8 *The agricultural economy and landscape*. Although the pottery found has provided a general date for the field system and some of its internal features, the overall sparse amount of material recovered makes it unlikely that more than generalised observations will be able to be made.

12.2 Specific objectives

Triple-ditch monument
The evidence gathered from the monument has made it possible to address the specific objectives of investigating form, function and dating of the construction. It will also be possible to compare the site to other multiple ring ditch monuments in the region.

Iron Age Field System:
The excavation of the Iron Age ditch system provided a broad date for the elements and established the sequence of boundary ditch creation. However, the lack of suitable or abundant dating evidence meant that it was impossible to refine the dating or address issues of use and abandonment.

13 RESOURCES AND PROGRAMME

13.1 Work completed

All work on the consolidation of the site achieve, artefactual processing, basic site phasing, the assessment evaluation of finds and ecofacts, preparation of assessment reports and updated project design have been completed.

Sieving of the remainder of soil samples from the burial pit, Burial 1 remains to be completed, but will not be undertaken until it is established whether the samples will be needed to help with any of the proposed osteological analyses.

13.2 Future works

In order to fulfil the potential of the archaeological features and the artefactual and ecofactual assemblages set out in Section 11; a programme of future works will be undertaken. This will maximise the potential of the archaeological resource to fulfil the research objectives set out in Section 12, and will lead to the production of a final report that will form the basis of the publication.

Table 16: Post-excavation analysis task list

Task	Item	Description	Personnel
1	Archaeological features	Detailed stratigraphic analysis and site comparisons	M Holmes
2	Human remains	TBC	Anwen Caffell and Malin Holst
3	Soil samples from burial 1	Processing soil samples analysis of ecofacts	M Holmes, Val Fryer
4	C14 dates	Dating of selected samples	Beta Analytic
5	Reporting	Compile specialist reports	M Holmes
6	Reporting	Final site narrative and incorporation of specialist data	M Holmes
7	Reporting	Drawing briefs	A Chapman, M Holmes, A Yates
8	Reporting	Illustration	NAdrawing office
9	Reporting	Discussion	M Holmes, A Yates
10	Reporting	Report compilation	M Holmes
11	Reporting	Revisions	A Chapman, P Chapman, A Yates
12	General	Management	A Yates
13	Publication	Finalisation of publication text	A Chapman, M Holmes and A Yates
14	Publication	Typesetting	Tbc
15	General	Archive preparation and submission	Tora Hylton and Theodora Anastasidou-Leigh

13.3 Programme

The programme will commence once the Assessment Report and UPD has been approved by the archaeological advisor to Northamptonshire county council.

Table 17: Post-excavation analysis programme

Task / month	1	2	3	4	5	6	7	8	9	10	11	12
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14 REPORTING, PUBLICATION AND ARCHIVE

14.1 Reporting

A client report will be prepared by Northamptonshire Archaeology which will form the basis for publication. It is proposed to seek publication either as a monograph and/or to offer an article on the Neolithic monument and the bone deposit to the *Proceedings of the Prehistoric Society*. The proposed structure of the client report is as follows:

CONTRIBUTORS

ACKNOWLEDGEMENTS

SUMMARY

CHAPTER 1: INTRODUCTION
- Background
- Location and topography
- The environs of the monument
- Excavation methodology
- Site chronology

CHAPTER 2: THE MIDDLE NEOLITHIC MONUMENT
- Earlier activity
- The triple-ditched monument
- The human bone deposit
- Associated features
- Neolithic and Bronze Age finds
- Animal bone and environmental evidence

CHAPTER 3: THE HUMAN BONE

CHAPTER 4: THE IRON AGE SETTLEMENT
- The boundary ditches
- Pits
- Iron Age finds
- Animal bone and environmental evidence

CHAPTER 5: ANGLO-SAXON AND LATER FEATURES
- The Anglo-Saxon pit
- Later features

CHAPTER 6: DISCUSSION

BIBLIOGRAPHY

APPENDICES
- Appendix 1: The photographic record of the bone deposit (to comprise the plan photogprah of each of the 16 layers, with and without numbered bones)
- Other Appendices as neceaary

