UNIVERSITY OF LEICESTER
Archaeological Services

# An archaeological field excavation on land of Beck Lane, Sutton-in-Ashfield Nottinghamshire.

**SK 5072 6086**

**Jamie Patrick**

*With contributions from Georgina Clipstone, Nicholas J. Cooper, Malin Holst, Wayne Jarvis, Bennjamin Penny-Mason, Adam Santer and Vicki Score. Edited by Adrian Chadwick.*

**ULAS Report No: 2022-036**

**Site Name:** Land off Beck Lane, Sutton-in-Ashfield, Nottinghamshire

**Grid Ref:** SK 50725 60866

**Author:** Jamie Patrick

**Client:** RPS Group on behalf of BDW Trading Ltd.

**Planning Ref.** V/2016/0569 APP/W3005/W/18/3213342

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# OASIS RECORD

| | | | | |
|---|---|---|---|---|
| **PROJECT DETAILS** | **Oasis No** | universi1-505021 | | |
| | **Project Name** | Land off Beck Lane, Sutton-in-Ashfield, Nottinghamshire NG17 3HA. | | |
| | **Start/end dates** | 31/08/2021 to 20/10/2021 | | |
| | **Previous/Future Work** | No further works | | |
| | **Project Type** | Field excavation | | |
| | **Site Status** | None | | |
| | **Current Land Use** | Former arable | | |
| | **Monument Type/Period** | Barrows/Bronze Age | | |
| | **Significant Finds/Period** | Pottery/ Pre-historic | | |
| | **Reason for Investigation** | NPPF | | |
| | **Position in the Planning Process** | Planning condition | | |
| | **Planning Ref.** | V/2016/0569 | | |
| **PROJECT LOCATION** | **County** | Nottinghamshire | | |
| | **Site Address/Postcode** | Beck Lane, Sutton-in-Ashfield, Nottinghamshire NG17 3AH. | | |
| | **Study Area** | | | |
| | **Site Coordinates** | SK 5072 6086 | | |
| | **Height OD** | 77m OD | | |
| **PROJECT CREATORS** | **Organisation** | ULAS | | |
| | **Project Brief Originator** | RPS Group | | |
| | **Project Design Originator** | ULAS | | |
| | **Project Manager** | Vicki Score | | |
| | **Project Director/Supervisor** | Jamie Patrick/ Leon Hunt | | |
| | **Sponsor/Funding Body** | Barratts/David Wilson Homes | | |
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# An archaeological field excavation on land off Beck Lane, Sutton-in-Ashfield, Nottinghamshire.

**Jamie Patrick**

## Summary

*This report details the results of an archaeological field excavation carried out by University of Leicester Archaeological Services (ULAS) on land off Beck Lane, Sutton-in-Ashfield, Nottinghamshire (NGR SK 5072 6086). The work was undertaken during September and October 2021 on behalf of RPS Group in advance of residential development by Barratts/David Wilson Homes.*

*The development area consists of four arable fields west of Beck Lane, just north of the village of Skegby in Nottinghamshire. Geophysical survey had recorded extensive anomalies across the area, but follow-up trial trenching by Oxford Archaeology in March 2021 demonstrated that many of these were probably of periglacial origin or were not visible as identifiable features.*

*The trenching did confirm the presence of three probable Bronze Age ring ditches identified by the geophysical survey. The northernmost ring ditch produced a sherd of Early Bronze Age pottery, and two un-urned cremation burials. The two ring ditches to the south produced no dating evidence.*

*On the basis of the result of the evaluation, two areas of archaeological mitigation (covering approximately 0.6 hectares in total) were identified and agreed with the Local Planning Authority, focused on the prehistoric remains recorded in evaluation Trenches 7 and 25.*

*The excavation confirmed the existence of ring ditches, cremations, and other discrete features. Whilst the trenching had suggested the southern area contained a possible square barrow and ring ditch, soil stripping revealed a C-shaped ditch with associated cremation burials along with a hengiform type monument.*

*Ring Ditch 2 was possibly the earliest feature consisting of two phases although there was no artefactual evidence or any funerary evidence. Ring Ditch 1 to the west formed a C-shaped enclosure encompassing a central urn-less cremation burial. A second phase consisted of a number of urned cremation burials concentrated outside the south-eastern side of the enclosure, one cutting the ring ditch backfill; with a fifth isolated cremation burial to the north-east. A single pit cut the ditch terminus deposit forming an entrance onto Ring Ditch 1. The cremated human remains were placed in Bronze Age Collared Urns with three of the cremation burials also accompanied by small ancillary cups. An undated four-post structure may have had a link to funerary rites, though this is unproven.*

*Ring Ditch 3 to the north represented the most recent phase. This comprised a ring ditch which encompassed three central urn-less cremations with a fourth cremation just to the north-east of the ditch edge.*

*The archive for the project will be held by ULAS until deposition with Nottinghamshire Museums Service can be arranged.*

 

## Introduction

In accordance with National Planning Policy Framework (NPPF) Section 16 Conserving and Enhancing the Historic Environment (MHCLG 2021), this document forms the report for an archaeological field excavation on land of Beck Lane, Sutton-in-Ashfield, Nottinghamshire, centred on National Grid Reference (NGR) SK 5072 6086.

The work was carried out by University of Leicester Archaeological Services (ULAS) for RPS Group, on behalf of Barratts/David Wilson Homes. The work was undertaken as a condition for archaeological mitigation of Planning Permission for a proposed residential development and associated infrastructure (v/2016/0569). The scope of works was established by RPS Group and set out in a Written Scheme of Investigation (WSI) produced by ULAS (2021).

## Site Location, Geology and Topography

The development area (hereafter referred to as 'the Site') is situated on the north-eastern edge of the village of Skegby, 2 kilometres north-east of Sutton-in-Ashfield and approximately 3km west of Mansfield (Fig. 1). Mansfield Lane lies to the north-west and Beck Lane to the east, and there is existing housing on the northern edge of Skegby to the south-west. The ground level rises gently northwards from approximately 150 metres to 165m Above Ordnance Datum (AOD, and the Site consists of former arable fields, now mostly overgrown scrubland.

The geology of the area is Cadeby Formation dolostone across the north-west of the Site (British Geological Survey 1: 50 000 viewer online), and Lenton Sandstone Formation sandstone across the south-eastern part of the development area.

The Soilscape website indicates that the soils, where surviving, will be freely draining lime-rich loamy soils (Soilscape 5, http://www.landis.org.uk/soilscapes/ ).

The developed area was overgrown with vegetation at the time of the excavation and was bounded by fences and hedges. A public footpath orientated south-east to north-west bordered the north-east side of Area B.

## Historical and Archaeological Background

The Nottinghamshire Historic Environment Record (HER) identifies a number of prehistoric worked flint scatters in the immediate area. One of these lies within the south-western part of the Site (L4033), with several others to the north (L3394, L4034, L4031, L4029, L12175).

Immediately to the north of the Site a series of cropmarks interpreted as prehistoric features including a ring ditch, enclosure and pit alignment have been recorded (L4089). To the east a possible prehistoric or Roman-period rectilinear enclosure was recorded (MNT4046) with further enclosures and linear features to the south (L4090).

There is also evidence for post-medieval activity consisting of disused post-medieval quarries *c*. 250m west of the site (M7864, M7544) and possible mining shafts and bell pits to the east and north-east (L7057, L7058, L7062, L7277, L7285). A clay tobacco pipe was also found in this area (L4026).

 

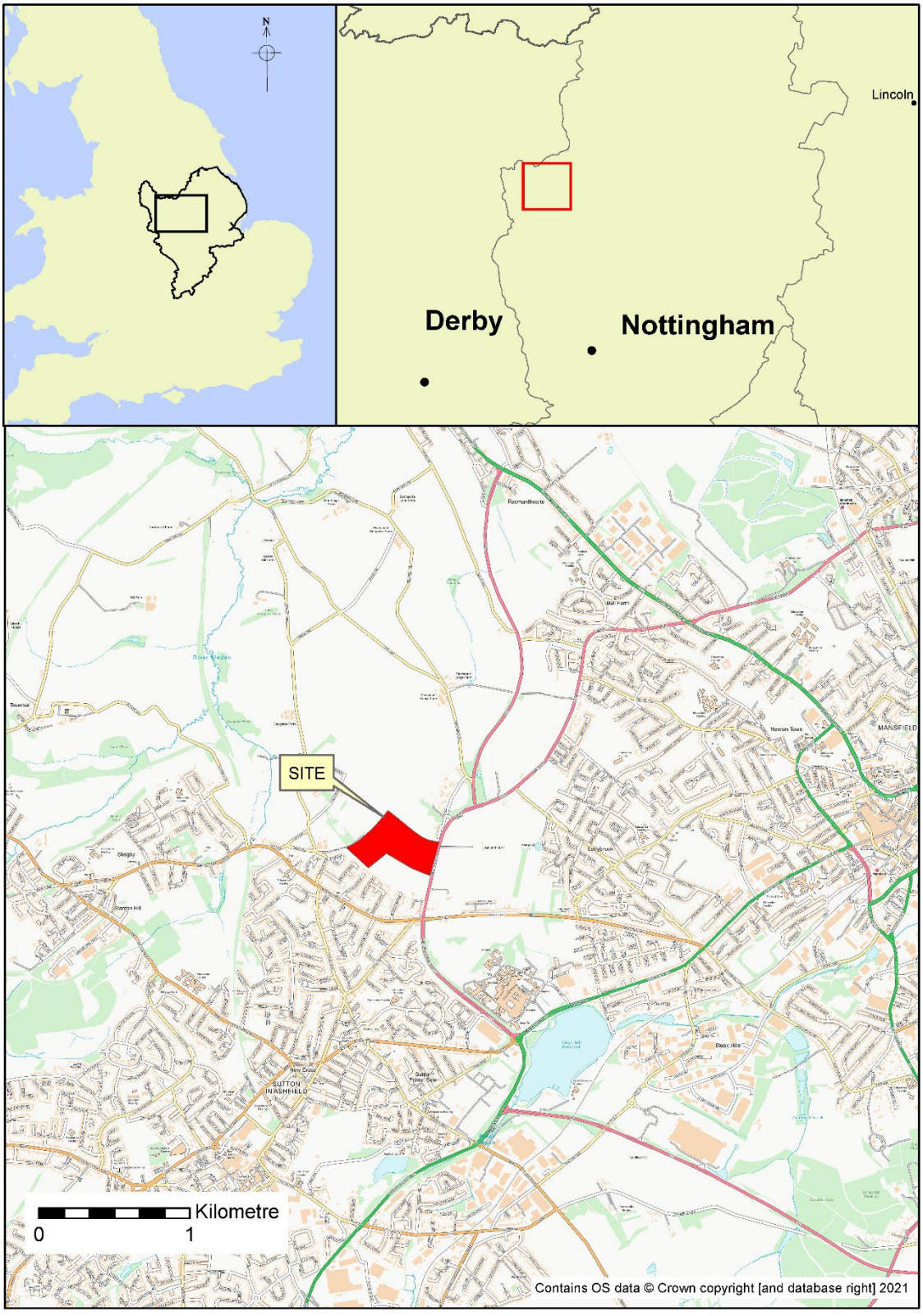


Figure 1: Site location

 

### *Previous work*

A geophysical survey of the Site was carried out by Magnitude Surveys in November 2020 (Fig. 2; Brown and Jones 2020). This work revealed magnetic anomalies including features interpreted as possible roundhouses, ditched enclosures and boundaries, two possible round barrows and a square barrow, and potential pits. More recent agricultural activity was also detected in the form of field boundaries known from historic mapping, field drains, and features relating to ploughing.

The geophysical survey was followed by an archaeological trial trench evaluation undertaken by Oxford Archaeology East targeting many of the anomalies (Fig. 2; Sinclair and Billington 2021). This demonstrated that many anomalies related to natural features that were probably periglacial in origin, or else were not visible as features and may have been ploughed out.

The evaluation did confirm the presence of two probable Bronze Age ring ditches and the possible square barrow recorded by the geophysical survey. All three of these features were located in the western part of the Site. One of the ring ditches (in Trench 25) produced a sherd of Early Bronze Age pottery, and two un-urned cremation burials were found within the area enclosed by the ditch. The second ring ditch and the possible square barrow were located adjacent to one another (in Trench 7). Neither of the ditches of these two features produced any finds or dating evidence.

Other archaeological features recorded across the Site during the trial trenching included a relatively small number of linear ditches and isolated possible pits. Finds were very scarce – a fragment of modern glass was recovered from one ditch, whilst a second ditch clearly corresponding to an early modern field boundary depicted on the 2nd edition Ordnance Survey map produced a single iron nail.


Figure 2: Trial trenching and geophysical survey results (from Sinclair and Billington 2021)

 

## Aims and Objectives

The aims and objectives of the archaeological field excavation were set out in the Written Scheme of Investigation ULAS 2021) as follows:

- To identify the presence/absence of any archaeological deposits and provide evidence of the nature and extent of surviving archaeological remains on the Site;
- To characterise the extent, date range, character, condition, and significance of any archaeological deposits to be affected by the proposed ground works;
- To excavate and record significant archaeological deposits whose future integrity may be compromised by groundworks associated with the proposed construction works;
- To advance understanding of the heritage assets; and
- To produce an archive and report of any results.

Within the stated project objectives, the principal aim of the recording was to establish the nature, extent, date, depth, and significance of the heritage assets within their local and regional context.

### *Research Objectives*

The evaluation suggested evidence for prehistoric round barrows and cremations as well as a possible square barrow. On this basis some initial research objectives derived from *The Archaeology of the East Midlands: An Archaeological Resource Assessment and Research Agenda* (Cooper 2006) and *East Midlands Heritage: An Updated Research Agenda and Strategy for the Historic Environment of the East Midlands* (Knight et al. 2012) include:

> *Neolithic and Early–Middle Bronze Age (c. 4000 cal BC – c. 1150 cal BC)*, particularly within 3.6 Ceremonial and burial monuments and 3.8 Neolithic and Bronze Age Societies, such as **3F** Identify monument complexes, **3H** Recover and analyse human remains and **3J** Foster relevant artefact studies;
> *Late Bronze Age and Iron Age (c. 1150 cal BC – AD 43)*, particularly 4.7 Ritual and Structured Deposition;
> *Prehistoric/Roman.* There were several flint scatters in the area including one within the Site (L4033) and immediately to the north of the Site are a series of cropmarks identified as a prehistoric ring ditch enclosure and pit alignment (L4089). Further enclosures have been identified to the east and south.

## Methodology

The work followed the methodological statement set out in the Written Scheme of Investigation (WSI) for the project (ULAS 2021). The archaeological work was carried out between 31/08/2021 and 20/10/2021. All work was carried out in accordance with the Chartered Institute for Archaeologists (CIfA) *Standard and Guidance for Archaeological field excavations* (2020) and adhered to their *Code of Conduct* (2021).

Two areas were identified for excavation. To the south-west Area A was approximately 0.32ha in extent, whilst Area B on the higher ground to the north-east was 0.13ha (Fig. 3). These areas were set out with a differential GPS. Excavation was carried out using a tracked mechanical excavator fitted with a flat-bladed ditching bucket to the depth of geological horizons, or to the upper interface of archaeological deposits. Dumper trucks were used to store the top and subsoils separately. Prior to excavation the public footpath across Area B was fenced off (with Herras fencing) to separate walkers from the excavation areas.

 

The WSI specified that a deposit identified as possible mound material within the 'square barrow' in Area A was to be excavated by hand. During machining it was established that the western 'square barrow ditch' identified in Trench 7 was a geological feature, however. The possible mound material was considered to be a discontinuous subsoil deposit with a patchy distribution across the whole of Area A, and as a result was subsequently removed by machine to the top of archaeological deposits. Unfortunately this meant that deposit over the top of the feature was not able to be sampled as was originally specified.

After machining, all subsequent excavation of features was undertaken by hand. Investigative sections were excavated across the ring ditches in order to determine the plan and phasing, including targeted longitudinal slots to identify any changes in ditch depth to the base or differences in deposition associated with the re-cutting of entrances. Once the sections were recorded and sampled the entire fill of the ring ditches was 100% excavated. Other discrete features were half-sectioned and recorded. The urned cremations were carefully block lifted on Site and their contents excavated in spits under controlled conditions in the ULAS laboratories.

Features were surveyed using dGPS equipment supplemented by drawn records, digital photographs, aerial photographs, and written records.

### *Monitoring*

The Site was regularly monitored by the RPS Group Consultant Simon Mortimer. Although the Nottinghamshire County Council Senior Practitioner Archaeology Ursilla Spence, was unable to visit the site, they were kept informed with regular updates and photos. Once all excavation and recording had been completed, the excavated areas were backfilled.

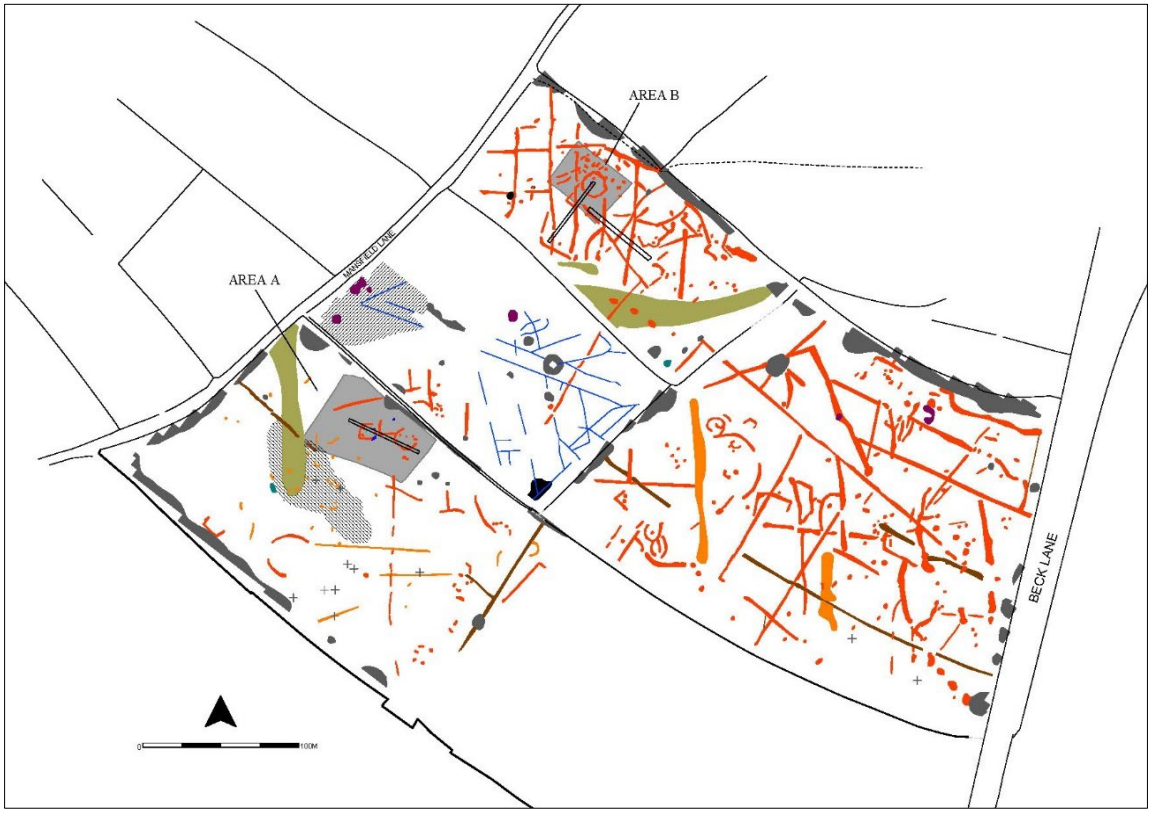


Figure 3: Excavation Areas A and Area B (shaded grey) overlying the geophysical survey results.

 

Figure 4: Photographs of topsoil stripping in progress. Above: Area A looking east; Below: Area B looking east.

 

## Results

### *Area A*

The area excavated was broadly trapezoidal in plan and approximately 73m long and up to 50m wide. The natural undisturbed geology was solid and fragmented bedrock and mixed gravelly clay overlain with a patchy clayey silt subsoil (Fig. 4). The topsoil consisted of a dark greyish brown clayey silt, varying in thickness between 0.30m and 0.40m. A thicker layer of colluvium covered the western third of Area A indicated by the previous evaluation trenches. Although no ridge and furrow was present, plough scarring was visible running north-west to south-east across the Area A.

Trench 7 of the trial trenching identified and excavated the east and western sides of a ring ditch to the east and the eastern and western ditches of a possible square barrow to the west with a deposit interpreted as a possible buried soil that had been protected by mound material. A possible second square barrow was also identified (Fig. 5).

The excavation confirmed the presence of the eastern ring ditch, but both the western ditch of the square barrow and the geophysical anomalies in the centre of the trench proved to be geological features. A C-shaped ditched enclosure was revealed along with several cremation burials (Fig. 7). The possible buried soil was considered to be the patchy remnants of subsoil which extended across the area.

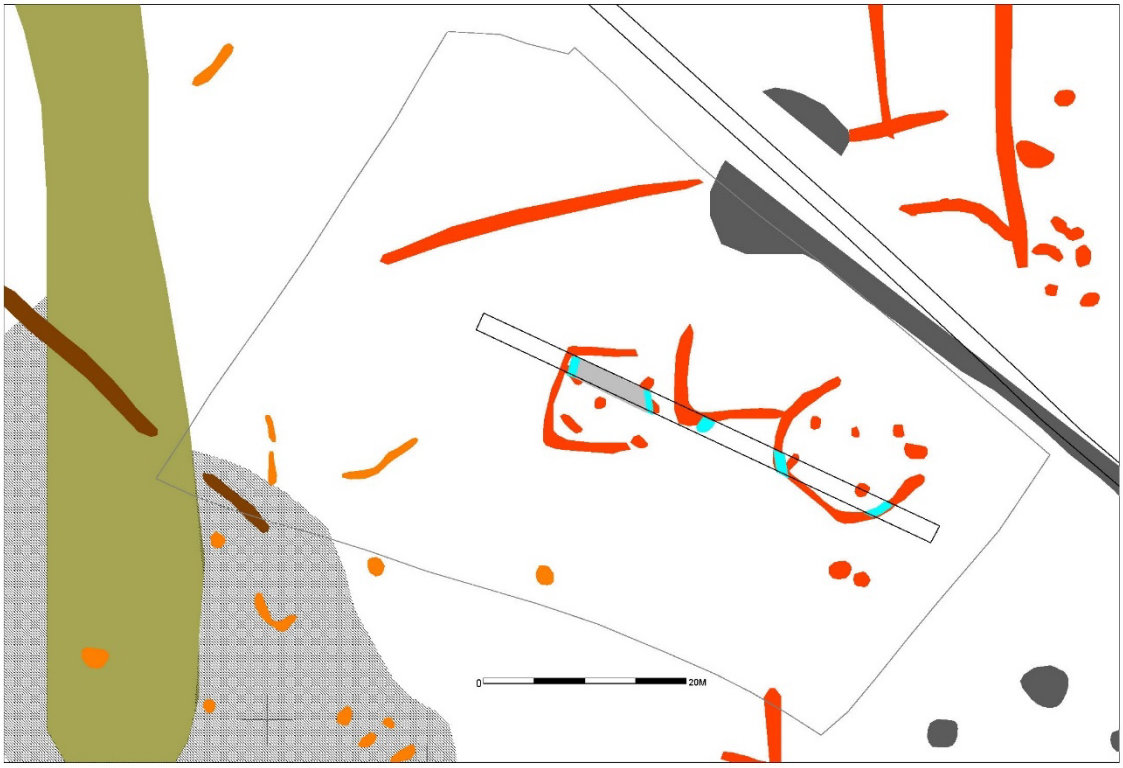


Figure 5: Trench 07 overlain on the geophysical survey results (adapted from Sinclair and Billington 2021).

### *Area B*

Area B was rectangular in plan and approximately 44m long and 34m wide. The topsoil was similar and varied in thickness between 0.30m and 0.40, overlying the natural geology consisting of solid and fragmented bedrock and mixed gravelly clay (Fig. 4).

 

Trench 25 of the trial trenching identified and excavated the southern part of a ring ditch and two internal cremation burials (Fig. 6). The excavation confirmed the full plan of the ring ditch and several further cremations (Fig. 7).


Figure 6: Trench 25 overlain on the geophysical survey results (adapted from Sinclair and Billington 2021).

## Phasing

Detailed phasing of the Site is difficult to establish due to a lack of refined dating for the three ring ditches and other features. The suggested phasing is outlined below and is based on typology, pottery and radiocarbon dates, and some stratigraphical evidence.

The three main ring ditch features do appear to have formed three separate phases. Ring Ditch 2 (RD 2) had no dating evidence at all, and its suggested early date is based on monument typology. The stratigraphy suggested that RD 2 had at least two phases of use.

| Phase | Groups | Description | Date |
|---|---|---|---|
| 1.1<br><br>1.2 | RD2 | Hengiform monument/Ring ditch with poss. opposing entrances, a blocking feature and a central pit.<br>Closing of openings to form a complete ditch. | Late Neolithic/Early Bronze Age? |
| 2.1<br>2.2 | RD1 | C-shaped enclosure with internal cremation burial<br>Later urned cremation burials | Early Bronze Age<br>Between *1984–1690 cal BC* and *1731–1408 cal BC (95.4%)* |
| 3 | RD3 | Round barrow and cremation burials | Early Bronze Age<br>Between *1629–1501 cal BC* (95.4%) |
| Undated | Postholes | Postholes forming a square feature | Bronze Age? |

 

Figure 7: Oblique aerial view of the Site looking north-east. Area B is in the foreground, Area A to the north.

 

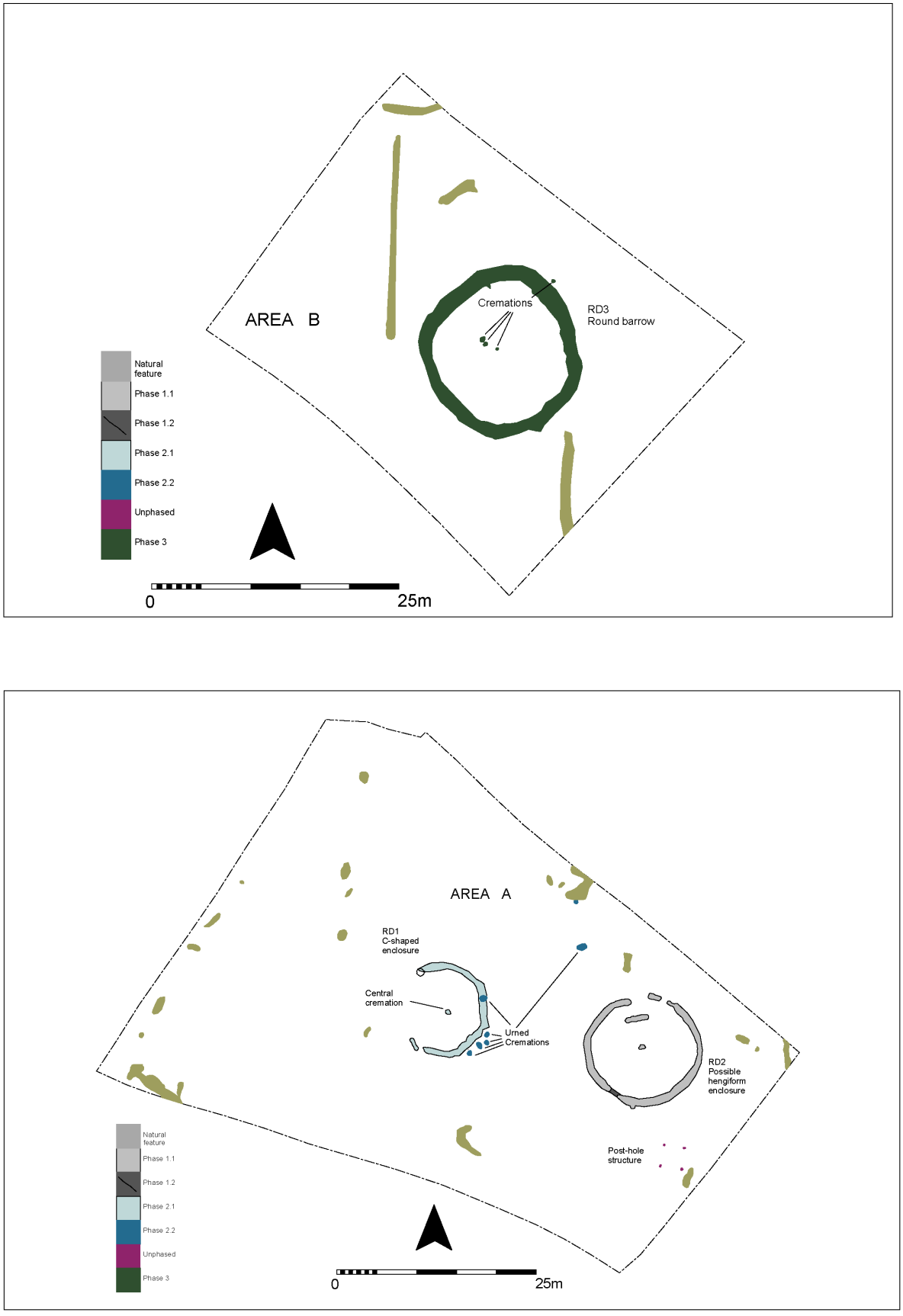


Figure 8: Suggested Site phasing plan – Area B (above) and Area A (below).

 

### *Phase 1.1 – Late Neolithic/Early Bronze Age*

*Ring Ditch 2 (RD2) – Possible hengiform monument*

Ditch cuts and fills: [144] (145), [146] (147), [152] (153), [158] (159), [160] (161), [209] (210)
Ditch terminals and fills: [148] (149), [150] (151), [156] (157)
Slot: [169] (170)
Pits: [179] (180), [154] (155)
Postholes: [171] (172), [173] (174)

A well-defined circular ring ditch approximately 13.5m in diameter was revealed in the north-eastern corner of Area A. Although the northern side of the feature was truncated, it appears to have had possible opposed entrances to the north/north-east and south-west (Fig. 9).

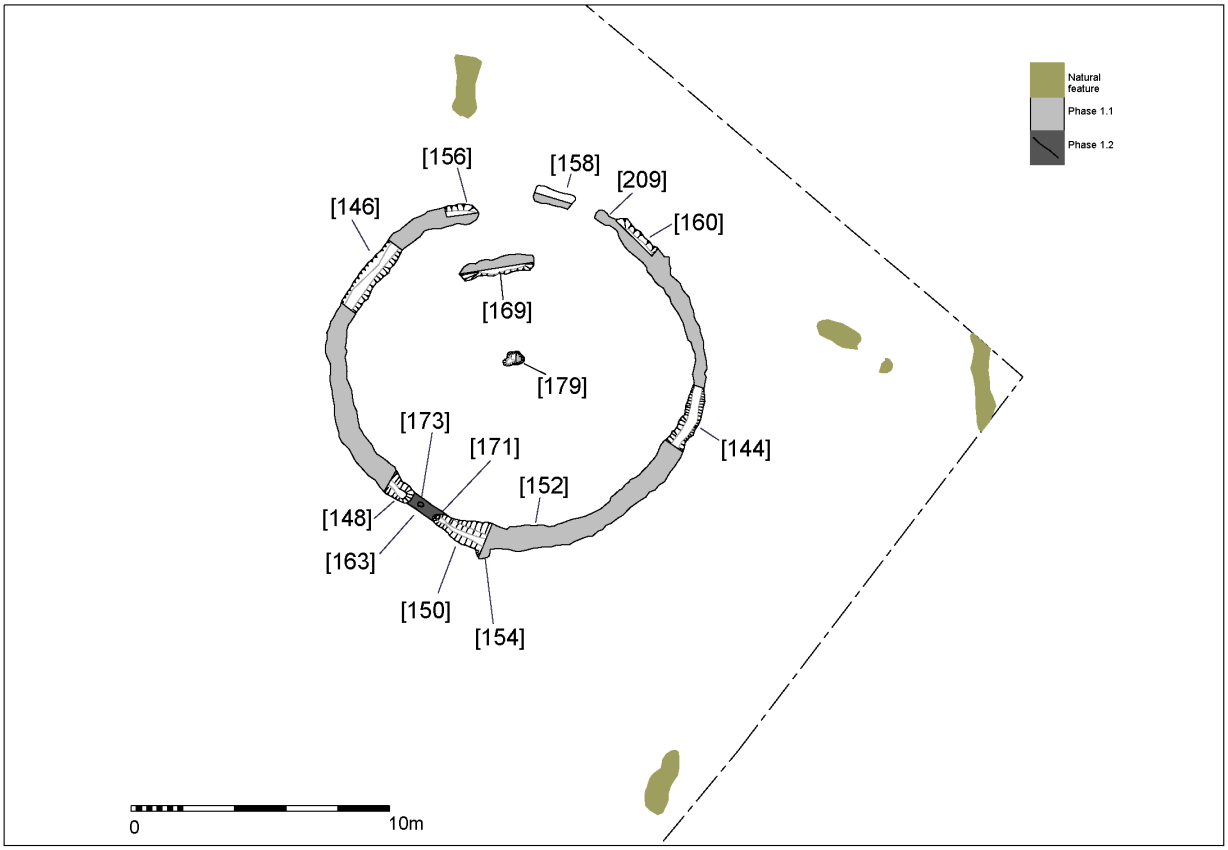


Figure 9: Ring Ditch 2: Possible hengiform monument.

The ditch was cut into the natural bedrock and because of this the edges of the cut were rather irregular – it was up to 0.73m deep, decreasing to 0.34m towards the north-east. Although truncation made it difficult to be certain, it appeared to be slightly wider on the east-west axis rather than a true circle with internal dimensions of 13.5m east–west and 12.5m north–south. The sides sloped gradually with a gently concave profile onto a flat bedrock base (Fig. 10).

The ditch contained a single fill – a sterile mid-yellow to orange-brown loose sandy silt with occasional stone fragments. No finds were recorded either during the trenching or the excavation despite 100% excavation of the fill, and no palaeoenvironmental evidence was recovered from samples.

 

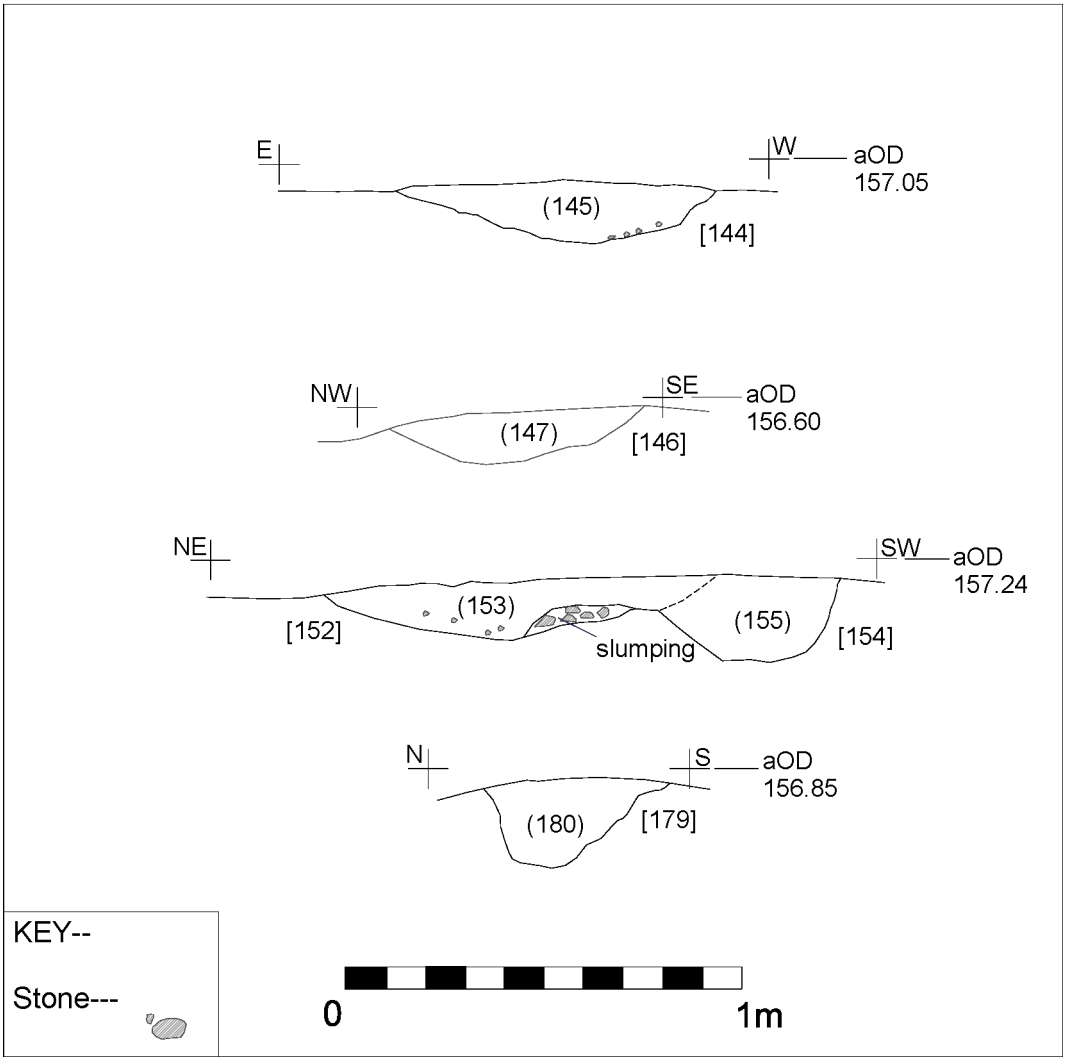


Figure 10: Ring Ditch 2 sections.

The southern side of the ring ditch initially appeared to be continuous, but to the south-west the ditch narrowed and a longitudinal section there identified two terminals represented by cuts [148] and [150] creating a possible entrance *c*. 1m wide, with the ditch having steeper sides but also becoming shallower to the west (Figs 11–12).

Two shallow postholes were also recorded, one cut [171] in the narrow gap between the terminals and the other [173] within the base of ditch terminal [148]. Both postholes were 0.20m in diameter with U-shaped profiles and depths not exceeding 0.05m, and their fills were the same as the ditch deposit. No finds were recovered.

A small pit or posthole cut [154] was also identified on the southern side of the ring ditch, a short distance from the south-western entrance. This feature was 0.5m wide and 0.20m deep with steep sides forming a U-shaped profile, and its single fill was a darker orange brown silt. Although the relationship was difficult to determine, it may have been earlier than the ring ditch RD 2.

At the north-eastern side of the feature the ditch became more irregular and segmented, possibly due to later truncation by ploughing although the extent and depth of this disturbance

 

was sometimes unclear. A longitudinal slot through ditch cut [156] identified a ditch terminal with moderately sloped sides and a depth of 0.18m. Identifying the opposing terminus proved difficult with the ditch tailing off as shallow cut [209], with a possible truncated continuation to the west as cut [158].

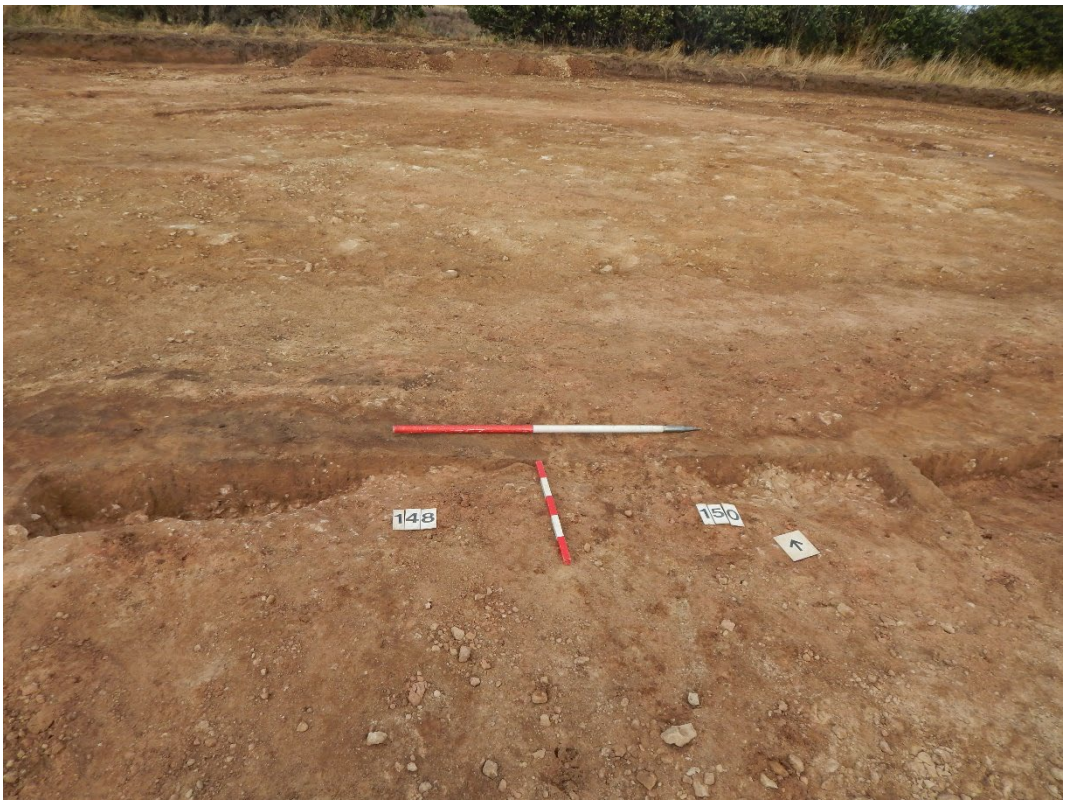


Figure 11: Longitudinal sections through ditch terminal cuts [148] and [150] looking north. The closing deposit is also visible.

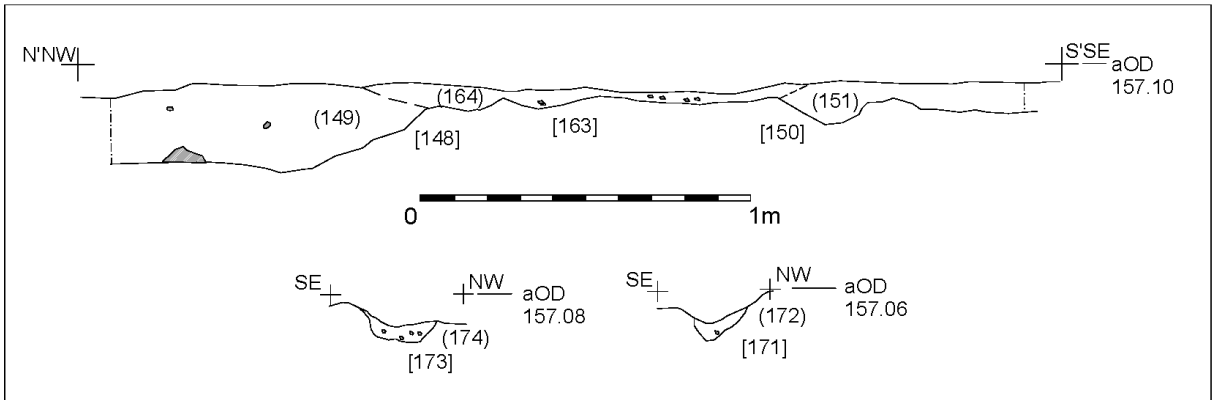


Figure 12: Section through ditch terminals [148] and [150], and posthole cuts [173] and [171].

Approximately 1.6m south of the northern entrance of Ring Ditch 2 was a short linear ditch or gully segment [169] orientated west by south and east by north and up to 2.80m long, 0.63m wide and 0.19m deep, with gently sloping sides and a flat base. This feature might have formed a blocking feature to anyone entering from the northern entrance and was perhaps the

 

foundation for a wooden screen or fence. The fill was identical to that of the ring ditch, a mid-yellow to orange-brown loose sandy silt (Fig. 13). No finds were recovered, so although [169] may have been contemporary with the use of Ring Ditch 2 this cannot be proven.


Figure 13: Longitudinal section through cut [169] looking north with terminal [156] in the background.

Within the interior of Ring Ditch 2 just north of the centre was a single shallow pit cut [179]. This had a diameter of 0.60m and was up to 0.23m deep with steep sides forming a U-shaped profile. The fill was a mid-greyish brown silty sand with no organic material or charcoal to suggest a cremation burial, and no finds were recovered. The feature could have originally formed the base of a central timber post.

### *Phase 1.2 – Late Neolithic/Early Bronze Age*

*Ring Ditch 2 – Closure of entrances*

Ditch re-cut: [163] (164)

At some point it appears that the south-western entrance of Ring Ditch 2 was closed down or blocked in some manner. Re-cut [163] had very shallow sides and was much narrower than the rest of the ditch at this point (see Figs 11–12). The fill (164) was mid-yellow to orange-brown loose sandy silt. On the northern side of Ring Ditch 2, later truncation made it impossible to determine if the northern entrance had similarly been closed during this phase although it is

 

possible that the shallow segment [158] represented a re-cut of the northern entrance, rather than the original ring ditch.

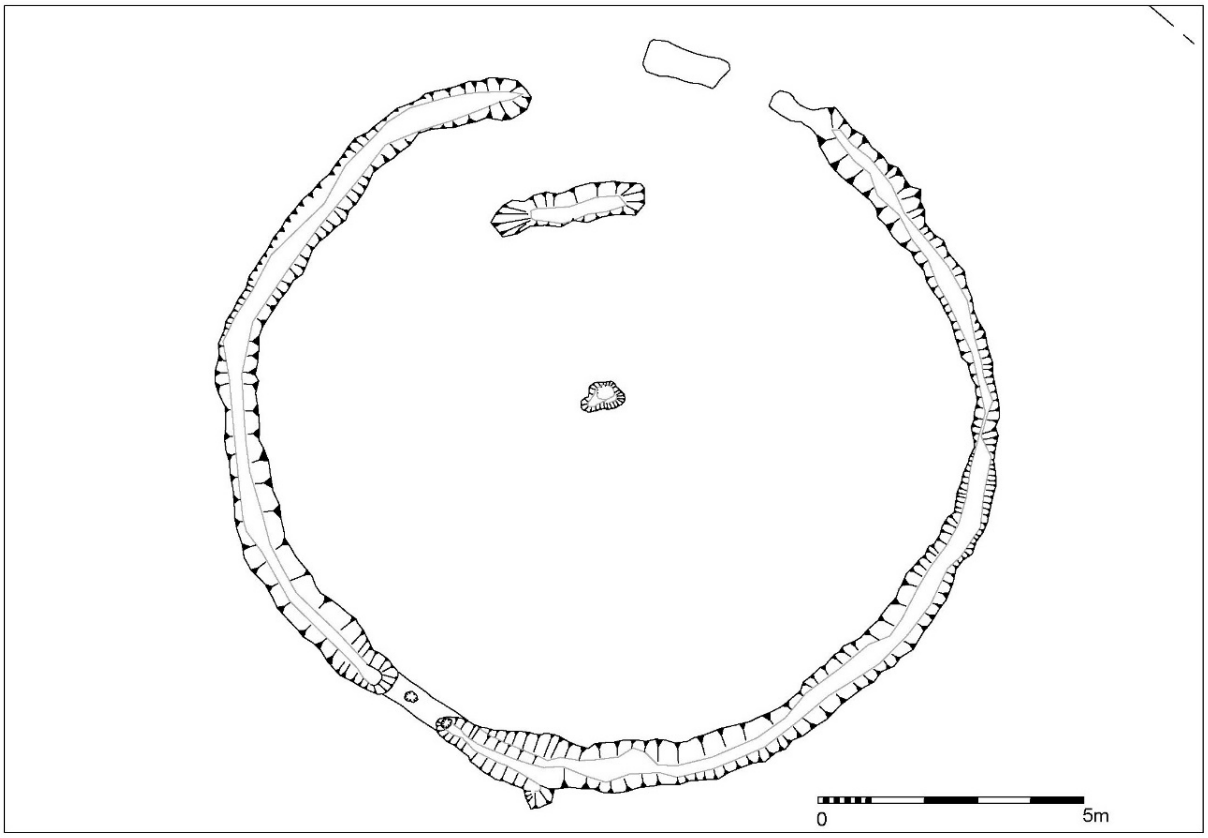


Figure 14: Phase 1 Ring Ditch 2 fully excavated.

### *Phase 2.1*

*Ring Ditch 1 (RD1) – C-shaped enclosure*

Ditch cuts and fills: [165] (166), [175] (176), [177] (178), [181] (182), [189] (190)
Slot: [167] (168)
Terminals: [183], (184)
Cremation burial 7, Pit: [104] (107) (108)

Near the centre of Area A and approximately 12m west of Ring Ditch 2 was Ring Ditch 1, which was situated beneath a patchy spread of subsoil making initial identification of the plan difficult. Following hand cleaning, however, it became clear that the ring ditch was open-ended on the western side forming a 'C-shaped' feature or enclosure (Fig. 15). This was in contrast to the previous evaluation trench that had identified a possible western side to the ring ditch.

Ring Ditch 1 was 10.30m across on a north–south axis, with a ditch up to 0.90m and 0.23m deep, its maximum depth being on the south-eastern side. The sides sloped at a gentle to moderate angle to a flat base and lessened in gradient towards the north-west where the ditch became very shallow (0.01m deep) between ditch slot [177] and the northern terminal [183].

Although C-shaped overall the ditch actually appeared to consist of a number of straight segments – this was particularly evident with the southern side (Fig. 17) and might indicate

 

that the feature was originally dug in a series of linked sections although there was no additional evidence for this in the excavation slots.

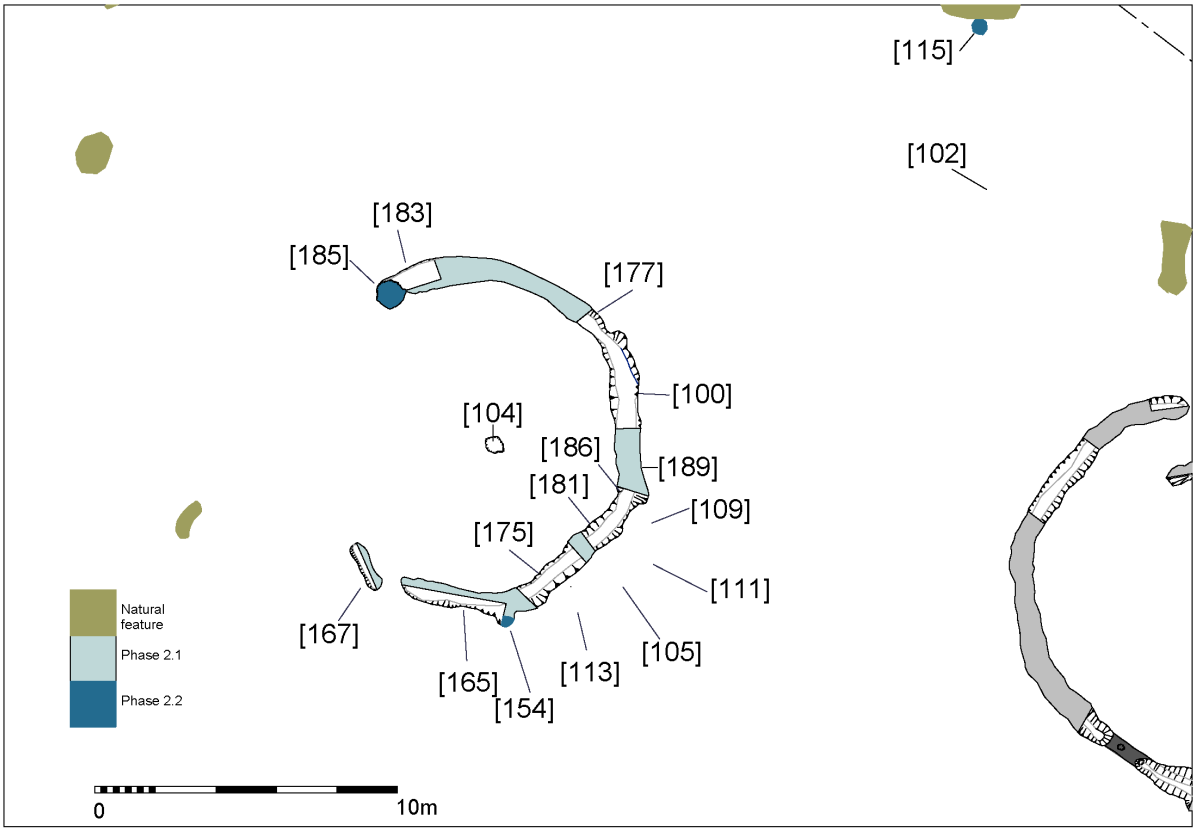


Figure 15: Ring Ditch 1 C-shaped enclosure.

 

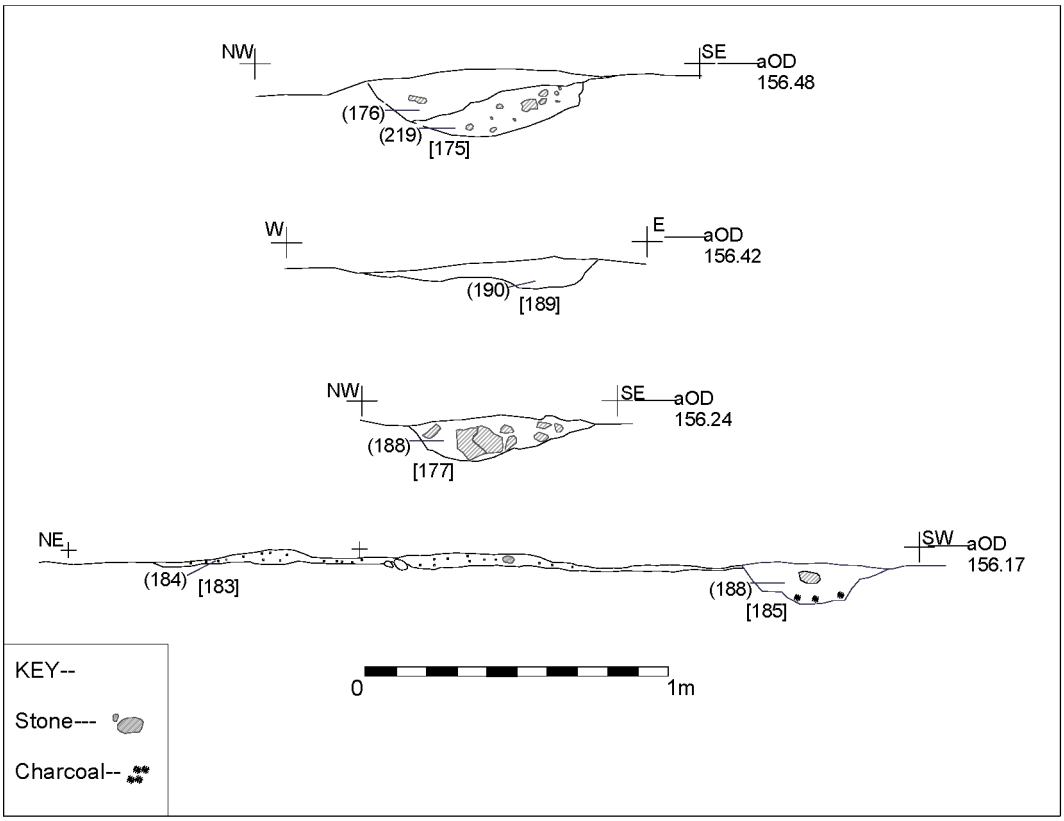


Figure 16: Sections of C-shaped enclosure ditch.

Figure 17: C-shaped enclosure ditch (RD 1) being excavated looking south-east.

 

Ring Ditch 1 contained a single fill – a mid-orange brown sandy silt, with very occasional stone fragments. No finds were recorded from the ring ditch either during the trenching or the excavation despite removing 100% of the fill. No palaeoenvironmental evidence was recovered from the samples. To the south the ditch was truncated. A longitudinal section through cut [165] revealed a very gradual slope westwards where it had a depth of less than 0.05m making it difficult to identify the southern ditch terminal. Just to the west was a short linear slot [167], aligned north-west to south-east and 2.0m long and up to 0.09m deep. Its orientation was slightly different to the rest of the enclosure and it appears to have been a separate feature although it shared the same cut characteristics and had a similar fill.

Within the enclosure interior was a pit cut into the bedrock, slightly to the east of centre. Pit [104] was sub-oval in plan and 0.65m deep with vertical sides falling to a flat base – it contained 1322.3 grammes of cremated human bone (Cremation burial 7). The lower primary deposit (108) within the pit was a very dark greyish-black and friable silty sand with abundant quantities of cremated bone. The upper deposit (107) was a mid-brownish-grey loose silty sand 0.12m thick with less visible bone. Once the fill was removed the bedrock beneath was visibly heat-affected suggesting that some of the cremated material was still hot when deposited (Figs 18–19). A retouched narrow flint blade was also recovered from pit [104], and oak and hawthorn charcoal retrieved from samples. The cremated remains were of an adult individual (18+ years), with no skeletal elements suitable for an assessment of possible biological sex. A radiocarbon ($^{14}$C) date of 1778 – 1626 cal BC at 78.1% confidence was obtained from the bone.

The scorched pit base could indicate that still-hot remains were scooped up off a pyre and deposited within the pit. The severe scorching, however, might suggest a bustum-type burial, where the body is burnt on a pyre over the top of a pit allowing the bone to fall downwards once the cremation process is complete. The $^{14}$C dates suggest that Cremation burial 7 fell within the same date range as the urned cremations, particularly Cremation burials 1 and 2. Cremation burial 7 thus appears qualitatively different to the other burials associated with Ring Ditch 1, and the fact that one of the urned cremation burials was cut into the ring ditch suggests that there were at least two phases of deposition with the urned cremations probably belonging to a slightly later phase. Cremation burial 7 could therefore be regarded as a primary or founding interment (but see Discussion).


Figure 18: Pit [104], Cremation burial 7.

 

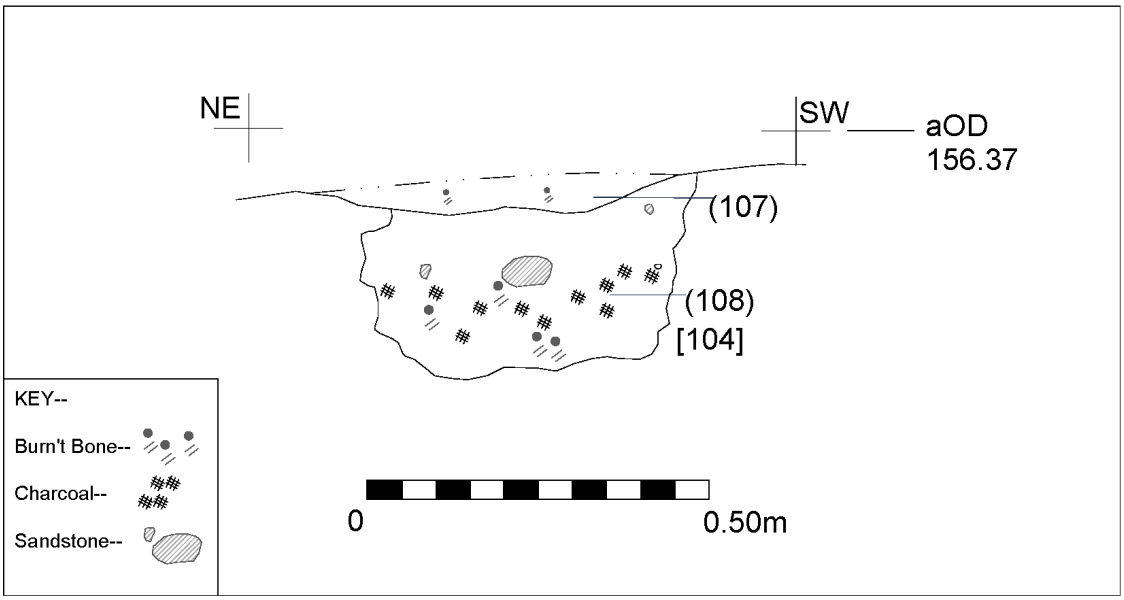


Figure 19: Section of pit [104] containing Cremation burial 7.

### *Phase 2.2*

*Urned cremation burials*

Cremation burial 1, Pit [100] (101), Urn SF1
Cremation burial 2, Pit [102] (103), Urn SF2, Accessory cup SF9
Cremation burial 3, Pit [105] (106), Urn SF3, Accessory cup SF10
Cremation burial 4, Pit [109] (110), Urn SF4
Cremation burial 5, Pit [111] (112), Urn SF5, Accessory cup SF11
Pit [113] (114) (no cremation), Urn frags SF6
Pits: [185], [186] (187), (188), [115], (116)

A number of urned cremation burials were located around the east and south-eastern side of the C-shaped enclosure Ring Ditch 1 (Fig. 20).

 

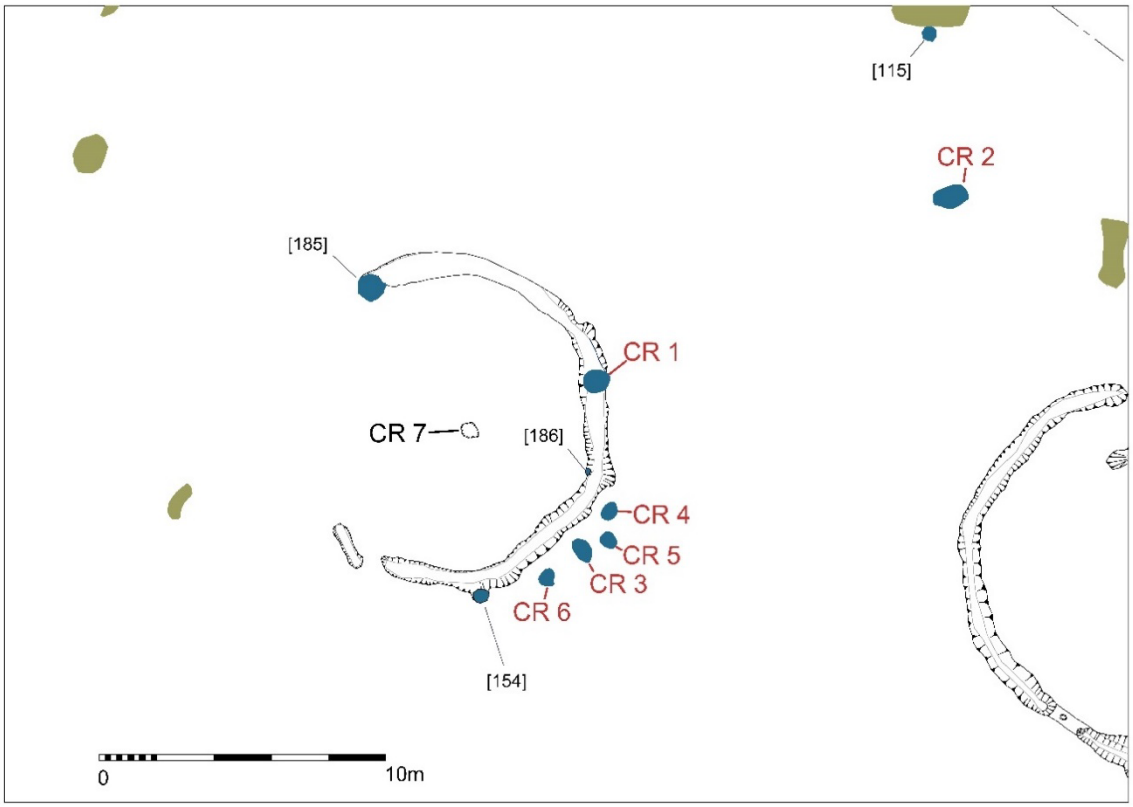


Figure 20: Ring Ditch 1 C-shaped enclosure Phase 2.1 plan.

Cremation burial 1 was found within pit cut [100] on the eastern side of the C-shaped enclosure, dug through the top of the ring ditch fill (190). The pit was subcircular, 0.80m in diameter and up to 0.20m deep with its flat base cut into the bedrock, and a funerary urn (SF1) lay on its side within the pit although a large part of the uppermost side of the vessel had been destroyed by later ploughing (Fig. 21). No other finds were present but oak charcoal was found in palaeoenvironmental samples of the fill, and 1490.3g of cremated human bone was recovered from an adult, possibly female individual. A $^{14}C$ date of 1882–1681 cal BC at 93.8% confidence was obtained from the cremated bone.

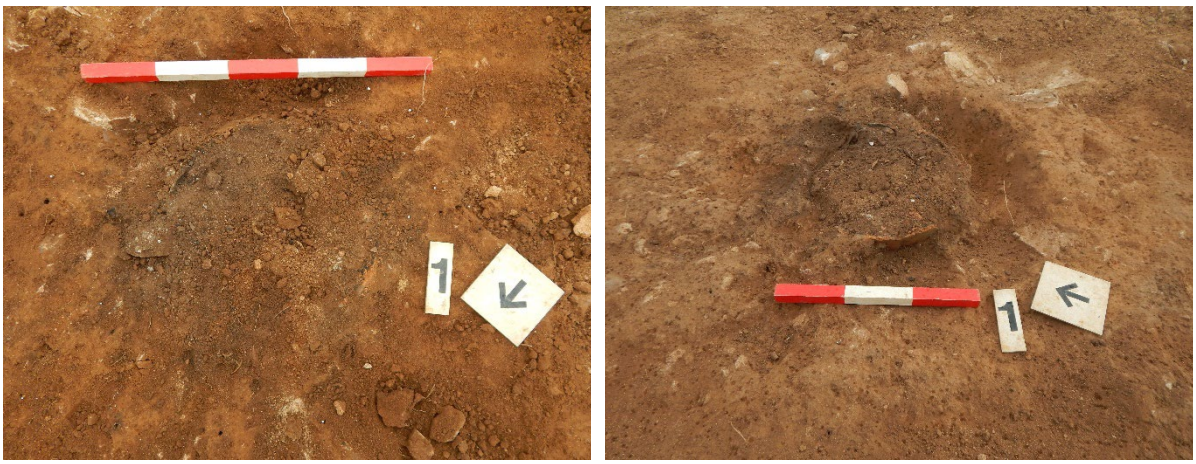


Figure 21: Pit [100] with urned Cremation burial 1 during excavation.