Each section will be accompanied by appropriate illustrations. The introductory sections will include figures showing the location of the site and its topographic and geological context. Within the narrative, text illustrations will include overall phase plans, detailed drawings of individual features or feature groups, photographs and finds illustrations. The discussion will include figures showing the archaeological

context of the works in relation to other archaeological investigations discussed in the text and other figures as necessary. It is estimated that there will be around 50 figures to illustrate the archaeology, not including illustrations relating to the primary record of the human bone deposit *in situ,* which will comprise 32 images, with and without the bone record numbers, and also the photographic records to illustrated the analysis of the bone deposit and the lesions on the bones. Technical specialist data will be included as appendices, when appropriate.

14.2 Archive

The site archive will consist of all written, drawn, photographic and digital records, all material finds and processed sample residues recovered from the geophysical survey and excavation phases. Data from the trial trench evaluation will be incorporated. The site archive will be accompanied by the research archive which will consist of the text, tabulated data, original drawings and all other records generated by the analysis of the site archive. The archive will be fully catalogued. It will be retained at Northamptonshire Archaeology until a suitable repository becomes available in the county. Site details have been entered on the OASIS database.

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APPENDIX 1: A PRELIMINARY ASSESSMENT OF THE HUMAN BONE DEPOSIT

by Andy Chapman

Introduction

On the north-western side of the innermost of the three ditches of the monument, blocking the former entrance, there was an elongated pit, 192, 2.8m long by 1.4m wide and 0.4m deep. The pit contained a tumbled mass of disarticulated human bone, extending as a single deposit from bottom to top (Fig 1).

The bone deposit at an early stage of excavation Fig 1

The bone deposit was excavated in 16 successive spits, and was photographed in plan at each level. Within each spit the bone was lifted in small groups collected within numbered bags (with the location recorded on a print of the plan photograph). As a result, there are 1337 bags of numbered bone (although there are a few instances of duplication and omission within this sequence). Each numbered bag contains at least a single, or part of a single bone, and often more than one bone and sometimes several. In addition, there are also bags that contain bulk quantities of fragmented bone, the residue from the lifting of each spit, which are sometimes numbered and sometimes not. The bulk bags contain bone elements that are also represented in the numbered bags as individual items, but also contain a high proportion of the small bones elements, such as ribs and vertebrae, that occur rarely within the numbered bags.

The assemblage therefore comprises some 1350 bags of bone, varying from single bones up to perhaps a few hundred bone fragments in the larger bulk bags, occupying *c* 52 archive boxes.

Methodology

The entire bone assemblage was rapidly scanned prior to washing in order to provide an initial assessment of the minimum number of individuals present, the approximate proportions of the bones represented and a qualitative assessment of the condition of the bone.

During the scanning it was noted that a high percentage of bones had suffered general damage and breakage that had occurred either prior to or following deposition in the pit, so that few complete long bones survive. However, of particular interest is the damage to the ends of many long bones. These have been subject to a a range of inflicted damage, including cutting, chopping and crushing, implying that the disarticulated remains had been obtained by the forcible dismemberment of the bodies from which they came. Representative samples of the damaged bones have been photographed to illustrate both the types and the locations of the damage.

The data from this preliminary assessment will be provided to an osteoarchaeologist to assist them in devising a programme of further analysis to explore all aspects of this major human bone assemblage.

Preservation

The condition of the bone is good, with the bone hard and well preserved. The surfaces are typically fresh, with no sign of the erosion and splitting characteristic of bone that has been left exposed to the elements.

However, there is a high degree of bone fragmentation. No skulls have survived intact, and both facial bones and detached mandibles are always damaged and incomplete. There are surviving teeth, but either loose or as small groups within fragmentary maxilla and mandibles, and the numbers are far short of the minimum number of indviduals (MNI) obtained from the long bone counts.

Similarly, a majority of the major long bones are broken and have extensive damage to the articulating surfaces (see below). Only a minority were recovered complete (either whole or broken), thus limiting the number that can be accurately measured to determine stature. The breakage is partly a product of the way the bones were collected prior to deposition; with the frequent missing ends largely a product of damage inflicted during the process of dismemberment, but further breakage of long bones may also have occurred within the burial pit due to pressure from the weight of the stacked assemblage.