 

Three additional urned cremations were located close to one another near the south-eastern outer edge of the ring ditch. Pit [105] (Cremation burial 3), pit [109] (cremation burial 4) and pit [111] (Cremation burial 5) were all subcircular features 0.40m–0.60m across and 0.21m–0.25m deep with flat rock-cut bases, though their profiles varied with [105] having near vertical sides, a moderate slope in [111], and an irregular gradient in [109]. Collared Urns in pit [105] Cremation burial 3 (SF3) and pit [111] Cremation burial 5 (SF5) were found on their side and had again been damaged by ploughing with the upper side of the urns destroyed (Fig. 22). It is unclear if the urns had originally been laid on their sides, or if later ploughing had clipped the vessels and dragged them over. Both burials contained small accessory cups – the example in Cremation burial 3 was inverted and within the Collared Urn alongside the cremated bone, whereas the accessory vessel in Cremation burial 5 was within the pit lying against the outer wall of the Collared Urn, thought it may have fallen out of the larger pot when it was truncated. Pit [109] Cremation burial 4 also contained a Collared Urn but no accessory vessel – the urn was found lying at an angle and plough truncation had removed a large part of the upper profile which may well destroyed any smaller pot placed within it (Fig. 23 and see Fig. 50).


Figure 22: Pit [105] and urned Cremation burial 3 during excavation.


Figure 23: Pit [109] and urned Cremation burial 4 during excavation.

 

Cremation burial 3 also contained two refitting fragments of a broken flint flake, possibly a discoidal tool, along with 3305.7g of human bone representing the remains of two adults with one larger and one slighter skeleton of possible biologically male and female individuals. Oak charcoal, fish bones, a hazelnut shell and one charred cereal grain were retrieved from samples. A $^{14}$C date of 1696–1538 cal BC at 84.5% confidence was obtained from the bone. Cremation burial 4 yielded 1442.5g of human bone from an adult but also from an infant aged six to twelve months old. Oak charcoal was found in samples, and a $^{14}$C date of 775–1623 cal BC at 85.8% was obtained from the bone. Cremation burial 5 contained a broken and heavily burnt flint flake or blade along with a possible piece of flint debitage; along with 1216.3g of human bone from an adult, possibly female individual. No $^{14}$C date was obtained from this burial, but oak charcoal, a hazelnut shell and a barley cereal grain were recovered from samples.

Pit [113] in close proximity to these three urned cremations was more disturbed and contained urn fragments (Cremation burial 6; Fig. 24). The pit was up to 0.79m across and 0.30m deep with a dark brownish grey fill (114) – some slight reddening was evident on the bedrock base which might again indicate the movement of hot material from the pyre site of the cremation. It is likely that the associated Collared Urn was truncated and destroyed by ploughing, and the smaller quantity of human bone recovered (320.9g) was from an adult individual. Oak and hawthorn charcoal and charred grass tubers were recovered from samples. No $^{14}$C date was obtained from this burial.


Figure 24: Disturbed pit [113] and Cremation burial 6.

A fifth urned cremation pit [102] containing Cremation burial 2 was located approximately 13m north-west of Ring Ditch 1, roughly equidistant between the C-shaped enclosure and the hengiform feature. The oval cut was up to 0.60m long, 0.40m wide and 0.20m deep, with vertical sides and a flat bedrock base (Fig. 25). The Collared Urn (SF2) was also found on its side and although much of one side had been destroyed by ploughing, it contained another accessory vessel (SF9) – an unusual miniature bi-partite Food Vessel. The cremated human remains weighing 1432.5g were from an adult and an infant, and charred oak and hawthorn charcoal was also recovered. No $^{14}$C date was obtained from this burial.

 


Figure 25: Pit [102] and urned Cremation burial 2 during excavation.

The fills within the cremation burial pits were all fairly similar and consisted of dark brown, friable sandy silt, although deposits (110) and (112) varied in having very dark greyish and reddish-brown silty sand. Fills (101), (106), (110) and (112) also contained varying amounts of small to large stone fragments, whilst fills (103) and (106) contained visible charcoal flecks along with burnt human bone fragments.

The $^{14}C$ dating suggests that Cremations burials 1, 2 and 3 may have formed a group. Cremation burial 1 was cut into the silted-up ring ditch fill, whilst Cremation burials 3–6 appeared to respect the position of the ring ditch, suggesting the C-shaped enclosure was already in existence when the burials took place. They are all therefore assumed to represent a slightly later phase than Cremation burial 7. Cremation burial 4 is statistically slightly later and also contained typologically different pottery and is thus more likely to have been a later feature. Cremation burials 3, 5 and 6 appeared to form a straight line, but it is unclear whether or not this was due to them respecting one of the straight-sections of the C-shaped Ring Ditch 1 or if this reflected some form of familial or other social relationship between them.

Other features associated with Ring Ditch 1 or in the vicinity might also represent the remains of now destroyed cremation burials, or practices associated with funerary rites. A possible small shallow pit [154] appeared to cut the southern side of the ring ditch, but it was very shallow and may well be just a variation in the natural bedrock. Pit [186] on the inner eastern edge of the ring ditch was 0.20m deep with a concave profile containing a mid-brown silt upper fill (187) and a dark grey black lower fill possibly suggesting evidence for burning.

Pit [185] was a well-defined circular pit 1m in diameter and cut into the northern ditch terminal. It was 0.14m deep with vertical sides and a flat base. The fill (188) was a dark blackish grey soft silty sand with charcoal flecks and was clearly defined against the fill of the earlier ditch terminus. The base appeared to be heat-affected and whilst there was no evidence for cremated remains it did appear to have contained hot material (Fig. 26).

 

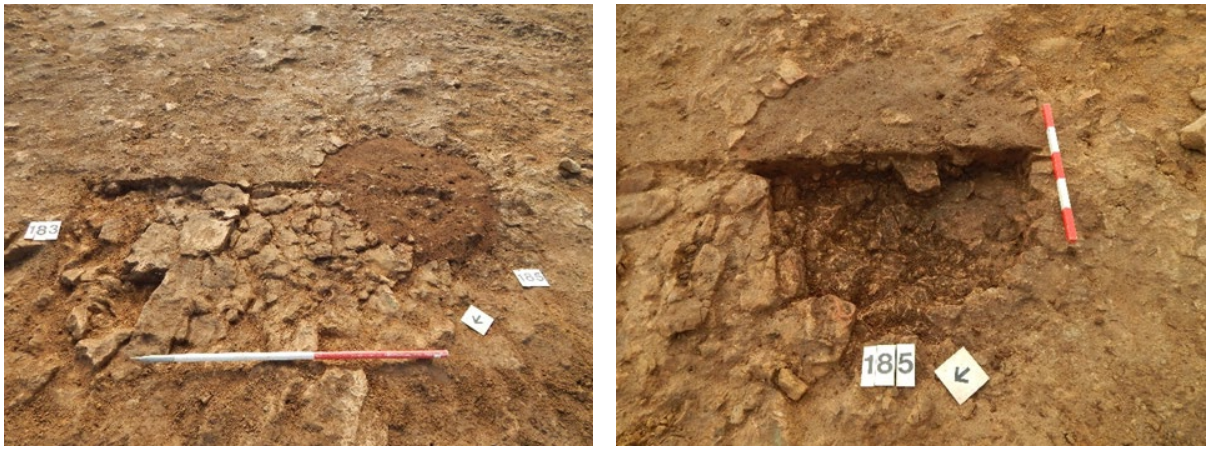


Figure 26: Pit [185] cutting into ditch terminal [183], looking south-west and partly excavated showing heat affected base.

An isolated small pit [115] was identified three metres from the north-eastern excavation limit, and over 10m north of Cremation burial 6. It had a well-defined circular shape approximately 0.40m in diameter and 0.27m deep, with steep sides, a U-shaped profile and an irregular base. The single fill (116) consisted of a dark blackish grey silty sand with charcoal flecks and occasional small, rounded pebbles (Fig. 27). Although no relationship to any of the other features could be determined, it did share similarities to other features.

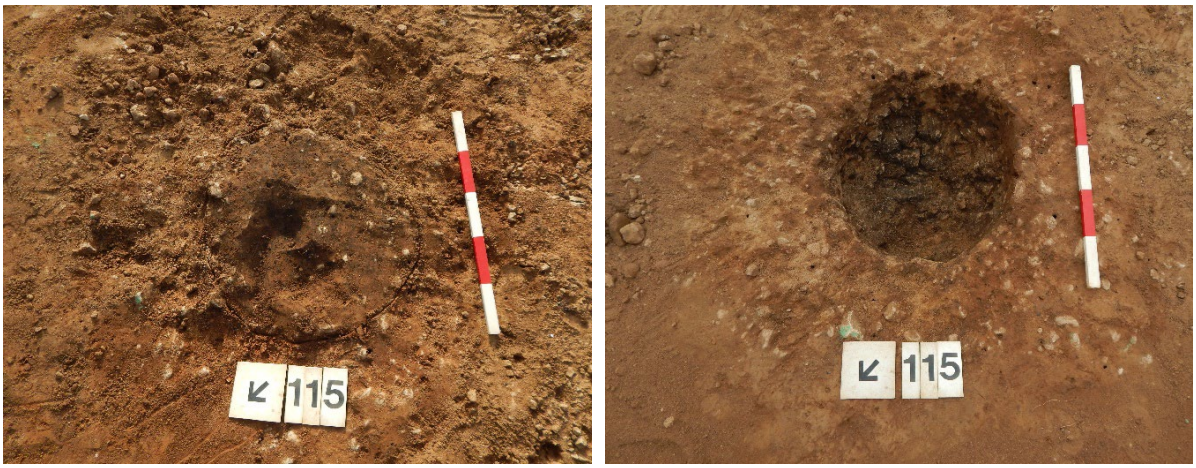


Figure 27: Pit [115] pre- and post-excavation looking south-east.

### *Unphased*

Postholes: [117] (118) (119), [120] (121) (122), [123] (124) (125), [126] (127) (128)

A posthole structure was identified 5m to the south-east of Ring Ditch 2, made up of four postholes forming a 2.5m square (Fig. 28). The postholes were well-defined with diameters of 0.30m to 0.40m, steep sides, and depths of 0.20m–0.24m with concave bases (Fig. 29). Two deposits were present in each posthole. The primary deposits were mid-brownish grey silty sand with stone fragments up to 0.10m thick which might have been post-packing. The upper deposits were a mid-brown loose sandy silt material.

 

No dating evidence was recovered from the posthole fills and it is hard to know which phase the structure was associated with or its original purpose. Four-post structures were generally a feature of settlements from the mid-Bronze Age through into the Iron Age and Romano-British periods and there is evidence that at least some were raised granary stores, but they might have performed a wide variety of functions (see Discussion). This may therefore have been a later feature on the Site.

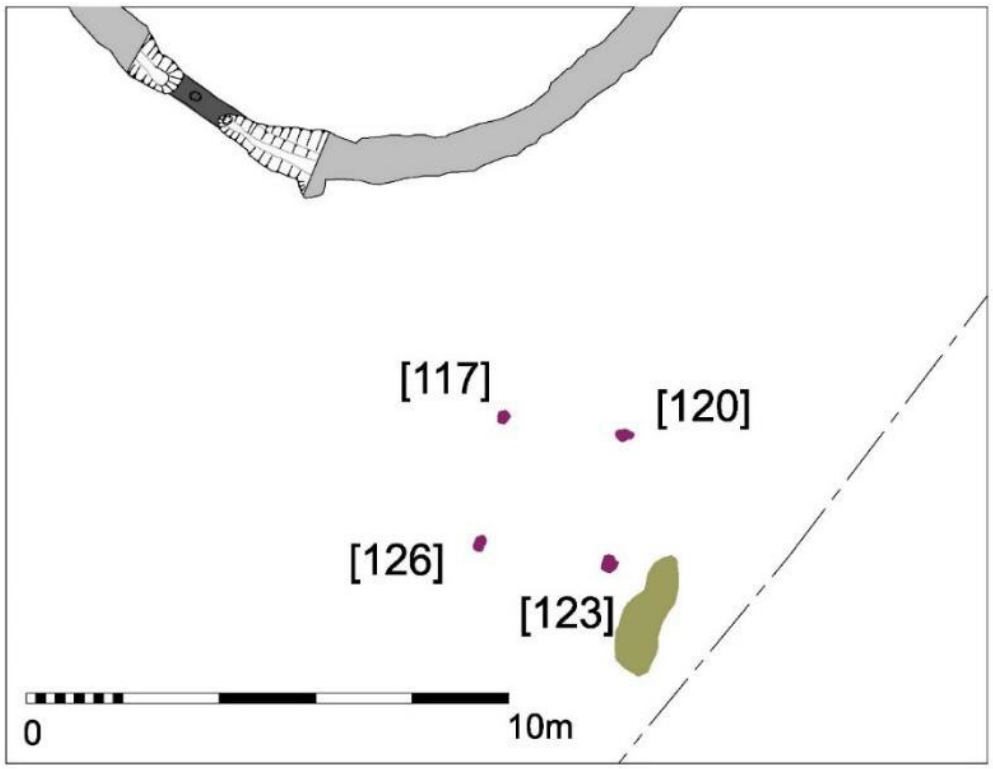


Figure 28: Four-post structure south-east of Ring Ditch 2.

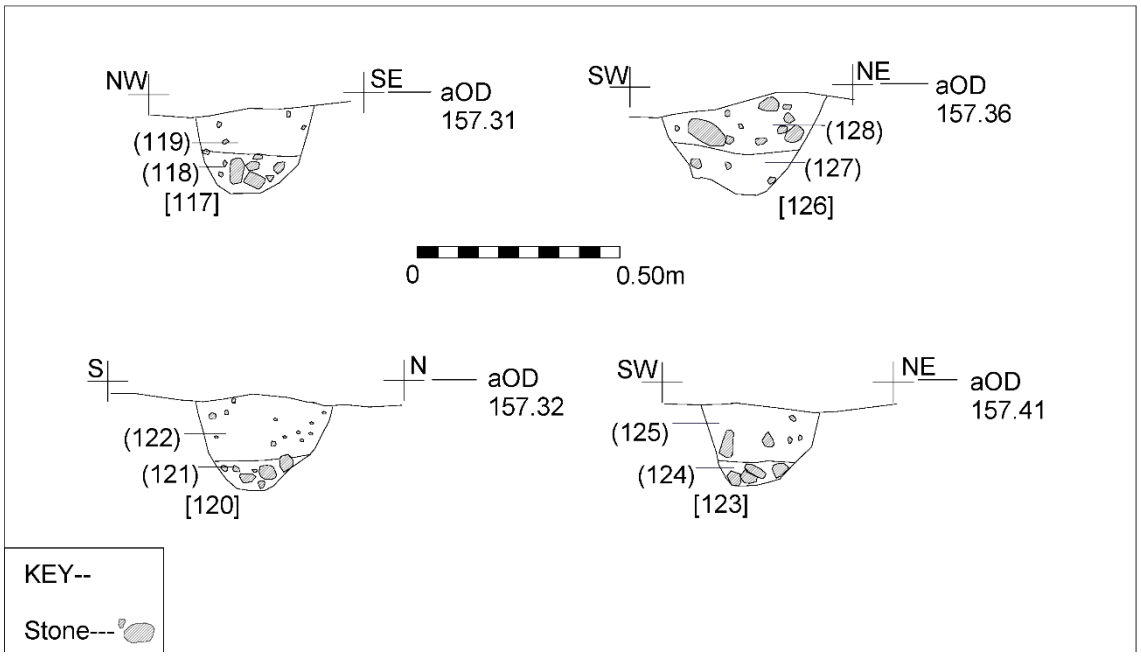


Figure 29: Sections through four-post structure postholes.

 

Figure 30: Aerial view of Area A partially excavated, with north-east at the top.

 

### *Phase 3*

*Ring Ditch 3*

Ditch: [193] (194) (195), [196] (197) (198), [199] (200) (201), [202] (211) (212) (213), [203] (204) (205), [206] (207) (208), [216] (217) (218)
Postholes: [220] (221), [222] (223), [224] (225), [226] (227)
Cremation 8, Pit [129] (130)
Cremation 9, Pit [131] (132) (133) (134) (135) (136) (137) (138) (139)
Cremation 10, Pit [140] (141)
Cremation 11, Pit [142] (143)

Ring Ditch 3 was located approximately 190m north-east of Area A on a similar elevation but separated by lower-lying ground. The ring ditch was roughly circular in plan but dug in a series of straight sections – this may be due to excavating through the natural bedrock, however, rather than any particular design. It was slightly wider north to south (15m internally) than east to west (13.50m internally). The ditch width varied from 1.00m along the south-west side, broadening to the north to 1.90m (Figs 32–33, 38), and the sides were moderately steep with a depth of 0.30m–0.50m onto a flat bedrock base (Fig. 33). The previous evaluation trench was visible extending north-east to south-west through the southern part of the ring ditch.

Figure 31: Cleaning of Ring Ditch 3 in Area B, looking south-east.

Two ditch fills were identified with a third fill visible on the eastern side. The primary fill was a mid-yellowish brown sandy silt containing subangular bedrock fragments. The upper silting deposit was very similar but contained considerably fewer stone fragments. Most excavated sections showed the deposits slumping down from the inner edge of the ring ditch, suggesting the presence of an eroding mound or bank (Fig. 34). The exception was along the north-eastern side [196], where the primary deposit (197) was more evenly spread across the lower ditch cut. This layer was a slightly different dark reddish brown sandy silt and was the only fill containing charcoal inclusions. The upper deposit was fill (198) (Fig. 35).

 

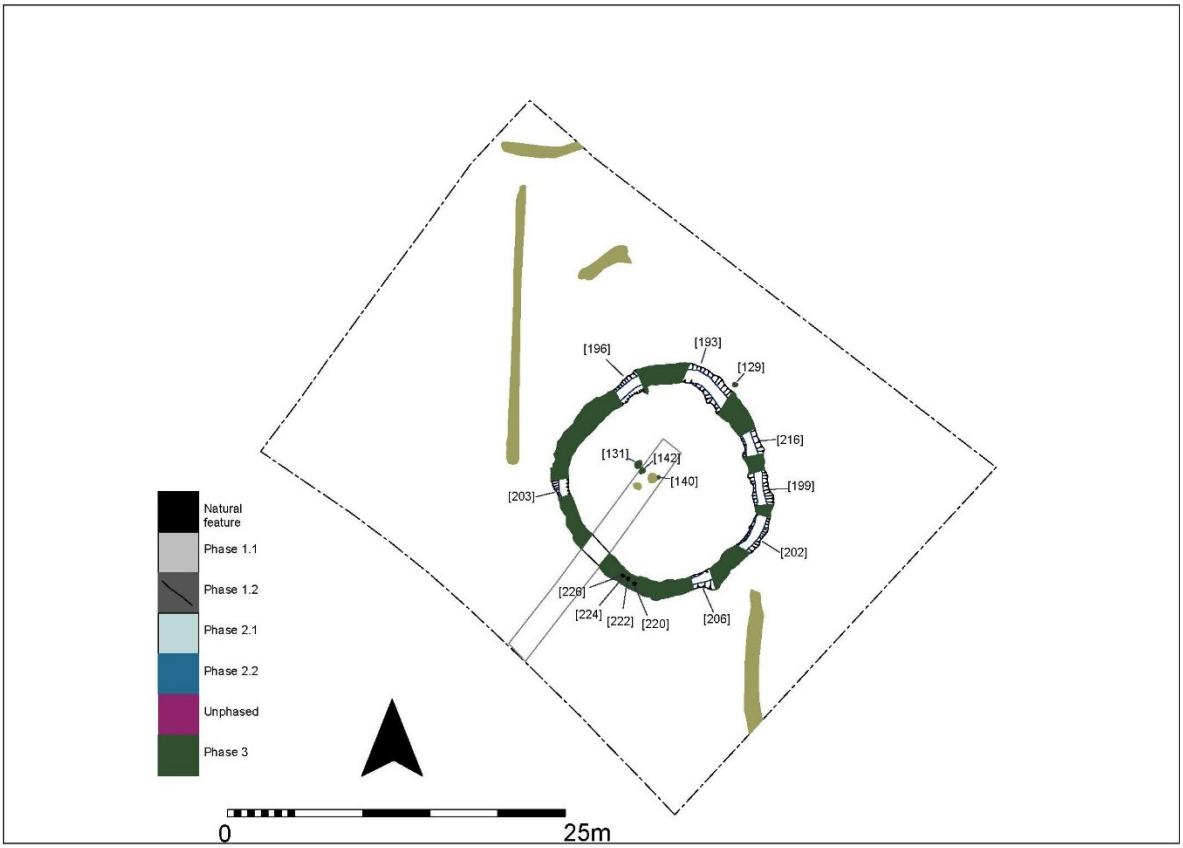


Figure 32: Area B Ring Ditch 3.

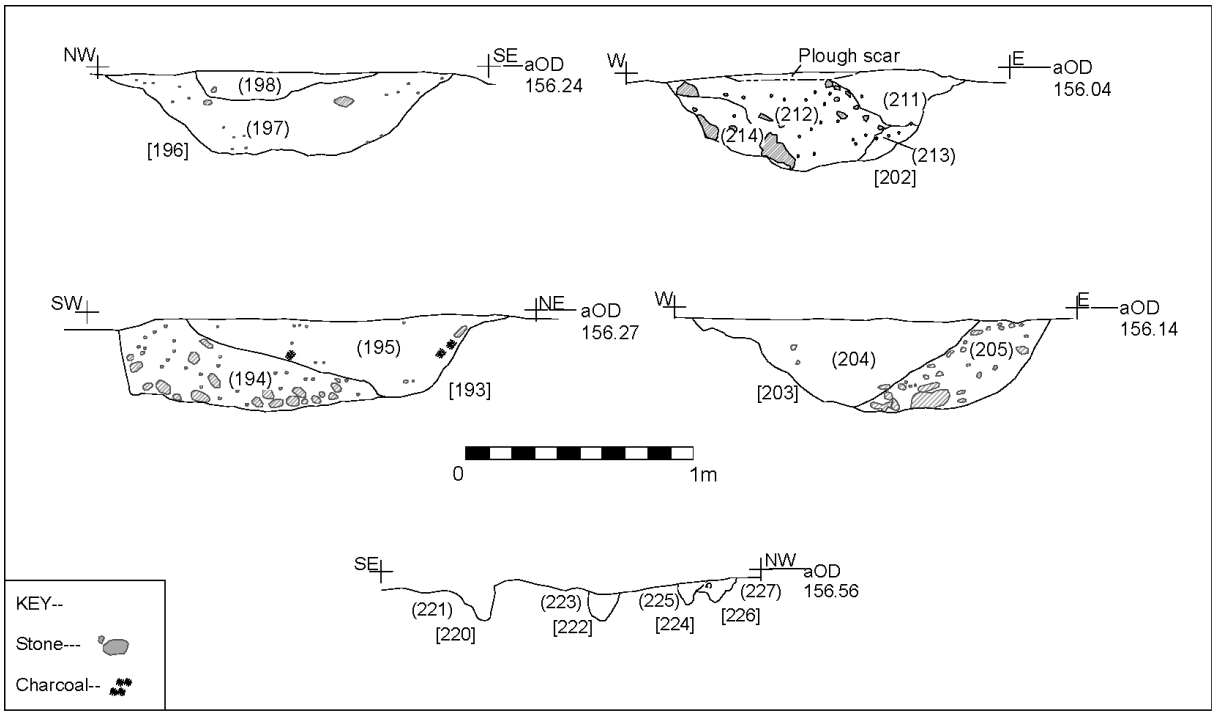


Figure 33: Ring Ditch 3 sections and postholes cutting ditch base.

 


Figure 34: Excavated sections through Ring Ditch 3 showing the slumping of material from the inner side of the ditch and redeposited stone in the ditch base.

 


Figure 35: Section [196].

Along the eastern side of the ring ditch there was a slight change in fill. Excavated section [202] contained a mixed dark greyish and yellowish-brown sandy silt (214), slumping in from the interior of the ring ditch – this could have originated from the original topsoil/vegetation dug out from the ditch. Above (214) was a thick deposit of re-deposited natural upcast (212), with the tertiary silting phase (211) along the eastern edge (Fig. 36).

Figure 36: Section [202] longitudinal and transverse sections.

The previous Oxford Archaeology East trenching had recovered one sherd of probable Early Bronze Age Collared Urn pottery. A geological fault was discovered in the base of the ditch [193] on the northern side of the ring ditch. It is unknown whether this would have been a visible feature on the Bronze Age ground surface and thus a factor in siting the ring ditch, but during excavation two post-Second World War beer bottles were found within the fault, suggesting it had remained open for some time.

 

Four postholes were cut into the base of the southern side of Ring Ditch 3. Postholes [220] and [222] were the most substantive with diameters of 0.18m and 0.22m, steep-sided U-shaped profiles and depths of 0.17m onto irregular bases (Fig. 36). To the west were postholes [224] and [226] with diameters of 0.10m and 0.15m – these were shallower at 0.11m. All four features contained a similar fill to the ditch deposits.


Figure 37: Postholes in the base of the southern part of Ring Ditch 3.

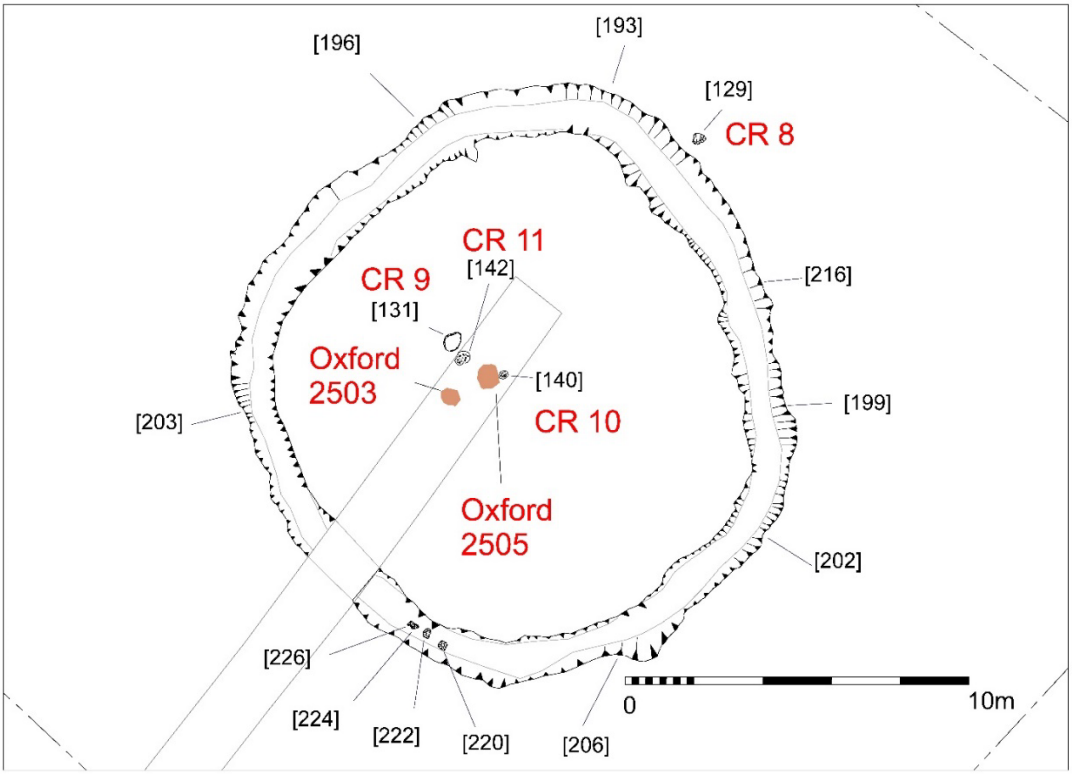


Figure 38: Ring Ditch 3, post-excavation plan and location of cremation burials.

 

Five cremation burials were identified associated with Ring Ditch 3. Four of these were within the interior (Cremation burials 2503, 2505, 9 and 11), with another (Cremation burial 8) outside of the north-eastern edge of the ring ditch (Fig. 38)

A previous evaluation trench (Trench 25) identified two cremation burials in small subcircular pits. Oxford pit 2505 was near the centre of Ring Ditch 3 and was 0.62m across and 0.15m deep with two fills – a thin basal fill of mid-reddish brown silty clay with occasional charcoal inclusions (2506), overlain by a dark greyish brown sandy silt with frequent charcoal inclusions (2507). The two fills contained 21g of cremated human remains from an older subadult or adult individual, along with charred cereal and weed seeds, grass tubers, and abundant charcoal. To the south-west of was Oxford 2503, a pit 0.45m across and 0.13m deep with a single dark blackish grey clayey silt fill with frequent charcoal inclusions (2504). This fill yielded charcoal, and mollusc shells, along with 210g of cremated human bone from two individuals – a single adult or older subadult and a neonate.

During the excavation two additional cremation burials were identified within the interior of Ring Ditch 2. Pit [131] was located towards the north-western side of the ring ditch, and was a subcircular feature 0.65m across and 0.27m deep with vertical sides and a flat base. The pit contained Cremation burial 9. The primary deposit (133) consisted of very dark greyish black charcoal in a sandy silt matrix 0.03m thick, overlain by fill (134) which was dark greyish black silty sand with frequent charcoal flecks and very small fragments of cremated bone. Re-deposited natural material (132) up to 0.14m thick had slumped from the south-western side of the pit, in the form of light yellowish brown silty sand with crushed sandstone and sparse burnt bone flecks. Above this were several similar, thin deposits containing charcoal and human bone fragments (Figs 39–40). As with Cremation burials 6 and 7 in Area A, the rock-cut base was visibly heat affected. A finely retouched flint blade fragment was recovered from pit [131], along with some debitage; and a calcined, perforated fragment of mammalian long bone (Fig. 54) fashioned into the handle of a tool. The cremated human bone weighed 2398g and represented the remains of an adult, possibly female individual with some evidence of early degenerative joint disease. A $^{14}$C date of 1629–1501 cal BC at 95.4% confidence was obtained from the cremated bone. Oak charcoal, and charred grass tubers, two cereal grains and two hazelnut shells were found in samples.


Figure 39: Pit [131] and Cremation burial 9, before, during and after excavation.

Pit [142] containing Cremation burial 11 was situated just to the south-east of pit [131] (Fig. 42), and was 0.38m across and 0.10m deep – it may have been truncated by the edge of the previous evaluation trench. The fill (143) was soft mid-yellowish brown silt with charcoal and 41.8g of bone from a possible adult individual (Figs 41 and 43). Oak charcoal was also recovered from samples. No $^{14}$C date was obtained.

 

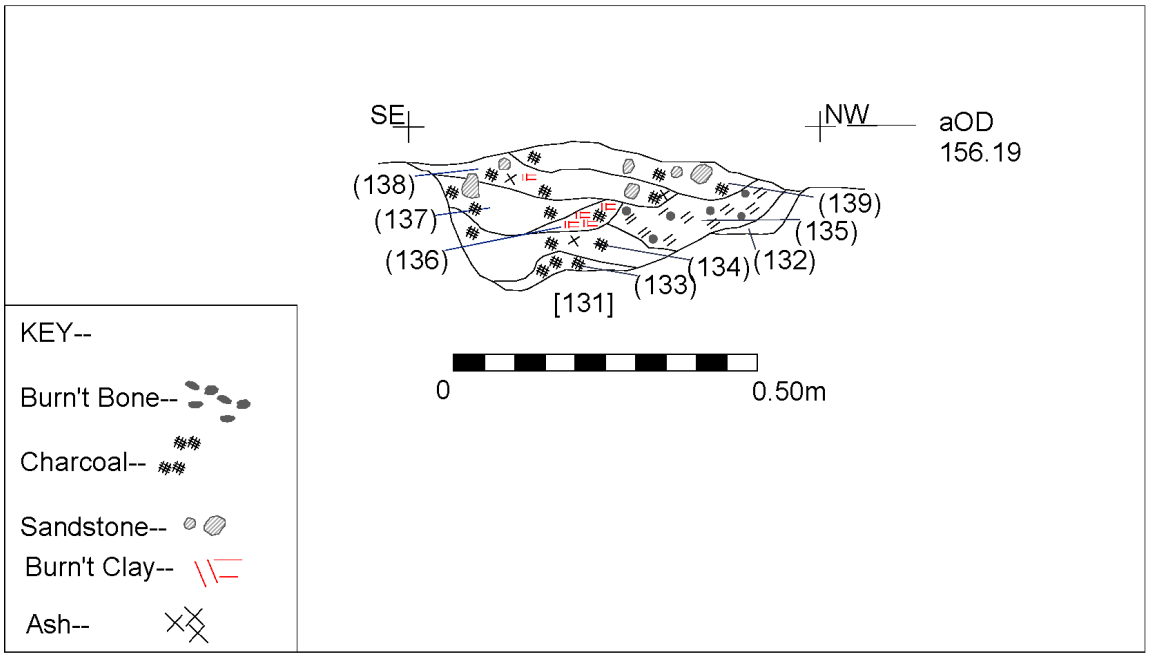


Figure 40: Pit [131] and Cremation burial 9 section.