As the material is all disarticulated, there is little potential to associate bones from single individuals, although during scanning a few instances were noted of matching major long bones when they had been deposited in close proximity (eg matching tibia shafts, Layer 3, Bones 169 & 177).

It will therefore not be possible to provide any overall osteological analysis for single individuals.

Minimum number of individuals (MNI)

Quantification of body part representation has been achieved by counting the three major long bones; the femur, tibia and humerus, by both end and side, when possible, with shaft lengths also quantified. This enables the minimum number of individuals present (MNI) to be counted for each of the three major long bones by side, although as so few tibia retained intact ends by far the largest count for tibia is from un-sided shaft lengths, although many of these will be capable of being sided during full analysis.

Table 1: Preliminary quantification of the major long bones

Long bone	part	Femur	Humerus	Tibia
Right side	Top	111	19	3
	bottom	4	72	4
	whole	22	36	2
	MNI	**133** (111+22)	**108** (72+36)	**6** (4+2)
Left side	Top	111	16	6
	bottom	4	71	12
	whole	15	28	2
	MNI	**126** (111+15)	**99** (71+28)	**14** (2+12)
Unsided		94	13 tops	135 shafts
Estimated MNI		**133**	**115** (108+13/2)	**82** (14+135/2)

Table 2: Estimated minimum number of individuals (MNI)

Long bone	Right side MNI	Left side MNI	Unsided shafts (unsided tops)	Estimated MNI
Femur	**133**	**126**	**94**	**133**
Humerus	**108**	**99**	**(13)**	**115**
Tibia	**6**	**14**	**135**	**82**

The preliminary quantification indicates both the scale and the selective nature of the deposit (Tables 1 and 2).

The most commonly occurring bone is the femur. With the femur and humerus there are similar numbers of left and right sides, which is taken as an indication that normal practice had been to deposit both bones from a single individual. (If there were a significant number of cases in which only single long bones had been deposited then the MNI represented in the assemblage would be even higher.)

From the right femur we therefore have the highest MNI for the group of 133 individuals. However, we may note that there are 94 lengths of femur shaft. While some of these will relate to detached ends included in the quantification, some are likely to be examples where the ends had been more severely damaged, and do not appear in the quantification. It needs emphasising, therefore, that 133 is the ***minimum*** number of individuals, with the true total higher than this, and probably in excess of 150 individuals.

The humerus is also present in similar numbers, with an MNI of 115, while the tibia provides a much lower MNI of 82 individuals. The other long bones and other elements have not been counted, but the broad subject of body part representation is considered below.

Body part representation

The basic quantification of the three major long bones indicates that the assemblage is biased in terms of body part representation. This bias continues through all aspects of the skeletal remains, as is qualitatively noted below.

Femur: Present in large quantities, providing the MNI of 133 as the most common bone. The distal (knee) end is quite uncommon; presumably as a result of severe damage during dismemberment of the knee joint. The proximal (hip) end is also often detached from the shaft, for the same reason, leaving no more than 37 complete or near complete examples.

Tibia: Present in quantity (MNI 82) but most typically as shaft lengths. Well preserved knee joints are uncommon, perhaps as a result of damage during dismemberment. The distal (ankle) end survives a little more frequently. There are also frequent, but usually short, lengths of fibula.

Humerus: Present in quantity (MNI 115), proximal ends (heads) less common than distal ends (elbow), perhaps as a result of breakage and damage during dismemberment of the shoulder joint.

Ulna and radius: Not counted but present in quantity perhaps a little less than the humerus.

Skull: Cranial fragments, including several deposited crania at the western end of the pit, moderately common. However, nowhere near enough to match the long bone MNIs. Well preserved facial bones and mandibles uncommon, and all bones are damaged and fragmented. Teeth either loose or in fragmentary maxilla and mandibles.

Pelvis: Common, but all highly fragmented, probably as a result of breakage and damage during dismemberment.