Figure 41: Pit [142] and Cremation burial 11 near the centre of Ring Ditch 3, with pit [131] and Cremation burial 9 behind.

 

Pit [140] was situated to the south-east within the previous trial trench and although it was given a Cremation number (10) it probably represented the remnants of the cremation excavated during the Oxford Archaeology East trenching (Oxford pit 2505). A small quantity of dark greyish black silt (141) up to 0.02m thick remained within the feature and was excavated (Fig. 42). Pit [129] containing Cremation 8 was located just two metres outside of the north-eastern edge of Ring Ditch 3. It was a shallow subcircular feature 0.40m across with gently sloping but irregular sides and a depth of 0.06m with a flat base. The fill (130) consisted of a mid-orangey brown sandy silt, with frequent burnt bone fragments and charcoal flecks and a few angular stone fragments (Figs 42–43). One possible piece of flint debitage was recovered, unburnt and perhaps intrusive; along with 167.6g of cremated bone from an adult individual, and oak charcoal. No $^{14}C$ date was obtained from this burial.


Figure 42: Pit [140] Cremation burial 10 and pit cut [129] Cremation burial 8.

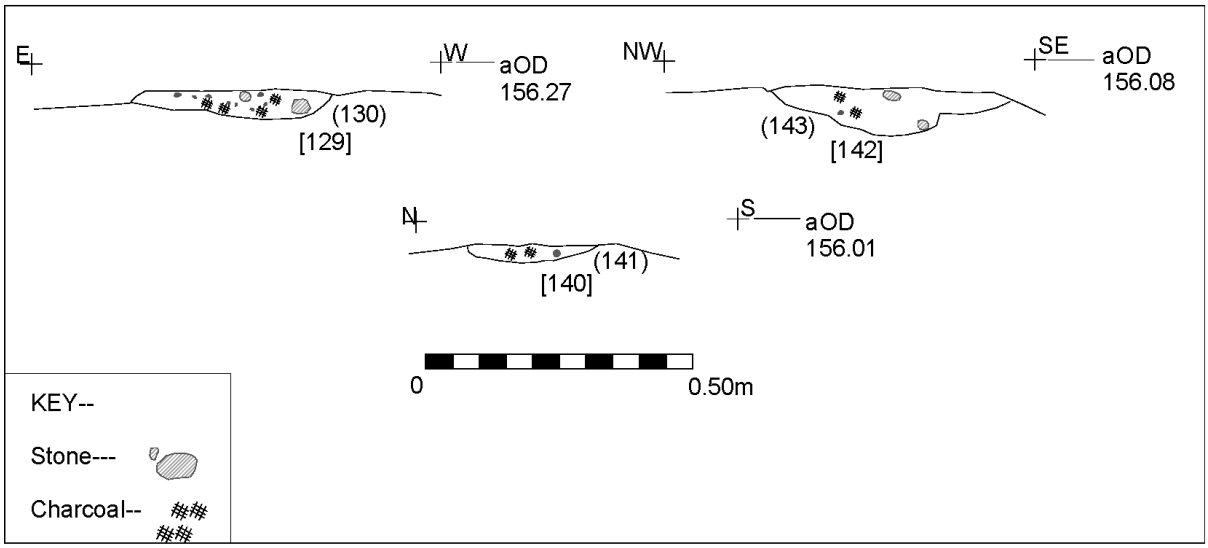


Figure 43: Sections through pit cuts [129], [140] and [142].

 

Figure 44: Aerial view of Area B and Ring Ditch 3 during excavation, with north to top.

 

## Early Bronze Age Pottery – *Georgina Clipstone and Nicholas J. Cooper*

### Introduction

The excavations recovered six cremation urns and three funerary cups from six contexts. Cremation burial 1 was deposited within Ring Ditch 1 whilst Cremation burials 3 to 6 were grouped together outside the south-eastern extent of the ring ditch. Cremation burial 2 was located some distance to the east and was notable in being accompanied by an accessory vessel/funerary cup. The two other cremation burials (3 and 5) that were also accompanied by funerary cups were adjacent to one other immediately outside the ring ditch. The authors are grateful for the classifications of the Funerary Cups supplied by Alex Gibson ahead of the publication of the new national corpus of these vessels (Copper *et al*. forthcoming).

### Methodology

The pottery was analysed by form and fabric in accordance with national guidelines (Barclay *et al*. 2016), using the Leicestershire County Museums prehistoric pottery fabric series (Marsden 2011) and quantified by sherd count and weight (g).

### The cremation urns and funerary cups

A total of 419 sherds (10398g) (3.03 EVEs) were recovered during laboratory hand excavation and wet sieving of the soil blocks in which the urned cremations were contained, as detailed in Table 1. Numerous small sherds from the urns were recovered from bulk soil samples and quantified by weight only, except in the case of Cremation burial 6, where all the pottery was recovered from the bulk sample. All the vessels were manufactured in a grog-tempered fabric (Leics. Fabric G1).

#### *Cremation 1 burial (Sf1) (101) [100]*

A total of 121 sherds (2.2kg) belonging to the base and body of the cremation urn were hand-excavated and a further 72g were extracted from the coarse fraction residue of the soil samples. No decorated sherds were identified because the vessel was lying at an angle within pit cut [100] and the upper part of the pot had been destroyed by later ploughing, but the $^{14}$C dating from the cremation burial of 1882–1681 cal BC (93.8%) would suggest that it was probably a Collared Urn.

#### *Cremation burial 2 (Sf2 and Sf9) (103) [102]*

The vessel (Sf2) was represented by 66 undecorated body sherds (1.73kg), and an additional 325g of pottery was recovered from the coarse fraction residue. As with Cremation burial 1, the vessel had been lying on its side at an angle and so much of the upper body had been truncated (Fig. 45). Again, the $^{14}$C date of 1882–1730 cal BC (80.5%) would suggest that it was likely a Collared Urn. The main vessel of the cremation burial contained a near-complete and decorated funerary cup (Sf9) of unusual form (Fig. 46). The cup, with a diameter of 78mm and a height of 40mm, is of a squat, sharply-carinated form with a neck constriction and a flat rim. It is a Group 1 miniature bi-partite Food Vessel and therefore is comparatively early in the funerary cup tradition (Copper *et al*. forthcoming). Two types of decoration are represented. The upper face of the flat rim is decorated with parallel pairs of fine, twisted cord impressions, arranged into a zig-zag pattern around the circumference (Fig. 46). The shoulder of the vessel is decorated with vertical whipped-cord ‘maggot’ impressions arranged in a row above the carination (Fig. 46).

 

Table 1: Quantified record of the pottery.

| Sf no | Cut | Cont | Cremation & $^{14}$C date | Vessel description | Decoration | Weight (g) | Sherd nos | Diameter (mm) | Height (mm) | EVEs |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100 | 101 | **1** 1882–1681 cal BC (93.8%) | Cremation urn (base and body) | | 2202 | 121 | | | |
| 2 | 102 | 103 | **2** | Cremation urn (body) | | 1733 | 66 | | | |
| 9 | 102 | 103 | **2** | Funerary cup (near-complete) | Paired cord impressions on rim. Impressed 'maggots' on shoulder. | 155 | 3 | 78 | 40 | 0.73 |
| 3 | 105 | 106 | **3** 1775–1623 cal BC (85.8%) | Collared Urn (base, body and collar) | Internal Rim incised crosshatch. External Collar incised triangles. Shoulder incised cross-hatch. | 2146 | 62 | 295 | 370 | |
| 10 | 105 | 106 | **3** 1775–1623 cal BC (85.8%) | Funerary cup (complete) | Incised triangles. | 256 | 1 | 90 | 70 | 1 |
| 4 | 109 | 110 | 4 1696–1538 cal BC (84.5%) | Collared Urn (complete profile) | Circular impressions on rim. Impressed 'maggot' herringbone on collar and rows on shoulder. | 1850 | 12 | 200 | 255 | 0.3 |
| 5 | 111 | 112 | **5** | Collared Urn (body and collar) | Incised herringbone on internal and external collar. | 1632 | 103 | | | |
| 11 | 111 | 112 | **5** | Cup (complete) | Incised triangles. | 197 | 1 | 82 | 57 | 1 |
| 6 | 113 | 114 | **6** | Collared Urn (base, body and shoulder from sample) | Incised herringbone on shoulder. | 227 | 50 | | | |
| **Total** | | | | | | **10398** | **419** | | | **3.03** |

 

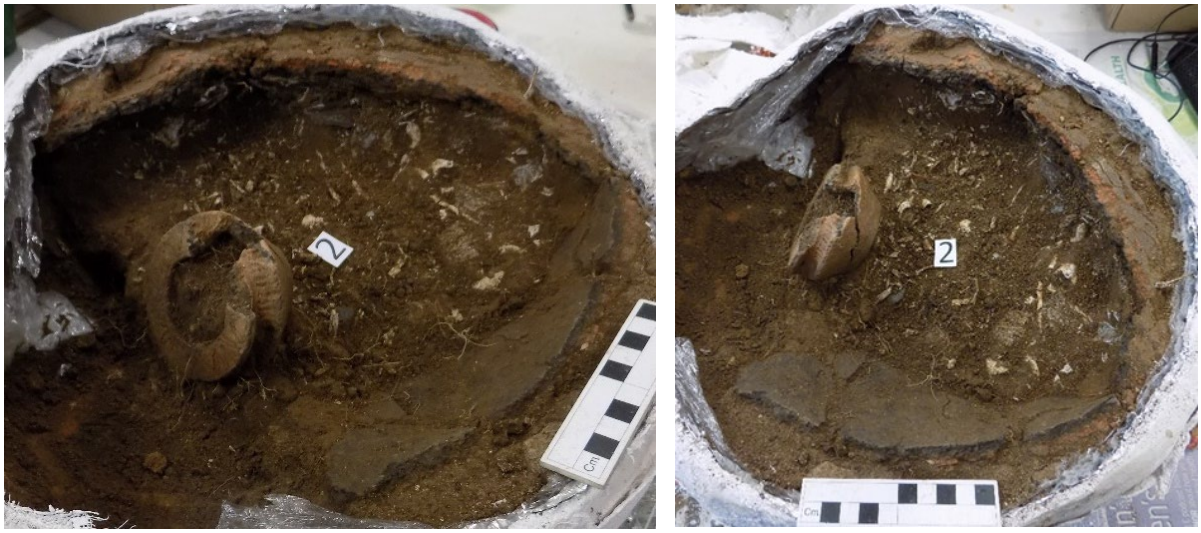


Figure 45: Two views of Urn Sf2 with Funerary Cup Sf9 *in situ* within the larger vessel.


Figure 46: Funerary Cup Sf9 in plan and side elevation showing decoration on rim and shoulder.

### *Cremation burial 3 (Sf3 and Sf10) (106) [105]*

The Collared Urn (Sf3) was represented by 62 sherds (2.15kg) from the base, body, and collar of the vessel. A further 500g of small sherds (including a fragment of the base) were recovered from the coarse fraction residue. A $^{14}$C date of 1775–1623 cal BC (85.8%) was returned.

The urn has a rim diameter of 295mm and a height of 370mm, and a narrow base of just 80mm diameter. The decoration comprises incised lines arranged as lozenges or cross-hatching on the inside of the collar (Fig. 47, right), incised triangles with parallel line infill on the outside of the collar (mirroring that on the accompanying cup Sf10), and cross-hatching again on the neck. This urn also contained a complete funerary cup (Sf10), inverted and placed close to the top of the fill of the larger vessel (Figs 47–48). The cup was 70mm in height and straight-sided with a narrow, hollowed-out base and a flattened though uneven rim 90mm in diameter. A thick cordon marks the point of carination between the decorated wall of the vessel and the plain, tapering base.

 

Figure 47: Collared Urn Sf3 with Funerary Cup Sf10 *in situ* within the larger vessel (left), and detail of incised triangles on collar and cross-hatching on the neck of the Urn (right).

Figure 48: Detail of Funerary Cup Sf10 *in situ* showing hollowed base (left), and the twisted cord triangular motifs on the vessel walls and concentric rings on the vessel rim (right).

The funerary cup is a Group 4 exotic Trunconic cup (Copper *et al.* forthcoming) which appeared late in the cup sequence. The decoration employs linear twisted cord impressions to form triangles with linear infill. The top of the rim is decorated with two continuous, concentric rings of impressed cord. There are decorative similarities with a funerary cup from Stanton Moor Quarry in Derbyshire (Hallam 2015, 61, fig. 37) where triangular perforations were incorporated into the triangular decorative scheme. There is a similar cup from Benachie Hill in Aberdeenshire though the twisted cord triangles of that example are open rather than filled. Although they are distributed from Wiltshire to Aberdeenshire, Trunconic cups are quite rare and have a markedly northern bias (A. Gibson pers. comm.).

 

### *Cremation burial 4 (Sf4) (110) [109]*

Collared Urn Sf4 (12 sherds, 1.85kg, height 255mm) was manufactured in a grog-tempered fabric (G1), with a complete base (100mm diameter) and profile, and about 30% of the rim (200mm diameter) surviving. Lying at an angle in the ground, the horizontal truncation therefore cut across the vessel obliquely and removed the upper profile from half the circumference below the collar and 70% of the rim (Fig. 49). A $^{14}$C date of 1696–1538 cal BC (84.5%) was returned from the cremated bone. The collar is decorated with whipped cord 'maggot' impressions arranged in two horizontal bands of 'herring-bone' chevrons, pointing to the right; each formed by two obliquely angled impressions. Below the collar, the upper body is decorated with the same impressions arranged vertically into three rows. The upper surface of the rim which is decorated with shallow circular impressions (Fig. 50).

Figure 49: Collared Urn Sf4 during excavation.


Figure 50: Collared Urn Sf4 (left) with detail of rim decoration (right).

 

In terms of overall form and impressed 'maggot' decoration the vessel has a parallel from the Sproxton round barrow in north-east Leicestershire (Clay 1981, fig. 7 no. 1) and a slightly squatter vessel from the Cossington barrow cemetery in the Soar Valley to the north of Leicester (Allen 2008, fig. 33.8) with an associated radiocarbon date of 1880–1630 cal BC, somewhat earlier than with this example.

### *Cremation burial 5 (Sf5) (Sf11) (112) [111]*

This cremation burial comprised the remains of a Collared Urn (Sf5) together with a straight-sided funerary cup (Sf11) (Fig. 51), identical in form but slightly smaller than cup Sf10 within Collared Urn Sf3 in Cremation burial 3. Cup Sf11 was found lying against the outer wall of Collared Urn but might conceivably have fallen out of the top of the larger vessel when the cremation burial was truncated. The Collared Urn (Sf5) with an estimated girth diameter of 180mm is represented by 103 body sherds (1.63kg with another 527g coming from coarse fraction residues), three sherds of which come from the neck just below the collar and have incised herringbone decoration (Fig. 51).


Figure 51: Collared Urn Sf5 before excavation with Funerary Cup Sf11 in adjacent pit fill (left), and incised herringbone decoration of the neck of the Collared Urn (right).

The funerary cup (Sf11) is almost identical to Sf10 from Cremation burial 3 but is slightly smaller at 57mm in height, with straight sides, a flat rim of 82mm diameter and a narrow, hollowed pedestal base. The decoration is also the same except that there are two, small circular perforations (diameter 2mm) in the lower part of the body at the junction of the cordon and the lower apexes of adjacent incised triangles (Fig. 52). Small perforations in the lower wall are also seen on an 'Aldbourne' cup from Avebury in Wiltshire and another from Camerton in Somerset (Copper n.d.; 2017) – their function is unclear as they are not large enough to act as 'windows' in the same sense as the fenestrated types. Drainage or the dripping of liquids for libations might have been a function but these holes appear far too narrow for that. Only about 22% of known examples are perforated (Copper *et al*. forthcoming).

 


Figure 52: Cup Sf11 showing narrow perforations at the base of the central external triangle motif (left) and within the interior (right).

### *Cremation burial 6 (Sf6) (114) [113]*

The remains of this Collared Urn (Sf6) (50 sherds, 227g) were retrieved entirely from bulk soil sampling, from which no bone was recovered. The sherds included parts of the base (70mm diameter) and two with incised herringbone decoration from the neck (Fig. 55). Incised herringbone decoration is known from a near-complete Collared Urn from Cremation 2 at Uttoxeter (Cooper 2012), as well as a Collared Urn from the cremation cemetery at Coneygre Farm in the Trent Valley at Thurgarton, Nottinghamshire (Allen *et al*. 1987, 192, fig.10.54).


Figure 53: Collared Urn Sf6 – incised herringbone decoration from the neck.

### *Worked Bone*

A single perforated, calcined fragment of long bone (Fig. 54) from a medium-sized mammal (ID Jennifer Browning and Will Johnson) was recovered from Cremation burial 9 [131] (132) from inside Ring Ditch 1 in Area B, dating to 1629–1501 cal BC. The object is broken transversely a short way down the tapering shaft of what is probably the handle of an implement such as an awl, gouge, or needle. The object was likely to have been on the funeral pyre.

 


Figure 54: Fragment of worked bone implement (external and internal views) from Cremation burial 9.

**Discussion**

This is a significant group of vessels, and to have three of the cremation urns accompanied by funerary cups, two of which are almost identical, is a remarkable occurrence. The range of the four radiocarbon dates between the 19th and 16th centuries cal BC suggest that urns 1 and 2 were also Collared Urns, even though the upper more diagnostic parts of the vessels were missing. The dates of Urns 1 and 2 (1882–1681 cal BC and 1882–1730 cal BC respectively) would indicate that these are the earliest in the sequence.

The group of four cremation burials (3–6) outside the ring ditch were probably near-contemporary, as they lie close together but are not intercutting. Indeed, the occurrence of near-identical cups in Cremations 3 and 5 would indicate that they share broadly the same date of deposition (1775–1623 cal BC), whilst Collared Urn 6 shares similar incised decoration with Urns 3 and 5. Adjacent Cremation burial 4 had the only Collared Urn decorated with impressed twisted cord 'maggots' and appears to be the latest deposit in the group (1696–1538 cal BC).

The use of incised and infilled triangle decoration is widespread on Collared Urns generally (Gibson 2002, 98, fig. 47; Longworth 1984) and it is interesting to see this type of decoration mirrored in both Collared Urn 3 and its associated funerary cup (Sf10), although using impressed motifs in the latter. The fact that Collared Urn 5 also had incised decoration suggests that this might also have been case with the associated funerary cup Sf11.

The study of funerary cups has progressed in recent years with the compilation of Hallam's North British Corpus (2015) and the collation of this with material from the rest of Britain to form a new national corpus which is soon to be published (Copper *et al*. forthcoming). The Group 1 Cup, a miniature bi-partite Food Vessel found within Urn 2, is known to be early in the chronological sequence for cups, and this ties in with the earlier date seen here. The Group 4 Trunconic cups associated with Collared Urns 3 and 5 are later in the sequence and this is also reflected in the later radiocarbon dating here.

 

## Flint from cremation burial samples – *Wayne Jarvis*

Ten struck flints were recovered from the samples processed from the cremation burials. All the material was heavily burnt and even the larger pieces were fragmentary, making identification difficult. Over half of the lithics were small pieces which may be debitage but are undiagnostic. Of the others, several were probably formal pieces and retouched. These showed comparable heat alteration on the broken faces suggesting they may have already been fragmentary when burnt. These pieces include two from fill (106) Cremation burial 3, two refitting fragments of a broken flake near to the proximal end. No fine retouch is visible perhaps due to heavy calcination, but the piece may be a fragmentary discoidal tool. Fill (112) Cremation burial 5 yielded a broken flake/blade, heavily burnt and glazed, and possibly retouched. A retouched narrow blade came from fill (108) Cremation burial 7 . A further broken tool, a finely retouched blade fragment, was identified from fill (132) Cremation burial 9.

The diagnostic pieces are most likely of late Neolithic or early Bronze Age date, potentially contemporary with the cremations. The other struck pieces are probably of similar date.

Table 2: The flint from the cremation samples

| Cont | Cut | Crem No. | SAM No. | Description |
|---|---|---|---|---|
| 108 | 104 | 7 | 2 | *Retouched narrow blade, 2ry, heavily burnt |
| 103 | 102 | 2 | 10 | burnt 3ry flake fragment |
| 130 | 129 | 8 | 4 | Glassy ?debitage x 1, unburnt prob intrusive |
| 112 | 111 | 5 | 15 | *Broken flake / blade heavily burnt glazed, cf. retouched |
| 112 | 111 | 5 | 16 | Poss. debitage x 1? |
| 132 | 131 | 9 | 20 | debitage x 1 |
| 132 | 131 | 9 | 20 | *Retouched blade, proximal fragment only. Thick piece with steep retouch, broken tool. Heavily burnt |
| 132 | 131 | 9 | 20 | ?debitage x 1, unburnt prob intrusive |
| 106 | 105 | 3 | 11 | debitage x1, x 3 cf |
| 106 | 105 | 3 | 12 | *Large broken flake near to proximal scar, heavily burnt & unidentifiable but prob part of a ?discoidal tool. Though no retouch visible. Refits with SAM18 piece |
| 106 | 105 | 3 | 12 | debitage x 1 |
| 106 | 105 | 3 | 18 | *Large broken flake proximal end, heavily burnt & unidentifiable but prob part of a ?discoidal tool. Refits with SAM12 piece |

***tools?**

 

## Osteological Analysis – *Bennjamin Penny-Mason and Malin Holst*

### Introduction

In December 2022 York Osteoarchaeology Ltd undertook the macroscopic osteological analysis of eleven discrete cremation burials from the Beck Lane excavation (Table 3).

### Aims and Objectives

The skeletal assessment aimed to determine age and sex, as well as any manifestations of disease from which the individuals may have suffered. Additionally, information was sought regarding the cremation techniques.

### Methodology

The cremated bone was sieved through a stack of sieves, with 10mm, 5mm and 2mm mesh sizes. The bone recovered from each sieve was weighed and sorted into identifiable and non-identifiable bone. The identifiable bone was divided into five categories: skull, axial (excluding the skull), upper limb, lower limb and long bone (unidentifiable as to the limb). All identifiable groups of bone were weighed and described in detail.

### Osteological Analysis

Osteological analysis is concerned with the determination of the demographic profile of the assemblage based on the assessment of sex, age, and non-metric traits. This information is essential in order to determine the prevalence of disease types and age-related changes. It is also crucial for identifying gender dimorphism in occupation, lifestyle, and diet, as well as the role of different age groups in society.

### Preservation

Skeletal preservation depends upon a number of factors, including the age and sex of the individual as well as the size, shape and robusticity of the bone. Burial environment, post-depositional disturbance and treatment following excavation can also have a considerable impact on bone condition. Preservation of human remains is assessed subjectively, depending on the severity of bone surface erosion and post-mortem breaks, but disregarding completeness.

Preservation was assessed using a grading system of five categories: very poor, poor, moderate, good, and excellent. Excellent preservation implied no bone erosion and very few or no post-depositional breaks, whereas very poor preservation indicated the complete or almost complete loss of the bone surface due to erosion and severe fragmentation.

The majority of the burials were found to be in a moderate state of preservation. A total of 64% of the assemblages were in a particularly good state of preservation, with sharp edges, minimal evidence of fresh fragmentation and retention of surface detail on the majority of fragments. Significant warping and bone cracking, which occurs commonly during the cremation process, was also evident in the assemblage. None of the assemblages had poorly preserved bone surfaces – however, there was a range in the state of bone preservation between burials. There was a general split noted between the assemblages represented by large amounts of cremated bone and those with little cremated bone.

 

Table 3: Summary of cremated bone assemblages

| Cr No. | Feat | Context | Location | Urn? | Bone Colour | Preservation | Artefacts and Inclusions | MNI | Age | Sex | Weight (g) | Weight as % of modern* | Max Frag. (mm) | Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | [100] | (101) | Area A (within Ring Ditch 1) | Y | Brown, White + Black | Moderate | From a circular pit, with irregular sides and an irregular base. 1.00m (l) x 1.70m (w) x 0.20m (d) With cremation urn <SF1> Inclusions of oak charcoal & snail shell. | 1 | A | F?? | 1490.3 | 91.7 | 47.8 | Early Bronze Age 1882–1681 cal BC (93.8%) |
| 02 | [102] | (103) | Area A (between Ring Ditches 1 & 2) | Y | Brown, White + Black | Moderate | From a circular pit, with straight sides and a flat base. 0.60m (l) x 0.40m (w) x 0.20m (d) With cremation urn <SF2> & small accessory vessel <SF9> Inclusions of oak, hawthorn & rosace charcoal, & flint. | 2 | A + C | ? | 1432.5 | 88.1 | 51. | Early Bronze Age 1882–1681 cal BC (93.8%) |
| 03 | [105] | (106) | Area A (just outside Ring Ditch 1) | Y | Brown, White + Black | Moderate | From a circular pit, with straight sides and a flat base. 0.60m (l) x 0.50m (w) x 0.21m (d) With cremation urn <SF3>, small accessory vessel <SF10> & worked flint. Inclusions of oak charcoal, flint, fish bones, hazelnut shell & cereal grain. | 2 | A | ? | 3305.7 | 203.3 | 103.2 | Early Bronze Age 1696–1538 cal BC (84.5%) |
| 04 | [109] | (110) | Area A (just outside Ring Ditch 1) | Y | Brown, White + Black | Moderate | From a circular pit, with straight sides and a flat base. 0.40m (l) x 0.40m (w) x 0.25m (d) With cremation urn <SF4> Inclusions of oak charcoal. | 2 | A + C | ? | 1442.5 | 85.4 | 60.8 | Early Bronze Age 1775–1623 cal BC (85.8%) |
| 05 | [111] | (112) | Area A (just outside Ring Ditch 1) | Y | Brown, White + Black | Moderate | From a circular pit, with concave sides and a flat base. 0.63m (l) x 0.63m (w) x 0.25m (d) With cremation urn <SF5> & small accessory vessel <SF11> Inclusions of oak charcoal, flint, snail shells, hazelnut shell & barley cereal grain. | 1 | A | F?? | 1216.3 | 74.8 | 58.7 | Early Bronze Age No $^{14}$C dating |
| 06 | [113] | (114) | Area A (just outside Ring Ditch 1) | Y | White + Black | Moderate | From a circular pit, with concave sides and a flat base. 0.79m (l) x 0.65m (w) x 0.30m (d) Pottery & grass tuber | 1 | A | ? | 320.9 | 19.7 | 59.7 | Early Bronze Age No $^{14}$C dating |

 

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Inclusions of oak, hawthorn, & rosace charcoal. | | | | | | | |
| 07 | [104] | (107) (108) | Area A (within Ring Ditch 1) | N | White, Black + Brown | Moderate | From a sub-oval pit, with straight sides and a flat base. 0.65m (l) x 0.65m (w) x 0.37m (d) Inclusions of oak, hawthorn & rosace charcoal, & flint. | 1 | A | ? | 1322.3 | 81.3 | 64.5 | Early Bronze Age 1778–1626 cal BC (78.1%) |
| 08 | [129] | (130) | Area B (just outside Ring Ditch 3) | N | White + Black | Moderate | From an irregular pit, with sloping sides and a flat base. 0.41m (l) x 0.32cm (w) x 0.06m (d) Inclusions of oak charcoal & flint. | 1 | A | ? | 167.6 | 10.3 | 29.5 | Early Bronze Age No $^{14}$C dating |
| 09 | [131] | (132) | Area B (within Ring Ditch 3) | N | Brown, White + Black | Good | From a circular pit, with straight sides and a flat base. 0.65m (l) x 0.45m (w) x 0.27m (d) Inclusions of oak charcoal, flint, worked bone, hazelnut shell & cereal grain. | 1 | A | F?? | 2398 | 147 | 130.1 | Early Bronze Age 1629–1501 cal BC (95.4%) |
| 010 | [141] | (140) | Area B (within Ring Ditch 3) | N | Brown, Black + White | Low | From a circular pit, with truncated sides and a flat base. 0.25m (l) x 0.25m (w) x 0.02m (d) Inclusions of oak charcoal & grass tuber | 1 | A? | ? | 12.3 | 0.8 | 17.6 | Early Bronze Age No $^{14}$C dating |
| 011 | [142] | (143) | Area B (within Ring Ditch 3) | N | White, Black + Brown | Low | From a circular pit, with irregular sides and a concave base. 0.38m (l) x 0.38m (w) x 0.10m (d) With glass & copper alloy wire. Inclusions of oak charcoal. | 1 | A? | ? | 41.8 | 2.8 | 45.4 | Early Bronze Age No $^{14}$C dating |

**Key**: Age: A – adult, N – neonate, C – child, - – unknown; Sex: M – male, F – female, - – unknown; MNI – minimum number of individuals; Date: BA – Bronze Age

* Weight of bone >2mm expressed as a percentage of average weight of bone >2mm recovered from modern cremation burials (1625.9g, McKinley 1993)

 

The fragment size of cremated bone is frequently attributed to post-cremation processes. This is because skeletal elements retrieved from modern crematoria tend to be comparatively large before being ground down for scattering or deposition in the urn. Bone is also prone to fragmentation if it is moved while still hot (McKinley 1994, 340). Cremation Burials 6, 8, 10 and 11 had high levels of fragmentation and minimal signs of warping. The largest maximum fragment size of this group was 59.7mm, which was seen in Cremation Burial 6. This suggests that these bones were subject to moderate disturbance while they were still hot (Table 4).

Table 4: Summary of cremated bone fragment size

| | | | Sieve Fractions | | | | | | Total >2mm | <2mm | Total | Total as % of modern | Max frag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 10mm | | 5mm | | 2mm | | | | | | |
| Crem | Cut | Fill | g | % | g | % | g | % | g | g | g | % | mm |
| 01 | [100] | (101) | 450.6 | 33.2 | 634.5 | 42.6 | 365.3 | 24.5 | 1450.4 | 39.9 | 1490.3 | 91.7 | 47.8 |
| 02 | [102] | (103) | 389.9 | 27.2 | 528.9 | 36.9 | 456.5 | 31.9 | 1376.3 | 56.2 | 1432.5 | 88.1 | 51.1 |
| 03 | [105] | (106) | 1381.3 | 41.8 | 1167.6 | 35.3 | 672.9 | 20.4 | 3221.8 | 83.9 | 3305.7 | 203.3 | 103.2 |
| 04 | [109] | (110) | 41.5 | 28.8 | 568.4 | 39.4 | 418.6 | 20.0 | 1402.2 | 40.3 | 1442.5 | 85.4 | 60.8 |
| 05 | [111] | (112) | 411.9 | 33.9 | 469.9 | 38.6 | 300.1 | 24.7 | 1181.9 | 34.4 | 1216.3 | 74.8 | 58.7 |
| 06 | [114] | (115) | 73.9 | 23.0 | 128.4 | 40.0 | 106 | 33.0 | 12.6 | 308.3 | 320.9 | 19.7 | 59.7 |
| 07 | [004] | (107) | 449.3 | 33.9 | 472.6 | 35.7 | 350.9 | 26.5 | 1279.8 | 42.5 | 1322.3 | 81.3 | 64.5 |
| 08 | [129] | (130) | 15.1 | 9.0 | 66.1 | 39.4 | 83.1 | 49.6 | 153.3 | 14.3 | 167.6 | 10.3 | 29.5 |
| 09 | [131] | (132) | 1137.0 | 47.4 | 749.7 | 31.2 | 469.0 | 19.6 | 2355.7 | 42.3 | 2398.0 | 147.4 | 130.1 |
| 10 | [141] | (140) | 0.0 | 0.0 | 4.5 | 36.6 | 6.9 | 56.1 | 11.4 | 0.9 | 12.3 | 0.8 | 17.6 |
| 11 | [142] | (143) | 13.1 | 31.3 | 20.0 | 47.8 | 8.5 | 20.3 | 41.6 | 0.2 | 41.8 | 2.8 | 45.4 |

In comparison, Cremation Burials 1, 2, 3, 4, 5, 9 and 10 all had moderate or low fragmentation but significant signs of warping. The largest maximum fragment size of this group was 103.2mm and was seen in Cremation Burial 3. This suggests that these bones were subject to little disturbance when hot (Table 4).