Scapula and clavicle: Scapula common but all fragmented, and occasional examples of clavicle noted.

Vertebrae: Occasional examples mainly as individual vertebra in the bulk bone bags, but nowhere near enough to account for the MNI of 133. At least one example of an axis vertebra was present, but this suggests that the recovered skulls were generally not still attached to the vertebral column.

Ribs: Fragments of rib are present, typically in the bulk bone bags, but nowhere near enough to account for the MNI of 133.

Hands and feet: One layer contained a few ankle bones, probably from a single individual (Layer 2, Bone 145). There are no wrist bones, no foot bones and a single finger bone was noted (Layer 2, bulk bone).

It is therefore clear that the bone was selected for deposition favouring the major long bones, with the numbers declining with declining bone size. Fragmented skulls are present in much smaller quantities than the major long bones; vertebra and ribs occur occasionally, while the hands and feet barely appear at all.

A small number of bones derive from cattle (eg cow vertebra, Bone 727, and Bones 428, 479 and 753). They are in such small numbers that they must be considered as accidental inclusions.

Age range

No attempt has been made to estimate the age of individuals, but it was noted that while the majority are from adults, the small size of some long bones and at least one cranium and, more specifically, the presence of many examples of unfused or fusing femur and humerus heads, indicate that many juveniles are present, but not infants. The age range may begin at around 10 years and continues through early and late adolescence to adults.

Cut marks and other inflicted damage

A major aspect of this assemblage is the widespread occurrence of damage to the ends of certain long bones that appears to derive from the dismemberment of the bodies prior to the collection of bones for subsequent deposition. The quantification, description and interpretation of these lesions will form a major part of the subsequent analysis of the assemblage.

From the provisional assessment it is possible to make a number of qualitative observations about the incidence and nature of this damage.

Incidence

Damage to the femur head, neck and trochanters is the most common location (Figs 2, 4-10). The fragmentation of the recovered pelvic bones is also likely to be associated with this damage (Fig 18).

Damage to lower (distal) end of the femur, at the knee joint, is the second commonest location (Figs 3, 11 and 16). The low numbers of intact upper (proximal) ends of the tibia may also be a product of damage to the knee joints, with some of the few surviving examples showing damage (Fig 12).

The head of the humerus is the third commonest location (Figs 13-15).

Damage to the lower (distal) end of the tibia is present (Fig 19), but is uncommon, although lower ends survive intact more frequently than upper ends.

Damage to the lower (distal) end of the humerus is present but is also uncommon (Fig 17).

Damage

The inflicted damage falls into three groups:

cutting/chopping

Shallow, elongated knife cuts are rare, but one notable example displays several elongated but shallow cuts running between the greater and lesser trochanter (Fig 2).

More common are deeply incised single cuts/chopping lines. A number of examples display a consistent pattern of having one edge near vertical and the other oblique. They occur on femur heads (Fig 6) and on the back of the knee (Fig 3).

A far larger group comprise cruder chopping marks with surrounding areas of damage, often with several overlapping broad incisions, commonly on the femur head (Figs 5 and 6) but also on the head of the humerus (Fig 13), with much damage and crushing of the surrounding bone, indicating that a heavy but perhaps relatively blunt implement was in use. Similar multiple chopping damage also occurs on the area of the greater and lesser trochanters (Fig 4).

Faceting
Equally as common as cut/chopping marks, are the very distinctive facets. The majority have been made with an implement with a curved surface (Figs 7-11 & 15-17) or, less commonly, a slightly curved or flat surface (Fig 2) that has been driven across the bone at an angle. The surfaces of these facets are smooth and often polished, although compressed and crushed bone is also often evident. Presumably the implement both crushed and rubbed across the surface of the bone as it is was hammered in, and perhaps also as it was rotated, perhaps on removal. The curved surfaces suggest the implement used had a curved cutting edge 20-25 wide (see Fig 15).

The facets commonly occur on the femur head, typically on the side, as if the implement had been driven in from the edge of the acetabulum, the joint socket on the pelvis (innominate). Facets are also present on the lesser trochanter (Fig 8) and at the lower end of the femur on the back of the knee (Figs 12 and 17). The pelvis also shows consistent patterns of damage, most typically breakage across the acetabulum, presumably to aid removal of the femur (Fig 18). In at least one instance this implement was also driven into the lower end of a tibia (Fig 19).