There was also a range of colouration differences between the assemblages. In the group with higher fragmentation, Cremation Burials 8 and 12 were of a bright white and jet-black colouring. Cremation Burials 6 and 11 were brown and matte black. In comparison, the group of lower fragmentation (Cremation Burials 1, 2, 3, 4, 5 and 9) contained bone of a pastel white colour (with minor inclusions of matte black throughout). All these burials had evidence of patchy burning, with large portions of the bone remaining a brown colour.

The variations in colouring and fragmentation suggest differences in the cremation process at Beck Lane. The stark white colouring and high fragmentation of Cremation Burials 8 and 12 indicate that the bone of these burials was well burnt, causing the complete loss of the organic portion of the bone, and producing a bright white colour (see Table 3), with some fragments of light grey, black and blue colour, usually seen in larger long bone and thicker cranial vault fragments. Bodies require a minimum temperature of 500° Celsius over seven to eight hours to achieve complete calcination of the bone (McKinley 1989). This suggests that the burials were efficiently and very well burnt at a high temperature, causing complete loss of the organic portion of the bone, moved when still hot causing fragmentation, and represented by only some fragments of the total sum of the body.

 

The different brown and black colouring of Cremation Burials 6 and 11 suggests they were also generally well burnt, but at a lower temperature of burning. These assemblages also had a high level of fragmentation, suggesting that they were also removed while hot and may also only be represented by some fragments of the total sum of the body. In contrast, the pastel white colouration and evidence of patchy burning of Cremation Burials 1, 2, 3, 4, 5, and 9 suggest that high temperatures of burning were achieved, but some inefficiency in the cremation process left them unable to reach the same bright white colour and completeness of burning noted in Cremation Burials 6 and 11. This could suggest differences in cremation techniques. While these cremation processes caused the complete loss of the organic portion of the bone, more robust areas of the skeleton (from the limbs, head, and spine) had not reached sufficient temperatures or been allowed to burn for long enough. Alternatively, the pyre may not have been well constructed with inadequate air flow for optimal burning. These assemblages also had fewer indication of fragmentation and warping, suggesting that they were not moved while hot and all these burials are representative of complete bodies.

The total weight of burnt bone varied between contexts, from 12.3g from Cremation Burial 10 to a very substantial 3,305.7g from Cremation Burial 3 (Table 4), with a mean of 1,195.5g. The average bone weight produced by modern crematoria tends to range from 1,000.5g to 2,422.5g with a mean of 1,625.9g (McKinley 1993). Therefore, the relatively high quantity of human bone recovered from the cremation burials is suggestive of the assemblages represented by most of the skeletal elements, or by more than one individual, as was the case in Cremation Burial 3 and several other burials (see Table 3).

More than half of the recovered bone from the assemblages was identifiable (Table 5), with the representation of the axial bones, skull, and long bone fragments in most burials. The proportion of identifiable bone ranged from 15% to 63.6%, averaging at 46%.

Table 5: Summary of identifiable elements in the cremation burials

| | | | Identified Bone | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Skull | | Axial | | Upper Limb | | Lower Limb | | Long bones | | Total ID | |
| Crem | Cut | Fill | g | % | g | % | g | | g | % | g | % | g | % |
| 01 | [100] | (101) | 165.3 | **21.9** | 289.0 | **51.7** | 44.6 | **5.9** | 26.9 | **3.6** | 126.9 | **16.9** | 752.7 | **50.5** |
| 02 | [102] | (103) | 206.2 | **29.5** | 266.7 | **52.4** | 50.3 | **7.1** | 13.9 | **1.9** | 62.7 | **8.9** | 699.8 | **48.9** |
| 03 | [105] | (106) | 344.0 | **19.6** | 828.1 | **41.1** | 109.2 | **6.2** | 117.8 | **10.1** | 298.5 | **16.9** | 1757.6 | **52.2** |
| 04 | [109] | (110) | 284.2 | **37.2** | 324.0 | **42.4** | 26.7 | **3.5** | 25.5 | **3.3** | 103.5 | **13.5** | 764.2 | **52.9** |
| 05 | [111] | (112) | 116.8 | **19.2** | 316.8 | **52.2** | 7.6 | **1.3** | 39.9 | **6.6** | 125.9 | **20.7** | 607.0 | **49.9** |
| 06 | [114] | (115) | 30.7 | **18.6** | 42.7 | **25.9** | 14.8 | **8.9** | 9.2 | **5.6** | 67.5 | **40.9** | 165.9 | **51.4** |
| 07 | [004] | (107) | 49.5 | **8.3** | 150.4 | **25.2** | 89. 9 | **15.0** | 58.5 | **9.8** | 249.1 | **41.7** | 597.6 | **45.2** |
| 08 | [129] | (130) | 22.9 | **38.0** | 12.3 | **20.4** | 4.1 | **6.8** | 0.8 | **1.3** | 20.1 | **33.4** | 60.2 | **35.9** |
| 09 | [131] | (132) | 204.8 | **17.4** | 400.4 | **34.1** | 126.2 | **10.7** | 142.0 | **12.1** | 302.4 | **25.7** | 1175.8 | **49.0** |
| 10 | [141] | (140) | 0.9 | **47.4** | 1 | **52.6** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | **0.0** | 1.9 | **15.4** |
| 11 | [142] | (143) | 1.1 | **4.1** | 8.4 | **31.6** | 7.2 | **27.1** | 0.0 | **0.0** | 9.9 | **37.2** | 26.6 | **63.6** |

 

Cremation Burials 8 and 10 were predominately represented by skull fragments, followed by axial and long bones (Appendix 5, Figs 67 and 69). This suggests that in these burials skeletal elements were selectively included. In contrast, in Cremation Burials 1, 2, 3, 4, 5 and 9, the entire skeleton seemed to be represented, with high proportions of axial elements too (Appendix 5: Figs 58–70). Smaller elements such as tooth fragments and hand and foot phalanges survived and were recovered from the 5mm and 2mm sieves. This all suggests that these burials are representative of more complete skeletons.

## Minimum Number of Individuals

A count of the minimum number of individuals (MNI) recovered from a cemetery is carried out as standard procedure during osteological assessments of inhumations in order to establish how many individuals were represented by the articulated and disarticulated human bones (without taking the archaeologically defined graves into account). The MNI is calculated by counting all long bone ends, as well as other larger skeletal elements, such as the hip joints and cranial elements. The minimum number of individuals in cremated bone assemblages is difficult to assess with 100% accuracy, because usually, only a token selection of bone from the pyre tends to be buried. Double burials can be identified only if skeletal elements are duplicated, or if skeletons of different ages are represented in one burial.

Upon macroscopic osteological analysis, it was revealed that all eleven cremated bone assemblages contained bone that could be identified as human.

All the burials contained at least one adult individual (18+ years). Cremation Burial 3 also contained repeating elements, suggesting the presence of two adult remains with four surviving petrous portions of the temporal bone of the skull – two were left-sided and two were right-sided. There were also repeating elements of the left scapula (it appeared to be one larger and one more slight individual). Cremation Burials 2 and 4 contained both adult and non-adult remains. The non-adult remains were of consistent infant age.

In summary, the Beck Lane assemblage was represented by eleven cremation burials, with a minimum number of 14 individuals, consisting of 12 adults and two non-adults (probable infants). This gives an overall MNI of fourteen individuals.

## Assessment of Age

Age was determined using standard ageing techniques, as specified in Scheuer and Black (2000a; 2000b) and Cox (2000). Age estimation relies on the presence of the pelvis and uses different stages of bone development and degeneration in order to calculate the age of an individual. Age is split into a number of categories, from foetus (up to 40 weeks in *utero*), neonate (around the time of birth), infant (newborn to one year), juvenile (1–12 years), adolescent (13–17 years), young adult (ya: 18–25 years), young middle adult (yma: 26–35 years), old middle adult (oma: 36–45 years), mature adult (ma: 46+) to adult (an individual whose age could not be determined more accurately as over the age of seventeen).

The bone robusticity and completed tooth root formation seen throughout the cremation burials suggested that the majority of individuals from Beck Lane were adults (18+ years, see Table 3). Although a significant amount of dentition was recovered from the assemblage, the majority of it was highly fragmented and so ageing through the analysis of dental surface degradation was not possible.

 

Cremation Burials 2, 3 and 5 all had petrous portions of the temporal bone present. This bone contains the jugular growth plate, which can be a useful tool for ageing adult skeletons. The state of fusion at the junction between the petro-occipital synchondrosis and jugular synchondrosis can inform us about middle-adult age. If it is unfused the individual is under 22 years, if fusing 22–34 years and if fused 34+ years old.

Cremation Burial 2 had one left and one right petrous portion present, both growth plates were fusing, suggesting this individual was aged between 22 to 34 years. This is consistent with the rest of the skeletal elements (e.g. no signs of adolescent fusing, no signs of any joint disease).

Cremation Burial 3 had four petrous portions, two right-sided and two-left sided. If we assume that these represent the portions from two individuals (it appears to be one larger and one slighter individual), one set was fusing, suggesting an age of 22–34 years. The other portions were fused, suggesting an age of 34+ years. This assemblage also contained a complete right pubic symphysis. Despite its completeness, the surface had undergone significant heat damage, making it very difficult to age it with any certainty – the analysis suggested that it was phase 1 or 2, with an estimated age of 15 to 34 years old.

Cremation Burial 5 one had one left petrous portion present, which was fusing, suggesting this individual was aged 22 to 34 years. This was also consistent with the rest of the skeletal elements (e.g. no signs of adolescent fusing, no signs of any joint disease).

Cremation Burials 1, 4, 6, 7 and 8 all represented adult skeletons but did not have any additional evidence to help determine more specific ages.

Cremation Burial 9 was an adult skeleton with early signs of joint disease, which would be rare to see in a young adult individual, suggesting it was at least 26 years old or older.

Cremation Burials 10 and 11 had very little bone present, and no evidence that aided in age estimation of these individuals.

There was no evidence in any of the burials of advanced ageing, such as significant dental wear or progressive joint disease.

The two non-adult skeletons found in Cremation Burials 2 and 4 both had deciduous dentition that aged them to somewhere between six and twelve months old. This was consistent with the other skeletal remains present, such as approximate clavicle sizes and the presence of unidentifiable epiphyses.

**Sex Determination**

Sex determination is usually carried out using standard osteological techniques, such as those described by Mays and Cox (2000). Assessment of sex in both males and females relies on the preservation of the skull and the pelvis and can only be carried out once sexual characteristics have developed, during late puberty and early adulthood.

Despite the overall completeness of the assemblage, none of the cremation burials presented any skeletal evidence which could be used to estimate a sex estimation. Some skeletal elements regarding biological sex were present and are recorded below, but they are not sufficiently accurate to estimate the biological sex of any of these cremations. These estimations are based on female (f), possible female (f?), indeterminant (?), possible male (m?) and male (m) biological sexing categories

Cremation Burial 1 had a partial orbital shape (f?) and supraorbital margin (f) present.

 

Cremation Burial 3 had a partial mandibular shape (m?) and partial orbital shape (f). This assemblage contained two adult individuals, likely representing a larger and a slighter skeleton.

Cremation Burial 5 included a partial mandibular shape (f?) and partial orbital shape (f?).

Cremation Burial 9 had a zygomatic notch (?), orbital shape (?), mandible angle (?), mandibular ramus (f?), suborbital ridge (f?) and supraorbital ridge (f?) present.

Cremation Burials 2, 4, 6, 7, 8, 10 and 11, produced no skeletal elements that could be used for even a very tenuous examination of biological sex estimation.

It is not possible to assign biological sex to non-adult remains upon macroscopic analysis, so it was not possible to determine the biological sex of infants in Cremation Burials 2 and 4.

This evidence should not be used as a reliable indicator of sex in this assemblage, as any substantial portions of the pelvis and skull required for fully macroscopic analysis of biological sex were not present.

## Metric Analysis

Cremated bone shrinks at an inconsistent rate (up to 15%) during the cremation process and it was therefore not possible to measure any of the bones from these burials.

## Non-Metric Traits

Non-metric traits are additional sutures, facets, bony processes, canals, and foramina, which occur in a minority of skeletons and are believed to suggest hereditary affiliation between skeletons (Saunders 1989). The origins of non-metric traits have been extensively discussed in the osteological literature and it is now thought that while most non-metric traits have genetic origins, some can be produced by factors such as mechanical stress (Kennedy 1989) or environment (Trinkhaus 1978).

Non-metric traits were not observed.

## Pathological Analysis

The analysis of skeletal and dental manifestations of disease can provide a vital insight into the health and diet of past populations, as well as their living conditions and occupations.

Despite the high representation of skeletal elements, the surface preservation of the cremated bone assemblages was only moderate and there was significant warping and cracking of the majority of the cremations. Therefore, only a very limited amount of pathology was observable.

### *Trauma*

The evidence for trauma in archaeological populations is restricted to that visible in the skeletal remains, unless soft tissue is preserved (Roberts and Manchester 2005, 85–6). Therefore, most of the soft-tissue injuries sustained by archaeological populations will be invisible, although occasionally soft tissue injuries can be inferred through ossification of the tissues at the site of damage, known as myositis ossificans. Much of the evidence for trauma in archaeological populations focuses on fractures to the bones (ibid, 84–5), although long standing well-healed fractures may be hard to detect (Jurmain *et al*. 1999, 186).

 

Beck Lane only produced one instance of potential trauma. Cremation Burial 3 produced a pathologically altered vertebra (Fig. 74). Due to the fragmentation of the vertebra, it is difficult to ascertain which type of vertebra this bone represents. It is also very difficult to ascertain the causative factors of the altered shape. The altered shape of a vertebra could be due to various causes (joint disease, infectious disease, congenital, or trauma). However, the lack of osteophytes or pitting (associated with joint disease), a lack of new bone formation and/or destruction (associated with infectious disease), a lack of significant malformation (associated with congenital disorders) – as well as the compressed shape of the vertebra – suggest that this is some form of well-healed trauma. This could potentially be more comprehensively identified by radiographic examination.

*Joint Disease*

The term joint disease encompasses a large number of conditions with different causes, which all affect the articular joints of the skeleton. Factors influencing joint disease include physical activity, occupation, workload and advancing age, which manifest as degenerative joint changes and osteoarthritis. Alternatively, joint changes may have inflammatory causes in the *spondyloarthropathies*, such as septic or rheumatoid arthritis. Different joint diseases affect the articular joints differently and it is the type of lesion, together with the distribution of skeletal manifestations, which determines the diagnosis (Rogers 2000; Roberts and Manchester 2005).

The most common type of joint disease observed tends to be degenerative joint changes (DJC). Degenerative joint changes are characterised by both bone formation (osteophytes) and bone resorption (porosity) at and around the articular surfaces of the joints, which can cause great discomfort and disability (Rogers 2001).

Cremation Burial 9 had the only evidence of joint changes from the assemblage. Three skeletal elements from this cremation showed signs of early joint disease (Appendix 6, Figures 73-76).

This consisted of marginal osteophytes around a distal hand phalanx and a distal foot phalanx. There were no signs of joint remodelling or eburnation associated with osteoarthritis and the osteophytes were minimal – all indicative of early degenerative joint changes.

Additionally, the assemblage also produced a partial thoracic vertebra. Though the surface of this bone was not complete, it was possible to identify a slight flaring of the body and lipping of the edge indicative of minimal osteophytes, which suggested early joint changes.

*Dental Health*

Analysis of the teeth from archaeological populations provides vital clues about health, diet and oral hygiene, as well as information about environmental and congenital conditions (Roberts and Manchester 2005).

Although a significant amount of dentition was recovered from the assemblage, the majority of the surface of crowns was highly fragmented so making it impossible to assess pathology in the dentition.

## Funerary Ritual

In Area A, Ring Ditch 1 consisted of a C-shaped enclosure, with a central unurned cremation burial (7), four urned cremation burials to the south-eastern side (3, 4, 5 and 6) and another

 

urned burial cut into the ring ditch backfill (1). A further urned burial was also found in isolation to the north-east of Ring Ditch 1 (2). All these burials associated with Ring Ditch 1 were dated to the Early Bronze Age period (2500–1200 BC); with the single central unurned cremation perhaps representing a slightly different phase from the other burials in this area. Area A also contained Ring Ditch 2, a circular enclosure to the east of Ring Ditch 1. No burials or dating evidence was recovered from this feature. A four-post feature was also discovered to the south-west of Ring Ditch 2, initially interpreted as a possible pyre. Ground surface pyres have been excavated beneath Bronze Age barrow mounds (McKinley 1997, 132) and can leave little trace on the ground surface (McKinley 2017, 260–1).

Cremation Burials 1, 2 and 3 all produced worked flint recovered during this analysis (Appendix 6, Figures 75–77) and Cremation Burials 2, 3, 5, 7, 8 and 9 all produced worked flint during post-excavation work.

In Area B, the excavations revealed a further circular ring ditch enclosure. Ring Ditch 3 was found to contain four central unurned cremation burials (8, 9, 10 and 11) and a fourth unurned burial was also found to the northeast of the ring ditch. Ring Ditch 3 also produced Early Bronze Age pottery, but no worked flint.

All the cremation burials were interred in individual circular, sub-circular or oval-shaped pits with straight or irregular sides and flat bases, between 0.25m–1.00m in size and 0.02–0.27m in depth. Many cremated bone assemblages were urned and some produced pottery. All had inclusions of charcoal, and many contained flint, snails, small animal bones, nut shells and grains. The macroscopic analysis did not identify any animal bone in any of the burials – however, much of the bone was classed as 'unidentifiable' as being definitely human and therefore the burials might also contain some unidentifiable animal bone.

The mean quantity of bone at Beck Lane was 1,195.5g, which is greater than the quality recovered from most Early Bronze Age cremation burials such as at Lubbesthorpe, where the mean quantity was 616.95g (Keefe and Holst 2017). According to McKinley (1997, 137), widely varying quantities of human bone have been recovered from cremation burials dating to the Bronze Age, with between 57g and 2,200g being recovered from 4000 undisturbed adult burials. No associations as to the quantity of bone and the age and sex of the individual buried have been ascertained but instead, McKinley found an association of greater weight with primary Bronze Age barrow burials (ibid., 137, 142). "Of the 18 such burials so far examined by the writer [McKinley], all *consistently* produced weights of bone of between 902.3g and 2747g with an average of 1525.7g" (McKinley 1997, 142, with addition). It is clear that several of the burials at Beck Lane contain unusually large quantities of human bone, although it is clear they do not represent primary Bronze Age barrow burials.

Cremation Burials of 1, 3, 4, 5, 7 and 9 contained significant quantities of skeletal elements and so were excavated and analysed in spits. Such analysis allows for the examination of the possible existence of patterns of skeletal element placement within the burial pit (e.g. skull placement, long bone placement). At Beck Lane, the burials showed few visible patterns regarding the placement of skeletal elements. The overall pattern reflected a mostly even distribution between the spits of the burials (Appendix 4, Table 9). All elements of the skeleton were well represented without an overabundance of any singular element (e.g. lots of favouring of skull bones), which is perhaps indicative of *in situ* burning, rather than selective deposition.

Cremation became a more common method of burial during the second millennium BC, with urned cremation burials increasing in popularity with the shift to inhabitation in more permanent settlements (Jupp and Gittings 1999, 29). It has been suggested that the increase in cremation burials in the Late Neolithic period may have resulted from developing networks of

contact throughout Britain and such burials were often associated with items such as arrowheads, flint fabricators and less frequently Grooved Ware pottery (Thomas 1999, 153). Circular monuments, such as round barrows, ring ditches, henges and pit circles appear to have been popular sites of re-use for cremation cemeteries (Thomas 1999, 155), as was the case here. Hengiform monuments (or 'mini-henges') are defined as being less than 15m in diameter, with some constructed of a series of pits and often associated with cremation burials (Darvill 2008). Indeed, various sites have shown cremation burials located within henge and hengiform monuments within Britain, notably Stonehenge, Woodhenge and Dorchester on Thames (Thomas 1999, 153). These deposits are often secondary to the original construction of the monument, however, therefore such structures are not necessarily developed with the intention of being a cemetery site (Thomas 1999, 153).

At Beck Lane, for the group of the larger cremation burials (1, 2, 3, 4, 5, 7 and 9), it could be hypothesised that based upon the evidence for charcoal inclusions with the burnt bone, the cremation pits are likely to reflect *in situ* burning. The quantity of bone recovered from the majority of the large Beck Lane cremation assemblages is close to or above the average bone weight expected from modern crematoria. Wahl (1982, 25) found that archaeologically recovered remains of cremated adults tend to weigh less than the expected quantity of bone from modern cremations (between only 250g and 2500g). Additionally, Cremation Burials 6 and 7 and pit 185 had heat-affected bedrock bases. These factors, as well as the evidence of patchy burning, warping of the bones and high levels of representation of skull, axial and long bones might all be signs of *in situ* burning.

For the group of smaller burials (6, 8, 10 and 11), although there were charcoal inclusions present it is unlikely that these assemblages reflect *in situ* burning. With this group of burials, they are instead more likely to represent 'secondary' deposits, whereby the material was collected from an initial pyre burning site and placed within the graves. In these assemblages, the skull is better represented and the axial bones much less, so they likely represent the deposition of selected bones after the cremation process, as a result of the common custom of selecting only some of the bone from the pyre for inclusion in the final burial deposition, thereby representing a symbolic, or token, interment.

This pattern suggests that burial rites differed between various areas of the Site. This pattern has been noted at other Bronze Age cremation sites. In Lubbesthorpe (Leicestershire), six cremation burials were found, some urned and others unurned, and there were burials with low representations and others with very high levels of skeletal elements. Significantly, different areas of that site were also used in different ways and there seemed to be a spatial patterning on-site in reference to differing cremation types (Keefe and Holst 2017). A similar pattern was also noted at Pitty Close Farm in West Yorkshire (Penny-Mason and Holst 2020).

## Discussion and Summary

At Beck Lane, the cremation burials were of a broadly similar size and shape. The contextual evidence, pottery typology and radiocarbon dating results all suggest that these cremation burials likely date to the Early Bronze Age period (2500–1200 BC).

The cremated bone was generally in a good state of preservation, with slight abrasion to the edges and retention of some surface detail. However, the larger deposits were more heavily affected by warping and cracking during the cremation process. The cremated bone was mostly very well burnt and represented an average of 67% of the amount of bone expected from an adult cremation, more than is usually retrieved from most early Bronze Age cremation burials.

 

A large proportion of each cremation deposit contained identifiable fragments from the skull, arms, legs, vertebrae, and ribs, suggesting that for the most part these quantities are likely to be representative of the amount of bone originally deposited. The range of bone colours, abrasion of edges and surface of bones between different burials indicates a variety of cremation and post-depositional practices were taking place, including potential differences in temperature and pyre processes

The majority of the burials were of adult individuals. Two cremation burials were represented by both adult and non-adult remains, the latter of whom were infants (approximately six to 12 months old). This gives an overall MNI of 14 from 12 adults and two non-adults. It was not possible to fully determine biological sex in any of the assemblages, although in a few instances, it was possible to suggest some indicators of biological sex.

There was an overall lack of pathological changes, but early signs of degenerative joint changes were identified in Cremation Burial 9. Cremation Burial 3 contained a possible compressed vertebra, likely to have been caused by some form of trauma.

 

## The Charred Plant Remains – *Adam Santer*

### Introduction

Thirty-five bulk soil samples were taken during the archaeological excavation at Sutton-in-Ashfield and were processed for the analysis of charred plant remains (CPR). Twenty-one of the samples were taken from urned and un-urned Bronze Age cremation burials, with the remainder taken from ditch sections and post-holes. The full list of samples is in Appendix 2.

### Methodology

The samples consisted of a very coarse sand and were processed in a York tank using a 0.5mm mesh with flotation into a 0.3mm sieve. The flotation fractions (flots) and heavy residues were sorted for CPR and other artefacts under an x7.5–60 stereo microscope. Plant remains were identified by comparison to modern reference material available at ULAS and their names follow Stace (1991).

### Results

Only eight of the samples contained any CPR, all of which were of very low densities, equating to less than one item per litre of soil. Sample 6 was taken from the fill (114) associated with cremation [113] and it contained six grass tubers (Poaceae). Samples 11 and 12 were taken from the fill (106) of cremation [105] which contained a single hazelnut shell (*Corylus avellana* L.) and an indeterminate cereal grain. Sample 14 was taken from the fill (110) of cremation [109] which contained a single glume wheat (*Triticum* sp.) grain. Samples 15 and 16 were taken from the fill (111) of cremation [112] which contained a single hazelnut shell and a barley grain (*Hordeum vulgare* L.). Samples 19 and 20 from the fills (132) of cremation [131] contained two hazelnut shells, 19 grass tubers and two indeterminate cereal grains.

All of the samples were abundant in modern rootlets and molluscs, with modern weed seeds and worm egg sacs being found occasionally. This indicates that the features had been subjected to bioturbation and therefore there is no way of knowing for sure how much the deposits have been altered by natural disturbance over the millennia. This could have contributed to the lack of site-wide survival of CPR.

Table 6: The charred plant remains found in the samples.

| **Sample** | **6** | **11** | **12** | **14** | **15** | **16** | **19** | **20** | |
|---|---|---|---|---|---|---|---|---|---|
| **Context** | **113** | **106** | **106** | **110** | **111** | **111** | **132** | **132** | |
| **Cut** | **113** | **105** | **105** | **109** | **112** | **112** | **131** | **131** | |
| Charred plant remains | | | | | | | | | |
| *Triticim* sp. Grain | | | | 1 | | | | | Glume wheat grain |
| *Hordeum vulgare* L. grain | | | | | | 1 | | | Barley grain |
| Indeterminate cereal grain | | | 1 | | | | 2 | | Indeterminate cereal |
| Poaceae tuber | 6 | | | | | | 7 | 12 | Grass tuber |
| *Corylus avellana* L. nut shell | | 1 | | | 1 | | 2 | | Hazel nut shell |
| **Total** | **6** | **1** | **1** | **1** | **1** | **1** | **11** | **12** | |
| **Soil volume (Litres)** | **38** | **9** | **17** | **20** | **4** | **10** | **16** | **28** | |
| **Items per litre** | **0.16** | **0.11** | **0.06** | **0.05** | **0.25** | **0.10** | **0.69** | **0.43** | |

### Conclusion

 

Of the 35 bulk soil samples processed from Sutton-in-Ashfield only eight contained CPR, all at low densities. Grass tubers were most common, being recovered from three samples. Hazelnut shells and indeterminate cereal grains were found in smaller quantities, with a single barley grain identified in one sample.

The tubers found in association with cremations [113] and [131] are analogous to Bronze Age cremation burials elsewhere (Hall and Carrott 2003; Monckton 2012). The reason for their presence in cremation contexts is not yet known, but they may have been derived from burnt turves (Hall and Carrott 2003) or funeral pyre kindling material, and ritual use has also been hypothesised (see Wacnik *et al.* 2014, 454). Other plant remains could represent residual scatters of food waste which had become deposited in the graves as part of the general backfill.

The overall palaeoenvironmental assemblage is consistent with the material sampled during a previous trial trenching excavation, in which grass tubers were also found in three samples, with isolated finds of a cereal grain and some wild seeds also being found (see Craven 2021).

## Charcoal from cremation samples – *Adam Santer*

### Introduction

Charcoal was extracted from bulk soil samples which were associated with the 11 cremation burials discovered at Sutton-in-Ashfield and were analysed in order to identify the species of wood which was used as cremation fuel. The results of the analysis are presented here along with a discussion on what can be inferred from the results regarding the selection of pyre wood for Bronze Age cremations at the site.

### Methodology

Once extracted from the flotation fractions (flots) produced in the method outlined in the analysis of charred plant remains, charcoal was then passed through a 2mm sieve in order to extract specimens large enough for microscopic analysis. Approximately 25% of the charcoal from each sample was analysed. Charcoal was broken across the transverse, tangential and radial longitudinal sections and observed under an incident light microscope in order to compare the cellular structures and other microscopic characteristics to reference material and photomicrographs published in Schweingruber.

### Results

Charcoal measuring >2mm in diameter was recovered from all cremation samples except for sample 23 which was taken from the fill (143) of cremation burial [142]. Much of the charcoal was too vitrified and/or warped for species identification to be attempted. Only two species were identified overall. These were of oak (*Quercus* sp.) and hawthorn/Rosaceae (*Cratageus* sp./*Malus* sp./*Pyrus* sp./*Sorbus* sp.). The latter are classified as such because they are too anatomically similar to be identified to a specific taxon, and all or one of these species may be represented. Oak was identified as a single species in seven of the samples and identified together with hawthorn/Rosaceae in three of the samples (Table 7).

 

## Conclusion

The results suggests that majority of the cremation pyres on the Site were constructed solely of oak with some containing other shrub species. This would be consistent with evidence of pyre wood use throughout Britain in the Early to Middle Bronze Age, an example of which was seen in cremation burials excavated at Eye Kettleby, Leicestershire, in which it was hypothesised that single wood species in funerary pyres was more commonly associated with urned burials (Gale 2012, 79; Monckton 2012).

In the case of Beck Lane that there is no notable difference in the pyre wood species for urned and unurned burials. Oak has good high temperature burning properties with low smoke production which makes it an ideal species for cremating human remains. The selection of oak is likely due to a combination of informed choices by the pyre builders and timber availability.

Table 7: The charcoal from the cremation burials.

| Cremation No | Sample | Cut | Context | Species Present | Urned |
|---|---|---|---|---|---|
| 1 | 8 | 100 | 101 | *Quercus* sp. | Yes |
| 2 | 9 | 102 | 103 | *Quercus* sp. *Crataegus* sp. / Rosaceae | Yes |
| 3 | 12 | 105 | 106 | *Quercus* sp. | Yes |
| 4 | 14 | 109 | 110 | *Quercus* sp. | Yes |
| 5 | 17 | 111 | 112 | *Quercus* sp. | Yes |
| 6 | 6 | 113 | 114 | *Quercus* sp. *Crataegus* sp. / Rosaceae | Possibly. |
| 7 | 1 | 104 | 107 | *Quercus* sp. *Crataegus* sp. / Rosaceae | No |
| 8 | 4 | 129 | 130 | *Quercus* sp. | No |
| 9 | 19 | 131 | 132 | *Quercus* sp. | No |
| 10 | 22 | 140 | 141 | *Quercus* sp. | No |

 

## Radiocarbon Dating and Modelling – *Wayne Jarvis*

### Introduction

All of the cremation burials were assessed for potential for radiocarbon dating and six contained enough material to be considered. These included Cremations 1, 2, 3, 4 and 7 from Area A, Ring Ditch 1 and 9 from Ring Ditch 3 in Area B (Table 8). The six samples of cremated bone were sent to Beta Analytic, Florida for radiocarbon dating. The reported results are accredited to ISO/IEC 17025:2017 Testing Accreditation PJLA #59423 standards.

The results are shown in Table 8 and the full data are presented in Appendix 3.

Table 8: Summary of radiocarbon dates.

| Crem. No | Context | Cut | Description | Sample No | Beta Ref | Date BP | Uncert. +- | Calib @95.4% |
|---|---|---|---|---|---|---|---|---|
| 1 | 101 | 100 | Manual phalanx 1 complete | 50 | 608033 | 3450 | 30 | 1881–1642 cal BC |
| 2 | 103 | 102 | Rib blade fragment | 51 | 608034 | 3460 | 30 | 1882–1689 cal BC |
| 3 | 106 | 105 | Rib blade fragment | 53 | 608036 | 3420 | 30 | 1873–1622 cal BC |
| 4 | 110 | 109 | Rib blade fragment | 54 | 608037 | 3360 | 30 | 1740–1539 cal BC |
| 7 | 108 | 104 | Tibia shaft fragment | 52 | 608035 | 3430 | 30 | 1875–1626 cal BC |
| 9 | 132 | 131 | Long bone shaft fragment | 55 | 608038 | 3300 | 30 | 1629–1502 cal BC |

### Methodology

The radiocarbon measurements have been calibrated using the calibration curve of Bronk Ramsey (2009). The computer programme used was OxCal 4.4.4 using IntCal 20 (Reimer *et al.* 2020). The calibrated date ranges cited in plain type have been calculated using the maximum intercept method (Stuiver and Reimer 1986) and are those for 95% confidence unless stated. They are quoted in the form recommended by Mook (1986); the end points being rounded out to ten-year intervals. All other ranges are derived from the probability method (Stuiver and Reimer 1993), and the ranges quoted in *italics* are *posterior density estimates* derived from mathematical modelling of archaeological problems (see below). Terms specific to OxCal modelling are referred to in `Courier` font. The calibrated dates are shown Fig. 55.

#### *Results*

Using *Phase* in OxCal the cremation burials date between *1990–1690 cal BC* to *1740–1400 cal BC (95%)* and probably between *1840–1700 cal BC* to *1680–1500 cal BC (68%)*.

In OxCal, `Span` suggests that the cremation activity took place over a period of between *1* and *300 years (95%)*, and probably between *20* and *230 years (68%)*. In OxCal, including all radiocarbon results from the cremations in the `Combine` function, the results are not statistically consistent (df=5 T=15.871(5% 11.1)), overall agreement n=6 Acomb=10.9% (An= 28.9%), see graph Fig. 56. That the group fails a chi-squared test indicates that statistically the radiocarbon dates of the burials are unlikely to be contemporary, Cremation 9 is clearly late in the sequence compared to the rest of the group. This cremation is situated some distance to the north of the rest of the group. Isolating Cremation 9 from the group the rest of the results

 

(Cremations 1–4 and 7) have a poor agreement (A= 33.5% (A'c= 60.0%)', overall agreement Acomb=77, although they do pass a chi-squared test. Cremations 1, 2 and 7 form a group as regards their C14 dates (Acomb=135.2) and Cremations 3, 4 also have good agreement (Acomb=98.7). Additionally, modelling Cremations 1, 2, 3, and 7 as a group has a good agreement (Acomb=145.4), with Cremation 4 perhaps added to the cemetery slightly later.

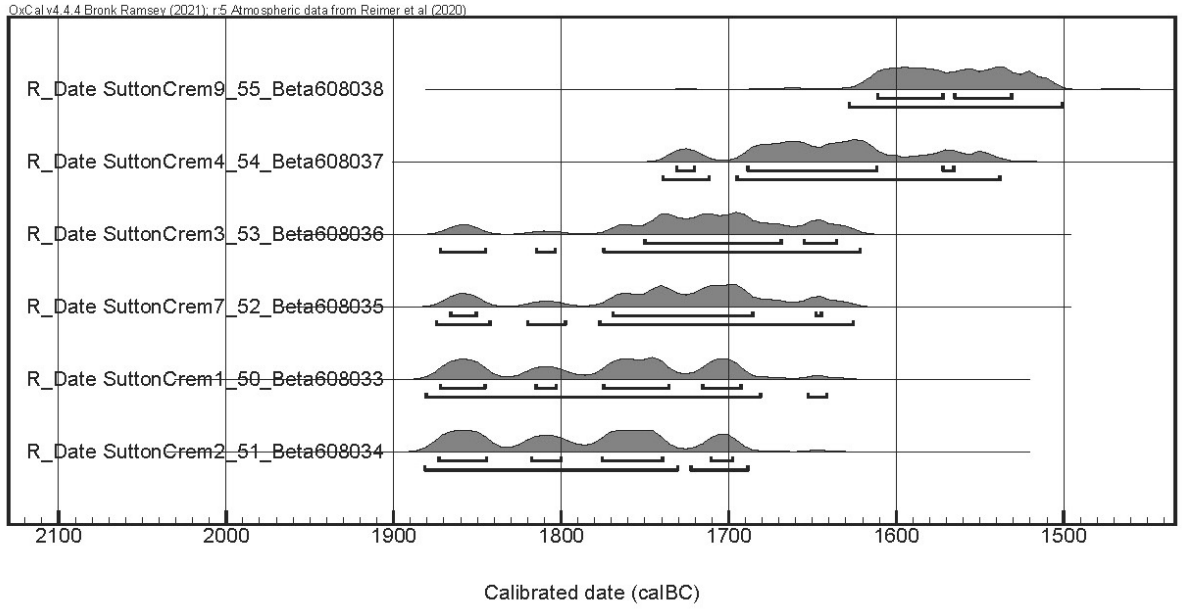


Figure 55: Calibrated $^{14}C$ dates for the cremated bone from Beck Lane. Square bracket indicates 95% and 68.3% probabilities.

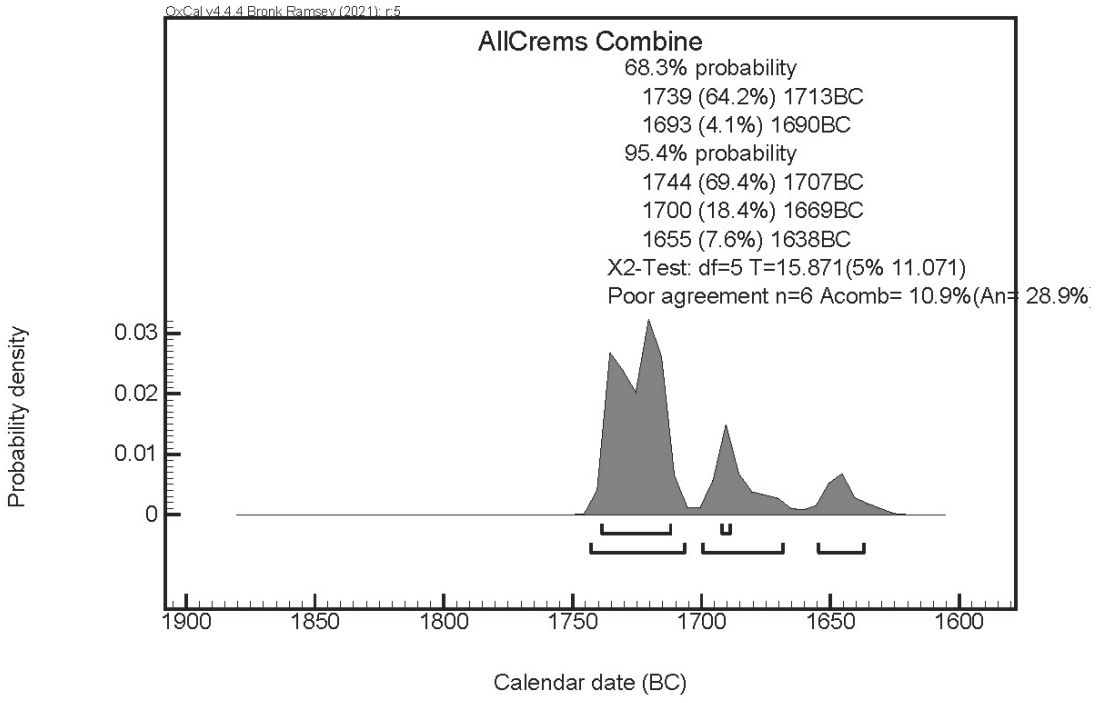


Figure 56: Chi-squared test for all six radiocarbon results.

 

Looking at the vessel results the small biconical cup (or miniature Food Vessel) in Cremation 2 is early in the cup typology, and this is mirrored in having one of the earliest radiocarbon dates (1890–1680 cal BC 95%, Beta-608034). The cups from Cremations 3 and 5 are virtually identical and likely contemporary to each other but are thought to be later in the overall sequence of the cups. The radiocarbon date for Cremation 3 (1880–1620 cal BC 95%, Beta-608036) may therefore provide a proxy date for Cremation 5, and also indicates a slightly later date for these two cremations. Cremation 4, a Collared Urn decorated with twisted cord is most likely the latest in the Area A group of cremations (1740–1530cal BC 95%, Beta-608037). Cremation 9 from the area of activity to the north is later in the life of the burial rites on site (1630–1500 cal BC 95%, Beta-608038), and was an unurned burial. The results are shown schematically on the site plan in Figure 57 below, with the calibrated dates shown, and numbers in red the most likely sequence for the cremations.

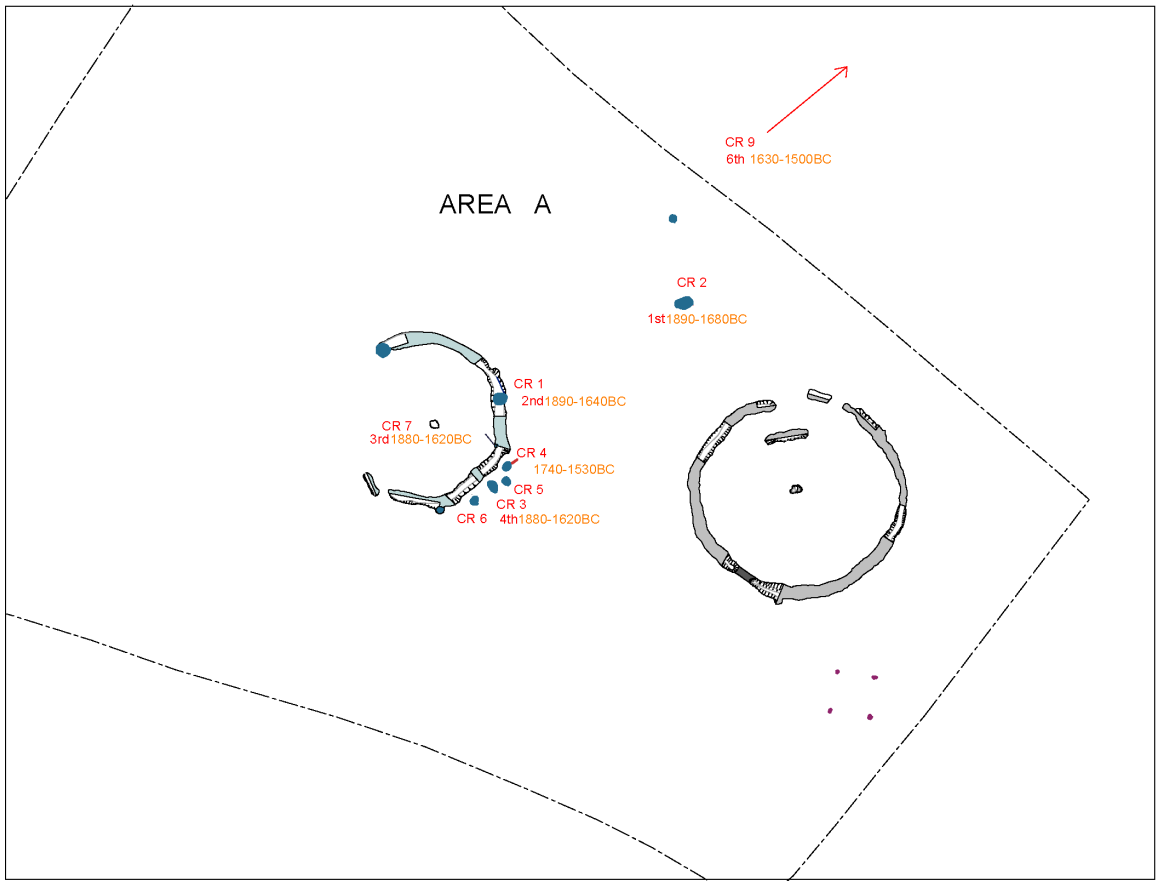


Figure 57: Plot of radiocarbon results from the cremation burials on the Site. Radiocarbon dates (orange, cal BC) and likely order/sequence of cremations (red, 1st–6th) based on the dates.

 

## Discussion

The excavations produced evidence for three multi-phase ring ditches and cremation burials representing ceremonial activity dating back to at least the early Bronze Age. To the north of the development area, other prehistoric features including cropmarks include a ring ditch, a pit alignment, and an enclosure of probable prehistoric date (HER Ref. **L4089**). Several prehistoric lithic scatters have been found including **L4033** just to the south and other scatters in the fields to the north, north-west and north-east.

The two excavation areas were located at around 156m OD separated by approximately 200m of lower-lying ground. Each area would have commanded views across the lower lying river valleys to the east and south and west (See Fig. 7). The siting of monuments such as ring ditches and barrows on the crests of higher ground has long been taken as evidence that they acted as territorial markers when observed from lower ground below (Fleming 1973; Jarvis 2009, 9), and that they were designed to be seen (Tilley 1999). There may also have been a sense in which the ancestral dead could perhaps keep watch over the living.

### *Ring Ditch 2*

Ring Ditch 2 is suggested as being the earliest of the excavated features. Neither the evaluation nor the excavation produced any dating or palaeoenvironmental evidence, but this could represent a Late Neolithic/Early Bronze Age hengiform monument.

Hengiform monuments (or mini-henges) are smaller versions of henges, typically less than 20m across usually dating to the mid-late Neolithic periods (3000–2000 BC). Like henges they are sub-circular and enclosed by a ditch, sometimes with traces of an outer bank, and entrances providing access into the interior. They are usually considered to be ceremonial or ritual monuments often situated on gravel terraces or on hill slopes and many are associated with burials. Although known monuments of this type are relatively rare this is likely to be due to them not being recognised easily in the landscape.

The Beck Lane monument would fit into the general hengiform pattern with a flattened circular ditch enclosing an area approximately 13.5m east to west and 11.5m north to south. Although this part of the Site is generally flat, it is situated on slightly higher ground. There was no clear evidence for an external bank although the overall feature may have been truncated. Ring Ditch 2 did have roughly opposing entrances to the north/north-east and south-west which would have provided access to the interior. The south-west entrance was later modified to create a continuous boundary; truncation on the northern side makes it difficult to determine if the northern entrance was modified in a similar fashion. Although there was no evidence for associated cremations there was a central pit or posthole that could have supported a vertical timber post carved or decorated in some manner, and potentially of symbolic or totemic significance. A possible linear feature also blocked the northern entrance or screened the interior from that entrance – alternatively, it might have acted a backdrop to any practices carried out in front of it to viewers looking north. In addition, there were also postholes associated with the south-western entrance.

While henges are known from the wider Midlands region with examples from Bingham (**SM1016777**) and Gunthorpe (**SM1017562**) in Nottinghamshire, and the Derbyshire upland examples at Arbor Low (**SM1011087**) and the Bull Ring (**SM1011204**), examples of hengiform monuments in this area are rarer. Excavations by Oxford Archaeology in 2016 at Bowbridge Lane, Newark-on-Trent, approximately 14 kilometres east of Beck Lane recorded a circular, ditched enclosure *c.* 35m in diameter with at least one causewayed entrance, identified as a possible hengiform monument. Though much larger than the Beck Lane

 

example, it does share some similarities and it was later modified with its entrance cut through to form a continuous boundary. It was associated with a number of cremation burials in Collared and Bucket Urns including two with smaller ancillary vessels (Oxford Archaeology n.d.; Tinsley 2017, 11).

Further north, excavations at Rossington Grange Farm in South Yorkshire recorded two Early Bronze Age ring ditches were recorded one of which was similar to the Beck Lane example. Barrow 2 measured 16m by 15.5m in plan, with 1m and 1.1m wide intervals in the north-eastern and south-eastern circuits respectively representing two possible entrances. No associated cremations were identified and, although the ditch was fully excavated no artefacts were recovered. A radiocarbon date range of 1900–1740 cal BC was obtained from wood charcoal from the ditch fill, however, and the excavators suggested that this could have been a hengiform monument (Roberts and Weston 2016). There were two phases of construction with two initial segments which were then expanded to the south-west to form a small subcircular enclosure with two entrances.

### *Ring Ditch 1*

Situated just to the west of Ring Ditch 2, Ring Ditch 1 appears to have been a very different type of monument. The feature appears to have been truncated (the maximum ditch depth was 0.23m), but does appear to have formed a C-shaped enclosure – this was not merely a product of later ploughing. The north to south length was 10.3m, and it was open-ended at its western side for approximately 8m. The plan of the monument suggested that it had been dug as a series of relatively straight segments, and the shallow depth of the surviving ditch meant there was no evidence for later ditch recuts – only the initial silting in the base remaining which probably accumulated while the enclosure was in use, although.

A similar C-shaped monument excavated at Broom in Cambridgeshire was much larger (28m across) and dug as a series of pits rather than as a continuous ditch (Cooper and Edmonds 2007). The Broom example had deep pits at the north and south ditch terminals containing early Neolithic pottery and flint, and the excavators felt that the lack of evidence for a mound or bank meant that the excavated material from the ditch had either been removed or dispersed across the site. While the Beck Lane monument had a pit at the northern butt end, there was no evidence for one at the southern terminal although this side of the enclosure was more truncated. Similarly, the lack of evidence for a bank or mound could be due to later truncation. The Broom example contained quantities of Neolithic flint and both Neolithic and Bronze Age pottery and the excavators suggested it was a long-lived monument, founded in the early Neolithic but remodelled and continuing in use into the Early Bronze Age. It is possible that the C-shaped enclosure at Beck Lane was an early monument perhaps associated with Ring Ditch 1, however, the lack of artefacts and truncation makes dating of the original monument difficult other than the fact that there it appears to pre-date most of the cremation burials.

Other C-shaped enclosures were associated with inhumation burials, as at Butcher's Rise, Barleycroft and Camp Gound, Earith, both in Cambridgeshire, and cited as parallels for the Broom monument (Cooper and Edmonds 2007), at Beck Lane there was a central cremation burial. The central cremation burial was deposited in a pit cut into the bedrock. The stone base was heavily scorched indicating either that the bone and ashes taken from a pyre elsewhere was still hot when it was deposited, or alternatively the feature could be evidence of a bustum-type burial. These cremation practices involve the body being placed and burnt on a pyre directly over the top of a pit, allowing the bone to fall into the pit as it burns are best known from the Roman period, but prehistoric examples are also known. Although cremation appears to have been the dominant funerary rite during the Bronze Age, there was considerable variation in the

 

collection and burial of cremated remains. While there is evidence for pyres from some cremation burial sites, the lack of evidence from others suggests that either the bone was burnt elsewhere and bought in for burial or else the pyres were carefully cleaned away. The Broom C-shaped enclosure already discussed also included evidence for pyre debris (Cooper and Edmonds 2007, 61). Experimental archaeology undertaken to explain scorched cremation pits excavated at Over in Cambridgeshire suggested that the bodies were tightly crouched and burnt on pyres over pits (Dodwell 2012). The excavators suggested a sequence commencing with the central pyre cremation pit as an initial phase, followed by the construction of a turf mound over the top of the pit. This was later expanded with a final phase comprising further burials added into the south-eastern part of the barrow and a ditch dug around it.

In this light, around the edges of the C-shaped ditch at Beck Lane there were also a number of additional cremation burials, six of which were urned. The relatively large quantities of bone and the charcoal inclusions might also suggest that the group of cremations outside the ring ditch represent *in situ* burning. Analysis of the cremated bone suggests that there were different temperatures or other variations in cremation practices. These may have reflected differing practices between families or lineages, but also perhaps other social distinctions that are not evident from the surviving evidence such as clan, moiety, or totemic affiliations, or inherited or accrued social status. While most of the remains were adults at least two contained adult and infant remains. There were unfortunately no indicators at all of the biological sex of the adult individuals interred with the infants, but it is possible that these were females and the mothers of the young children. Post-partum and infant infections were a leading cause of death amongst mothers and children right into the mid-twentieth century.

The radiocarbon dating indicates that Cremation burial 6 was probably the earliest interment excavated, and this could suggest that funerary activity in the Beck Lane area began with flat pit burials and that the barrows were constructed slightly later in the sequence, although perhaps only a generation or so later. The location of Cremation burials 3–6 strongly indicates that these pits were respecting an existing feature, and the lack of intercutting suggests not only that these features were quite close to one another in date but also that there might have awareness of the locations of previous interments and perhaps even above-ground markers which have left no archaeological trace. Cremation burials 3, 5 and 6 may also have been in a line, which although respecting the edge of Ring Ditch 1, might also indicate further familial ties or other social connections.

There are some discrepancies with the proposed phasing though. On contextual and stratigraphic grounds, it would seem likely that Cremation burial 7 was a central, possibly primary interment, with only Cremation burial 2 to the north-east possibly earlier. The sequence posited purely on the initial radiocarbon determinations, however, seems to contradict this (Fig. 57). The radiocarbon dates and pottery indicate that Cremation 2 – the outlier between Ring Ditch 1 and 2 – is the earliest, while Cremation 7 is probably also early due to its location in the centre and the slightly different burial tradition. The $^{14}$C dates shown in Fig. 57 suggests that Cremation burial 1 was the second interment after Cremation burial 2, however, yet this burial was dug into the partly silted-up ditch of Ring Ditch 1 when the feature was arguably already of some age. Cremation burial 7 is suggested as the third in the sequence, with Cremation burials 3 and 4 following in that order. This alternative phasing could therefore see Cremation Burial 7 placed at the centre of an existing C-shaped monument only after Cremation burial 2 had been inserted into its silted-up ditch, with the additional cremation burials placed around it a short time later. This seems less likely on spatial grounds but is nonetheless possible. Clearly, additional radiocarbon or Accelerator Mass Spectrometer dates and detailed modelling of these might help resolve some of these discrepancies.

 

Cremation burials 3–6 were located on the south-eastern side of Ring Ditch 1. This emphasis on the south-eastern side of barrows and ring ditches has been identified by others at such monuments across Britain (e.g. Bradley 1998, 152–3; Bradley et al. 1991, 128–37) and may have had symbolic and social significance, perhaps reflecting prehistoric ideas of a propitious or cardinal direction associated with the rising sun.

Where present the vessels comprised Collared Urns with a variety of decorations. Three of the Collared Urns contained ancillary funerary cups within them. Collared Urns seem to have emerged as a form in Wales around *c*. 2150 BC, followed by their appearance in Ireland at around *c*. 2050 BC, then much of Scotland and England together at approximately 1920 BC (Cooper *et al*. 2022, 154). This development coincided with a general move across Britain away from inhumation towards cremation as a funerary rite, and it has been argued that Collared Urns were never or rarely part of 'domestic' ceramic assemblages – they would have been made purely for use in funerary or ritualised practices and contexts (Woodward 2002). The use of Collared Urns at Beck Lane was thus part of a broader tradition that was already likely several centuries old by the time the cremation burials at Ring Ditch 1 took place. Cremation burials featuring Collared Urns are known from other Nottinghamshire sites such as Bramcote, Holme Pierrepont and Hoveringham (Longworth 1984, 260).

Cremation burial 2 was accompanied by a miniature bi-partite Food Vessel thought to be typologically relatively early. In contrast, Cremation burials 3 and 5 both contained very similar Group 4 exotic Trunconic cups (although different sizes) thought to be late in the sequence. These types of cups are quite rare but do appear across the country with a similar example from Aberdeenshire. These funerary cups seem to have been unique, so the very close similarities between the two different vessels in Cremation burials 3 and 5 (Sf10 and Sf11) strongly suggests that they were made either by the same person, or with knowledge of the other vessel. This in turn indicates a likely degree of contemporaneity between these two burials, within the same generation at least, and perhaps also familial, clan or other social links and relationships. One particular form of cup has had holes or fenestrations cut into them leading to suggestions that they might have been used for containing incense or other substances, but though some have traces of burning many do not and so this hypothesis has been critiqued in recent decades (e.g. Gibson and Stern 2006; Hallam 2015). Whilst one of the Beck Lane cups (Sf11 from Cremation burial 5) does have perforations these holes are very small. Other suggestions of functions for the cups include drinking vessels or receptacles for carrying embers to light the funeral pyre, but they clearly played a role in funerary rites and burials. Some funerary cups were grog-tempered, incorporating material from broken and ground-down older vessels, also suggesting conscious or unconscious links to the past.

Mixed urned and un-urned burials were a common feature of Bronze Age funerary traditions. The presence of miniature accessory cups accompanying the burials is rarer however, particularly within the Midlands, although they did occur in limited numbers across Britain. The enclosure mentioned above at Bowbridge Lane, Newark contained a number of internal features that were subsequently re-used for cremation deposits, with a selection of Collared and Bucket Urns with two cremations accompanied by small ancillary vessels only. Miniature funerary cups are recorded from two further Nottinghamshire sites at Attenborough Gravel Pits and Belvoir (Copper 2017, 385–6) but no associated dating or contextual detail is available for these examples, reinforcing the importance of the Beck Lane results. Group 1 miniature Food Vessels have been found with both inhumations and cremations, many from eastern Yorkshire (Manby 1995, 46–7; Wilkin 2013, 43). The Group 1 form are generally not found with Urn tradition vessels, but Group 2 and 3 miniature Food Vessels were deposited with Collared and Cordoned Urns, almost exclusively with cremation burials.

 

Analysis of the charcoal found within the cremation burials at Beck Lane suggests that the cremation pyres used to burn the bodies were predominantly composed of oak – this is consistent with pyre wood use of this period elsewhere in Britain. The lack of evidence for pyres and burning on sites has been used to suggest that human bone was cremated elsewhere and brought to the final burial place but at Beck Lane the evidence for *in situ* burning and the relatively large quantities of human bone recovered suggest that the bodies may have been cremated on site. At least one tonne of wood is required to thoroughly cremate a human body (McKinley 1997), so these practices would have had significant practical and landscape implications in terms of sourcing or even managing trees for pyre wood.

Analysis of the palaeoenvironmental samples revealed very little although the presence of grass tubers was also seen in the evaluation results. The reason for their presence is unknown and could represent kindling, burnt turves or even ritual use (Wacnik *et al.* 2014, 454).

### *Ring Ditch 3*

The most recent phase of funerary activity at Beck Lane took place at Ring Ditch 3 on the higher ground to the north. Ring Ditch 3 was subcircular in plan, measuring 13.5m east–west and 15m north–south internally and it was associated with five unurned cremations (four within the ditch and one outside). Unlike Ring Ditches 1 and 2 further to the south this was better preserved and the slumping of fill into the ditches indicated the presence of mound or bank material eroding from the interior. Only a few fragments of Bronze Age pottery were recovered from the ring ditch and the single radiocarbon date obtained of 1629–1502 cal BC was later than those associated with Ring Ditch 1 to the south.

Ring ditches were a relatively common later Neolithic–earlier Bronze Age monument in the Midlands and there are numerous examples. North of the River Trent there are cemetery groups at Swarkestone Lowes, where a Bronze Age cemetery contained several upstanding examples; with further examples known at the Aston cropmark complex, and other ring ditches are visible as cropmarks west and east of Weston-on-Trent (Cooper 2006), together with the dispersed ring ditches of the Lockington barrow cemetery further to the east (Hughes 2000). Ring ditches in Nottinghamshire tended towards larger diameter, lower-lying features within the River Trent corridor with a wide variety of forms and multiphase use, such as the late Neolithic to early Bronze Age ring ditch found during the A46 road widening scheme in 2009. Burials were recorded cutting into the upper ditch deposits, including one accompanied by a Beaker (Cotswold Wessex Archaeology 2011).

The Beck Lane barrow is somewhat smaller than other broadly contemporaneous ring ditches in the area, but barrows of similar diameter are recorded elsewhere. At Cossington at the confluence of the Rivers Wreake and Soar approximately 48 kilometres south of Beck Lane, it was suggested that the variations in diameter of ring ditches across the region could have been related to the size of family groups and population at the time (Thomas 2007). The Cossington barrows identified use and re-use over about 2,500 years. While the Beck Lane examples seem to date to the late Neolithic and early Bronze Age with no further re-use, the variety of monuments and practices does seem to suggest changing burial traditions and rites over time and variation even within broadly contemporary practices. All the cremations in Ring Ditch 3 were unurned and contained adult individuals. This might reflect a change from a more family-orientated group tradition visible in the cremation burials to the south in Ring Ditch 1 towards a focus more on specific individuals at Ring Ditch 3.

 

One of the interesting features of Ring Ditch 3 was the presence of a geological fault on the northern side of the feature. Two beer bottles found within it suggest that the fault had remained a partly open and visible features into the modern period. It is possible that not only was this fault visible in the Bronze Age but that the barrow was deliberated sited on top of it with the original ditch cutting utilising the fault. Other examples of prehistoric people utilising natural faults are known, as at Ridlington, Rutland where a Bronze Age roundhouse was aligned over a clay-filled glacial feature. It was suggested that the filled fissure was visible either as a topographic feature or by changes in the vegetation (Beamish 2005, 9). Elsewhere in Britain, Bronze Age round barrows sometimes had close associations with natural solution hollows or dolines, and periglacial hummocks and drumlins (e.g. Tilley 1999, 225–8).

### *Four-post structure*

The four-post structure identified to the south-east of Ring Ditch 1 contained no artefacts or charcoal and thus cannot be dated. It was thought during the excavation and initial post-excavation analysis that this feature could have been a pyre structure associated with the cremation burials, although there is no evidence for burning. Another possible funerary-related use might have been as a structure or platform on which to prepare and/or display bodies prior to cremation. Four-post structures are more commonly associated with settlement sites from the middle Bronze Age into the Iron Age and early Roman periods, however, where they are usually interpreted as raised storage structures such as granaries. This may indicate that there was later prehistoric occupation and use within the immediate vicinity of Beck Lane.

It should be noted though that there are recorded instances where Iron Age four-post structures appear to have been deliberately sited close to earlier prehistoric monuments such as round barrows. Examples include earlier Iron Age four-post structures at Temple Point, Colton and at Swillington Common, both near Leeds in West Yorkshire (Brown and Signorelli 2005; Howell 2001). The seemingly deliberate placement of such features close to Bronze Age ritual monuments could suggest attempts to create fictive or mythical associations with older landscape features (Chadwick 2013, 298).

## Conclusions

The results from Beck Lane are of regional significance as the Site has provided a series of well-contextualised cremation burials complimented by secure independent scientific dating evidence. The excavation has identified three monuments that were probably socially important features in a wider prehistoric landscape. The results of the excavation will therefore contribute to the understanding of the local and regional funerary traditions of the period, highlighting the complex and evolving nature of ritual and burial in the Neolithic–early Bronze Age and reflecting changing attitudes and understanding of the landscape. There are surprisingly few Collared Urn cremation burials known from Nottinghamshire to the results add to knowledge of local and regional burial traditions, but there are elements of the cremation burials such as the presence of a rare miniature Food Vessel and the near-identical Trunconic cups that are of national significance.

## Archive and Publication

The archive for the project will be deposited with Nottinghamshire Museums (to be arranged). The archive consists of the following:

 

- 1 unbound copy of this report (2022-036)
- Context Summary Index
- Context sheets
- Drawing Summary Index
- Site drawings on Drawing film
- Photographic index
- Digital photographs
- Sample Index
- Finds Records
- Small Find Index

A summary of this report will appear in due course in an appropriate journal.

University of Leicester Archaeological Services supports the Online Access to the Index of Archaeological Investigations (OASIS) project. The online OASIS data entry has been completed detailing the results of the project and will be digitally accessible through The Archaeological Data Services (http://archaeologydataservice.ac.uk/).