Given the Neolithic date of the bone, it might be suggested that a bone gouge would be the most likely implement to have caused this damage.

General damage and breakage
In addition to the clear cut/chopping marks and the facets, there is often further damage to the bones around the articulating surfaces, with sizeable pieces of bone missing, which probably also occurred at the same time as the other damage, although crushing and breakage within the stack of bones in the pit might also be responsible for some further damage. With the femur, it is common to have breakage across the neck, or sometimes just below the lower trochanter. In many of these instances the bones were still juxtaposed within the burial pit, indicating either that the bones were broken but still held together by soft tissues at deposition or that the breakage had occurred subsequent to deposition.

Worked bone
There is a length of tibia where the bone appears to have been deliberately cut away to form an elongated ‘trough’, with the edges clean but not smoothed or worn (Fig 20). In addition, immediately beyond one end of the cut trough the bone has been cut across and the end is smoothed (although this is partly lost to recent damage).

This is the only observed incident of bone working noted, so far, and it might suggest that the bone gouges used in dismemberment, which have created the curved facets, were perhaps fashioned from human bone.

Provisional interpretation

There are two aspects of particular interest: the method of acquiring the bones for deposition and the implications of this for the treatment of the bodies from which they derived, and the bias evident in the process of selection. From these aspects the following provisional description of the process can be suggested.

In order to obtain the material for deposition, there had to be access to an extremely large number of bodies. The initial radiocarbon dates indicate that the deposit is of a single date, perhaps suggesting that the corpses came from a single catastrophic event.

The consistent pattern of damage to the major joints suggests that the deposited bones were obtained at a time when the bodies were in a state of partial decay, but while the femur was still firmly attached to the pelvis; while the knee was often, but perhaps not always, held firmly together, and, similarly, while the shoulder joint was often intact. The infrequent occurrence of damage at the elbow joint indicates that these only occasionally required vigorous dismemberment. It is likely that dismemberment occurred when the hands and feet were already detached, although examples of a faceted surface and a gouge mark noted on the ankle (distal) end of the tibia, suggest there are a few examples when this was not the case. In addition, it is likely that the heads had become detached from the vertebra, as only a single atlas vertebra has been found. The small number of mandible (lower jaw) fragments present may also suggest that these too had fallen away before the skulls were recovered.

This state of decay seems most likely to indicate that the bodies had been left exposed, excarnated, with the absence of gnawing indicating that this took place in a place protected from animal disturbance. Although exhumation following burial cannot be excluded, this would have been a lot of people to bury.

To detach the bones required for deposition it had been necessary to use considerable force to cut and chop through the dried tissues, the tendons and ligaments, which still held the major joints together, producing much damage to the bone surfaces. The obtaining of individual bones, rather than whole limbs was therefore the aim, even though all the elements of that limb (eg pelvis, femur and tibia) may often have been taken for deposition.

To find the long bones being represented in size order- the upper limb bone, femur and humerus, followed by lower limb bones, tibia/fibula and ulna/radius, is not surprising. However, it is perhaps surprising that the head is so poorly and so partially represented, although no quantitative estimate is available from this preliminary study. Apart from the bias of collection, it is also evident that deposition within the burial pit occurred in a structured manner, with skulls generally towards the west end of the pit.

Another aspect of note is that while the burial pit contained a large quantity of human bone, an even larger quantity of material was not collected, and must have been disposed of in some other fashion.

This assemblage clearly has a great potential to tell a dramatic and exceptional story of life, death and dismemberment in the Middle Neolithic. A story that will develop from detailed osteological study, including the recording and classification of the type and location of all damage to the bones in order to determine the nature of the process of dismemberment and the stage of decay at which it took place, which was a central part of the process leading to the deposition of this unique deposit

Multiple shallow cut marks (a rare occurrence), between greater and lesser trochanters, with a flattened facet on the femur head (Bone 1274, layer 15) Fig 2

Cut mark with one vertical and one oblique edge (similar cuts on other bones) on back of knee joint, bottom of femur (Bone 1214, layer 14) Fig 3

(Scale on photographs 50mm or 20mm)

Chopping and crushing on trochanters and femur head (Bone 1333, layer 16) Fig 4

Multiple cutting/chopping marks, and puncture marks (extreme left) on femur head (Bone 1269, layer 15) Fig 5

Cutting/chopping mark and curved facet on head of femur, anterior surface (Bone 1307, layer 16) Fig 6

Curved facet on posterior surface of the same femur as Fig 6 (Bone 1307, layer 16) Fig 7

Curved facet on lesser trochanter and circular flat facet on femur head (Bone 1012, layer 12) Fig 8

Curved facets on femur heads (Bone 1040, layer 12, left, and layer 13) Figs 9 & 10

Deep curved facet on knee joint, distal end of femur (Bone 1035, layer 12) Fig 11

Proximal (knee) end of tibia with chop marks (Bone 924, layer 11) Fig 12

Head of humerus with chop marks
(Bone 1035, layer 12) Fig 13

Two views of humerus head with
a chop mark and a facet
(Bone 1113, layer 13) Fig 14

Head of humerus showing the sharply cut curved surface in section of a facet, left, and in plan, right (Layer 10, bulk bone bag) Fig 15

Distal (knee) end of femur, showing curved facet on the medial condyle at the back of the knee, top left (Bone 837, layer 10) Fig 16

Distal (elbow) end of humerus with a facet and damage to the lateral epicondyle, bottom left (Bone 920, layer 11) Fig 17

Pelvis, showing damage from a blunt object impact and the resulting break across the acetabulum (hip socket) (Bone 480, layer 6) Fig 18

Distal (foot) end of left tibia showing curved gouge and associated damage (Bone 79, layer 2) Fig 19

Tibia showing length cut out of shaft (Bone 248, layer 3) Fig 20

Obique view of cut bone to show cut and smoothed end, bottom right, with later damage (Bone 248, layer 3) Fig 21

APPENDIX 2: INDIVIDUALS CONSULTED, HUMAN BONE

Name	Position/ Affiliation	Expertise
Prof Don Brothwell	Emeritus Professor, University of York	Human remains
Dr Oliver Craig	Lecturer, University of York	Isotope analysis, lipids, human remains, Neolithic
Miss Helen Drinkall	PhD student, Durham University	Palaeolithic, lithics
Prof Mark Edmonds	Professor, University of York	Neolithic
Dr Linda Fibiger	Lecturer, University of Edinburgh	Human remains, trauma, Neolithic
Mr Freddie Foulds	PhD student, Durham University	Palaeolithic, lithics
Dr Becky Gowland	Lecturer, Durham University	Human remains
Dr Charlotte Henderson	Honorary research associate, Durham University	Human remains
Dr Tina Jakob	Teaching Fellow, Durham University	Human remains
Ms Jenny Jones	Conservation and post-excavation manager, Archaeological Services, Durham University	Conservation
Miss Devon Kase	PhD student, Durham University	Human remains
Ms Katie Keefe	York Osteoarchaeology Ltd	Human remains, excavation
Miss Charlotte King	PhD student, Durham University	Human remains, geology
Prof Terry O'Connor	Professor, University of York	Animal remains, taphonomy
Mr Joe Owen	PhD student, Durham University	Animal remains, morphometrics
Miss Kimberly Plomp	PhD student, Durham University	Human remains
Miss Lindsay Powell	PhD student, Durham University	Human remains
Dr Jane Richardson	Project Manager, WYAS Archaeology Services	Animal remains
Prof Peter Rowley-Conwy	Professor, Durham University	Animal remains, Mesolithic and Neolithic
Prof Chris Scarre	Professor, Durham University	Neolithic
Dr Tim Thompson	Reader, Teesside University	Human remains, forensics
Dr Beth Upex	Technician, Archaeological Science, Durham University	Animal remains, human remains
Dr Mark White	Reader, Durham University	Palaeolithic, lithics

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