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# Appendix 1: Context List

| Context | Type | Phase | Area/ Group | FEATURE | Crem No | NOTES | SAMPLE | SMALL FIND |
|---|---|---|---|---|---|---|---|---|
| 100 | Cut | 2.2 | A - RD1 | Pit with Urned cremation 1 within ditch | **1** | Cut - no visible cut for cremation, part of RD1 ditch fill. | 7,8 | 1 |
| 101 | Fill | 2.2 | A - RD1 | Cremation fill | **1** | Fill - dark black brown, sandy silt, limestone frags. Upper portion of cremation lost to ploughing. | 7,8 | 1 |
| 102 | Cut | 2.2 | A - RD1 | Pit with Urned cremation 2 | **2** | Cut - urned cremation burial, between RD1/RD2. | 9,10 | 2,9 |
| 103 | Fill | 2.2 | A - RD1 | Pit Urned cremation 2 | **2** | Fill - dark black brown, sandy silt, charcoal flecks. | 9,10 | 2,9 |
| 104 | Cut | 2.1 | A - RD1 | Un-urned cremation 4 | **4** | Cut - un-urned cremation burial, inside ring of RD1. | | |
| 105 | Cut | 2.2 | A - RD1 | Pit with Urned cremation 3 | **3** | Cut - urned cremation burial, southern edge of RD1. | | 3,7,8,10 |
| 106 | Fill | 2.2 | A - RD1 | Pit with Urned cremation 3 | **3** | Fill - dark brown black, sandy silt, occ. pot/bone frags, charc flecks. | 11,18 | 3,7,8,10 |
| 107 | Fill | | A - RD1 | Un-urned cremation 4 | **4** | Fill - mid brown grey silty sand, limestone/bone frags. | 12 | |
| 108 | Fill | | A - RD1 | Un-urned cremation 4 | **4** | Fill - very dark greyish black, silty sand, burnt bone/wood frags. Main internment deposit, dug into bedrock. | 2 | |
| 109 | Cut | 2.2 | A - RD1 | Pit with Urned cremation 4 | **4** | Cut - small pit for cremation urn, southern edge of RD1. | | 4 |
| 110 | Fill | 2.2 | A - RD1 | Pit with Urned cremation 4 | **4** | Fill - very dark grey black, silty sand. | 13,14 | 4 |
| 111 | Cut | 2.2 | A - RD1 | Pit with Urned cremation 5 | **5** | Cut - small pit for cremation urn, southern edge of RD1. | | 5,11 |
| 112 | Fill | 2.2 | A - RD1 | Pit with Urned cremation 5 | **5** | Fill - very dark reddish brown, silty sand. | 15,16,17, 21 | 5,11 |
| 113 | Cut | 2.2 | A - RD1 | Poss cremation burial 6 - truncated? | **6** | Cut - small pit for cremation urn, southern edge of RD1. | | 6 |
| 114 | Fill | 2.2 | A - RD1 | Poss cremation burial 6 - truncated? | **6** | Fill - dark brownish grey black silty sand. Evidence of burning. | 6 | 6 |
| 115 | Cut | 2.2 | A | Pit, poss. fire/cremation | | Cut - likely fire pit, med pot found in fill. | 3 | |
| 116 | Fill | 2.2 | A | Pit, poss. fire/cremation | | Fill - dark black grey, silty clayey sands, charc flecks. Backfill of fire pit, thought to be cremation but no evidence. | 3 | |
| 117 | Cut | Unphased | A | Posthole | | Cut - corner of four cornered posthole structure south of RD2. | | |
| 118 | Fill | Unphased | A | Posthole | | Fill - mid brownish grey, silty sand. Quarternary deposit, post pad. | 31 | |
| 119 | Fill | Unphased | A | Posthole | | Fill - mid brown, silty sand. Tertiary deposit, silting of posthole. | 30 | |

 

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 120 | Cut | Unphased | A | Posthole | | Cut - corner of four cornered posthole structure south of RD2. | | |
| 121 | Fill | Unphased | A | Posthole | | Fill - mid brownish grey, silty sand. Quarternary deposit, post pad. | 33 | |
| 122 | Fill | Unphased | A | Posthole | | Fill - mid brown, sandy silt. Tertiary deposit, silting of posthole. | 32 | |
| 123 | Cut | Unphased | A | Posthole | | Cut - corner of four cornered posthole structure south of RD2. | | |
| 124 | Fill | Unphased | A | Posthole | | Fill - mid brownish grey, silty sand. Quarternary deposit, post pad. | 35 | |
| 125 | Fill | Unphased | A | Posthole | | Fill - mid brown sandy silt. Tertiary deposit, silting of posthole. | 34 | |
| 126 | Cut | Unphased | A | Posthole | | Cut - corner of four cornered posthole structure south of RD2. | | |
| 127 | Fill | Unphased | A | Posthole | | Fill - mid brownish grey, silty sand. Quarternary deposit, post pad. | 29 | |
| 128 | Fill | Unphased | A | Posthole | | Fill - mid brown sandy silt. Tertiary deposit, silting of posthole. | 28 | |
| 129 | Cut | 3 | B - RD3 | Pit for Cremation 8 | **8** | Cut - cremation pit east of RD3. | | |
| 130 | Fill | 3 | B - RD3 | Pit for Cremation 8 | **8** | Fill - mid orangish brown, sandy silt, burnt bone/charc frags. Cremation backfill. | 4,5 | |
| 131 | Cut | 3 | B - RD3 | Pit for Cremation 9 | **9** | Cut - cremation pit within RD3. Possible pyre. | | |
| 132 | Fill | 3 | B - RD3 | Pit for Cremation 9 | **9** | Fill - light grey yellow brown, silty sand, bone frags. SW corner of pit. | 19,20 | |
| 133 | Fill | 3 | B - RD3 | Pit for Cremation 9 | **9** | Fill - very dark grey black, silty sandy charc. Pure band of charcoal at base of pit. | | |
| 134 | Fill | 3 | B - RD3 | Pit for Cremation 9 | **9** | Fill - mid grey black brown, silty sand, freq. charc flecks/ bone frags. Cremation backfill. | | |
| 135 | Fill | 3 | B - RD3 | Pit for Cremation 9 | **9** | Fill - human bone, compacted, no articulation. | | |
| 136 | Fill | 3 | B - RD3 | Pit for Cremation 9 | **9** | Fill - dark yellow red burnt clay, heat affected stone. Burnt clay/stone deposit poss. Lens within fill (137). | | |
| 137 | Fill | 3 | B - RD3 | Pit for Cremation 9 | **9** | Fill - dark grey black brown, silty sand, freq. charc flecks. Charcoal rich cremation backfill. | | |
| 138 | Fill | 3 | B - RD3 | Pit for Cremation 9 | **9** | Fill - mid grey brown white flecks, silty ashy sand, freq. charc flecks. | | |
| 139 | Fill | 3 | B - RD3 | Pit for Cremation 9 | **9** | Fill - mid grey black brown, silty sand, freq. charc flecks. Upper cremation backfill. | | |
| 140 | Cut | 3 | B - RD3 | Pit for Cremation 10, truncated | **10** | Cut - truncated cremation pit within RD3. | | |
| 141 | Fill | 3 | B - RD3 | Pit for Cremation 10, truncated | **10** | Fill - dark greyish black, sandy silt, charc inclusions. | 22 | |

 

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 142 | Cut | 3 | B - RD3 | Pit for Cremation 11, truncated | **11** | Cut - truncated cremation pit within RD3. | | |
| 143 | Fill | 3 | B - RD3 | Pit for Cremation 11, truncated | **11** | Fill - mid yellowish brown silt, freq. charc burnt bone inclusions. | 23 | |
| 144 | Cut | 1.1 | A - RD2 | Ring ditch | | Cut - cut of slot in RD2. | | |
| 145 | Fill | 1.1 | A - RD2 | Fill of ring ditch | | Fill - mid orangish brown, silt, some manganese. | | |
| 146 | Cut | 1.1 | A - RD2 | Ring ditch | | Cut - cut of slot in RD2. | | |
| 147 | Fill | 1.1 | A - RD2 | Fill of ring ditch | | Fill - mid orange yellow brown, silty sands. | | |
| 148 | Cut | 1.1 | A - RD2 | Ring ditch, terminus | | Cut - cut of slot in RD2. Terminus. Thin, poss. neolithic. | | |
| 149 | Fill | 1.1 | A - RD2 | Fill of ring ditch, terminus | | Fill - mid orangish brown, silt, sandstone frags. | 24 | |
| 150 | Cut | 1.1 | A - RD2 | Ring ditch, terminus | | Cut - ring ditch terminus, RD2. | | |
| 151 | Fill | 1.1 | A - RD2 | Fill of ring ditch, terminus | | Fill - mid orangish brown, silt, sandstone frags. | 25 | |
| 152 | Cut | 1.1 | A - RD2 | Ring ditch, terminus | | Cut - same as 150 | | |
| 153 | Fill | 1.1 | A - RD2 | Fill of ring ditch, terminus | | Fill - medium orangeish brown, silt, sandstone frags. | | |
| 154 | Cut | 1.1 | A - RD2 | Pit/posthole | | Cut - cut of pit/posthole just north of cuts 150/152. | | |
| 155 | Fill | 1.1 | A - RD2 | Pit/posthole | | Fill - dark orangish brown, clayey silt. | | |
| 156 | Cut | 1.1 | A - RD2 | Ring ditch, poss. terminus | | Cut - cut of ring ditch, poss. terminus, opposite cut 160 (also poss. terminus). | | |
| 157 | Fill | 1.1 | A - RD2 | Fill of ring ditch, poss. terminus | | Fill - light orange yellow brown, silty sand, occ. charc. flecks. Primary backfill. | | |
| 158 | Cut | 1.1 | A - RD2 | Ring ditch, poss. segment | | Cut - possible portion of ring ditch between two possible terminuses. | | |
| 159 | Fill | 1.1 | A - RD2 | Fill of ring ditch, poss. segment | | Fill - light orange yellow brown, silty sand, occ. sandstone chunks. | | |
| 160 | Cut | 1.1 | A - RD2 | Ring ditch, poss. terminus | | Cut - cut of ring ditch, poss. terminus, opposite cut 156 (also poss. terminus). | | |
| 161 | Fill | 1.1 | A - RD2 | Ring ditch, poss. terminus | | Fill - light orange yellow brown, silty sand, rare rounded pebbles. | | |
| 162 | Fill | | A - RD2 | Not USED | | Fill - dark orange red brown, silty sand, occ. small rounded pebbles, rare charc. flecks. poss. buried SSOIL. | | |
| 163 | Cut | 1.2 | A - RD2 | Ring ditch, recut | | Cut - cut of ring ditch, truncated. SEE CUT SHEET 163. Remains of ring ditch between terminuses. | | |
| 164 | Fill | 1.2 | A - RD2 | Ring ditch, recut | | Fill - medium dark orange brown, silt, rare sandstone frags. | 26 | |

 

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 165 | Cut | 2.1 | A - RD1 | Ring ditch, truncated, west | | Cut - western edge of ring ditch, truncated by ploughing. | | |
| 166 | Fill | 2.1 | A - RD1 | Ring ditch, truncated, west | | Fill - mid orangish brown, sandy silt, rare stones. Tertiary deposit, silting of ditch. | | |
| 167 | Cut | 2.1 | A - RD1 | Slot south-west of ring ditch | | Cut - south eastern edge of ring ditch, truncated. Probable ploughing. | | |
| 168 | Fill | 2.1 | A - RD1 | Fill of 167 | | Fill - mid orangish brown, sandy silt, rare stones. Tertiary deposit, silting of ditch. | | |
| 169 | Cut | 1.1 | A - RD2 | Slot inside Ring ditch | | Cut - slot - oval shaped feature seen inside RD2 | | |
| 170 | Fill | 1.1 | A - RD2 | Fill of slot inside Ring ditch | | Fill - light yellow brown, sandy silt, occ. sandstone frags. Poss. backfill of feature. | | |
| 171 | Cut | 1.1 | A - RD2 | Posthole | | Cut - cut of posthole within terminus. SEE CUT SHEET 148. Opposite posthole cut 173. | | |
| 172 | Fill | 1.1 | A - RD2 | Posthole | | Fill - mid orangish brown, sandy silt. Natural silting. | | |
| 173 | Cut | 1.1 | A - RD2 | Posthole | | Cut - cut of posthole between terminuses 148 and 150. Possibly cut by 163. | | |
| 174 | Fill | 1.1 | A - RD2 | Posthole | | Fill - mid orangish brown, sandy silt. Natural silting. | | |
| 175 | Cut | 2.1 | A - RD1 | Ring ditch, curvilinear | | Cut - cut of ring ditch, adjacent to cremations 113 and 115. | | |
| 176 | Fill | 2.1 | A - RD1 | Ring ditch, curvilinear | | Fill - mid orangish brown, sandy silt. Natural silting. | | |
| 177 | Cut | 2.1 | A - RD1 | Ring ditch, curvilinear | | Cut - cut of ring ditch, curvilinear. C shaped enclosure. Heavily truncated due to ploughing, shallow. | | |
| 178 | Fill | 2.1 | A - RD1 | Ring ditch, curvilinear | | Fill - dark orangish brown, silt. Natural silting, maybe some backfill from curvilinear/ring ditch. | | |
| 179 | Cut | 1.1 | A - RD2 | Pit/posthole, centre of RD2 | | Cut - cut of possible pit | | |
| 180 | Fill | 1.1 | A - RD2 | Fill of pit/posthole, centre of RD2 | | Fill - mid grey brown, silty sands, occ. stones. | | |
| 181 | Cut | 2.1 | A - RD1 | Ring ditch | | Cut - cut of shallow segment of ring ditch, southern part of ring ditch. Very shallow. | | |
| 182 | Fill | 2.1 | A - RD1 | Ring ditch | | Fill - mid brown, silt, sandstone frags. | | |
| 183 | Cut | 2.1 | A - RD1 | Ring gully terminal | | Cut - remains of cut for poss. ring gully, heavily truncated, very shallow, no cut discernable. Cut by pit 185. | | |
| 184 | Fill | 2.1 | A - RD1 | Fill of Ring gully terminal | | Fill - dark grey brown, silty sand, occ. stones. so shallow immediately hit bedrock. | | |
| 185 | Cut | 2.2 | A - RD1 | Pit, poss. fire/cremation | | Cut - cut of pit, no evidence of cremation, probable firepit. Cuts ring gully 183. | | |

 

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 186 | Cut | 2.2 | A - RD1 | Possible pit/posthole cutting ring ditch 181 | | Cut - possible cut of posthole within ring ditch/gully. | | |
| 187 | Fill | 2.2 | A - RD1 | Possible posthole in cut 181 | | Fill - mid brown, silt, sandstone frags. | | |
| 188 | Fill | 2.2 | A - RD1 | Possible posthole in cut 181 | | Fill - dark grey black, silty sand, freq. charc. flecks. Primary backfill, evidence of burning. | 27 | |
| 189 | Cut | 2.1 | A - RD1 | Ring ditch | | Cut - heavily truncated part of ring ditch cut by cremation pit 1. SMALL FIND 1. | | |
| 190 | Fill | 2.1 | A - RD1 | Ring ditch | | Fill - dark greyish brown, sandy silt. Natural silting. | | |
| 191 | Cut | | A | Natural feature | | Cut - excavated due to proximity to four posthole structure, cut 117 etc. | | |
| 192 | Fill | | A | Natural feature | | Fill - mid brown, silt. | | |
| 193 | Cut | | B - RD3 | Ring ditch | | Cut - cut of ring ditch. | | |
| 194 | Fill | | B - RD3 | Ring ditch | | Fill - mid yellow brown, sandy silt. Re-deposited sandstone, slumping from centre of ring. | | |
| 195 | Fill | | B - RD3 | Ring ditch | | Fill - mid orange yellow brown, silty sands. Possibly slumped subsoil. | | |
| 196 | Cut | | B - RD3 | Ring ditch | | Cut - section through ring ditch. | | |
| 197 | Fill | | B - RD3 | Ring ditch | | Fill - mid to dark reddish brown, silty sand, freq. stones. | 36 | |
| 198 | Fill | | B - RD3 | Ring ditch | | Fill - brownish orange, clayey silt. | | |
| 199 | Cut | | B - RD3 | Ring ditch | | Cut - cut of ring ditch. | | |
| 200 | Fill | | B - RD3 | Ring ditch | | Fill - mid orangish brown, sandy silt. Slumped sandstone/ mound material redeposited. | | |
| 201 | Fill | | B - RD3 | Ring ditch | | Fill - mid brownish orange, silt. Natural silting. | | |
| 202 | Cut | | B - RD3 | Ring ditch | | U-shaped profile, steep sides flat base | | |
| 203 | Cut | | B - RD3 | Ring ditch | | concaved shaped steep sides, concaved base | | |
| 204 | Fill | | B - RD3 | ring ditch fill | | upper dark brown sandy silt, occ sandstone | | |
| 205 | Fill | | B - RD3 | ring ditch fill | | mid brown silt & freq. sandstone frags below (204) | | |
| 206 | Cut | | B - RD3 | Ring ditch | | V-sided shape with shallow sides, flat base | | |
| 207 | Fill | | B - RD3 | ring ditch fill | | primary mid brown sand. Freq, sandstone | | |
| 208 | Fill | | B - RD3 | ring ditch fill | | upper dark brown sand, occ sandstone frags | | |
| 209 | Cut | | B - RD3 | Ring ditch | | irregular sided-shape, sides, and base | | |
| 210 | Fill | | B - RD3 | ring ditch fill | | dark reddish brown sandy silt. Primary. | | |
| 211 | Fill | | B - RD3 | ring ditch fill | | upper light orangish brown sandy silt | | |

 

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 212 | Fill | | B - RD3 | ring ditch fill | | light yellowish brown sandy silt freq, sandstone frags. Below (211) | | |
| 213 | | | B - RD3 | ring ditch fill | | light yellowish brown sandy silt freq. sandstone below (212) | | |
| 214 | Fill | | B - RD3 | Ring ditch fill | | dark yellowish brown deposit below (213) | | |
| 215 | Fill | | B - RD3 | Ring ditch fill | | primary re-deposited natural fill below (214) | | |
| 216 | Cut | | B - RD3 | Ring ditch | | irregular shape, with steep sides, sloping base | | |
| 217 | Fill | | B - RD3 | Ring ditch fill | | primary ditch fill. Dark greyish brown sandy silt. Initial mound deposit remains. | | |
| 218 | Fill | | B - RD3 | Ring ditch fill | | Dark orangish brown sandy silt. Upper ditch fill | | |
| 219 | Fill | | B - RD3 | Ring ditch fill | | | | |
| 220 | Cut | | B - RD3 | Post-hole | | sub-circular steep sided U-shaped profile | | |
| 221 | Fill | | B - RD3 | Post-hole fill | | dark orangish brown sterile silt | | |
| 222 | Cut | | B - RD3 | Post-hole | | sub-circular steep sided U-shaped profile | | |
| 223 | Fill | | B - RD3 | Post-hole fill | | dark orangish brown sterile silt | | |
| 224 | Cut | | B - RD3 | Post-hole | | sub-circular steep sided U-shaped profile | | |
| 225 | Fill | | B - RD3 | Post-hole fill | | mid orangish brown sterile silt | | |
| 226 | Cut | | B - RD3 | stake-hole | | sub-circular steep sided U-shaped profile | | |
| 227 | Fill | | B - RD3 | Stake hole Fill | | mid orangish brown sterile silt | | |

## Appendix 2: Sample Register

Shaded = positive for CPR.

| Sample | Context | Cut | type | Note |
|---|---|---|---|---|
| 0001 | 0107 | 0104 | Bulk | Upper fill of cremation burial |
| 0002 | 0108 | 0104 | Bulk | Lower fill of cremation burial |
| 0003 | 0116 | 0115 | Bulk | Poss fire pit/cremation? |
| 0004 | 0130 | 0129 | Bulk | Cremation fill |
| 0005 | 0130 | 0129 | Radiocarbon | Cremation fill. Hand collected charcoal. |
| 0006 | 0114 | 0113 | Bulk | Pit fill (former 'urn') |
| 0007 | 0101 | 0100 | Bulk | Spits inside crem sf1 (bags) |
| 0008 | 0101 | 0100 | Bulk | Soil around crem sf1 |
| 0009 | 0103 | 0102 | Bulk | Spits inside crem sf2 (bags) |
| 0010 | 0103 | 0102 | Bulk | Soil around crem sf2 |
| 0011 | 0106 | 0105 | Bulk | Spits inside crem sf3 (bags) |
| 0012 | 0106 | 0105 | Bulk | Soil around crem sf3 |
| 0013 | 0110 | 0109 | Bulk | Spits inside crem sf4 (bags) |
| 0014 | 0110 | 0109 | Bulk | Soil around crem sf4 |
| 0015 | 0112 | 0111 | Bulk | Spits inside crem sf5 (bags) |
| 0016 | 0112 | 0111 | Bulk | Soil around crem sf5 |

 

| | | | | |
|---|---|---|---|---|
| 0017 | 0112 | 0111 | Bulk | Initial cleaning crem sf5 |
| 0018 | 0106 | 0105 | Bulk | Interior of small pot sf10 |
| 0019 | 0132 | 0131 | Bulk | Cremation sample north half |
| 0020 | 0132 | 0131 | Bulk | SPITS Cremation sample south half |
| 0021 | 0112 | 0111 | Bulk | Inside of small pot sf11 |
| 0022 | 0141 | 0140 | Bulk | Shallow cremation |
| 0023 | 0143 | 0142 | Bulk | Cremation |
| 0024 | 0149 | 0148 | Bulk | Henge ditch butt end (sterile?) (west) |
| 0025 | 0151 | 0150 | Bulk | Henge ditch butt end (sterile?) (east) |
| 0026 | 0184 | 0183 | Bulk | Recut fill of ring ditch - no part number |
| 0027 | 0188 | 0185 | Bulk | Fill of fire pit |
| 0028 | 0128 | 0126 | Bulk | Posthole upper fill |
| 0029 | 0127 | 0126 | Bulk | Posthole lower fill |
| 0030 | 0119 | 0117 | Bulk | Posthole upper fill |
| 0031 | 0118 | 0117 | Bulk | Posthole lower fill |
| 0032 | 0122 | 0120 | Bulk | Posthole upper fill |
| 0033 | 0121 | 0120 | Bulk | Posthole lower fill |
| 0034 | 0125 | 0123 | Bulk | Posthole upper fill |
| 0035 | 0124 | 0123 | Bulk | Posthole lower fill |
| 0036 | 0197 | 0196 | Bulk | Ditch fill (charcoal) |

 

# Appendix 3: Radiocarbon Results

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ISO/IEC 17025:2017-Accredited Testing Laboratory

## REPORT OF RADIOCARBON DATING ANALYSES

Ffion Rogers — Report Date: November 09, 2021

University of Leicester Archaeological Services (ULAS) — Material Received: November 01, 2021

| Laboratory Number | Sample Code Number | Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes | |
|---|---|---|---|
| **Beta - 608033** | **Sutton_50** | **3450 +/- 30 BP** | IRMS δ13C: -25.1 o/oo |
| | | | IRMS δ18O: -15.4 o/oo |
| | **(93.8%) 1882 - 1681 cal BC** | **(3831 - 3630 cal BP)** | |
| | **( 1.6%) 1653 - 1642 cal BC** | **(3602 - 3591 cal BP)** | |

Submitter Material: Bone (Cremated)
Pretreatment: (cremated bone carbonate) bone carbonate extraction (acid wash prior to acidification)
Analyzed Material: Cremated bone carbonate
Analysis Service: AMS-PRIORITY delivery
Percent Modern Carbon: 65.08 +/- 0.24 pMC
Fraction Modern Carbon: 0.6508 +/- 0.0024
D14C: -349.15 +/- 2.43 o/oo
Δ14C: -354.72 +/- 2.43 o/oo (1950:2021)
Measured Radiocarbon Age: (without d13C correction): 3450 +/- 30 BP
Calibration: BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP), "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB. References for calendar calibrations are cited at the bottom of calibration graph pages.



BetaCal 4.20

## Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -25.1 o/oo)

**Laboratory number** **Beta-608033**

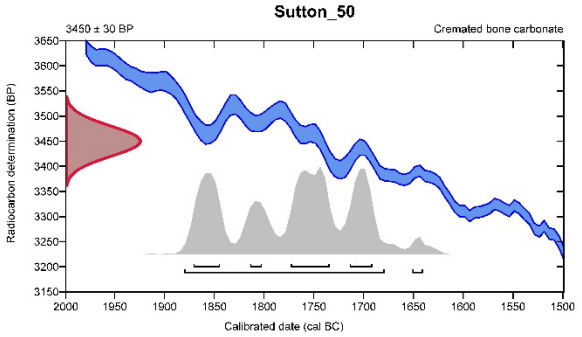
**Conventional radiocarbon age** **3450 ± 30 BP**

95.4% probability

| | | |
|---|---|---|
| (93.8%) | 1882 - 1681 cal BC | (3831 - 3630 cal BP) |
| (1.6%) | 1653 - 1642 cal BC | (3602 - 3591 cal BP) |

68.2% probability

| | | |
|---|---|---|
| (28.1%) | 1775 - 1736 cal BC | (3724 - 3685 cal BP) |
| (17.9%) | 1873 - 1846 cal BC | (3822 - 3795 cal BP) |
| (16%) | 1716 - 1693 cal BC | (3665 - 3642 cal BP) |
| (6.1%) | 1816 - 1804 cal BC | (3765 - 3753 cal BP) |




**Database used**
INTCAL20

**References**

**References to Probability Method**
Bronk Ramsey, C. (2009). Bayesian analysis of radiocarbon dates. Radiocarbon, 51(1), 337-360.

**References to Database INTCAL20**
Reimer, et al., 2020, Radiocarbon 62(4):725-757.

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## REPORT OF RADIOCARBON DATING ANALYSES

Ffion Rogers — Report Date: November 09, 2021

University of Leicester Archaeological Services (ULAS) — Material Received: November 01, 2021

| Laboratory Number | Sample Code Number | Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes | |
|---|---|---|---|
| **Beta - 608034** | **Sutton_51** | **3460 +/- 30 BP** | IRMS δ13C: -24.3 o/oo |
| | | | IRMS δ18O: -18.2 o/oo |
| | **(80.5%) 1882 - 1730 cal BC** | **(3831 - 3679 cal BP)** | |
| | **(14.9%) 1724 - 1689 cal BC** | **(3673 - 3638 cal BP)** | |

Submitter Material: Bone (Cremated)
Pretreatment: (cremated bone carbonate) bone carbonate extraction (acid wash prior to acidification)
Analyzed Material: Cremated bone carbonate
Analysis Service: AMS-PRIORITY delivery
Percent Modern Carbon: 65.00 +/- 0.24 pMC
Fraction Modern Carbon: 0.6500 +/- 0.0024
D14C: -349.96 +/- 2.43 o/oo
Δ14C: -355.52 +/- 2.43 o/oo (1950:2021)
Measured Radiocarbon Age: (without d13C correction): 3450 +/- 30 BP
Calibration: BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP). "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB. References for calendar calibrations are cited at the bottom of calibration graph pages.



BetaCal 4.20

## Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -24.3 o/oo)

**Laboratory number** **Beta-608034**

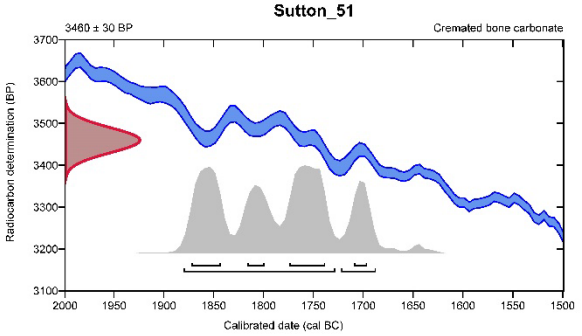
**Conventional radiocarbon age** **3460 ± 30 BP**

95.4% probability

| | | |
|---|---|---|
| (80.5%) | 1882 - 1730 cal BC | (3831 - 3679 cal BP) |
| (14.9%) | 1724 - 1689 cal BC | (3673 - 3638 cal BP) |

68.2% probability

| | | |
|---|---|---|
| (28.1%) | 1776 - 1740 cal BC | (3725 - 3689 cal BP) |
| (21.4%) | 1874 - 1845 cal BC | (3823 - 3794 cal BP) |
| (10.3%) | 1818 - 1801 cal BC | (3767 - 3750 cal BP) |
| (8.5%) | 1711 - 1698 cal BC | (3660 - 3647 cal BP) |




**Database used**
**INTCAL20**

**References**

**References to Probability Method**
Bronk Ramsey, C. (2009). Bayesian analysis of radiocarbon dates. Radiocarbon, 51(1), 337-360.

**References to Database INTCAL20**
Reimer, et al., 2020, Radiocarbon 62(4):725-757.

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## REPORT OF RADIOCARBON DATING ANALYSES

Ffion Rogers — Report Date: November 09, 2021

University of Leicester Archaeological Services (ULAS) — Material Received: November 01, 2021

| Laboratory Number | Sample Code Number | Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes | |
|---|---|---|---|
| **Beta - 608035** | **Sutton_52** | **3430 +/- 30 BP** | IRMS δ13C: -19.6 o/oo |
| | | | IRMS δ18O: -16.9 o/oo |
| **(78.1%)** | **1778 - 1626 cal BC** | **(3727 - 3575 cal BP)** | |
| **(12.6%)** | **1875 - 1843 cal BC** | **(3824 - 3792 cal BP)** | |
| **( 4.7%)** | **1821 - 1798 cal BC** | **(3770 - 3747 cal BP)** | |

Submitter Material: Bone (Cremated)
Pretreatment: (cremated bone carbonate) bone carbonate extraction (acid wash prior to acidification)
Analyzed Material: Cremated bone carbonate
Analysis Service: AMS-PRIORITY delivery
Percent Modern Carbon: 65.25 +/- 0.24 pMC
Fraction Modern Carbon: 0.6525 +/- 0.0024
D14C: -347.53 +/- 2.44 o/oo
Δ14C: -353.11 +/- 2.44 o/oo (1950:2021)
Measured Radiocarbon Age: (without d13C correction): 3340 +/- 30 BP
Calibration: BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP). "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB. References for calendar calibrations are cited at the bottom of calibration graph pages.



BetaCal 4.20

## Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -19.6 o/oo)

**Laboratory number** **Beta-608035**

**Conventional radiocarbon age** **3430 ± 30 BP**

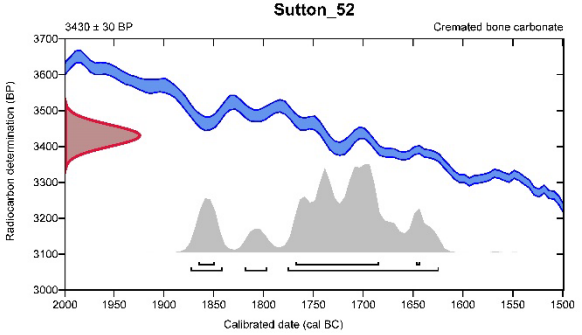
95.4% probability

| | | |
|---|---|---|
| (78.1%) | 1778 - 1626 cal BC | (3727 - 3575 cal BP) |
| (12.6%) | 1875 - 1843 cal BC | (3824 - 3792 cal BP) |
| (4.7%) | 1821 - 1798 cal BC | (3770 - 3747 cal BP) |

68.2% probability

| | | |
|---|---|---|
| (58.3%) | 1770 - 1686 cal BC | (3719 - 3635 cal BP) |
| (8.1%) | 1867 - 1851 cal BC | (3816 - 3800 cal BP) |
| (1.8%) | 1649 - 1645 cal BC | (3598 - 3594 cal BP) |

**Sutton_52**




**Database used**
**INTCAL20**

**References**
**References to Probability Method**
Bronk Ramsey, C. (2009). Bayesian analysis of radiocarbon dates. Radiocarbon, 51(1), 337-360.
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## REPORT OF RADIOCARBON DATING ANALYSES

Ffion Rogers — Report Date: November 10, 2021

University of Leicester Archaeological Services (ULAS) — Material Received: November 01, 2021

| Laboratory Number | Sample Code Number | Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes | |
|---|---|---|---|
| **Beta - 608036** | **Sutton_53** | **3420 +/- 30 BP** | IRMS δ13C: -25.6 o/oo |
| | | | IRMS δ18O: -16.4 o/oo |
| | **(85.8%) 1775 - 1623 cal BC** | **(3724 - 3572 cal BP)** | |
| | **( 8.1%) 1873 - 1846 cal BC** | **(3822 - 3795 cal BP)** | |
| | **( 1.6%) 1815 - 1804 cal BC** | **(3764 - 3753 cal BP)** | |

Submitter Material: Bone (Cremated)
Pretreatment: (cremated bone carbonate) bone carbonate extraction (acid wash prior to acidification)
Analyzed Material: Cremated bone carbonate
Analysis Service: AMS-PRIORITY delivery
Percent Modern Carbon: 65.33 +/- 0.24 pMC
Fraction Modern Carbon: 0.6533 +/- 0.0024
D14C: -346.72 +/- 2.44 o/oo
Δ14C: -352.31 +/- 2.44 o/oo (1950:2021)
Measured Radiocarbon Age: (without d13C correction): 3430 +/- 30 BP
Calibration: BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP). "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB. References for calendar calibrations are cited at the bottom of calibration graph pages.



BetaCal 4.20

## Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -22.5 o/oo)

**Laboratory number** **Beta-608037**

**Conventional radiocarbon age** **3360 ± 30 BP**

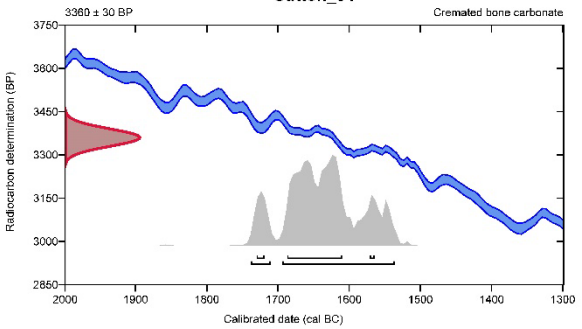
95.4% probability

| | | |
|---|---|---|
| (84.5%) | 1696 - 1538 cal BC | (3645 - 3487 cal BP) |
| (10.9%) | 1740 - 1712 cal BC | (3689 - 3661 cal BP) |

68.2% probability

| | | |
|---|---|---|
| (59.2%) | 1689 - 1612 cal BC | (3638 - 3561 cal BP) |
| (5.7%) | 1732 - 1721 cal BC | (3681 - 3670 cal BP) |
| (3.2%) | 1573 - 1566 cal BC | (3522 - 3515 cal BP) |

**Sutton_54**




**Database used**
**INTCAL20**

**References**
**References to Probability Method**
Bronk Ramsey, C. (2009). Bayesian analysis of radiocarbon dates. Radiocarbon, 51(1), 337-360.
**References to Database INTCAL20**
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## REPORT OF RADIOCARBON DATING ANALYSES

Ffion Rogers — Report Date: November 10, 2021

University of Leicester Archaeological Services (ULAS) — Material Received: November 01, 2021

| Laboratory Number | Sample Code Number | Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes | |
|---|---|---|---|
| **Beta - 608037** | **Sutton_54** | **3360 +/- 30 BP** | IRMS δ13C: -22.5 o/oo |
| | | | IRMS δ18O: -15.9 o/oo |
| | **(84.5%) 1696 - 1538 cal BC** | **(3645 - 3487 cal BP)** | |
| | **(10.9%) 1740 - 1712 cal BC** | **(3689 - 3661 cal BP)** | |

Submitter Material: Bone (Cremated)
Pretreatment: (cremated bone carbonate) bone carbonate extraction (acid wash prior to acidification)
Analyzed Material: Cremated bone carbonate
Analysis Service: AMS-PRIORITY delivery
Percent Modern Carbon: 65.82 +/- 0.25 pMC
Fraction Modern Carbon: 0.6582 +/- 0.0025
D14C: -341.82 +/- 2.46 o/oo
Δ14C: -347.45 +/- 2.46 o/oo (1950:2021)
Measured Radiocarbon Age: (without d13C correction): 3320 +/- 30 BP
Calibration: BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP), "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB. References for calendar calibrations are cited at the bottom of calibration graph pages.



BetaCal 4.20

## Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -22.5 o/oo)

**Laboratory number** **Beta-608037**

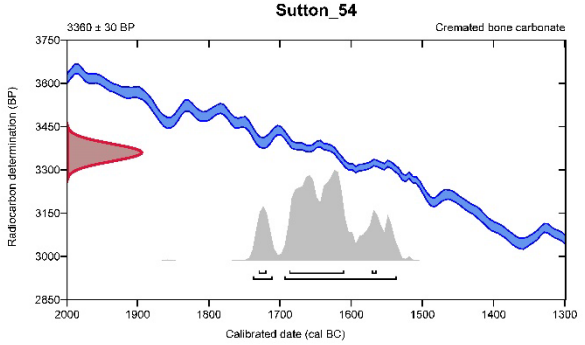
**Conventional radiocarbon age** **3360 ± 30 BP**

95.4% probability

| | | |
|---|---|---|
| (84.5%) | 1696 - 1538 cal BC | (3645 - 3487 cal BP) |
| (10.9%) | 1740 - 1712 cal BC | (3689 - 3661 cal BP) |

68.2% probability

| | | |
|---|---|---|
| (59.2%) | 1689 - 1612 cal BC | (3638 - 3561 cal BP) |
| (5.7%) | 1732 - 1721 cal BC | (3681 - 3670 cal BP) |
| (3.2%) | 1573 - 1566 cal BC | (3522 - 3515 cal BP) |




**Database used**
INTCAL20

**References**

**References to Probability Method**
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## REPORT OF RADIOCARBON DATING ANALYSES

Ffion Rogers — Report Date: November 09, 2021

University of Leicester Archaeological Services (ULAS) — Material Received: November 01, 2021

| Laboratory Number | Sample Code Number | Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes | |
|---|---|---|---|
| **Beta - 608038** | **Sutton_55** | **3300 +/- 30 BP** | IRMS δ13C: -22.9 o/oo |
| | | | IRMS δ18O: -15.5 o/oo |
| | **(95.4%)** | **1629 - 1501 cal BC** | **(3578 - 3450 cal BP)** |

Submitter Material: Bone (Cremated)
Pretreatment: (cremated bone carbonate) bone carbonate extraction (acid wash prior to acidification)
Analyzed Material: Cremated bone carbonate
Analysis Service: AMS-PRIORITY delivery
Percent Modern Carbon: 66.31 +/- 0.25 pMC
Fraction Modern Carbon: 0.6631 +/- 0.0025
D14C: -336.89 +/- 2.48 o/oo
Δ14C: -342.56 +/- 2.48 o/oo (1950:2021)
Measured Radiocarbon Age: (without d13C correction): 3270 +/- 30 BP
Calibration: BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP). "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB. References for calendar calibrations are cited at the bottom of calibration graph pages.



BetaCal 4.20

## Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -22.9 o/oo)

**Laboratory number** **Beta-608038**

**Conventional radiocarbon age** **3300 ± 30 BP**

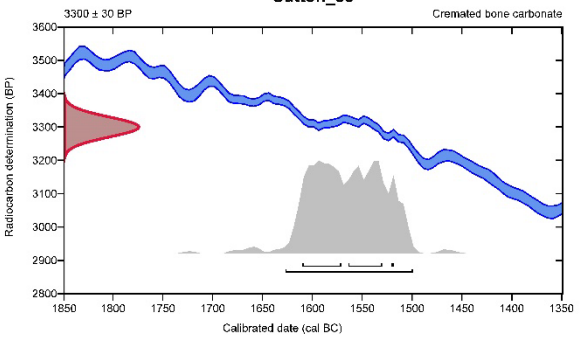
95.4% probability

| | | |
|---|---|---|
| (95.4%) | 1629 - 1501 cal BC | (3578 - 3450 cal BP) |

68.2% probability

| | | |
|---|---|---|
| (35.6%) | 1612 - 1573 cal BC | (3561 - 3522 cal BP) |
| (30.6%) | 1566 - 1532 cal BC | (3515 - 3481 cal BP) |
| (2%) | 1523 - 1520 cal BC | (3472 - 3469 cal BP) |

**Sutton_55**




**Database used**
**INTCAL20**

**References**

**References to Probability Method**
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## Appendix 4: Summary of Skeletal Elements

Table 9: Summary of identifiable elements in the cremation burials by spit

| | | | Identified Bone | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Skull | | Axial | | Upper Limb | | Lower Limb | | Long bones | | Total ID | |
| Crem | Cut | Fill | g | % | g | % | g | % | g | % | g | % | g | % |
| **01** | **[100]** | **(101)** | **165.3** | **21.9** | **289.0** | **51.7** | **44.6** | **5.9** | **26.9** | **3.6** | **126.9** | **16.9** | **752.7** | **50.5** |
| 01 | <7> | Spit 1 | 49.9 | **22.2** | 104.3 | **46.4** | 5.4 | **2.4** | 15 | **6.7** | 50.2 | **22.3** | 224.8 | **59.2** |
| 01 | <7> | Spit 2 | 47.3 | **20.8** | 131.9 | **57.9** | 14.4 | **6.3** | 0.4 | **0.2** | 33.8 | **14.8** | 227.8 | **49.0** |
| 01 | <7> | Spit 3 | 19.0 | **16.4** | 68.1 | **58.7** | 4.5 | **3.9** | 3.7 | **3.2** | 20.7 | **17.4** | 116.0 | **56.5** |
| 01 | <7> | Spit 4 | 19.1 | **21.9** | 43.9 | **50.3** | 8.9 | **10.2** | 7.8 | **8.9** | 7.6 | **8.7** | 87.3 | **46.3** |
| 01 | <7> | Spit 5 | 10.9 | **22.6** | 21.2 | **43.8** | 10.0 | **20.7** | 0.0 | **0.0** | 6.2 | **12.9** | 48.2 | **42.1** |
| 01 | <7> | Spit 6 | 2.0 | **23.8** | 3.8 | **45.3** | 0.0 | **0.0** | 0.0 | **0.0** | 2.6 | **30.9** | 8.4 | **37.7** |
| 01 | <8> | Part 1 | 17.1 | **43.3** | 15.2 | **38.5** | 1.4 | **3.5** | 0.0 | **0.0** | 5.8 | **14.7** | 39.5 | **34.7** |
| 01 | <8> | Part 2 | 0.0 | **0.0** | 0.7 | **100.0** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | **0.0** | 0.7 | 63.6 |
| **03** | **[105]** | **(106)** | **344.0** | **19.6** | **828.1** | **41.1** | **109.2** | **6.2** | **117.8** | **10.1** | **298.5** | **16.9** | **1757.6** | **52.2** |
| 03 | <9> | Spit 1 | 48.7 | **39.6** | 57.2 | **46.5** | 6.4 | **5.2** | 0.0 | **0.0** | 10.6 | **8.6** | 122.9 | **45.6** |
| 03 | <9> | Spit 2 | 31.7 | **38.6** | 35.5 | **43.2** | 7.6 | **9.3** | 1.7 | **2.1** | 5.6 | **6.8** | 82.1 | **42.3** |
| 03 | <9> | Spit 3 | 28.9 | **27.9** | 59.9 | **57.8** | 7.9 | **7.6** | 0.0 | **0.0** | 6.9 | **6.7** | 103.6 | **46.1** |
| 03 | <9> | Spit 4 | 47.8 | **27.6** | 88.3 | **51.0** | 18.1 | **10.5** | 7.1 | **4.1** | 11.8 | **6.8** | 173.1 | **53.7** |
| 03 | <9> | Spit 5 | 27.4 | **22.4** | 64.9 | **53.1** | 7.4 | **6.1** | 5.1 | **4.2** | 17.4 | **14.2** | 122.2 | **47.4** |
| 03 | <9> | Spit 6 | 5.1 | **30.7** | 11.5 | **69.3** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | **0.0** | 16.6 | **44.1** |
| 03 | <10> | Part 1 | 7.1 | **25.4** | 17.7 | **62.4** | 0.0 | **0.0** | 0.0 | **0.0** | 3.1 | **11.1** | 27.9 | **40.3** |
| 03 | <10> | Part 2 | 1.1 | **100.0** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | **0.0** | 1.1 | **19.6** |
| 03 | - | (132) | 8.4 | **16.7** | 31.7 | **63.0** | 0.0 | **0.0** | 7.3 | **14.5** | 12.7 | **25.2** | 50.3 | **98.2** |
| **04** | **[109]** | **(110)** | **284.2** | **37.2** | **324.0** | **42.4** | **26.7** | **3.5** | **25.5** | **3.3** | **103.5** | **13.5** | **764.2** | **52.9** |
| 04 | <14> | Part 1 | 0.6 | **100.0** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | **0.0** | 0.6 | **13.0** |
| 04 | <14> | Part 2 | 8.8 | **42.1** | 12.1 | **57.9** | 0.0 | **0.0** | 0.0 | **0.0** | 0.5 | **100.0** | 20.9 | **40.4** |
| 04 | <14> | Part 3 | 1.3 | **100.0** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | **0.0** | 1.3 | **15.5** |
| 04 | <13> | Spit 1 | 14.4 | **42.9** | 9.2 | **27.4** | 0.9 | **2.7** | 0.0 | **0.0** | 9.1 | **27.1** | 33.6 | **63.0** |
| 04 | <13> | Spit 2 | 22.5 | **40.4** | 24.3 | **43.6** | 0.0 | **0.0** | 5.0 | **8.9** | 3.9 | **7.0** | 55.7 | **55.1** |
| 04 | <13> | Spit 3 | 14.2 | **42.8** | 14.8 | **44.6** | 0.0 | **0.0** | 3.5 | **10.5** | 0.7 | **2.1** | 33.2 | **53.9** |
| 04 | <13> | Spit 4 | 9.9 | **33.2** | 17.5 | **58.7** | 0.0 | **0.0** | 0.0 | **0.0** | 2.4 | **8.1** | 29.8 | **53.5** |
| 04 | <13> | Spit 5 | 12.2 | **35.7** | 12.6 | **40.1** | 1.2 | **3.8** | 0.0 | **0.0** | 6.4 | **20.4** | 31.4 | **53.9** |
| 04 | <13> | Spit 6 | 16.8 | **37.3** | 23.7 | **52.5** | 0.0 | **0.0** | 3.3 | **7.3** | 1.3 | **2.9** | 45.1 | **53.7** |
| 04 | <13> | Spit 7 | 27.8 | **38.0** | 22.2 | **30.4** | 8.0 | **10.9** | 0.0 | **0.0** | 15.1 | **20.7** | 73.1 | **54.8** |
| 04 | <13> | Spit 8 | 35.4 | **36.9** | 47.8 | **49.9** | 2.3 | **2.4** | 0.0 | **0.0** | 10.2 | **10.7** | 95.7 | **61.9** |
| 04 | <13> | Spit 9 | 39 | **39.9** | 32.3 | **33.0** | 11.4 | **11.7** | 2.4 | **2.5** | 12.7 | **12.9** | 97.8 | **49.5** |
| 04 | <13> | Spit 10 | 34.2 | **39.9** | 28.3 | **32.9** | 2.9 | **3.4** | 0.0 | **0.0** | 20.1 | **23.4** | 85.8 | **52.0** |
| 04 | <13> | Spit 11 | 48.1 | **30.0** | 79.2 | **49.4** | 0.0 | **0.0** | 11.3 | **7.1** | 21.6 | **13.5** | 160.2 | **51.1** |
| **05** | **[111]** | **(112)** | **116.8** | **19.2** | **316.8** | **52.2** | **7.6** | **1.3** | **39.9** | **6.6** | **125.9** | **20.7** | **607.0** | **49.9** |

 

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05 | <15> | Spit 1 | 42.8 | **24.9** | 98.9 | **57.7** | 0.0 | **0.0** | 14.6 | **8.5** | 15.1 | **8.8** | 171.4 | **59.2** |
| 05 | <15> | Spit 2 | 11.5 | **17.1** | 41.2 | **61.8** | 0.0 | **0.0** | 0.0 | **0.0** | 13.5 | **20.1** | 67.2 | **45.0** |
| 05 | <15> | Spit 3 | 12.3 | **12.1** | 45.2 | **44.4** | 7.4 | **7.3** | 23.6 | **23.2** | 13.2 | **12.9** | 101.7 | **60.3** |
| 05 | <15> | Spit 4 | 13.9 | **16.5** | 50.9 | **60.4** | 0.0 | **0.0** | 1.5 | **2.0** | 17.6 | **20.9** | 84.3 | **43.8** |
| 05 | <16> | Spit 1 | 10 | **15.5** | 32.2 | **54.7** | 0.2 | **0.3** | 0.0 | **0.0** | 19.1 | **29.8** | 64.3 | **37.9** |
| 05 | <16> | Spit 2 | 8.8 | **19.4** | 22.1 | **48.7** | 0.0 | **0.0** | 0.0 | **0.0** | 14.5 | **31.9** | 45.4 | **48.5** |
| 05 | <17> | - | 17.2 | **23.8** | 22.3 | **30.8** | 0.0 | **0.0** | 0.0 | **0.0** | 32.9 | **45.5** | 72.4 | **47.5** |
| 05 | <21> | - | 0.3 | **100.0** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | **0.0** | 0.3 | **50.0** |
| **07** | **[004]** | **(107)** | **49.5** | **8.3** | **150.4** | **25.2** | **89. 9** | **15.0** | **58.5** | **9.8** | **249.1** | **41.7** | **597.6** | **45.2** |
| 07 | - | (107) | 6.5 | **100** | 0 | **0** | 0 | **0** | 0 | **0** | 0 | **0** | 6.5 | **26.1** |
| 07 | 1 of 8 | (108) | 1 | **0.9** | 13.8 | **13.7** | 10.9 | **10.8** | 0.5 | **0.5** | 74.3 | **73.9** | 100.5 | **43.2** |
| 07 | 2 of 8 | (108) | 0 | **0** | 9 | **0** | 0 | **0** | 0 | **0** | 0.5 | **100** | 0.5 | **7.5** |
| 07 | 3 of 8 | (108) | 0 | **0** | 23.9 | **23.0** | 2.7 | **16.2** | 0 | **0** | 10 | **59.9** | 16.7 | **37.0** |
| 07 | 4 of 8 | (108) | 1.2 | **3.8** | 38.7 | **38.7** | 0 | **0** | 0 | **0** | 18 | **57.5** | 31.3 | **28.7** |
| 07 | 5 of 8 | (108) | 1.6 | **1.6** | 25.9 | **25.9** | 18.9 | **19.0** | 2 | **2.0** | 51 | **51.4** | 99.3 | **43.5** |
| 07 | 6 of 8 | (108) | 28.3 | **52.1** | 22.8 | **22.8** | 0 | **0** | 0 | **0** | 13.6 | **25.0** | 54.3 | **43.0** |
| 07 | 7 of 8 | (108) | 2.4 | **2.6** | 28.3 | **28.3** | 8.3 | **8.9** | 20.8 | **22.5** | 34.7 | **37.6** | 92.3 | **51.2** |
| 07 | 8 of 8 | (108) | 8.5 | **4.3** | 28.6 | **28.7** | 49 | **24.9** | 35.5 | **18.1** | 47 | **23.9** | 196.2 | **53.2** |
| **09** | **[131]** | **(132)** | **204.8** | **17.4** | **400.4** | **34.1** | **126.2** | **10.7** | **142.0** | **12.1** | **302.4** | **25.7** | **1175.8** | **49.0** |
| 09 | <19> | - | 105.1 | **21.7** | 170.8 | **35.3** | 73 | **15.1** | 55 | **11.4** | 79.9 | **16.5** | 483.8 | **52.1** |
| 09 | <20> | Spit1 | 17.5 | **12.7** | 44.2 | **32.1** | 11.6 | **8.4** | 12.9 | **9.4** | 51.4 | **37.4** | 137.6 | **34.8** |
| 09 | <20> | Spit2 | 82.2 | **14.8** | 185.4 | **33.4** | 41.6 | **7.5** | 74.1 | **13.4** | 171.1 | **30.9** | 554.4 | **51.7** |

 

# Appendix 5: Skeleton Diagrams

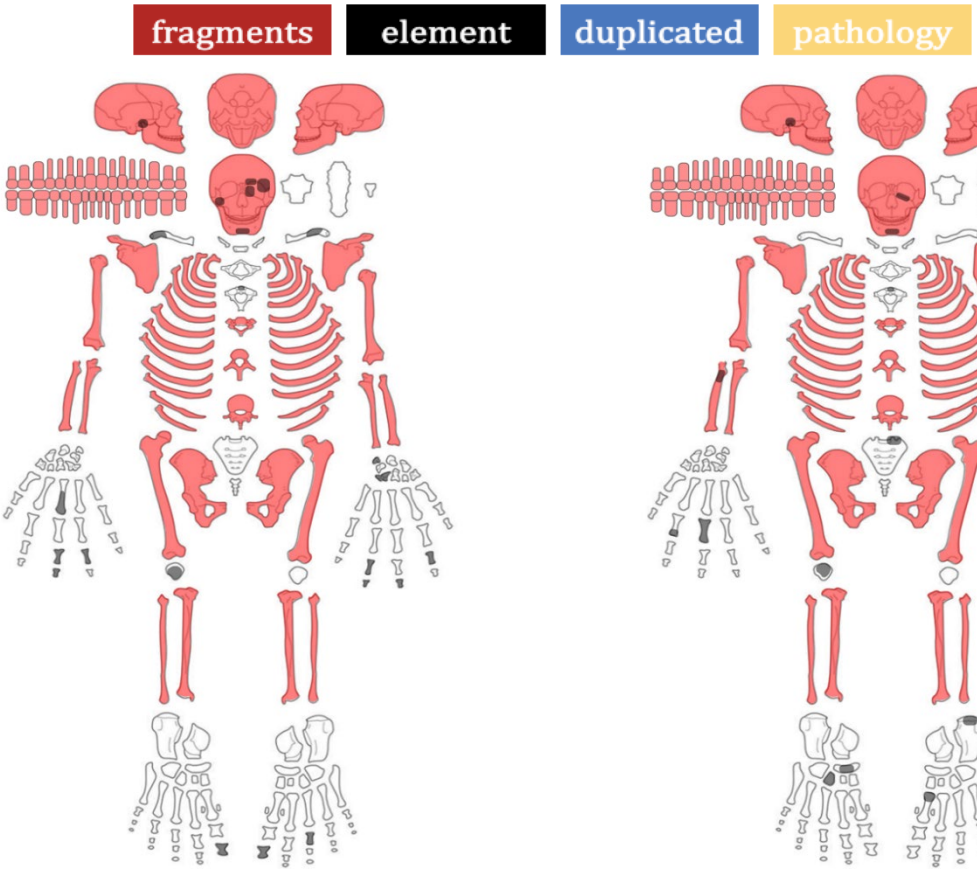


Figure 58: Cremation 1

Figure 59: Cremation 2 – Adult

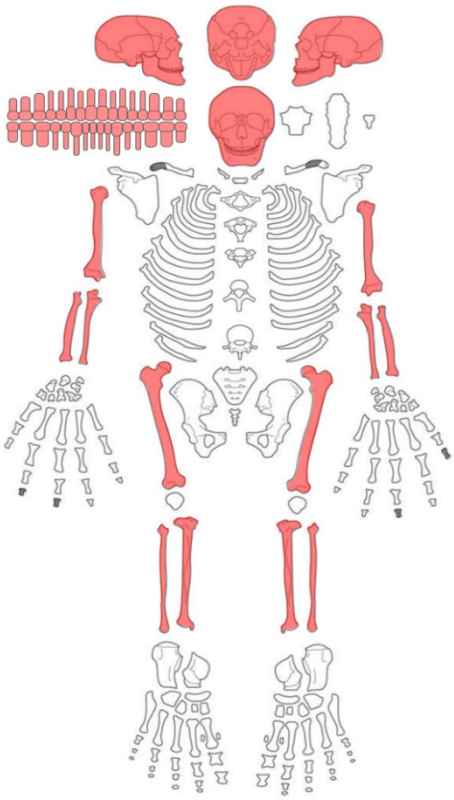

Figure 59: Cremation 2 – Non-Adult

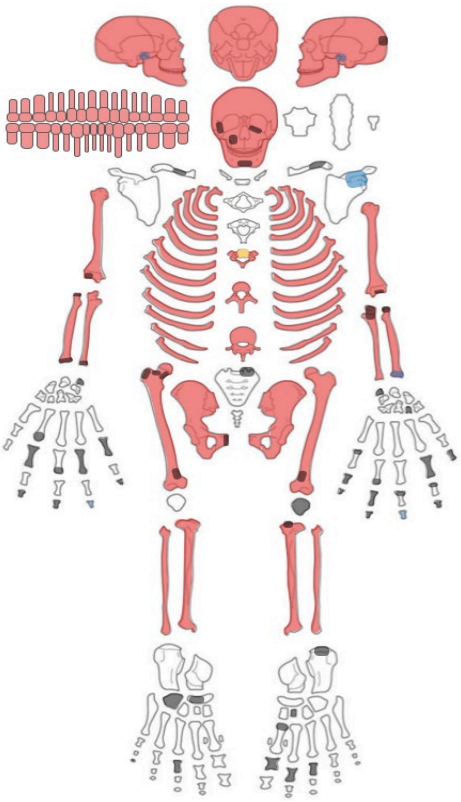

Figure 60: Cremation 3

 

fragments element duplicated pathology

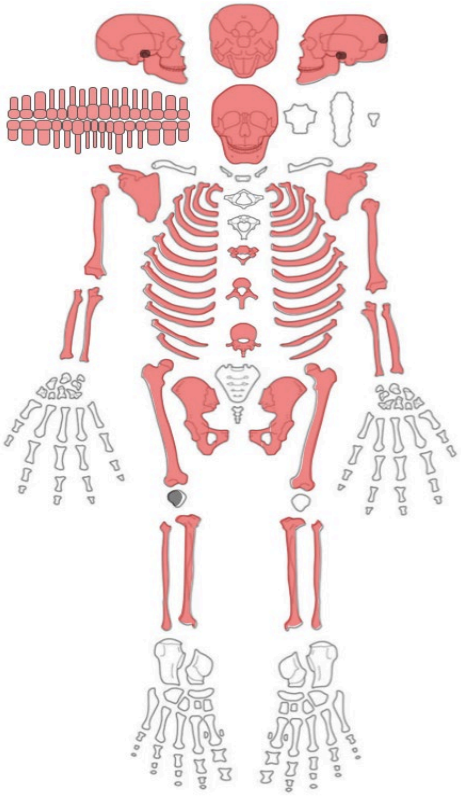

Figure 61: Cremation 4 – Adult

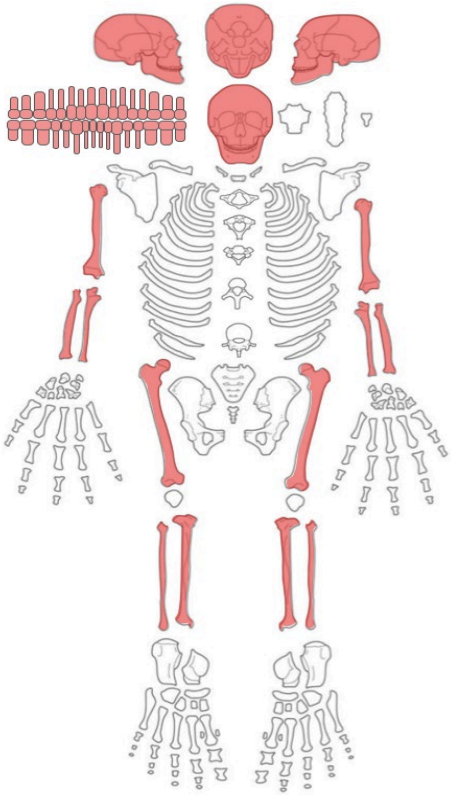

Figure 62: Cremation 4 – Non-Adult

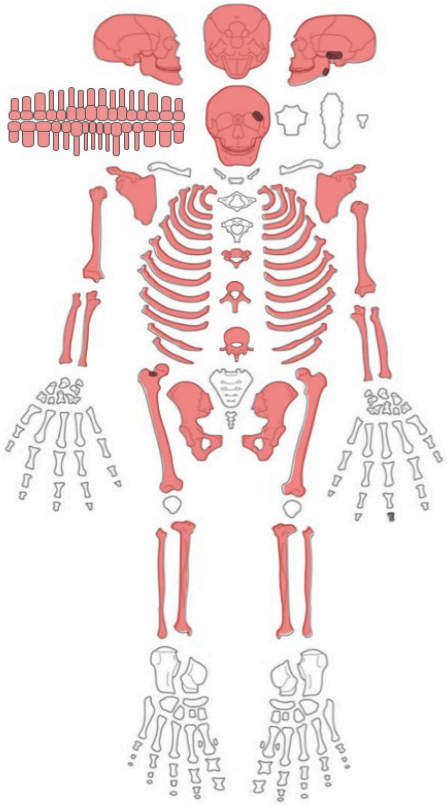

Figure 63: Cremation 5

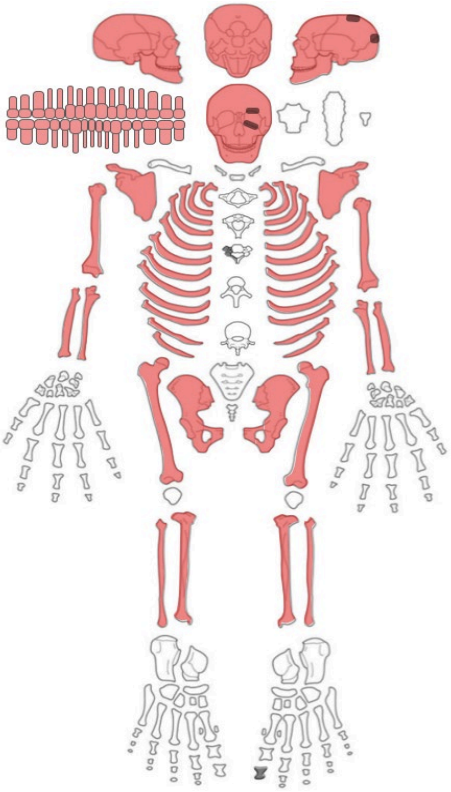

Figure 64: Cremation 6

fragments element duplicated pathology

 

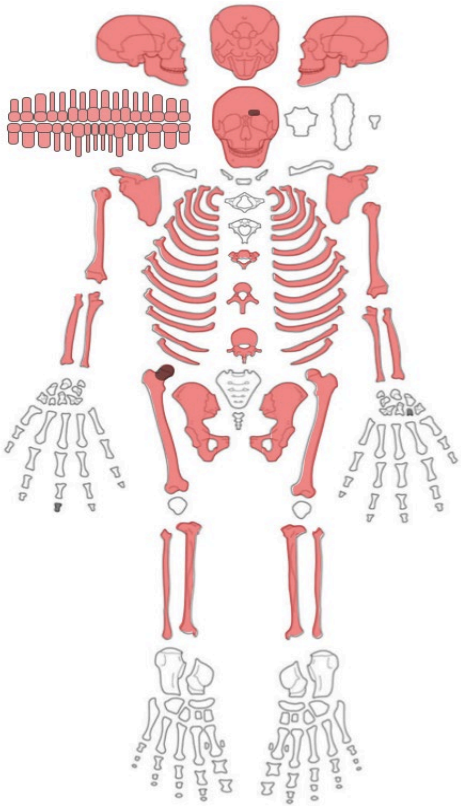

Figure 65: Cremation 7

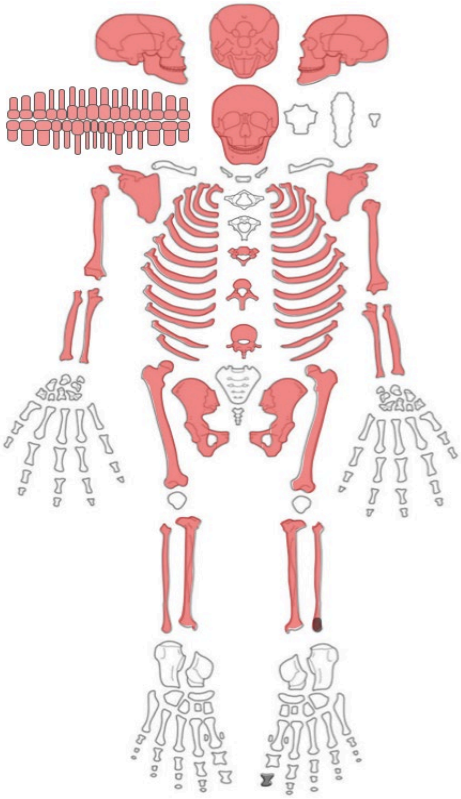

Figure 66: Cremation 8

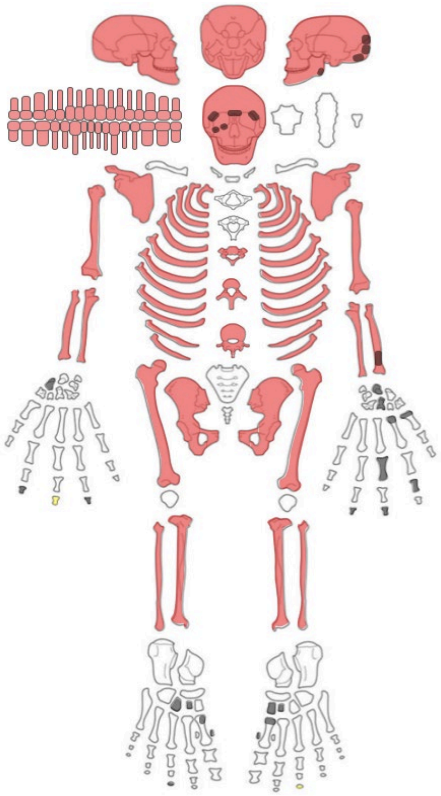

Figure 67: Cremation 9

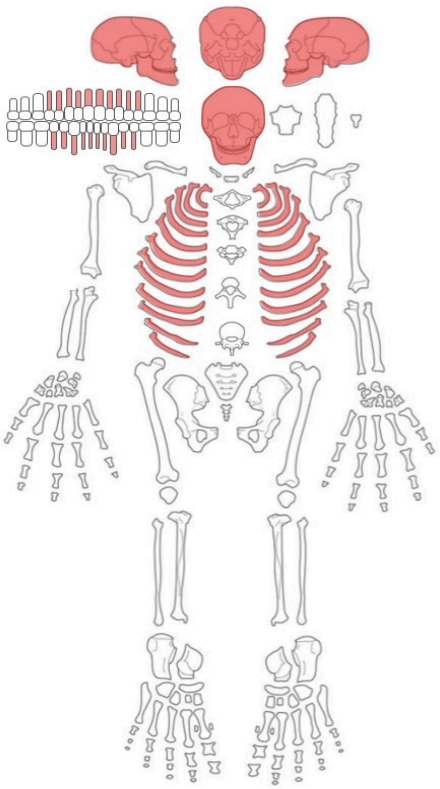

Figure 69: Cremation 10

fragments element duplicated pathology

 

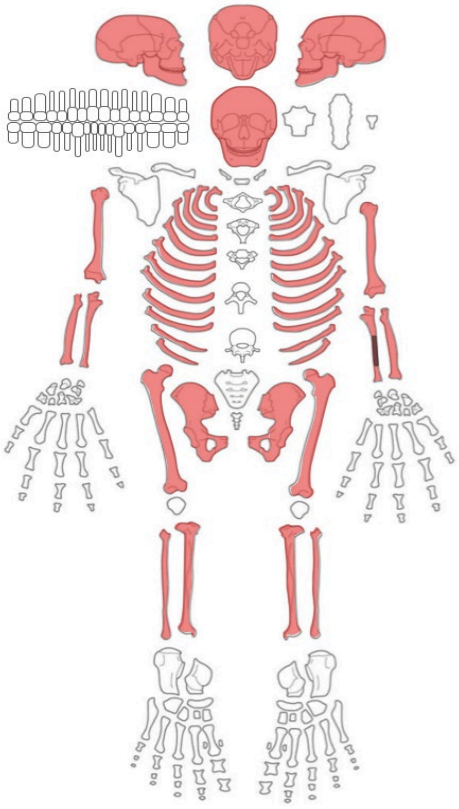

Figure 68: Cremation 11

 

## Appendix 6: Cremated Bone and Artefactual Photographs

Figure 69: Cremation burial 9 distal hand phalanx with early signs of joint disease.

Figure 70: Cremation burial 9 distal foot phalanx with early signs of joint disease.

Figure 71: Cremation burial 9 with possible lipping and remodelling of a thoracic vertebra, signs of early joint disease.

Figure 72: Cremation burial 3 with a likely pathologically altered but partial vertebrae. The vertebra looks to have compressed and remodelled, but the cause of the compression is unclear due to the fragmentary nature of the skeletal element.

 


Figure 73: Worked flint from Cremation burial 1.


Figure 74: Worked flint from Cremation burial 2.


Figure 75: Worked flint from Cremation burial 3.

 

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